NISTIR 4313

ENERGY RELATED INVENTIONS PROGRAM A JOINT PROGRAM OF THE DEPARTMENT OF ENERGY AND THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY STATUS REPORT FOR RECOMMENDATIONS 251 THROUGH 486

U.S. DEPARTMENT OF COMMERCE
National Institute of Standards
and Technology
Office of Energy Related Inventions
Gaithersburg, MD 20899

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Robert A. Mosbacher, Secretary

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PREFACE

The Energy Related Inventions Program was established in 1975. Since its inception over 26,000 inventions have been evaluated. As of the printing of this report 486 have been recommended to the Department of Energy. This report summarizes the status of Inventions 251 through 486. A companion report (NISTIR 4319) summarizes recommended inventions 1 through 250.

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Section 1 Introduction

1.0 BACKGROUND

The Office of Energy-Related Inventions (OERI) was established within the National Bureau of Standards (now known as the National Institute of Standards and Technology (NIST)) under the terms of Section 14 of the Federal Nonnuclear Energy Research and Development Act of 1974. Section 14 directs NIST to "give particular attention to the evaluation of all promising energy-related inventions particularly those submitted by individual inventors and small companies for the purpose of obtaining direct grants" from the Department of Energy (DOE).

A separate office was established within DOE to coordinate financial and other DOE support to be provided for inventions recommended by NIST. The NIST and DOE offices together constitute the Energy-Related Inventions Program.

1.1 OVERVIEW OF PROGRAM OPERATION

The Energy-Related Inventions Program is jointly operated by NIST and the DOE. Funding is provided through the DOE budget (Conservation and Renewable Energy, Conservation, Energy Conversion and Utilization Technology).

Under the law NIST (OERI) is responsible for evaluation of inventions, whether submitted directly to OERI or submitted to DOE or other agencies and forwarded to OERI. OERI is also responsible for outreach activities aimed at bringing the Program to the attention of inventors and small businesses.

OERI 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 invention. An invention which meets the NIST criteria for recommendation is forwarded to DOE for possible support action.

Inventions forwarded by the OERI to DOE are recommended as "technically valid and worthy of consideration for Government support" under the NIST/DOE Inventions Program. An OERI report is furnished with the recommendation to explain in detail the advantages of the technology as well as any qualifications of the recommendations, such as required testing. It 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 OERI at any stage of their development; some may be conceptual, others at the laboratory testing stage, while others may be in production or in the process of being marketed. How much support will be furnished will depend largely on what is 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.

In general, DOE accepts the NIST recommendation and provides the 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 fund 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 because of 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, at the completion of this support, the inventor will 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 Energy-Related Inventions. 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 the disclosure is sufficiently well-prepared to enable evaluation. If accepted, a formal evaluation is initiated.

First-Stage Evaluation is a technical screening in which brief opinions are obtained from OERI 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 September 1989 DOE has awarded a total of $24,270,612 to 329 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 OERI. 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 the expectation that the regional committee will continue Workshops and similar activities in the future without federal involvement.

Fifty-two NIWs have been held to date, including five in calendar year 1989. Six NIWs are tentatively scheduled for calendar year 1990. 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 their initial review of the recommendation (Analysis).

1.5 NATURE OF THIS REPORT

This report is 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 September 30, 1989. 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 September 30, 1989)

	EVALUATION REQUESTS RECEIVED	COMPLETED DISCLOSURE REVIEW	ACCEPTED FOR FIRST STAGE	COMPLETED FIRST STAGE	ACCEPTED FOR SECOND STAGE	COMPLETED SECOND STAGE	RECOMMENDED
ALABAMA	271	271	124	119	7	6	2
ALASKA	66	66	32	29	3	2	2
ARIZONA	418	418	263	249	31	29	6
ARKANSAS	155	155	74	69	10	10	4
CALIFORNIA	3403	3403	1755	1712	181	172	55
COLORADO	523	523	347	336	41	40	6
CONNECTICUT	487	487	275	271	26	24	13
DELAWARE	63	63	42	41	7	7	4
DISTRICT OF COLUMBIA	113	113	58	57	9	9	0
FLORIDA	1599	1599	761	738	47	44	16
GEORGIA	329	329	157	151	20	19	7
HAWAII	102	102	58	57	4	4	3
IDAHO	112	112	69	67	9	9	3
ILLINOIS	941	941	536	514	68	67	25
INDIANA	418	418	196	190	16	15	5
IOWA	231	231	110	109	6	3	2
KANSAS	271	271	124	121	7	6	2
KENTUCKY	245	245	102	99	10	8	5
LOUISIANA	289	289	141	134	15	15	9
MAINE	151	151	77	74	9	8	3
MARYLAND	699	699	430	417	49	48	18
MASSACHUSETTS	949	949	498	491	65	64	23
MICHIGAN	889	889	462	452	29	29	11
MINNESOTA	455	455	252	246	23	21	11
MISSISSIPPI	174	174	43	40	3	3	0
MISSOURI	545	545	308	300	30	29	9
MONTANA	98	98	44	43	6	6	3
NEBRASKA	132	132	67	66	8	7	4
NEVADA	136	136	66	61	3	3	0
NEW HAMPSHIRE	135	135	77	75	15	15	5
NEW JERSEY	919	919	501	483	56	56	19
NEW MEXICO	202	202	106	98	14	14	6
NEW YORK	1966	1966	1083	1063	88	86	33
NORTH CAROLINA	398	398	199	198	11	11	5
NORTH DAKOTA	64	64	28	23	3	2	2
OHIO	846	846	416	403	46	44	18
OKLAHOMA	365	365	200	187	33	31	15
OREGON	499	499	241	234	17	17	6
PENNSYLVANIA	1100	1100	588	569	76	72	31
RHODE ISLAND	78	78	33	32	4	4	1
SOUTH CAROLINA	185	185	92	84	10	10	5
SOUTH DAKOTA	48	48	25	25	3	2	1
TENNESSEE	398	398	183	178	14	12	4
TEXAS	1305	1305	674	647	72	64	29
UTAH	219	219	112	109	18	18	12
VERMONT	78	78	51	51	8	8	2
VIRGINIA	515	515	275	268	31	31	10
WASHINGTON	785	785	314	301	27	27	14
WEST VIRGINIA	106	106	45	43	2	2	1
WISCONSIN	438	438	203	198	16	15	7
WYOMING	72	72	34	32	1	1	1
TERRITORIES	55	55	23	22	2	2	1
FOREIGN COUNTRIES	1236	1236	532	526	42	42	7
	26276	26276	13506	13102	1351	1293	486

TABLE 2-2

EVALUATION PROGRESS REPORT BY INVENTION CATEGORY
(AS OF SEPTEMBER 30, 1989)

CLASSIFICATION	EVALUATION REQUESTS RECEIVED	ACCEPTED FOR FIRST STAGE	COMPLETED FIRST STAGE	ACCEPTED FOR SECOND STAGE	COMPLETED SECOND STAGE	RECOMMDED	% OF TOTAL RECEIVED	% OF TOTAL EXPECTED TO BE RECOMMENDED**
FOSSIL FUEL PRODUCTION	594	466	454	133	126	56	2.3	10.2
DIRECT SOLAR	2649	1461	1451	95	94	23	10.1	0.9
OTHER NATURAL SOURCES	3371	1441	1422	96	95	21	12.8	0.6
COMBUSTION ENGINES & COMPONENTS	2677	1740	1709	108	108	24	10.2	0.9
TRANSPORTATION SYSTEMS, VEHICLES & COMPONENTS	2158	1317	1276	102	98	38	8.2	1.9
BUILDINGS, STRUCTURES & COMPONENTS	4303	3224	3143	250	240	88	16.4	2.2
INDUSTRIAL PROCESSES	1843	1461	1374	365	339	160	7.0	9.9
MISCELLANEOUS	3622	2172	2061	199	191	74	13.8	2.2
OUT OF SCOPE & UNCLASSIFIABLE	5055	224	212	3	2	2	19.2	0.1
TOTALS	26272*	13506	13102	1351	1293	486	100.0	2.0

*EXCLUDES 4 NOT YET CLASSIFIED. (DISCLOSURE REVIEW NOT COMPLETED).
**FOR EXAMPLE:

$$\text{FOSSILE FUEL PRODUCTION: } \frac{414}{534} \cdot \frac{113}{400} \cdot \frac{46}{10} \cdot 100\% = 9.2\%$$

TABLE 2-3

PROGRESS REPORT BY INVENTION STAGE OF DEVELOPMENT
(As of 30 September, 1989)

STAGES OF DEVELOPMENT	NUM. REACHING NUMBER ACCEPTED	1ST STAGE	2ND STAGE	NUM. RECOM.	% REACHING NUMBER ACCEPTED	1ST STAGE	2ND STAGE	NUM. RECOM.
CONCEPT DEFINITION	3774	1357	71	25	22.1%	14.7%	7.6%	7.1%
CONCEPT DEVELOPMENT	4401	2134	150	52	25.7%	23.1%	16.1%	14.7%
LABORATORY TEST	609	377	69	26	3.6%	4.1%	7.4%	7.4%
ENGINEERING DESIGN	1558	907	116	49	9.1%	9.8%	12.5%	13.9%
WORKING MODEL	2217	1405	112	43	13.0%	15.2%	12.0%	12.2%
PROTOTYPE DEVELOPMENT	1124	668	82	27	6.6%	7.2%	8.8%	7.6%
PROTOTYPE TEST	1573	1102	140	50	9.2%	11.9%	15.0%	14.2%
PRODUCTION ENGINEERING	333	242	32	14	1.9%	2.6%	3.4%	4.0%
LTD PROD. & MKTG.	843	674	115	47	4.9%	7.3%	12.4%	13.3%
PRODUCTION & MARKETING	664	381	44	20	3.9%	4.1%	4.7%	5.7%
Unclassified *	9180	4257	419	133				
TOTALS	26,276	13,504	1,350	486				

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 251 through 486 recommended by the Office of Energy Related Inventions 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 Basis For 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
0251	Complete	Process and Apparatus for Reducing the Energy Required to Separate Liquids by Distillation
0252	Complete	Thermal Bank
0253	Complete	High Performance Heat Pump
0254	Complete	"Turbo-Glo" Immersion Furnace
0255	Decision Phase	Method and Apparatus for Scrubbing Gas - Scrubbing Apparatus
0256	Other Assistance	Method and Apparatus for Irrigating Container Grown Plants
0257	Complete	Method and Apparatus for Melting Snow
0258	Complete	Corrosion Protection Process for Bore Hole Tool
0259	Complete	Hydrostatic Support Sleeve and Rod - Gas Release Probe
0260	Complete	Method and Apparatus for Handling and Dry Quenching Coke
0261	Other Assistance	A New Apparatus for Making Asphalt Concrete
0262	Complete	Energy Saving Pump and Pumping System
0263	No DOE Support	Method for Reconditioning Rivetless Chain Links
0264	Complete	Desulfurization of Coal
0265	Complete	Method and Apparatus for Direct Application of Treatment Liquid to Growing Vegetation
0266	Other Assistance	Energy Conversion Method
0267	Complete	Integrated Gasification of Coal, Municipal Solid Wastes and Sludge
0268	Complete	Apparatus for Enhancing Chemical Reactions
0269	Analysis	Refrigerant Accumulator and Charging Apparatus
0270	Complete	Method of Energy Recovery for Wastewater Treatment
0271	Complete	Hydrogen Storage System
0272	Complete	V-Plus System
0273	No DOE Support	Open Cycle Latent Heat Engine
0274	Complete	Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency
0275	Award	Low Head - High Volume Pump
0276	Complete	Gas Concentration Cells as Converters of Heat into Electrical Energy
0277	Analysis	Electronic Conveyor Control Apparatus
0278	Complete	Complete System for Large Solar Water Heating and Storage
0279	Complete	Method and Means for Preventing Frost Damage to Crops
0280	Complete	Down Hole and Above Ground Resistance Heating for Paraffin Elimination
0281	Complete	Sun Synchronous Solar Powered Refrigerator
0282	Complete	Insulated Siding
0283	Complete	Aluminum Roofing Chips
0284	Complete	Atomized Oil-Injected Rotary Screw Compressors
0285	Award	Novel Fluid Ring (F/R) Seal Systems for Railroad Axle Bearing Systems
0286	Complete	Use of Pulse-Jet for Atomization of Coal/Water Mixture
0287	Complete	Automatic Variable Pitch Marine Propeller
0288	Decision Phase	Dickinson Pure Air Combustion (DIPAC) and Modified DIPAC (MODIPAC)
0289	Complete	An Earthquake Barrier
0290	Award	Low Energy Ice Making Apparatus
0291	Complete	Selective Zone Isolation for HVAC System
0292	Complete	Roof Construction Having Membrane and Photo Cells
0293	Award	"Therm-A-Valve" - Insulated Valve Coverings
0294	Complete	Highway Power Patcher
0295	Complete	Improved Method of Electroplating Aluminum for Corrosion Resistance
0296	Complete	Shower Bath Economizer
0297	Complete	Series (Two-Wire) V-Controller
0298	Complete	Three Tenths Degree Kelvin Closed Cycle Refrigeration System

INDEX TO RECOMMENDED INVENTIONS(cont.)

DOE No.	STATUS	TITLE
0299	Complete	Process for Using Cocurrent Contacting Distillation Column
0300	Complete	Casing Stabbing Apparatus
0301	Award	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	Award	Automatic Filter Network Protection, Failure Detection and Correction System and Method
0306	Award	An Efficiency Computer for Heated or Air Conditioned Buildings
0307	Award	Vortex Generators for Aft Regions of Aircraft Fuselages
0308	Award	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	Award	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	Award	Rolling Filter Apparatus
0315	Award	Method of Processing Biodegradable Organic Material
0316	Complete	Thrust Impact Rock Splitter
0317	Award	Edge-Illuminated Multi-Junction (VMJ) Solar Cell
0318	Complete	Bi-Polar Electrode for Hall-Heroult Electrolysis
0319	Award	Removal of Hydrogen Sulfide from a Gas Stream
0320	Analysis	Coal Gasification with Carbon Dioxide and Lime Recycling
0321	Analysis	Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen
0322	Award	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	Award	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	Analysis	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	Award	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	Award	Raw Fines Medium Coal Washing System
0343	Analysis	Electronic Octane
0344	Complete	Machine for Separating Concrete from Steel

INDEX TO RECOMMENDED INVENTIONS(cont.)

DOE No.	STATUS	TITLE
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	Award	A Waterjet Mining Machine
0353	Decision Phase	Compu-Turbo-Aligner
0354	Award	Preparation of Biliquid Foam Compositions
0355	Award	Energy-Efficient Ice Cube Making Machine
0356	Complete	Portable Automatic Firewood Processor
0357	Complete	TUBEXPRESS 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	Award	Improved Solvents for the Puraq Seawater Desalination Process
0363	Complete	Impactor Separator
0364	Complete	Intermittant Solar Ammonia Absorption Cycle (ISAAC)
0365	Decision Phase	Safety Stovepipe Damper Assembly
0366	Award	High Energy Semiconductor Switch
0367	Award	Disintegration of Wood
0368	Analysis	Aircraft Minimum Drag Speed System
0369	Award	"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	Decision Phase	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	Analysis	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	Award	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	Award	Quiet Operating Internal Combustion Engine with Complete Highly Efficient Expansion Cycle
0388	Analysis	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	Analysis	Compressed Gas Energy Storage
0392	Analysis	Method and Apparatus for Drilling Horizontal Holes in Geological Structures from a Vertical Bore

INDEX TO RECOMMENDED INVENTIONS(cont.)

