NISTIR 4899

ENERGY RELATED INVENTIONS PROGRAM A JOINT PROGRAM OF THE DEPARTMENT OF ENERGY AND THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY STATUS REPORT FOR RECOMMENDATIONS 301 THROUGH 563

U.S. DEPARTMENT OF COMMERCE
Technology Administration
National Institute of Standards
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Office of Technology Evaluation
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Gaithersburg, MD 20899

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U.S. DEPARTMENT OF COMMERCE
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TECHNOLOGY ADMINISTRATION
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NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
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PREFACE

The Energy-Related Inventions Program was established in 1975. Since its inception over 29,000 inventions have been evaluated. As of the printing of this report 563 have been recommended to the Department of Energy. This report supercedes NISTIR 4534 and summarizes the status of recommended inventions 301 through 563. A companion report (NISTIR 4898) summarizes recommended inventions 1 through 300.

Section 1 Introduction

1.0 BACKGROUND

The Federal Nonnuclear Energy Research and Development Act of 1974 (Public Law 93-577) established a comprehensive national program, called the Energy-Related Inventions Program (ERIP), for research and development of all potentially useful energy sources and energy use technologies. The U.S. Department of Energy (DOE) conducts this program.

An important part of ERIP is to encourage innovation in the development of energy technology. To help DOE carry out this responsibility, the Act directs the National Institute of Standards and Technology (NIST) to evaluate all promising nonnuclear energy-related inventions. NIST is to give particular attention to those submitted by independent inventors and small companies. NIST has established the Office of Technology Evaluation and Assessment (OTEA) (formerly the Office of Energy Related Inventions (OERI)) to evaluate proposals.

1.1 OVERVIEW OF PROGRAM OPERATION

OTEA reviews and processes all evaluation requests. Evaluation is based on three general criteria: technical feasibility, potential energy-conservation or energy-supply impact, and commercial feasibility. All inventors are informed of the results of the evaluation of their submitted inventions. An invention which meets the NIST criteria for recommendation is forwarded to DOE for possible support action.

Inventions forwarded by the OTEA to DOE are recommended as "technically valid and worthy of consideration for Government support" under the ERIP Program. OTEA furnishes a report with the recommendation to explain in detail the advantages of the technology, as well as any qualifications of the recommendations, such as required testing. OTEA also provides guidance to DOE and the inventor for deciding on the nature and extent of support to be given.

Inventions may be recommended by OTEA at any stage of their development, whether conceptual, at the laboratory testing stage, or even in production or the process of being marketed. The level of support to be furnished depends largely on the amount required to move invention development forward or to resolve the question of whether development should continue. The latter question is of particular interest if the NIST evaluation is based on data furnished by the inventor and the recommendation is qualified by an expressed need for data validation under controlled testing conditions.

DOE generally accepts the NIST recommendation and provides appropriate support. However, there have been and will continue to be cases in which DOE cannot or will not provide support. DOE attempts to reach agreement with the inventor on the nature and extent of support within constraints. Constraints include the capabilities of the inventor and/or the company involved, possible duplication

of prior or on-going DOE-funded efforts, availability of private sector support, and DOE funding limitations.

It should be noted that DOE performs no technical evaluation beyond that done by NIST. DOE does reserve the right to question and reject the NIST recommendation and to restrict support due to policy and/or funding considerations.

Each case is decided on the basis of its own merit and need. If DOE decides to support the invention, support can include: a grant, a contract, or direct assistance of a technical or business nature. DOE's objective is that, as a result of this support, the inventor should be in a position to do one or more of the following:

- Compete effectively in obtaining contracts from other sources (including existing government programs) to permit further development of the invention.

- Assemble, with confidence of success, the people and capital necessary to produce and market products derived from the invention through a business enterprise in which the inventor is a major participant.

- Negotiate arrangements with an existing company that will develop the inventor's product for commercialization.

1.2 EVALUATION PROCEDURES (NIST)

There are three principal steps in the evaluation process used by the NIST Office of Technology Evaluation and Assessment. In the first step, Disclosure Review and Analysis, invention disclosures are either accepted or rejected for evaluation, depending upon whether or not the invention is within program scope and is a sufficiently well-prepared disclosure to enable evaluation. If accepted, a formal evaluation is initiated.

The second step, First-Stage Evaluation, is a technical screening in which brief opinions are obtained from OTEA staff evaluators, other government scientists or engineers, or consultants or contractors. If the invention is rated as "promising" in this First-Stage, Second-Stage Evaluation is initiated. ("Promising" means the invention seems to be technically feasible, has significant energy conservation or supply potential, and is deemed to be economically and commercially practical.)

In Second-Stage Evaluation, an analysis is conducted in greater depth, resulting in a formal report. If Second-Stage Evaluation confirms the finding of "promising," the disclosure and evaluation results are forwarded to DOE with a recommendation for Government support.

Throughout the process, the inventor is kept informed of the status of the evaluation. The inventor is sent a letter notifying him of the results of First- or Second-Stage evaluations as they are completed. If Second-Stage Evaluation has been conducted, a copy of the Second-Stage invention review is also sent to

the inventor. Statistics on NIST evaluations since the inception of the program are presented in Section 2.

1.3 SUPPORT PROCEDURES (DOE)

Upon receipt of a recommendation from NIST, DOE contacts the inventor, provides details of the support procedures, and requests a statement as to the nature and extent of support desired, generally in the form of a proposal or grant application. The DOE invention coordinator works with the inventor in proposal preparation to ensure effective review of support options and to develop a satisfactory statement of work and support plan. DOE then decides whether or not to provide support as well as the nature and extent of support.

If financial support is to be provided, DOE initiates procurement action, monitors progress of the procurement action, and helps to expedite processing of the paperwork until the award is made. As of December 1991 DOE has awarded a total of $29.6M to 394 of the inventions recommended by NIST. During the period that financial or other support is provided, the DOE invention coordinator monitors and assists the inventor's efforts, maintaining a status report for use by both DOE and NIST.

1.4 SUPPLEMENTARY ACTIVITIES

1.4.1 National Innovation Workshops (NIW)

This project was initiated in early 1980 as a means of informing inventors about the Program and increasing the percentage of higher-quality inventions submitted to OTEA. Another objective of the Workshop series is to assist inventors (thus to stimulate innovation in general) by putting them in touch with their community resources and by providing practical instruction in the various elements of the innovation process.

Workshops are conducted in a standard format as two-day seminars. On each day a plenary session and a luncheon session feature national-level speakers on invention and innovation. Three 1-1/2 hour periods each day then are designated for the conduct of 8 to 10 concurrent Workshop sessions.

The Workshops are organized as regional activities by a committee composed of representatives from such regional organizations as universities, venture or other financing groups, private sector institutions concerned with technological innovation, state and local government agencies, patent law associations, etc. Federal involvement is restricted to providing guidance and financial support. The federal role is catalytic in nature in that Workshop feasibility is demonstrated with an expectation that the regional committee will continue to hold Workshops and similar activities in the future without federal involvement.

Sixty four NIWs have been held to date, including five in calendar year 1991. Six NIWs are scheduled for calendar year 1992. Attendance has averaged about 250 inventors and small businesses.

1.4.2 Commercialization Planning Workshops (CPW)

This series of workshops, managed entirely by DOE, was initiated in June 1984 as a mechanism for providing direct and immediate assistance to inventors whose inventions have been recommended by NIST. Each workshop brings together a group of 10-14 such inventors for a three-day meeting with a "faculty" of six workshop leaders who are selected by DOE on the basis of their expertise in at least one aspect of innovation (business planning, marketing, finance, licensing, etc.). Workshop attendance is limited to inventors invited by DOE and the faculty.

The three-day meeting is devised to provide a concentrated educational/informative experience for each recommended inventor; travel and other meeting expenses are paid for by the Government. The objective in each case is for the recommended inventor to develop, with the aid of the faculty, a detailed plan for commercialization of his invention. The plan then serves as the principal basis for the DOE office to conduct its initial review of the recommendation (Analysis).

1.5 NATURE OF THIS REPORT

This report comprises an introductory section (Section 1), followed by two report sections (Sections 2 and 3), a cross reference listings section (Section 4), and two appendices.

Section 2 presents progress reports of ERIP activities. These reports summarize the results of invention evaluations by state, technical category, and invention stage of development.

Section 3 is the main body of the report and contains a brief description of each of the invention, a summary of its status, the identity of the DOE staff coordinator for that invention, the date the invention was submitted to NIST and the date recommended to DOE. The name and address of the person to contact regarding the invention are also included whenever they are available, as are the patent numbers and DOE grant numbers. The inventions are presented in chronological order of their recommendation by NIST.

Section 4 of the report contains four cross reference listings for use in finding specific recommended inventions. The first listing is ordered by inventor name, the second listing is ordered by contact name, and the third by invention classification, the fourth listing is ordered by home state of the inventor.

The appendices at the end of the report include: a listing of the detailed invention classifications (Appendix A) and a listing of the technical categories (Appendix B). Each invention received for evaluation is assigned an invention classification. The invention classifications are grouped to form the technical categories.

SECTION 2 ERIP PROGRESS REPORTS

2.0 Introduction

This section presents reports of the results of the ERIP evaluations through December 31, 1991. As described in section 1, each evaluation is conducted in several stages. The following reports summarize the results of the evaluations across each of the stages. Table 2-1 presents the distribution of invention evaluation requests across stages by State. Table 2-2 presents the distribution of invention evaluation requests across stages by Technical Category. Each evaluation request received is classified into one of 184 technical areas for evaluation purposes. These areas are combined to form nine technical categories for reporting purposes. Appendix A lists the technical area codes and titles; Appendix B lists technical categories and associated technical area codes. Table 2-3 presents the distribution of invention evaluation requests across stages by stage of development at the time of submission.

TABLE 2-1

EVALUATION PROGRESS REPORT BY STATE
(AS OF DEC 31, 1991)

	EVALUATION REQUESTS RECEIVED	COMPLETED DISCLOSURE REVIEW	ACCEPTED FOR FIRST STAGE	COMPLETED FIRST STAGE	ACCEPTED FOR SECOND STAGE	COMPLETED SECOND STAGE	RECOMMENDED
ALABAMA	299	299	132	131	7	7	3
ALASKA	73	73	34	33	5	4	3
ARIZONA	476	476	283	278	32	32	7
ARKANSAS	177	177	80	77	11	11	4
CALIFORNIA	3681	3681	1849	1812	206	198	68
COLORADO	599	599	368	359	44	43	7
CONNECTICUT	519	519	291	283	27	27	14
DELAWARE	65	65	44	44	7	7	4
DISTRICT OF COLUMBIA	122	122	63	60	9	9	0
FLORIDA	1815	1815	815	799	51	50	19
GEORGIA	369	369	166	162	20	19	7
HAWAII	110	110	59	58	4	4	3
IDAHO	124	124	72	71	9	9	3
ILLINOIS	1005	1005	550	540	61	59	17
INDIANA	460	460	212	209	19	18	7
IOWA	261	261	118	115	7	6	5
KANSAS	291	291	129	129	6	6	2
KENTUCKY	272	272	111	109	12	11	7
LOUISIANA	332	332	161	156	15	15	8
MAINE	165	165	82	81	10	10	5
MARYLAND	756	756	445	441	53	50	21
MASSACHUSETTS	1015	1015	524	517	69	68	26
MICHIGAN	938	938	479	472	30	29	11
MINNESOTA	481	481	257	256	23	23	11
MISSISSIPPI	188	188	47	45	6	4	2
MISSOURI	639	639	361	352	44	44	21
MONTANA	107	107	48	47	6	6	3
NEBRASKA	148	148	72	71	9	9	6
NEVADA	162	162	77	76	5	3	0
NEW HAMPSHIRE	145	145	83	81	15	15	5
NEW JERSEY	1043	1043	519	514	60	59	21
NEW MEXICO	223	223	119	117	16	15	6
NEW YORK	2114	2114	1132	1118	97	94	37
NORTH CAROLINA	430	430	208	205	11	11	5
NORTH DAKOTA	72	72	32	31	3	3	3
OHIO	917	917	443	433	49	48	21
OKLAHOMA	403	403	209	207	33	33	16
OREGON	540	540	258	255	19	18	7
PENNSYLVANIA	1181	1181	625	612	84	80	35
RHODE ISLAND	80	80	33	33	4	4	1
SOUTH CAROLINA	215	215	102	100	11	11	5
SOUTH DAKOTA	60	60	31	29	4	4	2
TENNESSEE	425	425	192	189	14	14	5
TEXAS	1496	1496	752	730	86	79	40
UTAH	244	244	128	123	21	20	13
VERMONT	81	81	54	54	8	8	2
VIRGINIA	582	582	320	298	39	35	12
WASHINGTON	838	838	334	333	28	28	15
WEST VIRGINIA	115	115	48	47	2	2	1
WISCONSIN	468	468	209	209	16	16	7
WYOMING	101	101	40	38	1	1	1
TERRITORIES	59	59	23	23	2	2	1
FOREIGN COUNTRIES	1373	1373	551	542	44	43	8

TABLE 2-2

EVALUATION PROGRESS REPORT BY INVENTION CATEGORY
(AS OF DECMBER 31, 1991)

CLASSIFICATION	EVALUATION REQUESTS RECEIVED	COMPLETED FIRST STAGE	COMPLETED SECOND STAGE	RECOMMDED	% OF TOTAL EXPECTED TO BE RECOMMENDED**
FOSSIL FUEL PRODUCTION	665	503	140	67	10.1
DIRECT SOLAR	2745	1487	95	23	0.8
OTHER NATURAL SOURCES	3570	1482	98	25	0.7
COMBUSTION ENGINES & COMPONENTS	2912	1808	108	24	0.8
TRANSPORTATION SYSTEMS, VEHICLES & COMPONENTS ...	2421	1374	106	43	1.8
BUILDINGS, STRUCTURES & COMPONENTS	4623	3338	263	104	2.2
INDUSTRIAL PROCESSES	2135	1572	398	191	8.9
MISCELLANEOUS	4124	2305	215	85	2.1
OUT OF SCOPE & UNCLASSIFIABLE	5659	235	1	1	0.0
TOTALS	28854	14104	1424	563	2.0

**FOR EXAMPLE: FOSSIL FUEL PRODUCTION $\frac{503}{665} \times \frac{140}{503} \times \frac{67}{140} \times 100 = 10.1\%$

TABLE 2-3

PROGRESS REPORT BY INVENTION STAGE OF DEVELOPMENT
(As of 31 December, 1991)

CLASSIFICATION	EVALUATION REQUESTS RECEIVED	COMPLETED FIRST STAGE	COMPLETED SECOND STAGE	RECOMMDED	% OF TOTAL EXPECTED TO BE RECOMMENDED**
Concept Definition	4274	1443	75	27	0.6
Concept Development	5065	2312	173	65	1.3
Laboratory Test	710	416	77	34	4.8
Engineering Design	1794	1003	133	56	3.1
Working Model	2517	1539	135	53	2.1
Prototype Development	1274	730	86	31	2.4
Prototype Testing	1858	1222	155	62	3.3
Production Engineering	391	266	36	16	4.1
Limited Production	972	749	135	63	6.5
Production & Marketing	745	418	46	23	3.1
Unclassified	9254	4277	422	133	1.4
Totals	28854	14375	1473	563	2.0

**FOR EXAMPLE: Concept Definition $\frac{1443}{4274} \times \frac{75}{1443} \times \frac{27}{75} \times 100 = \%\ 0.6$

Note: Percentages shown reflect only those inventions assigned a stage of development.

* Stage of Development assignment did not begin until 1978.
Stage of Development assignments shown in Section 3 for inventions not classified were assigned at the time of recommendation.

SECTION 3

STATUS OF RECOMMENDED INVENTIONS

3.0 Introduction

This section contains an index and brief descriptions of inventions 301 through 563 recommended by the Office of Technology Evaluation and Assessment at NIST to the Energy- Related Inventions Program office at DOE. Each description includes a brief description of the invention, a summary of the invention status, significant dates, status, and summary of development. The name of the inventor, primary contact for information, and DOE staff coordinator are also provided. The address of the contact is provided if an award has been made. At the time of receipt, DOE assigns a number (DOE No.) to each recommended invention. These numbers are used for tracking purposes and are also the key for sequencing the descriptions presented in this section. Section 4 presents four cross reference lists for locating specific invention descriptions. These lists provide cross reference between DOE No. and Inventor name, Contact name, invention classification, and inventor state.

3.1 Index to Recommended Inventions

The following is an index to the recommended inventions showing invention DOE No., invention status and title. Status is described in terms of the following steps in the DOE support process.

Analysis	DOE review of recommendation. Inventor has submitted description of proposed work. Options for support are investigated.
Decision Phase	Final Statement of Work derived from above options. Inventor requested to submit supporting documents for procurement action. Prepare purchase request.
Other Assistance	Federal Laboratory testing, or business planning assistance, often leading to a grant award outside of ERIP.
Procurement	Request for grant or contract in the procurement process.
Award	Inventor awarded grant or contract. Work commences. Final report due at end of work period.
No DOE Support	Sources of support within DOE have been investigated, but recommendation will not be supported, e.g., inventor not interested, no area of DOE support could be identified, conflict with other DOE awardees being supported.
Complete	Inventor has complied with all the requirements of the Statement of Work or ERIP assistance is terminated.

INDEX TO RECOMMENDED INVENTIONS

DOE No.	STATUS	TITLE
0301	Complete	Pump Control System for Windmills
0302	Complete	Carri-Cel Impact Breaker and Counterflow Impact Rock Breakers
0303	Complete	Battery Heating Device
0304	Complete	Exfoliated Graphite Fibers
0305	Complete	Automatic Filter Network Protection, Failure Detection and Correction System and Method
0306	Award	An Efficiency Computer for Heated or Air Conditioned Buildings
0307	Complete	Vortex Generators for Aft Regions of Aircraft Fuselages
0308	Complete	Binary Azeotropic, Hot Gas, Fat Extraction Process
0309	No DOE Support	Process of Smelting with Submerged Burner
0310	Complete	Portable Wastewater Flow Metering Device
0311	Complete	Auxiliary Truck Heater
0312	Complete	The "Jones AWT", a Micro-Computer-Based Automatic Well Tester for Use of Producing Oil Wells
0313	Complete	Process Controller for Stripper Oil Well Pumping Units
0314	Complete	Rolling Filter Apparatus
0315	Complete	Method of Processing Biodegradable Organic Material
0316	Complete	Thrust Impact Rock Splitter
0317	Complete	Edge-Illuminated Multi-Junction (VMJ) Solar Cell
0318	Complete	Bi-Polar Electrode for Hall-Heroult Electrolysis
0319	Complete	Removal of Hydrogen Sulfide from a Gas Stream
0320	No DOE Support	Coal Gasification with Carbon Dioxide and Lime Recycling
0321	No DOE Support	Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen
0322	Complete	Electrical Resistance Cooking Apparatus with Automatic Circuit Control
0323	Complete	Rolling Mill for Reduction of Moisture Content in Waste Material
0324	Complete	Method and Composition for Enhancement of Mycorrhizal Development by Foliar Fertilization
0325	Complete	Low Cost, Low Energy Machine and Method for Continuous Casting Non-Ferrous Strip and Composites
0326	Complete	A Mechanical Stemming Device for Use in Explosive Loaded Blast Holes
0327	Complete	Square Pattern Irrigation Sprinkler
0328	Complete	Multi-Directional Pre and Post-Heating Device for Thermal Flamecutting
0329	No DOE Support	Modularized Pneumatic Tractor with Debris Liquifier
0330	Complete	Vacuum Heat Treating Furnace and Quench System with Drop Transfer
0331	Complete	Cyclic Char Combustion for Engines, Boilers and Gasifiers
0332	No DOE Support	Volk Pistachio Huller
0333	Complete	Laser Based Machine for Die and Prototype Manufacturing
0334	Award	So-Luminaire Natural Daylighting Unit
0335	No DOE Support	Robotic Bridge Observation and Information System
0336	Complete	A Carbonaceous Selective Absorber for Solar Thermal Energy Collection and Process for Its Formation

0337	Complete	An Air Operated Hydraulic Power Unit
0338	Complete	Downhole Pneumatic Turbine Motor for Geothermal Energy
0339	Award	Recycoil II
0340	Complete	Separation of Adsorbed Components by Variable Temperature Desorption
0341	Complete	High Pressure Liquid Jets as a Tool for Disintegrating Organic and Non-Organic Materials
0342	Complete	Raw Fines Medium Coal Washing System
0343	Analysis	Electronic Octane
0344	Complete	Machine for Separating Concrete from Steel
0345	Complete	Tulleners Wave Piercer
0346	Complete	Ultra-Pure Water System for Hospitals
0347	Complete	Oxide Dispersion Strengthened Aluminum Alloys
0348	Complete	Hydrogen Sulfide Removal for Natural Gas
0349	Analysis	Three Roll Tension Stand
0350	Complete	Method and Apparatus for Testing Soil
0351	Complete	Flash Gate Board
0352	Complete	A Waterjet Mining Machine
0353	Complete	Compu-Turbo-Aligner
0354	Complete	Preparation of Biliquid Foam Compositions
0355	Complete	Energy-Efficient Ice Cube Making Machine
0356	Complete	Portable Automatic Firewood Processor
0357	Complete	TubeExpress Pneumatic Capsule Pipeline Transport System
0358	Award	Device for Well Site Monitoring and Control of Rod- Pumped Wells
0359	Award	Solid Fuel Hot Air Furnace
0360	Analysis	Temperature Controllable Heat Valve
0361	Award	Measurement of Liquid Volumes with Compensation for Temperature Induced Variations
0362	Complete	Improved Solvents for the Puraq Seawater Desalination Process
0363	Complete	Impactor Separator
0364	Complete	Intermittent Solar Ammonia Absorption Cycle (ISAAC)
0365	Award	Safety Stovepipe Damper Assembly
0366	Complete	High Energy Semiconductor Switch
0367	Complete	Disintegration of Wood
0368	Analysis	Aircraft Minimum Drag Speed System
0369	Complete	"Fire Jet" Automatic Anthracite Burner
0370	Award	Dehumidification System for Indoor Pools and Other High Humidity Areas
0371	No DOE Support	Wallace Energy Systems Solar Assisted Heat Pump Water Heater
0372	No DOE Support	FS 630 Heat Pump Thermostat Control
0373	No DOE Support	Tobacco Harvesting Machine
0374	No DOE Support	Expansion Compression System for Efficient Power Output Regulation of Internal Combustion Engines
0375	Award	MDT Twister
0376	Award	Machine and Method for Producing Energy-Saving Transformers Incorporating Amorphous Metal Cores
0377	Complete	A Novel Method of Producing Ice-Water Slurries
0378	No DOE Support	An Improved Cutter for Plaster Board and the Like
0379	Award	Inner Roof Solar System
0380	Decision Phase	Blow-In Blanket System
0381	Analysis	Multiple Heat-Range Spark Plug

0382	Award	System for Recovery of Waste Hot Water Heat Energy
0383	Complete	Electro-Optic Inspection of Heat Exchangers
0384	Complete	Textured Substrate and Method for the Direct, Continuous Casting of Metal Sheet Exhibiting Improved Uniformity
0385	No DOE Support	Process for Treating Humus Materials
0386	Complete	Device and Method to Enable Detection and Measurement of Deformities in Well Components
0387	Complete	Quiet Operating Internal Combustion Engine with Complete Highly Efficient Expansion Cycle
0388	Decision Phase	Preparation of Extremely Fine, Superalloy Powders and Their Fabrication into Dense, Sintered, Net Shape Superalloy Parts
0389	No DOE Support	Reduced Size Heating Assembly for an Electric Stove
0390	Complete	Wicks Efficient Fuel Utilization System
0391	No DOE Support	Compressed Gas Energy Storage
0392	Analysis	Method and Apparatus for Drilling Horizontal Holes in Geological Structures from a Vertical Bore
0393	Complete	Method and Apparatus for Ultrasonic Testing of Tubular Goods
0394	Analysis	Variable Wall Mining Machine
0395	Complete	Holland Oil Well Pumping System
0396	Complete	Dyna Flow
0397	Complete	In Service Tank Bottom Leak Detection and Repair System
0398	Award	Hydraulic Test Unit - Test Plugs - Mechanical Seal Plugs
0399	Complete	Hydrodynamic/Multi Deflection Pad Bearing
0400	Decision Phase	Continuous Casting and Inside Rolling of Hollow Rounds
0401	Complete	A Miniature, Inexpensive Oxygen-Sensing Element
0402	Award	KTM Logger
0403	Complete	Enterprise Lubricator
0404	No DOE Support	Steam-Methane Reforming in Molten Carbonate Salt
0405	No DOE Support	Prehydrolysis and Digestion of Plant Material
0406	Complete	Aluminum Reduction Cell Spent Potlining Fluid Bed Incinerator
0407	Award	An Extended Range Tankless Water Heater
0408	No DOE Support	Floodshield System
0409	Award	Self-Dressing Resistance Welding Electrode
0410	Complete	The World's First Gas Fired, Forced Air, High Efficiency, Furnace That Requires No Electricity
0411	Award	The Wide-Open Throttle Approach to Greater Automotive Fuel Efficiency
0412	Award	Meta-Lax Stress Relief for Almost any Size Metal Structure
0413	Complete	Non Metallic Railroad Switch Covers
0414	Complete	Low Profile Fluid Catalytic Cracker
0415	Award	Oil Recovery by Modified Steam Drive Employing High Velocity Non-Condensible Gas
0416	No DOE Support	Self-Contained Pipe Freezing Unit
0417	Analysis	Rotary Drill Bit
0418	No DOE Support	Use of Chemical Vapor Deposition to Coat Metal Surfaces with High-Temperature Superconducting Materials
0419	Award	A Planing Mining Machine to Produce Ultra-Fine Coal
0420	Complete	The Utah Transmission/Continuously Variable Speed Wind Generator
0421	Award	Flexible Drill Pipe
0422	Complete	High Efficiency Ozone Generating System

0423	Complete	Superverter - A Digitally Synthesized DC-to-AC Sinewave Inverter
0424	Complete	An Automated Process for Garment Manufacturers
0425	Award	High Temperature Condensing Biomass Combustion System
0426	Complete	Eddy Current Transducing System
0427	Award	Non-Catalytic Steam Hydrolysis of Fats
0428	Complete	T-By Tray
0429	Award	A Low Cost Galloping Indicator
0430	Complete	Whitten Dugas Mud Pump Enhancer
0431	Analysis	Method and Apparatus for Removing Excess Water from Subterranean Wells.
0432	No DOE Support	Water Hammer Pile Driver
0433	Complete	Improved Methods to Manufacture and Use Carbon- Alumina Composite Anodes for Aluminum Reduction
0434	Award	Modular Apparatus for Laundry Dryer Heat Recovery
0435	Analysis	A New Thermodynamic Process of Actual Approach to the Carnot Cycle
0436	Complete	The Russell Self-Piloted Check Valve
0437	Complete	Steam Generator With Integral Down-Draft Dryer
0438	No DOE Support	Microwave Reflection by Synthetic Metals
0439	Complete	Project Twenty-One Rapid Transit System
0440	Award	Microtube Strip Heat Exchanger
0441	Award	Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Thereby.
0442	Award	Long Life "PC" Drill Bit
0443	Award	A Method for the Use of Oxygen Ion Vacancies in Lanthanide Oxides to Increase their Utilization
0444	Complete	Apparatus and Method for Using Microwave Radiation to Measure Water Content of a Fluid
0445	Complete	Condenser Tube Insertion Device
0446	Complete	Heavy Oil Recovery Process
0447	Complete	Hot Control of Unit Volume Energy of Grinding
0448	Award	New Automatic Transmission for Road Vehicles
0449	Complete	Fuel Savings in the Heavy Trucking Industry Through Cool Storage
0450	Complete	Portable Ultrasonic Inspection System for Oil Country Tubulars
0451	Analysis	In-Place Asphalt Pavement Restoration, via Recycling of the Existing Materials
0452	Award	Magnetic Thin Films Formed in a Glow Discharge
0453	Complete	Particle Densitometer Based on the Acoustical Resonance Measurement
0454	Award	Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids
0455	Complete	Thermoelectric Generator for Diesel Engines
0456	Analysis	A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output
0457	Award	Continuous Saccharification of Ligno-Celluistic Biomass in Two Stages
0458	Award	Continuous Casting by Float Process of Thin Sheet Carbon Steel
0459	Award	Natural Gas Conversion Process
0460	Award	Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor
0461	Award	Thermally Stable Polyenaminonitriles Which Cure Without Evolution of Volatiles

0462	Award	Energy Efficient Asymmetric Pre-Swirl Vane and Twisted Propeller Propulsion System
0463	Analysis	Carburetor Fuel Feed System with Bidirectional Passages
0464	Award	Chain Saw Tip Stabilizing Device for Use with an Anti-Kickback Device
0465	No DOE Support	Multiconductive Base Form Microchip Carrier/Connector
0466	Award	Coal Log Fuel Pipeline Transportation System
0467	Award	High Pressure Lubricoolant Jet for Supporting Metal Machining
0468	Award	Constant-Torque System for Beam Pumps
0469	Decision Phase	Recuperator of Flue Gas Heat
0470	Award	Flat Belt Continuously Variable High Speed Drive
0471	Award	Method and Tool for Logging-While-Drilling
0472	Analysis	Method and Apparatus for Maximizing Refrigeration Capacity
0473	Award	Energy Saving Head Pressure Control System for Air Cooled Condensers
0474	No DOE Support	Sweep-Spike Combination Tillage Tool
0475	Award	Auxiliary Air Conditioning, Heating and Engine Warming System for Trucks
0476	Award	Pickard Line-up Boom
0477	Award	"Ultra Design Method" - Method for Designing Apparel by Computer
0478	Analysis	The "Triple Design Cycle" Cogeneration Program
0479	Award	Solar Cooker
0480	Award	AlasCan Composting Toilet and Greywater Treatment System
0481	No DOE Support	Refrigerant Mixture of R-11 and R-216 to Provide Ice Making Abilities in Centrifugal Compressors
0482	Award	Improved Fluid Pumping Device and Liquid Sensor
0483	Complete	Downhole Neutron Flux Monitor
0484	Analysis	MUD DEVIL - Deaerator Mixer
0485	Award	Method and Apparatus for Placing Cement Plugs in Wells
0486	No DOE Support	Cotton Stalk and Shredder with Re-Bedder
0487	Award	Direct Fired Steam Generator
0488	Award	A System for Recovering Sulfur from Gases, Especially Natural Gas
0489	Award	Optimized Control System for Ultra-Efficient Surface Coating Operations
0490	Award	Laney Belt Terracer
0491	Award	QUBUS III Technology for Producing Ethanol
0492	Award	Reactive Sintered Nickel Aluminide
0493	Analysis	Airfoil Design with Improved Aerodynamic Characteristics
0494	Procurement	Recovery of Dilute Aqueous Butenol by Adsorption on Lignin
0495	Award	Method for Monitoring Thinning of Pipe Wall
0496	Analysis	Spiral Track Oven
0497	Award	Downhole Casing Repair System
0498	Award	Hydrocarbon Reserve Evaluation/Determining Permeability in Hydrocarbon Wells
0499	Award	Electrostatic Agglomerator
0500	Analysis	Neutral Atom Interferometry Gravity Sensor
0501	Award	High Efficiency Dehumidifier/Air Conditioner
0502	Award	Mechanically Infinitely Variable Speed Transmission for Automotive Use to Save Fuel

0503	Decision Phase	Method and Apparatus for Introducing Normally Solid Materials into Substrate Surfaces
0504	Analysis	Split Hub Shale Oil Retort
0505	Procurement	Vertical Axis Wind Turbine
0506	Award	Improved Poured Concrete Wall Forming System
0507	Analysis	Utilization of Precipitator Dust Stored at the TVA National Fertilizer Development Center
0508	Award	On-Line Mechanical Tube Cleaning for Steam Electric Power Plants on an Open Cooling Water System
0509	Analysis	Process for Gas Liquid Contacting in Cocurrent Distillation
0510	Award	Oilwell Power Controller
0511	Award	Subterranean Permeability Modification by Use of a Microbial Polysaccharide Polymer
0512	Award	Automatic Metering System (AMS)
0513	Award	Multiwell Pump
0514	Procurement	Silver Sensor / Energy Wire
0515	Analysis	Vacuum Bagging Apparatus
0516	Award	Device for Converting Linear Motion to Rotary Motion and Vice Versa
0517	Award	Dynamic Gas Pulse Loading System
0518	Analysis	SHE-INAL - A Stand-Alone Female Urinal Fixture for Public Restrooms
0519	Analysis	Aerocylinder
0520	Analysis	Carbon Fiber Reinforced Tin-Superconductor Composites
0521	Analysis	Ultraviolet Sterilization of Contact Lens
0522	Award	Aqua-Shear
0523	Analysis	Power Factor Correction System by Means of Continuous Modulation
0524	Analysis	Mobile, Offshore, Self-Elevating (Jack-up) Support System
0525	Award	The ACT Evaporative Subcooler
0526	Analysis	Pressure Generating Apparatus and Method
0527	Analysis	Truck Train System - Rail Dollies Type A-1, X & Y
0528	No DOE Support	Method of Machining Hard and Brittle Material
0529	Procurement	Thermodyne Evaporator - A Molded Pulp Products Dryer
0530	Analysis	Apparatus and Method for Irradiating Cells
0531	Analysis	Removable Wind Deflector for Freight Container, and Assembly
0532	Analysis	Gobelin Loom
0533	Award	A High Efficiency Retort to Recover Shale Oil
0534	Decision Phase	Novel Procedure for Fabrication of Mosfets
0535	Award	The Anderson Quin Cycle
0536	Decision Phase	Delta T Dryer Controller
0537	Analysis	Maintenance, Inspection, Submersible, Transport
0538	Analysis	Electronic Control For Thermostatic Expansion Valves
0539	Analysis	Guide for Window Grouting Device
0540	Analysis	Restaurant Exhaust Ventilation Modulator
0541	Analysis	Polymer Dispersed Ferroelectric Smectic-C Display Technology
0542	Analysis	Self-Agitating Soap Stick
0543	Analysis	Method and Apparatus for Production of Three- Dimensional Objects by Photosolidification
0544	Procurement	Field Grid Sense
0545	Analysis	System for Reducing Heat Losses from Indoor Swimming Pools by use of Automatic Covers.

0546	Analysis	Hyperdynamic Hull
0547	Analysis	Structural Monitoring System Using Fiber Optics
0548	Analysis	System 150
0549	Analysis	Efficient, Continuous-Wave or Pulsed Visible Lamps for Solid-State Laser Drivers
0550	Analysis	Dry Process Instant Photographic Color Textile Printing
0551	Analysis	Thermalock Block
0552	Analysis	High-Speed Roll Processing Equipment for Woody Biomass
0553	Analysis	Process for Conserving Steam Quality in Deep Steam Injection Wells
0554	Analysis	Apparatus and Process for Second Stage Drying
0555	Analysis	Carbon Fiber Composites with Improved Fatigue Resistance due to the Addition of Tin-Lead Alloy Particles
0556	Analysis	Enhanced Chemical Vapor Deposition
0557	Analysis	Branched GAX Absorption Heat Pump
0558	Analysis	Method and Temperature Treating Granular Material
0559	Analysis	Method and Apparatus for Simultaneous Heat and Mass Transfer
0560	Analysis	Paving Fabric Applicator
0561	Analysis	Ramix Systems Inc.
0562	Analysis	Future Flush
0563	Analysis	Method and Apparatus for Preheating Ventilation Air For a Building

3.2 Brief Descriptions of Recommended Inventions

The following presents brief descriptions of each of the inventions 301 through 563 recommended by the Office of Technology Evaluation and Assessment at NIST to the Energy Related Inventions Program office at DOE. Each description includes a brief description of the invention, a summary of the invention status, significant dates, status, and summary of development. The name of the inventor, primary contact for information, and DOE staff coordinator are also provided. The address of the contact is provided if an award has been made. The descriptions are presented in DOE number sequence. Section 4 presents four cross reference lists for locating specific invention descriptions. These lists provide cross reference between DOE No. and Inventor name, DOE No. and Contact name, DOE No. and Inventor state, and Doe No. and invention classification.

DOE No: 0301 DOE Coord: J.Aellen

Title: Pump Control System for Windmills

Description: A mechanism for automatically controlling the stroke of wind-driven water pumps so as to match pump operation to the available wind energy.

Inventor: Don E Avery
State : HI

Contact:
Don E Avery
45-437 Akimala Street
Kaneohe HI 96744
808-247-1909

Status: Complete Status Date: 06/03/87 OERI No.: 010469

Patent Status : Patent Number: 4392785
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 11/02/84
Recom. by NIST : 04/30/85
Award Date : 06/04/86 Award Amount: $ 43,625 Grant No: FG01-86CE15279
Contract Period: 06/04/86 - 06/03/87

Summary: A grant was issued to build, install and demonstrate a variable stroke pump control system for an EDA aquaculture project at Kealia Pond, Maa Laea, Maui, Hawaii. The County of Maui is cost- sharing. See invention #275 for related work. Also installed in U.S. Fish and Wildlife bait pond. Grant work never completed. No final report available.

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DOE No: 0302 DOE Coord: J.Aellen

Title: Carri-Cel Impact Breaker and Counterflow Impact Rock Breakers

Description: A vertical shaft impact rock breaker having a direct-drive vertical shaft motor and an impact rock breaker in which the thrown rock is directed back toward the impeller so that most rock breakage occurs during collisions of thrown and returning rock.

Inventor: John H Burk
State : CA

Contact:
Phil Tippet
Carri-Cel, Inc
P O Box #4552
Cleveland TN 37311
615-489-1187

Status: Complete Status Date: 09/28/88 OERI No.: 010539

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 12/13/84
Recom. by NIST : 04/30/85
Award Date : 09/29/86 Award Amount: $ 75,000 Grant No: FG01-86CE15292
Contract Period: 09/29/86 - 09/28/88

Summary: A grant was awarded to build and test a prototype.

DOE No: 0303 DOE Coord: J.Aellen

Title: Battery Heating Device

Description: An automotive battery heating device which stores exhaust heat in a phase-change storage material and which includes the necessary heat exchangers and controls to transfer heat to the battery to facilitate cold weather starting.

Inventor: Nicholas Archer Sanders
State : VT

Contact:
Nicholas Archer Sanders
Eleven Green Ridge Road
Route One, Box #175
Norwich VT 05015
802-649-3869

Status: Complete Status Date: 04/27/88 OERI No.: 010170

Patent Status : Patent Number: 4258677
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 05/11/84
Recom. by NIST : 05/31/85
Award Date : 02/28/86 Award Amount: $ 71,500 Grant No: FG0186CE15257
Contract Period: 02/28/86 - 04/27/88

Summary: A grant was awarded to build and test a model. No final report has yet been received.

****

DOE No: 0304 DOE Coord: G.K.Ellis

Title: Exfoliated Graphite Fibers

Description: A new material, exfoliated graphite fibers, a novel form of composite fiber, and a method for producing them.

Inventor: Deborah D Chung
State : PA

Contact:
Deborah D Chung
3812 Henley Drive
Pittsburgh PA 15235
412-578-2710

Status: Complete Status Date: 05/03/88 OERI No.: 010315

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Miscellaneous

Recv by NIST : 07/31/84
Recom. by NIST : 05/31/85
Award Date : 09/30/86 Award Amount: $ 80,000 Grant No: FG01-86CE15282
Contract Period: 09/30/86 - 05/03/88

Summary: A grant awarded to fabricate and test the fiber composite material. The results showed a four-fold increase in loss factor compared to the plain fiber composite. It thus appears highly significant in various damping applications that are important in both military and civilian sector products. Spaulding Composites Company has licensed the technology and intends to market it widely. Use of such advanced composites, they estimate, in aircraft alone will more than quadruple in just three years.

DOE No: 0305 DOE Coord: J.Aellen

Title: Automatic Filter Network Protection, Failure Detection and Correction System and Method

Description: A flap valve to be used in fabric bag filter systems such as those used in coal-burning powerplants, which automatically shuts off the flow of gas and flyash through ruptured filter bags.

Inventor: Harold L Bowman
State : AR

Contact:
Wade Wright

Baltimore MD 21218
301-773-0614

Status: Complete Status Date: 10/31/87 OERI No.: 010257

Patent Status : Patent Number: 4356007
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv by NIST : 06/29/84
Recom. by NIST : 05/31/85
Award Date : 05/01/86 Award Amount: $ 72,072 Grant No: FG01-86CE15262
Contract Period: 05/01/86 - 10/31/87

Summary: A grant was awarded to build a model and to test efficiency. Testing program never completed because of legal problems. No final report has yet been received.

****

DOE No: 0306 DOE Coord: T.M.Levinson

Title: An Efficiency Computer for Heated or Air Conditioned Buildings

Description: Microprocessor-based device continuously evaluates overall space-conditioning performance. Feedback is used to teach a new, useful concept of efficiency to building owners, occupants and maintenance personnel.

Inventor: John W Ackley, III
State : CT

Contact:
John W Ackley, III
16 Church Street
Stonington CT 06378
203-535-2906

Status: Award Status Date: 09/30/91 OERI No.: 010045

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 02/17/84
Recom. by NIST : 06/28/85
Award Date : 04/20/87 Award Amount: $ 74,450 Grant No: FG01-87CE15318
Contract Period: 04/20/87 - 10/19/90

Summary: A grant was awarded to build and test a prototype device. Battelle Pacific Northwest Laboratory assisted the inventor by providing data on commercial buildings in the Pacific Northwest and analyzing these data.

DOE No: 0307 DOE Coord: T.M.Levinson

Title: Vortex Generators for Aft Regions of Aircraft Fuselages

Description: A method for using small vortex generators at the aft end of aircraft fuselages, (particularly those with rear loading doors) to energize the flow in that region, reduce flow separation, and reduce form drag.

Inventor: Andrew Wortman
State : CA

Contact:
Andrew Wortman
406 Alta Avenue
Santa Monica CA 90402
310-394-7332

Status: Complete Status Date: 09/30/87 OERI No.: 010454

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 10/23/84
Recom. by NIST : 06/28/85
Award Date : 06/27/86 Award Amount: $ 69,307 Grant No: FG01-86CE15277
Contract Period: 06/27/86 - 09/30/87

Summary: A grant was awarded to design and conduct wind-tunnel tests on fuselage models of transport aircraft, utilizing the inventor's vortex generators. Based on wind-tunnel tests, overall drag reductions are expected to be 1 percent for a 747 and 2 percent for a C-5. This translated into annual operating cost reductions of about $130,000 for a Boeing 747. The inventor made presentations to CASA in Spain and Aerospace in France in order to interest these aircraft companies in his technology.

****

DOE No: 0308 DOE Coord: J.Aellen

Title: Binary Azeotropic, Hot Gas, Fat Extraction Process

Description: A solvent extraction process for rendering animal wastes. Invention would use n-heptane to extract the fat and would be recycled. Solids recovered will be produced at lower temperatures than present processes.

Inventor: Jay Read
State : IN

Contact:
Jay Read
Plymouth Fertilizer Co., Inc.
12092 Plymouth-Goshen Trail
Plymouth IN 46563
219-936-2144

Status: Complete Status Date: 10/28/89 OERI No.: 010201

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 03/30/84
Recom. by NIST : 06/28/85
Award Date : 04/19/86 Award Amount: $ 65,000 Grant No: FG01-86CE15255
Contract Period: 04/19/86 - 10/28/89

Summary: A grant was awarded to construct a demonstration plant to produce high-quality animal protein and fat from carrion. Technology tested, unsuccessful due to uncontrollable foaming.

DOE No: 0309 DOE Coord: P.M.Hayes

Title: Process of Smelting with Submerged Burner

Description: A submerged burner for melting and refining metals. The design produces submerged combustion process resulting in a uniform oxidizing or reducing atmosphere circulating through the molten zone.

Inventor: Robert N Rose
State : CT

Contact:
Robert C LeMay

Status: No DOE Support Status Date: 09/30/89 OERI No.: 010351

Patent Status : Patent Number: 4203761
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 08/10/84
Recom. by NIST : 06/28/85

Summary: No request for assistance has been received.

****

DOE No: 0310 DOE Coord: G.K.Ellis

Title: Portable Wastewater Flow Metering Device

Description: A portable venturi type flowmeter for measuring liquid flow in sewers under either full flow or partial flow conditions.

Inventor: Robert M Hunter
State : MT

Contact:
Robert M Hunter
320 South Wilson Avenue
Bozeman MT 59715
406-586-3905

Status: Complete Status Date: 03/19/88 OERI No.: 010308

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 07/27/84
Recom. by NIST : 07/31/85
Award Date : 09/19/86 Award Amount: $ 77,515 Grant No: FG01-86CE15298
Contract Period: 09/19/86 - 03/19/88

Summary: A grant was awarded to build-and demonstrate a workable prototype. The prototype was completed and successfully tested. Final report has been received showing some significant results. Inventor seeks to license the technology.

DOE No: 0311 DOE Coord: J.Aellen -

Title: Auxiliary Truck Heater

Description: A diesel fuel-fired heater used to heat truck engines prior to starting and also used to heat truck cabs.

Inventor: Herbert D Easterly
State : TN

Contact:
Herbert D Easterly
Route One, Box Sixty-Six
Crossville TN 38555
616-484-6665

Status: Complete Status Date: 10/28/91 OERI No.: 006675

Patent Status : Patent Number: 4192457
Development Stage : Concept Definition
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 03/26/80
Recom. by NIST : 07/31/85
Award Date : 09/11/89 Award Amount: $ 59,941 Grant No: FG01-89CE15348
Contract Period: 09/11/89 - 09/10/91

Summary: A grant was awarded to the Tennessee Technical University to build and test a prototype model.

-

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DOE No: 0312 DOE Coord: P.M.Hayes

Title: The "Jones AWT", a Micro-Computer-Based Automatic Well Tester for Use of Producing Oil Wells

Description: An automatic well tester for in-line automatic measurement of oil, gas and water produced by an oil well.

Inventor: Ray L Jones
State : CA

Contact:
Ray L Jones
c/o Pet Automation Syst Inc
325 South Hale Avenue
Fullerton CA 92631
714-773-4040

Status: Complete Status Date: 08/31/87 OERI No.: 010368

Patent Status : Patent Number: 3911256
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 08/22/84
Recom. by NIST : 08/09/85
Award Date : 03/10/86 Award Amount: $ 72,470 Grant No: FG01-86CE15252
Contract Period: 03/10/86 - 08/31/87

Summary: A grant was awarded to field test the oil-well testing system to determine and optimize the system performance. Inventor seeking joint venture relationship to manufacture and market the technology.

DOE No: 0313 DOE Coord: P.M.Hayes

Title: Process Controller for Stripper Oil Well Pumping Units

Description: A programmable microprocessor control system that determines the optimum pumping speed of a beam oil well pump by comparing the wave form of current flow during each pumping cycle to a wave form stored in memory. Based on the results of the comparison, the controller either modifies the pumping speed or shuts the pump off for a given period of time. The device is primarily intended for stripper wells.

Inventor: Frank J Madison II
State : PA

Contact:
Frank J Madison II
608 Hill Street
Reynoldsville PA 15851
814-653-2155

Status: Complete Status Date: 01/20/87 OERI No.: 010425

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 10/02/84
Recom. by NIST : 08/13/85
Award Date : 01/21/86 Award Amount: $ 85,000 Grant No: FG01-86CE15253
Contract Period: 01/21/86 - 01/20/87

Summary: A grant was awarded to design, test and demonstrate a prototype of a process controller which maximizes production of beam-type pumping oil wells. Inventor test marketed the "OPC Model 100"; the product is improved and is available for purchase. A constant control device, "OPC Model 2000", will be available by the Summer of 1990.

****

DOE No: 0314 DOE Coord: T.M.Levinson

Title: Rolling Filter Apparatus

Description: An air filtration system wherein a long filter mat is drawn in a zig-zag path across an air flow path to give multiple filtration passages of the air through the filter mat. The mat is continuously drawn from a large roll such that fresh filter surface is continuously fed through the filter chamber. The used mat is discarded.

Inventor: Max Klein
State : MA

Contact:
Max Klein
64 Euclid Avenue
Pittsfield MA 01201
413-499-3351

Status: Complete Status Date: 05/17/90 OERI No.: 010734

Patent Status : Patent Number: 4394146
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 03/15/85
Recom. by NIST : 08/30/85
Award Date : 08/18/86 Award Amount: $ 67,500 Grant No: FG01-86CE15286
Contract Period: 08/18/86 - 05/17/90

Summary: A grant was issued to design, manufacture and operate a prototype filter apparatus to be put into demonstration, service. The grantee was to contribute $7,500 for the demonstration special engineering and marketing activities. The filtration material was put in shop classrooms in selected schools. The filter system was being monitored and evaluated by shop teachers for improved air quality. Results to date are promising from both an energy conservation and public health standpoint.

DOE No: 0315 DOE Coord: J.Aellen

Title: Method of Processing Biodegradable Organic Material

Description: A high-rate continuous biodegrading reactor using immobilized microbes for producing natural gas from a high-load waste system.

Inventor: Ralph A Messing
State : NY

Contact:
Ralph A Messing
168 Scenic Drive, South
Horseheads NY 14845
607-739-7242

Status: Complete Status Date: 12/31/87 OERI No.: 010446

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Other Natural Sources

Recv by NIST : 10/19/84
Recom. by NIST : 08/30/85
Award Date : 04/19/86 Award Amount: $ 75,000 Grant No: FG01-86CE15265
Contract Period: 04/19/86 - 12/31/87

Summary: A grant was awarded to build a portable demonstrator to be installed at Laprino Foods to be operated at their expense. Operation only partially successful. Inventor died before report could be written.

****

DOE No: 0316 DOE Coord: P.M.Hayes

Title: Thrust Impact Rock Splitter

Description: A rock-splitting device in which two or more splitting segments are positioned in a hole in the rock, and the segments are moved outward by a wedge driven by an impact force superimposed on a constant force.

Inventor: George B Clark
State : MO

Contact:
Terry Nixon
Box #519
Rolla MO 65401
314-364-7747

Status: Complete Status Date: 09/16/87 OERI No.: 010649

Patent Status : Patent Number: 4072353
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 02/28/85
Recom. by NIST : 08/30/85
Award Date : 06/17/86 Award Amount: $ 81,891 Grant No: FG01-86CE15268
Contract Period: 06/17/86 - 09/16/87

Summary: A grant was awarded to design a commercial prototype of the thrust impact rock splitter. Considering licensing or joint/venture options to get technology into the marketplace.

DOE No: 0317 DOE Coord: J.Aellen

Title: Edge-Illuminated Multi-Junction (VMJ) Solar Cell

Description: An edge-illuminated vertical multi-junction photovoltaic cell to be operated with concentrators from about 200 to 1000 suns.

Inventor: Bernard L Sater
State : OH

Contact:
Bernard L Sater
9007 Westlawn Boulevard
Olmstead Falls OH 44138
- 216-243-2018

Status: Complete Status Date: 03/15/91 OERI No.: 004602

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Direct Solar

Recv by NIST : 10/25/78
Recom. by NIST : 08/30/85
Award Date : 09/16/87 Award Amount: $ 80,000 Grant No: FG01-87CE15337
Contract Period: 09/16/87 - 03/15/91

Summary: A grant was awarded to.

****

DOE No: 0318 DOE Coord: J.Aellen

Title: Bi-Polar Electrode for Hall-Heroult Electrolysis

Description: A new design for a bi-polar electrode for Hall- Heroult electrolysis for aluminum production.

Inventor: Louis A Joo
State : TN

Contact:
Jim Gee
Great Lakes Research Corp
P O Box #1031
Elizabethtown TN 37643
615-543-3111

Status: Complete Status Date: 11/30/87 OERI No.: 010523

Patent Status : Patent Number: 4462889
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 12/03/84
Recom. by NIST : 08/30/85
Award Date : 05/08/86 Award Amount: $ 76,078 Grant No: FG01-86CE15259
Contract Period: 05/08/86 - 11/30/87

Summary: A grant was awarded to build a model electrode and test its efficiency. Inventor seeking additional development funding.

DOE No: 0319 DOE Coord: J.Aellen

Title: Removal of Hydrogen Sulfide from a Gas Stream

Description: A non-reactive adsorption/regeneration process for removing hydrogen sulfide from a gas stream.

Inventor: Shao-E Tung
State : MA

Contact:
Shao-E Tung
Ninety-One Blake Road
Brookline MA 02146
617-589-2823

Status: Complete Status Date: 01/31/90 OERI No.: 010530

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 12/07/84
Recom. by NIST : 09/23/85
Award Date : 07/30/86 Award Amount: $ 85,400 Grant No: FG01-86CE15271
Contract Period: 07/30/86 - 01/31/90

Summary: A grant was awarded to . Received additional support under Program Opportunity Notice from Pittsburgh Energy Technology Center.

****

DOE No: 0320 DOE Coord: J.Aellen

Title: Coal Gasification with Carbon Dioxide and Lime Recycling

Description: A coal gasification process that uses air instead of oxygen to produce a nitrogen-free, 400 BTU per cubic foot gas by use of recycled carbon dioxide and lime.

Inventor: Shang-I Cheng
State : NJ

Contact:
Shang-I Cheng

Status: No DOE Support Status Date: 09/30/90 OERI No.: 010638

Patent Status : Patent Number: 4448588 and others
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv by NIST : 02/25/85
Recom. by NIST : 09/23/85

Summary: No DOE support.

DOE No: 0321 DOE Coord: G.K.Ellis -

Title: Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen

Description: A shale oil recovery process that also gasifies coke in the spent shale to produce hydrogen and carbon dioxide in a water gas shift reaction.

Inventor: Philip H Gifford II
State : CO

Contact:
Philip H Gifford II

Status: No DOE Support Status Date: 12/23/91 OERI No.: 010279

Patent Status : Patent Number: 4001105 and others
Development Stage : Laboratory Test
Technical Category: Fossil Fuels

Recv by NIST : 07/18/84
Recom. by NIST : 09/24/85

Summary: The inventor has been unable to submit a definitive statement of work that DOE can support.

****

DOE No: 0322 DOE Coord: E.P.Levine

Title: Electrical Resistance Cooking Apparatus with Automatic Circuit Control

Description: A method of using high frequency energy to cook meat for fast food vendors. The key feature is the lack of need for a vent.