DOE No.	STATUS	TITLE
0393	Award	Method and Apparatus for Ultrasonic Testing of Tubular Goods
0394	Decision Phase	Variable Wall Mining Machine
0395	Award	Holland Oil Well Pumping System
0396	Award	Dyna Flow
0397	Award	In Service Tank Bottom Leak Detection and Repair System
0398	Analysis	Hydraulic Test Unit - Test Plugs - Mechanical Seal Plugs
0399	Award	Hydrodynamic/Multi Deflection Pad Bearing
0400	Decision Phase	Continuous Casting and Inside Rolling of Hollow Rounds
0401	Award	A Miniature, Inexpensive Oxygen-Sensing Element
0402	No DOE Support	KTM Logger
0403	Award	Enterprise Lubricator
0404	Analysis	Steam-Methane Reforming in Molten Carbonate Salt
0405	Analysis	Prehydrolysis and Digestion of Plant Material
0406	Award	Aluminum Reduction Cell Spent Potlining Fluid Bed Incinerator
0407	Analysis	An Extended Range Tankless Water Heater
0408	No DOE Support	Floodshield System
0409	Award	Self-Dressing Resistance Welding Electrode
0410	Award	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	Analysis	Non Metallic Railroad Switch Covers
0414	Award	Low Profile Fluid Catalytic Cracker
0415	Decision Phase	Oil Recovery by Modified Steam Drive Employing High Velocity Non-Condensible Gas
0416	Analysis	Self-Contained Pipe Freezing Unit
0417	Analysis	Rotary Drill Bit
0418	Analysis	Use of Chemical Vapor Deposition to Coat Metal Surfaces with High Temperature Superconducting Materials
0419	Award	A Planing Machine to Produce Ultra-Fine Coal
0420	Analysis	The Utah Transmission/Continuously Variable Speed Wind Generator
0421	Award	Flexible Drill Pipe
0422	Award	High Efficiency Ozone Generating System
0423	Award	Superverter - A Digitally Synthesized DC to AC Sinewave Inverter
0424	Analysis	An Automated Process for Garment Manufacturers
0425	Award	High Temperature Condensing Biomass Combustion System
0426	Award	Eddy Current Transducing System
0427	Award	Non-Catalytic Steam Hydrolysis of Fats
0428	Award	Uni-Frac Column and T-By Tray
0429	Decision Phase	A Low Cost Galloping Indicator
0430	Decision Phase	Whitten Dugas Mud Pump Ehnancer
0431	Analysis	Method and Apparatus for Removing Excess Water from Subterranean Wells.
0432	Analysis	Water Hammer Pile Driver
0433	Award	Improved Methods to Manufacture and Use Carbon- Alumina Composite Anodes for Aluminum Reduction
0434	Analysis	Modular Apparatus for Laundry Dryer Heat Recovery
0435	Analysis	A New Thermodynamic Process of Actual Approach to the Carnot Cycle
0436	Award	The Russell Self-Piloted Check Valve
0437	Award	Steam Generator With Integral Down-Draft Dryer
0438	Analysis	Microwave Reflection by Synthetic Metals
0439	Analysis	Project Twenty-One Rapid Transit System
0440	Decision Phase	Microtube Strip Heat Exchanger
0441	Award	Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Therby

INDEX TO RECOMMENDED INVENTIONS(cont.)

DOE No.	STATUS	TITLE
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	Award	Apparatus and Method for Using Microwave Radiation to Measure Water Content of a Fluid
0445	Analysis	Condenser Tube Insertion Device
0446	Award	Heavy Oil Recovery Process
0447	Award	Hot Control of Unit Volume Energy of Grinding
0448	Award	New Automatic Transmission for Road Vehicles
0449	Award	Fuel Savings in the Heavy Trucking Industry Through Cool Storage
0450	Analysis	Portable Ultrasonic Inspection System for Oil Country Tubulars
0451	Analysis	In-Place Asphalt Pavement Restoration, via Recycling of the Existing Materials
0452	Decision Phase	Magnetic Thin Films Formed in a Glow Discharge
0453	Award	Particle Densitometer Based on the Acoustical Resonance Measurement
0454	Decision Phase	Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids
0455	Award	Thermoelectric Generator for Diesel Engines
0456	Analysis	A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output
0457	Decision Phase	Continuous Saccharification of Ligno-Celluistic Biomass in Two Stages
0458	Decision Phase	Continuous Casting by Float Process of Thin Sheet Carbon Steel
0459	Decision Phase	Natural Gas Conversion Process
0460	Procurement	Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor
0461	Analysis	Thermally Stable Polyenaminonitriles Which Cure Without Evolution of Volatiles
0462	Decision Phase	Energy Efficient Asymetric Pre-Swirl Vane and Twisted Propeller Propulsion System
0463	Analysis	Carburetor Fuel Feed System with Bidirectional Passages
0464	Analysis	Chain Saw Tip Stabilizing Device for Use with an Anti-Kickback Device
0465	Analysis	Multiconductive Base Form Microchip Carrier/Connector
0466	Analysis	Coal Log Fuel Pipeline Transportation System
0467	Analysis	High Pressure Lubricoolant Jet for Supporting Metal Machining
0468	Analysis	Constant-Torque System for Beam Pumps
0469	Analysis	Recuperator of Flue Gas Heat
0470	Analysis	Flat Belt Continuously Variable High Speed Drive
0471	Decision Phase	Method and Tool for Logging-While-Drilling
0472	Analysis	Method and Apparatus for Maximizing Refrigeration Capacity
0473	Analysis	Energy Saving Head Pressure Control System for Air Cooled Condensers
0474	Analysis	Sweep-Spike Combination Tillage Tool
0475	Decision Phase	Auxiliary A-C, Heating and Engine Warming System for Trucks
0476	Analysis	Pickard Line-up Boom
0477	Analysis	"Ultra Design Method" - Method for Designing Apparel by Computer
0478	Analysis	The "Triple Design Cycle" Cogeneration Program
0479	Analysis	Solar Cooker
0480	Analysis	AlasCan Composting Toilet and Greywater Treatment Systems
0481	Other Assistance	Refrigerant Mixture of R-11 and R-216 to Provide Ice Making Abilities in Centrifugal Compressors
0482	Analysis	Improved Fluid Pumping Device and Liquid Sensor
0483	Analysis	Downhole Neutron Flux Monitor
0484	Analysis	MUD DEVIL - Deaerator Mixer
0485	Analysis	Method and Apparatus for Placing Cement Plugs in Wells
0486	Analysis	Cotton Stalk and Shredder with Re-Bedder

3.2 Brief Descriptions of Recommended Inventions

The following presents brief descriptions of each of the inventions 251 through 486 recommended by the Office of Energy Related Inventions 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: 0251 DOE Coord: G.K.Ellis

Title: Process and Apparatus for Reducing the Energy Required to Separate Liquids by Distillation

Description: A method for heat recovery in distillation by providing heat exchange tubing directly on the trays of the tower. This method is used primarily in crude oil stills.

Inventor: Victor R Thayer
State : DE

Contact:
E A Kiessling
Texim Associates
15402 Wandering Trail
Friendswood TX 77546
302-239-5059

Status: Complete Status Date: 09/12/88 OERI No.: 009260
Patent Status : Patent # - 4265736
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 12/03/82
Recom. by NIST : 01/31/84
Award Date : 03/13/87 Award Amount: $ 41,565 Grant No: FG01-87CE15303
Contract Period: 03/13/87 - 09/12/88

Summary: A grant of $41,565 was awarded on March 13, 1987, to investigate the technology further. The technology was determined not to be cost effective under current economic conditions.

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DOE No: 0252 DOE Coord: D.G.Mello

Title: Thermal Bank

Description: The "Thermal Bank" is a latent heat type thermal energy storage system. Calcium chloride hexahydrate, the phase change salt, or any suitable phase change material, is used as the working medium. Selected plastic film is employed to form, fill and seal the tube sheets for the "Thermal Bank" packaging.

Inventor: William C Whitman
State : NJ

Contact:
William C Whitman
Three Fourth Street
New Brunswick NJ 08901
201-545-3849

Status: Complete Status Date: 08/26/86 OERI No.: 009217
Patent Status : Patent # - 4287942
Development Stage : Production Engineering
Technical Category: Miscellaneous

Recv by NIST : 11/02/82
Recom. by NIST : 01/31/84
Award Date : 03/19/85 Award Amount: $ 70,778 Grant No: FG01-85CE15211
Contract Period: 03/19/85 - 09/18/85

Summary: A grant of $70,778 was awarded on March 19, 1985 to Rutgers University to test efficiency of various packaging materials and eutectic salts. The grantee reached agreement with Rutgers to continue R & D beyond grant period using private sector and State of New Jersey co-funding.

DOE No: 0253 DOE Coord: J.Aellen

Title: High Performance Heat Pump

Description: A modified Brayton refrigeration cycle using injected liquid to achieve better performance.

Inventor: Anthony Peters
State : NJ

Contact:
Anthony Peters
300 Winston Drive
Cliffside Park NJ 07010
201-886-1320

Status: Complete Status Date: 11/26/85 OERI No.: 008635
Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv by NIST : 09/10/81
Recom. by NIST : 02/24/84
Award Date : 09/27/84 Award Amount: $ 63,200 Grant No: FG01-84CE15198
Contract Period: 09/27/84 - 11/26/85

Summary: A grant of $63,200 was awarded to perform a thermodynamic analysis, study component design and perform an economic analysis. Received the final report for the work done in phase I. The inventor worked on a different version of heat pump rather than the one that was recommended by NIST without prior approval of DOE. Work terminated on this project. About $25,000 of the total grant has been spent so far.

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DOE No: 0254 DOE Coord: D.G.Mello

Title: "Turbo-Glo" Immersion Furnace

Description: A gas-fired melting furnace designed for melting aluminum. The design uses a new type combustion chamber and heat transfer device.

Inventor: Daniel Douenias
State : NY

Contact:
Daniel Douenias
Gim Metal Products, Inc.
164 Glen Cove Road
Carle Place NY 11514
516-741-3005

Status: Complete Status Date: 09/30/86 OERI No.: 009327
Patent Status : Not Applied For
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv by NIST : 01/10/83
Recom. by NIST : 03/23/84
Award Date : 01/29/85 Award Amount: $ 74,700 Grant No: FG01-85CE15201
Contract Period: 01/29/85 - 07/29/86

Summary: A grant of $74,700 was awarded on January 29, 1985 to build and test a prototype under actual foundry conditions. Invention saves 66% of fuel formerly required for the same operation. Grantee plans to license technology to competitors.

DOE No: 0255 DOE Coord: G.K.Ellis

Title: Method and Apparatus for Scrubbing Gas - Scrubbing Apparatus

Description: A patented stack gas scrubber which contains a rotatable impeller to duplicate high energy venturi scrubber performance and which is claimed, as a result of tested, to use 50% less power consumption.

Inventor: Arthur F Stone
State : NJ

Contact:
Arthur F Stone

Status: Decision Phase Status Date: 07/15/86 OERI No.: 009806
Patent Status : Patent # - 4289506 and others
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 11/03/83
Recom. by NIST : 03/27/84

Summary: Several proposals have been received from the inventor. Parties unable as yet to reach agreement on a proposal DOE can support. Awaiting next action from inventor.

****

DOE No: 0256 DOE Coord: J.Aellen

Title: Method and Apparatus for Irrigating Container Grown Plants

Description: A method and apparatus for irrigating container grown plants.

Inventor: Evert S Green
State : NY

Contact:
Evert S Green

Status: Other Assistance Status Date: 09/30/89 OERI No.: 009696
Patent Status : Patent # - 4245434 and others
Development Stage : Production & Marketing
Technical Category: Miscellaneous

Recv by NIST : 09/14/83
Recom. by NIST : 04/25/84

Summary: Referred to NATAS for licensing assistance.

DOE No: 0257 DOE Coord: A.R.Barnes

Title: Method and Apparatus for Melting Snow

Description: A process to remove snow from city streets by melting instead of hauling to dump sites.

Inventor: Richard H Baasch
State : NE

Contact:
Richard H Baasch
Post Office Box #1013
Grand Isle NE 68802
308-382-5749

Status: Complete Status Date: 08/25/86 OERI No.: 009758
Patent Status : Patent Applied For
Development Stage : Production Engineering
Technical Category: Miscellaneous

Recv by NIST : 10/07/83
Recom. by NIST : 04/30/84
Award Date : 08/26/85 Award Amount: $ 60,492 Grant No: FG01-85CE15204
Contract Period: 08/26/85 - 08/25/86

Summary: A grant of $60,492 was awarded on August 26, 1985, to build and test three prototypes in cooperation with various municipalities. Technology shelved on basis of cost effectiveness.

****

DOE No: 0258 DOE Coord: J.Aellen

Title: Corrosion Protection Process for Bore Hole Tool

Description: A process for providing an aluminum alloyed surface on iron-base alloys for down-hole tools and parts for improved corrosion resistance replacing more expensive alloys such as chromium and nickel-based alloys and others. This process would be used primarily for parts used in gas and oil wells.

Inventor: Anthony T Rallis
State : TX

Contact:
Anthony T Rallis
4700 Polo Parkway
Apartment #103
Midland TX 79705
915-684-8811

Status: Complete Status Date: 09/30/89 OERI No.: 009525
Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv by NIST : 04/29/83
Recom. by NIST : 05/15/84
Award Date : 04/22/85 Award Amount: $ 67,766 Grant No: FG01-85CE15213
Contract Period: 04/22/85 - 04/30/87

Summary: A grant of $67,766 was awarded on April 22nd, 1985, to prepare samples suitable for laboratory and field tests. The technology is in limited production.

DOE No: 0259 DOE Coord: G.K.Ellis

Title: Hydrostatic Support Sleeve and Rod - Gas Release Probe

Description: A mechanism for reducing or eliminating gas-lock problems with oil well pumps.

Inventor: William A Jones
State : CA

Contact:
William A Jones
P O Box #621
Lotus CA 95651
916-622-9171

Status: Complete Status Date: 07/15/86 OERI No.: 009812
Patent Status : Disclosure Document Program
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 11/07/83
Recom. by NIST : 05/17/84
Award Date : 04/15/85 Award Amount: $ 81,220 Grant No: FG01-85CE15216
Contract Period: 04/15/85 - 04/04/86

Summary: A grant of $81,220 was awarded on April 15, 1985, to build and test a prototype in cooperation with oil producing companies. Project completed with average production increase of 24.5% and average energy saving of 44.3%. Inventor has licensed the technology.

****

DOE No: 0260 DOE Coord: G.K.Ellis

Title: Method and Apparatus for Handling and Dry Quenching Coke

Description: Method and apparatus for handling and dry quenching coke which is pollution free, producing higher yields of quality coke with a recovery means of sensible heat for a useful purpose.

Inventor: Edward S Kress
State : IL

Contact:
Gene C Carpenter
227 Illinois Street
Brimfield IL 61517
309-446-3395

Status: Complete Status Date: 08/06/87 OERI No.: 009736
Patent Status : Patent # - 4285772
Development Stage : Production & Marketing
Technical Category: Industrial Processes

Recv by NIST : 10/03/83
Recom. by NIST : 05/24/84
Award Date : 05/31/85 Award Amount: $ 57,773 Grant No: FG01-85CE15227
Contract Period: 05/31/85 - 08/06/87

Summary: A grant was awarded to build and test a prototype, which has been successfully tested and put in operation. As part of a $92 cleanup of Bethleham Steel's Sparrows Point plant in Baltimore, MD, the installation of a $15 million Kress/coke-quenching system will be completed by October, 1991. Major benefits are anticipated in reduced maintenance requirements, increased yield per ton of coal treated, increased energy-saving from the hot coke, improved coke quality, and increased coke oven productivity.