Inventor: Maurice W Lee, Junior
State : OK

Contact:
Maurice W Lee, Junior
Post Box Twenty-Six
Boley OK 74829
918-667-3341

Status: Complete Status Date: 02/17/87 OERI No.: 010139

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 04/30/84
Recom. by NIST : 09/30/85
Award Date : 02/17/87 Award Amount: $ 75,000 Grant No: FG01-87CE15317
Contract Period: 02/17/87 - 08/16/90

Summary: A grant was awarded to develop the second generation cooker with 50% reduction in cost/price.

DOE No: 0323 DOE Coord: G.K.Ellis

Title: Rolling Mill for Reduction of Moisture Content in Waste Material

Description: A mechanical device to remove some of the water from wood waste fuel. The previously pulverized wood is passed between two rollers, and water is pressed from the wood.

Inventor: David M Wilder
State : OR

Contact:
David M Wilder
82061 Lost Valley Lane
Dexter OR 97431
503-937-3537

Status: Complete Status Date: 12/24/88 OERI No.: 010613

Patent Status : Patent Number: 4436028
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 02/07/85
Recom. by NIST : 09/30/85
Award Date : 04/24/86 Award Amount: $ 76,396 Grant No: FG01-86CE15280
Contract Period: 04/24/86 - 12/24/88

Summary: A grant was awarded to build and demonstrate a workable prototype. The prototype has been completed and was satisfactorily tested in participation with an interested company.

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DOE No: 0324 DOE Coord: J.Aellen

Title: Method and Composition for Enhancement of Mycorrhizal Development by Foliar Fertilization

Description: A method for increasing plant growth by means of a foliar fertilization process intended to increase the infection of plant roots by mycorrhizal fungi, thus increasing their uptake of water and nutrients from the soil.

Inventor: H. E. Garrett
State : MO

Contact:
H. E. Garrett
University of Missouri. Columb
Sch of Forestry, Fish & Wldlf
I-30 Agriculture Building
Columbia MO 65211
314-882-3647

Status: Complete Status Date: 08/19/89 OERI No.: 010684

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 02/28/85
Recom. by NIST : 09/30/85
Award Date : 08/20/86 Award Amount: $ 75,000 Grant No: FG01-86CE15270
Contract Period: 08/20/86 - 08/19/89

Summary: A grant was awarded to perform laboratory tests and field demonstration.

DOE No: 0325 DOE Coord: P.M.Hayes

Title: Low Cost, Low Energy Machine and Method for Continuous Casting Non-Ferrous Strip and Composites

Description: A process for continuous casting of non-ferrous and composite materials into thin strips.

Inventor: Forrest M Palmer
State : SC

Contact:
Forrest M Palmer
Thirty-One Towhee Road
Hilton Head SC 29928
803-681-8887

Status: Complete Status Date: 01/31/88 OERI No.: 009934

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 01/12/84
Recom. by NIST : 09/30/85
Award Date : 08/08/86 Award Amount: $ 47,357 Grant No: FG01-86CE15285
Contract Period: 08/08/86 - 01/31/88

Summary: A grant was awarded to test the feasibility and operating characteristics of Mr. Palmer's continuous casting method. Additional testing is necessary to demonstrate the technical feasibility of the process.

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DOE No: 0326 DOE Coord: G.K.Ellis

Title: A Mechanical Stemming Device for Use in Explosive Loaded Blast Holes

Description: A conical wedge used to improve confinement of an explosive charge to a drilled hole, increasing the rock fragmentation performance of the explosive.

Inventor: Paul N Worsey
State : MO

Contact:
F Terry Nixon
Route Four, Box #519
Rolla MO 65401
314-364-7747

Status: Complete Status Date: 03/21/88 OERI No.: 010667

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 02/28/85
Recom. by NIST : 10/31/85
Award Date : 09/22/86 Award Amount: $ 78,251 Grant No: FG01-86CE15297
Contract Period: 09/22/86 - 03/21/88

Summary: A grant was awarded to build and test a workable prototype. Tests were encouraging. Decision to be made whether to venture or license the technology.

DOE No: 0327 DOE Coord: G.K.Ellis

Title: Square Pattern Irrigation Sprinkler

Description: A sprinkler head that will uniformly distribute irrigation water over a square pattern.

Inventor: B F Rabitsch
State : GA

Contact:
B F Rabitsch
Post Office Box #598
Millen GA 30442
912-982-5593

Status: Complete Status Date: 04/07/88 OERI No.: 010367

Patent Status : Patent Number: 4277029
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 08/22/84
Recom. by NIST : 10/31/85
Award Date : 06/09/86 Award Amount: $ 87,426 Grant No: FG01-86CE15287
Contract Period: 06/09/86 - 04/07/88

Summary: A grant was awarded to build and demonstrate a workable prototype. The prototype was completed, and tests were successful.

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DOE No: 0328 DOE Coord: J.Aellen

Title: Multi-Directional Pre and Post-Heating Device for Thermal Flamecutting

Description: A local heating apparatus working in conjunction with gascutting to prevent hardening of carbon plate steels. In some grades toughness is also improved.

Inventor: Robert F Roussey, Junior
State : PA

Contact:
Robert F Roussey, Junior
Three School Lane
Downingtown PA 19335
215-269-5535

Status: Complete Status Date: 09/22/88 OERI No.: 010339

Patent Status : Not Applied For
Development Stage : Prototype Development
Technical Category: Miscellaneous

Recv by NIST : 08/09/84
Recom. by NIST : 10/31/85
Award Date : 03/23/87 Award Amount: $ 42,902 Grant No: FG01-87CE15323
Contract Period: 03/23/87 - 09/22/88

Summary: A grant was awarded to prepare samples and have them tested at Lehigh University.

DOE No: 0329 DOE Coord: P.M.Hayes

Title: Modularized Pneumatic Tractor with Debris Liquifier

Description: A tractor mounted device to operate inside storage tanks to remove asphaltic and paraffinic deposits during cleaning operations.

Inventor: Albert Lindqvist
State : VI

Contact:
N F Bibby

Status: No DOE Support Status Date: 08/07/87 OERI No.: 010570

Patent Status : Patent Number: 4407035
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 01/11/85
Recom. by NIST : 11/29/85

Summary: No support was requested by inventor or contact.

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DOE No: 0330 DOE Coord: J.Aellen

Title: Vacuum Heat Treating Furnace and Quench System with Drop Transfer

Description: A small vacuum heat treat furnace.

Inventor: Norbert E Stainbrook
State : PA

Contact:
Norbert E Stainbrook
423 Sunnyside Avenue
Meadville PA 16335
814-336-3857

Status: Complete Status Date: 07/10/89 OERI No.: 010691

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 03/06/85
Recom. by NIST : 11/29/85
Award Date : 07/11/86 Award Amount: $ 69,987 Grant No: FG01-86CE15290
Contract Period: 07/11/86 - 07/10/89

Summary: A grant was awarded to build a furnace to test its capabilities.

DOE No: 0331 DOE Coord: E.P.Levine

Title: Cyclic Char Combustion for Engines, Boilers and Gasifiers

Description: An internal combustion engine capable of burning char fuel.

Inventor: Joseph C Firey
State : WA

Contact:
Joseph C Firey
University of Washinggton
Dept.of Mechanical Engineering
Seattle WA 98195
206-524-2671

Status: Complete Status Date: 08/09/91 OERI No.: 010444

Patent Status : Patent Number: 4412511 and others
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv by NIST : 10/16/84
Recom. by NIST : 11/29/85
Award Date : 02/10/87 Award Amount: $ 83,611 Grant No: FG01-87CE15310
Contract Period: 02/10/87 - 08/09/91

Summary: A grant was awarded to build, perform bench testing and

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DOE No: 0332 DOE Coord: J.Aellen

Title: Volk Pistachio Huller

Description: A machine to hull pistachio nuts by means of dry abrasion process based on the action of a studded cylinder, which pushes unhulled nuts through a slotted, curved plate.

Inventor: Benjamin Volk
State : CA

Contact:
Benjamin Volk

Status: No DOE Support Status Date: 09/30/88 OERI No.: 010738

Patent Status : Patent Number: 4448115 and others
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 03/19/85
Recom. by NIST : 12/31/85

Summary: DOE declined to support this invention due to limited energy relationship.

DOE No: 0333 DOE Coord: J.Aellen

Title: Laser Based Machine for Die and Prototype Manufacturing

Description: A method for manufacturing dies and molds using automated laser cutting of thin metal sheets and bonding of the sheets into the required three-dimensional forms.

Inventor: Michael Feygin
State : IL

Contact:
Michael Feygin
Hydronetics
3832 North Ashland Avenue
Chicago IL 60626
312-764-8691

Status: Complete Status Date: 08/09/88 OERI No.: 010745

Patent Status : Disclosure Document Program
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 03/27/85
Recom. by NIST : 12/31/85
Award Date : 02/10/87 Award Amount: $ 70,000 Grant No: FG01-87CE15316
Contract Period: 02/10/87 - 08/09/88

Summary: A grant was awarded to build and test the technology. No final report has yet been received.

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DOE No: 0334 DOE Coord: E.P.Levine

Title: So-Luminaire Natural Daylighting Unit

Description: An active, sun-tracking mirror/skylight system that reflects natural light into the occupied space for illumination in lieu of electric lights. The reflecting mirror closes upon the skylight opening at night and during periods of high winds.

Inventor: Richard Lee Dominquez
State : AZ

Contact:
William Lindner
So-Luminaire Corporation
3000 East Chambers Road
Phoenix AZ 85040
602-993-1096

Status: Award Status Date: 09/20/90 OERI No.: 010728

Patent Status : Patent Number: 4429952
Development Stage : Limited Production/Marketing
Technical Category: Direct Solar

Recv by NIST : 03/12/85
Recom. by NIST : 12/31/85
Award Date : 09/20/90 Award Amount: $ 99,999 Grant No: FG01-90CE15375
Contract Period: 09/20/90 - 09/19/92

Summary: A grant was awarded to fabricate, install, and test 77 so-Luminare daylighting units to empirically determine the degree of energy efficiency and cost-saving benefits. Demonstration test is being conducted at a Phoenix supermarket.

DOE No: 0335 DOE Coord: J.Aellen

Title: Robotic Bridge Observation and Information System

Description: A remotely controlled system utilizing observation and signal processing to inspect and record the condition of bridges and other structures.

Inventor: Robert A Maciejczak
State : IL

Contact:
Robert A Maciejczak

Status: No DOE Support Status Date: 09/30/88 OERI No.: 010541

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 12/18/84
Recom. by NIST : 01/23/86

Summary: Inventor's request for grant support disapproved due to limited energy relationship.

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DOE No: 0336 DOE Coord: J.Aellen

Title: A Carbonaceous Selective Absorber for Solar Thermal Energy Collection and Process for Its Formation

Description: A carbonaceous selective absorber for solar thermal energy collection and process for making same.

Inventor: John D Garrison
State : CA

Contact:
John D Garrison
San Diego State University
Department of Physics
San Diego CA 92182
619-265-6156

Status: Complete Status Date: 12/31/88 OERI No.: 010716

Patent Status : Not Applied For
Development Stage : Prototype Development
Technical Category: Direct Solar

Recv by NIST : 03/05/85
Recom. by NIST : 01/31/86
Award Date : 07/31/86 Award Amount: $ 70,000 Grant No: FG01-86CE15289
Contract Period: 07/31/86 - 12/31/88

Summary: A grant was awarded for the design and fabrication of apparatus used in the construction of selectively coated solar panels and for the testing and evaluation of these unique coatings under severe environmental conditions.

DOE No: 0337 DOE Coord: A.R.Barnes

Title: An Air Operated Hydraulic Power Unit

Description: A pneumatic-hydraulic power unit for actuating automatic electric welding guns in high-production manufacturing.

Inventor: J Donald Snitgen
State : MI

Contact:
J Donald Snitgen
18828 Hillcrest
Birmingham MI 48009
313-624-4066

Status: Complete Status Date: 05/21/88 OERI No.: 010964

Patent Status : Patent Number: 4455828 and others
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 07/01/85
Recom. by NIST : 01/31/86
Award Date : 08/22/86 Award Amount: $ 59,916 Grant No: FG01-86CE15290
Contract Period: 08/22/86 - 05/21/88

Summary: A grant was awarded to construct four engineering prototypes - two constant-run type and two positive displacement type, and perform independent testing of units. Grant completed successfully. Units are being manufactured. Ford has purchased 200 units at a total cost of $1.9 million. GM is testing for line delivery robotics applications.

****

DOE No: 0338 DOE Coord: G.K.Ellis

Title: Downhole Pneumatic Turbine Motor for Geothermal Energy

Description: A downhole pneumatic turbine motor for geothermal well drilling.

Inventor: William C Lyons
State : NM

Contact:
William C Lyons
P O Box #2457
Santa Fe NM 87504
505-982-2467

Status: Complete Status Date: 08/06/87 OERI No.: 010889

Patent Status : Patent Number: 4434862
Development Stage : Engineering Design
Technical Category: Other Natural Sources

Recv by NIST : 06/04/85
Recom. by NIST : 02/03/86
Award Date : 06/20/86 Award Amount: $ 79,750 Grant No: FG01-86CE15285
Contract Period: 06/20/86 - 08/06/87

Summary: A grant was awarded to build and demonstrate a workable prototype. The prototype was completed, successfully tested, and has been installed in commercial operation to provide drilling services for geothermal drilling companies. Subsequently, a six-inch motor will be developed for oil and gas wells.

DOE No: 0339 DOE Coord: P.M.Hayes

Title: Recycoil II

Description: A heat exchanger system for using some of the heat (energy) from a laundromat dryer to heat water for washers.

Inventor: John L Wendel
State : FL

Contact:
William R Schick
c/o Alternate Energy Systems
133 Startrail
Fort Richey FL 33553
813-862-9166

Status: Award Status Date: 08/28/89 OERI No.: 004869

Patent Status : Patent Number: 4187701 and others
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 02/22/79
Recom. by NIST : 02/07/86
Award Date : 08/28/89 Award Amount: $ 4,888 Grant No: FG01-89CE15349
Contract Period: 08/28/89 - 08/27/90

Summary: A grant was awarded to allow the American Gas Association to test the inventor's heat exchange system.

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DOE No: 0340 DOE Coord: G.K.Ellis

Title: Separation of Adsorbed Components by Variable Temperature Desorption

Description: An Adsorption Based Method for Separating Multicomponent Liquid or Multicomponent Gas Systems

Inventor: Marshall Findley
State : MO

Contact:
Marshall Findley
Department of Chemical Eng
143 Schrenk Hall
Rolla MO 65401
314-341-4416

Status: Complete Status Date: 02/10/89 OERI No.: 010856

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 05/23/85
Recom. by NIST : 02/18/86
Award Date : 02/11/87 Award Amount: $ 77,791 Grant No: FG01-87CE15304
Contract Period: 02/11/87 - 02/10/89

Summary: a grant awarded for development and testing of pilot-scale prototype. Testing results were promising. Inventor seeks licensing opportunity.

DOE No: 0341 DOE Coord: G.K.Ellis

Title: High Pressure Liquid Jets as a Tool for Disintegrating Organic and Non-Organic Materials

Description: A process for using high-pressure water jets for comminution of organic and inorganic materials.

Inventor: Marian Mazurkiewicz
State : MO

Contact:
F Terry Nixon
Route Four, Box #519
Rolla MO 65401
314-364-7747

Status: Complete Status Date: 09/14/87 OERI No.: 010661

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 02/28/85
Recom. by NIST : 02/21/86
Award Date : 09/14/86 Award Amount: $ 69,248 Grant No: FG01-86CE15299
Contract Period: 09/14/86 - 09/14/87

Summary: A grant was awarded to build and demonstrate a prototype. The prototype was completed and tested; the results showed no marked improvement over existing technology.

****

DOE No: 0342 DOE Coord: J.Aellen

Title: Raw Fines Medium Coal Washing System

Description: A process to recover raw fines from refuse piles at coal mines.

Inventor: Gary L Drake
State : KY

Contact:
Gary L Drake
3500 Fern Valley Road
120 North Ocean Boulevard
Louisville KY 40213
502-964-0653

Status: Complete Status Date: 09/01/88 OERI No.: 010783

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 04/23/85
Recom. by NIST : 02/24/86
Award Date : 03/02/87 Award Amount: $ 76,456 Grant No: FG01-87CE15293
Contract Period: 03/02/87 - 09/01/88

Summary: A grant was awarded to test the technology. No final report has yet been received. Testing program was never started.

DOE No: 0343 DOE Coord: T.M.Levinson

Title: Electronic Octane

Description: A system in which knock intensity in individual cylinders of an automobile engine is sensed and used as a feed-back parameter to control spark timing in individual cylinders.

Inventor: John A McDougal
State : MI

Contact:
John A McDougal

Status: Analysis Status Date: 03/04/86 OERI No.: 010899

Patent Status : Patent Number: 4116173 and others
Development Stage : Limited Production/Marketing
Technical Category: Combustion Engines & Components

Recv by NIST : 06/07/85
Recom. by NIST : 03/04/86

Summary: No DOE support requested. Inventor considering possible demonstration plans. License agreements were signed with Ford and Chrysler as a result of infringement litigation; others are in negotiation.

****

DOE No: 0344 DOE Coord: G.K.Ellis

Title: Machine for Separating Concrete from Steel

Description: A machine for removing damaged Portland cement concrete roadway by inserting a wedge-shaped anvil under the pavement, hammering the pavement to break it into small pieces, removing it from the reinforcing rod, and conveying the resulting aggregate to trucks. The reinforcing rod is returned to the roadway to be utilized in the repaving operation.

Inventor: Deems M Pfaff
State : MN

Contact:
Deems M Pfaff
430 First Avenue, North
Suite #720
Minneapolis MN 55401
612-450-1152

Status: Complete Status Date: 01/19/88 OERI No.: 010394

Patent Status : Patent Number: 4309126
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 09/11/84
Recom. by NIST : 03/07/86
Award Date : 01/20/87 Award Amount: $ 69,956 Grant No: FG01=87CE15315
Contract Period: 01/20/87 - 01/19/88

Summary: A grant was awarded as part of a $2.5 million project. Additional funding from other sources is being sought.

DOE No: 0345 DOE Coord: P.M.Hayes

Title: Tulleners Wave Piercer

Description: Design of a seacraft based on sound hydrodynamic and dynamic principles; possesses superior floating qualities with a significant reduction in required power for propulsion.

Inventor: Harry Werner Tulleners
State : OH

Contact:
Harry Werner Tulleners
114 West Market Street
Urbana OH 43078
513-653-6756

Status: Complete Status Date: 09/30/89 OERI No.: 001370

Patent Status : Patent Number: 3430595
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 10/08/76
Recom. by NIST : 03/10/86
Award Date : 08/07/87 Award Amount: $ 70,898 Grant No: FG01-87CE15342
Contract Period: 08/07/87 - 09/30/89

Summary: The Department of the Navy, David Taylor Ship Research and Development Center, conducted seakeeping tests on Mr. Tulleners catamaran-type boat as part of a $70,898 inter-agency agreement with the Department of Energy. Mr. Tulleners is participating in the American Bureau of Shipping and the U.S. Coast Guard boat certification processes. In FY 1989, DOE provided an additional $2,987 to the Department of the Navy for a cost overrun on the project.

****

DOE No: 0346 DOE Coord: G.K.Ellis

Title: Ultra-Pure Water System for Hospitals

Description: An ozone generator based system for producing medical quality sterile water for intravenous and other applications.

Inventor: Eskil L Karlson
State : PA

Contact:
Eskil L Karlson
2626 State Street
Erie PA 16508
814-455-7849

Status: Complete Status Date: 02/20/88 OERI No.: 011050

Patent Status : Disclosure Document Program
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv by NIST : 08/02/85
Recom. by NIST : 03/14/86
Award Date : 08/20/86 Award Amount: $ 78,589 Grant No: FG01-86CE15294
Contract Period: 08/20/86 - 02/20/88

Summary: A grant was awarded to build and demonstrate a workable prototype. The prototype was completed and successfully tested, and the inventor is in active negotiation for licensing.

DOE No: 0347 DOE Coord: J.Aellen

Title: Oxide Dispersion Strengthened Aluminum Alloys

Description: A process for manufacturing a series of 2XXX aluminum alloys having improved strength at temperatures above 350 degrees F.

Inventor: Ray Alexander
State : UT

Contact:
Ray Alexander
410 Chipeta Way
Suite #222
Salt Lake City UT 84108
801-582-8080

Status: Complete Status Date: 08/18/88 OERI No.: 011108

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 08/26/85
Recom. by NIST : 03/17/86
Award Date : 02/19/87 Award Amount: $ 70,000 Grant No: FG01-87CE15300
Contract Period: 02/19/87 - 08/18/88

Summary: A grant was awarded to prepare and test samples.

****

DOE No: 0348 DOE Coord: G.K.Ellis

Title: Hydrogen Sulfide Removal for Natural Gas

Description: A process for removing heavy concentration (30% - 50%) of hydrogen sulfide from gas streams.

Inventor: Christiaan P van Dijk
State : TX

Contact:
Christiaan P van Dijk
10722 Glenway
Houston TX 77070
713-469-1122

Status: Complete Status Date: 05/01/88 OERI No.: 011171

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 10/03/85
Recom. by NIST : 04/04/86
Award Date : 02/02/87 Award Amount: $ 73,426 Grant No: FG01-87CE15314
Contract Period: 02/02/87 - 05/01/88

Summary: A grant was awarded to develop information adequate to build a pilot plant which was completed and successfully tested. Inventor negotiating for licensing.

DOE No: 0349 DOE Coord: P.M.Hayes

Title: Three Roll Tension Stand

Description: A high-shear rolling process for the rapid reduction of steel slabs to strip in a single pass.

Inventor: Howard S Orr
State : PA

Contact:
E K Jacob

Status: Analysis Status Date: 04/11/86 OERI No.: 010526

Patent Status : Patent Number: 4291562
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 12/04/84
Recom. by NIST : 04/09/86

Summary: No request for assistance has been received.

****

DOE No: 0350 DOE Coord: G.K.Ellis

Title: Method and Apparatus for Testing Soil

Description: A testing device for determining the various properties of soil, in situ, for use in analysis of soil-structure interaction under seismic loadings.

Inventor: Wanda Henke
State : MD

Contact:
Wanda Henke
2003 Vista Lane
Lutherville MD 21293
301-252-4474

Status: Complete Status Date: 05/22/88 OERI No.: 010462

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 11/01/84
Recom. by NIST : 04/09/86
Award Date : 12/23/86 Award Amount: $ 79,860 Grant No: FG01-87CE15305
Contract Period: 12/23/86 - 05/22/88

Summary: A grant was awarded to develop final design of a prototype system, as part of an NSF SBIR phase II project. The prototype was completed and successfully tested. Inventor is now progressing rapidly in final phases of testing in NSF's SBIR Phase II. Results are promising.

DOE No: 0351 DOE Coord: P.M.Hayes

Title: Flash Gate Board

Description: An automatically actuated water control gate to be mounted on top of a reservoir overflow structure to increase head and storage volume.

Inventor: William Martin Johnson
State : VA

Contact:
William Martin Johnson
Route Four, Box #265
Lynchburg VA 24503
804-384-2496

Status: Complete Status Date: 05/01/88 OERI No.: 010826

Patent Status : Patent Number: 4455106
Development Stage : Engineering Design
Technical Category: Other Natural Sources

Recv by NIST : 05/18/85
Recom. by NIST : 04/09/86
Award Date : 02/02/87 Award Amount: $ 47,661 Grant No: FG01-87CE15309
Contract Period: 02/02/87 - 05/01/88

Summary: A grant was awarded to the Virginia Polytechnic Institute to develop mathematical models to examine flash gate behavior. Grant objectives were successfully met. Inventor is seeking financing to build and test full scale working model.

****

DOE No: 0352 DOE Coord: J.Aellen

Title: A Waterjet Mining Machine

Description: A waterjet mining machine which includes the roof support function. High-pressure jets delineate blocks of coal which are subsequently broken loose by hydraulically driven wedges.

Inventor: David A Summers
State : MO

Contact:
Ray E Snyder
Tower Center
200 East Evergreen
Mount Prospect IL 60056
312-398-1525

Status: Complete Status Date: 07/06/90 OERI No.: 011173

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 10/04/85
Recom. by NIST : 04/22/86
Award Date : 04/27/87 Award Amount: $ 76,040 Grant No: FG01-87CE15307
Contract Period: 04/27/87 - 07/06/90

Summary: A grant was awarded to build and test an advanced prototype. The grant was extended to 7/6/90. No final report.

DOE No: 0353 DOE Coord: J.Aellen

Title: Compu-Turbo-Aligner

Description: A computerized system for aligning the shafts of turbines and generators in powerplants.

Inventor: Kenneth V Field
State : FL

Contact:
Kenneth V Field
Compad, Inc
715 Flamingo Drive
Apollo Beach FL 33570
813-645-3706

Status: Complete Status Date: 09/12/90 OERI No.: 010795

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Miscellaneous

Recv by NIST : 12/30/83
Recom. by NIST : 05/12/86
Award Date : 09/12/90 Award Amount: $ 61,835 Grant No: FG01-90CE15353
Contract Period: 09/12/90 - 09/11/92

Summary: A grant was awarded to build and test a prototype.

****

DOE No: 0354 DOE Coord: J.Aellen

Title: Preparation of Biliquid Foam Compositions

Description: Use of a biliquid foam for separating bitumen from tar sands.

Inventor: Felix Sebba
State : VA

Contact:
Felix Sebba
Department of Chemical Engrg
Virginia Tech
Blacksburg VA 24061
703-961-6753

Status: Complete Status Date: 04/18/90 OERI No.: 011326

Patent Status : Patent Number: 4486333
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 12/17/85
Recom. by NIST : 05/27/86
Award Date : 04/20/87 Award Amount: $ 63,276 Grant No: FG01-87CE15308
Contract Period: 04/20/87 - 04/18/90

Summary: A grant was awarded to compare twenty special compounds (aphrons) and test them in a diesel engine under varying conditions. No final report received.

DOE No: 0355 DOE Coord: J.Aellen

Title: Energy-Efficient Ice Cube Making Machine

Description: A machine which makes ice cubes by freezing together thin layers of ice. This takes advantage of the fact that thin layers of ice can be frozen more quickly than a solid cube of ice can.

Inventor: John A Broadbent
State : MN

Contact:
John A Broadbent
2125 Decatur Avenue, North
Golden Valley MN 55427
612-542-6827

Status: Complete Status Date: 06/30/91 OERI No.: 011122

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Miscellaneous

Recv by NIST : 08/30/85
Recom. by NIST : 06/24/86
Award Date : 06/22/89 Award Amount: $ 73,642 Grant No: FG01-89CE15355
Contract Period: 06/22/89 - 06/30/91

Summary: A grant was awarded to build and test a prototype.

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DOE No: 0356 DOE Coord: G.K.Ellis

Title: Portable Automatic Firewood Processor

Description: A portable, compact machine for processing small logs into firewood by feeding, shearing and splitting the wood.

Inventor: Warren A Aikins
State : WA

Contact:
Warren A Aikins
3489 Indian Creek Drive
Longview WA 98632
206-425-5470

Status: Complete Status Date: 06/04/88 OERI No.: 011320

Patent Status : Patent Number: 4483379
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 12/16/85
Recom. by NIST : 07/09/86
Award Date : 06/05/87 Award Amount: $ 75,411 Grant No: FG01-87CE15330
Contract Period: 06/05/87 - 06/04/88

Summary: A grant was awarded to develop an advanced prototype. The prototype was completed and showed substantial improvement over conventional processing, both as to rate of production and improvement in drying. Item is in limited production. Inventor has received new NIST recommendation (ERIP #460) for a more advanced version, for which a DOE procurement request has been initiated.

DOE No: 0357 DOE Coord: P.M.Hayes

Title: TubeExpress Pneumatic Capsule Pipeline Transport System

Description: A pneumatic materials handling system using capsules to carry bulk materials through a tubular line.

Inventor: William Vandersteel
State : NJ

Contact:
William Vandersteel
Tubexpress Systems, Inc.
One Marine Plaza
North Bergen NJ 07047
201-868-2000

Status: Complete Status Date: 05/01/88 OERI No.: 011285

Patent Status : Patent Number: 4458602 and others
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 12/06/85
Recom. by NIST : 07/09/86
Award Date : 02/02/87 Award Amount: $ 70,000 Grant No: FG01-87CE15311
Contract Period: 02/02/87 - 05/01/88

Summary: A grant was awarded to determine the capsule wheel/alignment configuration necessary to achieve spiraling stability in a thirty-six inch diameter system. Project objectives were successfully met. TubeExpress Systems, Inc., is negotiating with several private sector companies for commercial application of the technology.

****

DOE No: 0358 DOE Coord: J.Aellen

Title: Device for Well Site Monitoring and Control of Rod- Pumped Wells

Description: A device for monitoring and controlling the pumping rate of rod-pumped wells for maintaining maximum well production rate.

Inventor: John C Purcupile
State : OK

Contact:
Glenn Albert
11204 Northwest 113th Street
Yukon OK 73099
405-373-1318

Status: Award Status Date: 07/07/89 OERI No.: 011040

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv by NIST : 07/29/85
Recom. by NIST : 07/15/86
Award Date : 07/07/89 Award Amount: $ 78,525 Grant No: FG01-89CE15312
Contract Period: 07/07/89 - 01/05/93

Summary: A grant was awarded to Albert Engineering to build and test a prototype.

DOE No: 0359 DOE Coord: P.M.Hayes

Title: Solid Fuel Hot Air Furnace

Description: A wood-fueled furnace is used to heat a poultry/brooder house. A heat exchanger allows fresh, dry air to be supplied to the brooder.

Inventor: James W Flatte
State : AR

Contact:
James W Flatte
4500 North 30th
Fort Smith AR 72904
501-782-6840

Status: Award Status Date: 01/20/87 OERI No.: 011061

Patent Status : Patent Number: 4343290
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 08/05/85
Recom. by NIST : 07/23/86
Award Date : 01/20/87 Award Amount: $ 73,098 Grant No: FG01-87CE15320
Contract Period: 01/20/87 - 01/18/90

Summary: A grant was awarded to build, test and demonstrate the wood furnace heating system. A Phase II grant has also been awarded.

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DOE No: 0360 DOE Coord: G.K.Ellis

Title: Temperature Controllable Heat Valve

Description: A temperature-controllable heat valve uses a control grid that can vary the thermal flow through a heat pipe. It uses no internal moving parts and needs no external energy sources.

Inventor: Lawrence A Schmid
State : MD

Contact:
Lawrence A Schmid

Status: Analysis Status Date: 12/23/91 OERI No.: 010981

Patent Status : Patent Number: 4494595
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 07/08/85
Recom. by NIST : 07/25/86

Summary: Inventor attended Commercialization Planning Workshop. Inventor not interested in assuming responsibility, and wanted to assign grant to a university without providing grant oversight responsibility.

DOE No: 0361 DOE Coord: J.Aellen

Title: Measurement of Liquid Volumes with Compensation for Temperature Induced Variations

Description: A device for metering flowing liquids in which the volumetric measurement is corrected for variations in liquid density.

Inventor: Vladimir Horak
State : NJ

Contact:
Vladimir Horak
623 LaFayette
Hawthorne NJ 07506
201-423-9303

Status: Award Status Date: 03/16/89 OERI No.: 011053

Patent Status : Patent Number: 4445627 and others
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 08/03/85
Recom. by NIST : 08/07/86
Award Date : 03/16/89 Award Amount: $ 51,743 Grant No: FG01-89CE15361
Contract Period: 03/16/89 - 09/30/92

Summary: A grant was awarded to Rutgers University to build and test a prototype.

****

DOE No: 0362 DOE Coord: J.Aellen

Title: Improved Solvents for the Puraq Seawater Desalination Process

Description: A polymer based solvent-extraction process for the desalinization of seawater.

Inventor: Leon Lazare
State : CT

Contact:
Leon Lazare
The Puraq Company
111 Hannah's Road
Stamford CT 06903
203-322-3925

Status: Complete Status Date: 06/06/91 OERI No.: 011121

Patent Status : Patent Number: 3832301 and others
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 09/04/85
Recom. by NIST : 08/14/86
Award Date : 06/07/88 Award Amount: $ 70,000 Grant No: FG01-88CE15362
Contract Period: 06/07/88 - 06/06/91

Summary: A grant was awarded to produce fifty samples of water absorbent/releasing polymers and the testing of each. Grant was not completed.

DOE No: 0363 DOE Coord: P.M.Hayes

Title: Impactor Separator

Description: A device for removing particulates from diesel engine exhaust, which consists of an impingement system for capturing particles and a system for collecting and burning these captured particles.

Inventor: Leonard R Lefkowitz
State : NY

Contact:
Leonard R Lefkowitz
Fourteen Alpine Drive
Latham NY 12110
518-785-8232

Status: Complete Status Date: 10/15/88 OERI No.: 010426

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 10/02/84
Recom. by NIST : 08/14/86
Award Date : 04/04/87 Award Amount: $ 70,000 Grant No: FG01-87CE15327
Contract Period: 04/04/87 - 10/15/88

Summary: A grant was awarded to design, build and test a workable prototype of the regenerative diesel filter invention. Inventor seeking partner to help develop the technology.

****

DOE No: 0364 DOE Coord: J.Aellen

Title: Intermittent Solar Ammonia Absorption Cycle (ISAAC)

Description: An intermittent solar-powered ammonia/water absorption cycle to make ice.

Inventor: Donald C Erickson
State : MD

Contact:
Donald C Erickson
627 Ridgely Avenue
Annapolis MD 21401
301-266-6521

Status: Complete Status Date: 10/22/88 OERI No.: 011112

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 08/26/85
Recom. by NIST : 08/20/86
Award Date : 04/23/87 Award Amount: $ 69,400 Grant No: FG01-87CE15325
Contract Period: 04/23/87 - 10/22/88

Summary: A grant was awarded to build and test a model in Micronesia. Final report not yet received.

DOE No: 0365 DOE Coord: P.M.Hayes

Title: Safety Stovepipe Damper Assembly

Description: A damper to be used on wood stoves to prevent flue overheating.

Inventor: Kenneth H Raihala
State : WI

Contact:
Kenneth H Raihala
2316 Wyoming Avenue
Superior WI 54880
715-392-2507

Status: Award Status Date: 01/09/90 OERI No.: 011315

Patent Status : Patent Number: 4479483
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 12/13/85
Recom. by NIST : 08/21/86
Award Date : 01/09/90 Award Amount: $ 27,713 Grant No: FG01-90CE15365
Contract Period: 01/09/90 - 01/09/92

Summary: A grant was awarded to determine the operating characteristics of the safety stove pipe dampers and to optimize the performance of the assembly components.

****

DOE No: 0366 DOE Coord: J.Aellen

Title: High Energy Semiconductor Switch

Description: The invention is an improved gate turn-off thyrister, with capabilities of shorter turn-off time and smaller gate control current.

Inventor: R L Risberg
State : WI

Contact:
R L Risberg
16915 West Judith Lane
- Brookfield WI 53005
414-784-2025

Status: Complete Status Date: 02/23/89 OERI No.: 011279

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Miscellaneous

Recv by NIST : 12/05/85
Recom. by NIST : 08/21/86
Award Date : 02/24/87 Award Amount: $ 75,000 Grant No: FG01-87CE15319
Contract Period: 02/24/87 - 02/23/89

Summary: A grant was awarded to fabricate and test prototypes with and without MOS control.

DOE No: 0367 DOE Coord: G.K.Ellis

Title: Disintegration of Wood

Description: A high-pressure water jet for producing wood pulp.

Inventor: Marian Mazurkiewicz
State : MO

Contact:
Terry Nixon
Incubator Technology
Route Four, Box #519
Rolla MO 65401
314-364-8570

Status: Complete Status Date: 11/18/89 OERI No.: 010668

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 02/28/85
Recom. by NIST : 08/27/86
Award Date : 05/19/88 Award Amount: $ 67,795 Grant No: FG01-88CE15367
Contract Period: 05/19/88 - 11/18/89

Summary: A grant was awarded to ??? The work that has been complete does not show the technology as promising.

****

DOE No: 0368 DOE Coord: T.M.Levinson

Title: Aircraft Minimum Drag Speed System

Description: A system for determining the minimum drag speed of an aircraft in loitering flight.

Inventor: Paul Michelotti
State : CT

Contact:
Paul Michelotti

Status: Analysis Status Date: 09/22/86 OERI No.: 010888

Patent Status : Patent Number: 4445179
Development Stage : Prototype Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 06/04/85
Recom. by NIST : 09/19/86

Summary: Recommendation under consideration by DOE which is awaiting action by the inventor.

DOE No: 0369 DOE Coord: J.Aellen

Title: "Fire Jet" Automatic Anthracite Burner

Description: Anthracite burning furnace including automatic feed and ash disposal.

Inventor: Erwin O Beck
State : PA

Contact:
Erwin O Beck
Losch Energy Systems, Inc
1008 Route #61, Building Three
Post Office Box #125
Schuykill Haven PA 17972
717-385-2442

Status: Complete Status Date: 09/29/91 OERI No.: 010743

Patent Status : Not Applied For
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 03/25/85
Recom. by NIST : 09/22/86
Award Date : 09/30/89 Award Amount: $ 68,030 Grant No: FG01-89CE15369
Contract Period: 09/30/89 - 09/29/91

Summary: A grant was awarded to build and test a prototype of the invention with additional funds coming from Bucknell University, the inventor and the Ben Franklin Partnership Fund, and Lehigh Coal and Navigation Co.

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DOE No: 0370 DOE Coord: P.M.Hayes

Title: Dehumidification System for Indoor Pools and Other High Humidity Areas

Description: Provides an efficient climate control system for indoor swimming pools and other high humidity areas.

Inventor: Walter A Stark
State : NY

Contact:
Walter A Stark
26 Grist Mill Lane
Halesite NY 11743
516-424-8030

Status: Award Status Date: 09/28/89 OERI No.: 010775

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 04/19/85
Recom. by NIST : 09/24/86
Award Date : 09/28/89 Award Amount: $ 90,000 Grant No: FG01-89CE15370
Contract Period: 09/28/89 - 03/27/93

Summary: A grant was awarded to develop and test a pre-production prototype at an indoor swimming pool.

DOE No: 0371 DOE Coord: P.M.Hayes

Title: Wallace Energy Systems Solar Assisted Heat Pump Water Heater

Description: A solar assisted, heat-pump water heater for commercial application.

Inventor: Joe C Pendergrass
State : GA

Contact:
Joe C Pendergrass

Status: No DOE Support Status Date: 09/29/89 OERI No.: 010980

Patent Status : Patent Number: 4438881
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 07/08/85
Recom. by NIST : 09/26/86

Summary: No request for assistance has been received.

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DOE No: 0372 DOE Coord: P.M.Hayes

Title: FS 630 Heat Pump Thermostat Control

Description: An add-on control for most heat pump thermostats that allows the heat pump to change its temperature setting automatically and systematically minimizing the use of resistance heating with the heat pump as a backup to accomplish the temperature change.

Inventor: Linus C Fuchek
State : WA

Contact:
Linus C Fuchek

Status: No DOE Support Status Date: 09/29/89 OERI No.: 010851

Patent Status : Patent Number: 4334576
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 05/29/85
Recom. by NIST : 09/30/86

Summary: No request for assistance has been received.

DOE No: 0373 DOE Coord: J.Aellen

Title: Tobacco Harvesting Machine

Description: A tobacco harvesting machine having a pair of horizontal rotating augers which propel tobacco plants onto a horizontal fixed tobacco stick. The machine also cuts the stalk.

Inventor: Harold W Taylor, Junior
State : KY

Contact:
Harold W Taylor, Junior

Status: No DOE Support Status Date: 09/29/89 OERI No.: 011424

Patent Status : Patent Number: 4353200
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 02/04/86
Recom. by NIST : 09/30/86

Summary: The DOE declined to provide financial support for this invention due to limited energy relationship.

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DOE No: 0374 DOE Coord: P.M.Hayes

Title: Expansion Compression System for Efficient Power Output Regulation of Internal Combustion Engines

Description: A two-mode engine air supply system based on a helical screw compressor/expander. The device provides compressed air (supercharging) in the engine high-output mode and provides power recovery through expansion of inducted air in the engine low- output mode. The device eliminates the need for a conventional engine throttle.

Inventor: David N Shaw
State : CT

Contact:
David N Shaw

Status: No DOE Support Status Date: 09/29/89 OERI No.: 011544

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv by NIST : 04/30/86
Recom. by NIST : 10/22/86

Summary: No request for assistance has been received.

DOE No: 0375 DOE Coord: J.Aellen

Title: MDT Twister

Description: A device which produces dynamic twisting of iced power cables for the purpose of minimizing galloping.

Inventor: Albert S Richardson, Junior
State : MA

Contact:
Albert S Richardson, Junior
Three Wingate Road
Lexington MA 02173
617-862-7200

Status: Award Status Date: 09/17/90 OERI No.: 010847

Patent Status : Disclosure Document Program
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 05/29/85
Recom. by NIST : 10/24/86
Award Date : 09/17/90 Award Amount: $ 73,975 Grant No: FG01-90CE15429
Contract Period: 09/17/90 - 09/16/94

Summary: A grant was awarded in conjunction with DOE #0429 to produce 300 MDT Twisters and 300 Galloping Indicators.

****

DOE No: 0376 DOE Coord: T.M.Levinson

Title: Machine and Method for Producing Energy-Saving Transformers Incorporating Amorphous Metal Cores

Description: Machine and method to make high-efficiency, multi- layer, gap free, magnetic core electrical transformers. They use amorphous steel for core material.

Inventor: Emil B Rechsteiner
State : MA

Contact:
Emil B Rechsteiner
Skyfields Farm
Boston Road
Groton MA 01450
508-486-9483

Status: Award Status Date: 09/30/91 OERI No.: 011133

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Miscellaneous

Recv by NIST : 09/11/85
Recom. by NIST : 10/24/86
Award Date : 07/06/88 Award Amount: $ 64,222 Grant No: FG01-88CE15376
Contract Period: 07/06/88 - 07/05/91

Summary: A grant was awarded develop a machine to serve as a testbed for refinement of the basic concept of using a new technique for winding electric transformer cores made of amorphous metals. During the course of the grant, feasibility of the concept was shown. A model was built/tested for reliability and durability. The grantee contributed at least $9,600 to the project. Additional work on the prototype and finding venture capital is on hold until the inventor recovers his health.

DOE No: 0377 DOE Coord: G.K.Ellis

Title: A Novel Method of Producing Ice-Water Slurries

Description: The direct production of an ice-water slurry by evaporative crystallization within a suitably- modified Puraq absorption refrigeration chiller utilizing water and ethylene glycol as working fluids with either single or double effect regeneration.

Inventor: Leon Lazare
State : CT

Contact:
Leon Lazare
The Puraq Company
111 Hannah's Road
Stamford CT 06903
203-322-3925

Status: Complete Status Date: 12/04/88 OERI No.: 011519

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv by NIST : 04/09/86
Recom. by NIST : 10/30/86
Award Date : 06/05/87 Award Amount: $ 70,000 Grant No: FG01-87CE15339
Contract Period: 06/05/87 - 12/04/88

Summary: A grant was awarded to provide support for building a 200 ton Puraq absorption chiller for use in a testing program by Brookhaven National Laboratory. This is a cooperative project with others totaling $385,609. The ERIP grant activity was completed satisfactorily, but the project continues. Because BNL withdrew from the program, the location of the facility was recently changed to Clarkson Univ. ERIP is initiating a procurement request to transfer $92,500 of DOE's Building and Community Systems funds for use by Clarkson.

****

DOE No: 0378 DOE Coord: P.M.Hayes

Title: An Improved Cutter for Plaster Board and the Like

Description: A table and cutting machine designed for cutting large sheets of materials, such as plaster board and foam insulation used in the building construction industry. A pair of coplanar counter-rotating circular blades moving at different speeds advance the material while essentially shearing it without production of dust.

Inventor: James E Altman
State : GA

Contact:
James E Altman

Status: No DOE Support Status Date: 09/29/89 OERI No.: 010916

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 06/13/85
Recom. by NIST : 11/10/86

Summary: No request for assistance has been received.

DOE No: 0379 DOE Coord: J.Aellen

Title: Inner Roof Solar System

Description: The invention is an unglazed solar collector used to replace a residential roof.

Inventor: Joseph Allegro
State : FL

Contact:
Joseph Allegro
731 Northeast Sixty-Ninth St
Boca Rotan FL 33431
305-977-8479

Status: Award Status Date: 05/31/89 OERI No.: 010019

Patent Status : Patent Number: 4158357 and others
Development Stage : Working Model
Technical Category: Direct Solar

Recv by NIST : 03/07/84
Recom. by NIST : 11/21/86
Award Date : 05/31/89 Award Amount: $ 65,275 Grant No: FG01-89CE15379
Contract Period: 05/31/89 - 11/29/92

Summary: A grant was awarded to build and test prototypes for laboratory and field testing.

****

DOE No: 0380 DOE Coord: E.Levine

Title: Blow-In Blanket System

Description: A novel process for spraying or blowing conventional insulation materials into wall and ceiling cavities. This process utilizes an adhesive to form an insulation blanket that fills voids completely and eliminates settling and drifting. In addition, higher R-values per inch of insulation are claimed relative to batt, loose-fill, and spray-applied insulation systems.

Inventor: Henry Sperber
State : CO

Contact:
Henry Sperber

Status: Decision Phase Status Date: 09/30/91 OERI No.: 011454

Patent Status : Patent Number: 4530468 and others
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 02/20/86
Recom. by NIST : 11/26/86

Summary: Proposal is presently under negotiation.

DOE No: 0381 DOE Coord: P.M.Hayes

Title: Multiple Heat-Range Spark Plug -

Description: A spark plug that includes a heat pipe to maintain a set temperature of plug tip.

Inventor: William P Strumbos
State : NY

Contact:
William P Strumbos

Status: Analysis Status Date: 12/15/86 OERI No.: 011684

Patent Status : Patent Number: 4491101
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv by NIST : 06/09/86
Recom. by NIST : 12/12/86

Summary: No request for assistance has ben received.

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DOE No: 0382 DOE Coord: P.M.Hayes

Title: System for Recovery of Waste Hot Water Heat Energy

Description: A counter-flow heat exchanger intended for recovering heat from the waste water to preheat the incoming cold water in a home.

Inventor: Carmile F Vasile
State : NY

Contact:
Anthony Grieco
1 Meadow Lane
Huntington NY 11745
516-673-5461

Status: Award Status Date: 05/02/89 OERI No.: 009925

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 01/09/84
Recom. by NIST : 12/16/86
Award Date : 05/02/89 Award Amount: $ 65,000 Grant No: FG01-89CE15382
Contract Period: 05/02/89 - 03/31/92

Summary: A grant was awarded to develop and field test prototypes of the waste water recovery system. Extension was granted to further the prototype development.

DOE No: 0383 DOE Coord: G.K.Ellis

Title: Electro-Optic Inspection of Heat Exchangers

Description: A laser based system to inspect heat exchanger tubing for internal corrosion, erosion, scale buildup and deformation. An articulated probe is capable of negotiating and rapidly inspecting straight and bent tubing. The results are acquired, stored and displayed on a portable computer system with graphics capability.

Inventor: James L Doyle, Jr.
State : WA

Contact:
James L Doyle, Jr.
Flow Industries
21414 68th Avenue, South
Kent WA 98032
206-872-8500

Status: Complete Status Date: 10/08/88 OERI No.: 011086

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Miscellaneous

Recv by NIST : 08/19/85
Recom. by NIST : 12/17/86
Award Date : 04/09/87 Award Amount: $ 63,502 Grant No: FG01-87CE15328
Contract Period: 04/09/87 - 10/08/88

Summary: A grant was awarded to build and test an advanced prototype. The prototype was completed and satisfactorily tested. Options for developing a new venture are being investigated.

****

DOE No: 0384 DOE Coord: J.Aellen

Title: Textured Substrate and Method for the Direct, Continuous Casting of Metal Sheet Exhibiting Improved Uniformity

Description: A process and hardware for continuously casting thin strip steel

Inventor: Thomas Gaspar
State : OH

Contact:
Lloyd E Hackman
Ribbon Technology Corporation
Box #30758
Gahanna OH 43230
800-848-0477

Status: Complete Status Date: 12/13/89 OERI No.: 011829

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 08/15/86
Recom. by NIST : 01/21/87
Award Date : 06/14/88 Award Amount: $ 76,444 Grant No: FG01-88CE15384
Contract Period: 06/14/88 - 12/13/89

Summary: A grant was awarded to build and test a prototype. A supplemental grant from the Office of Industrial Programs was also received. Final report received.

DOE No: 0385 DOE Coord: P.M.Hayes

Title: Process for Treating Humus Materials

Description: A process for de-watering peat by using acidification to adjust the pH to near the isoelectric point.

Inventor: Harold A Hartung
State : NJ

Contact:
Harold A Hartung

Status: No DOE Support Status Date: 09/29/89 OERI No.: 011349

Patent Status : Patent Number: 4459149
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv by NIST : 12/31/85
Recom. by NIST : 01/28/87

Summary: No request for assistance has been received.

****

DOE No: 0386 DOE Coord: G.K.Ellis

Title: Device and Method to Enable Detection and Measurement of Deformities in Well Components

Description: A tool to check the condition of the well casing during drilling as a means for minimizing blowouts.

Inventor: John H Mayo
State : LA

Contact:
John H Mayo
Girk, Inc.
404 Alondo Drive
Lafayette LA 70503
318-237-3881

Status: Complete Status Date: 02/28/89 OERI No.: 011599

Patent Status : Patent Number: 4578987 and others
Development Stage : Prototype Development
Technical Category: Fossil Fuels

Recv by NIST : 05/21/86
Recom. by NIST : 02/02/87
Award Date : 09/01/87 Award Amount: $ 88,000 Grant No: FG01-87CE15345
Contract Period: 09/01/87 - 02/28/89

Summary: A grant was awarded to develop an advanced prototype. The funding includes $13,000 from DOE/Fossil Energy. The prototype has been completed, but the inventor has been unable as yet to find an opportunity to test it.

DOE No: 0387 DOE Coord: J.Aellen

Title: Quiet Operating Internal Combustion Engine with Complete Highly Efficient Expansion Cycle

Description: A small internal combustion engine operating on a cycle which achieves essentially maximum expansion of combustion gases before they are exhausted to the atmosphere. The engine is flexible with respect to the fuel and ignition means used and can be constructed in several different embodiments to meet different applications. It is quiet, efficient and seems particularly suitable for powering devices such as chain saws, lawn mowers and the like.

Inventor: Frederick L Erickson
State : IN

Contact:
George S Lewis
3926 Windswept Drive
Fort Wayne IN 46815
219-483-2093

Status: Complete Status Date: 06/12/91 OERI No.: 005848

Patent Status : Patent Number: 4437437 and others
Development Stage : Prototype Test
Technical Category: Combustion Engines & Components

Recv by NIST : 09/25/79
Recom. by NIST : 02/02/87
Award Date : 06/14/88 Award Amount: $ 63,485 Grant No: FG01-88CE15387
Contract Period: 06/14/88 - 06/12/91

Summary: A grant was awarded to Engine Research Associates to build and test a prototype for efficiency and noise level. Grant extended to 6/12/91.

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DOE No: 0388 DOE Coord: J.Aellen

Title: Preparation of Extremely Fine, Superalloy Powders and Their Fabrication into Dense, Sintered, Net Shape Superalloy Parts

Description: A chemical coprecipitation method for preparing superalloy powders of less than one micron, of uniform size, intimately mixed, and without contaminants.

Inventor: Ram Natesh
State : UT

Contact:
Gordon F Jensen

Status: Decision Phase Status Date: 09/30/90 OERI No.: 010480

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 11/14/84
Recom. by NIST : 02/12/87

Summary: Proposal under consideration by DOE.

DOE No: 0389 DOE Coord: P.M.Hayes

Title: Reduced Size Heating Assembly for an Electric Stove

Description: A small diameter heating unit and drip pan for use on conventional electric ranges

Inventor: Donald W Scott
State : GA

Contact:
Donald W Scott

Status: No DOE Support Status Date: 09/29/89 OERI No.: 011004

Patent Status : Patent Number: 4506141
Development Stage : Production & Marketing
Technical Category: Miscellaneous

Recv by NIST : 07/15/85
Recom. by NIST : 02/13/87

Summary: No request for assistance has been received.

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DOE No: 0390 DOE Coord: G.K.Ellis

Title: Wicks Efficient Fuel Utilization System

Description: A cogeneration module which generates electricity and utilizes waste heat for space heating. It is intended for residential and light commercial applications.

Inventor: Frank Wicks
State : NY

Contact:
Frank Wicks
One Nicholas Avenue
Schenectady NY 12309
518-372-2783

Status: Complete Status Date: 08/04/89 OERI No.: 009948

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 01/24/84
Recom. by NIST : 03/06/87
Award Date : 02/05/88 Award Amount: $ 70,000 Grant No: FG01-88CE15390
Contract Period: 02/05/88 - 08/04/89

Summary: A grant was awarded to build and test a prototype. The prototype has now been substantially completed; tests have been satisfactory, and the inventor has non-exclusive licensing agreements with companies to manufacture and sell the module.

DOE No: 0391 DOE Coord: A.R.Barnes

Title: Compressed Gas Energy Storage

Description: The invention is an energy storage system in a leak- proof salt or granite cavern. In the energy storage mode, a reversible pump-turbine (RPT) unit pumps fluid into the cavern base to compress a mass of gas above it. In the power generation mode, the fluid expands through the RPT unit driving an electric generator to generate electricity during peak power demand.

Inventor: Gerald J Grott
State : AZ

Contact:
Gerald J Grott

Status: No DOE Support Status Date: 09/29/89 OERI No.: 011778

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 05/28/86
Recom. by NIST : 03/20/87

Summary: No proposal submitted. None expected.

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DOE No: 0392 DOE Coord: G.K.Ellis

Title: Method and Apparatus for Drilling Horizontal Holes in Geological Structures from a Vertical Bore

Description: A method and apparatus for linking underground wells up to several hundred feet apart, for in situ coal gasification.

Inventor: David A Summers
State : MO

Contact:
Terry Nixon

Status: Analysis Status Date: 12/23/91 OERI No.: 010708

Patent Status : Patent Number: 4317492
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 03/05/85
Recom. by NIST : 03/26/87

Summary: Inventor decided to wait until he has further developed the technology in the laboratory before requesting an ERIP grant for field testing. Awaiting proposal from inventor.

DOE No: 0393 DOE Coord: G.K.Ellis

Title: Method and Apparatus for Ultrasonic Testing of Tubular Goods

Description: A method to inspect tubing or pipes for flaws. This is a computer-controlled system for measuring in real time the structural integrity of tubular goods in a variety of different oil-field related operating conditions. For example, the equipment can be adapted for use in pipe lines for remotely evaluating high-pressure, underground gas lines over long distances.

Inventor: Waylon A Livingston
State : OK

Contact:
Waylon A Livingston
Tubesonics International, Inc
770 West Rock Creek Road
Norman OK 73069
405-364-9710

Status: Complete Status Date: 10/26/89 OERI No.: 011286

Patent Status : Patent Number: 4541064 and others
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 12/09/85
Recom. by NIST : 04/10/87
Award Date : 08/27/87 Award Amount: $ 94,721 Grant No: FG01-87CE15345
Contract Period: 08/27/87 - 10/26/89

Summary: A grant was awarded, including $19,721 from Fossil Energy, to build and test a prototype. The system's operation exceeds original expectations. A mobile unit detects flaws in metal of less than one- millionth of a square inch. The system was selected to inspect the magnet components for the Supercollider project. Three units have been sold, two for inspection of tubing coming out of wellholes, and one for inspecting coil tubing being manufactured. Inventor needs funding to set up his own service company.

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DOE No: 0394 DOE Coord: J.Aellen

Title: Variable Wall Mining Machine

Description: A longwall coal mining machine having a series of side cutting auger sections connected by universal joints. Nitrogen or other inexpensive inert gas is introduced into the shrouded cutting chamber to control release of methane from the coal seam and production of dust by the cutting machine.

Inventor: Jay Hilary Kelley
State : PA

Contact:
Jay Hilary Kelley

Status: Analysis Status Date: 10/28/91 OERI No.: 011464

Patent Status : Patent Number: 4118072
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 02/27/86
Recom. by NIST : 04/16/87

Summary: Resubmission of proposal necessary.

DOE No: 0395 DOE Coord: G.K.Ellis

Title: Holland Oil Well Pumping System

Description: A down-hole hydraulically operated oil-well pump for low- and medium-productivity wells (up to 140 bbl/day) and for highly deviated wells. The pump incorporates a steplessly adjustable stroke rate and a very high stroke displacement ratio.

Inventor: John H Holland
State : OK

Contact:
John H Holland
R & D Products, Inc
Hi Point Building
2500 South McGee, Suite #148
Norman OK 73072
405-364-0376

Status: Complete Status Date: 11/08/89 OERI No.: 011542

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 04/29/86
Recom. by NIST : 04/16/87
Award Date : 06/09/88 Award Amount: $ 77,300 Grant No: FG01-88CE15395
Contract Period: 06/09/88 - 11/08/89

Summary: A grant was awarded to build and test a prototype. Although the grant work to date has been satisfactory, there is a pump seal problem that is interferring with the final testing. In the process of testing, the prototype became stuck and lost downhole. The inventor seeks a settlement from the driller to replace the pump so he can continue the testing.

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DOE No: 0396 DOE Coord: G.K.Ellis

Title: Dyna Flow

Description: The Dyna Flow is a retrofit process to an air conditioning system. By adding a second compressor of smaller capacity to an existing central air conditioning system, with two-stage control depending on the cooling load requirement, an improvement in the overall efficiency of the cooling system results.

Inventor: Ruben Espinosa
State : FL

Contact:
Nestor Noriega
2774 Southwest Elevemth Street
Miami FL 33135
305-649-6471

Status: Complete Status Date: 12/23/91 OERI No.: 011737

Patent Status : Patent Number: 4535602
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 06/23/86
Recom. by NIST : 05/12/87
Award Date : 04/14/89 Award Amount: $ 32,843 Grant No: FG01-89CE15396
Contract Period: 04/14/89 - 04/13/91

Summary: A grant was awarded to build and test a workable prototype. The prototype was built was not tested because the inventor became ill and unable to proceed with the testing, which problem became known after the grant period ended.

DOE No: 0397 DOE Coord: P.M.Hayes

Title: In Service Tank Bottom Leak Detection and Repair System

Description: A method for detecting and repairing leaks in large storage tanks, particularly those used for storage of petroleum products.

Inventor: Donald E Lewis
State : TX

Contact:
Donald E Lewis
7714 Moritz Lake Drive
Corpus Christi TX 78413
512-850-7317

Status: Complete Status Date: 11/27/90 OERI No.: 011780

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 07/18/86
Recom. by NIST : 05/29/87
Award Date : 11/28/88 Award Amount: $ 69,780 Grant No: FG01-88CE15397
Contract Period: 11/28/88 - 11/27/90

Summary: A grant was awarded to test the leak detection and repair system on a storage tank.

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DOE No: 0398 DOE Coord: E.P.Levine

Title: Hydraulic Test Unit - Test Plugs - Mechanical Seal Plugs

Description: A portable air operated test system, including special tube plugs for high pressure testing of tubes in shell and tube heat exchangers in power plants or any other process industry.

Inventor: Renato R Noe
State : NJ

Contact:
Mary Jane Luddy
Powerfect, Incorporated
Twenty-Five East Northfield Rd
Livingston NJ 07039
201-992-1848

Status: Award Status Date: 09/21/90 OERI No.: 011782

Patent Status : Patent Number: 4474216
Development Stage : Production & Marketing
Technical Category: Miscellaneous

Recv by NIST : 07/21/86
Recom. by NIST : 05/29/87
Award Date : 09/21/90 Award Amount: $ 75,153 Grant No: FG01-90CE15398
Contract Period: 09/21/90 - 09/20/92

Summary: A grant was awarded to design, build, and test alternate designs for applying the Portable Hydrostatic Test Device to heat exchange equipment in other industrial process areas.

DOE No: 0399 DOE Coord: T.M.Levinson

Title: Hydrodynamic/Multi Deflection Pad Bearing

Description: A multi-pad bearing configuration applicable to either radial or thrust bearings. These bearing configurations are applicable in each of four market areas: (1) high-speed turbo/turbine equipment, (2) high-load electric motors or gear boxes, (3) air or gas compressors, and (4) air conditioning or refrigeration equipment.

Inventor: Russell D Ide
State : RI

Contact:
Russell D Ide
641 Arnold Road
P.O. Box #744
Coventry RI 02816
401-828-1799

Status: Complete Status Date: 09/30/91 OERI No.: 011653

Patent Status : Patent Number: 4496251
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv by NIST : 06/02/86
Recom. by NIST : 06/09/87
Award Date : 01/12/88 Award Amount: $ 75,000 Grant No: FG01-88CE15399
Contract Period: 01/12/88 - 07/11/89

Summary: A grant was awarded to design, manufacture, and test prototype deflection pad bearings in each of the four applications listed above. The inventor's company now has reached sales of over a million dollars and expects to continue to grow rapidly in future years. He currently emoploys 46 people and plans to move to a 30,000 square foot facility in 1992. The inventor also has a license with Dupont for high-impact plastic bearings.

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DOE No: 0400 DOE Coord: J.Aellen

Title: Continuous Casting and Inside Rolling of Hollow Rounds

Description: A continuous casting system for steel pipe.

Inventor: Gerhard E Schwarz
State : OH

Contact:
Gerhard E Schwarz

Status: Decision Phase Status Date: 09/30/90 OERI No.: 011789

Patent Status : Patent Number: 4546816
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 07/24/86
Recom. by NIST : 06/24/87

Summary: Proposal in negotiation.

DOE No: 0401 DOE Coord: J.Aellen

Title: A Miniature, Inexpensive Oxygen-Sensing Element

Description: A miniature, low-cost oxygen sensing element for high-temperature applications.

Inventor: W N Lawless
State : OH

Contact:
W N Lawless
CeramPhysics, Inc
921 Eastwind Drive
Suite #110
Westerville OH 43081
614-882-2231

Status: Complete Status Date: 08/01/91 OERI No.: 011836

Patent Status : Patent Number:
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 08/25/86
Recom. by NIST : 06/30/87
Award Date : 08/02/88 Award Amount: $ 75,000 Grant No: FG01-88CE15401
Contract Period: 08/02/88 - 08/01/91

Summary: A grant was awarded to build and test his patented oxygen-sensing technology. Grant extended to 8/1/91.

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DOE No: 0402 DOE Coord: G.K.Ellis

Title: KTM Logger

Description: A mobile biomass processing unit, including a shredder and an extruder, for manufacturing burnable logs from wood waste residue.

Inventor: Stanley D Balzer
State : CA

Contact:
Carol D Balzer
2920 Landco Drive #11
Bakersfield CA 93308
805-325-9018

Status: Award Status Date: 09/27/90 OERI No.: 011442

Patent Status : Not Applied For
Development Stage : Prototype Development
Technical Category: Miscellaneous

Recv by NIST : 02/12/86
Recom. by NIST : 06/30/87
Award Date : 09/26/90 Award Amount: $ 92,000 Grant No: FG01-CE9015402
Contract Period: 09/26/90 - 09/25/92

Summary: A grant was awarded to build and develop a trailer- mounted biomass processing unit to manufacture burnable logs from waste wood residue. The prototype has been built and is now being tested. Results will be forthcoming soon.

DOE No: 0403 DOE Coord: G.K.Ellis

Title: Enterprise Lubricator

Description: A device for lubricating the polished rod and packing of walking beam pumps

Inventor: Raymond A Elam
State : CA

Contact:
Raymond A Elam
8536 Kern Canyon Road
Bakersfield CA 93306
805-366-9416

Status: Complete Status Date: 12/23/91 OERI No.: 011134

Patent Status : Patent Applied For
Development Stage : Production & Marketing
Technical Category: Fossil Fuels

Recv by NIST : 09/11/85
Recom. by NIST : 07/07/87
Award Date : 02/15/89 Award Amount: $ 61,855 Grant No: FG01-89CE15403
Contract Period: 02/15/89 - 03/31/91

Summary: Test results the inventor completed for several major oil production companies showed a 9.6% average daily reduction of energy use per well and an ability to reduce oil spills for this low technology item. Oil producers weren't interested. As the result of a recent merger of Kern Valley, where the inventor is located, with Central Valley Air Pollution Control District, Central Valley issued a regulation requiring oil well stuffing boxes to be monitored. As a consequence, the inventor is having considerable success marketing his lubricator.

****

DOE No: 0404 DOE Coord: J.Aellen

Title: Steam-Methane Reforming in Molten Carbonate Salt

Description: A process for steam-methane reforming using a melt of alkali carbonate salts as both a catalyst and a heat source for the endothermic reaction.

Inventor: Donald C Erickson
State : MD

Contact:
Donald C Erickson

Status: No DOE Support Status Date: 09/30/90 OERI No.: 011255

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 11/22/85
Recom. by NIST : 07/29/87

Summary: No proposal received.

DOE No: 0405 DOE Coord: J.Aellen

Title: Prehydrolysis and Digestion of Plant Material

Description: A process whereby bagasse and similar agricultural waste (such as corn stalks, wheat and rice stalks, etc.) that have a relatively high content of hemicellulose (other than cellulose and lignin) can be prehydrolized to convert the remainder of the pulp into useful paper products, while reducing energy consumption drastically. Sugars yielded can be fermented to alcohol without turning out waste.

Inventor: Harald F Funk
State : NJ

Contact:
Harald F Funk

Status: No DOE Support Status Date: 09/30/90 OERI No.: 011625

Patent Status : Patent Number: 4070232
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 05/27/86
Recom. by NIST : 07/29/87

Summary: No proposal received.

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DOE No: 0406 DOE Coord: G.K.Ellis

Title: Aluminum Reduction Cell Spent Potlining Fluid Bed Incinerator

Description: This process and proprietary equipment design incinerates spent potlining from aluminum reduction cells and generates a granular, non-hazardous ash through control of ash chemistry. Commercial quantities of energy are recovered conventionally, further enhancing the economics.

Inventor: Ronald S Tabery
State : TX

Contact:
Ronald S Tabery
Turnpoint Engineering Corp
1301 Capital of Texas Highway
Austin TX 78746
512-327-8600

Status: Complete Status Date: 12/23/91 OERI No.: 012022

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 01/30/87
Recom. by NIST : 08/28/87
Award Date : 06/01/88 Award Amount: $ 77,600 Grant No: FG01-88CE15406
Contract Period: 06/01/88 - 11/30/89

Summary: The inventor has attempted two unsuccessful ventures for fluidized bed (FB) incineration. Launching a new business from the pilot plant stage, without attracting sufficient investors to succeed. He currently has a new venture for FB incineration of hospital wastes. A West Texas town has accepted his proposal, the county council has given him approval in exchange for supplying hot water to the local hospital; he has approval from the hospital Board, and he has applied to the state for a development grant.

DOE No: 0407 DOE Coord: E.P.LEVINE

Title: An Extended Range Tankless Water Heater

Description: Development of an extended range tankless water heater with a peak
*DSP...OVFL**

Inventor: James R Harris
State : KS

Contact:
James R Harris
401 East First Street
Wichita KS 67202
316-267-1525

Status: Award Status Date: 04/18/89 OERI No.: 011882

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 10/03/86
Recom. by NIST : 09/25/87
Award Date : 04/18/89 Award Amount: $ 83,653 Grant No: FG01-89CE15407
Contract Period: 04/18/89 - 04/18/92

Summary: A grant is in process to build and test a prototype. Application area is expected to be the recreational vehicle market.

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DOE No: 0408 DOE Coord: P.M.Hayes

Title: Floodshield System

Description: A flood protection device for commercial and residential structures. It consists of a durable and storable PVC shield which is pulled up and snapped into place when flood waters threaten. A filtered, perforated drain pipe is buried around the base of the structure and is connected to an industrial grade pump which collects and discharges underground seepage.

Inventor: William W Thompson
State : WI

Contact:
William W Thompson

Status: No DOE Support Status Date: 04/07/88 OERI No.: 011757

Patent Status : Patent Number: 4488386
Development Stage : Production & Marketing
Technical Category: Miscellaneous

Recv by NIST : 07/07/86
Recom. by NIST : 09/29/87

Summary: DOE declined to support the development of the technology.

DOE No: 0409 DOE Coord: J.Aellen

Title: Self-Dressing Resistance Welding Electrode

Description: A resistance welding electrode designed to maintain a constant weld area contact throughout its entire usable life. This unique design completely eliminates the need for electrode dressing and significantly reduces the operating power requirements by concentrating the application of energy within the work piece.

Inventor: Bryan Prucher
State : AL

Contact:
Bryan Prucher
Gray Electronics, Incorporated
3025 North Memorial Parkway
Huntsville AL 35810
204-859-2810

Status: Award Status Date: 03/15/89 OERI No.: 011967

Patent Status : Patent Number: 4476372
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 12/11/86
Recom. by NIST : 09/29/87
Award Date : 03/15/89 Award Amount: $ 57,102 Grant No: FG01-89CE15409
Contract Period: 03/15/89 - 09/15/92

Summary: A grant was awarded to Bryan Proucher to build and test a prototype.

****

DOE No: 0410 DOE Coord: G.K.Ellis

Title: The World's First Gas Fired, Forced Air, High Efficiency, Furnace That Requires No Electricity

Description: A furnace incorporating a steam turbine and thermopile electric power source to eliminate the requirements for electric power to operate the fan and open the gas valve. The Annual Fuel Utilization Efficiency (AFUE) for the furnace is claimed to be eighty-three percent.

Inventor: Peter Kneaskern
State : OH

Contact:
Peter Kneaskern
TRD Corporation
5181 West 161st Street
Cleveland OH 44142
216-433-7775

Status: Complete Status Date: 12/23/91 OERI No.: 011477

Patent Status : Patent Number: 4418538 and others
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 03/03/86
Recom. by NIST : 10/05/87
Award Date : 06/30/89 Award Amount: $ 80,040 Grant No: FG01-89CE15410
Contract Period: 06/30/89 - 06/29/91

Summary: A grant was awarded to further develop the technology, do the design, build an advanced prototype and test a condensing type of the furnace. The work was completed, tested satisfactorily, and the inventor is trying to find a company interested in manufacturing it.

DOE No: 0411 DOE Coord: T.M.Levinson

Title: The Wide-Open Throttle Approach to Greater Automotive Fuel Efficiency

Description: An engine control approach originally conceived for use with continuously variable transmissions, but now applied to discrete-ratio transmissions (thereby to eliminate a technological risk). This approach mainly comprises a special Otto engine calibration and a drive-by-wire system for regulating engine throttle position independently of accelerator pedal position and for selecting the active transmission ratio.

Inventor: David Ganoung
State : NM

Contact:
David Ganoung
2800 1/2 Candelaria NW
Albuquerque NM 87107
505-344-6531

Status: Award Status Date: 09/30/91 OERI No.: 011390

Patent Status : Patent Number: 4774858 and others
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv by NIST : 01/15/86
Recom. by NIST : 10/29/87
Award Date : 03/16/89 Award Amount: $ 77,778 Grant No: FG01-89CE15411
Contract Period: 03/16/89 - 09/30/92

Summary: The inventor conducted stationary dynamometer tests at Southwest Research Institute in San Antonio, TX, on a stock 2.3 liter Ford engine. He presented his findings at the Society of Automotive Engineers annual meeting on February 26, 1990. Further refinements of his invention are underway as are discussions with automobile suppliers.

****

DOE No: 0412 DOE Coord: J.Aellen

Title: Meta-Lax Stress Relief for Almost any Size Metal Structure

Description: A method for using sub-resonant cyclic vibration excitement to relieve processing stresses in metal structures, including welding during sub-resonant vibration.

Inventor: August G Hebel, Junior
State : MI

Contact:
August G Hebel, Junior
27556 East Echo Valley
Farmington Hills MI 48018
313-553-2974

Status: Award Status Date: 04/28/89 OERI No.: 011898

Patent Status : Patent Number: 3741820 and others
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 10/16/86
Recom. by NIST : 10/30/87
Award Date : 04/28/89 Award Amount: $ 67,825 Grant No: FG01-89CE15412
Contract Period: 04/28/89 - 07/29/92

Summary: A grant was awarded to Welding Consultants, Inc to compare two methods of relieving stress in welds; i.e. thermal stress versus Meta-lax stress relief. An additional grant was awarded and the grant was extended.

DOE No: 0413 DOE Coord: E.P.Levine

Title: Non Metallic Railroad Switch Covers

Description: Reinforced plastic or composite covers used in conjunction with conventional heating elements to prevent freezing of railroad switches.

Inventor: Stanley Wayne Widmer
State : MN

Contact:
Stanley Wayne Widmer
Route One, Box #218-C
Browerville MN 56479
218-894-1507

Status: Complete Status Date: 06/04/91 OERI No.: 012058

Patent Status : Patent Number: 4671475
Development Stage : Limited Production/Marketing
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 02/25/87
Recom. by NIST : 11/16/87
Award Date : 06/05/89 Award Amount: $ 69,753 Grant No: FG01-89CE15413
Contract Period: 06/05/89 - 06/04/91

Summary: A grant was awarded to develop production molding capability to reduce cost. Will test production models in cooperation with railroad.

****

DOE No: 0414 DOE Coord: G.K.Ellis

Title: Low Profile Fluid Catalytic Cracker

Description: A new catalytic cracker design for petroleum refining.

Inventor: Milton B Thacker
State : UT

Contact:
Milton B Thacker
1590 Devonshire Drive
Salt Lake City UT 84108
801-582-6098

Status: Complete Status Date: 12/23/91 OERI No.: 011831

Patent Status : Disclosure Document Program
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 08/18/86
Recom. by NIST : 11/23/87
Award Date : 02/23/89 Award Amount: $ 89,500 Grant No: FG01-89CE15414
Contract Period: 02/23/89 - 03/31/91

Summary: A grant was awarded for partial support in a cooperative project with Utah's Center of Excellence Program to build and test a $1.3 million hot plant prototype. The work is proceeding as scheduled. Construction of the hot model has been completed and cracking conditions established and maintained for ten hours. Marketing interest has been expressed by engineering and construction firms, refiner-users, individual investors, and a venture capital firm.

DOE No: 0415 DOE Coord: G.K.Ellis

Title: Oil Recovery by Modified Steam Drive Employing High Velocity Non-Condensible Gas

Description: A modified steam drive injecting surfactants and non-condensible gases, for improved recovery of heavy oils.

Inventor: Todd M Doscher
State : CA

Contact:
Joyce A Kostura
CLD Technology, Incorporated
740-A East Main Street
Ventura CA 93001
805-653-5287

Status: Award Status Date: 08/31/90 OERI No.: 012041

Patent Status : Patent Number: 4610304 and others
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 02/13/87
Recom. by NIST : 11/30/87
Award Date : 08/31/90 Award Amount: $ 79,200 Grant No: FG0190CE415000
Contract Period: 08/31/90 - 08/30/92

Summary: A grant was awarded for scale model work that quantifies the increase in oil production resulting from steam mixed with a non-condensible gas injected into an oil reservoir while adding surfactants to generate a foam and simulating a specific reservoir. A profitability analysis would be included. Grantee's rights to the technology are being contested. Grantee was advised that DOE requires evidence of who holds the patent rights and their written approval of activities proposed before further payments under the grant are authorized.

****

DOE No: 0416 DOE Coord: E.P.Levine

Title: Self-Contained Pipe Freezing Unit

Description: A refrigeration device for use by plumbers for freezing water inside a small section of pipe to create an "ice Block" which prevents water from flowing downstream. With the "ice block" in place, the plumber can relieve the water pressure and drain the pipe for any service work.

Inventor: Arthur Radichio
State : NY

Contact:
Arthur Radichio

Status: No DOE Support Status Date: 09/30/90 OERI No.: 011535

Patent Status : Patent Number: 4309875
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

Recv by NIST : 04/22/86
Recom. by NIST : 12/29/87

Summary: No proposal received.

DOE No: 0417 DOE Coord: G.K.Ellis

Title: Rotary Drill Bit

Description: An improved drill bit design for rotary well drills.

Inventor: Roy W Wood
State : AL

Contact:
Roy W Wood

Status: Analysis Status Date: 12/31/87 OERI No.: 011786

Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 07/23/86
Recom. by NIST : 12/31/87

Summary: Recommendation under consideration by DOE. Awaiting a proposal from the inventor.

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DOE No: 0418 DOE Coord: J.Aellen

Title: Use of Chemical Vapor Deposition to Coat Metal Surfaces with High-Temperature Superconducting Materials

Description: A chemical vapor deposition process for coating metal surfaces with new (relatively) high- temperature superconducting materials.

Inventor: Wayne S Brown
State : UT

Contact:
Wayne S Brown

Status: No DOE Support Status Date: 09/29/89 OERI No.: 012281

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 07/06/87
Recom. by NIST : 12/31/87

Summary: Recommendation no longer under consideration by DOE due to death of inventor.

DOE No: 0419 DOE Coord: J.Aellen

Title: A Planing Mining Machine to Produce Ultra-Fine Coal

Description: A water jet based coal mining system to separate out impurities as the coal is being mined. The system also permits cutting square holes, increasing recoverable reserves. The system would be primarily for mining presently unusable high ash and similar coal fields that are uneconomical to mine.

Inventor: Marion Mazurkiewicz
State : MO

Contact:
Bob Johnson
Office of Research
Lewis Hall
University of Missouri
Columbia MO 65211
314-882-2821

Status: Award Status Date: 06/20/89 OERI No.: 010687

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 02/28/85
Recom. by NIST : 01/29/88
Award Date : 06/20/89 Award Amount: $ 79,828 Grant No: FG01-89CE15419
Contract Period: 06/20/89 - 12/19/92

Summary: A grant was awarded to the University of Missouri at Rolla, to build, test and demonstrate a prototype machine.

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DOE No: 0420 DOE Coord: E.P.LEVINE

Title: The Utah Transmission/Continuously Variable Speed Wind Generator

Description: A continuously variable transmission utilizing a variable cam drive with power transmitted through one of a series of overrunning clutches.

Inventor: Laird B Gogins
State : UT

Contact:
Coleman Clark
Utah Transmission Corp.
3860 Parkview Circle
Salt Lake City UT 84124
801-278-8562

Status: Complete Status Date: 06/22/91 OERI No.: 011820

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 08/11/86
Recom. by NIST : 01/29/88
Award Date : 06/23/89 Award Amount: $ 90,000 Grant No: FG01-89CE15420
Contract Period: 06/23/89 - 06/22/91

Summary: A grant was awarded to build a ninety-three horsepower prototype of their energy efficient continuously variable tranmsission.

DOE No: 0421 DOE Coord: G.K.Ellis

Title: Flexible Drill Pipe

Description: A flexible drill pipe to allow drilling horizontal drain holes for enhanced oil recovery.

Inventor: W B Driver
State : TX

Contact:
W B Driver
Post Office Box #1281
Greenville TX 75401
214-447-3816

Status: Award Status Date: 11/13/91 OERI No.: 012312

Patent Status : Patent Number: 4149391
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv by NIST : 08/03/87
Recom. by NIST : 01/29/88
Award Date : 02/01/89 Award Amount: $ 99,845 Grant No: FG01-91CE15421
Contract Period: 02/01/89 - 03/17/93

Summary: A grant was awarded to conduct field test of the flexible drill pipe in an oil formation, an additional grant was awarded to complete the development. Tests to date have been highly encouraging, but problems were encountered in development and with limitations of the equipment needed to support the drilling. These flexible drill pipe tests, while inconclusive, indicate significant promise.

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DOE No: 0422 DOE Coord: G.K.Ellis

Title: High Efficiency Ozone Generating System

Description: A high-efficiency, high-pressure ozone generating system.

Inventor: Eskil L Karlson
State : PA

Contact:
Eskil L Karlson
2626 State Street
Erie PA 16508
814-455-7849

Status: Complete Status Date: 01/28/90 OERI No.: 012191

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 05/05/87
Recom. by NIST : 02/29/88
Award Date : 07/29/88 Award Amount: $ 78,359 Grant No: FG01-88CE15422
Contract Period: 07/29/88 - 01/28/90

Summary: A grant was awarded to build and test a prototype. Tests of the finished system are about to start. The inventor is highly enthusiastic in that paper pulp mills in Europe are eagerly awaiting results and want to include this technology in their bleaching systems. Tests of the prototype were completed with results as anticipated and at last report the inventor was about to sign a licensing agreement with a paper mill in Denmark.

DOE No: 0423 DOE Coord: G.K.Ellis

Title: Superverter - A Digitally Synthesized DC-to-AC Sinewave Inverter

Description: A microprocessor controlled solid state DC to AC inverter which synthesizes a nearly sinusoidal output waveform with low harmonic contact over a wide range of loads. This device conditions locally produced DC power (photovoltaics, wind devices, etc.) for operating conventional AC appliances.

Inventor: Harlan K Loveness
State : AZ

Contact:
Tinny Srinivasan
6701 Southeast Alberta
Portland OR 97206
503-777-1309

Status: Complete Status Date: 12/23/91 OERI No.: 011957

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv by NIST : 12/01/86
Recom. by NIST : 02/29/88
Award Date : 05/24/89 Award Amount: $ 79,978 Grant No: FG01-89CE15423
Contract Period: 05/24/89 - 06/23/91

Summary: A grant was awarded to develop and test and advanced five kilowatt prototype. Testing and further necessary modification has been delayed while inventor pursues getting other related but less capital intensive products into the market, but incorporating some of the advances from this invention. Anticipated completion of this unit, costing around $200,000 per unit, and market entry anticipated within six months. Final report promised within 3 months.

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DOE No: 0424 DOE Coord: E.P.Levine

Title: An Automated Process for Garment Manufacturers

Description: A computer integrated manufacturing process for making garments.

Inventor: Brett Stern
State : NY

Contact:
Brett Stern
111 West Twenty-Eighth Street
New York NY 10001
212-947-9118

Status: Complete Status Date: 09/30/90 OERI No.: 012302

Patent Status : Patent Number: 4645629
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv by NIST : 07/20/87
Recom. by NIST : 02/29/88
Award Date : 08/24/89 Award Amount: $ 70,750 Grant No: FG01-89CE15424
Contract Period: 08/24/89 - 02/23/91

Summary: A grant was awarded to develop consumer acceptance indices and perform engineering design for prototype. Inventor negotiating with private sector partners for prototype development. Final report received. Additional funding being provided by N.Y. State Energy and Development Authority.

DOE No: 0425 DOE Coord: G.K.Ellis

Title: High Temperature Condensing Biomass Combustion System

Description: A biomass-fueled furnace to burn green logs, chips, sawdust, corncobs pellets, peat and other biomass waste as cleanly as oil and gas.

Inventor: Lawrence A Dobson
State : WA

Contact:
Lawrence A Dobson
1385 Thirty-Third Ave. South
Seattle WA 98144
206-325-6472

Status: Award Status Date: 08/24/89 OERI No.: 012030

Patent Status : Patent Number: 4559882
Development Stage : Prototype Development
Technical Category: Fossil Fuels

Recv by NIST : 02/06/87
Recom. by NIST : 03/31/88
Award Date : 08/24/89 Award Amount: $ 79,953 Grant No: FG01-89CE15425
Contract Period: 08/24/89 - 09/23/92

Summary: A grant was awarded to design, develop and build a production boiler and to test it in cooperation with a potential industry user. The prototype was built, tested, and validated as to its environmental benefits, but the original user decided, because of a change in marketing plans, not to pursue the venture. Inventor found a new potential user, Pyro Industries of Seattle, WA, and is working with them to design a production prototype of the invention. Hence, need for no cost extension. Contract has been extended to 9/23/92.

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DOE No: 0426 DOE Coord: G.K.Ellis

Title: Eddy Current Transducing System

Description: Equipment for measuring blade clearance and speed in a rotating machine, in real time. An eddy current transducer supplies signals to a microprocessor which are processed to provide clearance and speed information.

Inventor: Lawrence W Langley
State : VA

Contact:
Lawrence W Langley
910 Cardinal Drive
Christiansburg VA 24073
703-382-9322

Status: Complete Status Date: 12/23/91 OERI No.: 011921

Patent Status : Disclosure Document Program
Development Stage : Laboratory Test
Technical Category: Miscellaneous

Recv by NIST : 11/03/86
Recom. by NIST : 03/31/88
Award Date : 04/11/89 Award Amount: $ 79,110 Grant No: FG01-89CE15426
Contract Period: 04/11/89 - 06/30/91

Summary: A grant was awarded to perform a detailed circuit design of the product, build a prototype and test an operating turbomachine in a host computer. This will be the first commercial turbomachinery blade monitoring system that indicates both clearance and timing. The prototype was completed and tested with results that exceeded expectations. The monitoring system transduced blade clearances with a precision of 0.0001-in. Variations in blade pitch and blade and hub vibration were detected, with a virtual hub position accurate to 2 parts in 54,000. It is being offered as a product.

DOE No: 0427 DOE Coord: J.Aellen

Title: Non-Catalytic Steam Hydrolysis of Fats

Description: A non-catalytic process for steam hydrolyzing fats and recovering the separated products thus formed.

Inventor: Kenneth E Lunde
State : MT

Contact:
Kenneth E Lunde
912 Tenth Avenue, Northwest
Great Falls MT 59404
406-761-4819

Status: Award Status Date: 06/29/89 OERI No.: 011098

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 08/22/85
Recom. by NIST : 03/31/88
Award Date : 06/29/89 Award Amount: $ 74,980 Grant No: FG01-89CE15427
Contract Period: 06/29/89 - 12/28/92

Summary: A grant was awarded to Montana State University, to design, build and operate a laboratory prototype.

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DOE No: 0428 DOE Coord: G.K.Ellis

Title: T-By Tray

Description: The invention is a new tray design for distillation columns.

Inventor: Trent J Parker
State : UT

Contact:
Trent J Parker
Uni-Frac, Incorporated
P. O. Box #9099
Salt Lake City UT 84109
801-972-5046

Status: Complete Status Date: 05/14/90 OERI No.: 012275

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 06/30/87
Recom. by NIST : 04/22/88
Award Date : 11/15/88 Award Amount: $ 80,239 Grant No: FG01-89CE15428
Contract Period: 11/15/88 - 05/14/90

Summary: Tests at the Univ. of Texas' Separations Research Center show some advances over the current technology: a major reduction in tray pressure, a broader operating range, equivalent or higher point efficiency with probable higher tray efficiency, and a greater vapor handling capacity. These reduce the distillation and mass transfer operating cost, especially in oil refining. The SCR tests show that the T-By Tray invention may save 1/8 of the energy cost used for processing. Licensing discussions are being held with Kock Engineering Company.

DOE No: 0429 DOE Coord: J.Aellen

Title: A Low Cost Galloping Indicator

Description: A mechanical device for detecting galloping of aerial conductors of electric power transmission lines.

Inventor: Albert S Richardson, Junior
State : MA

Contact:
Albert S Richardson, Junior
Three Wingate Road
Lexington MA 02173
617-862-7200

Status: Award Status Date: 09/17/90 OERI No.: 010626

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 02/19/85
Recom. by NIST : 04/29/88
Award Date : 09/17/90 Award Amount: $ 73,975 Grant No: FG01-90CE15429
Contract Period: 09/17/90 - 09/16/94

Summary: A grant totalling $147,000 was awarded in conjunction with DOE #0375 to produce 300 MDT Twisters and 300 Galloping Indicators.

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DOE No: 0430 DOE Coord: G.K.Ellis

Title: Whitten Dugas Mud Pump Enhancer

Description: Modifying an existing mud pump to inject a barrier fluid, usually water, between the piston face and the abrasive drilling fluid to protect the pistons of the mud pump, for use in oil and gas well drilling.

Inventor: Harold P Dugas
State : TX

Contact:
Giles M Whitten
4823 Dollar Reef
Bay Cliff TX 77518
713-332-1817

Status: Complete Status Date: 12/23/91 OERI No.: 011855

Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 09/09/86
Recom. by NIST : 05/16/88
Award Date : 09/20/90 Award Amount: $ 50,000 Grant No: FG01-90CE15430
Contract Period: 09/20/90 - 03/19/92

Summary: A grant was awarded to modify 3 mud pumps and, in cooperation with a drilling contractor. Having successfully completed downhole tests, the inventor is now trying to market it, but has had no success thus far. "The price of gas is so low the oil companies can't afford to pay decent prices to hire the rigs."

DOE No: 0431 DOE Coord: G.K.Ellis

Title: Method and Apparatus for Removing Excess Water from Subterranean Wells.

Description: A method by which separation of water from hydrocarbons produced in wells is effected within the wellbore through the action of gravity. As the mixture of hydrocarbons and water enters the well, the water settles to the bottom. Either a pump or just the action of gravity head injects the water in a rock formation. The hydrocarbons are brought to the surface with or without the help of artificial lift, as in conventional wells.

Inventor: Jack Wade McIntyre
State : TX

Contact:
Jack Wade McIntyre

Status: Analysis Status Date: 05/31/88 OERI No.: 012367

Patent Status : Patent Applied For
Development Stage : Concept Definition
Technical Category: Fossil Fuels

Recv by NIST : 09/01/87
Recom. by NIST : 05/31/88

Summary: Recommendation under consideration by DOE. Inventor has been working with Gerrity and Miller, Midland, TX, for some months to develop a proposal, which is anticipated soon. Various leads have been provided inventor to assist him in marketing the invention.

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DOE No: 0432 DOE Coord: L.A.Lee

Title: Water Hammer Pile Driver

Description: A pile driver, intended for offshore use, in which a water hammer tube is evacuated and the ambient pressure provided by the surrounding sea water is used to generate the driving impulse which increases with depth.

Inventor: Serge Wisotsky
State : OK

Contact:
Serge Wisotsky

Status: No DOE Support Status Date: 09/30/90 OERI No.: 010416

Patent Status : Patent Number: 3922869 and others
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 09/25/84
Recom. by NIST : 05/31/88

Summary: DOE declined to provide support.

DOE No: 0433 DOE Coord: P.M.Hayes

Title: Improved Methods to Manufacture and Use Carbon- Alumina Composite Anodes for Aluminum Reduction

Description: A new composite anode for aluminum reduction that will reduce power requirements for aluminum production.

Inventor: J C Withers
State : WA

Contact:
Theodore R Beck
Electrochemical Tech Corp
1601 Dexter Avenue, North
Seattle WA 98109
206-285-7404

Status: Complete Status Date: 03/16/92 OERI No.: 012346

Patent Status : Disclosure Document Program
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 08/24/87
Recom. by NIST : 05/31/88
Award Date : 03/17/89 Award Amount: $ 84,988 Grant No: FG01-89CE15433
Contract Period: 03/17/89 - 03/16/92

Summary: A grant was awarded to design a 300 ampere test cell, produce anodes of the new design and test the anodes to prove the concept and reprove the design.

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DOE No: 0434 DOE Coord: E.P.LEVINE

Title: Modular Apparatus for Laundry Dryer Heat Recovery

Description: A rotary air-to-air heat exchanger module for primary use with institutional/commercial laundry dryers. The device recovers dryer exhaust heat and preheats intake air, thereby reducing dryer fuel consumption.

Inventor: Ben B Herschel
State : NJ

Contact:
Ben B Herschel
Rototherm Corporation
30 Laurel Place
Howell NJ 07731
908-370-0695

Status: Award Status Date: 07/20/89 OERI No.: 011801

Patent Status : Patent Number: 4488364
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 07/30/86
Recom. by NIST : 06/28/88
Award Date : 07/20/89 Award Amount: $ 71,982 Grant No: FG01-89CE15434
Contract Period: 07/20/89 - 09/30/92

Summary: A grant was awarded to build prototypes for different size applications. Tests are being conducted in cooperation with commercial laundries. A.G.A. certification test to follow.

DOE No: 0435 DOE Coord: E.P.Levine

Title: A New Thermodynamic Process of Actual Approach to the Carnot Cycle

Description: A heat engine cycle using two or more working fluids with different boiling points. Generally, mixtures of the fluids are vaporized and expanded through a turbine. The liquid turbine exhaust is used to pre- heat and vaporize some of the condensed phases. The remaining vapor is expanded through an additional stage to maximize efficiency.

Inventor: Serafin L Mendoza
Country : Spain

Contact:
Serafin L Mendoza

Status: Analysis Status Date: 06/30/88 OERI No.: 009915

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Combustion Engines & Components

Recv by NIST : 01/03/84
Recom. by NIST : 06/30/88

Summary: Recommendation under consideration by DOE.

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DOE No: 0436 DOE Coord: G.K.Ellis

Title: The Russell Self-Piloted Check Valve

Description: A check valve which embodies a conventional flapper valve and an eccentric ball valve. In the open position, the flow is unimpeded in a certain direction. When the flow reverses, the spring- loaded flapper valve within the ball closes. It then causes the ball valve to close against a restraining spring pressure. When the fluid pressure is released, the restraining spring opens the ball valves while the opposing flow opens the flapper.

Inventor: Joe Sanford
State : LA

Contact:
Jim Cunningham
Post Office Box #2946
Morgan City LA 70381
504-380-2366

Status: Complete Status Date: 12/23/91 OERI No.: 012103

Patent Status : Patent Number: 4254836 and others
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 03/06/87
Recom. by NIST : 07/07/88
Award Date : 09/29/89 Award Amount: $ 78,863 Grant No: FG01-89CE15436
Contract Period: 09/29/89 - 09/29/91

Summary: A grant was awarded to build and test several prototypes and test downhole with cooperating drilling companies. Then use the accumulated data to complete preliminary design of an advanced prototype. The prototype was completed and satisfactorily tested. Inventor trying to market same in a depressed oil economy.

DOE No: 0437 DOE Coord: J.Aellen

Title: Steam Generator With Integral Down-Draft Dryer

Description: The invention is a method for improving the operation of a steam generating furnace fired with high moisture content wood fuels. It consists of a drying shaft installed inside the furnace. The fuel is dried by bringing it in turbulent contact with hot combustion gases. Dryer fuel requires less excess air for stable combustion; also, the need for fuel to stabilize combustion is obviated.

Inventor: Frank W Hochmuth
State : ME

Contact:
Frank W Hochmuth
Postal Box #186
Brewer ME 04412
207-989-1008

Status: Complete Status Date: 06/29/91 OERI No.: 011408

Patent Status : Patent Number: 4502397 and others
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv by NIST : 01/28/86
Recom. by NIST : 07/20/88
Award Date : 06/30/89 Award Amount: $ 55,946 Grant No: FG01-89CE15437
Contract Period: 06/30/89 - 06/29/91

Summary: A grant was awarded to test the physical properties of hog fuel and perform an economic analysis.

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DOE No: 0438 DOE Coord: J.Aellen

Title: Microwave Reflection by Synthetic Metals

Description: A series of synthetic materials that reflect microwaves.

Inventor: M Thomas Jones
State : MO

Contact:
Robert Killoren

Status: No DOE Support Status Date: 09/30/90 OERI No.: 012353

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 08/27/87
Recom. by NIST : 07/29/88

Summary: Proposal not received.

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DOE No: 0439 DOE Coord: E.P.Levine

Title: Project Twenty-One Rapid Transit System

Description: A rapid transit system optimized for placement above existing urban streets. Its outstanding features are two-way traffic along a super-slender beam, compact stations, and convenient switching for two- way traffic.

Inventor: Lawrence K Edwards
State : VA

Contact:
Lawrence K Edwards
3507 Slade Run Drive
Falls Church VA 22042
703-532-2360

Status: Complete Status Date: 05/10/90 OERI No.: 012388

Patent Status : Patent Number: 4485967 and others
Development Stage : Engineering Design
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 12/17/85
Recom. by NIST : 08/02/88
Award Date : 05/11/89 Award Amount: $ 80,349 Grant No: FG01-89CE15439
Contract Period: 05/11/89 - 05/10/90

Summary: A grant was awarded to build a quarter-scale model of vehicle, track and station and to conduct structural, dynamic and safety analysis. Final report received.

****

DOE No: 0440 DOE Coord: P.M.Hayes

Title: Microtube Strip Heat Exchanger

Description: A high efficiency heat exchanger is described which is suitable for improving the efficiency of closed Brayton cycles as well as a number of other applications. The heat exchanger relies on laminar flow for the convective heat transfer. Manufacturing of the heat exchanger is also discussed.

Inventor: F David Doty
State : SC

Contact:
F David Doty
Doty Scientific Incorporated
Six Hundred Clemson Road
Columbia SC 29223
803-788-6497

Status: Award Status Date: 09/04/90 OERI No.: 012615

Patent Status : Patent Number: 4676305
Development Stage : Prototype Development
Technical Category: Combustion Engines & Components

Recv by NIST : 04/07/88
Recom. by NIST : 08/05/88
Award Date : 09/04/90 Award Amount: $ 99,886 Grant No: FG01-90CE15440
Contract Period: 09/04/90 - 03/03/92

Summary: A grant was awarded to develop techniques for fabrication and assembly of the microtubes, tubesheets, shells, containment vessels and manifolds into high-performance gas-gas heat exchanger.

DOE No: 0441 DOE Coord: T.M.Levinson

Title: Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Thereby.

Description: A formulation and application method to prevent biofouling of ships hulls, offshore drilling platforms, and similar types of under-ocean structures.

Inventor: Alexander Bosna
State : PA

Contact:
Alexander Bosna
Copperlok, Incorporated
25
Hatboro PA 19040
215-441-5390

Status: Award Status Date: 09/30/91 OERI No.: 012464

Patent Status : Patent Number: 4618504 and others
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv by NIST : 11/12/87
Recom. by NIST : 09/26/88
Award Date : 05/25/89 Award Amount: $ 76,162 Grant No: FG01-89CE15441
Contract Period: 05/25/89 - 11/24/92

Summary: A grant was awarded to conduct tests to determine the optimum size for the copper microspheres that are dispensed into the surface to be coated, redesigning the hand-held dispenser, arranging for testing of panels by Glidden for performance, and evaluating ultraviolet curing resins for application to the process. Testing to date in several applications (buoys, boats, and pilings) show no signs of any marine growth after 3 months.

****

DOE No: 0442 DOE Coord: G.K.Ellis

Title: Long Life "PC" Drill Bit

Description: A modified drill bit to drill for gas and oil.

Inventor: Richard C Raney
State : TX

Contact:
Richard C Raney
Sta-Bit, Incorporated
Post Office Box #5537
Midland TX 79704
915-687-0906

Status: Award Status Date: 04/18/89 OERI No.: 010791

Patent Status : Disclosure Document Program
Development Stage : Prototype Development
Technical Category: Fossil Fuels

Recv by NIST : 04/26/85
Recom. by NIST : 09/28/88
Award Date : 04/19/89 Award Amount: $ 66,188 Grant No: FG01-89CE15442
Contract Period: 04/19/89 - 12/31/92

Summary: A grant was awarded to build six drill bit/stabilizer prototypes, two each of three different kinds, and test them downhole in an operating oil well. The prototypes were completed and some test were run showing satisfactory performance. Further tests have been temporarily halted due to disagreements, presently being negotiated, between grantee and the company handling the drilling activities. These difficulties have continued but now appear about to be resolved. In the interim, inventor has licensed the technology to Arthur D. Little, Inc.

DOE No: 0443 DOE Coord: J.Aellen

Title: A Method for the Use of Oxygen Ion Vacancies in Lanthanide Oxides to Increase their Utilization

Description: The invention concerns the use of cerium oxide as a hot gas desulfurization sorbent. The creation of oxygen ion vacancies in the cerium oxide crystal matrix makes it feasible to absorb sulfur from hot product gases coming from a coal gasifier.

Inventor: William G Wilson
State : PA

Contact:
William G Wilson
820 Harden Drive
Pittsburgh PA 15229
416-632-5125

Status: Award Status Date: 09/28/89 OERI No.: 012336

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 08/17/87
Recom. by NIST : 09/29/88
Award Date : 09/28/89 Award Amount: $ 74,170 Grant No: FG01-89CE15443
Contract Period: 09/28/89 - 03/27/93

Summary: A grant was awarded to test the efficiency of cerium oxide to absorb and desorb sulfur from hot coal gases.

****

DOE No: 0444 DOE Coord: P.M.Hayes

Title: Apparatus and Method for Using Microwave Radiation to Measure Water Content of a Fluid

Description: A technique is proposed for measuring the water content of oil in transmission and in transportation. The scheme uses microwaves and the spectral differences between water and crude oil to determine the volume fraction of water in the oil.

Inventor: Claude V Swanson
State : VA

Contact:
Claude V Swanson
Appled Physics Tech, Inc.
1800 Old Meadow Road, Ste 1016
Mclean VA 22102
703-848-1860

Status: Complete Status Date: 11/02/90 OERI No.: 012478

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 12/02/87
Recom. by NIST : 09/30/88
Award Date : 05/03/89 Award Amount: $ 88,769 Grant No: FG01-89CE15444
Contract Period: 05/03/89 - 11/02/90

Summary: A grant was awarded to develop and test a half-scale bench model using a chirped microwave signal ranging from one to 26 GHz.

DOE No: 0445 DOE Coord: E.P.Levine

Title: Condenser Tube Insertion Device

Description: An apparatus to automatically install tubes in steam surface condensers for construction and retubing operations. This technique allows expedited insertion (concept model increased over 300%), and reduces downtime through quality control features, thereby avoiding tube material waste and premature equipment failure.

Inventor: Richard G Gilbertson
State : MN

Contact:
Richard G Gilbertson
2464 East Medicine Lake Blvd
Plymouth MN 55441
612-545-7433

Status: Complete Status Date: 08/28/91 OERI No.: 012584

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv by NIST : 03/08/88
Recom. by NIST : 10/12/88
Award Date : 08/28/89 Award Amount: $ 77,000 Grant No: FG01-89CE15445
Contract Period: 08/28/89 - 08/28/91

Summary: A grant was awarded to design, build and test hydraulic and pneumatic versions of the device.

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DOE No: 0446 DOE Coord: G.K.Ellis

Title: Heavy Oil Recovery Process

Description: A process for recovering viscous oils from deep underground formations; this process is applicable to the recovery of heavy oil from reservoirs located below the Arctic permafrost zone.

Inventor: Michael Gondouin
State : CA

Contact:
Michael Gondouin
Thirty-Two San Marino Drive
San Rafael CA 94901
415-456-8237

Status: Complete Status Date: 12/23/91 OERI No.: 011958

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 12/01/86
Recom. by NIST : 10/26/88
Award Date : 09/29/89 Award Amount: $ 78,000 Grant No: FG01-89CE15446
Contract Period: 09/29/89 - 09/28/91

Summary: A grant was awarded to perform the conceptual engineering, and estimate facilities cost, based on the West Sak heavy oil reservoir. The process was analyzed as a production model in a cooperative paper with Bechtel presented to the SPE International Conference on Arctic Technology in May, 1991. This included preliminary engineering of these facilities and forecast of production rates. The model showed an acceptable 12 percent return on investment at current, predictable oil prices. Inventor seeks an oil producer sponsor to further investigate and test it on pilot plant scale.

DOE No: 0447 DOE Coord: J.Aellen

Title: Hot Control of Unit Volume Energy of Grinding

Description: A production metal grinding system based upon predictive control of machine operating parameters to control the unit volume energy of high-speed grinding.

Inventor: Roderick L Smith
State : IL

Contact:
Roderick L Smith
2012 Greenfield Lane
Rockford IL 61107
815-399-5614

Status: Complete Status Date: 09/26/91 OERI No.: 012418

Patent Status : Disclosure Document Program
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 10/15/87
Recom. by NIST : 10/26/88
Award Date : 09/27/89 Award Amount: $ 71,313 Grant No: FG01-89CE15447
Contract Period: 09/27/89 - 09/26/91

Summary: A grant was awarded to build and test a high-speed computer-regulated grinding machine.

****

DOE No: 0448 DOE Coord: J.Aellen

Title: New Automatic Transmission for Road Vehicles

Description: An hydrostatic transmission, utilizing novel variable displacement hydraulic pumps and motors.

Inventor: Ingo Valentin
State : WI

Contact:
Ingo Valentin
8945 Park Plaza
Brown Deer WI 53223
414-786-9257

Status: Award Status Date: 09/29/89 OERI No.: 012013

Patent Status : Patent Number: 4615467
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 01/27/87
Recom. by NIST : 10/26/88
Award Date : 09/29/89 Award Amount: $ 77,770 Grant No: FG01-89CE15448
Contract Period: 09/29/89 - 03/28/92

Summary: A grant was awarded to design, build and test a production prototype.

DOE No: 0449 DOE Coord: J. Aellen

Title: Fuel Savings in the Heavy Trucking Industry Through Cool Storage

Description: A cool storage system, using gas clathrates as the cool storage media, has been developed to store cool from the excess capacity in a truck air-conditioning system when the truck is driven and to use this stored cool to condition the sleeper compartment at rest stops without needing to operate the truck engine and waste fuel.

Inventor: Peter Carr
State : NC

Contact:
Peter Carr
208 Coventry Lane
Cary NC 27511
919-489-8783

Status: Complete Status Date: 06/19/91 OERI No.: 012335

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 08/17/87
Recom. by NIST : 11/14/88
Award Date : 06/20/89 Award Amount: $ 75,758 Grant No: FG01-89CE15449
Contract Period: 06/20/89 - 06/19/91

Summary: A grant was awarded to build and test a prototype.

****

DOE No: 0450 DOE Coord: G.K.Ellis

Title: Portable Ultrasonic Inspection System for Oil Country Tubulars

Description: An ultrasonic detection method for inspecting defects in tubular goods by the oil and gas industry. The device is capable of operating as a mobile unit or at a fixed site facility and for inspecting both ferrous and non-ferrous tubes.

Inventor: David Siverling
State : TX

Contact:
David Siverling
Tubular Ultrasound, Inc.
P O Box #9643
Houston TX 77213
713-453-3047

Status: Complete Status Date: 12/23/91 OERI No.: 012115

Patent Status : Patent Number:
Development Stage : Production Engineering
Technical Category: Fossil Fuels

Recv by NIST : 03/17/87
Recom. by NIST : 11/21/88
Award Date : 07/23/90 Award Amount: $ 78,500 Grant No: FG01-90CE15450
Contract Period: 07/23/90 - 01/22/90

Summary: A grant was awarded to build the electronic assembly and control unit of an advanced prototype of a portable pipe-handling system for test in U. S. Steel's tubular production plant in Birmingham, Alabama. The development work was completed at a cost of $250,000 including the ERIP grant. Several major companies have hired Siverling to inspect their tubulars. His company grossed $2.5M last year, has grown from 4 to 30 employees in a year, and has qualified for and is doing inspection work for most of the major oil companies. He has recently expanded overseas.

DOE No: 0451 DOE Coord: G.K.Ellis

Title: In-Place Asphalt Pavement Restoration, via Recycling of the Existing Materials

Description: A self-contained, self-propelled street paving machine that employs a three-stage heating and stripping process. It recycles the old, existing asphalt pavement by softening it up with surface heaters in 0.5-inch depth increments, picking it up with augers, and mixing it with an added asphalt rejuvenating agent. The new aggregate is then laid over the reworked surface. A steel-wheeled roller follows to compact the recycled mix.

Inventor: Larry A Yates
State : SC

Contact:
Larry A Yates

Status: Analysis Status Date: 11/23/88 OERI No.: 012091

Patent Status : Patent Number: 4545700
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv by NIST : 03/04/87
Recom. by NIST : 11/23/88

Summary: Copy of a Bankruptcy Court order has been received authorizing settlement and the scale of patent rights, etc. to Robert D. Rutland, the inventor. Mr. Rutland later notified us that some final court action remains before he, as the inventor, will be at liberty to submit a proposal for grant.

****

DOE No: 0452 DOE Coord: T.M.Levinson

Title: Magnetic Thin Films Formed in a Glow Discharge

Description: A low temperature plasma chemical vapor deposition process for producing non-equilibrium phases on substrates

Inventor: Thomas J O'Keefe
State : MO

Contact:
Robert Killoren
Office of Patent Development
509 Lewis Hall
U of Missouri
Columbia MO 65211
314-882-2821

Status: Award Status Date: 08/01/91 OERI No.: 012349

Patent Status : Not Applied For
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 08/27/87
Recom. by NIST : 12/13/88
Award Date : 08/01/91 Award Amount: $ 83,568 Grant No: FG01-91CE15452
Contract Period: 08/01/91 - 07/31/91

Summary: Grant was awarded to develop a coating of pilot- scale stamping dies provided by General Motors that are whear resistant and durable. Mechanical testing of these films will be conducted by GM engineers. On the basis of the data developed, scale-up procedures for final optimization of thin films will created.

DOE No: 0453 DOE Coord: J.Aellen

Title: Particle Densitometer Based on the Acoustical Resonance Measurement

Description: A method is proposed for simultaneously measuring both the number density of coal particles in a flow and the average particle size. The method is based upon an acoustic resonance measurement technique. Preliminary measurements have been performed on one of the vertical run, 21-inch diameter coal transport pipes for unit 1 of the Salt River Project's Coronado Generating Station which have favorably demonstrated the methodology.