DOE No: 0261 DOE Coord: G.K.Ellis

Title: A New Apparatus for Making Asphalt Concrete

Description: An asphalt concrete manufacturing process that reduces energy requirements by recovering the latent heat of vaporization from the moisture removed during the manufacturing process and eliminates air pollution by using modern heat transfer methods.

Inventor: Paul E Bracegirdle
State : PA

Contact:
Paul E Bracegirdle

Status: Other Assistance Status Date: 09/17/85 OERI No.: 009690
Patent Status : Patent # - 4378162 and others
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv by NIST : 09/06/83
Recom. by NIST : 05/24/84

Summary: Inventor licensed his technology to a foreign company. There is no further action required of DOE.

****

DOE No: 0262 DOE Coord: J.Aellen

Title: Energy Saving Pump and Pumping System

Description: A centrifugal pump and pumping system that automatically provide recirculating flow at low output flows when pump cooling is needed and that recovers hydraulic energy in response to reduced output flows.

Inventor: Kai-Chih Cheng
State : WA

Contact:
Kai-Chih Cheng
Innovative Tech Laboratory
2339 Davison Avenue
Richland WA 99336
509-582-2660

Status: Complete Status Date: 09/16/86 OERI No.: 009691
Patent Status : Patent # - 4396347
Development Stage : Working Model
Technical Category: Miscellaneous

Recv by NIST : 09/06/83
Recom. by NIST : 06/20/84
Award Date : 04/17/85 Award Amount: $ 85,837 Grant No: FG01-85CE15207
Contract Period: 04/17/85 - 09/16/86

Summary: A grant was awarded on to build and test the proposed pump.

DOE No: 0263 DOE Coord: J.Aellen

Title: Method for Reconditioning Rivetless Chain Links

Description: An upsetting process used to recondition chain links of the type used on industrial conveyors.

Inventor: William Tunderman
State : IL

Contact:
William Tunderman

Status: No DOE Support Status Date: 09/18/85 OERI No.: 009849
Patent Status : Patent # - 4229962
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 10/03/83
Recom. by NIST : 06/22/84

Summary: Inventor received an award to conduct a market survey from the State of Illinois. Further assistance will be considered by DOE at the completion of the market survey.

****

DOE No: 0264 DOE Coord: J.Aellen

Title: Desulfurization of Coal

Description: A process for the selective wet oxidation of the sulfur content of high sulfur coal into sulfur trioxide or other use in order to produce a low sulfur coal for the slurry pipeline transport or other use.

Inventor: Donald F Othmer
State : NY

Contact:
Agit Chowdhury
Zimpro. Incorporated
Military Road
Rothschild WI 54474
715-359-7211

Status: Complete Status Date: 06/02/86 OERI No.: 009202
Patent Status : Patent # - 4251277
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 11/09/82
Recom. by NIST : 06/22/84
Award Date : 07/03/85 Award Amount: $ 71,244 Grant No: FG01-85CE15206
Contract Period: 07/03/85 - 06/02/86

Summary: A grant was awarded to perform laboratory tests for desulfurization of coal by Zimpro, Inc., located in Wisconsin.

DOE No: 0265 DOE Coord: G.K.Ellis

Title: Flozone method and Apparatus for Direct Application of Treatment Liquid to Growing Vegetation

Description: A new type of tractor-mounted applicator that wipes herbicide onto growing weeds.

Inventor: John W Richardson
State : LA

Contact:
John W Richardson
J Sherman Richardson
Route Three, Box #81
Colfax LA 71417
318-627-9171

Status: Complete Status Date: 09/30/89 OERI No.: 009918
Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv by NIST : 01/06/84
Recom. by NIST : 07/18/84
Award Date : 07/15/86 Award Amount: $113,417 Grant No: FG01-85CE15217
Contract Period: 07/15/86 - 09/23/88

Summary: A grant was awarded to build and test a prototype. Inventor was given an additional awarded in view of some unanticipated development problems encountered. A production prototype was completed and is in the market place. Compared to the alternative technologies, Flozone's cost is less than half the cost for the wick method and about one-fifth the cost of overtop spray. Inventor is being helped to find licensing or joint venture opportunity.

****

DOE No: 0266 DOE Coord: J.Aellen

Title: Energy Conversion Method

Description: A novel "Heat Pump" using engine-driven compressor and steam ejectors to compress low pressure steam to more useful levels.

Inventor: Dan Egosi
Country : Israel

Contact:
Dan Egosi

Status: Other Assistance Status Date: 09/13/85 OERI No.: 009582
Patent Status : Patent # - 4282070
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 01/06/83
Recom. by NIST : 08/22/84

Summary: Inventor needs licensing help. DOE sent him names of appropriate companies in the U.S. to be contacted for licensing.

DOE No: 0267 DOE Coord: J.Aellen

Title: Integrated Gasification of Coal, Municipal Solid Wastes and Sludge

Description: Hardware and a process for gasifying coal, solid wastes and sewage sludge.

Inventor: Shang-I Cheng
State : NJ

Contact:
Shang-I Cheng
Seventeen Woodsend Drive
Matawan NJ 07747
212-254-6300

Status: Complete Status Date: 06/09/87 OERI No.: 009565
Patent Status : Patent # - 4357713
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv by NIST : 05/23/83
Recom. by NIST : 08/22/84
Award Date : 05/10/85 Award Amount: $ 70,000 Grant No: FG01-85CE15222
Contract Period: 05/10/85 - 06/09/87

Summary: A grant was awarded to perform laboratory tests, computer simulation and preliminary design.

****

DOE No: 0268 DOE Coord: J.Aellen

Title: Apparatus for Enhancing Chemical Reactions

Description: A process for using ultrasonic energy to enhance chemical reactions and extraction processes.

Inventor: Harold T Sawyer
State : CA

Contact:
Harold T Sawyer
845 Via de la Paz
Pacific Palisades CA 92663
213-459-3020

Status: Complete Status Date: 05/01/87 OERI No.: 009794
Patent Status : Patent # - 4369100 and others
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv by NIST : 10/31/83
Recom. by NIST : 08/22/84
Award Date : 05/02/86 Award Amount: $ 75,402 Grant No: FG01-86CE15263
Contract Period: 05/02/86 - 05/01/87

Summary: An award was granted to build a model and have it tested at the University of Utah.

DOE No: 0269 DOE Coord: G.K.Ellis

Title: Refrigerant Accumulator and Charging Apparatus

Description: An accumulator-charger installed in the suction line of a vapor-compression refrigeration unit. It provides for accumulation of liquid refrigerant/oil thereby preventing liquid refrigerant from bring drawn into the compressor, and intended to prevent overcharging or undercharging the refrigerant system.

Inventor: Richard J Avery, Junior
State : TX

Contact:
Richard J Avery, Junior

Status: Analysis Status Date: 07/15/86 OERI No.: 009971
Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 02/07/84
Recom. by NIST : 08/30/84

Summary: Recommendation under consideration by DOE. Inventor attended commercialization workshop in Leesburg, VA The technology is being marketed by other parties.

****

DOE No: 0270 DOE Coord: G.K.Ellis

Title: Method of Energy Recovery for Wastewater Treatment

Description: A process and apparatus to recover available hydraulic energy for wastewater aeration by using a specially designed hydraulic gas compressor.

Inventor: Shih-Chih Chang
State : WA

Contact:
Shih-Chih Chang
2339 Davison Avenue
Richland WA 99352
509-582-2664

Status: Complete Status Date: 04/05/85 OERI No.: 009767
Patent Status : Disclosure Document Program
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 10/13/83
Recom. by NIST : 09/07/84
Award Date : 04/05/85 Award Amount: $ 65,055 Grant No: FG01-85CE15210
Contract Period: 04/05/85 - 09/23/88

Summary: A grant was awarded to optimize the variables in a bench-scale test set-up. The inventor has prepared and instrumented this test set-up. He has conducted tests to determine optimum process variables.

DOE No: 0271 DOE Coord: G.K.Ellis

Title: Hydrogen Storage System

Description: A new geometric design hydrogen storage system for rapid heat cycling, using metal hydride systems in finned tubes.

Inventor: William B Retallick
State : PA

Contact:
William B Retallick
1432 Johnny's Way
West Chester PA 19380
215-399-1371

Status: Complete Status Date: 07/15/86 OERI No.: 009734
Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 10/04/83
Recom. by NIST : 09/26/84
Award Date : 06/21/85 Award Amount: $ 50,338 Grant No: FG01-85CE15230
Contract Period: 06/21/85 - 12/20/85

Summary: A grant was awarded to build and test a prototype storage system. Results were encouraging, prompting new research initiative. EPRI is presently actively sponsoring the technology, and seeks to transfer it to industry. Inventor has recently obtained DOE/SBIR Phase I support as a spinoff of this invention.

****

DOE No: 0272 DOE Coord: P.M.Hayes

Title: V-Plus System

Description: A method to cool lubricating oil in a positive displacement rotary screw compressor. A variable speed pump injects liquid refrigerant into the compressor discharge line.

Inventor: Robert M Roeglin
State : WI

Contact:
Robert M Roeglin
2217 South First Street
Milwaukee WI 53207
414-744-0111

Status: Complete Status Date: 12/31/88 OERI No.: 009730
Patent Status : Patent # - 4275570
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv by NIST : 09/14/83
Recom. by NIST : 09/27/84
Award Date : 02/24/87 Award Amount: $149,986 Grant No: FG01-87CE15245
Contract Period: 02/24/87 - 12/31/88

Summary: Grants were awarded to: 1) to test the lubricant cooling system at the Herrick Laboratory at Purdue University and 2) to concurrently test DOE #284 Atomized Oil-Injected Rotary Screw Compressors. Test results were inconclusive due to the low oil flow rate used. The V-Plus System is commercially available from Viltes Manufacturing Corporation.

DOE No: 0273 DOE Coord: P.M.Hayes

Title: Open Cycle Latent Heat Engine

Description: A novel engine that uses relatively low temperature water as a heat source.

Inventor: Julius Czaja
State : NY

Contact:
Julius Czaja

Status: No DOE Support Status Date: 09/13/85 OERI No.: 009866
Patent Status : Patent # - 4106294
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv by NIST : 12/07/83
Recom. by NIST : 09/27/84

Summary: DOE had two meetings and several telephone conversations with the inventor. He cannot decide what course of action to follow. No work proposal has been submitted by the inventor.

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DOE No: 0274 DOE Coord: T.M.Levinson

Title: Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency

Description: A lighting system consisting of electrodeless gas- containing capsules, strung in a clear plastic tubular jacket. The capsules are excited by standing waves produced by a radio frequency generator.

Inventor: Nathan E Passman
State : CO

Contact:
Nathan E Passman
Illuminating Technology Corp
2516 Forty-Ninth Street
Unit Six
Boulder CO 80301
303-440-4486

Status: Complete Status Date: 05/28/87 OERI No.: 007911
Patent Status : Patent # - 3157823 and others
Development Stage : Production & Marketing
Technical Category: Miscellaneous

Recv by NIST : 12/31/80
Recom. by NIST : 09/28/84
Award Date : 09/30/85 Award Amount: $ 79,590 Grant No: FG01-85CE15244
Contract Period: 09/30/85 - 09/29/86

Summary: A one-year grant was awarded to design, build, and demonstrate the unique lighting system. Bridge structures and coal mine passageways will be the first two applications. An unsatisfactory report was received on May 28th, 1987.

DOE No: 0275 DOE Coord: J.Aellen

Title: Low Head - High Volume Pump

Description: A low-head, high volume double-acting piston pump for use in wind-driven water pumping stations.

Inventor: Don E Avery
State : HI

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

Status: Award Status Date: 06/04/86 OERI No.: 010115
Patent Status : Disclosure Document Program
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv by NIST : 04/23/84
Recom. by NIST : 10/15/84
Award Date : 06/04/86 Award Amount: $ 56,325 Grant No: FG01-86CE15278
Contract Period: 06/04/86 - 06/03/87

Summary: A one-year, $56,325 grant was issued to design and demonstrate a low-head, high-volume pump. The County of Maui in Hawaii is cost-sharing. See recommendation #301 for related work. First season test proved concept. Winter 1986, tested 2nd generation product. Present throughput rate uneconomical in urban test. Device installed and working successfully on U. S. Fish and Wildlife bait pond in Hawaii. Grant work not completed. No final report available.

****

DOE No: 0276 DOE Coord: J.Aellen

Title: Gas Concentration Cells as Converters of Heat into Electrical Energy

Description: A system for using gas concentration cells to convert waste heat directly into electricity through heat driven electrochemical reactions.

Inventor: Robert E Salomon
State : PA

Contact:
Robert E Salomon
Chemistry Department
Temple University
Philadelphia PA 19122
215-787-7125

Status: Complete Status Date: 09/30/87 OERI No.: 009713
Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 09/27/83
Recom. by NIST : 10/25/84
Award Date : 06/01/85 Award Amount: $ 79,957 Grant No: FG01-85CE15218
Contract Period: 06/01/85 - 09/30/87

Summary: A grant of $79,957 was awarded on June 1st, 1985, to Temple University for building and testing a prototype model.

DOE No: 0277 DOE Coord: J.Aellen

Title: Electronic Conveyor Control Apparatus

Description: Electronic conveyor control, U.S. Patent #4,372,439 dated February 8, 1983, describes an automatic start/stop system for conveyor belts. Tests in three post offices over two 30 day periods (with and without the control) show a 50% reduction in energy used to drive the belts. No proposal submitted.

Inventor: Guy C Dempsey
State : VA

Contact:
Smart Technologies, Inc

Status: Analysis Status Date: 09/18/85 OERI No.: 010221
Patent Status : Patent # - 4372439
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv by NIST : 06/08/84
Recom. by NIST : 11/23/84

Summary: Recommendation under consideration by DOE.

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DOE No: 0278 DOE Coord: P.M.Hayes

Title: Complete System for Large Solar Water Heating and Storage

Description: An integrated system of solar collection and thermal storage for service water heating. It is a large- scale water heating system utilizing a heat pipe arrangement to extract thermal energy from an air- based solar collector.

Inventor: James M Stewart
State : SC

Contact:
James M Stewart
115 Sylvan Way
Greenville SC 29605
803-242-9492

Status: Complete Status Date: 08/07/87 OERI No.: 009238
Patent Status : Patent # - 4340033 and others
Development Stage : Production Engineering
Technical Category: Direct Solar

Recv by NIST : 11/23/82
Recom. by NIST : 11/29/84
Award Date : 06/27/85 Award Amount: $ 71,581 Grant No: FG01-85CE15223
Contract Period: 06/27/85 - 06/26/87

Summary: A grant of $71,581 was awarded on June 27th, 1985, to build and test a prototype solar water heating system. Grant objectives were successfully completed. Technology featured in the NASA Spinoff '88 publication.

DOE No: 0279 DOE Coord: P.M.Hayes

Title: Method and Means for Preventing Frost Damage to Crops

Description: A mobile machine for preventing frost damage to crops by taking in warmer air from above crop level, heating the air slightly with a burner, and blowing the air horizontally through the crops at low level.