Inventor: Alan A Vetter
State : CA

Contact:
Alan A Vetter
Humbug Mtg. Res Laboratories
P O Box 1380
Duarte CA 91010
818-359-4483

Status: Complete Status Date: 06/29/91 OERI No.: 012021

Patent Status : Not Applied For
Development Stage : Working Model
Technical Category: Miscellaneous

Recv by NIST : 01/29/87
Recom. by NIST : 12/23/88
Award Date : 06/30/89 Award Amount: $ 88,887 Grant No: FG01-89CE15453
Contract Period: 06/30/89 - 06/29/91

Summary: A grant was awarded to the Humbug Mountain Research Laboratories to build and test an advanced prototype.

****

DOE No: 0454 DOE Coord: G.K.Ellis

Title: Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids

Description: The invention is a novel apparatus to measure thermodynamic and phase data of fluids and fluid mixtures in general, with an emphasis on petroleum fluids. The unique feature of this new instrument is in replacing mercury by a precision piston.

Inventor: John S Lievois
State : TX

Contact:
John S Lievois
Ruska Instrument Corporation
3601 Dunvale
Houston TX 77063
713-975-0547

Status: Award Status Date: 08/16/90 OERI No.: 012458

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv by NIST : 11/09/87
Recom. by NIST : 01/05/89
Award Date : 08/16/90 Award Amount: $ 62,200 Grant No: FG01-90CE15454
Contract Period: 08/16/90 - 01/31/92

Summary: A grant was awarded to develop and test a fieldworthy prototype of a mercury-free PVT system for thermophysical property analysis of hydrocarbon reservoir fluids. The work is proceeding satisfactorily.

DOE No: 0455 DOE Coord: J.Aellen

Title: Thermoelectric Generator for Diesel Engines

Description: A thermoelectric direct-current generator, intended for use on diesel-powered trucks, which utilizes engine exhaust heat to generate electrical power for truck operation. The device replaces the conventional alternator.

Inventor: John C Bass
State : CA

Contact:
John C Bass
Electro Technology Corporation
11180 Roselle Street
Suite "G"
San Diego CA 92121
619-453-6777

Status: Complete Status Date: 09/28/90 OERI No.: 012406

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 09/30/87
Recom. by NIST : 01/12/89
Award Date : 09/29/89 Award Amount: $ 83,775 Grant No: FG01-89CE15455
Contract Period: 09/29/89 - 09/28/90

Summary: A grant was awarded to build a laboratory apparatus and operate it to provide design data for a large- scale natural gas conversion process.

****

DOE No: 0456 DOE Coord: E.P.Levine

Title: A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output

Description: The application of a hydraulic drive mechanism (to produce rotary motion) to an existing double-acting, "balanced compounded", free-piston Stirling engine concept.

Inventor: Mark Sorvig
State : MN

Contact:
Mark Sorvig

Status: Analysis Status Date: 01/26/89 OERI No.: 012852

Patent Status : Not Applied For
Development Stage : Concept Definition
Technical Category: Combustion Engines & Components

Recv by NIST : 03/09/88
Recom. by NIST : 01/26/89

Summary: Recommendation under consideration by DOE.

DOE No: 0457 DOE Coord: J.Aellen

Title: Continuous Saccharification of Ligno-Celluistic Biomass in Two Stages

Description: A plug-flow reactor is used to carry out a continuous saccharification of ligno-cellulsic biomass in two stages concurrently. The first stage operates at lower temperature, lower pressure and lower residence time than the second stage. The energy and chemicals from the second stage are recovered to provide heat and catalysts for the first stage.

Inventor: Donald L Brelsford
State : MT

Contact:
Donald L Brelsford
Brelsford Engineering, Inc.
8655 Bridger Canyon Road
Bozeman MT 59715
406-586-2840

Status: Award Status Date: 09/24/90 OERI No.: 012475

Patent Status : Disclosure Document Program
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 11/30/87
Recom. by NIST : 01/31/89
Award Date : 09/24/90 Award Amount: $ 69,800 Grant No: FG09-90CE15457
Contract Period: 09/24/90 - 03/23/92

Summary: A grant was awarded to modify existing reactor and test its efficiency.

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DOE No: 0458 DOE Coord: J.Aellen

Title: Continuous Casting by Float Process of Thin Sheet Carbon Steel

Description: A process for continuous casting of thin sheet carbon steel.

Inventor: James J Dolan
State : FL

Contact:
James J Dolan
Twenty-Two Laurel Oak
Amelia Island FL 32034
904-261-7571

Status: Award Status Date: 06/21/91 OERI No.: 012196

Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 05/06/87
Recom. by NIST : 02/03/89
Award Date : 06/21/91 Award Amount: $ 84,305 Grant No: 91CE15458
Contract Period: 06/21/91 - 06/20/93

Summary: Grant was awarded to have proof of concept testing performed by Carnegie Mellon University.

-

DOE No: 0459 DOE Coord: G.K.Ellis

Title: Natural Gas Conversion Process

Description: A process for converting natural gas into liquid hydrocarbons by use of a novel catalyst.

Inventor: Michael Gondouin
State : CA

Contact:
Michael Gondouin
Thirty-Two San Marino Drive
San Rafael CA 94901
415-456-8237

Status: Award Status Date: 09/21/90 OERI No.: 012493

Patent Status : Patent Number: 4705908
Development Stage : Working Model
Technical Category: Industrial Processes -

Recv by NIST : 12/14/87
Recom. by NIST : 02/27/89
Award Date : 09/21/90 Award Amount: $ 79,500 Grant No: FG01-90CE15459
Contract Period: 09/21/90 - 09/20/92

Summary: A procurement request was initiated for $79,500 to build a laboratory apparatus and operate it to provide design data for a large-scale natural gas conversion process. The work is proceeding satisfactorily.

****

DOE No: 0460 DOE Coord: G.K.Ellis

Title: Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor

Description: A portable, self-propelled machine for processing whole trees, capable of operating in remote areas, which will produce chunk wood economically for industrial furnaces at a high production rate. The machine feeds the trees, shears them to length, and splits the wood into the desired length.

Inventor: Warren A Aikins
State : WA

Contact:
Warren A Aikins
3489 Indian Creek Drive
Longview WA 98632
206-425-5470

Status: Award Status Date: 09/29/89 OERI No.: 012658

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv by NIST : 05/11/88
Recom. by NIST : 02/27/89
Award Date : 09/14/90 Award Amount: $ 79,500 Grant No: FG01-90CE15460
Contract Period: 09/14/90 - 09/09/92

Summary: A grant was awarded to design and build an advanced prototype, and to obtain third party testing and evaluation on-site in cooperation with two different companies representing different user industries. The work is proceeding satisfactorily.

DOE No: 0461 DOE Coord: J.Aellen

Title: Thermally Stable Polyenaminonitriles Which Cure Without Evolution of Volatiles

Description: A new class of thermally stable polymers has been developed that are free from voids. These polymers are suitable for use as insulating films in microelectronic components, as cladding for optical fibers or as composite matrices.

Inventor: James A Moore
State : NY

Contact:
Ray E Snyder
200 East Evergreen Avenue
Tower Center
Mount Prospect IL 60056
312-398-1525

Status: Award Status Date: 09/20/90 OERI No.: 012511

Patent Status : Disclosure Document Program
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 12/29/87
Recom. by NIST : 03/21/89
Award Date : 09/20/90 Award Amount: $ 84,760 Grant No: FG01-90CE15461
Contract Period: 09/20/90 - 09/19/92

Summary: A grant was awarded to prepare experimental quantities for laboratory testing.

****

DOE No: 0462 DOE Coord: T.M.Levinson

Title: Energy Efficient Asymmetric Pre-Swirl Vane and Twisted Propeller Propulsion System

Description: A method for modifying and optimizing "in flow" conditions for marine propellers by providing "counterflow" vane assemblies forward of the propeller.

Inventor: Donald H VanLiew
State : MD

Contact:
Donald H VanLiew
Gary E Larimer
326 Hollyberry Road
Severna Park MD 21146
410-647-2855

Status: Award Status Date: 09/30/91 OERI No.: 012652

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 05/06/88
Recom. by NIST : 03/29/89
Award Date : 02/06/90 Award Amount: $ 99,818 Grant No: FG01-90CE15462
Contract Period: 02/06/90 - 06/06/92

Summary: "Props and Vanes" were originally going to be installed on multiple vessel types in order to demonstrate the low risk and high return of this fuel-saving and speed-increasing technology. However, grant progress has been sent back by a fire that destroyed the company's computer and also by the recession affecting the boating industry. As a result, the inventor is now focusing in propellers for ski boats. Prototypes are being built and tested for this market in cooperation with a ski boat company.

DOE No: 0463 DOE Coord: G.K.Ellis

Title: Carburetor Fuel Feed System with Bidirectional Passages

Description: A carburetor for spark ignition industrial engines. The carburetor uses fuel and air regulator diaphragms to meter the fuel/air mixture for better part-load fuel economy. Components such as the conventional float system, boost venture and discharge nozzle are not used.

Inventor: James S Jones
State : TX

Contact:
James S Jones

Status: Analysis Status Date: 03/29/89 OERI No.: 012855

Patent Status : Patent Number: 4632788
Development Stage : Prototype Test
Technical Category: Combustion Engines & Components

Recv by NIST : 08/13/88
Recom. by NIST : 03/29/89

Summary: Recommendation under consideration by DOE. Awaiting statement of work from the inventor.

****

DOE No: 0464 DOE Coord: P.M.Hayes

Title: Chain Saw Tip Stabilizing Device for Use with an Anti-Kickback Device

Description: An attachment to a chain saw that promotes cutting of logs by reducing the force required by the operator to feed the saw into the work.

Inventor: Vincent D Morabit
State : SC

Contact:
Vincent D Morabit
1373 Ebenezer Road
Rock Hill SC 29732
803-329-3600

Status: Award Status Date: 07/24/91 OERI No.: 012108

Patent Status : Patent Number: 4569135 and others
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 03/10/87
Recom. by NIST : 04/17/89
Award Date : 07/24/91 Award Amount: $ 87,000 Grant No: FG01-91CE15464
Contract Period: 07/24/91 - 03/23/91

Summary: A grant was awarded to assist in the technical development of Utility (Chain saw guidebar safety tip and spike attchment).

DOE No: 0465 DOE Coord: E.P.Levine

Title: Multiconductive Base Form Microchip Carrier/Connector

Description: A new architecture microchip design that permits up to 300 contact pins per square inch of circuit board. This system, based on an inexpensive family of microchip packages, relies on a series of radial patterns, easily fabricated, like second hand marks on an old fashioned watch. It uses less gold, less copper, less plastic or ceramic, than any other component system; it uniquely offers the promise of reaching 1000 leads per sq/in in packaging density.

Inventor: Samuel Goldfarb
State : NY

Contact:
Alan Gray

Status: No DOE Support Status Date: 09/30/90 OERI No.: 012673

Patent Status : Patent Number: 5654472
Development Stage : Concept Definition
Technical Category: Miscellaneous

Recv by NIST : 05/18/88
Recom. by NIST : 04/24/89

Summary: Rejected by lack of energy relationship.

****

DOE No: 0466 DOE Coord: G.K.Ellis

Title: Coal Log Fuel Pipeline Transportation System

Description: A proposed low-cost method for mixing crushed coal with a binder, compressing it into logs and transporting the logs in a waterfield pipeline. At the destination, the logs would be crushed and burned in conventional boilers.

Inventor: Henry Liu
State : MO

Contact:
Gary D Justis
Office of Patents & Licensing
509 Lewis Hall
University of Missouri
Columbia MO 65211
314-882-2821

Status: Award Status Date: 08/24/90 OERI No.: 012739

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv by NIST : 06/15/88
Recom. by NIST : 04/24/89
Award Date : 08/24/90 Award Amount: $ 79,516 Grant No: FG01-90CE15466
Contract Period: 08/24/90 - 06/30/92

Summary: A grant was awarded to demonstrate proof-of-concept for the coal-log pipeline system, with specific emphasis on finding the amount of binder for logs with adequate strength to eliminate breakage. Dr. liu formed a supporting business consortium this year. NSF will provide $925,000 over the next four years to fund a new National Capsule Pipeline Research Center at UM, with Dr. Liu as director, to be matched by equal funding from the state and industry, to conduct research and develop freight pipeline technology. This is a 23:1 matching fund ratio attained before the grant has been completed.

DOE No: 0467 DOE Coord: T.M.Levinson

Title: High Pressure Lubricoolant Jet for Supporting Metal Machining

Description: A method for improving metal cutting by directing a high-pressure coolant jet at the tool contact area.

Inventor: Marian Mazurkiewicz
State : MO

Contact:
Donald D. Meyers
211 Parker Hall
University of Missouri-Rolla
Rolla MO 65401
314-882-2821

Status: Award Status Date: 09/28/90 OERI No.: 011847

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 05/20/86
Recom. by NIST : 05/17/89
Award Date : 09/28/90 Award Amount: $ 82,941 Grant No: FG01-90CE15467
Contract Period: 09/28/90 - 09/27/92

Summary: A grant was awarded to build a prototype to test the use of the water jets to mill titanium. The tests will measure reductions in energy and labor. If successful, the inventor hopes to license the invention. Results so far indicate that the water jets have no significant influence in cutting forces, but lifetime and surface quality are greatly improved.

****

DOE No: 0468 DOE Coord: G.K.Ellis

Title: Constant-Torque System for Beam Pumps

Description: A variable frequency electrical drive system for beam pumps to improve efficiency by matching the inherent cyclic loading with the pump's electric motor prime mover that operates efficiently only at constant loading.

Inventor: Duncan M Butlin
State : OK

Contact:
Duncan M Butlin
5707 East Seventy-Second Place
Tulsa OK 74136
918-494-2076

Status: Award Status Date: 08/02/90 OERI No.: 012604

Patent Status : Patent Number: 4971522
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 03/28/88
Recom. by NIST : 05/17/89
Award Date : 08/02/90 Award Amount: $ 81,025 Grant No: FG01-90CE15468
Contract Period: 08/02/90 - 02/01/92

Summary: A grant was awarded to design, build, and test a new constant torque system for oil well beam pumps. the development work is proceeding slowly because of some difficulties that were not anticipated.

DOE No: 0469 DOE Coord: J.Aellen

Title: Recuperator of Flue Gas Heat

Description: The heat in the flue gases of a furnace is transferred to the return air via a heat exchanger, which consists of a flexible metallic sleeve installed over the flue gas pipe and ducted to the return air inlet. A damper controls the air flow through the heat exchanger.

Inventor: Milan Rybak
State : NY

Contact:
Milan Rybak

Status: Decision Phase Status Date: 09/30/90 OERI No.: 012590

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

Recv by NIST : 03/14/88
Recom. by NIST : 05/23/89

Summary: Proposal in negotiation.

****

DOE No: 0470 DOE Coord: E.P.Levine

Title: Flat Belt Continuously Variable High Speed Drive

Description: A very high speed, continuously variable ratio, flat belt transmission for use in applications such as advanced diesel engines and equipment which use a turbine engine to drive low speed machinery.

Inventor: Emerson L Kumm
State : AZ

Contact:
Emerson L Kumm
Kumm Industries, Incorporated
B-101
2406 South Twenty-Fourth St.
Phoenix AZ 85034
602-275-5507

Status: Award Status Date: 08/16/90 OERI No.: 012780

Patent Status : Patent Number: 4591351 and others
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 07/06/88
Recom. by NIST : 05/23/89
Award Date : 08/16/90 Award Amount: $ 90,875 Grant No: FG0190CE-15470
Contract Period: 08/16/90 - 08/16/92

Summary: A grant was awarded to build and test a continuously variable high speed flat belt drive that is capable of transmitting a power level suitable for primary application areas.

DOE No: 0471 DOE Coord: G.K.Ellis

Title: Method and Tool for Logging-While-Drilling

Description: A new and different approach to transmittal of down- hole drilling data, with the potential for transmitting data at a higher rater. A braking device controls the rotational speed of the down- hole instrument turbine/generator to generate pressure pulses in the drilling fluid.

Inventor: Oleg Kotlyar
State : UT

Contact:
Oleg Kotlyar
1925 East 1700, South
Salt Lake City UT 84108
801-583-8124

Status: Award Status Date: 07/20/90 OERI No.: 012680

Patent Status : Patent Number: 4734892
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 05/20/88
Recom. by NIST : 05/26/89
Award Date : 07/20/90 Award Amount: $ 70,000 Grant No: FG01-90CE15471
Contract Period: 07/20/90 - 01/19/92

Summary: A grant was awarded to build, test, and demonstrate a proof-of-concept breadboard model of, a prototype of a Measurement-While-Drilling (MWD) turbine pulser. The model was demonstrated showing MWD transmission rates three times greater than conventional MWD industry equipment, with other advantages. By providing course control in directional drilling, this technology will make formation evaluation while drilling very cost competitive. ERIP is helping the inventor find funding for an industrial prototype for downhole demonstration.

****

DOE No: 0472 DOE Coord: G.K.Ellis

Title: Method and Apparatus for Maximizing Refrigeration Capacity

Description: This invention involves the modification of a vapor- compression refrigeration system whereby the condenser pressure controls are eliminated so that the condenser pressure varies with the ambient temperature. A small pump is added in the liquid line to prevent formation of flash gas.

Inventor: Robert E Hyde
State : OR

Contact:
Robert E Hyde

Status: Analysis Status Date: 06/14/89 OERI No.: 012839

Patent Status : Patent Number: 4599873
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 08/09/88
Recom. by NIST : 06/14/89

Summary: Recommendation under consideration by DOE. Inventor attended CPW. He is not interested in a grant, at least at this time, since his need of funding he represents, is for establishing production capability, and not for development.

DOE No: 0473 DOE Coord: G.K.Ellis

Title: Energy Saving Head Pressure Control System for Air Cooled Condensers

Description: Improved head pressure control system for air-cooled refrigeration systems.

Inventor: Andrew O'Neal
State : WA

Contact:
Andrew O'Neal
18517 Eighth, Northeast
Seattle WA 98155
206-362-5806

Status: Award Status Date: 09/18/90 OERI No.: 011513

Patent Status : Patent Number: 4566288
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 04/07/86
Recom. by NIST : 06/14/89
Award Date : 09/18/90 Award Amount: $ 79,453 Grant No: FG01-90CE15473
Contract Period: 09/18/90 - 03/19/92

Summary: A grant was awarded to field test an improved refrigeration system, document the energy savings, and the apprise industry of the results. Tests of the Sensco system are proceeding satisfactorily at various supermarkets on the west and east coasts.

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DOE No: 0474 DOE Coord: J.Aellen

Title: Sweep-Spike Combination Tillage Tool

Description: A combination tillage, sweep and fertilizer/herbicide application tool having a tillage point for deep soil penetration, flat wings for sub-surface root cutting, a fertilizer/herbicide application nozzle, and furrow fillers to return the soil displaced by the tillage point, thus substantially reducing loss of vapor when anhydrous ammonia fertilizer is being applied.

Inventor: James R Mikkelsen
State : ND

Contact:
James R Mikkelsen

Status: No DOE Support Status Date: 09/30/90 OERI No.: 012982

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 11/30/88
Recom. by NIST : 06/15/89

Summary: No proposal received.

DOE No: 0475 DOE Coord: J.Aellen

Title: Auxiliary Air Conditioning, Heating and Engine Warming System for Trucks

Description: An auxiliary power unit for trucks. The unit contains a small diesel engine, electrical alternator, water pump, air-conditioning compressor, and heat exchangers; it is intended to keep truck systems operating and the truck engine warm when the main truck engine is not operating.

Inventor: J Rex Greer
State : NM

Contact:
J Rex Greer
Drawer One
Sumner NM 88119
505-355-7747

Status: Award Status Date: 09/18/90 OERI No.: 012445

Patent Status : Patent Number: 4682649
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 10/29/87
Recom. by NIST : 06/16/89
Award Date : 09/18/90 Award Amount: $ 89,997 Grant No: FG01-90CE15475
Contract Period: 09/18/90 - 09/17/92

Summary: A grant was awarded to build seven advanced prototypes and test.

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DOE No: 0476 DOE Coord: G.K.Ellis

Title: Pickard Line-up Boom

Description: The invention is the addition of a line-up boom to a standard side-boom pipe-laying tractor to allow improvements in pipeline welds, productivity, and safety in laying large-diameter oil and gas pipelines.

Inventor: Kenneth L Pickard
State : OK

Contact:
Kenneth L Pickard
3631 South Indianapolis
Tulsa OK 74135
918-747-6070

Status: Award Status Date: 06/18/90 OERI No.: 012708

Patent Status : Patent Number: 4266910 and others
Development Stage : Production Engineering
Technical Category: Miscellaneous

Recv by NIST : 06/06/88
Recom. by NIST : 06/20/89
Award Date : 06/18/90 Award Amount: $ 80,000 Grant No: FG01-90CE15476
Contract Period: 06/18/90 - 12/17/92

Summary: A grant was awarded to build an advanced prototype for use in pipeline construction and, in cooperation with pipeline contractors, to test it under field conditions. The prototype was completed. Grantee is attempting to find one or more pipeline contractors who will test it. He has been unable so far, and the contract period has been extended 12 months to enable him to find one.

DOE No: 0477 DOE Coord: E.P.Levine

Title: "Ultra Design Method" - Method for Designing Apparel by Computer

Description: A PC based computer aided design system for integrating and computerizing the design, pattern making, and layout operations associated with garment manufacturing.

Inventor: Debbie Gioello
State : NY

Contact:
Debbie Gioello
Gioello Enterprises, Inc.
237 Van Cortlandt Park Avenue
Yonkers NY 10701
- 914-963-4837

Status: Award Status Date: 06/07/91 OERI No.: 012883

Patent Status : Patent Number: 4546434
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 08/24/88
Recom. by NIST : 07/07/89
Award Date : 06/07/91 Award Amount: $ 75,790 Grant No: FG01-91CE15477
Contract Period: 06/07/91 - 12/06/92

Summary: Proposal under consideration by DOE.

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DOE No: 0478 DOE Coord: E.P.Levine

Title: The "Triple Design Cycle" Cogeneration Program

Description: The triple combined cycle cogeneration system employs three heat engines and waste heat recovery to efficiently and economically generate electricity. The system is designed for the local distribution site of natural gas transmission networks. The process recovers high pressure energy from the natural gas, maintains the natural gas pipeline temperature, and is designed to maintain a firm rated electric power generation.

Inventor: George McLean
State : TX

Contact:
George McLean

Status: Analysis Status Date: 07/19/89 OERI No.: 012489

Patent Status : Patent Number: 4693072
Development Stage : Production Engineering
Technical Category: Combustion Engines & Components

Recv by NIST : 12/11/87
Recom. by NIST : 07/19/89

Summary: No proposal received yet.

DOE No: 0479 DOE Coord: T.M.Levinson

Title: Solar Cooker

Description: A solar-cooking device consisting of a direct- focusing, concentrator type of solar reflector and a pot holding element. The reflector lens is assembled from black-iron elements that are coated with reflective plastic film.

Inventor: John B Long
State : FL

Contact:
John B Long
988 Boulevard of the Arts #212
Sarasota FL 33333

Status: Award Status Date: 08/23/89 OERI No.: 011923

Patent Status : Patent Number: 4561425
Development Stage : Production & Marketing
Technical Category: Other Natural Sources

Recv by NIST : 11/04/86
Recom. by NIST : 08/23/89
Award Date : 09/27/90 Award Amount: $ 87,708 Grant No: FG01-90CE15479
Contract Period: 09/27/90 - 09/25/92

Summary: The inventor will use the services of Volunteers in Technical Assistance (VITA) to conduct a survey of potential markets worldwide for this solar cooker. In addition, VITA will use 20 solar cookers in a field demonstration in Africa. Another 150 solar cookers will be used in a field demonstration in Haiti to determine their effectiveness. The solar Energy Research Institute will perform an evaluation of materials and substrates that could make the solar cooker more economical.

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DOE No: 0480 DOE Coord: E.P.Levine

Title: AlasCan Composting Toilet and Greywater Treatment System

Description: The invention is an automated tank which composts all organic and human wastes using a minimum amount of water and can be combined with our small extended aeration treatment tank to treat the remaining greywater.

Inventor: Clinton R Elston
State : AK

Contact:
Clinton R Elston
P O Box #278
Healy AK 99743

Status: Award Status Date: 08/20/90 OERI No.: 012799

Patent Status : Patent Applied For
Development Stage : Production & Marketing
Technical Category: Industrial Processes

Recv by NIST : 07/15/88
Recom. by NIST : 08/25/89
Award Date : 08/20/90 Award Amount: $ 90,000 Grant No: FG01-90CE15480
Contract Period: 08/20/90 - 08/19/92

Summary: A grant was awarded to explore alternative material and manufacturing methods and costs of fabricating and assembling a lower cost prototype of the system.

DOE No: 0481 DOE Coord: J.Aellen

Title: Refrigerant Mixture of R-11 and R-216 to Provide Ice Making Abilities in Centrifugal Compressors

Description: An azeotropic mixture of refrigerants intended to convert centrifugal compressor systems from water chilling into ice-making for commercial off-peak air-conditioning.

Inventor: Calvin D MacCracken
State : NJ

Contact:
Calvin D MacCracken

Status: No DOE Support Status Date: 09/29/89 OERI No.: 011886

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

Recv by NIST : 10/08/86
Recom. by NIST : 08/29/89

Summary: Recommendation withdrawn at inventor's request; no longer seeking support funds.

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DOE No: 0482 DOE Coord: G.K.Ellis

Title: Improved Fluid Pumping Device and Liquid Sensor

Description: The invention is an intermittent gas lift method for producing fluids from shallow stripper wells. A downhole fluid level sensor optimizes the gas injection. It is calculated to allow cost-effective oil production form shallow stripper wells.

Inventor: William G Buckman
State : KY

Contact:
William G Buckman
504 Memphis Junction Road
Bowling Green KY 42101
502-781-4322

Status: Award Status Date: 08/02/90 OERI No.: 012757

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv by NIST : 06/27/88
Recom. by NIST : 08/29/89
Award Date : 08/02/90 Award Amount: $ 80,000 Grant No: FG01-90CE15482
Contract Period: 08/02/90 - 02/01/93

Summary: A grant was awarded to develop and test a fieldworthy system of improved fluid pumping device and liquid sensor for oil wells. The prototype was completed but delays have been encountered in finding a cooperative user who will allow the pump to be installed for testing. The contract has been extended 12 months to allow for the necessary testing.

DOE No: 0483 DOE Coord: G.K.Ellis

Title: Downhole Neutron Flux Monitor

Description: A neutron flux monitor for measuring the source strength of 14-MeV pulsed neutron sources in the downhole environment. In effect, this is a new device for "seeing" outside the wellbore, to determine the surrounding properties of the rock strata and associated fluids, for use in oil and gas well drilling.

Inventor: John Bartley Czirr
State : UT

Contact:
John Bartley Czirr
1830 East Four Hundred North
Mapleton UT 84664
801-489-8507

Status: Complete Status Date: 07/26/90 OERI No.: 012911

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 09/30/88
Recom. by NIST : 08/30/89
Award Date : 07/26/90 Award Amount: $ 80,000 Grant No: FG01-90CE15483
Contract Period: 07/26/90 - 01/25/92

Summary: A grant was initially awarded to complete the development of a neutron flux monitor and test it. Unanticipated difficulties of the materials research required changing the ERIP work to concentrate upon this material problem. An yttrium orthosilicate material was identified far superior to conventional materials, ideal for gain stabilization purposes. The prototype was successfully developed and the proof of concept demonstrated under an accompanying DOE SBIR Phase I grant, for which a Phase II follow- on grant is to be awarded.

****

DOE No: 0484 DOE Coord: G.K.Ellis

Title: MUD DEVIL - Deaerator Mixer

Description: A pin-shear mixing system to thoroughly mix materials and additives in drilling mud systems. At the same time it removes air or gas from the mud.

Inventor: R A Miner
State : WY

Contact:
R A Miner

Status: Analysis Status Date: 09/12/89 OERI No.: 012843

Patent Status : Patent Number: 4334788
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 08/12/88
Recom. by NIST : 09/12/89

Summary: Recommendation under consideration by DOE. Awaiting proposal from inventor, which is expected with 2 weeks.

DOE No: 0485 DOE Coord: G.K.Ellis

Title: Method and Apparatus for Placing Cement Plugs in Wells

Description: The invention is a series of elements designed to act as a system to insure that oilfield remedial cementing operations are performed with maximum success. These operations include primary and secondary cementing operations necessary for completion or abandonment of an oil-well.

Inventor: Robert E Bode
State : TX

Contact:
Robert E Bode
Plug Monitor Inc
149 Wunderlich Suite 1903
Houston TX 77069
713-586-8363

Status: Award Status Date: 09/28/90 OERI No.: 012114

Patent Status : Patent Applied For
Development Stage : Production & Marketing
Technical Category: Fossil Fuels

Recv by NIST : 03/17/87
Recom. by NIST : 09/26/89
Award Date : 09/28/90 Award Amount: $ 42,355 Grant No: FG01-90CE15485
Contract Period: 09/28/90 - 09/27/92

Summary: A grant was awarded to complete the development of a method and apparatus for setting and monitoring cement plugs in oil and gas wells and to test it in a well while it is being drilled. Several tests have been run in the dowell-schlumberger test Center, indicating need for design changes that require more material, machining and testing. These additional costs will be borne by grantee. Dowell- Schlumberger has shown an interest in this tool for world wide marketing, as soon as the tool has been successfully tested down-hole.

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DOE No: 0486 DOE Coord: J.A.Aellen

Title: Cotton Stalk and Shredder with Re-Bedder

Description: Cotton field tillage machine used for field traffic control, along with residue shredding during bed preparation.

Inventor: Aldo Ruoza
State : CA

Contact:
Aldo Ruoza

Status: No DOE Support Status Date: 10/28/91 OERI No.: 002999

Patent Status : Patent Number: 4015667
Development Stage : Working Model
Technical Category: Miscellaneous

Recv by NIST : 11/14/77
Recom. by NIST : 09/26/89

Summary: No DOE support. Technology is in production and being marketed.

DOE No: 0487 DOE Coord: P.M.Hayes

Title: Direct Fired Steam Generator

Description: A generator which generates steam by having the water in direct contact with the combustion gases. The steam produced by this means is suitable for curing concrete. Other applications are discussed. Energy efficiency over competing technologies is obtained through the use of a patented design for multiple blowers.

Inventor: David P Welden
State : IA

Contact:
David P Welden
Indiana Avenue
Iowa Falls IA 50126
515-648-3021

Status: Award Status Date: 08/15/90 OERI No.: 012743

Patent Status : Patent Number: 4614491 and others
Development Stage : Production & Marketing
Technical Category: Industrial Processes

Recv by NIST : 06/16/88
Recom. by NIST : 10/17/89
Award Date : 08/15/90 Award Amount: $ 76,410 Grant No: FG01-90CE15487
Contract Period: 08/15/90 - 08/14/92

Summary: A grant was awarded to build and test a preproduction prototype of the direct-fired steam generator.

****

DOE No: 0488 DOE Coord: J.Aellen

Title: A System for Recovering Sulfur from Gases, Especially Natural Gas

Description: A new desulfurization for acid gases is proposed in which hydrogen sulfide is oxydized by sulfite. Recovered elemental sulfur improved the economy of the Modification of the Claus Process. Improvements over other liquid systems include a/ greater sulfur dioxide loading by a factor of 8, thereby reducing liquid circulation rates and equipment size; and b/ reactor operating conditions which eliminate sulfur plugging problems and increase rate.

Inventor: George E Gryka
State : CT

Contact:
George E Gryka
Post Office Box #656
Southport CT 06490
203-259-7040

Status: Award Status Date: 09/10/90 OERI No.: 012789

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 07/11/88
Recom. by NIST : 10/20/89
Award Date : 09/10/90 Award Amount: $ 90,000 Grant No: FG01-90CE15488
Contract Period: 09/10/90 - 09/09/92

Summary: A grant was awarded to build and test a laboratory reactor to prove its efficiency.

DOE No: 0489 DOE Coord: P.M.Hayes

Title: Optimized Control System for Ultra-Efficient Surface Coating Operations

Description: The invention is a spray paint booth ventilation system. It incorporates a movable cab for the operator. The cab is flushed with make-up air while the rest of the spray booth uses recirculated air. The operator need not wear any protective gear while he is protected from fire and explosion risks in the cab.

Inventor: Clyde Smith
State : TN

Contact:
Clyde Smith
6132 Hillsboror Road
Nashville TN 37215
615-370-5676

Status: Award Status Date: 07/31/91 OERI No.: 012946

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 10/31/88
Recom. by NIST : 10/25/89
Award Date : 07/31/91 Award Amount: $ 73,950 Grant No: FG01-91CE15489
Contract Period: 07/31/91 - 01/30/93

Summary: A grant was awarded to build and test an engineering prototype of the spray paint booth ventilation system.

****

DOE No: 0490 DOE Coord: G.K.Ellis

Title: Laney Belt Terracer

Description: A combination tillage tool and conveyor for use with farm tractor that is a more energy-efficient and less costly equipment method for constructing terraces for soil conservation. The machine cuts and lifts a soil slice onto the conveyor which deposits the cut soil to the side.

Inventor: Roy N Laney
State : OK

Contact:
Roy N Laney
Laney Manufacturing Co.
Airbase Road
P.O. Box 1085
Frederick OK 73542
405-335-2362

Status: Award Status Date: 08/20/90 OERI No.: 013100

Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 03/13/89
Recom. by NIST : 11/13/89
Award Date : 08/20/90 Award Amount: $ 78,835 Grant No: FG01-90CE15490
Contract Period: 08/20/90 - 02/19/92

Summary: A grant was awarded to build, develop, and demonstrate two advanced terracing prototypes, and to build a trailer that will allow them to be transported for regional demonstrations. Inventor has had some development problems. He built one, junked it, and is now building another. There has been some delays due to press of his other business. He will build two more prototypes, and has encountered other needs for the same technology, like one-pass removal of contaminated soil from ditches. He requests a 12 months no cost extension.

DOE No: 0491 DOE Coord: J.Aellen

Title: QUBUS III Technology for Producing Ethanol

Description: Cellulose from leafy sources is disrupted at low temperature by an explosive ammonia boil. This is followed by conventional enzymatic hydrolysis and fermentation leading to ethanol.

Inventor: Mark Holzapple
State : TX

Contact:
Earnest Stuart
106 West Mansfield
Brenham TX 77833
409-845-1406

Status: Award Status Date: 09/28/90 OERI No.: 012969

Patent Status : Patent Number: 4600590
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 11/21/88
Recom. by NIST : 11/17/89
Award Date : 09/28/90 Award Amount: $ 86,252 Grant No: FG01-90CE15491
Contract Period: 09/28/90 - 09/27/93

Summary: A three year grant was awarded to optimize the hydrolysis of cellulose into smaller molecules which can be fermented with yeast.

****

DOE No: 0492 DOE Coord: J.Aellen

Title: Reactive Sintered Nickel Aluminide

Description: The invention is a novel method for the fabrication of an intermetallic alloy of nickel and aluminum at subconventional temperatures.

Inventor: Randall M German
State : NY

Contact:
Ray E Snyder
200 East Evergreen Avenue
Mount Prospect IL 60056
312-398-1525

Status: Award Status Date: 07/02/91 OERI No.: 012540

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 02/01/88
Recom. by NIST : 11/30/89
Award Date : 07/02/91 Award Amount: $ 89,392 Grant No: 91CE15492
Contract Period: 07/02/91 - 07/01/93

Summary: Grant was awarded to Xform, Inc. design, build and test air experimental sintering for production of sintered NIAL for flame spraying applications.

DOE No: 0493 DOE Coord: T.M.Levinson

Title: Airfoil Design with Improved Aerodynamic Characteristics

Description: A subsonic airfoil having a step-down in the upper surface. The step reduces separation, thus increasing the maximum lift coefficient and minimum drag coefficient, over a wide range of angles of attack.

Inventor: Demeter G Fertis
State : OH

Contact:
Demeter G Fertis

Status: Analysis Status Date: 12/07/89 OERI No.: 012683

Patent Status : Patent Number: 4606519
Development Stage : Prototype Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 05/24/88
Recom. by NIST : 12/07/89

Summary: Recommendation under consideration by DOE.

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DOE No: 0494 DOE Coord: J.Aellen

Title: Recovery of Dilute Aqueous Butenol by Adsorption on Lignin

Description: Butenol, that inhibits the fermentation of sugars, is removed by adsorption on Lignin.

Inventor: Michael R Ladisch
State : IN

Contact:
Michael R Ladisch

Status: Procurement Status Date: 10/28/91 OERI No.: 012833

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 08/08/88
Recom. by NIST : 12/14/89

Summary: Grant procurement package in process.

DOE No: 0495 DOE Coord: G.K.Ellis

Title: Method for Monitoring Thinning of Pipe Wall

Description: An on-line method for continuously monitoring wall thinning of pipe while it is in service.

Inventor: Joran Hopenfeld
State : MD

Contact:
Joran Hopenfeld
1224 Yale Road
Rockville MD 20850
301-340-1625

Status: Award Status Date: 08/22/90 OERI No.: 013060

Patent Status : Patent Number: 4779453
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 02/16/89
Recom. by NIST : 12/15/89
Award Date : 08/22/90 Award Amount: $ 84,720 Grant No: FG01-90CE15495
Contract Period: 08/22/90 - 02/21/93

Summary: A grant was awarded to develop the specifications for the design, installation, and operation of systems to monitor general pipe wall thinning due to erosion/corrosion in energy production and process facilities. A major part of this work is being conducted at the University of Virginia (UVA) and cost-shared with the Center for Innovative Studies (CIT). A 12 months no-cost extension was requested due to delays in starting work at UVA.

****

DOE No: 0496 DOE Coord: J.Aellen

Title: Spiral Track Oven

Description: A continuous process oven for use in continuous semiconductor chip packaging to be sued in the organic burn-out process step.

Inventor: Sandor Drobilisch
State : CA

Contact:
Sandor Drobilisch

Status: Analysis Status Date: 09/30/90 OERI No.: 013133

Patent Status : Patent Number: 4582484
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 03/29/89
Recom. by NIST : 01/22/90

Summary: No proposal received as yet.

DOE No: 0497 DOE Coord: G.K.Ellis

Title: Downhole Casing Repair System

Description: The invention is a downhole casing repair system for oil and gas wells. A metallic patch with epoxy cement is used to cover the leaks and expand in-place by inflating a packer.

Inventor: Charles H Koster
State : TX

Contact:
Charles H Koster
2651 Central Freeway E.
P.O. Drawer 8047
Wichita Falls TX 76307
817-322-6406

Status: Award Status Date: 12/17/91 OERI No.: 013152

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv by NIST : 04/21/89
Recom. by NIST : 01/22/90
Award Date : 09/14/91 Award Amount: $ 99,890 Grant No: FG0191CE15497
Contract Period: 09/14/91 - 03/03/93

Summary: A grant was awarded to design, build, develop, and test a spiral tool and packer into a single universal tool to repair casings with varying diameters. NuBore, However, has been foreclosed upon by a debtor, Spiral Systems, Inc., and has given up all assets, but Spiral has agreed to transfer ownership of patent and grant to Charles Koster, the inventor. Mr. Koster requests to proceed with the work as planned, once DOE approval received, which request is being considered.

****

DOE No: 0498 DOE Coord: G.K.Ellis

Title: Hydrocarbon Reserve Evaluation/Determining Permeability in Hydrocarbon Wells

Description: A system for calculating the amount of hydrocarbon present in underground formations and the permeability to fluid flow as the formation is being drilled.

Inventor: Daniel E Boone
State : TX

Contact:
Daniel E Boone
IDL, Incorporated
3727 Pinemont Drive
Houston TX 77018
713-688-5011

Status: Award Status Date: 09/13/90 OERI No.: 013033

Patent Status : Patent Number: 4765182
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv by NIST : 01/26/89
Recom. by NIST : 01/31/90
Award Date : 09/13/90 Award Amount: $ 79,756 Grant No: FG01-90CE15498
Contract Period: 09/13/90 - 03/12/92

Summary: A grant was awarded to finish development of a complete new fieldworthy, user-friendly system of "mud-logging." This shall be a method for hydrocarbon reserve evaluation and for determining permeability in hydrocarbon wells capable of being tested in a well while being drilled. Development was completed with test results from data collected closely approximating electrical logging. Inventor sees potential only in the international market due to depressed conditions now and in foreseeable future in the domestic oil market.

DOE No: 0499 DOE Coord: P.M.Hayes

Title: Electrostatic Agglomerator

Description: Agglomeration of dust particles is achieved by charging one-half of the stream positively and the other half negatively and the subsequent recombination.

Inventor: V Hruby
State : MA

Contact:
Robert De Saro
J. Busel Company, Incorporated
Nineteen Kearney Road
Needham MA 02194
617-449-9254

Status: Award Status Date: 09/20/90 OERI No.: 012897

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 09/21/88
Recom. by NIST : 02/06/90
Award Date : 09/28/90 Award Amount: $ 74,867 Grant No: FG01-90CE15499
Contract Period: 09/28/90 - 09/27/92

Summary: A grant was awarded to evaluate the electrostatic agglomerator's ability to remove fine particulates from diesel exhaust and other particle laden applications.

****

DOE No: 0500 DOE Coord: G.K.Ellis

Title: Neutral Atom Interferometry Gravity Sensor

Description: A neutral beam interferometer is designed to measure local variations in gravity. This will result in highly accurate gravity area surveys for petroleum exploration. The anticipated improvement in accuracy is at least ten thousand fold or better.

Inventor: John F Clauser
State : CA

Contact:
John F Clauser

Status: Analysis Status Date: 02/07/90 OERI No.: 012935

Patent Status : Patent Number: 4992656
Development Stage : Laboratory Test
Technical Category: Miscellaneous

Recv by NIST : 10/24/88
Recom. by NIST : 02/07/90

Summary: Recommendation under consideration by DOE. Proposal anticipated by April 1992. Inventor indicates two needs (1) paper study to determine what one will see underground, and (2) credible design for a saleable "nuts and bolts" device, on paper.

DOE No: 0501 DOE Coord: T.M.Levinson

Title: High Efficiency Dehumidifier/Air Conditioner

Description: A system of heat pipes that are placed in the airducts of an air-conditioning system between the return and supply ducts and thereby increase the dehumidification capability of the system.

Inventor: Khanh Dinh
State : FL

Contact:
Khanh Dinh
Heat Pipe Technology, Inc.
P.O. Box 999
Alachua FL 32615
904-462-3464

Status: Award Status Date: 06/07/91 OERI No.: 012217

Patent Status : Patent Number: 4607498
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 05/20/87
Recom. by NIST : 02/28/90
Award Date : 06/07/91 Award Amount: $ 99,500 Grant No: FG01-91CE15501
Contract Period: 06/07/91 - 06/06/93

Summary: Grant was awarded to write a manual in heat pipes used in air-conditioners, write a computer program to calculate heat transfer data, build a test chamber and have it certified by a recognized testing organization, optimize the heat pipe air- conditioning unit, and develop technical brochures in this technology. Efforts are underway in most of these tasks.

****

DOE No: 0502 DOE Coord: E.P.Levine

Title: Mechanically Infinitely Variable Speed Transmission for Automotive Use to Save Fuel

Description: An automotive traction drive continuously variable transmission in which power is transmitted through a rigid circular steel ring instead of a V-Belt.

Inventor: Saul Herscovici
State : IA

Contact:
Saul Herscovici
Power Engineering & Mfg., Inc
714 Sycamore Street
Waterloo IA 50703
319-232-2311

Status: Award Status Date: 09/01/91 OERI No.: 012555

Patent Status : Disclosure Document Program
Development Stage : Engineering Design
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 02/11/89
Recom. by NIST : 03/16/90
Award Date : 09/11/91 Award Amount: $ 96,429 Grant No: FG01-91CE15502
Contract Period: 09/11/91 - 09/10/93

Summary: Recommendation under consideration by DOE.

DOE No: 0503 DOE Coord: J.Aellen

Title: Method and Apparatus for Introducing Normally Solid Materials into Substrate Surfaces

Description: A process for producing a surface zone alloy of various metals for large and irregular surfaces.

Inventor: Zhong Xu
Country : Peoples Republic of China

Contact:
Roland Lau

Status: Decision Phase Status Date: 09/30/90 OERI No.: 010944

Patent Status : Patent Number:
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 06/21/85
Recom. by NIST : 03/23/90

Summary: Proposal under consideration by DOE.

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DOE No: 0504 DOE Coord: G.K.Ellis

Title: Split Hub Shale Oil Retort

Description: This invention is a novel batch reactor for the recovery of crude oil from oil shale by a high temperature, low-pressure process. The pyrolysis of kerogen in the shale is achieved by periodic contacting of the shale with a hot (500 degrees fahrenheit) heavy oil bath.

Inventor: Carl G Everman
State : KY

Contact:
Carl G Everman

Status: Analysis Status Date: 03/16/90 OERI No.: 012715

Patent Status : Patent Number: 4410416
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv by NIST : 06/07/88
Recom. by NIST : 03/16/90

Summary: Recommendation under consideration by DOE. Awaiting proposal from inventor.

DOE No: 0505 DOE Coord: J.Aellen

Title: Vertical Axis Wind Turbine

Description: A vertical axis wind turbine with both a start-up mode and a run mode. The ideal combination is made possible by pitch controlling its airfoil blades in response to aerodynamic moments and centrifugal forces.

Inventor: L Kenyon Liljegren
State : CA

Contact:
L Kenyon Liljegren

Status: Procurement Status Date: 10/28/91 OERI No.: 010438

Patent Status : Patent Number: 4430044
Development Stage : Working Model
Technical Category: Other Natural Sources

Recv by NIST : 10/11/84
Recom. by NIST : 04/13/90

Summary: Grant procurement package in process.

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DOE No: 0506 DOE Coord: P.M.Hayes

Title: Improved Poured Concrete Wall Forming System

Description: A method for pouring concrete walls for buildings using rigid insulation board for the concrete form. Hydrostatic forces on the forms during the pour and before the concrete hardens are resisted by thermally insulating plastic ties. The polystyrene forms may either be removed and reused or left in place to provide R-20 insulation. The insulating properties of the forms enable pouring of concrete during the colder portions of the year.

Inventor: Patrick E Boeshart
State : IA

Contact:
Patrick E Boeshart
P.O. Box 774
Sioux City IA 51102
712-252-3704

Status: Award Status Date: 09/11/91 OERI No.: 012873

Patent Status : Patent Applied For
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 08/30/88
Recom. by NIST : 04/24/90
Award Date : 09/11/91 Award Amount: $ 93,815 Grant No: FG01-91CE15506
Contract Period: 09/11/91 - 03/10/93

Summary: A grant was awarded to the National Association of Home Builders Research Center to investigate the functionality and cost effectiveness of the Lite-Form system for insulated poured-in-place concrete walls.

DOE No: 0507 DOE Coord: J.Aellen

Title: Utilization of Precipitator Dust Stored at the TVA National Fertilizer Development Center

Description: The disclosure proposes a technology to utilize precipitator dust as a feedback for the electric furnace to produce elemental phosphorus.

Inventor: James C Barber
State : AL

Contact:
James C Barber

Status: Analysis Status Date: 10/28/91 OERI No.: 013114

Patent Status : Patent Number: 4670240 and others
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv by NIST : 03/21/89
Recom. by NIST : 04/27/90

Summary: No acceptable proposal received.

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DOE No: 0508 DOE Coord: E.P.Levine

Title: On-Line Mechanical Tube Cleaning for Steam Electric Power Plants on an Open Cooling Water System

Description: A new method for mechanically cleaning heat exchanger tubes.

Inventor: Marvin Echols
State : TX

Contact:
James F. Echols
Superior I. D. Tube Clnrs Inc.
754 Bateswood Drive, Apt. 20
Houston TX 77043
713-589-2814

Status: Award Status Date: 07/12/91 OERI No.: 013535

Patent Status : Patent Number: 4569097
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 10/02/89
Recom. by NIST : 05/15/90
Award Date : 07/12/91 Award Amount: $ 79,870 Grant No: FG01-91CE15508
Contract Period: 07/12/91 - 01/11/93

Summary: Recommendation under consideration by DOE.

DOE No: 0509 DOE Coord: G.K.Ellis

Title: Process for Gas Liquid Contacting in Cocurrent Distillation

Description: This invention is an improved distributor for use with a cocurrent distillation column.

Inventor: William R Trutna
State : TX

Contact:
William R Trutna

Status: Analysis Status Date: 05/17/90 OERI No.: 013126

Patent Status : Patent Number: 4361469
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv by NIST : 03/28/89
Recom. by NIST : 05/17/90

Summary: Recommendation under consideration by DOE. Awaiting proposal from inventor. Inventor has other funding, same invention, and indicates uncertainty whether he will be applying for a grant.

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DOE No: 0510 DOE Coord: G.K.Ellis

Title: Oilwell Power Controller

Description: A microprocessor based controller that monitors and remotely indicates the power utilized by the electric motor driving a conventional beam pump. The parameters monitored include motor overload and underload, real time power consumption, oil flow rate from the well, pressure of oil flow, and ambient temperature. Additional capability is provided for limiting the power demand along with time control capabilities.

Inventor: Neil D Markuson
State : ND

Contact:
Neil D Markuson
P. O. Box #221
Williston ND 58801
701-842-6106

Status: Award Status Date: 12/23/91 OERI No.: 013203

Patent Status : Patent Number: 4767280
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv by NIST : 05/26/89
Recom. by NIST : 05/17/90
Award Date : 09/12/91 Award Amount: $ 87,394 Grant No: FG0191CE15510
Contract Period: 09/12/91 - 03/11/93

Summary: A grant was awarded to further develop, optimize, and field test an advanced oil well pump controller system capable of anticipating abnormal operating conditions, to assess the overall system performance, and to document its benefits and cost savings. Five of the ten prototype units planned have been built to date, and agreements reached with four different companies to test them on oil well pumps in Texas, Utah, Nebraska, and Montana.

DOE No: 0511 DOE Coord: G.K.Ellis

Title: Subterranean Permeability Modification by Use of a Microbial Polysaccharide Polymer

Description: This invention is a novel technology for enhanced oil recovery utilizing sol/gel conversion of a microbially generated polysaccharide.

Inventor: Clarence L Buller
State : KS

Contact:
Clarence L Buller
Dept of Microbiology
University of Kansas
Lawrence KS 66045
913-864-3958

Status: Award Status Date: 12/23/91 OERI No.: 013228

Patent Status : Patent Number: 4941533
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv by NIST : 06/21/89
Recom. by NIST : 06/04/90
Award Date : 09/26/91 Award Amount: $ 95,000 Grant No: FG0191CE15511
Contract Period: 09/26/91 - 03/25/93

Summary: A grant was awarded to provide specified quantities of fermentation broth containing specified amounts of the proprietary polymer for field tests. Field tests cannot start until summer of "92", so polymer production will be delayed until then.

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DOE No: 0512 DOE Coord: E.P.Levine

Title: Automatic Metering System (AMS)

Description: A technique for controlling the amount of electrical power delivered to heating cables used to prevent freezing of pipes or other freeze-prone vessels.

Inventor: Jeffrey P Hausler
State : TX

Contact:
James B Patas
c/o Leavines Elec Tracing Co
P. O. Drawer #311200
New Braunfels TX 78131
512-625-6339

Status: Award Status Date: 07/15/91 OERI No.: 012556

Patent Status : Patent Number: 4859834
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 02/12/88
Recom. by NIST : 06/13/90
Award Date : 07/15/91 Award Amount: $ 89,274 Grant No: FG01-91CE15512
Contract Period: 07/15/91 - 01/14/93

Summary: Recommendation under consideration by DOE.

DOE No: 0513 DOE Coord: G.K.Ellis

Title: Multiwell Pump

Description: A chain driven sucker rod system that will pump several adjacent wells at the same time with one prime mover.

Inventor: Edward David Dysarz
State : TX

Contact:
Edward David Dysarz
11423 Triola Lane
Houston TX 77072
713-621-6840

Status: Award Status Date: 12/23/91 OERI No.: 010455

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 10/24/84
Recom. by NIST : 06/13/90
Award Date : 08/21/91 Award Amount: $ 99,950 Grant No: FG0191CE15513
Contract Period: 08/21/91 - 02/21/92

Summary: A grant was awarded to complete the design and provide the necessary materials to construct the multiwell prototype. The engineering and design has been completed, and construction drawings are being prepared. Three oil companies appear strongly interested in building, testing, and marketing the multiwell pump, and negotiations with them are in progress.

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DOE No: 0514 DOE Coord: J.Aellen

Title: Silver Sensor / Energy Wire

Description: A conductive paint has been developed that has better electrical properties while a reduced content of dispersed metal. The paint is suitable for making conductive films for solar cell applications.

Inventor: Delbert E Sayles, Senior
State : NE

Contact:
Delbert E Sayles, Senior

Status: Procurement Status Date: 10/28/91 OERI No.: 012997

Patent Status : Patent Number: 4680138 and others
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 12/13/88
Recom. by NIST : 07/05/90

Summary: Procurement package in process.

DOE No: 0515 DOE Coord: T.M.Levinson

Title: Vacuum Bagging Apparatus

Description: A new process for vacuum bag molding of laminated composite parts employing a reusable bag.

Inventor: Cosby M Newsom
State : CA

Contact:
Cosby M Newsom

Status: Analysis Status Date: 07/16/90 OERI No.: 012902

Patent Status : Patent Number: 4732639
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 09/27/88
Recom. by NIST : 07/16/90

Summary: Recommendation under consideration by DOE.

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DOE No: 0516 DOE Coord: P.M.Hayes

Title: Device for Converting Linear Motion to Rotary Motion and Vice Versa

Description: A mechanism has been designed by the inventor for internal combustion engines, pumps and compressors with friction reduction characteristics which could increase efficiency. The design has the potential to be made smaller and lighter with fewer parts, lower manufacturing costs, higher fuel economy and help reduce pollution.

Inventor: Douglas C Brackett
State : ME

Contact:
Douglas C Brackett
196 Pine Street
Portland ME 04101
207-761-4499

Status: Award Status Date: 06/07/91 OERI No.: 012999

Patent Status : Patent Number: 4685342
Development Stage : Laboratory Test
Technical Category: Combustion Engines & Components

Recv by NIST : 12/14/88
Recom. by NIST : 07/23/90
Award Date : 06/07/91 Award Amount: $ 88,200 Grant No: FG01-91CE15516
Contract Period: 06/07/91 - 12/06/92

Summary: A grant was awarded to modify and test an engineering prototype of an automatic-size internal combustion engine based on the inventor's innovative engine technology.

DOE No: 0517 DOE Coord: G.K.Ellis

Title: Dynamic Gas Pulse Loading System

Description: A gas generating device lowered into a well on electric wireline with the intent of creating and extending multiple fractures in the producing reservoir. The controlled high pressure gases open the reservoir, increasing its permeability and productivity.

Inventor: Henry H Mohaupt
State : CA

Contact:
Charlotte Fay
1151 Estrella Drive
Vice President Servo-Dynamics
Santa Barbara CA 93110
805-569-5885

Status: Award Status Date: 12/23/91 OERI No.: 013561

Patent Status : Patent Number: 4823876 and others
Development Stage : Production & Marketing
Technical Category: Fossil Fuels

Recv by NIST : 10/12/89
Recom. by NIST : 08/14/90
Award Date : 09/19/91 Award Amount: $ 88,335 Grant No: FG0191CE15517
Contract Period: 09/19/91 - 03/18/93

Summary: A grant was awarded to further develop and field test a system stimulating oil and gas wells by recording pressure during the gas generation phase in real time so that the fractures can be more predictably induced in the producing formation to increase the effective radius of the well bore. The system has been developed, tests are being run now in a cascade pressure chamber, field tests now being planned with scaled down tools, and the inventor is talking with industry to gain access to selected wells for full scale field tests.

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DOE No: 0518 DOE Coord: T.M.Levinson

Title: SHE-INAL - A Stand-Alone Female Urinal Fixture for Public Restrooms

Description: A flexible tube fitted with a disposable paper cuff directs urine flow into a bowl. Use of the device would save significant amount of water (and hence energy) compared with conventional water closets, including those designed for 1.6 gallons-per-flush. The inventions's market survey indicated widespread female dissatisfaction with cleanliness of existing public rest room facilities. The device purportedly eliminates most of these objections.

Inventor: Kathie Kidder Jones
State : FL

Contact:
Kathie Kidder Jones

Status: Analysis Status Date: 08/21/90 OERI No.: 013043

Patent Status : Patent Number: 4683598
Development Stage : Production Engineering
Technical Category: Buildings, Structures & Components

Recv by NIST : 02/03/89
Recom. by NIST : 08/21/90

Summary: Recommendation under consideration by DOE.

DOE No: 0519 DOE Coord: J.Aellen

Title: Aerocylinder

Description: An air spring bellows system is used to replace existing counterbalance or die cushion designs on metal stamping presses or other single action cylinders. The proposed system reduces compressed air leakage.

Inventor: George Bozich
State : IL

Contact:
Kenneth L Smedburg

Status: Analysis Status Date: 10/28/91 OERI No.: 013276

Patent Status : Patent Number: 4796460 and others
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 07/27/89
Recom. by NIST : 08/27/90

Summary: No proposal received.

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DOE No: 0520 DOE Coord: G.K.Ellis

Title: Carbon Fiber Reinforced Tin-Superconductor Composites

Description: A ceramic superconductor interleaved with layers of carbon-fiber reinforced tin composite resulting in a superconducting wire of superior mechanical properties.

Inventor: Deborah D Chung
State : PA

Contact:
Deborah D Chung

Status: Analysis Status Date: 09/06/90 OERI No.: 013066

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 02/17/89
Recom. by NIST : 09/06/90

Summary: A proposal has been received and is under consideration.

DOE No: 0521 DOE Coord: E.P.Levine

Title: Ultraviolet Sterilization of Contact Lens

Description: A method for sterilization and disinfection of contact lenses using ultraviolet radiation.

Inventor: Neville A Baron
State : NJ

Contact:
Neville A Baron

Status: Analysis Status Date: 09/18/90 OERI No.: 026067

Patent Status : Patent Number: 4063890
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 08/21/89
Recom. by NIST : 09/18/90

Summary: Recommendation under consideration by DOE.

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DOE No: 0522 DOE Coord: J.Aellen

Title: Aqua-Shear

Description: A new design motionless or static mixer.

Inventor: Paul M Hankison
State : PA

Contact:
Paul M Hankison
A.C.T. Laboratories, Inc.
P O Box #1107
McMurray PA 15317
412-746-5100

Status: Award Status Date: 09/26/91 OERI No.: 013406

Patent Status : Patent Number: 4647212
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 08/31/89
Recom. by NIST : 09/24/90
Award Date : 09/26/91 Award Amount: $ 79,991 Grant No: 91CE15522
Contract Period: 09/26/91 - 09/25/93

Summary: Grant was awarded to ACT Laboratories, Inc. to prepare graphs, charts, monographs, etc. to predict mixer performance for users.

DOE No: 0523 DOE Coord: G.K.Ellis

Title: Power Factor Correction System by Means of Continuous Modulation

Description: A power factor correction system wherein the compensating reactive power is generated by a linear capacitor. A variable auto-transformer inputs a series transformer which feeds the capacitor. Hence, the voltage applied to the capacitor terminals can be varied from zero to a maximum level. This feature enables the continuous variation of the reactive power generated by the capacitor.

Inventor: Frederick S Rohatyn
State : NY

Contact:
Frederick S Rohatyn

Status: Analysis Status Date: 09/27/90 OERI No.: 013372

Patent Status : Patent Number: 4672298 and others
Development Stage : Working Model
Technical Category: Miscellaneous

Recv by NIST : 08/25/89
Recom. by NIST : 09/27/90

Summary: Recommendation under consideration by DOE. Awaiting proposal from inventor, with site visit planned to provide some assistance.

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DOE No: 0524 DOE Coord: G.K.Ellis

Title: Mobile, Offshore, Self-Elevating (Jack-up) Support System

Description: A support system for mobile off-shore drilling units (MODU). Each jack tower is equipped with hinges and yoke mechanisms to allow the legs to be tilted into variable angles. The net result is that the legs can be spread wider apart when they rest on the bottom of the ocean.

Inventor: John O'R Breeden
State : MS

Contact:
John O'R Breeden

Status: Analysis Status Date: 10/05/90 OERI No.: 013208

Patent Status : Patent Number: 4657437
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 08/18/89
Recom. by NIST : 10/05/90

Summary: Reading and Bates, one of the most reputable domestic drilling companies, has agreed to modify an existing rig with inventor's technology at a cost to them of around $6M. Inventor is working with them on a licensing agreement, in which inventor will need to provide drawings and calculations, for which he anticipates sending a request for DOE grant soon. A reputable shipyard is interested in building the slant rig.

DOE No: 0525 DOE Coord: E.P.Levine

Title: The ACT Evaporative Subcooler

Description: The invention is an evaporative subcooler designed for retrofitting refrigeration and air conditioning systems to improve the efficiency and capacity of such systems.

Inventor: Fred B Wachs, III
State : KY

Contact:
Fred B Wachs, III
Advanced Cooling Tech. Inc.
700 Bob-O-Ling
Lexington KY 40504
606-278-2655

Status: Award Status Date: 09/26/91 OERI No.: 013508

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 09/22/89
Recom. by NIST : 10/10/90
Award Date : 09/26/91 Award Amount: $ 74,387 Grant No: FG01-91CE15525
Contract Period: 09/26/91 - 03/25/93

Summary: Recommendation under consideration by DOE.

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DOE No: 0526 DOE Coord: J.Aellen

Title: Pressure Generating Apparatus and Method

Description: A pressurized container for dispensing an aerosol that does not use petroleum gases or CFCs.

Inventor: Ellis M Reyner
State : NJ

Contact:
Ellis M Reyner

Status: Analysis Status Date: 10/28/91 OERI No.: 013465

Patent Status : Patent Number: 4646946
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 09/12/89
Recom. by NIST : 10/22/90

Summary: No proposal received.

DOE No: 0527 DOE Coord: E.P.Levine

Title: Truck Train System - Rail Dollies Type A-1, X & Y

Description: A system to allow truck trailers to be mounted on railway wheel dollies for transport by rail.

Inventor: George F Adams
State : CA

Contact:
George F Adams

Status: Analysis Status Date: 11/02/90 OERI No.: 013612

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 11/09/89
Recom. by NIST : 11/02/90

Summary: Recommendation under consideration by DOE.

****

DOE No: 0528 DOE Coord: J.Aellen

Title: Method of Machining Hard and Brittle Material

Description: A method of machining a smooth surface on hard surfaces such as CVD deposited diamond films.

Inventor: George A Kim
State : IN

Contact:
George A Kim

Status: No DOE Support Status Date: 10/28/91 OERI No.: 013391

Patent Status : Patent Number: 4643161
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 08/29/89
Recom. by NIST : 11/09/90

Summary: Inventor decided against applying for grant.

DOE No: 0529 DOE Coord: J.Aellen

Title: Thermodyne Evaporator - A Molded Pulp Products Dryer

Description: The invention is a novel pulp dryer that uses superheated steam for the drying of molded articles or sheet goods (paper) rather than using air as do conventional dryers. The dryer does not have a built-in exhaust system which all other dryers possess.

Inventor: Donald P Curry
State : ME

Contact:
Donald P Curry

Status: Procurement Status Date: 10/28/91 OERI No.: 013313

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 08/21/89
Recom. by NIST : 11/15/90

Summary: Grant procurement package in process.

****

DOE No: 0530 DOE Coord: J.Aellen

Title: Apparatus and Method for Irradiating Cells

Description: A new design bioreactor which would allow the radiation of cells with controlled and reproducible amount of UV (or other wavelength) radiation under defined conditions.

Inventor: Randy L Stinson
State : MD

Contact:
Randy L Stinson

Status: Analysis Status Date: 10/28/91 OERI No.: 013788

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 02/14/90
Recom. by NIST : 12/07/90

Summary: No acceptable proposal.

DOE No: 0531 DOE Coord: P.M.Hayes

Title: Removable Wind Deflector for Freight Container, and Assembly

Description: The invention is a design of a portable and removable wind deflector for streamlining shipping containers while they are being hauled by semi- tractors to delivery points.

Inventor: Russell F Lusk
State : CA

Contact:
Russell F Lusk

Status: Analysis Status Date: 12/17/90 OERI No.: 013794

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 02/20/90
Recom. by NIST : 12/17/90

Summary: Recommendation under consideration by DOE.

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DOE No: 0532 DOE Coord: P.M.HAYES

Title: Gobelin Loom

Description: A loom to produce carpeting, using a more energy- efficient adhesive-bonding manufacturing process. It connects to a computer aided design system allowing for maximum versatility in producing different styles and patterns.

Inventor: Miguel V Franco
State : CA

Contact:
Miguel V Franco

Status: Analysis Status Date: 01/03/91 OERI No.: 013934

Patent Status : Patent Number: 4655863
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 05/31/90
Recom. by NIST : 01/03/91

Summary: Recommendation under consideration by DOE.

DOE No: 0533 DOE Coord: G.K.ELLIS

Title: A High Efficiency Retort to Recover Shale Oil

Description: An inexpensive oil and heat recovery kiln for retorting oil shale with high efficiency and minimal environmental impact.

Inventor: D Carlos Adams
State : UT

Contact:
D Carlos Adams
ENERGY RECOVERY TECHNOLOGY
886 Monument Park Circle
Salt Lake City UT 84108
801-583-6744

Status: Award Status Date: 01/03/91 OERI No.: 013721

Patent Status : Patent Number: 4639217
Development Stage : Laboratory Test
Technical Category: Fossil Fuels

Recv by NIST : 01/12/90
Recom. by NIST : 01/03/91
Award Date : 12/17/91 Award Amount: $ 88,206 Grant No: FG0192CE15533
Contract Period: 12/17/91 - 06/16/93

Summary: A procurement request was awarded to design the retort of an inexpensive oil and heat recovery rotary kiln to perform in a single process vessel what other processes require several steps to complete.

****

DOE No: 0534 DOE Coord: J.AELLEN

Title: Novel Procedure for Fabrication of Mosfets

Description: A process is described for producing MOSFETS which reduces the number of fabrication steps. This could result in a greater yield per batch, and thus save energy.

Inventor: James D Welch
State : NE

Contact:
James D Welch

Status: Decision Phase Status Date: 10/28/91 OERI No.: 012963

Patent Status : Patent Number: 4696093
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 05/26/88
Recom. by NIST : 01/10/91

Summary: Proposal under consideration.

DOE No: 0535 DOE Coord: G.K.ELLIS

Title: The Anderson Quin Cycle

Description: A combined cycle is proposed that uses a number of unique ideas. Power is produced by a gas turbine, steam turbine, and low vapor pressure turbine. Air is supplied to the compressor by first refrigerating the intake air. High overall cycle efficiencies are claimed.

Inventor: J Hilbert Anderson
State : PA

Contact:
J Hilbert Anderson
2422 South Queen Street
York PA 17402
717-741-0884

Status: Award Status Date: 12/23/91 OERI No.: 012719

Patent Status : Not Applied For
Development Stage : Concept Definition
Technical Category: Combustion Engines & Components

Recv by NIST : 05/09/88
Recom. by NIST : 02/04/91
Award Date : 09/26/91 Award Amount: $ 96,489 Grant No: FG0191CE15535
Contract Period: 09/26/91 - 03/25/93

Summary: A grant was awarded to evaluate the Anderson-Quin Cycle and its potential application. Sufficient data will be generated to demonstrate the feasibility of taking the next step, which will be to construct and test a prototype system.

****

DOE No: 0536 DOE Coord: J.AELLEN

Title: Delta T Dryer Controller

Description: This invention utilizes the temperature drop of dryer hot air after contact with wet veneer as a means of measuring the moisture content of the veneer in the drying chamber. A mathematical model is developed and utilized to monitor the moisture content of a specific material type while the material is in a drying chamber. The model is material specific.

Inventor: John W Robinson
State : TX

Contact:
John W Robinson

Status: Decision Phase Status Date: 10/28/91 OERI No.: 013386

Patent Status : Patent Number:
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 08/29/89
Recom. by NIST : 02/05/91

Summary: Proposal under consideration by DOE.

DOE No: 0537 DOE Coord: E.P.LEVINE

Title: Maintenance, Inspection, Submersible, Transport

Description: The invention is a mechanical robot like device for use to clean, inspect, and apply coatings to inner surfaces of large cylindrical sub-water pipes and is primarily intended for use in large power plants. This equipment can be modified to accommodate square and rectangular shaped conduits also.

Inventor: Edwin Spurlock
State : FL

Contact:
George E Gettemuller

Status: Analysis Status Date: 02/08/91 OERI No.: 013225

Patent Status : Patent Number:
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 06/20/89
Recom. by NIST : 02/08/91

Summary: Recommendation under consideration by DOE.

****

DOE No: 0538 DOE Coord: E.P.LEVINE

Title: Electronic Control For Thermostatic Expansion Valves

Description: A solid-state electronic control device for refrigeration and air-conditioning systems based on a *DSP...OVFL**

Inventor: Joseph Marsala
State : MI

Contact:
Melvin M. Winters

Status: Analysis Status Date: 02/22/91 OERI No.: 012175

Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 04/23/87
Recom. by NIST : 02/22/91

Summary: Recommendation under consideration by DOE.

DOE No: 0539 DOE Coord: T.M.LEVINSON

Title: Guide for Window Grouting Device

Description: A tool-guide to control the operation of a router for converting single glazed, wooden-framed windows into double-glazed windows. The device includes a framework of bars, and slides that accurately positions a routing tool to cut away the grouting and wood sash holding the glass panes in place. This facilitates replacement of single glass with insulating glass panes.

Inventor: James Conachen
State : MA

Contact:
Maisy Conachen

Status: Analysis Status Date: 03/22/91 OERI No.: 013728

Patent Status : Patent Number:
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 01/16/90
Recom. by NIST : 03/22/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0540 DOE Coord: P.M.HAYES

Title: Restaurant Exhaust Ventilation Modulator

Description: A control system used for cooking area exhaust ventilation. The device senses hot air temperature and smoke particulates and modulates the exhaust fan speed. Energy saving are attributed to reduced fan power and reduced conditioning of make-up air.

Inventor: Stephen K Melink
State : OH

Contact:
Stephen K Melink

Status: Analysis Status Date: 03/22/91 OERI No.: 012846

Patent Status : Disclosure Document Program
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv by NIST : 08/12/88
Recom. by NIST : 03/22/91

Summary: Recommendation under consideration by DOE.

DOE No: 0541 DOE Coord: E.P.LEVINE

Title: Polymer Dispersed Ferroelectric Smectic-C Display Technology

Description: The invention is a process for making a new class of liquid crystal display systems both superior properties than currently available.

Inventor: Satyendra Kumar
State : OH

Contact:
Satyendra Kumar

Status: Analysis Status Date: 03/29/91 OERI No.: 013220

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 06/15/89
Recom. by NIST : 03/29/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0542 DOE Coord: G.K.ELLIS

Title: Self-Agitating Soap Stick

Description: A system for unloading formation water from gas wells. A liquid surfactant, acid, and a gas generating substance are enclosed in a cylinder and allowed to free fall into a well to be revived. As the cylinder dissolves in water or brine at the bottom of the well, the gas generated bubbles up to form foam. The foam being lighter than water, the natural bottom-hole pressure may be sufficient to remove the water.

Inventor: M Glenn Osterhoudt, III
State : TX

Contact:
M Glenn Osterhoudt, III

Status: Analysis Status Date: 04/23/91 OERI No.: 013696

Patent Status : Patent Number:
Development Stage : Prototype Development
Technical Category: Fossil Fuels

Recv by NIST : 12/26/89
Recom. by NIST : 04/23/91

Summary: Recommendation under consideration by DOE. Presently negotiating with inventor.

DOE No: 0543 DOE Coord: E.P.LEVINE

Title: Method and Apparatus for Production of Three- Dimensional Objects by Photosolidification

Description: An improved process for fabricating 3-D objects by photo-solidification of a liquid polymre with ultraviolet radiation.

Inventor: Efrem V. Fudim
State : WI

Contact:
Efrem V. Fudim

Status: Analysis Status Date: 05/31/91 OERI No.: 013074

Patent Status : Patent Number:
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 02/23/89
Recom. by NIST : 05/31/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0544 DOE Coord: J.AELLEN

Title: Field Grid Sense

Description: A hardware/software system for yield mapping and machine control during harvesting and for control of chemical application equipment

Inventor: Donell P. Froehlich
State : SD

Contact:
Donell P. Froehlich

Status: Procurement Status Date: 10/28/91 OERI No.: 013896

Patent Status : Disclosure Document Program
Development Stage : Prototype Test
Technical Category: Out of Scope & Unclassifiable

Recv by NIST : 04/24/90
Recom. by NIST : 05/31/91

Summary: Procurement package in process.

DOE No: 0545 DOE Coord: T.M.LEVINSON

Title: System for Reducing Heat Losses from Indoor Swimming Pools by use of Automatic Covers.

Description: A plastic cover for use in an indoor swimming pool. The cover is equipped with an electro mechanical mechanism for deploying and retracting the cover. Significant energy savings are expected from use of cover to prevent water evaporation during times the pool is not in use.

Inventor: George O.G. Lof
State : CO
Contact:
Lance G.A. Lof

Status: Analysis Status Date: 09/30/91 OERI No.: 013904

Patent Status : Not Applied For
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 04/27/90
Recom. by NIST : 05/31/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0546 DOE Coord: P.M.HAYES

Title: Hyperdynamic Hull

Description: A new design ship hull for increased energy efficiency.

Inventor: Harry Stanford
State : CA
Contact:
Corwin R. Horton

Status: Analysis Status Date: 06/28/91 OERI No.: 013558

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 10/13/89
Recom. by NIST : 06/28/91

Summary: Recommendation under consideration by DOE.

DOE No: 0547 DOE Coord: G.K.ELLIS

Title: Structural Monitoring System Using Fiber Optics

Description: The invention uses fiber-optics for structural monitoring. An optical fiber, treated to provide light reflection changes at locations of local pressure, strain/deflection or temperature is secured in or on areas of interest. Readout is by means of reflectometry and indicates the locations and magnitudes of the parameter changes. This method provides distributed measurements with the potential for low cost and high resolution.

Inventor: Richard W. Griffiths
State : CA

Contact:
Richard W. Griffiths

Status: Analysis Status Date: 06/28/91 OERI No.: 013683

Patent Status : Patent Number:
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv by NIST : 12/18/89
Recom. by NIST : 06/28/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0548 DOE Coord: P.M.HAYES

Title: System 150

Description: A rigid one-step foundation, insulation product, it is installed as the concrete form board and left in place as the foundation insulation. It has a built- in concrete lock and termite barrier. The product goes in before the concrete is poured resulting in an automatic fit and bond. The invention eliminates the cost of plywood forms, the labor of stripping those forms and gluing insulation to the concrete.

Inventor: M. Dean Gardner
State : CA

Contact:
M. Dean Gardner

Status: Analysis Status Date: 06/28/91 OERI No.: 012513

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 12/29/87
Recom. by NIST : 06/28/91

Summary: Recommendation under consideration by DOE.

DOE No: 0549 DOE Coord: J.AELLEN

Title: Efficient, Continuous-Wave or Pulsed Visible Lamps for Solid-State Laser Drivers

Description: A high efficiency continuous wave or pulsed wave solid state laser for visible light range.

Inventor: Mark A. Prelas
State : MO

Contact:
Connie M. Armentrout

Status: Analysis Status Date: 07/26/91 OERI No.: 013899

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Miscellaneous

Recv by NIST : 04/25/90
Recom. by NIST : 07/26/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0550 DOE Coord: E.P.LEVINE

Title: Dry Process Instant Photographic Color Textile Printing

Description: A non-aqueous method for printing patterns on textiles.

Inventor: J.J. Robillard
State : TX

Contact:
Richard L. Scully

Status: Analysis Status Date: 07/26/91 OERI No.: 013925

Patent Status : Patent Number:
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv by NIST : 05/23/90
Recom. by NIST : 07/26/91

Summary: Recommendation under consideration by DOE.

DOE No: 0551 DOE Coord: P.M.HAYES

Title: Thermalock Block

Description: A concrete building block in which the outer and inner faces are separated by rigid insulation. The polystyrene insulation is molded in a serpentine shape and extends the full width and depth of the block including the mortar joints, thereby eliminating any possible thermal bridges. An R-15 insulation rating is claimed for the proposed block with 8-inch thickness, compared to R-1.75 for conventional 8-inch thick concrete block.

Inventor: Francis A. Kennedy
State : NY

Contact:
Kenneth J. Blake

Status: Analysis Status Date: 08/28/91 OERI No.: 013718

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 01/09/90
Recom. by NIST : 08/28/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0552 DOE Coord: G.K.ELLIS

Title: High-Speed Roll Processing Equipment for Woody Biomass

Description: A roll crusher woody biomass to speed drying time and use previously unusable forest products.

Inventor: William B. Stuart
State : VA

Contact:
William B. Stuart

Status: Analysis Status Date: 08/27/91 OERI No.: 013617

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 11/13/89
Recom. by NIST : 08/27/91

Summary: Recommendation under consideration by DOE.

DOE No: 0553 DOE Coord: G.K.ELLIS

Title: Process for Conserving Steam Quality in Deep Steam Injection Wells

Description: A process for conserving steam during steam recovery of oil wells.

Inventor: Michel Gondouin
State : CA

Contact:
Michel Gondouin

Status: Analysis Status Date: 08/28/91 OERI No.: 013938

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 06/05/90
Recom. by NIST : 08/28/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0554 DOE Coord: J.AELLEN

Title: Apparatus and Process for Second Stage Drying

Description: A new energy efficient design for lumber kilns.

Inventor: Charles W. Bouchillon
State : MS

Contact:
Charles W. Bouchillon

Status: Analysis Status Date: 08/28/91 OERI No.: 014071

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 01/16/90
Recom. by NIST : 08/28/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0555 DOE Coord: G.K.ELLIS

Title: Carbon Fiber Composites with Improved Fatigue Resistance due to the Addition of Tin-Lead Alloy Particles

Description: The invention is a novel technology aimed at improving the fatigue parameters of polymer composites.

Inventor: Deborah D. Chung
State : PA

Contact:
Charles Kaars

Status: Analysis Status Date: 09/30/91 OERI No.: 013758

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 02/01/90
Recom. by NIST : 09/30/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0556 DOE Coord: P.M.HAYES

Title: Enhanced Chemical Vapor Deposition

Description: A modified Chemical Vapor Deposition for very high rate of definition of various ceramic materials.

Inventor: Vladimir Hlavacek
State : NY

Contact:
Vladimir Hlavacek

Status: Analysis Status Date: 09/30/91 OERI No.: 014102

Patent Status : Disclosure Document Program
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 12/12/90
Recom. by NIST : 09/30/91

Summary: Recommendation under consideration by DOE.

DOE No: 0557 DOE Coord: J.AELLEN

Title: Branched GAX Absorption Heat Pump

Description: The invention is an improvement to the GAX (Generator-Absorber-Heat exchange) Absorption Heat Pump cycle to improve performance, the GAX cycle utilizes the potential of temperature overlap of the absorber and the desorber to properly match heat transfer requirements of the two components using internal heat exchangers. The proposed cycle improves the cooling COP by more than 20 percent.

Inventor: Donald C. Erickson
State : MD

Contact:
Donald C. Erickson

Status: Analysis Status Date: 09/30/91 OERI No.: 014025

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 09/21/90
Recom. by NIST : 09/30/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0558 DOE Coord: E.P.LEVINE

Title: Method and Temperature Treating Granular Material

Description: A method for treating sand for use on winter highways. The sand is freeze-dried as single grains of sand and stored for later use. The freezing uses a cold stream of air to evaporate and freeze the water on the surface of grains of sand. This process provides an economic and environmentally
*DSP...OVFL**

Inventor: Dino Talavera
State : AK

Contact:
Dino Talavera

Status: Analysis Status Date: 10/31/91 OERI No.: 013196

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Miscellaneous

Recv by NIST : 05/22/89
Recom. by NIST : 10/31/91

Summary: Recommendation under consideration by DOE.

DOE No: 0559 DOE Coord: E.P.LEVINE

Title: Method and Apparatus for Simultaneous Heat and Mass Transfer

Description: The invention is a desiccant heat pump system. An outdoor air stream is dehumidified with a liquid desiccant then evaporatively cooled. The return air evaporatively cooled followed by heat exchange with the incoming air stream. The hot and moist air is discharged to the outside. Liquid desiccant is regenerated using a propane burner or other source of heat.

Inventor: Walter F. Albers
State : AZ

Contact:
Walter F. Albers

Status: Analysis Status Date: 10/31/91 OERI No.: 013851

Patent Status : Patent Number:
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

Recv by NIST : 03/26/90
Recom. by NIST : 10/31/91

Summary: Recommendation under consideration under DOE.

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DOE No: 0560 DOE Coord: P.M.HAYES

Title: Paving Fabric Applicator

Description: A road oil spreader is equipped with an apparatus for simultaneous application of road il and paving fabric to a road surface. The fabric is drawn over a guide shaft and beneath a sectioned box having a series of longitudinally aligned and adjustable brushes. As the oil is sprayed, the fabric unrolls and becomes imbedded in the oil coated surface by the action of the brushes.

Inventor: Edward C. Gnesa
State : CA

Contact:
Edward C. Gnesa

Status: Analysis Status Date: 10/31/91 OERI No.: 013578

Patent Status : Patent Number:
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 09/28/89
Recom. by NIST : 10/31/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0561 DOE Coord: J.AELLEN

Title: Ramix Systems Inc.

Description: An impact rock excavator for the mining industry.

Inventor: W. Coski
State : WA

Contact:
Howard J. Handerwith

Status: Analysis Status Date: 12/10/91 OERI No.: 014039

Patent Status : Patent Number:
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv by NIST : 10/11/90
Recom. by NIST : 12/10/91

Summary: Recommendation under consideration by DOE.

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DOE No: 0562 DOE Coord: E.P.LEVINE

Title: Future Flush

Description: A dual flush mechanism to conserve water in a conventional tank-type water closet. The longer of the two flush handles operates the full flush to allow for removal of solid waste. The shorter handle initiates a partial flush for removal of liquid waste and toilet tissue.

Inventor: Donald Harney
State : OR

Contact:
Brittsan Brian

Status: Analysis Status Date: 12/10/91 OERI No.: 013691

Patent Status : Patent Number:
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 12/21/89
Recom. by NIST : 12/10/91

Summary: Recommendation under consideration by DOE.

DOE No: 0563 DOE Coord: P.M.HAYES

Title: Method and Apparatus for Preheating Ventilation Air For a Building

Description: A ventilation air or makeup air preheating system that utilizes solar energy. The system is mounted on the south facing walls of warehouses or factories. The system also recirculates some of the heat loss through the south wall back into the building.

Inventor: John Hollick
Country : Ontario Canada L6A 1G2

Contact:
John Hollick

Status: Analysis Status Date: 12/11/91 OERI No.: 014007

Patent Status : Patent Number:
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 08/22/90
Recom. by NIST : 12/11/91

Summary: Recommendation under consideration by DOE.

SECTION 4 RECOMMENDED INVENTIONS CROSS REFERENCE LISTS

4.0 Introduction

This section provides three tables for use in locating specific recommended inventions. Table 4-1 is ordered by inventor name and contains the inventor name, DOE number, and invention title. Table 4-2 is ordered by contact name and contains the contact name, DOE number and invention title. Table 4-3 is ordered by inventor state and contains the inventor name, DOE number and Title. Table 4-4 is ordered by invention classification and lists the DOE number and invention title associated with each invention classification.

TABLE-4-1
RECOMMENDED INVENTIONS BY INVENTOR NAME

INVENTOR	DOE NO.	TITLE
John W Ackley, III	0306	An Efficiency Computer for Heated or Air Conditioned Buildings
Den M Acres	0175	A Low-Energy Carpet Backing System
D Carlos Adams	0533	A High Efficiency Retort to Recover Shale Oil
George F Adams	0527	Truck Train System - Rail Dollies Type A-1, X & Y
Joe Agar	0072	Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants
Warren A Aikins	0356	Portable Automatic Firewood Processor
Warren A Aikins	0460	Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor
Walter F. Albers	0559	Method and Apparatus for Simultaneous Heat and Mass Transfer
Jerry Aleksandrow	0290	Low Energy Ice Making Apparatus
Ray Alexander	0347	Oxide Dispersion Strengthened Aluminum Alloys
Joseph Allegro	0379	Inner Roof Solar System
Henry E Allen	0089	Continuous Casting Process and Apparatus
James E Altman	0378	An Improved Cutter for Plaster Board and the Like
Floyd R Anderson	0096	Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems
Frank L Anderson	0207	Glass Sheet Manufacturing Method and Apparatus
J Hilbert Anderson	0535	The Anderson Quin Cycle
William F Armitage, Jr.	0041	Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers
Robert M Arthur	0047	Wastewater Aeration Power Control Device
Eldon L Asher	0119	Air Ratio Controller (AERTROL)
Tom Atterbury	0283	Aluminum Roofing Chips
George C Austin	0005	Diesel Engine Conversion System for Gasoline Engines
Don E Avery	0275	Low Head - High Volume Pump
Don E Avery	0301	Pump Control System for Windmills
Richard J Avery, Junior	0269	Refrigerant Accumulator and Charging Apparatus
Richard H Baasch	0257	Method and Apparatus for Melting Snow
James Allen Bagby	0091	Mine Brattice
Frank W Bailey	0125	The Turbulator Burner System
Randell D Ball	0293	"Therm-A-Valve" - Insulated Valve Coverings
Stanley D Balzer	0402	KTM Logger
James C Barber	0507	Utilization of Precipitator Dust Stored at the TVA National Fertilizer Development Center
Neville A Baron	0521	Ultraviolet Sterilization of Contact Lens
Edward L Barrett	0195	Proportional Current Battery
John C Bass	0455	Thermoelectric Generator for Diesel Engines
Erwin O Beck	0369	"Fire Jet" Automatic Anthracite Burner
Karakian Bedrosian	0171	A Method of Preserving Fruits and Vegetables without Refrigeration

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Richard B Bentley	0051	Thermal Efficiency Construction
John T Benton	0050	Scotsman Fuel Energizer
Karl H. Bergey	0110	Improved Windpower Generating System
Frank C Bernhard	0102	Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners
Val O Bertoia	0095	Omni-Horizontal Axis-Wind Turbine
Charles James Bier	0083	Vertical Solar Louvers
Lawrence E Bissell	0037	Hotwater Engine
Leroy M Bissett	0068	Under Compression and Over Compression Free Helical Screw Rotary Compressor
Wayne S Boals	0049	Automatic Control System for Water Heaters
Robert E Bode	0485	Method and Apparatus for Placing Cement Plugs in Wells
Patrick E Boeshart	0506	Improved Poured Concrete Wall Forming System
Daniel E Boone	0498	Hydrocarbon Reserve Evaluation/Determining Permeability in Hydrocarbon Wells
Ranendra K Bose	0013	Anti-Pollution System
Alexander Bosna	0441	Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Thereby.
Charles W. Bouchillon	0554	Apparatus and Process for Second Stage Drying
William P Boulet	0056	Flexaflo-The Wet Fuel Dryer
Harold L Bowman	0305	Automatic Filter Network Protection, Failure Detection and Correction System and Method
George Bozich	0519	Aerocylinder
Paul E Bracegirdle	0261	A New Apparatus for Making Asphalt Concrete
Douglas C Brackett	0516	Device for Converting Linear Motion to Rotary Motion and Vice Versa
Ronald E Brandon	0236	Steam Turbine Packing Ring
John O'R Breeden	0524	Mobile, Offshore, Self-Elevating (Jack-up) Support System -
Donald L Brelsford	0457	Continuous Saccharification of Ligno-Celluistic Biomass in Two Stages
John A Broadbent	0355	Energy-Efficient Ice Cube Making Machine
Wayne S Brown	0418	Use of Chemical Vapor Deposition to Coat Metal Surfaces with High-Temperature Superconducting Materials
James A Browning	0067	Windmill Using Hydraulic System for Energy Transfer and Speed Control
John W Bruce	0016	Method and Apparatus for Vacuum Drying of Commodities
William G Buckman	0482	Improved Fluid Pumping Device and Liquid Sensor
Clarence L Buller	0511	Subterranean Permeability Modification by Use of a Microbial Polysaccharide Polymer
John H Burk	0302	Carri-Cel Impact Breaker and Counterflow Impact Rock Breakers

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Bill Burley	0173	Thermal Ice Cap
Duncan M Butlin	0468	Constant-Torque System for Beam Pumps
Patsie C Campana	0080	Improved Unfired Refractory Brick
Vincent E Carman	0008	Inertial Storage Transmission
Peter Carr	0449	Fuel Savings in the Heavy Trucking Industry Through Cool Storage
John L Carroll	0092	Tri-Water, A Combination Air Conditioning and Fire Protection System for a Building.
Marc S Caspe	0289	An Earthquake Barrier
Robert A Caughey	0032	Wood Gas Reactor
Forrest E Chancellor	0154	Rotating Horsehead for Pumping Units
Shih-Chih Chang	0270	Method of Energy Recovery for Wastewater Treatment
Wu-Chi Chen	0165	Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen
Kai-Chih Cheng	0262	Energy Saving Pump and Pumping System
Shang-I Cheng	0267	Integrated Gasification of Coal, Municipal Solid Wastes and Sludge
Shang-I Cheng	0320	Coal Gasification with Carbon Dioxide and Lime Recycling
James L Chill	0098	Process Development to Conserve Energy and Material- --(in the manufacture of)---Bearings
Deborah D Chung	0304	Exfoliated Graphite Fibers
Deborah D Chung	0520	Carbon Fiber Reinforced Tin-Superconductor Composites
Deborah D. Chung	0555	Carbon Fiber Composites with Improved Fatigue Resistance due to the Addition of Tin-Lead Alloy Particles
George B Clark	0316	Thrust Impact Rock Splitter
John F Clauser	0500	Neutral Atom Interferometry Gravity Sensor
Robert A Clay	0143	Oil Well Pump Jack
James M Cleary	0155	Slip Mining
Nathan Cohn	0247	Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems
James Conachen	0539	Guide for Window Grouting Device
William H Cone	0060	Electric Transport Refrigerator
Edward B Connors	0167	Vaned Pipe for Pipeline Transport of Solids
W. Coski	0561	Ramix Systems Inc.
Paul J Cromwell	0108	Processing Recovery of Aluminum
Albert B Csonka	0006	Micro-Carburetor
Donald P Curry	0529	Thermodyne Evaporator - A Molded Pulp Products Dryer
Julius Czaja	0273	Open Cycle Latent Heat Engine
John Bartley Czirr	0483	Downhole Neutron Flux Monitor
Richard E Dame	0180	Adjustable Solar Concentrator (ASC)

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Sharad M Dave	0101	Controlled Combustion Engine
Guy C Dempsey	0277	Electronic Conveyor Control Apparatus
Norman L Dickinson	0288	Dickinson Pure Air Combustion (DIPAC) and Modified DIPAC (MODIPAC)
Gilbert W Didion	0028	Ultraflo
Khanh Dinh	0501	High Efficiency Dehumidifier/Air Conditioner
Lawrence A Dobson	0425	High Temperature Condensing Biomass Combustion System
Oscar Leonard Doellner	0194	Radiant Energy Power Source for Jet Aircraft
James J Dolan	0156	Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.
James J Dolan	0458	Continuous Casting by Float Process of Thin Sheet Carbon Steel
Richard Lee Dominquez	0334	So-Luminaire Natural Daylighting Unit
Todd M Doscher	0415	Oil Recovery by Modified Steam Drive Employing High Velocity Non-Condensible Gas
F David Doty	0440	Microtube Strip Heat Exchanger
Daniel Douenias	0254	"Turbo-Glo" Immersion Furnace
David W Doyle	0017	Osmotic-Hydro Power Generation
James L Doyle, Jr.	0383	Electro-Optic Inspection of Heat Exchangers
Gary L Drake	0342	Raw Fines Medium Coal Washing System
W B Driver	0421	Flexible Drill Pipe
Sandor Drobilisch	0496	Spiral Track Oven
Harold P Dugas	0430	Whitten Dugas Mud Pump Enhancer
Anthony A duPont	0161	duPont Connell Energy Coal Gasification Process
Enoch J Durbin	0069	Ionic Fuel Control System for the Internal Combustion Engine
Leonard A Duval	0148	Reclamation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes
Edward David Dysarz	0513	Multiwell Pump
Herbert D Easterly	0311	Auxiliary Truck Heater
John A Eastin	0196	Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm
Gerald Eastman	0189	Pump Jack
Marvin Echols	0508	On-Line Mechanical Tube Cleaning for Steam Electric Power Plants on an Open Cooling Water System
Edwin E Eckberg	0103	Low Voltage Ionic Fluorescent Light Bulb
Charles E Edwards	0179	Development and Commercialization of Low Cost, Non- Metallic, Solar Systems
Lawrence K Edwards	0439	Project Twenty-One Rapid Transit System
Thomas C Edwards	0225	ROVAC High Efficiency Low Pressure Air Conditioning System
Dan Egosi	0266	Energy Conversion Method

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Raymond A Elam	0403	Enterprise Lubricator
Guy R B Elliott	0231	Natural Gas from Deep-Brine Solutions
Hal Ellis	0034	Delphic Thermogenic Paint (Heat Film)
Clinton R Elston	0480	AlasCan Composting Toilet and Greywater Treatment System
Donald C Erickson	0003	Hydrogen Generation from Producer Gas by Oxidation- Reduction of Tin
Donald C Erickson	0025	Sulfur Removal from Producer Gas-High Temperature
Donald C Erickson	0230	Absorption Heat Pump Augmented Separation Process
Donald C Erickson	0364	Intermittent Solar Ammonia Absorption Cycle (ISAAC)
Donald C Erickson	0404	Steam-Methane Reforming in Molten Carbonate Salt
Donald C. Erickson	0557	Branched GAX Absorption Heat Pump
Frederick L Erickson	0387	Quiet Operating Internal Combustion Engine with Complete Highly Efficient Expansion Cycle
Hermann Ernst	0285	Novel Fluid Ring (F/R) Seal Systems for Railroad Axle Bearing Systems
Ruben Espinosa	0396	Dyna Flow
Robert F Evans	0166	Borehole Angle Control
Robert F Evans	0182	Improved Seal for Geothermal Drill Bit
Robert F Evans	0211	Shock Mounted Stratapax Bit
Carl G Everman	0504	Split Hub Shale Oil Retort
Norman C Fawley	0208	CNG Automotive Fuel Cylinders/Gas Transport Modules
Norman C Fawley	0227	CRM Pipe
Demeter G Fertis	0493	Airfoil Design with Improved Aerodynamic Characteristics
Michael Feygin	0333	Laser Based Machine for Die and Prototype Manufacturing
Kenneth V Field	0353	Compu-Turbo-Aligner
Marshall Findley	0340	Separation of Adsorbed Components by Variable Temperature Desorption
John D. Finnegan	0176	Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces
William M FioRito	0094	Lantz Converter
Joseph C Firey	0331	Cyclic Char Combustion for Engines, Boilers and Gasifiers
G R Fitterer	0018	The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy
G R Fitterer	0074	A Solid Electrolyte Galvanic Solar Energy Conversion Cell
Lloyd Flatland	0210	Ultra High Speed Drilling Device for Use in Hard Rock Formations
James W Flatte	0359	Solid Fuel Hot Air Furnace

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Willing B Foulke	0061	Fuel Preparation Process
Joe W Fowler	0045	Bulk Cure Tobacco Barn with Improvements
Miguel V Franco	0532	Gobelin Loom
Thomas F Francovitch	0292	Roof Construction Having Membrane and Photo Cells
Anthony N Fresco	0284	Atomized Oil-Injected Rotary Screw Compressors
Donell P. Froehlich	0544	Field Grid Sense
Linus C Fuchek	0372	FS 630 Heat Pump Thermostat Control
Efrem V. Fudim	0543	Method and Apparatus for Production of Three-Dimensional Objects by Photosolidification
Harald F Funk	0405	Prehydrolysis and Digestion of Plant Material
Jonathan Gabel	0206	Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion
David Ganoung	0411	The Wide-Open Throttle Approach to Greater Automotive Fuel Efficiency
Juan M Garcia, Junior	0246	Maximum-Cruise Performance
M. Dean Gardner	0548	System 150
H. E. Garrett	0324	Method and Composition for Enhancement of Mycorrhizal Development by Foliar Fertilization
John D Garrison	0336	A Carbonaceous Selective Absorber for Solar Thermal Energy Collection and Process for Its Formation
Thomas Gaspar	0384	Textured Substrate and Method for the Direct, Continuous Casting of Metal Sheet Exhibiting Improved Uniformity
Richard J Gay	0241	Polysulfide Oil Field Corrosion Control System
Randall M German	0492	Reactive Sintered Nickel Aluminide
Philip H Gifford II	0321	Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen
Richard G Gilbertson	0445	Condenser Tube Insertion Device
John D Gill	0164	Elastomer Energy Recovery Elements and Vehicle Component Applications
Richard P Gingras	0036	Computerstat
Debbie Gioello	0477	"Ultra Design Method" - Method for Designing Apparel by Computer
Edward C. Gnesa	0560	Paving Fabric Applicator
Laird B Gogins	0420	The Utah Transmission/Continuously Variable Speed Wind Generator
Nathan Gold	0184	Coasting Fuel Shutoff
Samuel Goldfarb	0465	Multiconductive Base Form Microchip Carrier/Connector
Michael Gondouin	0446	Heavy Oil Recovery Process
Michael Gondouin	0459	Natural Gas Conversion Process
Michael Gondouin	0553	Process for Conserving Steam Quality in Deep Steam Injection Wells
Meredith C Gourdine	0228	EGD Fog Dispersal System

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Louis E Govear	0212	Water Warden
William D Gramling	0159	Non-Tubing Type Lift Device, Described as the NTT Rabbit
Thorvald G Granryd	0248	Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like
Willard Graves	0001	Demand Metering System for Electric Energy
Evert S Green	0256	Method and Apparatus for Irrigating Container Grown Plants
J Rex Greer	0475	Auxiliary Air Conditioning, Heating and Engine Warming System for Trucks
Richard W. Griffiths	0547	Structural Monitoring System Using Fiber Optics
Gerald J Grott	0391	Compressed Gas Energy Storage
George E Gryka	0488	A System for Recovering Sulfur from Gases, Especially Natural Gas
Jack D Haile	0224	Haile Alternate Fuel Grain Dryer
Ogden H Hammond	0149	SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)
Paul M Hankison	0522	Aqua-Shear
Donald Harney	0562	Future Flush
James R Harris	0407	An Extended Range Tankless Water Heater
Harold A Hartung	0385	Process for Treating Humus Materials
John C Haspert	0111	Haspert Mining System
John C Haspert	0188	Remote Controlled Underground Mining System for Horizontal or Pitching Seams
Walter J Hasselman, Jr	0019	Phenol Methylene Foam Rigid Board Insulation
Louis A Hausknecht	0201	Hydraulic, Variable, Engine Valve Actuation System
Jeffrey P Hausler	0512	Automatic Metering System (AMS)
Spencer Kim Haws	0168	The Hot Water Saver
August G Hebel, Junior	0412	Meta-Lax Stress Relief for Almost any Size Metal Structure
Wanda Henke	0350	Method and Apparatus for Testing Soil
Lee A Henningsen	0065	WattVendor
Ben B Herschel	0434	Modular Apparatus for Laundry Dryer Heat Recovery
Saul Herscovici	0502	Mechanically Infinitely Variable Speed Transmission for Automotive Use to Save Fuel
David E Hicks	0237	Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles
Vladimir Hlavacek	0556	Enhanced Chemical Vapor Deposition
Frank W Hochmuth	0437	Steam Generator With Integral Down-Draft Dryer
John H Holland	0395	Holland Oil Well Pumping System
Raymond P Holland Jr	0204	The Induction Propeller
John Hollick	0563	Method and Apparatus for Preheating Ventilation Air For a Building
Mark Holzapple	0491	QUBUS III Technology for Producing Ethanol
Joran Hopenfeld	0495	Method for Monitoring Thinning of Pipe Wall

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Thomas P Hopper	0020	Thermal Shade
Vladimir Horak	0361	Measurement of Liquid Volumes with Compensation for Temperature Induced Variations
Werner E Howald	0048	Howald Combustor
Dennis D Howard	0163	Thermotropic Plastic Films
V Hruby	0499	Electrostatic Agglomerator
John Hunter	0199	Rotary Coal Combustor and Heat Exchangers
Raymond Hunter	0296	Shower Bath Economizer
Robert M Hunter	0310	Portable Wastewater Flow Metering Device
Robert E Hyde	0472	Method and Apparatus for Maximizing Refrigeration Capacity
Russell D Ide	0399	Hydrodynamic/Multi Deflection Pad Bearing
Int'l MGD Companies	0023	Microgas Dispersions
Rudolf O Iverson	0221	Strainercycle
Richard Jablin	0075	Coke Quenching Steam Generator
Richard Jablin	0215	Slag Waste Heat Boiler
Gulab Chand Jain	0035	Utilization of Solar Energy by Solar Pond System
Charles B James	0205	Energy Efficient Solid State Multiple Operator Metallic Arc Welding System
Seymour Jarmul	0026	Compact Energy Reservoir
Morris R Jeppson	0203	Microwave Methods and Apparatus for Paving and Paving Maintenance
William Martin Johnson	0351	Flash Gate Board
James S Jones	0463	Carburetor Fuel Feed System with Bidirectional Passages
Kathie Kidder Jones	0518	SHE-INAL - A Stand-Alone Female Urinal Fixture for Public Restrooms
M Thomas Jones	0438	Microwave Reflection by Synthetic Metals
R J Jones	0027	Waste Heat Utilization for Commercial Cooking Equipment
Ray L Jones	0312	The "Jones AWT", a Micro-Computer-Based Automatic Well Tester for Use of Producing Oil Wells
William A Jones	0259	Hydrostatic Support Sleeve and Rod - Gas Release Probe
Louis A Joo	0318	Bi-Polar Electrode for Hall-Heroult Electrolysis
Edgar R Jordon	0131	Valve Deactuator for Internal Combustion Engines
Charles G Kalt	0085	Dielectric Windowshade
Robert F Karlicek	0197	Frequency Regulator and Protective Devices for Synchronous Generators
Eskil L Karlson	0104	Low Continuous Energy Mass Separation System
Eskil L Karlson	0181	The Karlson Ozone Sterilizer
Eskil L Karlson	0346	Ultra-Pure Water System for Hospitals
Eskil L Karlson	0422	High Efficiency Ozone Generating System
Clyde F Kaunitz	0213	The Kaunitz Process for Welding Pipe
Henry Keep, Junior	0147	Railroad Switch Heater

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Jay Hilary Kelley	0394	Variable Wall Mining Machine
Francis A. Kennedy	0551	Thermalock Block
H. W. Kennick	0109	Hydrostatic Meat Tenderizer
James E Kessler	0129	Super U System - Snap Strap
M Hossein Khorsand	0135	Point Focus Parabolic Solar Collector
Richard F Kiley	0216	Method and Assembly for Mounting a Semiconductor Element
George A Kim	0528	Method of Machining Hard and Brittle Material
Charles M Kirk	0058	A Multiple Spark System Using Inductive Storage
Max Klein	0314	Rolling Filter Apparatus
Peter Kneaskern	0410	The World's First Gas Fired, Forced Air, High Efficiency, Furnace That Requires No Electricity
Michael Knezevich	0132	Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material
Charles H Koster	0497	Downhole Casing Repair System
Oleg Kotlyar	0471	Method and Tool for Logging-While-Drilling
Edward S Kress	0260	Method and Apparatus for Handling and Dry Quenching Coke
Satyendra Kumar	0541	Polymer Dispersed Ferroelectric Smectic-C Display Technology
Emerson L Kumm	0470	Flat Belt Continuously Variable High Speed Drive
Kenneth R Kurple	0232	Method of Separating Lignin and Making Epoxide-Lignin
Michael R Ladisch	0494	Recovery of Dilute Aqueous Butenol by Adsorption on Lignin
Robert G Landry	0052	Air Wedge
Roy N Laney	0490	Laney Belt Terracer
Lawrence W Langley	0426	Eddy Current Transducing System
James H Lawler	0039	Lawler Steam Generator and Lawler System of Thermal Oil Recovery
W N Lawless	0190	Oxygen-Conducting Material and Oxygen-Sensing Method
W N Lawless	0401	A Miniature, Inexpensive Oxygen-Sensing Element
Leon Lazare	0044	New Working Fluids for Increasing the Cycle Efficiencies of Thermal
Leon Lazare	0160	High Efficiency Absorption Refrigeration Cycle
Leon Lazare	0362	Improved Solvents for the Puraq Seawater Desalination Process
Leon Lazare	0377	A Novel Method of Producing Ice-Water Slurries
Maurice W Lee, Junior	0322	Electrical Resistance Cooking Apparatus with Automatic Circuit Control
Leonard R Lefkowitz	0363	Impactor Separator
Herbert G Lehmann	0022	Fuel Burner Attachment
Ervin Leshner	0122	Lean Limit Controller
Donald C Lewis	0192	Closed Cycle Dehumidification Clothes Dryer

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Donald E Lewis	0397	In Service Tank Bottom Leak Detection and Repair System
Yao Tzu Li	0151	Film Type Storm Window
Yao Tzu Li	0202	Wobbling Type Distillation Apparatus
John S Lievois	0454	Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids
L Kenyon Liljegren	0505	Vertical Axis Wind Turbine
Ping-Wha Lin	0107	Waste Products Reclamation Process
Albert Lindqvist	0329	Modularized Pneumatic Tractor with Debris Liquifier
Henry Liu	0466	Coal Log Fuel Pipeline Transportation System
Waylon A Livingston	0393	Method and Apparatus for Ultrasonic Testing of Tubular Goods
Daniel A Lockie	0233	Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations
George O.G. Lof	0545	System for Reducing Heat Losses from Indoor Swimming Pools by use of Automatic Covers.
Thomas LoGiudice	0063	Fluorobulb
John B Long	0479	Solar Cooker
Harlan K Loveness	0423	Superverter - A Digitally Synthesized DC-to-AC Sinewave Inverter
Kenneth E Lunde	0427	Non-Catalytic Steam Hydrolysis of Fats
Russell F Lusk	0531	Removable Wind Deflector for Freight Container, and Assembly
William C Lyons	0338	Downhole Pneumatic Turbine Motor for Geothermal Energy
Calvin D MacCracken	0481	Refrigerant Mixture of R-11 and R-216 to Provide Ice Making Abilities in Centrifugal Compressors
Douglas MacGregor	0086	Coke Desulfurization
Robert A Maciejczak	0335	Robotic Bridge Observation and Information System
Frank J Madison II	0313	Process Controller for Stripper Oil Well Pumping Units
Shalom Mahalla	0064	The Mahalla Process--A Hydrometallurgical Method for Extracting Copper
David S Majkrzak	0152	Vehicle Exhaust Gas Warm-up System
Momtaz N Mansour	0286	Use of Pulse-Jet for Atomization of Coal/Water Mixture
Alvin M Marks	0009	Heat/Electric Power Conversion via Charged Aerosols
Neil D Markuson	0510	Oilwell Power Controller
Andrew W Marr, Junior	0280	Down Hole and Above Ground Resistance Heating for Paraffin Elimination
Joseph Marsala	0538	Electronic Control For Thermostatic Expansion Valves
Don J Marshall	0287	Automatic Variable Pitch Marine Propeller