Inventor: Douglas R Reich
State : FL

Contact:
Douglas R Reich
4563 Springview Circle
Port Labelle FL 33935
813-675-6205

Status: Complete Status Date: 08/07/87 OERI No.: 009638
Patent Status : Patent # -
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 01/29/83
Recom. by NIST : 11/29/84
Award Date : 08/26/85 Award Amount: $ 74,280 Grant No: FG01-85CE15231
Contract Period: 08/26/85 - 08/07/87

Summary: A grant of $74,280 was awarded on August 26th, 1985, to fabricate, test and evaluate a new prototype. Field tests were conducted in conjunction with the University of Florida. The inventor leased a 7800 square foot production facility and has had sales in excess of $3 million.

****

DOE No: 0280 DOE Coord: J.Aellen

Title: Down Hole and Above Ground Resistance Heating for Paraffin Elimination

Description: A method for removing paraffin from down-hole oil well tubing by use of resistance heating induced in the tubing to heat and melt the paraffin.

Inventor: Andrew W Marr, Junior
State : OK

Contact:
Andrew W Marr, Junior
P O Box #1464
Ardmore OK 73401
405-657-4202

Status: Complete Status Date: 09/22/86 OERI No.: 009509
Patent Status : Patent # - 4303128 and others
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv by NIST : 04/19/83
Recom. by NIST : 11/30/84
Award Date : 08/28/85 Award Amount: $ 58,286 Grant No: FG01-85CE15220
Contract Period: 08/28/85 - 09/22/86

Summary: A grant of $58,286 was awarded on August 28, 1985.

DOE No: 0281 DOE Coord: J.Aellen

Title: Sun Synchronous Solar Powered Refrigerator

Description: Photovoltaic powered refrigerator. Key features are durability, good insulation, efficient vapor/compression cycle, thermal storage, low cost, and sun synchronous operation without the use of batteries.

Inventor: Arthur D Sams
State : CA

Contact:
Arthur D Sams
Polar Products
2908 Oregon Court, I-11
Torrance CA 90503
213-320-3514

Status: Complete Status Date: 11/12/86 OERI No.: 010256
Patent Status : Not Applied For
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 07/02/84
Recom. by NIST : 12/18/84
Award Date : 08/12/85 Award Amount: $ 69,415 Grant No: FG01-85CE15219
Contract Period: 08/12/85 - 12/11/86

Summary: A grant of $69,415 was awarded on August 12th, 1985, to build and test a prototype. Recipient contributed $24,960 in addition to the grant.

****

DOE No: 0282 DOE Coord: J.Aellen

Title: Insulated Siding

Description: An insulated siding for use on houses. Both vinyl and aluminum siding are fabricated with urethane foam averaging 1/2" thick and lined with aluminum foil backing.

Inventor: Eugene Tippmann
State : IN

Contact:
Robert J Koester
Ball State University
Ctr for Energ Res & Ed Svcs
Muncie IN 47306
317-285-1135

Status: Complete Status Date: 09/30/86 OERI No.: 010002
Patent Status : Patent # -
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 02/28/84
Recom. by NIST : 12/18/84
Award Date : 08/29/85 Award Amount: $ 57,798 Grant No: FG01-85CE15240
Contract Period: 08/29/85 - 09/30/86

Summary: A grant of $57,798 was awarded on August 29th, 1985, to Ball State University to build and test prototype insulated sidings.

DOE No: 0283 DOE Coord: P.M.Hayes

Title: Aluminum Roofing Chips

Description: A reflective coating for application to built-up roofing. Aluminum chips are spray-applied to surfaces with good adhesion.

Inventor: Tom Atterbury
State : OH

Contact:
Donald Cullen
Transmet Corporation
4290 Perimeter Drive
Columbus OH 43228
614-276-5522

Status: Complete Status Date: 08/07/87 OERI No.: 010182
Patent Status : Patent # -
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

Recv by NIST : 05/17/84
Recom. by NIST : 12/18/84
Award Date : 06/27/85 Award Amount: $ 78,878 Grant No: FG01-85CE15232
Contract Period: 06/27/85 - 02/01/87

Summary: A grant of $78,878 was awarded on June 27th, 1985, to optimize the size, shape and composition of the aluminum roofing chip system. Tests showed 30-40% energy saving in summer due to the high reflectivity of the Al chips and 10% savings in winter due to low emissivity. The product is gaining acceptance in the market. The company expects several million dollars in sales in 1990.

****

DOE No: 0284 DOE Coord: P.M.Hayes

Title: Atomized Oil-Injected Rotary Screw Compressors

Description: An atomized oil-injection system to improve the power and volumetric efficiencies of the rotary compressors.

Inventor: Anthony N Fresco
State : NY

Contact:
Anthony N Fresco
Post Office Box #734
Upton NY 11973
516-282-7214

Status: Complete Status Date: 12/31/88 OERI No.: 009662
Patent Status : Not Applied For
Development Stage : Concept Definition
Technical Category: Buildings, Structures & Components

Recv by NIST : 08/22/83
Recom. by NIST : 01/24/85
Award Date : 02/24/87 Award Amount: $149,986 Grant No: FG01-87CE15245
Contract Period: 02/24/87 - 12/31/88

Summary: A grant of $149,986 was awarded on February 24th, 1987,for two purposes:(1) to test the atomized oil injection concept for improved efficiency at Purdue University's Herrick Laboratory and (2) to test concurrently ERIP #272, the V-Plus System. The oil injection system was found to improve the volumetric efficiency. Inventor seeking independent financial backing to prepare for licensing negotiation with manufacturers.

DOE No: 0285 DOE Coord: T.M.Levinson

Title: Novel Fluid Ring (F/R) Seal Systems for Railroad Axle Bearing Systems

Description: A lubricant seal for railroad car axle bearings, the seal having no direct frictional contact between rotating and non-rotating parts and depending on dynamic effects for sealing.

Inventor: Hermann Ernst
State : CT

Contact:
Hermann Ernst
Ernst Mechanical Devices
Twenty Crowley Drive
Old Saybrook CT 06475
203-722-5477

Status: Award Status Date: 06/03/87 OERI No.: 010167
Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 05/10/84
Recom. by NIST : 01/25/85
Award Date : 06/03/87 Award Amount: $ 72,000 Grant No: FG01-87CE15334
Contract Period: 06/03/87 - 06/01/90

Summary: A $72,000 grant was awarded on June third, 1987, to design a fluid-ring seal and test it in actual operation on a Burlington Northern railcar. Testing is proceeding on schedule and with promising results.

****

DOE No: 0286 DOE Coord: G.K.Ellis

Title: Use of Pulse-Jet for Atomization of Coal/Water Mixture

Description: Propane or a fuel gas is burned in a pulse-jet. The pulse-jet exhaust is used aerodynamically to atomize a stream of a coal-water mixture injected into a large steam boiler combustor.

Inventor: Momtaz N Mansour
State : MD

Contact:
Momtaz N Mansour

Status: Status Date: 03/14/86 OERI No.: 010313
Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 08/02/84
Recom. by NIST : 01/25/85

Summary: Inventor received contract from Pittsburg Energy Technology Center, a DOE laboratory. No further action by ERIP necessary.

DOE No: 0287 DOE Coord: J.Aellen

Title: Automatic Variable Pitch Marine Propeller

Description: A variable geometry marine propeller having the blades pivoted and balanced so as to automatically adjust propeller pitch, diameter, and basic area ratio in response to shaft speed and hydrodynamic load, thereby enabling the driving engine to function at optimum RPM and fuel efficiency over a broad range of hull speeds and ladings.

Inventor: Don J Marshall
State : MD

Contact:
Don J Marshall
1087 Rodgers Road
P O Box #159
Churchton MD 20733
301-867-2135

Status: Complete Status Date: 12/15/87 OERI No.: 010259
Patent Status : Patent # - 4297079 and others
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 06/26/84
Recom. by NIST : 01/25/85
Award Date : 09/06/85 Award Amount: $ 41,593 Grant No: FG01-85CE15243
Contract Period: 09/06/85 - 12/15/87

Summary: A grant of $41,593 was awarded on September 6, 1985, to build and test the proposed propeller. The test took place at Mississippi State University in cooperation with Sea Grant Advisory Service.

****

DOE No: 0288 DOE Coord: G.K.Ellis

Title: Dickinson Pure Air Combustion (DIPAC) and Modified DIPAC (MODIPAC)

Description: A method of burning coal or coal/water/mixture at high pressure without resultant air pollution.

Inventor: Norman L Dickinson
State : CA

Contact:
Norman L Dickinson

Status: Decision Phase Status Date: 08/06/87 OERI No.: 010307
Patent Status : Patent # - 4380960 and others
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv by NIST : 07/23/84
Recom. by NIST : 01/30/85

Summary: Procurement request prepared. Decision pending whether or not to support.

DOE No: 0289 DOE Coord: P.M.Hayes

Title: An Earthquake Barrier

Description: A concept to absorb the energy of an earthquake with bilinear force-deflection devices at the foundation of a building, thereby providing positive protection against inelastic distortions that cause building damage. This concept is claimed to avoid damage to the buildings during an earthquake and save human life.

Inventor: Marc S Caspe
State : CA

Contact:
Marc S Caspe
1640 Oakwood Drive
San Mateo CA 94403
415-573-8888

Status: Complete Status Date: 01/09/87 OERI No.: 010311
Patent Status : Patent # - 3638377
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv by NIST : 07/26/84
Recom. by NIST : 02/28/85
Award Date : 01/10/86 Award Amount: $ 68,749 Grant No: FG01-86CE15250
Contract Period: 01/10/86 - 01/09/87

Summary: A grant of $37,004 was awarded January 10th, 1986, to perform a conceptual study of the earthquake barrier's configuration, preliminary design, construction schedule and estimate of construction costs for four retrofit projects. An additional $31,745 was awarded on July 28, 1986, to conduct shake table tests on the technology. Japanese architectural and construction firms have taken the lead in developing this type of technology.

****

DOE No: 0290 DOE Coord: J.Aellen

Title: Low Energy Ice Making Apparatus

Description: In this ice-making apparatus, ice is progressively formed on evaporator plates and harvested by a secondary condenser grid heated by the warm liquid refrigerant discharged by the primary water cooler condenser.

Inventor: Jerry Aleksandrow
State : IL

Contact:
Greg Ross
Universal Ice Machine Mfg
900 Jorie Boulevard
Suite Seventy-Two
Oakbrook IL 60521
312-990-1111

Status: Award Status Date: 05/21/86 OERI No.: 009807
Patent Status : Patent # - 4357807
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 11/03/83
Recom. by NIST : 02/28/85
Award Date : 05/21/86 Award Amount: $ 62,500 Grant No: FG01-86CE15258
Contract Period: 05/21/86 - 05/20/87

Summary: A $62,500 grant was awarded on May 21st, 1986, to compare efficiency and safety with comparable machines. The testing program was not started. No final report submitted.

DOE No: 0291 DOE Coord: G.K.Ellis

Title: Selective Zone Isolation for HVAC System

Description: A method for controlling air flow from a central HVAC system in a programmed way so that only selected zones within a building receive air flow during specified time periods

Inventor: Jerry Tartaglino
State : TX

Contact:
Jerry Tartaglino
4911 West Hanover
Dallas TX 75209
214-357-2665

Status: Complete Status Date: 10/08/88 OERI No.: 010331
Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

Recv by NIST : 08/02/84
Recom. by NIST : 02/28/85
Award Date : 04/15/86 Award Amount: $ 90,769 Grant No: FG01-86CE15261
Contract Period: 04/15/86 - 10/08/88

Summary: An award of $45,384 was granted on April 15th, 1986, to build and demonstrate a prototype. A Phase II grant was awarded on April 9, 1987, for $45,385 to build an advanced prototype. The prototype was completed and tested satisfactorily. The inventor is now actively marketing the invention and has it in production.

****

DOE No: 0292 DOE Coord: J.Aellen

Title: Roof Construction Having Membrane and Photo Cells

Description: A building roof construction that also serves as a substrate, electrical interconnection, and protective covering for an array of flexible voltaic elements intended to generate electrical power for use in the building or elsewhere.

Inventor: Thomas F Francovitch
State : MD

Contact:
Thomas F Francovitch
216 Circle Road
Pasadena MD 21122
301-437-3727

Status: Complete Status Date: 08/25/86 OERI No.: 010297
Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Direct Solar

Recv by NIST : 07/19/84
Recom. by NIST : 02/28/85
Award Date : 08/26/85 Award Amount: $ 40,130 Grant No: FG01-85CE15239
Contract Period: 08/26/85 - 08/25/86

Summary: A grant of $40,130 was awarded on August 26th, 1985, to perform laboratory tests on the roof membrane and photocells.

DOE No: 0293 DOE Coord: J.Aellen

Title: "Therm-A-Valve" - Insulated Valve Coverings

Description: A solar powered system to keep critical flow control valves from freezing on gas wells during cold weather.

Inventor: Randell D Ball
State : OK

Contact:
PFI, Inc
128 Northwest 67th Street
Oklahoma City OK 73116
405-354-4584

Status: Award Status Date: 01/15/86 OERI No.: 010130
Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv by NIST : 04/24/84
Recom. by NIST : 03/29/85
Award Date : 01/15/86 Award Amount: $ 56,193 Grant No: FG01-86CE15254
Contract Period: 01/15/86 - 03/31/90

Summary: A grant for $56,193 was awarded on January 15th, 1986, to build and test prototype valve covers, first in the laboratory and then in the field, under actual conditions.

****

DOE No: 0294 DOE Coord: G.K.Ellis

Title: Highway Power Patcher

Description: A portable self-propelled pavement patching machine which blows debris from a distressed area of pavement, mixes and applies an unheated crushed rock and asphalt patching material, and compacts the patch by means of a roller.

Inventor: Carl L Sterner
State : CA

Contact:
Carl L Sterner
Route Four, Box #372
Bakersfield CA 93309
805-589-3355

Status: Complete Status Date: 08/15/86 OERI No.: 010077
Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv by NIST : 03/20/84
Recom. by NIST : 03/29/85
Award Date : 08/15/85 Award Amount: $ 60,031 Grant No: FG01-85CE15241
Contract Period: 08/15/85 - 08/15/86

Summary: A grant of $60,031 was awarded on August 15, 1985, to build and test a self-propelled highway pavement patching machine. Mr. Sterner has received numerous inquiries about his machine from all over the U.S. and seeks to license the technology.

DOE No: 0295 DOE Coord: J.Aellen

Title: Improved Method of Electroplating Aluminum for Corrosion Resistance

Description: A method for electroplating ferrous metals with aluminum for improved corrosion resistance.

Inventor: J Paul Pemsler
State : MA

Contact:
J Paul Pemsler
Castle Technology Corporation
Fifty-Two Dragon Court
Woburn MA 01801
617-933-5634

Status: Complete Status Date: 02/27/87 OERI No.: 010185
Patent Status : Disclosure Document Program
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv by NIST : 05/21/84
Recom. by NIST : 03/29/85
Award Date : 08/28/85 Award Amount: $ 69,000 Grant No: FG01-85CE15236
Contract Period: 08/28/85 - 02/27/87

Summary: A grant of $69,000 was awarded on August 28, 1985, to build and test a prototype.

****

DOE No: 0296 DOE Coord: P.M.Hayes

Title: Shower Bath Economizer

Description: A heat exchanger installed at a shower-bath or tub drain which transfers heat from the drain water to the incoming cold water, thereby reducing the amount of energy required to heat the water.

Inventor: Raymond Hunter
State : TN

Contact:
Raymond Hunter

Chattanooga TN 37404

Status: Complete Status Date: 07/31/86 OERI No.: 009516
Patent Status : Patent # - 4372372
Development Stage : Production Engineering
Technical Category: Buildings, Structures & Components

Recv by NIST : 04/26/83
Recom. by NIST : 03/29/85
Award Date : 02/01/86 Award Amount: $ 58,000 Grant No: FG01-86CE15251
Contract Period: 02/01/86 - 07/31/86

Summary: A grant of $58,000 was awarded on January 1st, 1986, for the final design and development of the shower bath economizer. Test results were not reported to DOE.