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Mervin W Martin	0169	MIRAFOUNT
Louis L Marton	0139	Transformer With Heat Dissipator
John Mattson	0117	"Solarspan" Prism Trap
W E Mattson	0140	Counter Flow Dual Tube Heat Exchanger
John H Mayo	0386	Device and Method to Enable Detection and Measurement of Deformities in Well Components
Kenneth E Mayo	0029	Tuned Sphere Stable Ocean Platforms
Marian Mazurkiewicz	0341	High Pressure Liquid Jets as a Tool for Disintegrating Organic and Non-Organic Materials
Marian Mazurkiewicz	0367	Disintegration of Wood
Marion Mazurkiewicz	0419	A Planing Mining Machine to Produce Ultra-Fine Coal
Marian Mazurkiewicz	0467	High Pressure Lubricoolant Jet for Supporting Metal Machining
James McArthur	0300	Casing Stabbing Apparatus
John McCallum	0038	Reduction Volatilizations
James W McCord	0077	Variable Heat Refrigeration System
James W McCord	0097	Water Drying System
John A McDougal	0343	Electronic Octane
Jack Wade McIntyre	0431	Method and Apparatus for Removing Excess Water from Subterranean Wells.
George McLean	0478	The "Triple Design Cycle" Cogeneration Program
Robert McNeill	0078	System for High Efficiency Power Generation from Low Temperature Sources
Albert L McQuillen, Jr	0157	Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools
Thomas R Mee	0170	Fog System - Low Energy Freeze Protection for Agriculture
Stephen K Melink	0540	Restaurant Exhaust Ventilation Modulator
Serafin L Mendoza	0435	A New Thermodynamic Process of Actual Approach to the Carnot Cycle
Thomas M Meshbesher	0219	Method for Making Acetaldehyde from Ethanol
Ralph A Messing	0315	Method of Processing Biodegradable Organic Material
Paul Michelotti	0368	Aircraft Minimum Drag Speed System
Anatol Michelson	0142	Process for Heatless Production of Hollow Items
Edward W Midlam	0150	The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.
James R Mikkelsen	0474	Sweep-Spike Combination Tillage Tool
E. Stephen Miliaras	0183	Increased Vapor Generator Feature for a Reheat Vapor Generator
Everett Millard	0042	Flue Baffle Assembly
R A Miner	0484	MUD DEVIL - Deaerator Mixer
Henry H Mohaupt	0517	Dynamic Gas Pulse Loading System
Renato Monzini	0114	New Energy-Saving Tire for Motor Vehicles

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
James A Moore	0461	Thermally Stable Polyenaminonitriles Which Cure Without Evolution of Volatiles
Vincent D Morabit	0464	Chain Saw Tip Stabilizing Device for Use with an Anti-Kickback Device
Drew W Morris	0024	Can and Bottle Crushing Apparatus
Ram Natesh	0388	Preparation of Extremely Fine, Superalloy Powders and Their Fabrication into Dense, Sintered, Net Shape Superalloy Parts
E O Nathaniel	0174	Skate on Plastic Ice Skating System
Robert H Nealy	0198	The Thermatreat System
Cosby M Newsom	0515	Vacuum Bagging Apparatus
Edward A Griswold	0172	GEM Electrostatic Filtration System
Renato R Noe	0398	Hydraulic Test Unit - Test Plugs - Mechanical Seal Plugs
Robert S Norris	0021	Waste Oil Utilization System
John W North	0178	Process and Apparatus for Producing Cellulated Vitreous Refractory Material
Kenneth W Odil	0084	Kinetic Energy Type Pumping System
Thomas J O'Keefe	0452	Magnetic Thin Films Formed in a Glow Discharge
Andrew O'Neal	0473	Energy Saving Head Pressure Control System for Air Cooled Condensers
Howard S Orr	0349	Three Roll Tension Stand
Jay E Ort	0235	Single Stage Anaerobic Digestion Process
M Glenn Osterhoudt, III	0542	Self-Agitating Soap Stick
Donald F Othmer	0264	Desulfurization of Coal
Rita Paleschuck	0002	Fuel Miser
Forrest M Palmer	0325	Low Cost, Low Energy Machine and Method for Continuous Casting Non-Ferrous Strip and Composites
Richard D & Chester Palone	0055	Electrically Heated Sucker-Rod
C Richard Panico	0081	Flash Polymerization
Thaddeus Papis	0062	Tapered Plate Annular Matrix
Louis W Parker	0187	Variable Field Induction Motor
Sidney A Parker	0043	Thermal Gradient Utilization Cycle
Thomas Neil Parker, Junior	0245	Improved Oil Well Pumping Unit
Trent J Parker	0428	T-By Tray
Nathan E Passman	0274	Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency
Carl E Pearl	0153	A New Equipment Design Concept for Storage of Hot Foods
J Paul Pemsler	0123	Comminution of Ores by a Low-Energy Process
J Paul Pemsler	0295	Improved Method of Electroplating Aluminum for Corrosion Resistance
Joe C Pendergrass	0371	Wallace Energy Systems Solar Assisted Heat Pump Water Heater

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
F J Perhats	0133	AUTOTHERM Car Comfort System
Leopold Pessel	0030	Method of Removing Sulfur Dioxide from Flue Gases
Anthony Peters	0253	High Performance Heat Pump
Deems M Pfaff	0344	Machine for Separating Concrete from Steel
Clyde G Phillips	0115	Refrigeration System
Kenneth L Pickard	0476	Pickard Line-up Boom
Sylvain J Pirson	0146	Line Integral Method of Magneto-Electric Exploration
Sylvain J Pirson	0186	Oil Recovery by In-Situ Exfoliation Drive
Lemuel Leslie Ply	0162	Tubular Pneumatic Conveyor Pipeline
Arnold R Post	0130	Furnace Input Capacity Trimming Switch
Milton Pravda	0191	Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.
Mark A. Prelas	0549	Efficient, Continuous-Wave or Pulsed Visible Lamps for Solid-State Laser Drivers
Bryan Prucher	0409	Self-Dressing Resistance Welding Electrode
Paul F Pugh	0158	Energy Conservative Electric Cable System
John C Purcupile	0358	Device for Well Site Monitoring and Control of Rod- Pumped Wells
B F Rabitsch	0327	Square Pattern Irrigation Sprinkler
Arthur Radichio	0416	Self-Contained Pipe Freezing Unit
Kenneth H Raihala	0365	Safety Stovepipe Damper Assembly
Anthony T Rallis	0258	Corrosion Protection Process for Bore Hole Tool
James L Ramer	0106	Deep Shaft Hydro-Electric Power
Richard C Raney	0442	Long Life "PC" Drill Bit
Dante A Raponi	0015	Estacron
Jay Read	0308	Binary Azeotropic, Hot Gas, Fat Extraction Process
Emil B Rechsteiner	0376	Machine and Method for Producing Energy-Saving Transformers Incorporating Amorphous Metal Cores
Douglas R Reich	0279	Method and Means for Preventing Frost Damage to Crops
William B Retallick	0271	Hydrogen Storage System
Ellis M Reyner	0526	Pressure Generating Apparatus and Method
Albert S Richardson, Jr.	0136	Windamper
Albert S Richardson, Junior	0375	MDT Twister
Albert S Richardson, Junior	0429	A Low Cost Galloping Indicator
John W Richardson	0265	Flozone method and Apparatus for Direct Application of Treatment Liquid to Growing Vegetation
R L Risberg	0366	High Energy Semiconductor Switch
J.J. Robillard	0550	Dry Process Instant Photographic Color Textile Printing
Charles E Robinson	0244	CHARLIE - Trademark - Federally Registered 1123957
John W Robinson	0536	Delta T Dryer Controller

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Robert M Roeglin	0272	V-Plus System
Frederick S Rohatyn	0523	Power Factor Correction System by Means of Continuous Modulation
Robert N Rose	0309	Process of Smelting with Submerged Burner
Donald R Ross	0076	The Ross Furnace
Robert F Roussey, Junior	0328	Multi-Directional Pre and Post-Heating Device for Thermal Flamecutting
Jay R Royston	0240	All Steam Heated Sadiron for Commercial Use
Aldo Ruoza	0486	Cotton Stalk and Shredder with Re-Bedder
John C Rupert	0134	Expanded Polystyrene Bead Insulation System
Alex Rutshein, et al	0088	System-100
Stewart Ryan	0226	An Electronic Anemometer System for Locating Air-Infiltration Heat Leaks in Buildings
Milan Rybak	0469	Recuperator of Flue Gas Heat
Melvin H Sachs	0073	INTECH
Charlton Sadler	0124	Solar Collector
Robert E Salomon	0145	Solar Conversion by Concentration Cells with Hydrides
Robert E Salomon	0276	Gas Concentration Cells as Converters of Heat into Electrical Energy
Arthur D Sams	0281	Sun Synchronous Solar Powered Refrigerator
Nicholas Archer Sanders	0193	Engine Heating Device
Nicholas Archer Sanders	0303	Battery Heating Device
Joe Sanford	0436	The Russell Self-Piloted Check Valve
Bernard L Sater	0317	Edge-Illuminated Multi-Junction (VMJ) Solar Cell
Robert C Saunders, Junior	0144	SpaCirc Space Circulation Fan
Harold T Sawyer	0268	Apparatus for Enhancing Chemical Reactions
Delbert E Sayles, Senior	0514	Silver Sensor / Energy Wire
Karl D Scheffer	0126	Vaclaim
Lawrence A Schmid	0360	Temperature Controllable Heat Valve
Daniel J Schneider	0014	Aerodynamic Lift Translator
Charles A Schwartz	0220	Deep Throat Resistance Welder
Gerhard E Schwarz	0400	Continuous Casting and Inside Rolling of Hollow Rounds
Paul H Schweitzer	0054	Optimizer
Donald W Scott	0389	Reduced Size Heating Assembly for an Electric Stove
J D Seader	0127	Process and Apparatus to Produce Crude Oil from Tar Sands
J D Seader	0128	Continuous Distillation Apparatus and Method
Felix Sebba	0354	Preparation of Biliquid Foam Compositions
David J Secunda	0046	Thexon Dehydration
Gerald R Seeman	0138	Phantom Tube
David N Shaw	0374	Expansion Compression System for Efficient Power Output Regulation of Internal Combustion Engines

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Edward H Shelander	0093	Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions
Samuel Shiber	0141	New Hydrostatic Transmission
Donald Shuler	0242	New Petersburg Beam Trawl
David Siverling	0450	Portable Ultrasonic Inspection System for Oil Country Tubulars
Clyde Smith	0489	Optimized Control System for Ultra-Efficient Surface Coating Operations
Roderick L Smith	0118	Energy Adaptive Control of Precision Grinding
Roderick L Smith	0447	Hot Control of Unit Volume Energy of Grinding
Ronald H Smith	0011	Solar Collector
J Donald Snitgen	0337	An Air Operated Hydraulic Power Unit
Edward J Sommer, Junior	0243	An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste
Mark Sorvig	0456	A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output
Roland P Soule	0040	Improved Equipment and Process for Production of Blue Water Gas
Henry Sperber	0380	Blow-In Blanket System
Edwin Spurlock	0537	Maintenance, Inspection, Submersible, Transport
Norbert E Stainbrook	0330	Vacuum Heat Treating Furnace and Quench System with Drop Transfer
Harry Stanford	0546	Hyperdynamic Hull
Walter A Stark	0370	Dehumidification System for Indoor Pools and Other High Humidity Areas
Robert John Starr	0177	The Solar I Option
Brett Stern	0424	An Automated Process for Garment Manufacturers
Carl L Sterner	0294	Highway Power Patcher
James M Stewart	0278	Complete System for Large Solar Water Heating and Storage
Randy L Stinson	0530	Apparatus and Method for Irradiating Cells
Kenneth A Stofen	0070	Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner
Arthur F Stone	0255	Method and Apparatus for Scrubbing Gas - Scrubbing Apparatus
William P Strumbos	0381	Multiple Heat-Range Spark Plug
William B. Stuart	0552	High-Speed Roll Processing Equipment for Woody Biomass
Frank R Summa	0012	High Frequency Energy Saving Device
David A Summers	0352	A Waterjet Mining Machine
David A Summers	0392	Method and Apparatus for Drilling Horizontal Holes in Geological Structures from a Vertical Bore

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Claude V Swanson	0444	Apparatus and Method for Using Microwave Radiation to Measure Water Content of a Fluid
David L Swartz	0298	Three Tenths Degree Kelvin Closed Cycle Refrigeration System
Patrick S Swihart, Senior	0249	Subsurface Flow Control (Gas Wells) and High Gas-Oil-Ratio Oil Wells
Ronald S Tabery	0406	Aluminum Reduction Cell Spent Potlining Fluid Bed Incinerator
Dino Talavera	0558	Method and Temperature Treating Granular Material
E M Talbott	0297	Series (Two-Wire) V-Controller
Wilford Dean Tannehill	0218	Behemoth
Curtis J Tanner	0217	Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells
Jerry Tartaglino	0291	Selective Zone Isolation for HVAC System
Harold W Taylor, Junior	0373	Tobacco Harvesting Machine
Ruel Carlton Terry	0087	Recovering Uranium From Coal in Situ
Ruel Carlton Terry	0223	Minimizing Subsidence Effects during Production of Coal In Situ
Milton B Thacker	0414	Low Profile Fluid Catalytic Cracker
Victor R Thayer	0251	Process and Apparatus for Reducing the Energy Required to Separate Liquids by Distillation
Donald R Thomas	0222	Louver Trombe Solar Storage Unit
William W Thompson	0408	Floodshield System
Eugene Tippmann	0282	Insulated Siding
Edward M Tourtelot	0229	Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines
William R Trutna	0299	Process for Using Cocurrent Contacting Distillation Column
William R Trutna	0509	Process for Gas Liquid Contacting in Cocurrent Distillation
Harry Werner Tulleners	0345	Tulleners Wave Piercer
William Tunderman	0263	Method for Reconditioning Rivetless Chain Links
Shao-E Tung	0200	Removal of Sulfur Dioxide from the Stack Gas of Combustors Burning High Sulfur Fuel
Shao-E Tung	0319	Removal of Hydrogen Sulfide from a Gas Stream
Robert L Ullrich	0082	Cool Air Induction
Ingo Valentin	0448	New Automatic Transmission for Road Vehicles
William Vandersteel	0357	TubeExpress Pneumatic Capsule Pipeline Transport System
Christiaan P van Dijk	0348	Hydrogen Sulfide Removal for Natural Gas
Donald H VanLiew	0462	Energy Efficient Asymmetric Pre-Swirl Vane and Twisted Propeller Propulsion System
Clinton Van Winkle	0090	Grain Dryer
Carmile F Vasile	0382	System for Recovery of Waste Hot Water Heat Energy

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Alan A Vetter	0453	Particle Densitometer Based on the Acoustical Resonance Measurement
David Virley	0007	Hydraulically Powered Waste Disposal Device
Joseph B Vogt	0033	Temperature Indicating Device
Benjamin Volk	0332	Volk Pistachio Huller
Fred B Wachs, III	0525	The ACT Evaporative Subcooler
Marvin L Wahrman	0079	Oil Well Bit Insert (Tooth), Cutting Article, Ablative
Henry J Wallace	0113	Wallace Mold Additive System
Arleigh Wangler	0071	Knight Guard
H Roy Weber	0137	A Portable Pollution Free Automobile Incinerator
Roy J Weikert	0116	Model 5000 ASEPAK System
Oscar Weingart	0099	Light Weight Composite Trailer Tubes
James D Welch	0534	Novel Procedure for Fabrication of Mosfets
David P Welden	0487	Direct Fired Steam Generator
John L Wendel	0339	Recycoil II
William C Whitman	0252	Thermal Bank
James B Whitmore	0121	Solar Space Heating for both Retrofit and New Construction
Hugh Edwin Whitted III	0250	A System to Adapt Diesel Engines to the Use of Crude Oils
Frank Wicks	0390	Wicks Efficient Fuel Utilization System
Stanley Wayne Widmer	0413	Non Metallic Railroad Switch Covers
Robert H Wieken	0057	X-5 Smoke Eliminator
David M Wilder	0323	Rolling Mill for Reduction of Moisture Content in Waste Material
William G Wilson	0443	A Method for the Use of Oxygen Ion Vacancies in Lanthanide Oxides to Increase their Utilization
Jack Winnick	0239	Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures
Donald E Wise	0214	Convertible Flat/Drop Trailer
Serge Wisotsky	0432	Water Hammer Pile Driver
J C Withers	0433	Improved Methods to Manufacture and Use Carbon-Alumina Composite Anodes for Aluminum Reduction
James C Withers	0031	Ceramic Rotors and Vanes
Cecil H Wolf	0185	Insulated Garage Door
Douglas E Wood	0234	Geodesic Solar Paraboloid
Harry E Wood	0053	High Efficiency Water Heater
Harry E Wood	0238	Clothes Dryer Automatic Shut-Off at Dryness
Roy W Wood	0417	Rotary Drill Bit
Harrison Robert Woolworth	0010	Scrap Metal Preheating Method and Apparatus
Paul N Worsey	0326	A Mechanical Stemming Device for Use in Explosive Loaded Blast Holes
Andrew Wortman	0307	Vortex Generators for Aft Regions of Aircraft Fuselages

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Zhong Xu	0503	Method and Apparatus for Introducing Normally Solid Materials into Substrate Surfaces
Joseph C Yater	0004	Power Conversion of Energy Fluctuations
Larry A Yates	0451	In-Place Asphalt Pavement Restoration, via Recycling of the Existing Materials
John W Yount	0209	Reclaiming Process for Resin Treated Fiberglass
Philip Zacuto	0066	Heat Extractor
Paul Zanoni	0112	Pump
Robert Zartarian	0120	Vapor Heat Transfer Commercial Griddle
Bernard Zimmern	0059	The Volumetric Gas Turbine
Michael F Zinn	0100	Solaroll
Allen D Zumbrunnen	0105	High Frequency Furnace

TABLE 4-2
RECOMMENDED INVENTIONS BY CONTACT NAME

CONTACT	DOE NO.	TITLE
John W Ackley, III	0306	An Efficiency Computer for Heated or Air Conditioned Buildings
D Carlos Adams	0533	A High Efficiency Retort to Recover Shale Oil
George F Adams	0527	Truck Train System - Rail Dollies Type A-1, X & Y
Warren A Aikins	0356	Portable Automatic Firewood Processor
Warren A Aikins	0460	Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor
Walter F. Albers	0559	Method and Apparatus for Simultaneous Heat and Mass Transfer
Glenn Albert	0358	Device for Well Site Monitoring and Control of Rod- Pumped Wells
Ray Alexander	0347	Oxide Dispersion Strengthened Aluminum Alloys
Joseph Allegro	0379	Inner Roof Solar System
Henry E Allen	0089	Continuous Casting Process and Apparatus
James E Altman	0378	An Improved Cutter for Plaster Board and the Like
Amar Amancharla	0143	Oil Well Pump Jack
Floyd R Anderson	0096	Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems
Frank L Anderson	0207	Glass Sheet Manufacturing Method and Apparatus
J Hilbert Anderson	0535	The Anderson Quin Cycle
Connie M. Armentrout	0549	Efficient, Continuous-Wave or Pulsed Visible Lamps for Solid-State Laser Drivers
William F Armitage Jr	0041	Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers
Robert M Arthur	0047	Wastewater Aeration Power Control Device
George C Austin	0005	Diesel Engine Conversion System for Gasoline Engines
Don E Avery	0275	Low Head - High Volume Pump
Don E Avery	0301	Pump Control System for Windmills
Richard J Avery, Junior	0269	Refrigerant Accumulator and Charging Apparatus
Richard H Baasch	0257	Method and Apparatus for Melting Snow
Charles Bach	0185	Insulated Garage Door
Frank W Bailey	0125	The Turbulator Burner System
Basil W Balls	0072	Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants
Carol D Balzer	0402	KTM Logger
James C Barber	0507	Utilization of Precipitator Dust Stored at the TVA National Fertilizer Development Center
Neville A Baron	0521	Ultraviolet Sterilization of Contact Lens
A. D. Barrett, VP	0147	Railroad Switch Heater
John C Bass	0455	Thermoelectric Generator for Diesel Engines
Charlie Baziel	0068	Under Compression and Over Compression Free Helical Screw Rotary Compressor
Erwin O Beck	0369	"Fire Jet" Automatic Anthracite Burner

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
N. John Beck	0131	Valve Deactuator for Internal Combustion Engines
Theodore R Beck	0433	Improved Methods to Manufacture and Use Carbon-Alumina Composite Anodes for Aluminum Reduction
Karakian Bedrosian	0171	A Method of Preserving Fruits and Vegetables without Refrigeration
Daniel Ben-Shmuel	0066	Heat Extractor
Richard B Bentley	0051	Thermal Efficiency Construction
Karl H. Bergey	0110	Improved Windpower Generating System
Frank C Bernhard	0102	Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners
Val O Bertoia	0095	Omni-Horizontal Axis-Wind Turbine
N F Bibby	0329	Modularized Pneumatic Tractor with Debris Liquifier
Charles James Bier	0083	Vertical Solar Louvers
Lawrence E Bissell	0037	Hotwater Engine
Kenneth J. Blake	0551	Thermalock Block
Wayne S Boals	0049	Automatic Control System for Water Heaters
Robert E Bode	0485	Method and Apparatus for Placing Cement Plugs in Wells
Patrick E Boeshart	0506	Improved Poured Concrete Wall Forming System
Daniel E Boone	0498	Hydrocarbon Reserve Evaluation/Determining Permeability in Hydrocarbon Wells
Ranendra K Bose	0013	Anti-Pollution System
Alexander Bosna	0441	Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Thereby.
Charles W. Bouchillon	0554	Apparatus and Process for Second Stage Drying
Howard Bovars	0086	Coke Desulfurization
Paul E Bracegirdle	0261	A New Apparatus for Making Asphalt Concrete
Douglas C Brackett	0516	Device for Converting Linear Motion to Rotary Motion and Vice Versa
Ronald E Brandon	0236	Steam Turbine Packing Ring
John O'R Breeden	0524	Mobile, Offshore, Self-Elevating (Jack-up) Support System
Donald L Brelsford	0457	Continuous Saccharification of Ligno-Celluistic Biomass in Two Stages
Brittsan Brian	0562	Future Flush
John A Broadbent	0355	Energy-Efficient Ice Cube Making Machine
Wayne S Brown	0418	Use of Chemical Vapor Deposition to Coat Metal Surfaces with High-Temperature Superconducting Materials
James A Browning	0067	Windmill Using Hydraulic System for Energy Transfer and Speed Control
John W Bruce	0016	Method and Apparatus for Vacuum Drying of Commodities
Mario Bruno	0114	New Energy-Saving Tire for Motor Vehicles

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
William G Buckman	0482	Improved Fluid Pumping Device and Liquid Sensor
Clarence L Buller	0511	Subterranean Permeability Modification by Use of a Microbial Polysaccharide Polymer
James L Bullock	0015	Estacron
Bill Burley	0173	Thermal Ice Cap
Uwe H Butenhoff	0240	All Steam Heated Sadiron for Commercial Use
Duncan M Butlin	0468	Constant-Torque System for Beam Pumps
John C Calhoun, President	0032	Wood Gas Reactor
Robert Cameron	0050	Scotsman Fuel Energizer
Patsie C Campana	0080	Improved Unfired Refractory Brick
Gene C Carpenter	0260	Method and Apparatus for Handling and Dry Quenching Coke
Peter Carr	0449	Fuel Savings in the Heavy Trucking Industry Through Cool Storage
Marc S Caspe	0289	An Earthquake Barrier
Forrest E Chancellor	0154	Rotating Horsehead for Pumping Units
Shih-Chih Chang	0270	Method of Energy Recovery for Wastewater Treatment
Wu-Chi Chen	0165	Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen
Kai-Chih Cheng	0262	Energy Saving Pump and Pumping System
Shang-I Cheng	0267	Integrated Gasification of Coal, Municipal Solid Wastes and Sludge
Shang-I Cheng	0320	Coal Gasification with Carbon Dioxide and Lime Recycling
James L. Chill, President	0098	Process Development to Conserve Energy and Material- --(in the manufacture of)---Bearings
Agit Chowdhury	0264	Desulfurization of Coal
Deborah D Chung	0304	Exfoliated Graphite Fibers
Deborah D Chung	0520	Carbon Fiber Reinforced Tin-Superconductor Composites
Coleman Clark	0420	The Utah Transmission/Continuously Variable Speed Wind Generator
John F Clauser	0500	Neutral Atom Interferometry Gravity Sensor
James M Cleary	0155	Slip Mining
Nathan Cohn	0247	Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems
Maisy Conachen	0539	Guide for Window Grouting Device
William H Cone	0060	Electric Transport Refrigerator
Edward B Connors	0167	Vaned Pipe for Pipeline Transport of Solids
Robert J Cromwell	0108	Processing Recovery of Aluminum
Albert B Csonka	0006	Micro-Carburetor
Donald Cullen	0283	Aluminum Roofing Chips
Jim Cunningham	0436	The Russell Self-Piloted Check Valve

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Donald P Curry	0529	Thermodyne Evaporator - A Molded Pulp Products Dryer
Harry Curtin	0235	Single Stage Anaerobic Digestion Process
Julius Czaja	0273	Open Cycle Latent Heat Engine
John Bartley Czirr	0483	Downhole Neutron Flux Monitor
Richard E Dame	0180	Adjustable Solar Concentrator (ASC)
Sharad M Dave	0101	Controlled Combustion Engine
Robert De Saro	0499	Electrostatic Agglomerator
Alex DeFonso	0034	Delphic Thermogenic Paint (Heat Film)
Norman L Dickinson	0288	Dickinson Pure Air Combustion (DIPAC) and Modified DIPAC (MODIPAC)
Gilbert W Didion	0028	Ultraflo
Khanh Dinh	0501	High Efficiency Dehumidifier/Air Conditioner
Lawrence A Dobson	0425	High Temperature Condensing Biomass Combustion System
Oscar Leonard Doellner	0194	Radiant Energy Power Source for Jet Aircraft
James J Dolan	0156	Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.
James J Dolan	0458	Continuous Casting by Float Process of Thin Sheet Carbon Steel
Jay Dornier	0056	Flexaflo-The Wet Fuel Dryer
F David Doty	0440	Microtube Strip Heat Exchanger
Daniel Douenias	0254	"Turbo-Glo" Immersion Furnace
David W. Doyle, V.P.	0017	Osmotic-Hydro Power Generation
James L Doyle, Jr.	0383	Electro-Optic Inspection of Heat Exchangers
Gary L Drake	0342	Raw Fines Medium Coal Washing System
W B Driver	0421	Flexible Drill Pipe
Sandor Drobilisch	0496	Spiral Track Oven
Anthony A duPont	0161	duPont Connell Energy Coal Gasification Process
Enoch J Durbin	0069	Ionic Fuel Control System for the Internal Combustion Engine
Leonard A Duval	0148	Reclamation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes
Edward David Dysarz	0513	Multiwell Pump
Herbert D Easterly	0311	Auxiliary Truck Heater
John A Eastin	0196	Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm
Gerald Eastman	0189	Pump Jack
James F. Echols	0508	On-Line Mechanical Tube Cleaning for Steam Electric Power Plants on an Open Cooling Water System
Edwin E Eckberg	0103	Low Voltage Ionic Fluorescent Light Bulb
Charles E Edwards	0179	Development and Commercialization of Low Cost, Non- Metallic, Solar Systems

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Lawrence K Edwards	0439	Project Twenty-One Rapid Transit System
Dan Egosi	0266	Energy Conversion Method
Raymond A Elam	0403	Enterprise Lubricator
Guy R B Elliott	0231	Natural Gas from Deep-Brine Solutions
Clinton R Elston	0480	AlasCan Composting Toilet and Greywater Treatment System
Richard E Engdahl	0031	Ceramic Rotors and Vanes
James V Enright	0133	AUTOTHERM Car Comfort System
Donald C Erickson	0003	Hydrogen Generation from Producer Gas by Oxidation- Reduction of Tin
Donald C Erickson	0025	Sulfur Removal from Producer Gas-High Temperature
Donald C Erickson	0230	Absorption Heat Pump Augmented Separation Process
Donald C Erickson	0364	Intermittent Solar Ammonia Absorption Cycle (ISAAC)
Donald C Erickson	0404	Steam-Methane Reforming in Molten Carbonate Salt
Donald C. Erickson	0557	Branched GAX Absorption Heat Pump
Hermann Ernst	0285	Novel Fluid Ring (F/R) Seal Systems for Railroad Axle Bearing Systems
Robert F Evans	0166	Borehole Angle Control
Robert F Evans	0182	Improved Seal for Geothermal Drill Bit
Robert F Evans	0211	Shock Mounted Stratapax Bit
Carl G Everman	0504	Split Hub Shale Oil Retort
Norman C Fawley	0208	CNG Automotive Fuel Cylinders/Gas Transport Modules
Norman C Fawley	0227	CRM Pipe
Charlotte Fay	0517	Dynamic Gas Pulse Loading System
Demeter G Fertis	0493	Airfoil Design with Improved Aerodynamic Characteristics
Michael Feygin	0333	Laser Based Machine for Die and Prototype Manufacturing
Kenneth V Field	0353	Compu-Turbo-Aligner
Marshall Findley	0340	Separation of Adsorbed Components by Variable Temperature Desorption
William M FioRito	0094	Lantz Converter
Joseph C Firey	0331	Cyclic Char Combustion for Engines, Boilers and Gasifiers
G R Fitterer	0018	The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy
G. R. Fitterer, President	0074	A Solid Electrolyte Galvanic Solar Energy Conversion Cell
Lloyd Flatland	0210	Ultra High Speed Drilling Device for Use in Hard Rock Formations
James W Flatte	0359	Solid Fuel Hot Air Furnace

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Dale Flickinger	0176	Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces
Joe W Fowler	0045	Bulk Cure Tobacco Barn with Improvements
Miguel V Franco	0532	Gobelin Loom
Thomas F Francovitch	0292	Roof Construction Having Membrane and Photo Cells
Anthony N Fresco	0284	Atomized Oil-Injected Rotary Screw Compressors
Donell P. Froehlich	0544	Field Grid Sense
Linus C Fuchek	0372	FS 630 Heat Pump Thermostat Control
Efrem V. Fudim	0543	Method and Apparatus for Production of Three-Dimensional Objects by Photosolidification
Fuel Injection Devel. Cor	0122	Lean Limit Controller
Harald F Funk	0405	Prehydrolysis and Digestion of Plant Material
Jonathan Gabel	0206	Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion
David Ganoung	0411	The Wide-Open Throttle Approach to Greater Automotive Fuel Efficiency
Juan M Garcia, Junior	0246	Maximum Cruise Performance
M. Dean Gardner	0548	System 150
H. E. Garrett	0324	Method and Composition for Enhancement of Mycorrhizal Development by Foliar Fertilization
John D Garrison	0336	A Carbonaceous Selective Absorber for Solar Thermal Energy Collection and Process for Its Formation
Richard J Gay	0241	Polysulfide Oil Field Corrosion Control System
Jim Gee	0318	Bi-Polar Electrode for Hall-Heroult Electrolysis
George E Gettemuller	0537	Maintenance, Inspection, Submersible, Transport
Philip H Gifford II	0321	Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen
Richard G Gilbertson	0445	Condenser Tube Insertion Device
John D Gill	0164	Elastomer Energy Recovery Elements and Vehicle Component Applications
Richard P Gingras	0036	Computerstat
Paul Ginouves	0221	Strainercycle
Debbie Gioello	0477	"Ultra Design Method" - Method for Designing Apparel by Computer
Edward C. Gnesa	0560	Paving Fabric Applicator
Nathan Gold	0184	Coasting Fuel Shutoff
Michael Gondouin	0446	Heavy Oil Recovery Process
Michael Gondouin	0459	Natural Gas Conversion Process
Michael Gondouin	0553	Process for Conserving Steam Quality in Deep Steam Injection Wells
Meredith C Gourdine	0228	EGD Fog Dispersal System
William D Gramling	0159	Non-Tubing Type Lift Device, Described as the NTT Rabbit

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Thorvald G Granryd	0248	Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like
Alan Gray	0465	Multiconductive Base Form Microchip Carrier/Connector
Evert S Green	0256	Method and Apparatus for Irrigating Container Grown Plants
J Rex Greer	0475	Auxiliary Air Conditioning, Heating and Engine Warming System for Trucks
Anthony Grieco	0382	System for Recovery of Waste Hot Water Heat Energy
Richard W. Griffiths	0547	Structural Monitoring System Using Fiber Optics
Gwyer Grimminger, President	0224	Haile Alternate Fuel Grain Dryer
Gerald J Grott	0391	Compressed Gas Energy Storage
George E Gryka	0488	A System for Recovering Sulfur from Gases, Especially Natural Gas
Lloyd E Hackman	0384	Textured Substrate and Method for the Direct, Continuous Casting of Metal Sheet Exhibiting Improved Uniformity
Ogden H Hammond	0149	SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)
Howard J. Handerwith	0561	Ramix Systems Inc.
Paul M Hankison	0522	Aqua-Shear
James R Harris	0407	An Extended Range Tankless Water Heater
Harold A Hartung	0385	Process for Treating Humus Materials
John C. Haspert	0111	Haspert Mining System
John C Haspert	0188	Remote Controlled Underground Mining System for Horizontal or Pitching Seams
Louis A Hausknecht	0201	Hydraulic, Variable, Engine Valve Actuation System
Spencer Kim Haws	0168	The Hot Water Saver
August G Hebel, Junior	0412	Meta-Lax Stress Relief for Almost any Size Metal Structure
Rhey Hedges	0187	Variable Field Induction Motor
Lester Hendrickson	0064	The Mahalla Process--A Hydrometallurgical Method for Extracting Copper
Wanda Henke	0350	Method and Apparatus for Testing Soil
Lee A Henningsen	0065	WattVendor
H N Hensley	0217	Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells
Ben B Herschel	0434	Modular Apparatus for Laundry Dryer Heat Recovery
Saul Herscovici	0502	Mechanically Infinitely Variable Speed Transmission for Automotive Use to Save Fuel
Ronald Hertzfeld	0186	Oil Recovery by In-Situ Exfoliation Drive
Ronald M Hertzfeld	0146	Line Integral Method of Magneto-Electric Exploration
David E Hicks	0237	Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Vladimir Hlavacek	0556	Enhanced Chemical Vapor Deposition
Frank W Hochmuth	0437	Steam Generator With Integral Down-Draft Dryer
John H Holland	0395	Holland Oil Well Pumping System
Raymond P Holland Jr	0204	The Induction Propeller
John Hollick	0563	Method and Apparatus for Preheating Ventilation Air For a Building
Joran Hopenfeld	0495	Method for Monitoring Thinning of Pipe Wall
Thomas P Hopper	0020	Thermal Shade
Vladimir Horak	0361	Measurement of Liquid Volumes with Compensation for Temperature Induced Variations
Corwin R. Horton	0546	Hyperdynamic Hull
Werner E Howald	0048	Howald Combustor
Dennis D Howard	0163	Thermotropic Plastic Films
Hugh Huislander	0212	Water Warden
Raymond Hunter	0296	Shower Bath Economizer
Robert M Hunter	0310	Portable Wastewater Flow Metering Device
Robert E Hyde	0472	Method and Apparatus for Maximizing Refrigeration Capacity
Russell D Ide	0399	Hydrodynamic/Multi Deflection Pad Bearing
Richard Jablin	0075	Coke Quenching Steam Generator
Richard Jablin	0215	Slag Waste Heat Boiler
E K Jacob	0349	Three Roll Tension Stand
Gulab Chand Jain	0035	Utilization of Solar Energy by Solar Pond System
Seymour Jarmul	0026	Compact Energy Reservoir
Sherman R Jenney	0052	Air Wedge
Gordon F Jensen	0388	Preparation of Extremely Fine, Superalloy Powders and Their Fabrication into Dense, Sintered, Net Shape Superalloy Parts
Morris R Jeppson	0203	Microwave Methods and Apparatus for Paving and Paving Maintenance
Bob Johnson	0419	A Planing Mining Machine to Produce Ultra-Fine Coal
William Martin Johnson	0351	Flash Gate Board
James S Jones	0463	Carburetor Fuel Feed System with Bidirectional Passages
Kathie Kidder Jones	0518	SHE-INAL - A Stand-Alone Female Urinal Fixture for Public Restrooms
R J Jones	0027	Waste Heat Utilization for Commercial Cooking Equipment
Ray L Jones	0312	The "Jones AWT", a Micro-Computer-Based Automatic Well Tester for Use of Producing Oil Wells
William A Jones	0259	Hydrostatic Support Sleeve and Rod - Gas Release Probe

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Gabriel S Joseph, III	0191	Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.
Gary D Justis	0466	Coal Log Fuel Pipeline Transportation System
Charles Kaars	0555	Carbon Fiber Composites with Improved Fatigue Resistance due to the Addition of Tin-Lead Alloy Particles
Charles G Kalt	0085	Dielectric Windowshade
Robert F Karlicek	0197	Frequency Regulator and Protective Devices for Synchronous Generators
Eskil L Karlson	0104	Low Continuous Energy Mass Separation System
Eskil L Karlson	0181	The Karlson Ozone Sterilizer
Eskil L Karlson	0346	Ultra-Pure Water System for Hospitals
Eskil L Karlson	0422	High Efficiency Ozone Generating System
Clyde F Kaunitz	0213	The Kaunitz Process for Welding Pipe
Jay Hilary Kelley	0394	Variable Wall Mining Machine
H. W. Kennick	0109	Hydrostatic Meat Tenderizer
Garry R Kenny	0243	An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste
James E Kessler	0129	Super U System - Snap Strap
M Hossein Khorsand	0135	Point Focus Parabolic Solar Collector
E A Kiessling	0251	Process and Apparatus for Reducing the Energy Required to Separate Liquids by Distillation
Richard F Kiley	0216	Method and Assembly for Mounting a Semiconductor Element
Robert Killoren	0438	Microwave Reflection by Synthetic Metals
Robert Killoren	0452	Magnetic Thin Films Formed in a Glow Discharge
George A Kim	0528	Method of Machining Hard and Brittle Material
Rees Kinney, Atty.	0091	Mine Brattice
Charles M Kirk	0058	A Multiple Spark System Using Inductive Storage
Max Klein	0314	Rolling Filter Apparatus
Peter Kneaskern	0410	The World's First Gas Fired, Forced Air, High Efficiency, Furnace That Requires No Electricity
Michael Knezevich	0132	Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material
Robert J Koester	0282	Insulated Siding
Charles H Koster	0497	Downhole Casing Repair System
Joyce A Kostura	0415	Oil Recovery by Modified Steam Drive Employing High Velocity Non-Condensible Gas
Oleg Kotlyar	0471	Method and Tool for Logging-While-Drilling
Satyendra Kumar	0541	Polymer Dispersed Ferroelectric Smectic-C Display Technology
Emerson L Kumm	0470	Flat Belt Continuously Variable High Speed Drive

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Kenneth R Kurple	0232	Method of Separating Lignin and Making Epoxide-Lignin
Lawrence Ladin	0088	System-100
Michael R Ladisch	0494	Recovery of Dilute Aqueous Butenol by Adsorption on Lignin
Roy N Laney	0490	Laney Belt Terracer
Lawrence W Langley	0426	Eddy Current Transducing System
Murry S. Laskey	0061	Fuel Preparation Process
Roland Lau	0503	Method and Apparatus for Introducing Normally Solid Materials into Substrate Surfaces
James H Lawler	0039	Lawler Steam Generator and Lawler System of Thermal Oil Recovery
W N Lawless	0190	Oxygen-Conducting Material and Oxygen-Sensing Method
W N Lawless	0401	A Miniature, Inexpensive Oxygen-Sensing Element
Leon Lazare	0044	New Working Fluids for Increasing the Cycle Efficiencies of Thermal
Leon Lazare	0160	High Efficiency Absorption Refrigeration Cycle
Leon Lazare	0362	Improved Solvents for the Puraq Seawater Desalination Process
Leon Lazare	0377	A Novel Method of Producing Ice-Water Slurries
Maurice W Lee, Junior	0322	Electrical Resistance Cooking Apparatus with Automatic Circuit Control
Leonard R Lefkowitz	0363	Impactor Separator
Herbert G Lehmann	0022	Fuel Burner Attachment
Robert C LeMay	0309	Process of Smelting with Submerged Burner
Edward Levi	0199	Rotary Coal Combustor and Heat Exchangers
Donald C Lewis	0192	Closed Cycle Dehumidification Clothes Dryer
Donald E Lewis	0397	In Service Tank Bottom Leak Detection and Repair System
George S Lewis	0387	Quiet Operating Internal Combustion Engine with Complete Highly Efficient Expansion Cycle
Yao Tzu Li	0202	Wobbling Type Distillation Apparatus
John S Lievois	0454	Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids
L Kenyon Liljegren	0505	Vertical Axis Wind Turbine
Ping-Wha Lin	0107	Waste Products Reclamation Process
William Lindner	0334	So-Luminaire Natural Daylighting Unit
Waylon A Livingston	0393	Method and Apparatus for Ultrasonic Testing of Tubular Goods
Daniel A Lockie	0233	Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations
Lance G.A. Lof	0545	System for Reducing Heat Losses from Indoor Swimming Pools by use of Automatic Covers.

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Thomas LoGiudice	0063	Fluorobulb
John B Long	0479	Solar Cooker
Murray G Lowenthal	0001	Demand Metering System for Electric Energy
James E Luber	0023	Microgas Dispersions
Mary Jane Luddy	0398	Hydraulic Test Unit - Test Plugs - Mechanical Seal Plugs
Kenneth E Lunde	0427	Non-Catalytic Steam Hydrolysis of Fats
Russell F Lusk	0531	Removable Wind Deflector for Freight Container, and Assembly
William C Lyons	0338	Downhole Pneumatic Turbine Motor for Geothermal Energy
Calvin D MacCracken	0481	Refrigerant Mixture of R-11 and R-216 to Provide Ice Making Abilities in Centrifugal Compressors
Robert A Maciejczak	0335	Robotic Bridge Observation and Information System
Frank J Madison II	0313	Process Controller for Stripper Oil Well Pumping Units
David S Majkrzak	0152	Vehicle Exhaust Gas Warm-up System
Momtaz N Mansour	0286	Use of Pulse-Jet for Atomization of Coal/Water Mixture
Bernard Joseph Margowsky	0138	Phantom Tube
Alvin M Marks	0009	Heat/Electric Power Conversion via Charged Aerosols
Neil D Markuson	0510	Oilwell Power Controller
Andrew W Marr, Junior	0280	Down Hole and Above Ground Resistance Heating for Paraffin Elimination
Don J Marshall	0287	Automatic Variable Pitch Marine Propeller
Louis L Marton	0139	Transformer With Heat Dissipator
George E Mattson	0117	"Solarspan" Prism Trap
John H Mayo	0386	Device and Method to Enable Detection and Measurement of Deformities in Well Components
Kenneth E Mayo	0029	Tuned Sphere Stable Ocean Platforms
James McArthur	0300	Casing Stabbing Apparatus
John McCallum	0038	Reduction Volatilizations
James W McCord	0077	Variable Heat Refrigeration System
James W McCord	0097	Water Drying System
John A McDougal	0343	Electronic Octane
Jack Wade McIntyre	0431	Method and Apparatus for Removing Excess Water from Subterranean Wells.
George McLean	0478	The "Triple Design Cycle" Cogeneration Program
Robert McNeill	0078	System for High Efficiency Power Generation from Low Temperature Sources
Albert L McQuillen, Jr	0157	Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools
Thomas R Mee	0170	Fog System - Low Energy Freeze Protection for Agriculture

TABLE 4-2-(cont.)

CONTACT	DOE NO.	TITLE
Stephen K Melink	0540	Restaurant Exhaust Ventilation Modulator
Serafin L Mendoza	0435	A New Thermodynamic Process of Actual Approach to the Carnot Cycle
Thomas M Meshbesher	0219	Method for Making Acetaldehyde from Ethanol
Ralph A Messing	0315	Method of Processing Biodegradable Organic Material
Donald D. Meyers	0467	High Pressure Lubricoolant Jet for Supporting Metal Machining
Paul Michelotti	0368	Aircraft Minimum Drag Speed System
Anatol Michelson	0142	Process for Heatless Production of Hollow Items
Edward W Midlam	0150	The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.
James R Mikkelsen	0474	Sweep-Spike Combination Tillage Tool
E. Stephen Miliaras	0183	Increased Vapor Generator Feature for a Reheat Vapor Generator
Everett Millard	0042	Flue Baffle Assembly
R A Miner	0484	MUD DEVIL - Deaerator Mixer
Vincent D Morabit	0464	Chain Saw Tip Stabilizing Device for Use with an Anti-Kickback Device
Drew W Morris	0024	Can and Bottle Crushing Apparatus
Ed Morris, President	0099	Light Weight Composite Trailer Tubes
Robert H Nealy	0198	The Thermatreat System
Cosby M Newsom	0515	Vacuum Bagging Apparatus
Edward A Griswold	0172	GEM Electrostatic Filtration System
F Terry Nixon	0326	A Mechanical Stemming Device for Use in Explosive Loaded Blast Holes
F Terry Nixon	0341	High Pressure Liquid Jets as a Tool for Disintegrating Organic and Non-Organic Materials
Terry Nixon	0316	Thrust Impact Rock Splitter
Terry Nixon	0367	Disintegration of Wood
Terry Nixon	0392	Method and Apparatus for Drilling Horizontal Holes in Geological Structures from a Vertical Bore
Nestor Noriega	0396	Dyna Flow
Robert S Norris	0021	Waste Oil Utilization System
John W North	0178	Process and Apparatus for Producing Cellulated Vitreous Refractory Material
Kenneth W Odil	0084	Kinetic Energy Type Pumping System
Andrew O'Neal	0473	Energy Saving Head Pressure Control System for Air Cooled Condensers
M Glenn Osterhoudt, III	0542	Self-Agitating Soap Stick
Rita Paleschuck	0002	Fuel Miser
Forrest M Palmer	0325	Low Cost, Low Energy Machine and Method for Continuous Casting Non-Ferrous Strip and Composites

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Richard D Palone	0055	Electrically Heated Sucker-Rod
C Richard Panico	0081	Flash Polymerization
Thaddeus Papis	0062	Tapered Plate Annular Matrix
Sidney A Parker	0043	Thermal Gradient Utilization Cycle
Trent J Parker	0428	T-By Tray
Thomas Neil Parker, Junior	0245	Improved Oil Well Pumping Unit
Nathan E Passman	0274	Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency
James B Patas	0512	Automatic Metering System (AMS)
Carl E Pearl	0153	A New Equipment Design Concept for Storage of Hot Foods
J. Paul Pemsler, President	0123	Comminution of Ores by a Low-Energy Process
J Paul Pemsler	0295	Improved Method of Electroplating Aluminum for Corrosion Resistance
Joe C Pendergrass	0371	Wallace Energy Systems Solar Assisted Heat Pump Water Heater
Anthony Peters	0253	High Performance Heat Pump
Deems M Pfaff	0344	Machine for Separating Concrete from Steel
Brad L Pfeifley	0244	CHARLIE - Trademark - Federally Registered 1123957
PFI, Inc	0293	"Therm-A-Valve" - Insulated Valve Coverings
Clyde G Phillips	0115	Refrigeration System
Kenneth L Pickard	0476	Pickard Line-up Boom
Gene Plattner	0174	Skate on Plastic Ice Skating System
Lemuel Leslie Ply	0162	Tubular Pneumatic Conveyor Pipeline
Arnold R Post	0130	Furnace Input Capacity Trimming Switch
Mark Pridmore	0195	Proportional Current Battery
Bryan Prucher	0409	Self-Dressing Resistance Welding Electrode
Paul F Pugh	0158	Energy Conservative Electric Cable System
B F Rabitsch	0327	Square Pattern Irrigation Sprinkler
Arthur Radichio	0416	Self-Contained Pipe Freezing Unit
Kenneth H Raihala	0365	Safety Stovepipe Damper Assembly
Anthony T Rallis	0258	Corrosion Protection Process for Bore Hole Tool
James L Ramer	0106	Deep Shaft Hydro-Electric Power
Richard C Raney	0442	Long Life "PC" Drill Bit
Mister Raymo	0205	Energy Efficient Solid State Multiple Operator Metallic Arc Welding System
Jay Read	0308	Binary Azeotropic, Hot Gas, Fat Extraction Process
Emil B Rechsteiner	0376	Machine and Method for Producing Energy-Saving Transformers Incorporating Amorphous Metal Cores
Douglas R Reich	0279	Method and Means for Preventing Frost Damage to Crops
Clair H Reinbergen, Pres.	0019	Phenol Methylene Foam Rigid Board Insulation
William B Retallick	0271	Hydrogen Storage System
Ellis M Reyner	0526	Pressure Generating Apparatus and Method
Albert S Richardson, Jr.	0136	Windamper

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Albert S Richardson, Junior	0375	MDT Twister
Albert S Richardson, Junior	0429	A Low Cost Galloping Indicator
John W Richardson	0265	Flozone method and Apparatus for Direct Application of Treatment Liquid to Growing Vegetation
R L Risberg	0366	High Energy Semiconductor Switch
John W Robinson	0536	Delta T Dryer Controller
Robert M Roeglin	0272	V-Plus System
Frederick S Rohatyn	0523	Power Factor Correction System by Means of Continuous Modulation
Donald R Ross	0076	The Ross Furnace
Greg Ross	0290	Low Energy Ice Making Apparatus
Robert F Roussey, Junior	0328	Multi-Directional Pre and Post-Heating Device for Thermal Flamecutting
Aldo Ruoza	0486	Cotton Stalk and Shredder with Re-Bedder
John C Rupert	0134	Expanded Polystyrene Bead Insulation System
Thomas J Russo	0012	High Frequency Energy Saving Device
Stewart Ryan	0226	An Electronic Anemometer System for Locating Air-Infiltration Heat Leaks in Buildings
Milan Rybak	0469	Recuperator of Flue Gas Heat
Melvin H Sachs	0073	INTECH
Charlton Sadler	0124	Solar Collector
Robert E Salomon	0145	Solar Conversion by Concentration Cells with Hydrides
Robert E Salomon	0276	Gas Concentration Cells as Converters of Heat into Electrical Energy
Arthur D Sams	0281	Sun Synchronous Solar Powered Refrigerator
Nicholas Archer Sanders	0193	Engine Heating Device
Nicholas Archer Sanders	0303	Battery Heating Device
Bernard L Sater	0317	Edge-Illuminated Multi-Junction (VMJ) Solar Cell
Robert C Saunders, Junior	0144	SpaCirc Space Circulation Fan
Harold T Sawyer	0268	Apparatus for Enhancing Chemical Reactions
Delbert E Sayles, Senior	0514	Silver Sensor / Energy Wire
Karl D Scheffer	0126	Vaclaim
Lawrence A Schmid	0360	Temperature Controllable Heat Valve
Daniel J Schneider	0014	Aerodynamic Lift Translator
Charles A Schwartz	0220	Deep Throat Resistance Welder
Gerhard E Schwarz	0400	Continuous Casting and Inside Rolling of Hollow Rounds
Donald W Scott	0389	Reduced Size Heating Assembly for an Electric Stove
Richard L. Scully	0550	Dry Process Instant Photographic Color Textile Printing
J D Seader	0127	Process and Apparatus to Produce Crude Oil from Tar Sands

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
J D Seader	0128	Continuous Distillation Apparatus and Method
Felix Sebba	0354	Preparation of Biliquid Foam Compositions
David J Secunda	0046	Thexon Dehydration
SETRA Systems, Inc.	0151	Film Type Storm Window
W W Seward	0175	A Low-Energy Carpet Backing System
David N Shaw	0374	Expansion Compression System for Efficient Power Output Regulation of Internal Combustion Engines
Raymond E. Shea, Jr	0225	ROVAC High Efficiency Low Pressure Air Conditioning System
Edward H Shelander	0093	Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions
Samuel Shiber	0141	New Hydrostatic Transmission
Donald Shuler	0242	New Petersburg Beam Trawl
Edward Perry Sikes, Jr.	0054	Optimizer
David Siverling	0450	Portable Ultrasonic Inspection System for Oil Country Tubulars
Smart Technologies, Inc	0277	Electronic Conveyor Control Apparatus
Kenneth L Smedburg	0519	Aerocylinder
Clyde Smith	0489	Optimized Control System for Ultra-Efficient Surface Coating Operations
Otis W Smith	0119	Air Ratio Controller (AERTROL)
Roderick L Smith	0118	Energy Adaptive Control of Precision Grinding
Roderick L Smith	0447	Hot Control of Unit Volume Energy of Grinding
Ronald H Smith	0011	Solar Collector
J Donald Snitgen	0337	An Air Operated Hydraulic Power Unit
Ray E Snyder	0352	A Waterjet Mining Machine
Ray E Snyder	0461	Thermally Stable Polyenaminonitriles Which Cure Without Evolution of Volatiles
Ray E Snyder	0492	Reactive Sintered Nickel Aluminide
Mark Sorvig	0456	A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output
Roland P Soule	0040	Improved Equipment and Process for Production of Blue Water Gas
Len Spelber	0007	Hydraulically Powered Waste Disposal Device
Henry Sperber	0380	Blow-In Blanket System
Tinny Srinivasan	0423	Superverter - A Digitally Synthesized DC-to-AC Sinewave Inverter
Norbert E Stainbrook	0330	Vacuum Heat Treating Furnace and Quench System with Drop Transfer
Roger Stamper	0092	Tri-Water, A Combination Air Conditioning and Fire Protection System for a Building.
Walter A Stark	0370	Dehumidification System for Indoor Pools and Other High Humidity Areas
Robert John Starr	0177	The Solar I Option
Brett Stern	0424	An Automated Process for Garment Manufacturers

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Carl L Sterner	0294	Highway Power Patcher
James M Stewart	0278	Complete System for Large Solar Water Heating and Storage
Randy L Stinson	0530	Apparatus and Method for Irradiating Cells
Kenneth A Stofen	0070	Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner
Arthur F Stone	0255	Method and Apparatus for Scrubbing Gas - Scrubbing Apparatus
William P Strumbos	0381	Multiple Heat-Range Spark Plug
Earnest Stuart	0491	QUBUS III Technology for Producing Ethanol
William B. Stuart	0552	High-Speed Roll Processing Equipment for Woody Biomass
Claude V Swanson	0444	Apparatus and Method for Using Microwave Radiation to Measure Water Content of a Fluid
David L Swartz	0298	Three Tenths Degree Kelvin Closed Cycle Refrigeration System
Patrick S Swihart, Senior	0249	Subsurface Flow Control (Gas Wells) and High Gas-Oil-Ratio Oil Wells
Ronald S Tabery	0406	Aluminum Reduction Cell Spent Potlining Fluid Bed Incinerator
Dino Talavera	0558	Method and Temperature Treating Granular Material
Wilford Dean Tannehill	0218	Behemoth
Jerry Tartaglino	0291	Selective Zone Isolation for HVAC System
Harold W Taylor, Junior	0373	Tobacco Harvesting Machine
Ruel Carlton Terry	0087	Recovering Uranium From Coal in Situ
Ruel Carlton Terry	0223	Minimizing Subsidence Effects during Production of Coal In Situ
Milton B Thacker	0414	Low Profile Fluid Catalytic Cracker
Donald R Thomas	0222	Louver Trombe Solar Storage Unit
Carter Thompson	0169	MIRAFOUNT
William W Thompson	0408	Floodshield System
Phil Tippet	0302	Carri-Cel Impact Breaker and Counterflow Impact Rock Breakers
Edward M Tourtelot	0229	Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines
William R Trutna	0299	Process for Using Cocurrent Contacting Distillation Column
William R Trutna	0509	Process for Gas Liquid Contacting in Cocurrent Distillation
Harry Werner Tulleners	0345	Tulleners Wave Piercer
William Tunderman	0263	Method for Reconditioning Rivetless Chain Links
Shao-E Tung	0200	Removal of Sulfur Dioxide from the Stack Gas of Combustors Burning High Sulfur Fuel