DOE No: 0297 DOE Coord: J.Aellen

Title: Series (Two-Wire) V-Controller

Description: An electronic light dimmer for fluorescent lamps, that will mount in a single two-wired switch box without the need for re-wiring or replacing conventional lamp ballasts with "dimming" ballasts.

Inventor: E M Talbott
State : MD

Contact:
Varigas Research, Inc
P O Box #489
1717 York Road
Lutherville-Timonium MD 21093
301-252-6230

Status: Complete Status Date: 10/01/88 OERI No.: 010261
Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 07/05/84
Recom. by NIST : 03/29/85
Award Date : 08/19/85 Award Amount: $ 70,785 Grant No: FG01-85CE15233
Contract Period: 08/19/85 - 10/01/88

Summary: A grant of $51,180 was awarded on August 19th, 1985, to design and build a prototype. Tests will be conducted in phase II.

****

DOE No: 0298 DOE Coord: J.Aellen

Title: Three Tenths Degree Kelvin Closed Cycle Refrigeration System

Description: Closed-cycle refrigeration system to provide cooling to 0.3 Kelvin. Does not consume helium or other liquid cryogens.

Inventor: David L Swartz
State : AZ

Contact:
David L Swartz
Cryosystems, Inc.
1802 West Grant, Suite #122
Tucson AZ 85745
602-882-4628

Status: Complete Status Date: 11/05/87 OERI No.: 010254
Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 06/28/84
Recom. by NIST : 04/19/85
Award Date : 04/05/86 Award Amount: $ 63,500 Grant No: FG01-85CE15248
Contract Period: 04/05/86 - 11/05/87

Summary: A grant of $63,500 was awarded on April 5th, 1986, to build and test a prototype.

DOE No: 0299 DOE Coord: G.K.Ellis

Title: Process for Using Cocurrent Contacting Distillation Column

Description: A new fractionator tray design which achieves higher distillation column output through high-velocity cocurrent vapor-liquid flow in the zones between the trays.

Inventor: William R Trutna
State : TX

Contact:
William R Trutna
2213 Fenwood
Pasadena TX 77502
713-472-5098

Status: Complete Status Date: 09/30/88 OERI No.: 009873
Patent Status : Patent # - 4361469
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 12/07/83
Recom. by NIST : 04/19/85
Award Date : 09/17/86 Award Amount: $ 74,192 Grant No: FG01-86CE15296
Contract Period: 09/17/86 - 09/30/88

Summary: A grant of $74,192 was awarded on September 17, 1986, to build and demonstrate a workable prototype. Tests were completed satisfactorily at the University of Texas' Separation Center, showing a 30% improvement in separations efficiency. The inventor seeks to license the technology.

****

DOE No: 0300 DOE Coord: G.K.Ellis

Title: Casing Stabbing Apparatus

Description: A retrofitable hardware design for the rapid alignment of well casing sections during rig operations to prevent thread damage due to misalignment and cross threading.

Inventor: James McArthur
State : OK

Contact:
James McArthur
Box Fifty
Tishomingo OK 73460
405-371-9223

Status: Complete Status Date: 07/31/87 OERI No.: 010194
Patent Status : Patent # - 4440220
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv by NIST : 05/25/84
Recom. by NIST : 04/30/85
Award Date : 07/18/86 Award Amount: $ 64,337 Grant No: FG01-86CE15276
Contract Period: 07/18/86 - 07/31/87

Summary: A grant of $64,337 was awarded on July 18, 1986, to design, build and test a prototype. The prototype was completed and successfully tested. Inventor has sold the invention to Okie-Yoke, Inc., P. O. Box 105, Lindsay, OK 73052 (405/756-2188), which markets the invention as "Okie-Yoke".

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: Award Status Date: 06/04/86 OERI No.: 010469
Patent Status : Patent # - 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 $43,625 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 of $75,000 was awarded on September 29th, 1986, 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 # - 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 of $71,500 was awarded on February 28th, 1986, to build and test a model. No final report has yet been received.

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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: Award Status Date: 05/01/86 OERI No.: 010257
Patent Status : Patent # - 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 of $72,072 was awarded on May first, 1986, to build a model and to test efficiency. Testing program never completed because of legal problems. No final report has yet been received.

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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
Sixteen Church Street
Stonington CT 06378
203-535-2906

Status: Award Status Date: 04/20/87 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 - 04/19/90

Summary: A $74,450 grant was awarded on April 20th, 1987, to build and test a prototype device. Batelle Pacific Northwest Laboratory is assisting the inventor by providing data on commercial buildings in the Pacific Northwest and analysis of it.

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
d.b.a. Istar, Inc
406 Alta Avenue
Santa Monica CA 90402
213-394-7332

Status: Award Status Date: 06/27/86 OERI No.: 010454
Patent Status : Not 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 $69,307 grant was awarded on June 27th, 1986, 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.

****

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: Award Status Date: 04/19/86 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 of $65,000 was awarded on April 19th, 1986, to construct a demonstration plant to produce high- quality animal protein and fat from carrion.

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 # - 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.

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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 of $77,515 was awarded on September 19th, 1986, 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: Award Status Date: 09/11/89 OERI No.: 006675
Patent Status : Patent # - 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: 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 Petroleum Automation Syst
325 South Hale
Fullerton CA 92631
714-773-4040

Status: Complete Status Date: 08/31/87 OERI No.: 010368
Patent Status : Patent # - 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 of $72,470 was awarded on March 10, 1986, 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 of $85,000 was awarded on January 21st, 1986, 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.

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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
Sixty-Four Euclid Avenue
Pittsfield MA 01201
413-499-3351

Status: Award Status Date: 08/18/86 OERI No.: 010734
Patent Status : Patent # - 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 is 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: Award Status Date: 04/19/86 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 of $75,000 was awarded on April 19th, 1986, 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 # - 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 of $81,891 was awarded on June 17th, 1986, 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: Award Status Date: 09/16/87 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 $80,000 grant was awarded on September 30th, 1987.

****

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 # - 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 of $76,078 was awarded on May 8th, 1986, 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: Award Status Date: 07/30/86 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 of $85,400 was awarded on July 30th, 1986.

****

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: Analysis Status Date: 09/24/85 OERI No.: 010638
Patent Status : Patent # - 4448588 and others
Development Stage : Prototype Test
Technical Category: Fossil Fuels

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

Summary: Recommendation under consideration by DOE.

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: Analysis Status Date: 09/24/85 OERI No.: 010279
Patent Status : Patent # - 4001105 and others
Development Stage : Laboratory Test
Technical Category: Fossil Fuels

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

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

****

DOE No: 0322 DOE Coord: A.R.Barnes

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: Award 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 $75,000 grant was awarded on February 17th, 1987, to develop the second generation cooker with 50% reduction in cost/price. Grant extended to August sixteenth, 1990.

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 # - 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 on April 24th, 1986, in the amount of $76,396 to build and demonstrate a workable prototype. The prototype has been completed and was satisfactorily tested in participation with an interested company.

****

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
Univ. of Missouri, Columbia
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 $75,000 grant was awarded on August 20th, 1986, 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 of $47,357 was awarded on August 8, 1986, 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.

****

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 of $78,251 was awarded on September 22, 1986, 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 # - 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 for $81,426 was awarded on June ninth, 1986, to build and demonstrate a workable prototype. The prototype was completed, and tests were successful.

****

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 of $42,902 was awarded on March 23rd, 1987, 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 # - 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.

****

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 of $69,987 was awarded on July 11th, 1986, to build a furnace to test its capabilities.

DOE No: 0331 DOE Coord: A.R.Barnes

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
Post Office Box #15208
Seattle WA 98115
206-524-2671

Status: Award Status Date: 02/10/87 OERI No.: 010444
Patent Status : Patent # - 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 - 02/09/91

Summary: An $86,611 grant was awarded on February tenth, 1987, to perform bench testing and determine the optimum parameters of performance. Grantee (University of Washington) will cost share in the amount of $6,962. Engine started first time in November 1988.

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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 # - 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 $70,000 grant was awarded on February 10th, 1987, to build and test the technology. No final report has yet been received.

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DOE No: 0334 DOE Coord: G.K.Ellis

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

Status: Analysis Status Date: 12/31/85 OERI No.: 010728
Patent Status : Patent # - 4429952
Development Stage : Limited Production/Marketing
Technical Category: Direct Solar

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

Summary: Awaiting statement of work. Delays have been experienced as a result of So-Luminaire selling the invention, and only recently having repossessed it.

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 $70,000 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 # - 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 $59,916 grant was awarded on August 22nd, 1986, 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 # - 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: An award of $79,750 was made on June 20th, 1986, 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
Alternate Energy Systens, Inc
133 Startrail
Fort Richey FL 33553
813-862-9166

Status: Award Status Date: 08/28/89 OERI No.: 004869
Patent Status : Patent # - 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 of $4,888 was awarded on August 28th, 1989, 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: Grant awarded for $77,791 on February eleventh, 1987, 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 of $69,248 was awarded on September 14th, 1986, 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: Award Status Date: 03/02/87 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 $76,456 grant was awarded on March second, 1987, to test he technology. No final report has yet been received. Testing program was never started.

DOE No: 0343 DOE Coord: A.R.Barnes

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 # - 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: Recommendation under consideration by DOE. 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 # - 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 of $69,956 was awarded on January 20th, 1987, 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
1554 Grimes Avenue
Urbana OH 43078
513-653-6756

Status: Complete Status Date: 09/30/89 OERI No.: 001370
Patent Status : Patent # - 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 for $78,589 was awarded on August 20th, 1986, 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 of $70,000 was awarded on February 19, 1987, 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 of $73,426 was awarded on February second, 1987, 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 # - 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.

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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 of $79,860 was awarded on December 23rd, 1986, for developing final design of 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 # - 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 of $47,661 was awarded to the Virginia Polytechnic Institute on February second, 1987, 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: Award Status Date: 04/27/87 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 - 01/08/90

Summary: A $76,040 grant was awarded on July 27th, 1987, to build and test an advanced prototype.

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

Status: Decision Phase Status Date: 09/30/89 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

Summary: Proposal under consideration by DOE.

****

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: Award Status Date: 04/20/87 OERI No.: 011326
Patent Status : Patent # - 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 of $63,276 was awarded on April 20th, 1987, to compare twenty special compounds (aphrons) and test them in a diesel engine under varying conditions.

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: Award Status Date: 06/22/89 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 of $73,642 was awarded to build and test a prototype.

****

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 # - 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 of $75,411 was awarded on June fifth, 1987, 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 # - 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 of $70,000 was awarded on February second, 1987, 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.: 011010
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 - 07/06/91

Summary: A grant of $78,525 was awarded 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
2610 South Ell Street
Fort Smith AR 72901
501-782-6840

Status: Award Status Date: 01/20/87 OERI No.: 011061
Patent Status : Patent # - 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 of $54,529 was awarded on January 20th, 1987, to build, test and demonstrate the wood furnace heating system. A Phase II grant of $18,569 has also been awarded.

****

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: 07/28/86 OERI No.: 010981
Patent Status : Patent # - 4494595
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

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

Summary: Awaiting statement of work from the inventor.

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 # - 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 - 03/15/91

Summary: A grant of $51,743 was awarded 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: Award Status Date: 06/07/88 OERI No.: 011121
Patent Status : Patent # - 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 for $70,000 was awarded on June 7th, 1988, to produce fifty samples of water absorbant/releasing polymers and the testing of each.

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 of $70,000 was awarded on April 4, 1987, to design, build and test a workable prototype of the regenerative diesel filter invention. Inventor seeking partner to help develop the technology.

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DOE No: 0364 DOE Coord: J.Aellen

Title: Intermittant Solar Ammonia Absorption Cycle (ISAAC)

Description: An intermittant 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 $69,400 grant was awarded on April 23rd, 1987, 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

Status: Decision Phase Status Date: 09/30/89 OERI No.: 011315
Patent Status : Patent # - 4479483
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv by NIST : 12/13/85
Recom. by NIST : 08/21/86

Summary: Request for financial support under consideration.

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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: Award Status Date: 02/24/87 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 $75,000 grant was awarded on February 24th, 1987 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: Award Status Date: 05/19/88 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 for $67,795 was awarded on May 19th, 1988. The work that has been completed to date does not seem very 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 # - 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: Award Status Date: 09/30/89 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 of $68,030 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.

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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
Twenty-Six 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: $ 70,000 Grant No: FG01-89CE15370
Contract Period: 09/28/89 - 09/27/91

Summary: A grant of $70,000 was awarded on September 28th, 1989 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 # - 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 # - 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 # - 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

Status: Decision Phase Status Date: 09/29/89 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

Summary: Proposal under consideration by DOE.

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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: 07/07/88 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 - 01/05/90

Summary: A $64,222 grant was issued on July 7th, 1988, for the purpose of developing a machine that will serve as a testbed for the refinement of the basic concept of using a new technique for winding electric transformer cores. After the feasibility of this new technique is shown, then the grantee will design an engineering model. The grantee is contributing $9,600 to the cost of the project.

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 # - 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 - 05/30/91

Summary: A grant of $65,275 was awarded to build and test prototypes for laboratory and field testing.

****

DOE No: 0380 DOE Coord: G.K.Ellis

Title: Blow-In Blanket System

Description: A 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 are claimed relative to batt, loose-fill, and spray-applied systems.

Inventor: Henry Sperber
State : CO

Contact:
Henry Sperber

Status: Analysis Status Date: 11/28/86 OERI No.: 011454
Patent Status : Patent # - 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: Recommendation under consideration by DOE. Some agreement has finally been reached with inventor as to the general kinds of development ERIP would support. Awaiting a more detailed statement of work.

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 # - 4491101
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

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

Summary: Recommendation under consideration by DOE.

****

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:
Carmile F Vasile
Cordwainer Lane
Huntington NY 11743
516-673-8703

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 - 03/31/91

Summary: A grant of $65,000 was awarded on May second, 1989, to develop and field test prototypes of the waste water recovery system.

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 of $63,502 was awarded on April 9th, 1987, 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: Award Status Date: 06/14/88 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 of $49,444 was awarded by ERIP on June 14th, 1988. This was supplemented by a $27,000 grant from the Office of Industrial Programs to build and test a prototype.

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 # - 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 # - 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 of $88,000 was awarded on September 1, 1987 for developing 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: Award Status Date: 06/14/88 OERI No.: 005848
Patent Status : Patent # - 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 - 12/13/89

Summary: A grant was awarded to Engine Research Associates to build and test a prototype for efficiency and noise level.

****

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: Analysis Status Date: 02/17/87 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: Recommendation under consideration by DOE. No proposal received.

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 # - 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.

****

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 of $70,000 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.

****

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: 03/30/87 OERI No.: 010708
Patent Status : Patent # - 4317492
Development Stage : Concept Development
Technical Category: Fossil Fuels

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

Summary: Recommendation under consideration by DOE. Awaiting statement of work 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: Award Status Date: 08/27/87 OERI No.: 011286
Patent Status : Patent # - 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: An grant was awarded, including $19,721 from DOE/Fossil Energy, to build and test a prototype. The results have exceeded expectations. In view of the variety of potential uses, some technical problems remain to be solved, and further funding support is needed.

****

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: Decision Phase Status Date: 09/29/89 OERI No.: 011464
Patent Status : Patent # - 4118072
Development Stage : Prototype Test
Technical Category: Industrial Processes

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

Summary: Recommendation under consideration by DOE.

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: Award Status Date: 06/09/88 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 interfering with the final testing. The inventor has proposed several adaptations to solve the problem and needs additional funding to support the unanticipated problem. Otherwise, commercial success appears assured in view of the superior performance that appears probable for pumping low- and medium-productivity wells.

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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 Eleventh Street
Miami FL 33135
305-649-6471

Status: Award Status Date: 04/14/89 OERI No.: 011737
Patent Status : Patent # - 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 has been awarded to build and test a workable prototype.

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 : OK

Contact:
Donald E Lewis
Post Office Box Sixty-Three
Disney OK 74340
918-435-4704

Status: Award Status Date: 11/28/88 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 - 05/27/90

Summary: A grant of $69,780 was awarded on November 28th, 1988, to test the leak detection and repair system on a storage tank.

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DOE No: 0398 DOE Coord: A.R.Barnes

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 and the like, in power plants or any other process industry.

Inventor: Renato R Noe
State : NJ

Contact:
Mary Jane Luddy

Status: Analysis Status Date: 06/01/87 OERI No.: 011782
Patent Status : Patent # - 4474216
Development Stage : Production & Marketing
Technical Category: Miscellaneous

Recv by NIST : 07/21/86
Recom. by NIST : 05/29/87

Summary: Recommendation under consideration by DOE. Product is in limited production.

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
Post Office Box #744
Coventry RI 02816
401-828-1799

Status: Award Status Date: 01/12/88 OERI No.: 011653
Patent Status : Patent # - 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 awarded to design, manufacture, and test prototype deflection pad bearings each of the four key market areas. Final prototype testing was done in cooperation with an equipment manufacturer. Prototype design was developed using a computer model that couples the fluid dynamics to the bearing structure. The inventor has received substantial funding from a multinational corporation and is successfully marketing the bearings in many different markets.

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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: 09/29/89 OERI No.: 011789
Patent Status : Patent # - 4546816
Development Stage : Engineering Design
Technical Category: Industrial Processes

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

Summary: Proposal under consideration by DOE.

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: Award Status Date: 08/02/88 OERI No.: 011836
Patent Status : Patent # -
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 - 02/01/90

Summary: A grant was awarded to W.N. Lawless to build and test his patented oxygen-sensing technology.

****

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

Title: KTM Logger

Description: A mobile biomass processing unit, including a shredder and an extruder, used to manufacture burnable logs.

Inventor: Stanley D Balzer
State : CA

Contact:
Stanley D Balzer

Status: No DOE Support Status Date: 09/30/88 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

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

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: Award Status Date: 02/15/89 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: A grant has been awarded to build and test several prototypes.

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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: Analysis Status Date: 07/29/87 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: Recommendation under consideration by DOE.

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: Analysis Status Date: 07/29/87 OERI No.: 011625
Patent Status : Patent # - 4070232
Development Stage : Engineering Design
Technical Category: Fossil Fuels

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

Summary: Recommendation under consideration by DOE.

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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: Award Status Date: 06/01/88 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: A grant was awarded to provide support for building and testing a pilot plant prototype. The prototype has been successfully tested. The inventor has formed a joint venture with Newell Industries of San Antonio to handle disposal of large quantities of low- density materials (fluff). Instead of disposal in landfill, the fluff is to be burned in fluidized bed reactors to generate steam for electrical power. The initial plant is being built. Newell controls 60% of the market

DOE No: 0407 DOE Coord: A.R.Barnes

Title: An Extended Range Tankless Water Heater

Description: An extended range tankless water heater with a peak capacity of roughly 185,000 BTU/hr, designed to operate with uniform efficiency from very low water flowrates to the peak design flowrate. The burner does not activate until a minimum flowrate (about 0.5 gal/min) is reached. The design also has the potential for low manufacturing cost, which can make it competitive with tank-type heaters.

Inventor: James R Harris
State : KS

Contact:
James R Harris
Mechanical Engineering Dep't
Wichita State University
Wichita KS 67208
316-689-3402

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 - 04/18/91

Summary: A grant was awarded to build and test a prototype. Initial applications are foreseen in 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 # - 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 # - 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 - 03/15/91

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

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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: Award Status Date: 06/30/89 OERI No.: 011477
Patent Status : Patent # - 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.

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
313 1/2 Cornell, Southeast
Albuquerque NM 87106
505-831-2730

Status: Award Status Date: 03/16/89 OERI No.: 011390
Patent Status : Patent Applied For
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 - 03/31/91

Summary: The inventor is conducting stationary dynamometer tests at Southwest Research Institute in San Antonio, TX, on a stock 2.3 liter Ford engine. Should the results of the testing be as promising as predicted by theory, then the inventor plans to present his findings to the Society of Automotive Engineers annual meeting on February 26th, 1990.

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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 # - 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 - 04/27/91

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

DOE No: 0413 DOE Coord: A.R.Barnes

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: Award Status Date: 06/05/89 OERI No.: 012058
Patent Status : Patent Applied For
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: Award Status Date: 02/23/89 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 to provide $89,500 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.

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, employing high velocity non- condensible gases, for improved recovery of heavy oils.

Inventor: Todd M Doscher
State : CA

Contact:
Todd M Doscher

Status: Decision Phase Status Date: 09/29/89 OERI No.: 012041
Patent Status : Patent # - 4610304 and others
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 02/13/87
Recom. by NIST : 11/30/87

Summary: A procurement request has been prepared and is under review for scale model work that would be conducted under a DOE/SBIR award. The work would quantify 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.

****

DOE No: 0416 DOE Coord: A.R.Barnes

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: Analysis Status Date: 12/29/87 OERI No.: 011535
Patent Status : Patent # - 4309875
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

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

Summary: Proposal being developed by inventor. Inventor has been dedicated to development of CFC leak detection system for last two years.

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, which is assisting inventor in locating a contractor who can build a prototype.

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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 - 06/19/91

Summary: A grant was awarded to the University of Missouri at Rolla, to build, test and demonstrate a prototype machine.

****

DOE No: 0420 DOE Coord: A.R.Barnes

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:
Laird B Gogins
123 Second Avenue
Apartment #1201
Salt Lake City UT 84103
803-263-3483

Status: Award Status Date: 06/23/89 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 to be installed and tested in a U.S. Postal Service vehicle. Inventor is pursuing development of other applications through private sector joint ventures.

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: 02/01/89 OERI No.: 012312
Patent Status : Patent # - 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: $ 51,895 Grant No: FG01-89CE15421
Contract Period: 02/01/89 - 03/31/91

Summary: A grant was awarded to conduct field tests of the flexible drill pipe in an oil formation. Tests are proceeding in cooperation with an oil field owner.

****

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: Award Status Date: 07/29/88 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 for $78,359 was awarded on July 29th, 1988, 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.

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
503-777-5638

Status: Award Status Date: 05/24/89 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 an advanced five kilowatt prototype.

****

DOE No: 0424 DOE Coord: A.R.Barnes

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: Award Status Date: 08/24/89 OERI No.: 012302
Patent Status : Patent # - 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. Funding is anticipated from New York State program.

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 # - 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 - 09/23/91

Summary: A grant was awarded to design, develop and build a production boiler and test it in cooperation with a potential industry user.

****

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. 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: Award Status Date: 04/11/89 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.

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 - 06/28/91

Summary: A grant was awarded to Montana State University, to design, build and operate a laboratory prototype.

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DOE No: 0428A 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: Award Status Date: 09/30/89 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: A grant was awarded to determine the efficiency of the T-by tray under different operating conditions. The work is being performed at the University of Texas in their Separations Research Program and is being done sequentially with DOE No. 428-B. Discussions with Koch Engineering Company, Inc., leading toward licensing of the technology, are at an advanced stage.

DOE No: 0428B DOE Coord: G.K.Ellis
Title: Uni-Frac Column

Description: The invention is a new column 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: Award Status Date: 09/30/89 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 : 09/19/89 Award Amount: $ 77,005 Grant No: FG01-89CE15998
Contract Period: 09/19/89 - 03/18/91

Summary: A grant was awarded to determine the efficiency of the Uni-Frac column under different operating conditions. The work is being performed at the University of Texas in their Separations Research Program and is being done sequentially with DOE No. 428-A. Discussions with Koch Engineering Company, Inc., leading toward licensing of the technology, are at an advanced stage.

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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

Status: Decision Phase Status Date: 09/29/89 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

Summary: Proposal under consideration by DOE.

DOE No: 0430 DOE Coord: G.K.Ellis

Title: Whitten Dugas Mud Pump Enhancer

Description: A design for injecting a fluid at the base of a piston of a mud pump to reduce wear from the abrasive mud slurry being pumped. The Whitten/Dugas Pump Enhancer can also inject chemicals into the drilling fluid or mud in measured amounts.

Inventor: Harold P Dugas
State : TX

Contact:
Giles M Whitten

Status: Procurement Status Date: 09/23/88 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

Summary: A procurement request for $79,350 was initiated to build and test a prototype on an operating oil well pump.

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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. Awaiting statement of work.

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: Analysis Status Date: 05/31/88 OERI No.: 010416
Patent Status : Patent # - 3922869 and others
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv by NIST : 09/25/84
Recom. by NIST : 05/31/88

Summary: Recommendation under consideration by DOE.

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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: Award Status Date: 03/17/89 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 - 09/16/90

Summary: A grant of $84,998 was awarded on March 17th, 1989, 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.

DOE No: 0434 DOE Coord: A.R.Barnes

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
242-B Laurel Place
Howell NJ 07731
201-370-0695

Status: Award Status Date: 07/20/89 OERI No.: 011801
Patent Status : Patent # - 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 - 09/30/91

Summary: A grant was awarded to build prototypes for different size applications; tests to be conducted in cooperation with commercial laundries and with A.G.A. for certification.

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DOE No: 0435 DOE Coord: L.A.Lee

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.

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: Award Status Date: 09/29/89 OERI No.: 012103
Patent Status : Patent # - 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, test them downhole with cooperating drilling companies and, with the accumulated data, to complete preliminary design of an advanced prototype.

****

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: Award Status Date: 06/30/89 OERI No.: 011408
Patent Status : Patent # - 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 Mr. Hochmuth to test the physical properties of hog fuel and perform an economic analysis.

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: Analysis Status Date: 07/29/88 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: Recommendation under consideration by DOE.

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DOE No: 0439 DOE Coord: A.R.Barnes

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: Award Status Date: 05/11/89 OERI No.: 012388
Patent Status : Patent # - 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.

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

Status: Decision Phase Status Date: 09/29/89 OERI No.: 012615
Patent Status : Patent # - 4676305
Development Stage : Prototype Development
Technical Category: Combustion Engines & Components

Recv by NIST : 04/07/88
Recom. by NIST : 08/05/88

Summary: Recommendation under consideration by DOE.

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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
Twenty-Five Sunset Lane
Hatboro PA 19040
215-441-5225

Status: Award Status Date: 05/25/89 OERI No.: 124646
Patent Status : Patent # - 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 - 05/24/91

Summary: A grant was awarded for the inventor 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.

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 - 06/30/91

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.

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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 - 09/27/91

Summary: A grant was awarded to Mr. Wilson 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
1800 Old Meadow Road
McLean VA 22102
703-734-6909

Status: Award Status Date: 05/03/89 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 of $88,769 was awarded on May third, 1989, to develop and test a half-scale bench model using a chirped microwave signal ranging from one to 26 GHz

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DOE No: 0445 DOE Coord: A.R.Barnes

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: Award Status Date: 08/28/89 OERI No.: 125848
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.

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: Award Status Date: 09/29/89 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 to estimate the facilities cost, specifically for the West Sak heavy oil reservoir located on the North Slope of Alaska.

****

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: Award Status Date: 09/27/89 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 Mr. Smith 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
414-354-1779

Status: Award Status Date: 09/29/89 OERI No.: 012013
Patent Status : Patent # - 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 - 09/28/91

Summary: A grant was awarded to Mr. Valentin 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: Award Status Date: 06/20/89 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 Mr. Carr 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 defect detection method to inspect tubular goods used by the oil and gas industry. The device is portable so that it can inspect tubulars on site.

Inventor: David Siverling
State : TX

Contact:
David Siverling

Status: Analysis Status Date: 11/21/88 OERI No.: 012115
Patent Status : Patent # -
Development Stage : Production Engineering
Technical Category: Fossil Fuels

Recv by NIST : 03/17/87
Recom. by NIST : 11/21/88

Summary: Recommendation under consideration by DOE. Awaiting statement of work.

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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 # - 4545700
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv by NIST : 03/04/87
Recom. by NIST : 11/23/88

Summary: Recommendation under consideration by DOE. Awaiting statement of work.

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

Status: Decision Phase Status Date: 09/29/89 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

Summary: Paperwork is being prepared for a grant.

****

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
Humberg Mtn. Res Laboratories
P O Box 1380
Duarte CA 91010
818-359-4483

Status: Award Status Date: 06/30/89 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

Status: Decision Phase Status Date: 09/29/89 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

Summary: Recommendation under consideration by DOE. Statement of work received and is being considered.

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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: Award Status Date: 09/29/89 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 Mr. Bass to build and test an advanced prototype.

DOE No: 0456 DOE Coord: L.A.Lee

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.

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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-celluistic 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

Status: Decision Phase Status Date: 09/29/89 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

Summary: Proposal under consideration by DOE.

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

Status: Decision Phase Status Date: 09/29/89 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

Summary: Proposal under consideration by DOE.

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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

Status: Decision Phase Status Date: 09/29/89 OERI No.: 012493
Patent Status : Patent # - 4705908
Development Stage : Working Model
Technical Category: Industrial Processes

Recv by NIST : 12/14/87
Recom. by NIST : 02/27/89

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.

DOE No: 0460 DOE Coord: G.K.Ellis

Title: Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor

Description: A portable compact machine for processing logs and brush into "chunk wood" suitable for use in industrial boilers and other applications. The machine feeds the logs, shears them to length, and splits the wood into the desired chunk size.

Inventor: Warren A Aikins
State : WA

Contact:
Warren A Aikins

Status: Procurement 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

Summary: A procurement request was initiated for $79,500 to build and test an advanced prototype.

****

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

Status: Analysis Status Date: 03/29/89 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

Summary: Recommendation under consideration by DOE.

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

Status: Decision Phase Status Date: 09/29/89 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

Summary: Recommendation under consideration by DOE. Paperwork is being prepared for a grant.

****

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 # - 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.

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

Status: Analysis Status Date: 04/17/89 OERI No.: 012108
Patent Status : Patent # - 4569135 and others
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv by NIST : 03/10/87
Recom. by NIST : 04/17/89

Summary: Recommendation under consideration by DOE.

****

DOE No: 0465 DOE Coord: A.R.Barnes

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: Analysis Status Date: 04/24/89 OERI No.: 012673
Patent Status : Patent # - 5654472
Development Stage : Concept Definition
Technical Category: Miscellaneous

Recv by NIST : 05/18/88
Recom. by NIST : 04/24/89

Summary: Recommendation under consideration by DOE.

DOE No: 0466 DOE Coord: G.K.Ellis

Title: Coal Log Fuel Pipeline Transportation System

Description: A process for reducing operating problems and energy requirements in transporting coal through long- distance, water-filled pipelines.

Inventor: Henry Liu
State : MO

Contact:
Gary D Justis

Status: Decision Phase Status Date: 09/29/89 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

Summary: Recommendation under consideration by DOE. A statement of work has been received and is being negotiated.