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Shao-E Tung	0319	Removal of Hydrogen Sulfide from a Gas Stream
Fred Tunmore	0008	Inertial Storage Transmission
Robert L Ullrich	0082	Cool Air Induction
Ingo Valentin	0448	New Automatic Transmission for Road Vehicles
William Vandersteel	0357	TubeExpress Pneumatic Capsule Pipeline Transport System
Christiaan P van Dijk	0348	Hydrogen Sulfide Removal for Natural Gas
Donald H VanLiew	0462	Energy Efficient Asymmetric Pre-Swirl Vane and Twisted Propeller Propulsion System
Clinton Van Winkle	0090	Grain Dryer
Varigas Research, Inc	0297	Series (Two-Wire) V-Controller
Alan A Vetter	0453	Particle Densitometer Based on the Acoustical Resonance Measurement
Joseph B Vogt	0033	Temperature Indicating Device
Benjamin Volk	0332	Volk Pistachio Huller
Fred B Wachs, III	0525	The ACT Evaporative Subcooler
Marvin L Wahrman	0079	Oil Well Bit Insert (Tooth), Cutting Article, Ablative
Henry J Wallace	0113	Wallace Mold Additive System
Ken Walmer	0030	Method of Removing Sulfur Dioxide from Flue Gases
Arleigh Wangler	0071	Knight Guard
H Roy Weber	0137	A Portable Pollution Free Automobile Incinerator
Roy J Weikert	0116	Model 5000 ASEPAK System
James D Welch	0534	Novel Procedure for Fabrication of Mosfets
David P Welden	0487	Direct Fired Steam Generator
William R Schick	0339	Recycoil II
William C Whitman	0252	Thermal Bank
James B Whitmore	0121	Solar Space Heating for both Retrofit and New Construction
Hugh Edwin Whitted III	0250	A System to Adapt Diesel Engines to the Use of Crude Oils
Giles M Whitten	0430	Whitten Dugas Mud Pump Enhancer
Frank Wicks	0390	Wicks Efficient Fuel Utilization System
Stanley Wayne Widmer	0413	Non Metallic Railroad Switch Covers
Robert H Wieken	0057	X-5 Smoke Eliminator
David M Wilder	0323	Rolling Mill for Reduction of Moisture Content in Waste Material
Tony Wilhelm	0140	Counter Flow Dual Tube Heat Exchanger
William G Wilson	0443	A Method for the Use of Oxygen Ion Vacancies in Lanthanide Oxides to Increase their Utilization
Jack Winnick	0239	Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures
Melvin M. Winters	0538	Electronic Control For Thermostatic Expansion Valves

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
Donald E Wise	0214	Convertible Flat/Drop Trailer
Serge Wisotsky	0432	Water Hammer Pile Driver
Douglas E Wood	0234	Geodesic Solar Paraboloid
Harry E Wood	0053	High Efficiency Water Heater
Harry E Wood	0238	Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness
Roy W Wood	0417	Rotary Drill Bit
Harrison Robert Woolworth	0010	Scrap Metal Preheating Method and Apparatus
Andrew Wortman	0307	Vortex Generators for Aft Regions of Aircraft Fuselages
Wade Wright	0305	Automatic Filter Network Protection, Failure Detection and Correction System and Method
Joseph C Yater	0004	Power Conversion of Energy Fluctuations
Larry A Yates	0451	In-Place Asphalt Pavement Restoration, via Recycling of the Existing Materials
John W Yount	0209	Reclaiming Process for Resin Treated Fiberglass
Paul Zanoni	0112	Pump
Robert Zartarian	0120	Vapor Heat Transfer Commercial Griddle
Bernard Zimmern	0059	The Volumetric Gas Turbine
Michael F Zinn	0100	Solaroll
Allen D Zumbrunnen	0105	High Frequency Furnace

TABLE 4-3

RECOMMENDED INVENTIONS BY INVENTOR STATE

State/Inventor	DOE No.	Title
ALASKA		
Donald Shuler	0242	New Petersburg Beam Trawl
Clinton R Elston	0480	AlasCan Composting Toilet and Greywater Treatment System
Dino Talavera	0558	Method and Temperature Treating Granular Material
ALABAMA		
Bryan Prucher	0409	Self-Dressing Resistance Welding Electrode
Roy W Wood	0417	Rotary Drill Bit
James C Barber	0507	Utilization of Precipitator Dust Stored at the TVA National Fertilizer Development Center
ARKANSAS		
Richard D & Chester Palone	0055	Electrically Heated Sucker-Rod
Floyd R Anderson	0096	Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems
Harold L Bowman	0305	Automatic Filter Network Protection, Failure Detection and Correction System and Method
James W Flatte	0359	Solid Fuel Hot Air Furnace
ARIZONA		
Shalom Mahalla	0064	The Mahalla Process--A Hydrometallurgical Method for Extracting Copper
Oscar Leonard Doellner	0194	Radiant Energy Power Source for Jet Aircraft
David L Swartz	0298	Three Tenths Degree Kelvin Closed Cycle Refrigeration System
Richard Lee Dominquez	0334	So-Luminaire Natural Daylighting Unit
Gerald J Grott	0391	Compressed Gas Energy Storage
Harlan K Loveness	0423	Superverter - A Digitally Synthesized DC-to-AC Sinewave Inverter
Emerson L Kumm	0470	Flat Belt Continuously Variable High Speed Drive
Walter F. Albers	0559	Method and Apparatus for Simultaneous Heat and Mass Transfer

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
CALIFORNIA		
George C Austin	0005	Diesel Engine Conversion System for Gasoline Engines
David Virley	0007	Hydraulically Powered Waste Disposal Device
Ronald H Smith	0011	Solar Collector
R J Jones	0027	Waste Heat Utilization for Commercial Cooking Equipment
Lawrence E Bissell	0037	Hotwater Engine
James H Lawler	0039	Lawler Steam Generator and Lawler System of Thermal Oil Recovery
Wayne S Boals	0049	Automatic Control System for Water Heaters
Thaddeus Papis	0062	Tapered Plate Annular Matrix
Arleigh Wangler	0071	Knight Guard
Robert McNeill	0078	System for High Efficiency Power Generation from Low Temperature Sources
Marvin L Wahrman	0079	Oil Well Bit Insert (Tooth), Cutting Article, Ablative
William M FioRito	0094	Lantz Converter
Oscar Weingart	0099	Light Weight Composite Trailer Tubes
John C Haspert	0111	Haspert Mining System
M Hossein Khorsand	0135	Point Focus Parabolic Solar Collector
Gerald R Seeman	0138	Phantom Tube
Louis L Marton	0139	Transformer With Heat Dissipator
Robert A Clay	0143	Oil Well Pump Jack
Carl E Pearl	0153	A New Equipment Design Concept for Storage of Hot Foods
Forrest E Chancellor	0154	Rotating Horsehead for Pumping Units
Paul F Pugh	0158	Energy Conservative Electric Cable System
Anthony A duPont	0161	duPont Connell Energy Coal Gasification Process
Thomas R Mee	0170	Fog System - Low Energy Freeze Protection for Agriculture
Edward A Griswold	0172	GEM Electrostatic Filtration System
Robert F Evans	0182	Improved Seal for Geothermal Drill Bit
Nathan Gold	0184	Coasting Fuel Shutoff
John C Haspert	0188	Remote Controlled Underground Mining System for Horizontal or Pitching Seams
Robert F Karlicek	0197	Frequency Regulator and Protective Devices for Synchronous Generators
Morris R Jeppson	0203	Microwave Methods and Apparatus for Paving and Paving Maintenance
Jonathan Gabel	0206	Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion
Norman C Fawley	0208	CNG Automotive Fuel Cylinders/Gas Transport Modules

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
CALIFORNIA (cont.)		
Lloyd Flatland	0210	Ultra High Speed Drilling Device for Use in Hard Rock Formations
Louis E Govear	0212	Water Warden
Curtis J Tanner	0217	Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells
Norman C Fawley	0227	CRM Pipe
Daniel A Lockie	0233	Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations
Jay R Royston	0240	All Steam Heated Sadiron for Commercial Use
William A Jones	0259	Hydrostatic Support Sleeve and Rod - Gas Release Probe
Harold T Sawyer	0268	Apparatus for Enhancing Chemical Reactions
Arthur D Sams	0281	Sun Synchronous Solar Powered Refrigerator
Norman L Dickinson	0288	Dickinson Pure Air Combustion (DIPAC) and Modified DIPAC (MODIPAC)
Marc S Caspe	0289	An Earthquake Barrier
Carl L Sterner	0294	Highway Power Patcher
John H Burk	0302	Carri-Cel Impact Breaker and Counterflow Impact Rock Breakers
Andrew Wortman	0307	Vortex Generators for Aft Regions of Aircraft Fuselages
Ray L Jones	0312	The "Jones AWT", a Micro-Computer-Based Automatic Well Tester for Use of Producing Oil Wells
Benjamin Volk	0332	Volk Pistachio Huller
John D Garrison	0336	A Carbonaceous Selective Absorber for Solar Thermal Energy Collection and Process for Its Formation
Stanley D Balzer	0402	KTM Logger
Raymond A Elam	0403	Enterprise Lubricator
Todd M Doscher	0415	Oil Recovery by Modified Steam Drive Employing High Velocity Non-Condensible Gas
Michael Gondouin	0446	Heavy Oil Recovery Process
Alan A Vetter	0453	Particle Densitometer Based on the Acoustical Resonance Measurement
John C Bass	0455	Thermoelectric Generator for Diesel Engines
Michael Gondouin	0459	Natural Gas Conversion Process
Aldo Ruoza	0486	Cotton Stalk and Shredder with Re-Bedder
Sandor Drobilisch	0496	Spiral Track Oven
John F Clauser	0500	Neutral Atom Interferometry Gravity Sensor
L Kenyon Liljegren	0505	Vertical Axis Wind Turbine
Cosby M Newsom	0515	Vacuum Bagging Apparatus
Henry H Mohaupt	0517	Dynamic Gas Pulse Loading System
George F Adams	0527	Truck Train System - Rail Dollies Type A-1, X & Y

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
CALIFORNIA (cont.)		
Russell F Lusk	0531	Removable Wind Deflector for Freight Container, and Assembly
Miguel V Franco	0532	Gobelin Loom
Harry Stanford	0546	Hyperdynamic Hull
Richard W. Griffiths	0547	Structural Monitoring System Using Fiber Optics
M. Dean Gardner	0548	System 150
Michael Gondouin	0553	Process for Conserving Steam Quality in Deep Steam Injection Wells
Edward C. Gnesa	0560	Paving Fabric Applicator
COLORADO		
David E Hicks	0237	Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles
Charles E Robinson	0244	CHARLIE - Trademark - Federally Registered 1123957
Nathan E Passman	0274	Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency
Philip H Gifford II	0321	Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen
Henry Sperber	0380	Blow-In Blanket System
George O.G. Lof	0545	System for Reducing Heat Losses from Indoor Swimming Pools by use of Automatic Covers.
CONNECTICUT		
Herbert G Lehmann	0022	Fuel Burner Attachment
Richard P Gingras	0036	Computerstat
Leon Lazare	0044	New Working Fluids for Increasing the Cycle Efficiencies of Thermal
Henry E Allen	0089	Continuous Casting Process and Apparatus
Paul Zanoni	0112	Pump
Henry Keep, Junior	0147	Railroad Switch Heater
Leon Lazare	0160	High Efficiency Absorption Refrigeration Cycle
Hermann Ernst	0285	Novel Fluid Ring (F/R) Seal Systems for Railroad Axle Bearing Systems
John W Ackley, III	0306	An Efficiency Computer for Heated or Air Conditioned Buildings
Robert N Rose	0309	Process of Smelting with Submerged Burner
Leon Lazare	0362	Improved Solvents for the Puraq Seawater Desalination Process
Paul Michelotti	0368	Aircraft Minimum Drag Speed System
David N Shaw	0374	Expansion Compression System for Efficient Power Output Regulation of Internal Combustion Engines

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
CONNECTICUT (cont.)		
Leon Lazare	0377	A Novel Method of Producing Ice-Water Slurries
George E Gryka	0488	A System for Recovering Sulfur from Gases, Especially Natural Gas
DELAWARE		
Willing B Foulke	0061	Fuel Preparation Process
Clyde G Phillips	0115	Refrigeration System
Thomas M Meshbesher	0219	Method for Making Acetaldehyde from Ethanol
Victor R Thayer	0251	Process and Apparatus for Reducing the Energy Required to Separate Liquids by Distillation
FLORIDA		
Hal Ellis	0034	Delphic Thermogenic Paint (Heat Film)
Charles M Kirk	0058	A Multiple Spark System Using Inductive Storage
Eldon L Asher	0119	Air Ratio Controller (AERTROL)
Charlton Sadler	0124	Solar Collector
Anatol Michelson	0142	Process for Heatless Production of Hollow Items
James J Dolan	0156	Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.
Louis W Parker	0187	Variable Field Induction Motor
Thomas C Edwards	0225	ROVAC High Efficiency Low Pressure Air Conditioning System
Douglas R Reich	0279	Method and Means for Preventing Frost Damage to Crops
John L Wendel	0339	Recycoil II
Kenneth V Field	0353	Compu-Turbo-Aligner
Joseph Allegro	0379	Inner Roof Solar System
Ruben Espinosa	0396	Dyna Flow
James J Dolan	0458	Continuous Casting by Float Process of Thin Sheet Carbon Steel
John B Long	0479	Solar Cooker
Khanh Dinh	0501	High Efficiency Dehumidifier/Air Conditioner
Kathie Kidder Jones	0518	SHE-INAL - A Stand-Alone Female Urinal Fixture for Public Restrooms
Edwin Spurlock	0537	Maintenance, Inspection, Submersible, Transport

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
GEORGIA		
Edward H Shelander	0093	Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions
Den M Acres	0175	A Low-Energy Carpet Backing System
John W North	0178	Process and Apparatus for Producing Cellulated Vitreous Refractory Material
Jack Winnick	0239	Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures
B F Rabitsch	0327	Square Pattern Irrigation Sprinkler
Joe C Pendergrass	0371	Wallace Energy Systems Solar Assisted Heat Pump Water Heater
James E Altman	0378	An Improved Cutter for Plaster Board and the Like
Donald W Scott	0389	Reduced Size Heating Assembly for an Electric Stove
HAWAII		
H Roy Weber	0137	A Portable Pollution Free Automobile Incinerator
Don E Avery	0275	Low Head - High Volume Pump
Don E Avery	0301	Pump Control System for Windmills
IOWA		
William H Cone	0060	Electric Transport Refrigerator
Alex Rutshein, et al	0088	System-100
David P Welden	0487	Direct Fired Steam Generator
Saul Herscovici	0502	Mechanically Infinitely Variable Speed Transmission for Automotive Use to Save Fuel
Patrick E Boeshart	0506	Improved Poured Concrete Wall Forming System
IDAHO		
Edwin E Eckberg	0103	Low Voltage Ionic Fluorescent Light Bulb
Edward B Connors	0167	Vaned Pipe for Pipeline Transport of Solids
ILLINOIS		
Everett Millard	0042	Flue Baffle Assembly
John T Benton	0050	Scotsman Fuel Energizer
Roderick L Smith	0118	Energy Adaptive Control of Precision Grinding
F J Perhats	0133	AUTOTHERM Car Comfort System
Samuel Shiber	0141	New Hydrostatic Transmission
Cecil H Wolf	0185	Insulated Garage Door
Edward L Barrett	0195	Proportional Current Battery

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
ILLINOIS (cont.)		
Edward M Tourtelot	0229	Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines
Thorvald G Granryd	0248	Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like
Edward S Kress	0260	Method and Apparatus for Handling and Dry Quenching Coke
William Tunderman	0263	Method for Reconditioning Rivetless Chain Links
Jerry Aleksandrow	0290	Low Energy Ice Making Apparatus
Michael Feygin	0333	Laser Based Machine for Die and Prototype Manufacturing
Robert A Maciejczak	0335	Robotic Bridge Observation and Information System
Roderick L Smith	0447	Hot Control of Unit Volume Energy of Grinding
George Bozich	0519	Aerocylinder
INDIANA		
Ping-Wha Lin	0107	Waste Products Reclamation Process
Michael Knezevich	0132	Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material
Eugene Tippmann	0282	Insulated Siding
Jay Read	0308	Binary Azeotropic, Hot Gas, Fat Extraction Process
Frederick L Erickson	0387	Quiet Operating Internal Combustion Engine with Complete Highly Efficient Expansion Cycle
Michael R Ladisch	0494	Recovery of Dilute Aqueous Butenol by Adsorption on Lignin
George A Kim	0528	Method of Machining Hard and Brittle Material
KANSAS		
James R Harris	0407	An Extended Range Tankless Water Heater
Clarence L Buller	0511	Subterranean Permeability Modification by Use of a Microbial Polysaccharide Polymer
KENTUCKY		
James W McCord	0077	Variable Heat Refrigeration System
James Allen Bagby	0091	Mine Brattice
John L Carroll	0092	Tri-Water, A Combination Air Conditioning and Fire Protection System for a Building.
James W McCord	0097	Water Drying System
Gary L Drake	0342	Raw Fines Medium Coal Washing System
Harold W Taylor, Junior	0373	Tobacco Harvesting Machine

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
KENTUCKY (cont.)		
William G Buckman	0482	Improved Fluid Pumping Device and Liquid Sensor
Carl G Everman	0504	Split Hub Shale Oil Retort
Fred B Wachs, III	0525	The ACT Evaporative Subcooler
LOUISIANA		
Harry E Wood	0053	High Efficiency Water Heater
William P Boulet	0056	Flexaflo-The Wet Fuel Dryer
Edward W Midlam	0150	The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.
Harry E Wood	0238	Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness
John W Richardson	0265	Flozone method and Apparatus for Direct Application of Treatment Liquid to Growing Vegetation
John H Mayo	0386	Device and Method to Enable Detection and Measurement of Deformities in Well Components
Joe Sanford	0436	The Russell Self-Piloted Check Valve
MASSACHUSETTS		
Joseph C Yater	0004	Power Conversion of Energy Fluctuations
Robert S Norris	0021	Waste Oil Utilization System
William F Armitage, Jr.	0041	Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers
C Richard Panico	0081	Flash Polymerization
Charles G Kalt	0085	Dielectric Windowshade
John Mattson	0117	"Solarspan" Prism Trap
J Paul Pemsler	0123	Comminution of Ores by a Low-Energy Process
Albert S Richardson, Jr.	0136	Windamper
Ogden H Hammond	0149	SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)
Yao Tzu Li	0151	Film Type Storm Window
James M Cleary	0155	Slip Mining
Charles E Edwards	0179	Development and Commercialization of Low Cost, Non- Metallic, Solar Systems
E. Stephen Miliaras	0183	Increased Vapor Generator Feature for a Reheat Vapor Generator
Shao-E Tung	0200	Removal of Sulfur Dioxide from the Stack Gas of Combustors Burning High Sulfur Fuel
Yao Tzu Li	0202	Wobbling Type Distillation Apparatus

TABLE 4-3-(cont.)

State/Inventor	DOE NO.	TITLE
MASSACHUSETTS (cont.)		
Richard F Kiley	0216	Method and Assembly for Mounting a Semiconductor Element
J Paul Pemsler	0295	Improved Method of Electroplating Aluminum for Corrosion Resistance
Max Klein	0314	Rolling Filter Apparatus
Shao-E Tung	0319	Removal of Hydrogen Sulfide from a Gas Stream
Albert S Richardson, Junior	0375	MDT Twister
Emil B Rechsteiner	0376	Machine and Method for Producing Energy-Saving Transformers Incorporating Amorphous Metal Cores
Albert S Richardson, Junior	0429	A Low Cost Galloping Indicator
V Hruby	0499	Electrostatic Agglomerator
James Conachen	0539	Guide for Window Grouting Device
MARYLAND		
Willard Graves	0001	Demand Metering System for Electric Energy
Donald C Erickson	0003	Hydrogen Generation from Producer Gas by Oxidation- Reduction of Tin
Donald C Erickson	0025	Sulfur Removal from Producer Gas-High Temperature
Arnold R Post	0130	Furnace Input Capacity Trimming Switch
Robert C Saunders, Junior	0144	SpaCirc Space Circulation Fan
William D Gramling	0159	Non-Tubing Type Lift Device, Described as the NTT Rabbit
John D Gill	0164	Elastomer Energy Recovery Elements and Vehicle Component Applications
Richard E Dame	0180	Adjustable Solar Concentrator (ASC)
Milton Pravda	0191	Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.
Donald C Erickson	0230	Absorption Heat Pump Augmented Separation Process
Momtaz N Mansour	0286	Use of Pulse-Jet for Atomization of Coal/Water Mixture
Don J Marshall	0287	Automatic Variable Pitch Marine Propeller
Thomas F Francovitch	0292	Roof Construction Having Membrane and Photo Cells
E M Talbott	0297	Series (Two-Wire) V-Controller
Wanda Henke	0350	Method and Apparatus for Testing Soil
Lawrence A Schmid	0360	Temperature Controllable Heat Valve
Donald C Erickson	0364	Intermittent Solar Ammonia Absorption Cycle (ISAAC)
Donald C Erickson	0404	Steam-Methane Reforming in Molten Carbonate Salt
Donald H VanLiew	0462	Energy Efficient Asymmetric Pre-Swirl Vane and Twisted Propeller Propulsion System

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
MARYLAND (cont.)		
Joran Hopenfeld	0495	Method for Monitoring Thinning of Pipe Wall
Randy L Stinson	0530	Apparatus and Method for Irradiating Cells
Donald C. Erickson	0557	Branched GAX Absorption Heat Pump
MAINE		
Robert G Landry	0052	Air Wedge
Donald C Lewis	0192	Closed Cycle Dehumidification Clothes Dryer
Frank W Hochmuth	0437	Steam Generator With Integral Down-Draft Dryer
Douglas C Brackett	0516	Device for Converting Linear Motion to Rotary Motion and Vice Versa
Donald P Curry	0529	Thermodyne Evaporator - A Molded Pulp Products Dryer
MICHIGAN		
Int'l MGD Companies	0023	Microgas Dispersions
Joseph B Vogt	0033	Temperature Indicating Device
Melvin H Sachs	0073	INTECH
Sharad M Dave	0101	Controlled Combustion Engine
James B Whitmore	0121	Solar Space Heating for both Retrofit and New Construction
Edgar R Jordon	0131	Valve Deactuator for Internal Combustion Engines
Clyde F Kaunitz	0213	The Kaunitz Process for Welding Pipe
Kenneth R Kurple	0232	Method of Separating Lignin and Making Epoxide-Lignin
J Donald Snitgen	0337	An Air Operated Hydraulic Power Unit
John A McDougal	0343	Electronic Octane
August G Hebel, Junior	0412	Meta-Lax Stress Relief for Almost any Size Metal Structure
Joseph Marsala	0538	Electronic Control For Thermostatic Expansion Valves
MINNESOTA		
Robert H Wieken	0057	X-5 Smoke Eliminator
John C Rupert	0134	Expanded Polystyrene Bead Insulation System
W E Mattson	0140	Counter Flow Dual Tube Heat Exchanger
John D. Finnegan	0176	Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces
Deems M Pfaff	0344	Machine for Separating Concrete from Steel
John A Broadbent	0355	Energy-Efficient Ice Cube Making Machine

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
MINNESOTA (cont.)		
Stanley Wayne Widmer	0413	Non Metallic Railroad Switch Covers
Richard G Gilbertson	0445	Condenser Tube Insertion Device
Mark Sorvig	0456	A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output
MISSOURI		
Frank C Bernhard	0102	Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners
James L Ramer	0106	Deep Shaft Hydro-Electric Power
James E Kessler	0129	Super U System - Snap Strap
Mervin W Martin	0169	MIRAFOUNT
E O Nathaniel	0174	Skate on Plastic Ice Skating System
Charles B James	0205	Energy Efficient Solid State Multiple Operator Metallic Arc Welding System
Juan M Garcia, Junior	0246	Maximum Cruise Performance
George B Clark	0316	Thrust Impact Rock Splitter
H. E. Garrett	0324	Method and Composition for Enhancement of Mycorrhizal Development by Foliar Fertilization
Paul N Worsey	0326	A Mechanical Stemming Device for Use in Explosive Loaded Blast Holes
Marshall Findley	0340	Separation of Adsorbed Components by Variable Temperature Desorption
Marian Mazurkiewicz	0341	High Pressure Liquid Jets as a Tool for Disintegrating Organic and Non-Organic Materials
David A Summers	0352	A Waterjet Mining Machine
Marian Mazurkiewicz	0367	Disintegration of Wood
David A Summers	0392	Method and Apparatus for Drilling Horizontal Holes in Geological Structures from a Vertical Bore
Marion Mazurkiewicz	0419	A Planing Mining Machine to Produce Ultra-Fine Coal
M Thomas Jones	0438	Microwave Reflection by Synthetic Metals
Thomas J O'Keefe	0452	Magnetic Thin Films Formed in a Glow Discharge
Henry Liu	0466	Coal Log Fuel Pipeline Transportation System
Marian Mazurkiewicz	0467	High Pressure Lubricoolant Jet for Supporting Metal Machining
Mark A. Prelas	0549	Efficient, Continuous-Wave or Pulsed Visible Lamps for Solid-State Laser Drivers
MISSISSIPPI		
John O'R Breeden	0524	Mobile, Offshore, Self-Elevating (Jack-up) Support System
Charles W. Bouchillon	0554	Apparatus and Process for Second Stage Drying

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
MONTANA		
Robert M Hunter	0310	Portable Wastewater Flow Metering Device
Kenneth E Lunde	0427	Non-Catalytic Steam Hydrolysis of Fats
Donald L Brelsford	0457	Continuous Saccharification of Ligno-Celluistic Biomass in Two Stages
NORTH CAROLINA		
Dante A Raponi	0015	Estacron
Joe W Fowler	0045	Bulk Cure Tobacco Barn with Improvements
Richard Jablin	0075	Coke Quenching Steam Generator
John W Yount	0209	Reclaiming Process for Resin Treated Fiberglass
Richard Jablin	0215	Slag Waste Heat Boiler
Hugh Edwin Whitted III	0250	A System to Adapt Diesel Engines to the Use of Crude Oils
Peter Carr	0449	Fuel Savings in the Heavy Trucking Industry Through Cool Storage
NORTH DAKOTA		
David S Majkrzak	0152	Vehicle Exhaust Gas Warm-up System
James R Mikkelsen	0474	Sweep-Spike Combination Tillage Tool
Neil D Markuson	0510	Oilwell Power Controller
Clinton Van Winkle	0090	Grain Dryer
John A Eastin	0196	Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm
Jack D Haile	0224	Haile Alternate Fuel Grain Dryer
Richard H Baasch	0257	Method and Apparatus for Melting Snow
Delbert E Sayles, Senior	0514	Silver Sensor / Energy Wire
James D Welch	0534	Novel Procedure for Fabrication of Mosfets
NEW HAMPSHIRE		
Thomas P Hopper	0020	Thermal Shade
Kenneth E Mayo	0029	Tuned Sphere Stable Ocean Platforms
Robert A Caughey	0032	Wood Gas Reactor
James A Browning	0067	Windmill Using Hydraulic System for Energy Transfer and Speed Control

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
NEW JERSEY		
David J Secunda	0046	Thexon Dehydration
Enoch J Durbin	0069	Ionic Fuel Control System for the Internal Combustion Engine
Robert Zartarian	0120	Vapor Heat Transfer Commercial Griddle
Ervin Leshner	0122	Lean Limit Controller
Frank W Bailey	0125	The Turbulator Burner System
Karakian Bedrosian	0171	A Method of Preserving Fruits and Vegetables without Refrigeration
William C Whitman	0252	Thermal Bank
Anthony Peters	0253	High Performance Heat Pump
Arthur F Stone	0255	Method and Apparatus for Scrubbing Gas - Scrubbing Apparatus
Shang-I Cheng	0267	Integrated Gasification of Coal, Municipal Solid Wastes and Sludge
Shang-I Cheng	0320	Coal Gasification with Carbon Dioxide and Lime Recycling
William Vandersteel	0357	TubeExpress Pneumatic Capsule Pipeline Transport System
Vladimir Horak	0361	Measurement of Liquid Volumes with Compensation for Temperature Induced Variations
Harold A Hartung	0385	Process for Treating Humus Materials
Renato R Noe	0398	Hydraulic Test Unit - Test Plugs - Mechanical Seal Plugs
Harald F Funk	0405	Prehydrolysis and Digestion of Plant Material
Ben B Herschel	0434	Modular Apparatus for Laundry Dryer Heat Recovery
Calvin D MacCracken	0481	Refrigerant Mixture of R-11 and R-216 to Provide Ice Making Abilities in Centrifugal Compressors
Neville A Baron	0521	Ultraviolet Sterilization of Contact Lens
Ellis M Reyner	0526	Pressure Generating Apparatus and Method
NEW MEXICO		
Robert L Ullrich	0082	Cool Air Induction
Raymond P Holland Jr	0204	The Induction Propeller
Guy R B Elliott	0231	Natural Gas from Deep-Brine Solutions
Patrick S Swihart, Senior	0249	Subsurface Flow Control (Gas Wells) and High Gas-Oil-Ratio Oil Wells
William C Lyons	0338	Downhole Pneumatic Turbine Motor for Geothermal Energy
David Ganoung	0411	The Wide-Open Throttle Approach to Greater Automotive Fuel Efficiency
J Rex Greer	0475	Auxiliary Air Conditioning, Heating and Engine Warming System for Trucks

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
NEW YORK		
Rita Paleschuck	0002	Fuel Miser
Albert B Csonka	0006	Micro-Carburetor
Alvin M Marks	0009	Heat/Electric Power Conversion via Charged Aerosols
Frank R Summa	0012	High Frequency Energy Saving Device
Walter J Hasselman, Jr	0019	Phenol Methylene Foam Rigid Board Insulation
Seymour Jarmul	0026	Compact Energy Reservoir
Roland P Soule	0040	Improved Equipment and Process for Production of Blue Water Gas
Richard B Bentley	0051	Thermal Efficiency Construction
Thomas LoGiudice	0063	Fluorobulb
Philip Zacuto	0066	Heat Extractor
Michael F Zinn	0100	Solaroll
Paul J Cromwell	0108	Processing Recovery of Aluminum
Karl D Scheffer	0126	Vaclaim
Rudolf O Iverson	0221	Strainercycle
Ronald E Brandon	0236	Steam Turbine Packing Ring
Daniel Douenias	0254	"Turbo-Glo" Immersion Furnace
Evert S Green	0256	Method and Apparatus for Irrigating Container Grown Plants
Donald F Othmer	0264	Desulfurization of Coal
Julius Czaja	0273	Open Cycle Latent Heat Engine
Anthony N Fresco	0284	Atomized Oil-Injected Rotary Screw Compressors
Ralph A Messing	0315	Method of Processing Biodegradable Organic Material
Leonard R Lefkowitz	0363	Impactor Separator
Walter A Stark	0370	Dehumidification System for Indoor Pools and Other High Humidity Areas
William P Strumbos	0381	Multiple Heat-Range Spark Plug
Carmile F Vasile	0382	System for Recovery of Waste Hot Water Heat Energy
Frank Wicks	0390	Wicks Efficient Fuel Utilization System
Arthur Radichio	0416	Self-Contained Pipe Freezing Unit
Brett Stern	0424	An Automated Process for Garment Manufacturers
James A Moore	0461	Thermally Stable Polyenaminonitriles Which Cure Without Evolution of Volatiles
Samuel Goldfarb	0465	Multiconductive Base Form Microchip Carrier/Connector
Milan Rybak	0469	Recuperator of Flue Gas Heat
Debbie Gioello	0477	"Ultra Design Method" - Method for Designing Apparel by Computer
Randall M German	0492	Reactive Sintered Nickel Aluminide
Frederick S Rohatyn	0523	Power Factor Correction System by Means of Continuous Modulation

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
NEW YORK (cont.)		
Francis A. Kennedy	0551	Thermalock Block
Vladimir Hlavacek	0556	Enhanced Chemical Vapor Deposition
OHIO		
Gilbert W Didion	0028	Ultraflo
John McCallum	0038	Reduction Volatilizations
Werner E Howald	0048	Howald Combustor
Patsie C Campana	0080	Improved Unfired Refractory Brick
James L Chill	0098	Process Development to Conserve Energy and Material- --(in the manufacture of)---Bearings
Roy J Weikert	0116	Model 5000 ASEPAK System
Leonard A Duval	0148	Reclamation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes
W N Lawless	0190	Oxygen-Conducting Material and Oxygen-Sensing Method
Louis A Hausknecht	0201	Hydraulic, Variable, Engine Valve Actuation System
Charles A Schwartz	0220	Deep Throat Resistance Welder
Tom Atterbury	0283	Aluminum Roofing Chips
Bernard L Sater	0317	Edge-Illuminated Multi-Junction (VMJ) Solar Cell
Harry Werner Tulleners	0345	Tulleners Wave Piercer
Thomas Gaspar	0384	Textured Substrate and Method for the Direct, Continuous Casting of Metal Sheet Exhibiting Improved Uniformity
Gerhard E Schwarz	0400	Continuous Casting and Inside Rolling of Hollow Rounds
W N Lawless	0401	A Miniature, Inexpensive Oxygen-Sensing Element
Peter Kneaskern	0410	The World's First Gas Fired, Forced Air, High Efficiency, Furnace That Requires No Electricity
Demeter G Fertis	0493	Airfoil Design with Improved Aerodynamic Characteristics
Stephen K Melink	0540	Restaurant Exhaust Ventilation Modulator
Satyendra Kumar	0541	Polymer Dispersed Ferroelectric Smectic-C Display Technology
OKLAHOMA		
Ruel Carlton Terry	0087	Recovering Uranium From Coal in Situ
Karl H. Bergey	0110	Improved Windpower Generating System
Gerald Eastman	0189	Pump Jack
Ruel Carlton Terry	0223	Minimizing Subsidence Effects during Production of Coal In Situ

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
OKLAHOMA (cont.)		
Stewart Ryan	0226	An Electronic Anemometer System for Locating Air-Infiltration Heat Leaks in Buildings
Thomas Neil Parker, Junior	0245	Improved Oil Well Pumping Unit
Andrew W Marr, Junior	0280	Down Hole and Above Ground Resistance Heating for Paraffin Elimination
Randell D Ball	0293	"Therm-A-Valve" - Insulated Valve Coverings
James McArthur	0300	Casing Stabbing Apparatus
Maurice W Lee, Junior	0322	Electrical Resistance Cooking Apparatus with Automatic Circuit Control
John C Purcupile	0358	Device for Well Site Monitoring and Control of Rod- Pumped Wells
Waylon A Livingston	0393	Method and Apparatus for Ultrasonic Testing of Tubular Goods
John H Holland	0395	Holland Oil Well Pumping System
Serge Wisotsky	0432	Water Hammer Pile Driver
Duncan M Butlin	0468	Constant-Torque System for Beam Pumps
Kenneth L Pickard	0476	Pickard Line-up Boom
Roy N Laney	0490	Laney Belt Terracer
OREGON		
Vincent E Carman	0008	Inertial Storage Transmission
H. W. Kennick	0109	Hydrostatic Meat Tenderizer
Donald E Wise	0214	Convertible Flat/Drop Trailer
David M Wilder	0323	Rolling Mill for Reduction of Moisture Content in Waste Material
Robert E Hyde	0472	Method and Apparatus for Maximizing Refrigeration Capacity
Donald Harney	0562	Future Flush
PENNSYLVANIA		
G R Fitterer	0018	The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy
Leopold Pessel	0030	Method of Removing Sulfur Dioxide from Flue Gases
Paul H Schweitzer	0054	Optimizer
Lee A Henningsen	0065	WattVendor
G R Fitterer	0074	A Solid Electrolyte Galvanic Solar Energy Conversion Cell
Val O Bertoia	0095	Omni-Horizontal Axis-Wind Turbine
Eskil L Karlson	0104	Low Continuous Energy Mass Separation System
Henry J Wallace	0113	Wallace Mold Additive System

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
PENNSYLVANIA (cont.)		
Robert E Salomon	0145	Solar Conversion by Concentration Cells with Hydrides
Albert L McQuillen, Jr	0157	Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools
Dennis D Howard	0163	Thermotropic Plastic Films
Bill Burley	0173	Thermal Ice Cap
Eskil L Karlson	0181	The Karlson Ozone Sterilizer
Robert H Nealy	0198	The Thermatreat System
Jay E Ort	0235	Single Stage Anaerobic Digestion Process
Nathan Cohn	0247	Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems
Paul E Bracegirdle	0261	A New Apparatus for Making Asphalt Concrete
William B Retallick	0271	Hydrogen Storage System
Robert E Salomon	0276	Gas Concentration Cells as Converters of Heat into Electrical Energy
Deborah D Chung	0304	Exfoliated Graphite Fibers
Frank J Madison II	0313	Process Controller for Stripper Oil Well Pumping Units
Robert F Roussey, Junior	0328	Multi-Directional Pre and Post-Heating Device for Thermal Flamecutting
Norbert E Stainbrook	0330	Vacuum Heat Treating Furnace and Quench System with Drop Transfer
Eskil L Karlson	0346	Ultra-Pure Water System for Hospitals
Howard S Orr	0349	Three Roll Tension Stand
Erwin O Beck	0369	"Fire Jet" Automatic Anthracite Burner
Jay Hilary Kelley	0394	Variable Wall Mining Machine
Eskil L Karlson	0422	High Efficiency Ozone Generating System
Alexander Bosna	0441	Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Thereby.
William G Wilson	0443	A Method for the Use of Oxygen Ion Vacancies in Lanthanide Oxides to Increase their Utilization
Deborah D Chung	0520	Carbon Fiber Reinforced Tin-Superconductor Composites
Paul M Hankison	0522	Aqua-Shear
J Hilbert Anderson	0535	The Anderson Quin Cycle
Deborah D. Chung	0555	Carbon Fiber Composites with Improved Fatigue Resistance due to the Addition of Tin-Lead Alloy Particles

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
RHODE ISLAND		
Russell D Ide	0399	Hydrodynamic/Multi Deflection Pad Bearing
SOUTH CAROLINA		
James M Stewart	0278	Complete System for Large Solar Water Heating and Storage
Forrest M Palmer	0325	Low Cost, Low Energy Machine and Method for Continuous Casting Non-Ferrous Strip and Composites
F David Doty	0440	Microtube Strip Heat Exchanger
Larry A Yates	0451	In-Place Asphalt Pavement Restoration, via Recycling of the Existing Materials
Vincent D Morabit	0464	Chain Saw Tip Stabilizing Device for Use with an Anti-Kickback Device
SOUTH DAKOTA		
John W Bruce	0016	Method and Apparatus for Vacuum Drying of Commodities
Donell P. Froehlich	0544	Field Grid Sense
TENNESSEE		
Edward J Sommer, Junior	0243	An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste
Raymond Hunter	0296	Shower Bath Economizer
Herbert D Easterly	0311	Auxiliary Truck Heater
Louis A Joo	0318	Bi-Polar Electrode for Hall-Heroult Electrolysis
Clyde Smith	0489	Optimized Control System for Ultra-Efficient Surface Coating Operations
TEXAS		
Daniel J Schneider	0014	Aerodynamic Lift Translator
Sidney A Parker	0043	Thermal Gradient Utilization Cycle
Joe Agar	0072	Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants
Donald R Ross	0076	The Ross Furnace
Kenneth W Odil	0084	Kinetic Energy Type Pumping System
Sylvain J Pirson	0146	Line Integral Method of Magneto-Electric Exploration
Lemuel Leslie Ply	0162	Tubular Pneumatic Conveyor Pipeline

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
TEXAS (cont.)		
Wu-Chi Chen	0165	Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen
Robert F Evans	0166	Borehole Angle Control
Sylvain J Pirson	0186	Oil Recovery by In-Situ Exfoliation Drive
Robert F Evans	0211	Shock Mounted Stratapax Bit
Wilford Dean Tannehill	0218	Behemoth
Meredith C Gourdine	0228	EGD Fog Dispersal System
Richard J Gay	0241	Polysulfide Oil Field Corrosion Control System
Anthony T Rallis	0258	Corrosion Protection Process for Bore Hole Tool
Richard J Avery, Junior	0269	Refrigerant Accumulator and Charging Apparatus
Jerry Tartaglino	0291	Selective Zone Isolation for HVAC System
William R Trutna	0299	Process for Using Cocurrent Contacting Distillation Column
Christiaan P van Dijk	0348	Hydrogen Sulfide Removal for Natural Gas
Donald E Lewis	0397	In Service Tank Bottom Leak Detection and Repair System
Ronald S Tabery	0406	Aluminum Reduction Cell Spent Potlining Fluid Bed Incinerator
W B Driver	0421	Flexible Drill Pipe
Harold P Dugas	0430	Whitten Dugas Mud Pump Enhancer
Jack Wade McIntyre	0431	Method and Apparatus for Removing Excess Water from Subterranean Wells.
Richard C Raney	0442	Long Life "PC" Drill Bit
David Siverling	0450	Portable Ultrasonic Inspection System for Oil Country Tubulars
John S Lievois	0454	Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids
James S Jones	0463	Carburetor Fuel Feed System with Bidirectional Passages
George McLean	0478	The "Triple Design Cycle" Cogeneration Program
Robert E Bode	0485	Method and Apparatus for Placing Cement Plugs in Wells
Mark Holzapple	0491	QUBUS III Technology for Producing Ethanol
Charles H Koster	0497	Downhole Casing Repair System
Daniel E Boone	0498	Hydrocarbon Reserve Evaluation/Determining Permeability in Hydrocarbon Wells
Marvin Echols	0508	On-Line Mechanical Tube Cleaning for Steam Electric Power Plants on an Open Cooling Water System
William R Trutna	0509	Process-for Gas Liquid Contacting in Cocurrent Distillation
Jeffrey P Hausler	0512	Automatic Metering System (AMS)

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
TEXAS (cont.)		
Edward David Dysarz	0513	Multiwell Pump
John W Robinson	0536	Delta T Dryer Controller
M Glenn Osterhoudt, III	0542	Self-Agitating Soap Stick
J.J. Robillard	0550	Dry Process Instant Photo. Color Textile Printing
UTAH		
Douglas MacGregor	0086	Coke Desulfurization
Allen D Zumbrunnen	0105	High Frequency Furnace
J D Seader	0127	Process and Apparatus to Produce Crude Oil from Tar Sands
J D Seader	0128	Continuous Distillation Apparatus and Method
Ray Alexander	0347	Oxide Dispersion Strengthened Aluminum Alloys
Ram Natesh	0388	Preparation of Extremely Fine, Superalloy Powders and Their Fabrication into Dense, Sintered, Net Shape Superalloy Parts
Milton B Thacker	0414	Low Profile Fluid Catalytic Cracker
Wayne S Brown	0418	Use of Chemical Vapor Deposition to Coat Metal Surfaces with High-Temperature Superconducting Materials
Laird B Gogins	0420	The Utah Transmission/Continuously Variable Speed Wind Generator
Trent J Parker	0428	T-By Tray
Oleg Kotlyar	0471	Method and Tool for Logging-While-Drilling
John Bartley Czirr	0483	Downhole Neutron Flux Monitor
D Carlos Adams	0533	A High Efficiency Retort to Recover Shale Oil
VIRGINIA		
Ranendra K Bose	0013	Anti-Pollution System
David W Doyle	0017	Osmotic-Hydro Power Generation
James C Withers	0031	Ceramic Rotors and Vanes
Leroy M Bissett	0068	Under Compression and Over Compression Free Helical Screw Rotary Compressor
Charles James Bier	0083	Vertical Solar Louvers
Guy C Dempsey	0277	Electronic Conveyor Control Apparatus
William Martin Johnson	0351	Flash Gate Board
Felix Sebba	0354	Preparation of Biliquid Foam Compositions
Lawrence W Langley	0426	Eddy Current Transducing System

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
VIRGINIA (cont.)		
Lawrence K Edwards	0439	Project Twenty-One Rapid Transit System
Claude V Swanson	0444	Apparatus and Method for Using Microwave Radiation to Measure Water Content of a Fluid
William B. Stuart	0552	High-Speed Roll Processing Equipment for Woody Biomass
VIRGIN ISLANDS		
Albert Lindqvist	0329	Modularized Pneumatic Tractor with Debris Liquifier
VERMONT		
Robert John Starr	0177	The Solar I Option
Nicholas Archer Sanders	0193	Engine Heating Device
Donald R Thomas	0222	Louver Trombe Solar Storage Unit
Nicholas Archer Sanders	0303	Battery Heating Device
WASHINGTON		
Harrison Robert Woolworth	0010	Scrap Metal Preheating Method and Apparatus
Spencer Kim Haws	0168	The Hot Water Saver
Douglas E Wood	0234	Geodesic Solar Paraboloid
Kai-Chih Cheng	0262	Energy Saving Pump and Pumping System
Shih-Chih Chang	0270	Method of Energy Recovery for Wastewater Treatment
Joseph C Firey	0331	Cyclic Char Combustion for Engines, Boilers and Gasifiers
Warren A Aikins	0356	Portable Automatic Firewood Processor
Linus C Fuchek	0372	FS 630 Heat Pump Thermostat Control
James L Doyle, Jr.	0383	Electro-Optic Inspection of Heat Exchangers
Lawrence A Dobson	0425	High Temperature Condensing Biomass Combustion System
J C Withers	0433	Improved Methods to Manufacture and Use Carbon-Alumina Composite Anodes for Aluminum Reduction
Warren A Aikins	0460	Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor
Andrew O'Neal	0473	Energy Saving Head Pressure Control System for Air Cooled Condensers
W. Coski	0561	Ramix Systems Inc.
WISCONSIN		
Robert M Arthur	0047	Wastewater Aeration Power Control Device

TABLE 4-3 (cont.)

State/Inventor	DOE NO.	TITLE
WASHINGTON (cont.)		
Kenneth A Stofen	0070	Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner
Robert M Roeglin	0272	V-Plus System
Kenneth H Raihala	0365	Safety Stovepipe Damper Assembly
R L Risberg	0366	High Energy Semiconductor Switch
William W Thompson	0408	Floodshield System
Ingo Valentin	0448	New Automatic Transmission for Road Vehicles
Efrem V. Fudim	0543	Method and Apparatus for Production of Three-Dimensional Objects by Photosolidification
WEST VIRGINIA		
Frank L Anderson	0207	Glass Sheet Manufacturing Method and Apparatus
R A Miner	0484	MUD DEVIL - Deaerator Mixer
FOREIGN COUNTRIES		
INDIA		
Gulab Chand Jain	0035	Utilization of Solar Energy by Solar Pond System
FRANCE		
Bernard Zimmern	0059	The Volumetric Gas Turbine
ITALY		
Renato Monzini	0114	New Energy-Saving Tire for Motor Vehicles
SCOTLAND		
John Hunter	0199	Rotary Coal Combustor and Heat Exchangers
ISRAEL		
Dan Egosi	0266	Energy Conversion Method
SPAIN		
Serafin L Mendoza	0435	A New Thermodynamic Process of Actual Approach to the Carnot Cycle
PEOPLES REPUBLIC OF CHINA		
Zhong Xu	0503	Method and Apparatus for Introducing Normally Solid Materials into Substrate Surfaces

Table 4-3 (cont.)

State/Inventor	DOE No.	Title
CANADA		
John Hollick	0563	Method and Apparatus for Preheating Ventilation Air For a Building
UNKNOWN		
Drew W Morris	0024	Can and Bottle Crushing Apparatus

Table 4-4

RECOMMENDED INVENTIONS BY INVENTION CLASSIFICATION

CLASSIF.	DOE NO.	TITLE
1.00000		FUELS AND LUBRICANTS ACQUISITION, PRODUCTION, DISTRIBUTION
	0032	Wood Gas Reactor
	0414	Low Profile Fluid Catalytic Cracker
	0466	Coal Log Fuel Pipeline Transportation System
1.01000		GEOPHYSICAL PROSPECTING
	0210	Ultra High Speed Drilling Device for Use in Hard Rock Formations
	0483	Downhole Neutron Flux Monitor
	0498	Hydrocarbon Reserve Evaluation/Determining Permeability in Hydrocarbon Wells
1.11000		COAL
	0086	Coke Desulfurization
	0091	Mine Brattice
	0111	Haspert Mining System
	0155	Slip Mining
	0188	Remote Controlled Underground Mining System for Horizontal or Pitching Seams
1.11200		COAL GASIFICATION
	0320	Coal Gasification with Carbon Dioxide and Lime Recycling
1.11300		GREATER RESOURCE RECOVERY METHODS (COAL)
	0223	Minimizing Subsidence Effects during Production of Coal In Situ
1.12000		OIL
	0029	Tuned Sphere Stable Ocean Platforms
	0055	Electrically Heated Sucker-Rod
	0079	Oil Well Bit Insert (Tooth), Cutting Article, Ablative
	0127	Process and Apparatus to Produce Crude Oil from Tar Sands
	0128	Continuous Distillation Apparatus and Method
	0143	Oil Well Pump Jack
	0146	Line Integral Method of Magneto-Electric Exploration
	0154	Rotating Horsehead for Pumping Units
	0159	Non-Tubing Type Lift Device, Described as the NTT Rabbit
	0166	Borehole Angle Control
	0186	Oil Recovery by In-Situ Exfoliation Drive
	0211	Shock Mounted Stratapax Bit
	0217	Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells
	0241	Polysulfide Oil Field Corrosion Control System
	0249	Subsurface Flow Control (Gas Wells) and High Gas- Oil-Ratio Oil Wells
	0280	Down Hole and Above Ground Resistance Heating for Paraffin Elimination
	0293	"Therm-A-Valve" - Insulated Valve Coverings

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
1.12000		OIL (cont.)
	0300	Casing Stabbing Apparatus
	0312	The "Jones AWT", a Micro-Computer-Based Automatic Well Tester for Use of Producing Oil Wells
	0313	Process Controller for Stripper Oil Well Pumping Units
	0338	Downhole Pneumatic Turbine Motor for Geothermal Energy
	0358	Device for Well Site Monitoring and Control of Rod- Pumped Wells
	0386	Device and Method to Enable Detection and Measurement of Deformities in Well Components
	0392	Method and Apparatus for Drilling Horizontal Holes in Geological Structures from a Vertical Bore
	0403	Enterprise Lubricator
	0415	Oil Recovery by Modified Steam Drive Employing High Velocity Non-Condensible Gas
	0417	Rotary Drill Bit
	0430	Whitten Dugas Mud Pump Enhancer
	0442	Long Life "PC" Drill Bit
	0446	Heavy Oil Recovery Process
	0450	Portable Ultrasonic Inspection System for Oil Country Tubulars
	0485	Method and Apparatus for Placing Cement Plugs in Wells
	0513	Multiwell Pump
1.12100		GREATER RESOURCE RECOVERY METHODS (OIL)
	0511	Subterranean Permeability Modification by Use of a Microbial Polysaccharide Polymer
	0553	Process for Conserving Steam Quality in Deep Steam Injection Wells
1.12200		GREATER RESOURCE RECOVERY EQUIPMENT (OIL)
	0352	A Waterjet Mining Machine
	0468	Constant-Torque System for Beam Pumps
	0471	Method and Tool for Logging-While-Drilling
	0482	Improved Fluid Pumping Device and Liquid Sensor
	0497	Downhole Casing Repair System
	0504	Split Hub Shale Oil Retort
	0510	Oilwell Power Controller
	0517	Dynamic Gas Pulse Loading System
	0524	Mobile, Offshore, Self-Elevating (Jack-up) Support System
	0542	Self-Agitating Soap Stick
1.12400		OIL AND GAS PIPELINES
	0421	Flexible Drill Pipe
	0431	Method and Apparatus for Removing Excess Water from Subterranean Wells.

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
1.13000		OIL SHALE
	0321	Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen
	0533	A High Efficiency Retort to Recover Shale Oil
1.13100		TAR SANDS
	0268	Apparatus for Enhancing Chemical Reactions
1.14000		NATURAL GAS
	0088	System-100
	0208	CNG Automotive Fuel Cylinders/Gas Transport Modules
	0231	Natural Gas from Deep-Brine Solutions
1.20000		ALTERNATE FUELS
	0023	Microgas Dispersions
	0039	Lawler Steam Generator and Lawler System of Thermal Oil Recovery
	0040	Improved Equipment and Process for Production of Blue Water Gas
	0161	duPont Connell Energy Coal Gasification Process
	0224	Haile Alternate Fuel Grain Dryer
1.23000		HYDROGEN
	0003	Hydrogen Generation from Producer Gas by Oxidation- Reduction of Tin
	0165	Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen
1.24000		ALCOHOLS
	0491	QUBUS III Technology for Producing Ethanol
1.26000		FUEL CELLS
	0276	Gas Concentration Cells as Converters of Heat into Electrical Energy
1.28000		BIOENGINEERING AND MEDICAL
	0235	Single Stage Anaerobic Digestion Process
	0315	Method of Processing Biodegradable Organic Material
	0385	Process for Treating Humus Materials
	0405	Prehydrolysis and Digestion of Plant Material
	0425	High Temperature Condensing Biomass Combustion System
	0530	Apparatus and Method for Irradiating Cells
2.00000		ENERGY CONVERSION FROM NATURAL SOURCES(NOT INCLUDED IN SUBS. 2 SERIES)
	0017	Osmotic-Hydro Power Generation
	0043	Thermal Gradient Utilization Cycle
	0078	System for High Efficiency Power Generation from Low Temperature Sources

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
2.10000		SOLAR COLLECTORS
	0004	Power Conversion of Energy Fluctuations
	0011	Solar Collector
	0035	Utilization of Solar Energy by Solar Pond System
	0041	Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers
	0074	A Solid Electrolyte Galvanic Solar Energy Conversion Cell
	0100	Solaroll
	0117	"Solarspan" Prism Trap
	0121	Solar Space Heating for both Retrofit and New Construction
	0124	Solar Collector
	0135	Point Focus Parabolic Solar Collector
	0145	Solar Conversion by Concentration Cells with Hydrides
	0177	The Solar I Option
	0179	Development and Commercialization of Low Cost, Non- Metallic, Solar Systems
	0180	Adjustable Solar Concentrator (ASC)
	0222	Louver Trombe Solar Storage Unit
	0234	Geodesic Solar Paraboloid
	0278	Complete System for Large Solar Water Heating and Storage
	0317	Edge-Illuminated Multi-Junction (VMJ) Solar Cell
	0334	So-Luminaire Natural Daylighting Unit
	0336	A Carbonaceous Selective Absorber for Solar Thermal Energy Collection and Process for Its Formation
	0379	Inner Roof Solar System
	0479	Solar Cooker
2.13000		PHOTOVOLTAIC DEVICES
	0292	Roof Construction Having Membrane and Photo Cells
2.20000		GEOTHERMAL
	0182	Improved Seal for Geothermal Drill Bit
2.40000		WIND
	0014	Aerodynamic Lift Translator
	0067	Windmill Using Hydraulic System for Energy Transfer and Speed Control
	0095	Omni-Horizontal Axis-Wind Turbine
	0110	Improved Windpower Generating System
	0505	Vertical Axis Wind Turbine
2.50000		WATER POWER PROCESSES (INLAND)
	0197	Frequency Regulator and Protective Devices for Synchronous Generators
	0351	Flash Gate Board

TABLE 4-4-(cont.)