****

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:
Bob Jenkins

Status: Analysis Status Date: 05/17/89 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

Summary: Recommendation under consideration by DOE.

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 save power. More efficient motor use is claimed.

Inventor: Duncan M Butlin
State : OK

Contact:
Duncan M Butlin

Status: Analysis Status Date: 05/17/89 OERI No.: 012604
Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv by NIST : 03/28/88
Recom. by NIST : 05/17/89

Summary: Recommendation under consideration by DOE.

****

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: Analysis Status Date: 05/23/89 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: Recommendation under consideration by DOE.

DOE No: 0470 DOE Coord: A.R.Barnes

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 automotive engines, turbines, and supercharger drives - industrial, military and off-road vehicle applications.

Inventor: Emerson L Kumm
State : AZ

Contact:
Emerson L Kumm

Status: Analysis Status Date: 05/23/89 OERI No.: 012780
Patent Status : Patent # - 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

Summary: Recommendation under consideration by DOE.

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DOE No: 0471 DOE Coord: G.K.Ellis

Title: Method and Tool for Logging-While-Drilling

Description: A new method of generating pulses in a measurement- while-drilling (MWD) assembly. A braking device controls the rotational speed of the downhole instrument turbine/generator to generate pressure pulses in the drilling fluid.

Inventor: Oleg Kotlyar
State : UT

Contact:
Oleg Kotlyar

Status: Decision Phase Status Date: 09/29/89 OERI No.: 012680
Patent Status : Patent # - 4734892
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv by NIST : 05/20/88
Recom. by NIST : 05/26/89

Summary: Recommendation under consideration by DOE. A statement of work has been received that appears satisfactory.

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.: 012838
Patent Status : Patent # - 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.

****

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

Status: Analysis Status Date: 06/14/89 OERI No.: 011513
Patent Status : Patent # - 4566288
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv by NIST : 04/07/86
Recom. by NIST : 06/14/89

Summary: Recommendation under consideration by DOE. Inventor presently preparing statement of work in accordance with guidelines he received in meeting with us.

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: Analysis Status Date: 06/15/89 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: Recommendation under consideration by DOE.

****

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

Status: Decision Phase Status Date: 09/29/89 OERI No.: 012445
Patent Status : Patent # - 4682649
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv by NIST : 10/29/87
Recom. by NIST : 06/16/89

Summary: Proposal under consideration by DOE.

DOE No: 0476 DOE Coord: G.K.Ellis

Title: Pickard Line-up Boom

Description: A pipe-laying tractor with a conventional side boom and an additional line-up boom. The latter is an inverted jaw clamp that holds the pipe firmly in place during welding and during transportation.

Inventor: Kenneth L Pickard
State : OK

Contact:
Kenneth L Pickard

Status: Analysis Status Date: 06/20/89 OERI No.: 012708
Patent Status : Patent # - 4266910 and others
Development Stage : Production Engineering
Technical Category: Miscellaneous

Recv by NIST : 06/06/88
Recom. by NIST : 06/20/89

Summary: Recommendation under consideration by DOE. Statement of work is presently being negotiated.

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DOE No: 0477 DOE Coord: A.R.Barnes

Title: "Ultra Design Method" - Method for Designing Apparel by Computer

Description: A computer aided design program as a first step and the coordinated completed patterns relating to the design program as a simultaneous or sequential step towards a computer integrated manufacturing process for garments.

Inventor: Debbie Gioello
State : NY

Contact:
Debbie Gioello

Status: Analysis Status Date: 07/07/89 OERI No.: 012883
Patent Status : Patent # - 4546434
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv by NIST : 08/24/88
Recom. by NIST : 07/07/89

Summary: Proposal not yet received.

DOE No: 0478 DOE Coord: A.R.Barnes

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 # - 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 : CA

Contact:
John B Long

Status: Analysis Status Date: 08/23/89 OERI No.: 011923
Patent Status : Patent # - 4561425
Development Stage : Production & Marketing
Technical Category: Other Natural Sources

Recv by NIST : 11/04/86
Recom. by NIST : 08/23/89

Summary: Recommendation under consideration by DOE.

DOE No: 0480 DOE Coord: A.R.Barnes

Title: AlasCan Composting Toilet and Greywater Treatment Systems

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

Status: Decision Phase Status Date: 09/29/89 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

Summary: Proposal under consideration by DOE.

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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.

DOE No: 0482 DOE Coord: G.K.Ellis

Title: Improved Fluid Pumping Device and Liquid Sensor

Description: The invention is an intermittant gas lift method for producing fluids from shallow stripper wells. A downhole fluid level sensor optimizes the gas injection.

Inventor: William G Buckman
State : KY

Contact:
William G Buckman

Status: Analysis Status Date: 08/29/89 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

Summary: Recommendation under consideration by DOE.

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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.

Inventor: John Bartley Czirr
State : UT

Contact:
John Bartley Czirr

Status: Analysis Status Date: 08/30/89 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

Summary: Recommendation under consideration be DOE.

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 # - 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.

****

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

Status: Analysis Status Date: 09/26/89 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

Summary: Recommendation under consideration by DOE.

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: Analysis Status Date: 09/26/89 OERI No.: 002999
Patent Status : Patent # - 4015667
Development Stage : Working Model
Technical Category: Miscellaneous

Recv by NIST : 11/14/77
Recom. by NIST : 09/26/89

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 DOE number and Title. Table 4-4 is ordered by invention classification and lists the DOE number, inventor name, and titles 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
Warren A Aikins	0356	Portable Automatic Firewood Processor
Warren A Aikins	0460	Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor
Jerry Aleksandrow	0290	Low Energy Ice Making Apparatus
Ray Alexander	0347	Oxide Dispersion Strengthened Aluminum Alloys
Joseph Allegro	0379	Inner Roof Solar System
James E Altman	0378	An Improved Cutter for Plaster Board and the Like
Tom Atterbury	0283	Aluminum Roofing Chips
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
Randell D Ball	0293	"Therm-A-Valve" - Insulated Valve Coverings
Stanley D Balzer	0402	KTM Logger
John C Bass	0455	Thermoelectric Generator for Diesel Engines
Erwin O Beck	0369	"Fire Jet" Automatic Anthracite Burner
Robert E Bode	0485	Method and Apparatus for Placing Cement Plugs in Wells
Alexander Bosna	0441	Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Therby
Harold L Bowman	0305	Automatic Filter Network Protection, Failure Detection and Correction System and Method
Paul E Bracegirdle	0261	A New Apparatus for Making Asphalt Concrete
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
William G Buckman	0482	Improved Fluid Pumping Device and Liquid Sensor
John H Burk	0302	Carri-Cel Impact Breaker and Counterflow Impact Rock Breakers
Duncan M Butlin	0468	Constant-Torque System for Beam Pumps
Peter Carr	0449	Fuel Savings in the Heavy Trucking Industry Through Cool Storage
Marc S Caspe	0289	An Earthquake Barrier
Shih-Chih Chang	0270	Method of Energy Recovery for Wastewater Treatment
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
Deborah D Chung	0304	Exfoliated Graphite Fibers
George B Clark	0316	Thrust Impact Rock Splitter
Julius Czaja	0273	Open Cycle Latent Heat Engine
John Bartley Czirr	0483	Downhole Neutron Flux Monitor
Guy C Dempsey	0277	Electronic Conveyor Control Apparatus
Norman L Dickinson	0288	Dickinson Pure Air Combustion (DIPAC) and Modified DIPAC (MODIPAC)
Lawrence A Dobson	0425	High Temperature Condensing Biomass Combustion System
James J Dolan	0458	Continuous Casting by Float Process of Thin Sheet Carbon Steel
Richard Lee Dominquez	0334	So-Luminaire Natural Daylighting Unit

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
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
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
Harold P Dugas	0430	Whitten Dugas Mud Pump Ehnancer
Herbert D Easterly	0311	Auxiliary Truck Heater
Lawrence K Edwards	0439	Project Twenty-One Rapid Transit System
Dan Egosi	0266	Energy Conversion Method
Raymond A Elam	0403	Enterprise Lubricator
Clinton R Elston	0480	AlasCan Composting Toilet and Greywater Treatment Systems
Donald C Erickson	0364	Intermittant Solar Ammonia Absorption Cycle (ISAAC)
Donald C Erickson	0404	Steam-Methane Reforming in Molten Carbonate Salt
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
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
Joseph C Firey	0331	Cyclic Char Combustion for Engines, Boilers and Gasifiers
James W Flatte	0359	Solid Fuel Hot Air Furnace
Thomas F Francovitch	0292	Roof Construction Having Membrane and Photo Cells
Anthony N Fresco	0284	Atomized Oil-Injected Rotary Screw Compressors
Linus C Fuchek	0372	FS 630 Heat Pump Thermostat Control
Harald F Funk	0405	Prehydrolysis and Digestion of Plant Material
David Ganoung	0411	The Wide-Open Throttle Approach to Greater Automotive Fuel Efficiency
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
Philip H Gifford II	0321	Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen
Richard G Gilbertson	0445	Condenser Tube Insertion Device
Debbie Gioello	0477	"Ultra Design Method" - Method for Designing Apparel by Computer
Laird B Gogins	0420	The Utah Transmission/Continuously Variable Speed Wind Generator
Samuel Goldfarb	0465	Multiconductive Base Form Microchip Carrier/Connector
Michael Gondouin	0446	Heavy Oil Recovery Process
Michael Gondouin	0459	Natural Gas Conversion Process
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

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
Gerald J Grott	0391	Compressed Gas Energy Storage
James R Harris	0407	An Extended Range Tankless Water Heater
Harold A Hartung	0385	Process for Treating Humus Materials
August G Hebel, Junior	0412	Meta-Lax Stress Relief for Almost any Size Metal Structure
Wanda Henke	0350	Method and Apparatus for Testing Soil
Ben B Herschel	0434	Modular Apparatus for Laundry Dryer Heat Recovery
Frank W Hochmuth	0437	Steam Generator With Integral Down-Draft Dryer
John H Holland	0395	Holland Oil Well Pumping System
Vladimir Horak	0361	Measurement of Liquid Volumes with Compensation for Temperature Induced Variations
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
William Martin Johnson	0351	Flash Gate Board
James S Jones	0463	Carburetor Fuel Feed System with Bidirectional Passages
M Thomas Jones	0438	Microwave Reflection by Synthetic Metals
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
Eskil L Karlson	0346	Ultra-Pure Water System for Hospitals
Eskil L Karlson	0422	High Efficiency Ozone Generating System
Jay Hilary Kelley	0394	Variable Wall Mining Machine
Max Klein	0314	Rolling Filter Apparatus
Peter Kneaskern	0410	The World's First Gas Fired, Forced Air, High Efficiency, Furnace That Requires No Electricity
Oleg Kotlyar	0471	Method and Tool for Logging-While-Drilling
Edward S Kress	0260	Method and Apparatus for Handling and Dry Quenching Coke
Emerson L Kumm	0470	Flat Belt Continuously Variable High Speed Drive
Lawrence W Langley	0426	Eddy Current Transducing System
W N Lawless	0401	A Miniature, Inexpensive Oxygen-Sensing Element
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
Donald E Lewis	0397	In Service Tank Bottom Leak Detection and Repair System
John S Lievois	0454	Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids
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
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
William C Lyons	0338	Downhole Pneumatic Turbine Motor for Geothermal Energy

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
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
Momtaz N Mansour	0286	Use of Pulse-Jet for Atomization of Coal/Water Mixture
Andrew W Marr, Junior	0280	Down Hole and Above Ground Resistance Heating for Paraffin Elimination
Don J Marshall	0287	Automatic Variable Pitch Marine Propeller
John H Mayo	0386	Device and Method to Enable Detection and Measurement of Deformities in Well Components
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 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
Serafin L Mendoza	0435	A New Thermodynamic Process of Actual Approach to the Carnot Cycle
Ralph A Messing	0315	Method of Processing Biodegradable Organic Material
Paul Michelotti	0368	Aircraft Minimum Drag Speed System
James R Mikkelsen	0474	Sweep-Spike Combination Tillage Tool
R A Miner	0484	MUD DEVIL - Deaerator Mixer
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
Ram Natesh	0388	Preparation of Extremely Fine, Superalloy Powders and Their Fabrication into Dense, Sintered, Net Shape Superalloy Parts
Renato R Noe	0398	Hydraulic Test Unit - Test Plugs - Mechanical Seal Plugs
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
Donald F Othmer	0264	Desulfurization of Coal
Forrest M Palmer	0325	Low Cost, Low Energy Machine and Method for Continuous Casting Non-Ferrous Strip and Composites
Trent J Parker	0428	T-By Tray
Nathan E Passman	0274	Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency
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
Kenneth L Pickard	0476	Pickard Line-up Boom
Bryan Prucher	0409	Self-Dressing Resistance Welding Electrode

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
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
Richard C Raney	0442	Long Life "PC" Drill Bit
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
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
Robert M Roeglin	0272	V-Plus System
Robert N Rose	0309	Process of Smelting with Submerged Burner
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
Milan Rybak	0469	Recuperator of Flue Gas Heat
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	0303	Battery Heating Device
Joe Sanford	0436	The Russell Self-Piloted Check Valve
Bernard L Sater	0317	Edge-Illuminated Multi-Junction (VMJ) Solar Cell
Harold T Sawyer	0268	Apparatus for Enhancing Chemical Reactions
Lawrence A Schmid	0360	Temperature Controllable Heat Valve
Gerhard E Schwarz	0400	Continuous Casting and Inside Rolling of Hollow Rounds
Donald W Scott	0389	Reduced Size Heating Assembly for an Electric Stove
Felix Sebba	0354	Preparation of Biliquid Foam Compositions
David N Shaw	0374	Expansion Compression System for Efficient Power Output Regulation of Internal Combustion Engines
David Siverling	0450	Portable Ultrasonic Inspection System for Oil Country Tubulars
Roderick L Smith	0447	Hot Control of Unit Volume Energy of Grinding
J Donald Snitgen	0337	An Air Operated Hydraulic Power Unit
Mark Sorvig	0456	A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output
Henry Sperber	0380	Blow-In Blanket System
Norbert E Stainbrook	0330	Vacuum Heat Treating Furnace and Quench System with Drop Transfer
Walter A Stark	0370	Dehumidification System for Indoor Pools and Other High Humidity Areas
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
Arthur F Stone	0255	Method and Apparatus for Scrubbing Gas - Scrubbing Apparatus
William P Strumbos	0381	Multiple Heat-Range Spark Plug

TABLE 4-1 (cont.)