CLASSIF.	DOE NO.	TITLE
3.00000		ENERGY CONVERSION FROM SECONDARY SOURCES
	0009	Heat/Electric Power Conversion via Charged Aerosols
	0037	Hotwater Engine
	0062	Tapered Plate Annular Matrix
	0077	Variable Heat Refrigeration System
	0273	Open Cycle Latent Heat Engine
	0445	Condenser Tube Insertion Device
3.10000		COMBUSTION ENGINES AND COMPONENTS THEREOF
	0048	Howald Combustor
3.10100		STIRLING ENGINES, MECHANICAL
	0456	A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output
3.11000		RECIPROCAL ENGINES, MECHANICAL
	0005	Diesel Engine Conversion System for Gasoline Engines
	0054	Optimizer
	0101	Controlled Combustion Engine
	0122	Lean Limit Controller
	0131	Valve Deactuator for Internal Combustion Engines
	0229	Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines
	0343	Electronic Octane
	0374	Expansion Compression System for Efficient Power Output Regulation of Internal Combustion Engines
	0516	Device for Converting Linear Motion to Rotary Motion and Vice Versa
3.12000		ROTARY ENGINES, MECHANICAL
	0387	Quiet Operating Internal Combustion Engine with Complete Highly Efficient Expansion Cycle
3.13000		TURBINE ENGINES, MECHANICAL
	0031	Ceramic Rotors and Vanes
	0059	The Volumetric Gas Turbine
	0478	The "Triple Design Cycle" Cogeneration Program
3.14000		FUEL SYSTEMS, MECHANICAL
	0006	Micro-Carburetor
	0069	Ionic Fuel Control System for the Internal Combustion Engine
	0250	A System to Adapt Diesel Engines to the Use of Crude Oils
	0411	The Wide-Open Throttle Approach to Greater Automotive Fuel Efficiency

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
3.14100		CARBURETORS AND MODIFICATIONS THEREOF
	0050	Scotsman Fuel Energizer -
	0184	Coasting Fuel Shutoff
	0463	Carburetor Fuel Feed System with Bidirectional Passages
3.15000		IGNITION SYSTEMS
	0381	Multiple Heat-Range Spark Plug
3.20000		STEAM ENGINES AND TURBINES, MECHANICAL
	0096	Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems
	0236	Steam Turbine Packing Ring
3.30000		AIR COMPRESSORS AND MOTORS
	0070	Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner
3.40000		HYDRAULIC PUMPS AND MOTORS
	0112	Pump
	0189	Pump Jack
	0245	Improved Oil Well Pumping Unit
	0262	Energy Saving Pump and Pumping System
	0275	Low Head - High Volume Pump
	0301	Pump Control System for Windmills
3.50000		ELECTRIC MOTORS AND GENERATORS
	0060	Electric Transport Refrigerator
	0106	Deep Shaft Hydro-Electric Power
	0187	Variable Field Induction Motor
	0206	Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion
	0216	Method and Assembly for Mounting a Semiconductor Element
	0366	High Energy Semiconductor Switch
3.60000		CHEMICAL THERMODYNAMICS
	0219	Method for Making Acetaldehyde from Ethanol
	0454	Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids
3.70000		MECHANICAL THERMODYNAMICS
	0440	Microtube Strip Heat Exchanger
	0535	The Anderson Quin Cycle
3.80000		HEAT PUMPS AND REFRIGERATION
	0044	New Working Fluids for Increasing the Cycle Efficiencies of Thermal

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
4.00000		ENERGY STORAGE AND DISTRIBUTION
	0227	CRM Pipe
	0271	Hydrogen Storage System
	0391	Compressed Gas Energy Storage
4.11000		ELECTRICAL STORAGE (BATTERIES)
	0195	Proportional Current Battery
4.12000		ELECTRICAL DISTRIBUTION (TRANSFORMERS, SWITCHGEARS, CONTROLS)
	0136	Windamper
	0139	Transformer With Heat Dissipator
	0158	Energy Conservative Electric Cable System
	0247	Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems
	0376	Machine and Method for Producing Energy-Saving Transformers Incorporating Amorphous Metal Cores
	0523	Power Factor Correction System by Means of Continuous Modulation
4.30000		THERMAL ENERGY STORAGE
	0026	Compact Energy Reservoir
	0252	Thermal Bank
5.00000		TRANSPORTATION
	0357	TubeExpress Pneumatic Capsule Pipeline Transport System
	0475	Auxiliary Air Conditioning, Heating and Engine Warming System for Trucks
5.10000		AIR TRANSPORTATION
	0194	Radiant Energy Power Source for Jet Aircraft
	0228	EGD Fog Dispersal System
	0246	Maximum Cruise Performance
	0307	Vortex Generators for Aft Regions of Aircraft Fuselages
	0368	Aircraft Minimum Drag Speed System
	0493	Airfoil Design with Improved Aerodynamic Characteristics
5.20000		WATER TRANSPORTATION
	0204	The Induction Propeller
	0287	Automatic Variable Pitch Marine Propeller
	0345	Tulleners Wave Piercer
	0462	Energy Efficient Asymmetric Pre-Swirl Vane and Twisted Propeller Propulsion System
	0546	Hyperdynamic Hull

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
5.30000		RAIL TRANSPORTATION
	0147	Railroad Switch Heater
	0285	Novel Fluid Ring (F/R) Seal Systems for Railroad Axle Bearing Systems
	0413	Non Metallic Railroad Switch Covers
	0439	Project Twenty-One Rapid Transit System
	0527	Truck Train System - Rail Dollies Type A-1, X & Y
5.40000		HIGHWAY VEHICLES AND SYSTEMS
	0099	Light Weight Composite Trailer Tubes
	0214	Convertible Flat/Drop Trailer
5.42000		VEHICULAR POWER SYSTEMS
	0058	A Multiple Spark System Using Inductive Storage
5.42100		COMBUSTION ENGINE VEHICLES
	0013	Anti-Pollution System
5.43000		VEHICULAR COMPONENTS
	0133	AUTOTHERM Car Comfort System
	0152	Vehicle Exhaust Gas Warm-up System
	0193	Engine Heating Device
	0201	Hydraulic, Variable, Engine Valve Actuation System
	0237	Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles
	0303	Battery Heating Device
	0311	Auxiliary Truck Heater
	0455	Thermoelectric Generator for Diesel Engines
5.43100		VEHICLE TRANSMISSIONS
	0008	Inertial Storage Transmission
	0141	New Hydrostatic Transmission
	0420	The Utah Transmission/Continuously Variable Speed Wind Generator
	0448	New Automatic Transmission for Road Vehicles
	0470	Flat Belt Continuously Variable High Speed Drive
	0502	Mechanically Infinitely Variable Speed Transmission for Automotive Use to Save Fuel
5.43200		VEHICLE BRAKING SYSTEMS (INCLUDES REGEN. BRAKING SYSTEMS, ETC.)
	0164	Elastomer Energy Recovery Elements and Vehicle Component Applications
	0244	CHARLIE - Trademark - Federally Registered #1123957
5.43300		VEHICLE WHEELS AND TIRES
	0114	New Energy-Saving Tire for Motor Vehicles

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
5.43500		VEHICLE BODY AND CHASSIS DESIGN -
	0052	Air Wedge
	0531	Removable Wind Deflector for Freight Container, and Assembly
5.43800		VEHICLE AIR CONDITIONING
	0225	ROVAC High Efficiency Low Pressure Air Conditioning System
	0449	Fuel Savings in the Heavy Trucking Industry Through Cool Storage
6.00000		BUILDINGS, STRUCTURES AND COMPONENTS
	0539	Guide for Window Grouting Device
	0551	Thermalock Block
6.10000		DESIGN, CONSTRUCTION AND CONSTRUCTION PRACTICES
	0051	Thermal Efficiency Construction
	0073	INTECH
	0083	Vertical Solar Louvers
	0283	Aluminum Roofing Chips
	0289	An Earthquake Barrier
	0506	Improved Poured Concrete Wall Forming System
6.20000		HEATING, COOLING, VENTILATING
	0068	Under Compression and Over Compression Free Helical Screw Rotary Compressor
	0092	Tri-Water, A Combination Air Conditioning and Fire Protection System for a Building
	0163	Thermotropic Plastic Films
	0174	Skate on Plastic Ice Skating System
	0191	Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.
	0221	Strainercycle
	0390	Wicks Efficient Fuel Utilization System
	0540	Restaurant Exhaust Ventilation Modulator
6.20100		HEATING, COOLING AND VENTILATING INSTRUMENTS AND CONTROLS
	0002	Fuel Miser
	0033	Temperature Indicating Device
	0036	Computerstat
	0149	SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)
	0226	An Electronic Anemometer System for Locating Air- Infiltration Heat Leaks in Buildings
	0291	Selective Zone Isolation for HVAC System
	0360	Temperature Controllable Heat Valve
	0372	FS 630 Heat Pump Thermostat Control

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
6.23000		BOILERS AND FURNACES (INDUSTRIAL)
	0053	High Efficiency Water Heater
	0057	X-5 Smoke Eliminator
	0130	Furnace Input Capacity Trimming Switch
	0176	Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces
	0199	Rotary Coal Combustor and Heat Exchangers
	0215	Slag Waste Heat Boiler
	0266	Energy Conversion Method
	0359	Solid Fuel Hot Air Furnace
	0365	Safety Stovepipe Damper Assembly
	0369	"Fire Jet" Automatic Anthracite Burner
	0383	Electro-Optic Inspection of Heat Exchangers
	0410	The World's First Gas Fired, Forced Air, High Efficiency, Furnace That Requires No Electricity
	0437	Steam Generator With Integral Down-Draft Dryer
	0496	Spiral Track Oven
6.23100		BOILER AND FURNACE FLUE HEAT RECOVERY
	0027	Waste Heat Utilization for Commercial Cooking Equipment
	0042	Flue Baffle Assembly
	0125	The Turbulator Burner System
	0469	Recuperator of Flue Gas Heat
6.23200		BOILER AND FURNACE AIR AND OXYGEN INDUCTORS AND INJECTORS
	0022	Fuel Burner Attachment
6.23400		BOILER AND FURNACE OIL BURNERS
	0102	Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners
6.23600		BOILER AND FURNACE COMBUSTION CONTROLS AND EQUIPMENTS
	0288	Dickinson Pure Air Combustion (DIPAC) and Modified DIPAC (MODIPAC)
	0331	Cyclic Char Combustion for Engines, Boilers and Gasifiers
6.23700		BOILER AND FURNACE COAL-OIL-WATER MIXTURES
	0286	Use of Pulse-Jet for Atomization of Coal/Water Mixture
6.24000		ELECTRIC HEAT
	0034	Delphic Thermogenic Paint (Heat Film)
	0512	Automatic Metering System (AMS)

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
6.25000		HEAT PUMPS
	0230	Absorption Heat Pump Augmented Separation Process
	0253	High Performance Heat Pump
	0371	Wallace Energy Systems Solar Assisted Heat Pump Water Heater
	0538	Electronic Control For Thermostatic Expansion Valves
	0557	Branched GAX Absorption Heat Pump
6.26000		AIR CONDITIONING & REFRIGERATION
	0160	High Efficiency Absorption Refrigeration Cycle
	0269	Refrigerant Accumulator and Charging Apparatus
	0272	V-Plus System
	0281	Sun Synchronous Solar Powered Refrigerator
	0284	Atomized Oil-Injected Rotary Screw Compressors
	0290	Low Energy Ice Making Apparatus
	0298	Three Tenths Degree Kelvin Glosed Cycle Refrigeration System
	0355	Energy-Efficient Ice Cube Making Machine
	0370	Dehumidification System for Indoor Pools and Other High Humidity Areas
	0377	A Novel Method of Producing Ice-Water Slurries
	0396	Dyna Flow
	0472	Method and Apparatus for Maximizing Refrigeration Capacity
	0473	Energy Saving Head Pressure Control System for Air Cooled Condensers
	0481	Refrigerant Mixture of R-11 and R-216 to Provide Ice Making Abilities in Centrifugal Compressors
	0501	High Efficiency Dehumidifier/Air Conditioner
	0525	The ACT Evaporative Subcooler
	0559	Method and Apparatus for Simultaneous Heat and Mass Transfer
6.27000		VENTILATING SYSTEMS
	0144	SpaCirc Space Circulation Fan
	0563	Method and Apparatus for Preheating Ventilation Air For a Building
6.30000		HOT WATER SUPPLY
	0168	The Hot Water Saver
6.31000		HEATING SYSTEMS (HOT WATER)
	0339	Recycoil II
	0407	An Extended Range Tankless Water Heater
6.32000		HOT WATER CONSERVATION DEVICES AND PRACTICES
	0028	Ultraflo
	0049	Automatic Control System for Water Heaters
	0296	Shower Bath Economizer
	0382	System for Recovery of Waste Hot Water Heat Energy

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
6.40000		INSULATION AND INSULATING PRACTICES
	0015	Estacron
	0019	Phenol Methylene Foam Rigid Board Insulation
	0020	Thermal Shade
	0085	Dielectric Windowshade
	0129	Super U System - Snap Strap
	0134	Expanded Polystyrene Bead Insulation System
	0151	Film Type Storm Window
	0173	Thermal Ice Cap
	0185	Insulated Garage Door
	0209	Reclaiming Process for Resin Treated Fiberglass
	0282	Insulated Siding
	0380	Blow-In Blanket System
	0545	System for Reducing Heat Losses from Indoor Swimming Pools by use of Automatic Covers.
	0548	System 150
6.50000		ELECTRICAL WIRING AND FIXTURES
	0012	High Frequency Energy Saving Device
	0063	Fluorobulb
	0071	Knight Guard
	0103	Low Voltage Ionic Fluorescent Light Bulb
	0297	Series (Two-Wire) V-Controller
6.60000		PLUMBING AND FIXTURES
	0212	Water Warden
	0416	Self-Contained Pipe Freezing Unit
	0436	The Russell Self-Piloted Check Valve
	0518	SHE-INAL - A Stand-Alone Female Urinal Fixture for Public Restrooms
	0562	Future Flush
7.00000		INDUSTRIAL PROCESSES
	0010	Scrap Metal Preheating Method and Apparatus
	0016	Method and Apparatus for Vacuum Drying of Commodities
	0018	The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy
	0021	Waste Oil Utilization System
	0024	Can and Bottle Crushing Apparatus
	0025	Sulfur Removal from Producer Gas-High Temperature
	0030	Method of Removing Sulfur Dioxide from Flue Gases
	0038	Reduction Volatilizations
	0045	Bulk Cure Tobacco Barn with Improvements
	0046	Thexon Dehydration
	0047	Wastewater Aeration Power Control Device
	0056	Flexaflo-The Wet Fuel Dryer

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE

7.00000 INDUSTRIAL PROCESSES (cont.)

0061 Fuel Preparation Process
0064 The Mahalla Process--A Hydrometallurgical Method for Extracting Copper
0066 Heat Extractor
0072 Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants
0075 Coke Quenching Steam Generator
0076 The Ross Furnace
0080 Improved Unfired Refractory Brick
0081 Flash Polymerization
0084 Kinetic Energy Type Pumping System
0087 Recovering Uranium From Coal in Situ
0089 Continuous Casting Process and Apparatus
0093 Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions
0094 Lantz Converter
0097 Water Drying System
0098 Process Development to Conserve Energy and Material- --(in the manufacture of)---Bearings
0105 High Frequency Furnace
0107 Waste Products Reclamation Process
0108 Processing Recovery of Aluminum
0113 Wallace Mold Additive System
0116 Model 5000 ASEPAK System
0118 Energy Adaptive Control of Precision Grinding
0119 Air Ratio Controller (AERTROL)
0123 Comminution of Ores by a Low-Energy Process
0126 Vaclaim
0132 Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material
0137 A Portable Pollution Free Automobile Incinerator
0142 Process for Heatless Production of Hollow Items
0148 Reclamation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes
0150 The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.
0156 Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.
0157 Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools
0162 Tubular Pneumatic Conveyor Pipeline
0167 Vaned Pipe for Pipeline Transport of Solids
0172 GEM Electrostatic Filtration System
0175 A Low-Energy Carpet Backing System

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE

7.00000 INDUSTRIAL PROCESSES (cont.)

0178 Process and Apparatus for Producing Cellulated Vitreous Refractory Material
0183 Increased Vapor Generator Feature for a Reheat Vapor Generator
0196 Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm
0198 The Thermatreat System
0200 Removal of Sulfur Dioxide from the Stack Gas of Combustors Burning High Sulfur Fuel
0205 Energy Efficient Solid State Multiple Operator Metallic Arc Welding System
0213 The Kaunitz Process for Welding Pipe
0220 Deep Throat Resistance Welder
0232 Method of Separating Lignin and Making Epoxide- Lignin
0239 Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures
0251 Process and Apparatus for Reducing the Energy Required to Separate Liquids by Distillation
0264 Desulfurization of Coal
0314 Rolling Filter Apparatus
0316 Thrust Impact Rock Splitter
0451 In-Place Asphalt Pavement Restoration, via Recycling of the Existing Materials
0452 Magnetic Thin Films Formed in a Glow Discharge
0477 "Ultra Design Method" - Method for Designing Apparel by Computer
0487 Direct Fired Steam Generator
0489 Optimized Control System for Ultra-Efficient Surface Coating Operations
0508 On-Line Mechanical Tube Cleaning for Steam Electric Power Plants on an Open Cooling Water System
0515 Vacuum Bagging Apparatus
0537 Maintenance, Inspection, Submersible, Transport
0543 Method and Apparatus for Production of Three- Dimensional Objects by Photosolidification
0550 Dry Process Instant Photographic Color Textile Printing

7.01000 CHEMICAL, CHEMICAL PROCESS INDUSTRIES UNIT OPERATIONS

0267 Integrated Gasification of Coal, Municipal Solid Wastes and Sludge
0319 Removal of Hydrogen Sulfide from a Gas Stream
0348 Hydrogen Sulfide Removal for Natural Gas
0354 Preparation of Biliquid Foam Compositions
0404 Steam-Methane Reforming in Molten Carbonate Salt
0427 Non-Catalytic Steam Hydrolysis of Fats
0447 Hot Control of Unit Volume Energy of Grinding
0457 Continuous Saccharification of Ligno-Celluistic Biomass in Two Stages
0459 Natural Gas Conversion Process

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
7.01000		CHEMICAL, CHEMICAL PROCESS INDUSTRIES UNIT OPERATIONS (cont.)
	0461	Thermally Stable Polyenaminonitriles Which Cure Without Evolution of Volatiles
	0488	A System for Recovering Sulfur from Gases, Especially Natural Gas
	0492	Reactive Sintered Nickel Aluminide
	0494	Recovery of Dilute Aqueous Butanol by Adsorption on Lignin
	0507	Utilization of Precipitator Dust Stored at the TVA National Fertilizer Development Center
	0514	Silver Sensor / Energy Wire
	0520	Carbon Fiber Reinforced Tin-Superconductor Composites
	0541	Polymer Dispersed Ferroelectric Smectic-C Display Technology
	0555	Carbon Fiber Composites with Improved Fatigue Resistance due to the Addition of Tin-Lead Alloy Particles
	0556	Enhanced Chemical Vapor Deposition
7.01100		IRON AND STEEL
	0309	Process of Smelting with Submerged Burner
	0349	Three Roll Tension Stand
	0400	Continuous Casting and Inside Rolling of Hollow Rounds
	0458	Continuous Casting by Float Process of Thin Sheet Carbon Steel
7.01200		PRIMARY NON-FERROUS METALS
	0254	"Turbo-Glo" Immersion Furnace
	0295	Improved Method of Electroplating Aluminum for Corrosion Resistance
	0318	Bi-Polar Electrode for Hall-Heroult Electrolysis
	0325	Low Cost, Low Energy Machine and Method for Continuous Casting Non-Ferrous Strip and Composites
	0347	Oxide Dispersion Strengthened Aluminum Alloys
	0388	Preparation of Extremely Fine, Superalloy Powders and Their Fabrication into Dense, Sintered, Net Shape Superalloy Parts
	0418	Use of Chemical Vapor Deposition to Coat Metal Surfaces with High-Temperature Superconducting Materials
	0433	Improved Methods to Manufacture and Use Carbon- Alumina Composite Anodes for Aluminum Reduction
7.01300		FABRICATED METAL PRODUCTS
	0528	Method of Machining Hard and Brittle Material
7.01500		WATER AND WASTE TREATMENT
	0480	AlasCan Composting Toilet and Greywater Treatment System
7.01600		PACKAGING AND CONTAINERS
	0258	Corrosion Protection Process for Bore Hole Tool
	0526	Pressure Generating Apparatus and Method

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
7.01700		MISCELLANEOUS - DESALINIZATION - ELECTROLYSIS
	0243	An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste
	0255	Method and Apparatus for Scrubbing Gas - Scrubbing Apparatus
	0260	Method and Apparatus for Handling and Dry Quenching Coke
	0261	A New Apparatus for Making Asphalt Concrete
	0299	Process for Using Cocurrent Contacting Distillation Column
	0305	Automatic Filter Network Protection, Failure Detection and Correction System and Method
	0308	Binary Azeotropic, Hot Gas, Fat Extraction Process
	0326	A Mechanical Stemming Device for Use in Explosive Loaded Blast Holes
	0330	Vacuum Heat Treating Furnace and Quench System with Drop Transfer
	0337	An Air Operated Hydraulic Power Unit
	0340	Separation of Adsorbed Components by Variable Temperature Desorption
	0341	High Pressure Liquid Jets as a Tool for Disintegrating Organic and Non-Organic Materials
	0344	Machine for Separating Concrete from Steel
	0363	Impactor Separator
	0384	Textured Substrate and Method for the Direct, Continuous Casting of Metal Sheet Exhibiting Improved Uniformity
	0412	Meta-Lax Stress Relief for Almost any Size Metal Structure
	0419	A Planing Mining Machine to Produce Ultra-Fine Coal
	0422	High Efficiency Ozone Generating System
	0432	Water Hammer Pile Driver
	0438	Microwave Reflection by Synthetic Metals
	0503	Method and Apparatus for Introducing Normally Solid Materials into Substrate Surfaces
7.02000		TEXTILES, FABRICS, RUGS, CLOTHING
	0342	Raw Fines Medium Coal Washing System
	0532	Gobelin Loom
7.02400		STACK GAS SCRUBBERS
	0270	Method of Energy Recovery for Wastewater Treatment
	0310	Portable Wastewater Flow Metering Device
	0323	Rolling Mill for Reduction of Moisture Content in Waste Material
	0346	Ultra-Pure Water System for Hospitals
	0362	Improved Solvents for the Puraq Seawater Desalination Process
	0406	Aluminum Reduction Cell Spent Potlining Fluid Bed Incinerator
	0443	A Method for the Use of Oxygen Ion Vacancies in Lanthanide Oxides to Increase their Utilization
	0499	Electrostatic Agglomerator
7.03000		FOOD, FEEDS, LEATHER, FURS, FEATHERS, ETC.
	0242	New Petersburg Beam Trawl

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
7.04000		LUMBER, WOOD, WOOD PRODUCTS INDUSTRIAL PROCESSES
	0367	Disintegration of Wood
	0552	High-Speed Roll Processing Equipment for Woody Biomass
	0554	Apparatus and Process for Second Stage Drying
7.05000		PAPER AND ALLIED PRODUCTS
	0529	Thermodyne Evaporator - A Molded Pulp Products Dryer
7.06000		PETROLEUM, OIL AND NATURAL GAS INDUSTRIES
	0218	Behemoth
	0259	Hydrostatic Support Sleeve and Rod - Gas Release Probe
	0329	Modularized Pneumatic Tractor with Debris Liquifier
	0397	In Service Tank Bottom Leak Detection and Repair System
	0428	T-By Tray
	0509	Process for Gas Liquid Contacting in Cocurrent Distillation
7.08000		STONE, CLAY AND GLASS
	0207	Glass Sheet Manufacturing Method and Apparatus
7.09000		PRIMARY METALS
	0441	Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Thereby.
7.10000		CIVIL ENGINEERING
	0203	Microwave Methods and Apparatus for Paving and Paving Maintenance
	0294	Highway Power Patcher
	0335	Robotic Bridge Observation and Information System
	0350	Method and Apparatus for Testing Soil
7.20000		AGRICULTURE EQUIPMENT AND FARM EQUIPMENT
	0082	Cool Air Induction
	0090	Grain Dryer
	0140	Counter Flow Dual Tube Heat Exchanger
	0169	MIRAFOUNT
	0170	Fog System - Low Energy Freeze Protection for Agriculture
	0171	A Method of Preserving Fruits and Vegetables without Refrigeration
	0233	Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations
	0248	Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like
	0265	Flozone method and Apparatus for Direct Application of Treatment Liquid to Growing Vegetation
	0279	Method and Means for Preventing Frost Damage to Crops
	0324	Method and Composition for Enhancement of Mycorrhizal Development by Foliar Fertilization
	0327	Square Pattern Irrigation Sprinkler

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
7.20000		AGRICULTURE EQUIPMENT AND FARM EQUIPMENT (cont.)
	0373	Tobacco Harvesting Machine
	0474	Sweep-Spike Combination Tillage Tool
	0486	Cotton Stalk and Shredder with Re-Bedder
	0490	Laney Belt Terracer
7.40000		MECHANICAL CONTRIVANCES (NON-VEHICULAR)
	0263	Method for Reconditioning Rivetless Chain Links
	0277	Electronic Conveyor Control Apparatus
	0302	Carri-Cel Impact Breaker and Counterflow Impact Rock Breakers
	0332	Volk Pistachio Huller
	0333	Laser Based Machine for Die and Prototype Manufacturing
	0356	Portable Automatic Firewood Processor
	0375	MDT Twister
	0394	Variable Wall Mining Machine
	0395	Holland Oil Well Pumping System
	0399	Hydrodynamic/Multi Deflection Pad Bearing
	0402	KTM Logger
	0424	An Automated Process for Garment Manufacturers
	0429	A Low Cost Galloping Indicator
	0460	Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor
	0476	Pickard Line-up Boom
	0484	MUD DEVIL - Deaerator Mixer
	0519	Aerocylinder
	0522	Aqua-Shear
	0561	Ramix Systems Inc.
7.50000		SOLAR INDUSTRIAL
	0364	Intermittent Solar Ammonia Absorption Cycle (ISAAC)
8.10000		CONSUMER EDUCATION AND BEHAVIOR
	0001	Demand Metering System for Electric Energy
	0306	An Efficiency Computer for Heated or Air Conditioned Buildings
8.20000		APPLIANCES
	0007	Hydraulically Powered Waste Disposal Device
	0120	Vapor Heat Transfer Commercial Griddle
	0153	A New Equipment Design Concept for Storage of Hot Foods
	0192	Closed Cycle Dehumidification Clothes Dryer
	0238	Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness
	0240	All Steam Heated Sadiron for Commercial Use
	0322	Electrical Resistance Cooking Apparatus with Automatic Circuit Control
	0389	Reduced Size Heating Assembly for an Electric Stove
	0434	Modular Apparatus for Laundry Dryer Heat Recovery

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
8.30000		TOOLS
	0409	Self-Dressing Resistance Welding Electrode
	0464	Chain Saw Tip Stabilizing Device for Use with an Anti-Kickback Device
	0467	High Pressure Lubricoolant Jet for Supporting Metal Machining
8.40000		LAMPS AND LIGHT BULBS (6.5 FOR LIGHTING FIXTURES)
	0138	Phantom Tube
	0274	Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency
9.00000		MISCELLANEOUS
	0104	Low Continuous Energy Mass Separation System
	0109	Hydrostatic Meat Tenderizer
	0115	Refrigeration System
	0181	The Karlson Ozone Sterilizer
	0190	Oxygen-Conducting Material and Oxygen-Sensing Method
	0202	Wobbling Type Distillation Apparatus
	0256	Method and Apparatus for Irrigating Container Grown Plants
	0257	Method and Apparatus for Melting Snow
	0304	Exfoliated Graphite Fibers
	0328	Multi-Directional Pre and Post-Heating Device for Thermal Flamecutting
	0353	Compu-Turbo-Aligner
	0361	Measurement of Liquid Volumes with Compensation for Temperature Induced Variations
	0378	An Improved Cutter for Plaster Board and the Like
	0393	Method and Apparatus for Ultrasonic Testing of Tubular Goods
	0398	Hydraulic Test Unit - Test Plugs - Mechanical Seal Plugs
	0408	Floodshield System
	0423	Superverter - A Digitally Synthesized DC-to-AC Sinewave Inverter
	0426	Eddy Current Transducing System
	0435	A New Thermodynamic Process of Actual Approach to the Carnot Cycle
	0521	Ultraviolet Sterilization of Contact Lens
	0534	Novel Procedure for Fabrication of Mosfets
	0549	Efficient, Continuous-Wave or Pulsed Visible Lamps for Solid-State Laser Drivers
	0558	Method and Temperature Treating Granular Material
9.10000		NOT ENERGY-RELATED
	0560	Paving Fabric Applicator
9.50000		INSTRUMENTATION
	0401	A Miniature, Inexpensive Oxygen-Sensing Element
	0444	Apparatus and Method for Using Microwave Radiation to Measure Water Content of a Fluid
	0453	Particle Densitometer Based on the Acoustical Resonance Measurement

TABLE 4-4 (cont.)

CLASSIF.	DOE NO.	TITLE
9.50000		INSTRUMENTATION (cont.)
	0495	Method for Monitoring Thinning of Pipe Wall
	0500	Neutral Atom Interferometry Gravity Sensor
	0547	Structural Monitoring System Using Fiber Optics
9.50200		ELECTRONIC, OPTICAL SENSORS AND INSTRUMENTATION
	0536	Delta T Dryer Controller
9.51000		ELECTRICAL DEMAND, OVERLOAD OR CONSUMPTION INDICATORS
	0065	WattVendor
	0465	Multiconductive Base Form Microchip Carrier/Connector
9.60000		COMPUTER - DATA STORAGE AND RETRIEVAL
	0544	Field Grid Sense

APPENDIX A

APPENDIX A

INVENTION CLASSIFICATIONS

CODE	TITLE
1.00000	FUELS AND LUBRICANTS ACQUISITION, PRODUCTION, DISTRIBUTION
1.01000	GEOPHYSICAL PROSPECTING
1.10000	FOSSIL FUELS
1.11000	COAL
1.11100	COAL LIQUIFICATION
1.11200	COAL GASIFICATION
1.11300	GREATER RESOURCE RECOVERY METHODS
1.11400	GREATER RESOURCE RECOVERY EQUIP.
1.12000	OIL
1.12100	GREATER RESOURCE RECOVERY METHODS
1.12200	GREATER RESOURCE RECOVERY EQUIP.
1.12300	OIL AND GAS WELL PUMPS AND DRILLS
1.12400	OIL AND GAS PIPELINES
1.13000	OIL SHALE
1.13100	TAR SANDS
1.14000	NATURAL GAS
1.14100	CHEMICAL CONVERSION OF GAS TO LIQUIDS
1.20000	ALTERNATE FUELS
1.21000	PROPANE
1.22000	METHANE
1.23000	HYDROGEN
1.24000	ALCOHOLS
1.25000	HYBRID FUELS
1.26000	FUEL CELLS
1.27000	FUEL ADDITIVES
1.28000	BIOENGINEERING AND MEDICAL
1.28100	BIOMASS
1.29000	MISCELLANEOUS SYNTHETIC PROCESSES
1.30000	GREASES AND LUBRICANTS
1.40000	REFINED PETROLEUM PRODUCTS AND ADDITIVES
2.00000	ENERGY CONVERSION FROM NATURAL SOURCES (NOT INCLUDED BELOW)
2.10000	SOLAR COLLECTORS
2.11000	SOLAR TO DIRECT MECHANICAL ENERGY
2.12000	SOLAR ELECTRIC POWER GENERATING SYSTEMS
2.13000	PHOTOVOLTAIC DEVICES
2.14000	SOLAR CONCENTRATORS - PHOTOVOLTAIC
2.15000	SOLAR CONCENTRATORS - THERMAL
2.20000	GEOTHERMAL
2.21000	ELECTRICAL POWER GENERATION
2.30000	OCEAN THERMAL
2.40000	WIND
2.41000	WIND DRIVEN MOTORS & COMPONENTS
2.42000	WIND PROCESSES USING ENERGY FROM WIND
2.50000	WATER POWER PROCESSES (INLAND)
2.51000	ELECTRICAL POWER GENERATION BY WATER POWER (INLAND)
2.60000	OCEAN WATER POWER
2.61000	WAVE POWER SYSTEMS
2.62000	TIDAL POWER SYSTEMS
2.63000	OCEAN CURRENT POWER SYSTEMS
3.00000	ENERGY CONVERSION FROM SECONDARY SOURCES (NOT INCLUDED BELOW)
3.01000	ENERGY CONVERSION FROM SECONDARY SOURCES - THERMODYNAMICS
3.10000	COMBUSTION ENGINES AND COMPONENTS
3.10100	STIRLING ENGINES, MECHANICAL
3.10110	STIRLING ENGINES, THERMO
3.11000	RECIPROCAL ENGINES, MECHANICAL
3.11100	RECIPROCAL ENGINES, THERMO
3.12000	ROTARY ENGINES, MECHANICAL
3.12100	ROTARY ENGINES, THERMO
3.13000	TURBINE ENGINES, MECHANICAL
3.13100	TURBINE ENGINES, THERMO
3.14000	FUEL SYSTEMS, MECHANICAL
3.14100	CARBURETORS AND MODIFICATIONS
3.14200	FUEL INJECTORS
3.14300	WATER INJECTORS
3.14400	MULTI-FUEL MIXERS
3.14500	AIR AND OXYGEN INJECTION
3.14600	COMBUSTION ANALYZERS
3.15000	IGNITION SYSTEMS
3.20000	STEAM ENGINES AND TURBINES, MECHANICAL
3.21000	STEAM ENGINES AND TURBINES, THERMO
3.30000	AIR COMPRESSORS AND MOTORS
3.40000	HYDRAULIC PUMPS AND MOTORS
3.50000	ELECTRIC MOTORS AND GENERATORS
3.51000	MISCELLANEOUS ELECTRIC POWER GENERATING SYSTEM
3.60000	CHEMICAL THERMODYNAMICS
3.61000	PHOTO CHEMICAL
3.70000	MECHANICAL THERMODYNAMICS
3.80000	HEAT PUMPS AND REFRIGERATION
3.90000	HIGHWAY POWER GENERATORS
4.00000	ENERGY STORAGE AND DISTRIBUTION (NOT INCLUDED BELOW)
4.10000	ELECTRICAL TRANSMISSION
4.11000	ELECTRICAL STORAGE (BATTERIES)
4.12000	ELECTRICAL DISTRIBUTION (TRANSFORMERS, SWITCHGEARS, CONTROLS)
4.20000	MECHANICAL ELECTRICAL GENERATION, STORAGE, DISTRIBUTION
4.30000	THERMAL ENERGY STORAGE
4.40000	PNEUMATIC ENERGY GENERATION, STORAGE, DISTRIBUTION
4.50000	HYDRAULIC (WATER, PUMPED ENERGY STORAGE, ETC.)
4.60000	MISCELLANEOUS POWER GENERATOR, STORAGE AND TRANSMISSION
5.00000	TRANSPORTATION (NOT INCLUDED BELOW)
5.10000	AIR TRANSPORTATION
5.20000	WATER TRANSPORTATION
5.30000	RAIL TRANSPORTATION
5.40000	HIGHWAY VEHICLES AND SYSTEMS
5.41000	HIGHWAYS, STREETS AND TRAFFIC CONTROL

APPENDIX A

INVENTION CLASSIFICATIONS

CODE	TITLE
5.42000	VEHICULAR POWER SYSTEMS(NOT INCLUDED BELOW)
5.42100	COMBUSTION ENGINE VEHICLES
5.42200	ELECTRIC VEHICLES
5.42300	STEAM VEHICLES
5.42400	HYBRID VEHICLES
5.43000	VEHICULAR COMPONENTS
5.43100	VEHICLE TRANSMISSIONS
5.43200	VEHICLE BRAKING SYSTEMS (INCLUDES REGEN. BRAKING SYSTEMS, ETC.)
5.43300	VEHICLE WHEELS AND TIRES
5.43400	VEHICLE SUSPENSIONS
5.43500	VEHICLE BODY AND CHASSIS DESIGN
5.43600	VEHICLE LUBRICATION SYSTEMS
5.43700	DRIVER AND FUEL ECONOMY CONTROL SYSTEMS
5.43800	VEHICLE AIR CONDITIONING
6.00000	BUILDINGS, STRUCTURES AND COMPONENTS
6.10000	DESIGN, CONSTRUCTION AND CONSTRUCTION PRACTICES
6.20000	HEATING, COOLING, VENTILATING
6.20100	HEATING, COOLING AND VENTILATING INSTRUMENTS AND CONTROLS
6.21000	FIREPLACES
6.22000	SOLAR HEATERS
6.22100	SOLAR HEATERS - HEAT STORAGE
6.23000	BOILERS AND FURNACES (INDUSTRIAL)
6.23010	SMALL BOILERS, FURNACES AND STOVES
6.23100	BOILER AND FURNACE FLUE HEAT RECOVERY
6.23200	BOILER AND FURNACE AIR AND OXYGEN INDUCTORS AND INJECTORS
6.23300	BOILERS AND FURNACES FLUE VENT CONTROL
6.23400	BOILER AND FURNACE OIL BURNERS
6.23500	BOILER AND FURNACE STOKERS (INDUSTRIAL)
6.23600	BOILER AND FURNACE COMBUSTION CONTROLS AND EQUIPMENTS
6.23700	BOILER AND FURNACE COAL-OIL-WATER MIXTURES
6.23800	COMBUSTION, CHEMICAL
6.24000	ELECTRIC HEAT
6.25000	HEAT PUMPS
6.26000	AIR CONDITIONING & REFRIGERATION
6.27000	VENTILATING SYSTEMS
6.28000	HUMIDIFICATION SYSTEMS
6.31000	HEATING SYSTEMS(HOT WATER)
6.31100	SOLAR HEATERS
6.32000	HOT WATER CONSERVATION DEVICES AND PRACTICES
6.40000	INSULATION AND INSULATING PRACTICES
6.50000	ELECTRICAL WIRING AND FIXTURES
6.60000	PLUMBING AND FIXTURES
7.00000	INDUSTRIAL PROCESSES (NOT INCLUDED BELOW)
7.01000	CHEMICAL, CHEMICAL PROCESS INDUSTRIES UNIT OPERATIONS
7.01100	IRON AND STEEL
7.01200	PRIMARY NON-FERROUS METALS
7.01300	FABRICATED METAL PRODUCTS
7.01400	AIR SEPARATION
7.01500	WATER AND WASTE TREATMENT
7.01600	PACKAGING AND CONTAINERS
7.01700	MISC.-DESALINIZATION-ELECTROLYSIS
7.01800	SOLAR DISTILLATION PROCESSES
7.01900	SOLAR EVAPORATION PROCESSES
7.02000	TEXTILES, FABRICS, RUGS, CLOTHING
7.02100	POWDER METALLURGY
7.02200	CERAMICS
7.02300	COMPOSITE MATERIALS
7.02400	STACK GAS SCRUBBERS
7.03000	FOOD, FEEDS, LEATHER, FURS, FEATHERS, ETC.
7.04000	LUMBER, WOOD, WOOD PRODUCTS INDUSTRIAL PROCESSES
7.05000	PAPER AND ALLIED PRODUCTS
7.06000	PETROLEUM, OIL AND NATURAL GAS INDUSTRIES
7.07000	RUBBER AND PLASTICS
7.08000	STONE, CLAY AND GLASS
7.09000	PRIMARY METALS
7.10000	CIVIL ENGINEERING
7.20000	AGRICULTURE EQUIPMENT AND FARM EQUIPMENT
7.30000	OIL SPILL RECOVERY
7.40000	MECHANICAL CONTRIVANCES (NON-VEHICULAR)
7.50000	SOLAR INDUSTRIAL
8.00000	CONSUMER PRODUCTS
8.10000	CONSUMER EDUCATION AND BEHAVIOR
8.20000	APPLIANCES
8.30000	TOOLS
8.40000	LAMPS AND LIGHT BULBS (6.5 FOR LIGHTING FIXTURES)
9.00000	MISCELLANEOUS
9.10000	NOT ENERGY-RELATED
9.20000	NUCLEAR
9.30000	PERPETUAL MOTION
9.40000	UNINTERPRETABLE
9.50000	INSTRUMENTATION
9.50100	CHEMICAL, BIOCHEMICAL SENSORS AND INSTRUMENTATION
9.50200	ELECTRONIC, OPTICAL SENSORS AND INSTRUMENTATION
9.50300	HEAT TRANSFER, FLUID MECHANICS INSTRUMENTATION
9.51000	ELECTRICAL DEMAND, OVERLOAD OR CONSUMPTION INDICATORS
9.60000	COMPUTER - DATA STORAGE AND RETRIEVAL
9.70000	COMMUNICATION SYSTEMS AND EQUIPMENT
9.80000	PRINTING SYSTEMS AND EQUIPMENT

APPENDIX B

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY
ASSOCIATED INVENTION CLASSIFICATIONS

1. Fossil Fuel Production

1.00000	FUELS AND LUBRICANTS ACQUISITION, PRODUCTION, DISTRIBUTION
1.01000	GEOPHYSICAL PROSPECTING
1.10000	FOSSIL FUELS
1.11000	COAL
1.11100	COAL LIQUIFICATION
1.11200	COAL GASIFICATION
1.11300	GREATER RESOURCE RECOVERY METHODS
1.11400	GREATER RESOURCE RECOVERY EQUIPMENT
1.12000	OIL
1.12100	GREATER RESOURCE RECOVERY METHODS
1.12200	GREATER RESOURCE RECOVERY EQUIPMENT
1.12300	OIL AND GAS WELL PUMPS AND DRILLS
1.12400	OIL AND GAS PIPELINES
1.13000	OIL SHALE
1.13100	TAR SANDS
1.14000	NATURAL GAS
1.14100	CHEMICAL CONVERSION OF GAS TO LIQUIDS

2. Direct Solar

2.10000	SOLAR COLLECTORS
2.11000	SOLAR TO DIRECT MECHANICAL ENERGY
2.12000	SOLAR ELECTRIC POWER GENERATING SYSTEMS
2.13000	PHOTOVOLTAIC DEVICES
2.14000	SOLAR CONCENTRATORS - PHOTOVOLTAIC
2.15000	SOLAR CONCENTRATORS - THERMAL
6.22000	SOLAR HEATERS
6.22100	SOLAR HEATERS - HEAT STORAGE
6.31100	SOLAR HEATERS

3. Other Natural Sources

1.20000	ALTERNATE FUELS
1.21000	PROPANE
1.22000	METHANE
1.23000	HYDROGEN
1.24000	ALCOHOLS
1.25000	HYBRID FUELS
1.26000	FUEL CELLS
1.27000	FUEL ADDITIVES
1.28000	BIOENGINEERING AND MEDICAL
1.28100	BIOMASS
1.29000	MISCELLANEOUS SYNTHETIC PROCESSES
2.00000	ENERGY CONVERSION FROM NATURAL SOURCES(NOT INCLUDED BELOW)
2.20000	GEOTHERMAL
2.21000	ELECTRICAL POWER GENERATION
2.30000	OCEAN THERMAL
2.40000	WIND
2.41000	WIND DRIVEN MOTORS & COMPONENTS THEREOF
2.42000	WIND PROCESSES USING ENERGY FROM WIND

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY
ASSOCIATED INVENTION CLASSIFICATIONS

3. Other Natural Sources (cont.)

2.50000 WATER POWER PROCESSES (INLAND)
2.51000 ELECTRICAL POWER GENERATION BY WATER POWER (INLAND)

2.60000 OCEAN WATER POWER
2.61000 WAVE POWER SYSTEMS
2.62000 TIDAL POWER SYSTEMS
2.63000 OCEAN CURRENT POWER SYSTEMS

3.00000 ENERGY CONVERSION FROM SECONDARY SOURCES(NOT INCLUDED BELOW)
3.01000 ENERGY CONVERSION FROM SECONDARY SOURCES - THERMODYNAMICS

4. Combustion Engines & Components

3.10000 COMBUSTION ENGINES AND COMPONENTS THEREOF
3.10100 STIRLING ENGINES, MECHANICAL
3.10110 STIRLING ENGINES, THERMO
3.11000 RECIPROCAL ENGINES, MECHANICAL
3.11100 RECIPROCAL ENGINES, THERMO
3.12000 ROTARY ENGINES, MECHANICAL
3.12100 ROTARY ENGINES, THERMO
3.13000 TURBINE ENGINES, MECHANICAL
3.13100 TURBINE ENGINES, THERMO
3.14000 FUEL SYSTEMS, MECHANICAL
3.14100 CARBURETORS AND MODIFICATIONS THEREOF
3.14200 FUEL INJECTORS
3.14300 WATER INJECTORS
3.14400 MULTI-FUEL MIXERS
3.14500 AIR AND OXYGEN INJECTION
3.14600 COMBUSTION ANALYZERS
3.15000 IGNITION SYSTEMS

3.20000 STEAM ENGINES AND TURBINES, MECHANICAL
3.21000 STEAM ENGINES AND TURBINES, THERMO

5. Transportation Systems: Vehicles & Components

5.00000 TRANSPORTATION(NOT INCLUDED BELOW)

5.10000 AIR TRANSPORTATION
5.20000 WATER TRANSPORTATION
5.30000 RAIL TRANSPORTATION

5.40000 HIGHWAY VEHICLES AND SYSTEMS
5.41000 HIGHWAYS, STREETS AND TRAFFIC CONTROL
5.42000 VEHICULAR POWER SYSTEMS(NOT INCLUDED BELOW)
5.42100 COMBUSTION ENGINE VEHICLES
5.42200 ELECTRIC VEHICLES
5.42300 STEAM VEHICLES
5.42400 HYBRID VEHICLES
5.43000 VEHICULAR COMPONENTS
5.43100 VEHICLE TRANSMISSIONS
5.43200 VEHICLE BRAKING SYSTEMS (INCLUDES REGEN. BRAKING SYSTEMS, ETC.)
5.43300 VEHICLE WHEELS AND TIRES

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY
ASSOCIATED INVENTION CLASSIFICATIONS

5. Transportation Systems; Vehicles & Components (cont.)

5.43400 VEHICLE SUSPENSIONS
5.43500 VEHICLE BODY AND CHASSIS DESIGN
5.43600 VEHICLE LUBRICATION SYSTEMS
5.43700 DRIVER AND FUEL ECONOMY CONTROL SYSTEMS
5.43800 VEHICLE AIR CONDITIONING

6. Building, Structures & Components

6.00000 BUILDINGS, STRUCTURES AND COMPONENTS
6.10000 DESIGN, CONSTRUCTION AND CONSTRUCTION PRACTICES

6.20000 HEATING, COOLING, VENTILATING
6.20100 HEATING, COOLING AND VENTILATING INSTRUMENTS AND CONTROLS
6.21000 FIREPLACES
6.23000 BOILERS AND FURNACES (INDUSTRIAL)
6.23010 SMALL BOILERS, FURNACES AND STOVES
6.23100 BOILER AND FURNACE FLUE HEAT RECOVERY
6.23200 BOILER AND FURNACE AIR AND OXYGEN INDUCTORS AND INJECTORS
6.23300 BOILERS AND FURNACES FLUE VENT CONTROL
6.23400 BOILER AND FURNACE OIL BURNERS
6.23500 BOILER AND FURNACE STOKERS (INDUSTRIAL)
6.23600 BOILER AND FURNACE COMBUSTION CONTROLS AND EQUIPMENTS
6.23700 BOILER AND FURNACE COAL-OIL-WATER MIXTURES
6.23800 COMBUSTION, CHEMICAL
6.24000 ELECTRIC HEAT
6.25000 HEAT PUMPS
6.26000 AIR CONDITIONING & REFRIGERATION
6.27000 VENTILATING SYSTEMS
6.28000 HUMIDIFICATION SYSTEMS
6.29000 SOLAR AIR CONDITIONING

6.30000 HOT WATER SUPPLY
6.31000 HEATING SYSTEMS(HOT WATER)
6.32000 HOT WATER CONSERVATION DEVICES AND PRACTICES

6.40000 INSULATION AND INSULATING PRACTICES
6.50000 ELECTRICAL WIRING AND FIXTURES
6.60000 PLUMBING AND FIXTURES

7. Industrial Processes

7.00000 INDUSTRIAL PROCESSES(NOT INCLUDED BELOW)
7.01000 CHEMICAL, CHEMICAL PROCESS INDUSTRIES UNIT OPERATIONS
7.01100 IRON AND STEEL
7.01200 PRIMARY NON-FERROUS METALS
7.01300 FABRICATED METAL PRODUCTS
7.01400 AIR SEPARATION
7.01500 WATER AND WASTE TREATMENT
7.01600 PACKAGING AND CONTAINERS
7.01700 MISCELLANEOUS - DESALINIZATION - ELECTROLYSIS
7.01800 SOLAR DISTILLATION PROCESSES
7.01900 SOLAR EVAPORATION PROCESSES
7.02000 TEXTILES, FABRICS, RUGS, CLOTHING
7.02100 POWDER METALLURGY

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY	ASSOCIATED INVENTION CLASSIFICATIONS	
7.	Industrial Processes (cont.)	
	7.02200	CERAMICS
	7.02300	COMPOSITE MATERIALS
	7.02400	STACK GAS SCRUBBERS
	7.03000	FOOD, FEEDS, LEATHER, FURS, FEATHERS, ETC.
	7.04000	LUMBER, WOOD, WOOD PRODUCTS INDUSTRIAL PROCESSES
	7.05000	PAPER AND ALLIED PRODUCTS
	7.06000	PETROLEUM, OIL AND NATURAL GAS INDUSTRIES
	7.07000	RUBBER AND PLASTICS
	7.08000	STONE, CLAY AND GLASS
	7.09000	PRIMARY METALS
	7.10000	CIVIL ENGINEERING
	7.20000	AGRICULTURE EQUIPMENT AND FARM EQUIPMENT
	7.30000	OIL SPILL RECOVERY
	7.40000	MECHANICAL CONTRIVANCES (NON-VEHICULAR)
	7.50000	SOLAR INDUSTRIAL
8.	Miscellaneous	
	1.30000	GREASES AND LUBRICANTS
	1.40000	REFINED PETROLEUM PRODUCTS AND ADDITIVES
	3.30000	AIR COMPRESSORS AND MOTORS
	3.40000	HYDRAULIC PUMPS AND MOTORS
	3.50000	ELECTRIC MOTORS AND GENERATORS
	3.51000	MISCELLANEOUS ELECTRIC POWER GENERATING SYSTEM
	3.60000	CHEMICAL THERMODYNAMICS
	3.61000	PHOTO CHEMICAL
	3.70000	MECHANICAL THERMODYNAMICS
	3.80000	HEAT PUMPS AND REFRIGERATION
	3.90000	HIGHWAY POWER GENERATORS
	4.00000	ENERGY STORAGE AND DISTRIBUTION(NOT INCLUDED BELOW)
	4.10000	ELECTRICAL TRANSMISSION
	4.11000	ELECTRICAL STORAGE (BATTERIES)
	4.12000	ELECTRICAL DISTRIBUTION (TRANSFORMERS, SWITCHGEARS, CONTROLS)
	4.20000	MECHANICAL ELECTRICAL GENERATION, STORAGE, DISTRIBUTION
	4.30000	THERMAL ENERGY STORAGE
	4.40000	PNEUMATIC ENERGY GENERATION, STORAGE, DISTRIBUTION
	4.50000	HYDRAULIC (WATER, PUMPED ENERGY STORAGE, ETC.)
	4.60000	MISCELLANEOUS POWER GENERATOR, STORAGE AND TRANSMISSION
	8.00000	CONSUMER PRODUCTS

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY
ASSOCIATED INVENTION CLASSIFICATIONS

8. Miscellaneous (cont.)

8.10000 CONSUMER EDUCATION AND BEHAVIOR

8.20000 APPLIANCES

8.30000 TOOLS

8.40000 LAMPS AND LIGHT BULBS (6.5 FOR LIGHTING FIXTURES)

9.00000 MISCELLANEOUS

9.50000 INSTRUMENTATION
9.50100 CHEMICAL, BIOCHEMICAL SENSORS AND INSTRUMENTATION
9.50200 ELECTRONIC, OPTICAL SENSORS AND INSTRUMENTATION
9.50300 HEAT TRANSFER, FLUID MECHANICS INSTRUMENTATION
9.51000 ELECTRICAL DEMAND, OVERLOAD OR CONSUMPTION INDICATORS

9.60000 COMPUTER - DATA STORAGE AND RETRIEVAL

9.70000 COMMUNICATION SYSTEMS AND EQUIPMENT

9.80000 PRINTING SYSTEMS AND EQUIPMENT

9. Out of Scope and Unclassifiable

9.10000 NOT ENERGY-RELATED

9.20000 NUCLEAR

9.30000 PERPETUAL MOTION

9.40000 UNINTERPRETABLE

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11. ABSTRACT (A 200-WORD OR LESS FACTUAL SUMMARY OF MOST SIGNIFICANT INFORMATION. IF DOCUMENT INCLUDES A SIGNIFICANT BIBLIOGRAPHY O LITERATURE SURVEY, MENTION IT HERE.)

A brief description of the Energy Related Inventions Program and all inventions recommended by the National Institute of Standards and Technology to the Department of Energy since the inception of the program, including a brief summary of the current status of each.

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