INVENTOR	DOE NO.	TITLE
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
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
Ronald S Tabery	0406	Aluminum Reduction Cell Spent Potlining Fluid Bed Incinerator
E M Talbott	0297	Series (Two-Wire) V-Controller
Jerry Tartaglino	0291	Selective Zone Isolation for HVAC System
Harold W Taylor, Junior	0373	Tobacco Harvesting Machine
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
William W Thompson	0408	Floodshield System
Eugene Tippmann	0282	Insulated Siding
William R Trutna	0299	Process for Using Cocurrent Contacting Distillation Column
Harry Werner Tulleners	0345	Tulleners Wave Piercer
William Tunderman	0263	Method for Reconditioning Rivetless Chain Links
Shao-E Tung	0319	Removal of Hydrogen Sulfide from a Gas Stream
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 Asymetric Pre-Swirl Vane and Twisted Propeller Propulsion System
Carmile F Vasile	0382	System for Recovery of Waste Hot Water Heat Energy
Alan A Vetter	0453	Particle Densitometer Based on the Acoustical Resonance Measurement
Benjamin Volk	0332	Volk Pistachio Huller
John L Wendel	0339	Recycoil II
William C Whitman	0252	Thermal Bank
Frank Wicks	0390	Wicks Efficient Fuel Utilization System
Stanley Wayne Widmer	0413	Non Metallic Railroad Switch Covers
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
Serge Wisotsky	0432	Water Hammer Pile Driver
J C Withers	0433	Improved Methods to Manufacture and Use Carbon-Alumina Composite Anodes for Aluminum Reduction
Roy W Wood	0417	Rotary Drill Bit
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
Larry A Yates	0451	In-Place Asphalt Pavement Restoration, via Recycling of the Existing Materials

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
Warren A Aikins	0356	Portable Automatic Firewood Processor
Warren A Aikins	0460	Automatic Whole & Multiple Tree Firewood/Hog Fuel Processor
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
James E Altman	0378	An Improved Cutter for Plaster Board and the Like
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
Stanley D Balzer	0402	KTM Logger
John C Bass	0455	Thermoelectric Generator for Diesel Engines
Erwin O Beck	0369	"Fire Jet" Automatic Anthracite Burner
Theodore R Beck	0433	Improved Methods to Manufacture and Use Carbon-Alumina Composite Anodes for Aluminum Reduction
N F Bibby	0329	Modularized Pneumatic Tractor with Debris Liquifier
Robert E Bode	0485	Method and Apparatus for Placing Cement Plugs in Wells
Alexander Bosna	0441	Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Therby
Paul E Bracegirdle	0261	A New Apparatus for Making Asphalt Concrete
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
William G Buckman	0482	Improved Fluid Pumping Device and Liquid Sensor
Duncan M Butlin	0468	Constant-Torque System for Beam Pumps
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
Shih-Chih Chang	0270	Method of Energy Recovery for Wastewater Treatment
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
Agit Chowdhury	0264	Desulfurization of Coal
Deborah D Chung	0304	Exfoliated Graphite Fibers
Donald Cullen	0283	Aluminum Roofing Chips
Jim Cunningham	0436	The Russell Self-Piloted Check Valve
Julius Czaja	0273	Open Cycle Latent Heat Engine

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
John Bartley Czirr	0483	Downhole Neutron Flux Monitor
Norman L Dickinson	0288	Dickinson Pure Air Combustion (DIPAC) and Modified DIPAC (MODIPAC)
Lawrence A Dobson	0425	High Temperature Condensing Biomass Combustion System
James J Dolan	0458	Continuous Casting by Float Process of Thin Sheet Carbon Steel
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
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
Herbert D Easterly	0311	Auxiliary Truck Heater
Lawrence K Edwards	0439	Project Twenty-One Rapid Transit System
Dan Egosi	0266	Energy Conversion Method
Raymond A Elam	0403	Enterprise Lubricator
Clinton R Elston	0480	AlasCan Composting Toilet and Greywater Treatment Systems
Donald C Erickson	0364	Intermittant Solar Ammonia Absorption Cycle (ISAAC)
Donald C Erickson	0404	Steam-Methane Reforming in Molten Carbonate Salt
Hermann Ernst	0285	Novel Fluid Ring (F/R) Seal Systems for Railroad Axle Bearing Systems
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
Joseph C Firey	0331	Cyclic Char Combustion for Engines, Boilers and Gasifiers
James W Flatte	0359	Solid Fuel Hot Air Furnace
Thomas F Francovitch	0292	Roof Construction Having Membrane and Photo Cells
Anthony N Fresco	0284	Atomized Oil-Injected Rotary Screw Compressors
Linus C Fuchek	0372	FS 630 Heat Pump Thermostat Control
Harald F Funk	0405	Prehydrolysis and Digestion of Plant Material
David Ganoung	0411	The Wide-Open Throttle Approach to Greater Automotive Fuel Efficiency
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
Jim Gee	0318	Bi-Polar Electrode for Hall-Heroult Electrolysis
Philip H Gifford II	0321	Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen
Richard G Gilbertson	0445	Condenser Tube Insertion Device
Debbie Gioello	0477	"Ultra Design Method" - Method for Designing Apparel by Computer
Laird B Gogins	0420	The Utah Transmission/Continuously Variable Speed Wind Generator
Michael Gondouin	0446	Heavy Oil Recovery Process
Michael Gondouin	0459	Natural Gas Conversion Process
Alan Gray	0465	Multiconductive Base Form Microchip Carrier/Connector
Evert S Green	0256	Method and Apparatus for Irrigating Container Grown Plants

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
J Rex Greer	0475	Auxiliary Air Conditioning, Heating and Engine Warming System for Trucks
Gerald J Grott	0391	Compressed Gas Energy Storage
Lloyd E Hackman	0384	Textured Substrate and Method for the Direct, Continuous Casting of Metal Sheet Exhibiting Improved Uniformity
James R Harris	0407	An Extended Range Tankless Water Heater
Harold A Hartung	0385	Process for Treating Humus Materials
August G Hebel, Junior	0412	Meta-Lax Stress Relief for Almost any Size Metal Structure
Wanda Henke	0350	Method and Apparatus for Testing Soil
Ben B Herschel	0434	Modular Apparatus for Laundry Dryer Heat Recovery
Frank W Hochmuth	0437	Steam Generator With Integral Down-Draft Dryer
John H Holland	0395	Holland Oil Well Pumping System
Vladimir Horak	0361	Measurement of Liquid Volumes with Compensation for Temperature Induced Variations
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
E K Jacob	0349	Three Roll Tension Stand
Bob Jenkins	0467	High Pressure Lubricoolant Jet for Supporting Metal Machining
Gordon F Jensen	0388	Preparation of Extremely Fine, Superalloy Powders and Their Fabrication into Dense, Sintered, Net Shape Superalloy Parts
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
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
Gary D Justis	0466	Coal Log Fuel Pipeline Transportation System
Eskil L Karlson	0346	Ultra-Pure Water System for Hospitals
Eskil L Karlson	0422	High Efficiency Ozone Generating System
Jay Hilary Kelley	0394	Variable Wall Mining Machine
E A Kiessling	0251	Process and Apparatus for Reducing the Energy Required to Separate Liquids by Distillation
Robert Killoren	0438	Microwave Reflection by Synthetic Metals
Robert Killoren	0452	Magnetic Thin Films Formed in a Glow Discharge
Max Klein	0314	Rolling Filter Apparatus
Peter Kneaskern	0410	The World's First Gas Fired, Forced Air, High Efficiency, Furnace That Requires No Electricity
Robert J Koester	0282	Insulated Siding
Oleg Kotlyar	0471	Method and Tool for Logging-While-Drilling
Emerson L Kumm	0470	Flat Belt Continuously Variable High Speed Drive
Lawrence W Langley	0426	Eddy Current Transducing System
W N Lawless	0401	A Miniature, Inexpensive Oxygen-Sensing Element
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
Robert C LeMay	0309	Process of Smelting with Submerged Burner

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
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
John S Lievois	0454	Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids
William Lindner	0334	So-Luminaire Natural Daylighting Unit
Waylon A Livingston	0393	Method and Apparatus for Ultrasonic Testing of Tubular Goods
John B Long	0479	Solar Cooker
Mary Jane Luddy	0398	Hydraulic Test Unit - Test Plugs - Mechanical Seal Plugs
Kenneth E Lunde	0427	Non-Catalytic Steam Hydrolysis of Fats
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
Momtaz N Mansour	0286	Use of Pulse-Jet for Atomization of Coal/Water Mixture
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Jack Wade McIntyre	0431	Method and Apparatus for Removing Excess Water from Subterranean Wells.
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Serafin L Mendoza	0435	A New Thermodynamic Process of Actual Approach to the Carnot Cycle
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R A Miner	0484	MUD DEVIL - Deaerator Mixer
Vincent D Morabit	0464	Chain Saw Tip Stabilizing Device for Use with an Anti-Kickback Device
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
Andrew O'Neal	0473	Energy Saving Head Pressure Control System for Air Cooled Condensers
Forrest M Palmer	0325	Low Cost, Low Energy Machine and Method for Continuous Casting Non-Ferrous Strip and Composites
Trent J Parker	0428	T-By Tray
Nathan E Passman	0274	Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
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
PFI, Inc	0293	"Therm-A-Valve" - Insulated Valve Coverings
Kenneth L Pickard	0476	Pickard Line-up Boom
Bryan Prucher	0409	Self-Dressing Resistance Welding Electrode
B F Rabitsch	0327	Square Pattern Irrigation Sprinkler
Arthur Radichio	0416	Self-Contained Pipe Freezing Unit
Kenneth H Raihala	0365	Safety Stovepipe Damper Assembly
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Gerhard E Schwarz	0400	Continuous Casting and Inside Rolling of Hollow Rounds
Donald W Scott	0389	Reduced Size Heating Assembly for an Electric Stove
Felix Sebba	0354	Preparation of Biliquid Foam Compositions
David N Shaw	0374	Expansion Compression System for Efficient Power Output Regulation of Internal Combustion Engines
David Siverling	0450	Portable Ultrasonic Inspection System for Oil Country Tubulars
Smart Technologies, Inc	0277	Electronic Conveyor Control Apparatus
Roderick L Smith	0447	Hot Control of Unit Volume Energy of Grinding
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
Mark Sorvig	0456	A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output
Henry Sperber	0380	Blow-In Blanket System

TABLE 4-2 (cont.)

CONTACT	DOE NO.	TITLE
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
Walter A Stark	0370	Dehumidification System for Indoor Pools and Other High Humidity Areas
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
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Ronald S Tabery	0406	Aluminum Reduction Cell Spent Potlining Fluid Bed Incinerator
Jerry Tartaglino	0291	Selective Zone Isolation for HVAC System
Harold W Taylor, Junior	0373	Tobacco Harvesting Machine
Milton B Thacker	0414	Low Profile Fluid Catalytic Cracker
William W Thompson	0408	Floodshield System
Phil Tippet	0302	Carri-Cel Impact Breaker and Counterflow Impact Rock Breakers
William R Trutna	0299	Process for Using Cocurrent Contacting Distillation Column
Harry Werner Tulleners	0345	Tulleners Wave Piercer
William Tunderman	0263	Method for Reconditioning Rivetless Chain Links
Shao-E Tung	0319	Removal of Hydrogen Sulfide from a Gas Stream
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Donald H VanLiew	0462	Energy Efficient Asymetric Pre-Swirl Vane and Twisted Propeller Propulsion System
Varigas Research, Inc	0297	Series (Two-Wire) V-Controller
Carmile F Vasile	0382	System for Recovery of Waste Hot Water Heat Energy
Alan A Vetter	0453	Particle Densitometer Based on the Acoustical Resonance Measurement
Benjamin Volk	0332	Volk Pistachio Huller
William C Whitman	0252	Thermal Bank
Giles M Whitten	0430	Whitten Dugas Mud Pump Ehnancer
Frank Wicks	0390	Wicks Efficient Fuel Utilization System
Stanley Wayne Widmer	0413	Non Metallic Railroad Switch Covers
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
Serge Wisotsky	0432	Water Hammer Pile Driver
Roy W Wood	0417	Rotary Drill Bit
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
Larry A Yates	0451	In-Place Asphalt Pavement Restoration, via Recycling of the Existing Materials

Table 4-3

RECOMMENDED INVENTIONS BY INVENTOR STATE

State/Inventor	DOE No.	Title
ALASKA		
Clinton R Elston	0480	AlasCan Composting Toilet and Greywater Treatment Systems
ALABAMA		
Bryan Prucher	0409	Self-Dressing Resistance Welding Electrode
Roy W Wood	0417	Rotary Drill Bit
ARKANSAS		
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		
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
CALIFORNIA		
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
John B Long	0479	Solar Cooker
Aldo Ruoza	0486	Cotton Stalk and Shredder with Re-Bedder

COLORADO		
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
CONNECTICUT		
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
Leon Lazare	0377	A Novel Method of Producing Ice-Water Slurries
DELAWARE		
Victor R Thayer	0251	Process and Apparatus for Reducing the Energy Required to Separate Liquids by Distillation
FLORIDA		
Douglas R Reich	0279	Method 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
GEORGIA		
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 Elec. Stove
HAWAII		
Don E Avery	0275	Low Head - High Volume Pump
Don E Avery	0301	Pump Control System for Windmills
ILLINOIS		
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

INDIANA

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

KANSAS

James R Harris	0407	An Extended Range Tankless Water Heater

KENTUCKY

Gary L Drake	0342	Raw Fines Medium Coal Washing System
Harold W Taylor, Junior	0373	Tobacco Harvesting Machine
William G Buckman	0482	Improved Fluid Pumping Device and Liquid Sensor

LOUISIANA

Harry E Wood	0238	Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness
John W Richardson	0265	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

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

MARYLAND

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
Donald C Erickson	0404	Steam-Methane Reforming in Molten Carbonate Salt

MAINE

Frank W Hochmuth	0437	Steam Generator With Integral Down-Draft Dryer

MICHIGAN

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

MINNESOTA

Deems M Pfaff	0344	Machine for Separating Concrete from Steel
John A Broadbent	0355	Energy-Efficient Ice Cube Making Machine
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

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 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

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

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

NEBRASKA

Richard H Baasch	0257	Method and Apparatus for Melting Snow

NEW JERSEY

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

NEW JERSEY (cont.)

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

NEW MEXICO

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

NEW YORK

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

OHIO

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

OKLAHOMA

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

OKLAHOMA (cont.)

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
Donald E Lewis	0397	In Service Tank Bottom Leak Detection and Repair 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

OREGON

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

PENNSYLVANIA

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 Therby
William G Wilson	0443	A Method for the Use of Oxygen Ion Vacancies in Lanthanide Oxides to Increase their Utilization

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

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

TENNESSEE (cont.)

Herbert D Easterly	0311	Auxiliary Truck Heater
Louis A Joo	0318	Bi-Polar Electrode for Hall-Heroult Electrolysis

TEXAS

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
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 Ehnancer
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

UTAH

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	0428A	T-By Tray
Trent J Parker	0428B	Uni-Frac Column
Oleg Kotlyar	0471	Method and Tool for Logging-While-Drilling
John Bartley Czirr	0483	Downhole Neutron Flux Monitor

VIRGINIA

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
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

VIRGIN ISLANDS

Albert Lindqvist	0329	Modularized Pneumatic Tractor with Debris Liquifier

VERMONT

Nicholas Archer Sanders	0303	Battery Heating Device

WASHINGTON

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

WISCONSIN

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

WYOMING

R A Miner	0484	MUD DEVIL - Deaerator Mixer

FOREIGN COUNTRIES

ISRAEL

Dan Egosi	0266	Energy Conversion Method

SPAIN

Serafin L Mendoza	0435	A New Thermodynamic Process of Actual Approach to the Carnot Cycle

Table 4-4

RECOMMENDED INVENTIONS BY INVENTION CLASSIFICATION

CLASSIF.	DOE NO.	TITLE
1.00000		FUELS AND LUBRICANTS ACQUISITION, PRODUCTION, DISTRIBUTION
	0414	Low Profile Fluid Catalytic Cracker
	0466	Coal Log Fuel Pipeline Transportation System
1.01000		GEOPHYSICAL PROSPECTING
	0483	Downhole Neutron Flux Monitor
1.11000		COAL
1.11200		COAL GASIFICATION
	0320	Coal Gasification with Carbon Dioxide and Lime Recycling
1.11300		GREATER RESOURCE RECOVERY METHODS (COAL)
1.12000		OIL
	0280	Down Hole and Above Ground Resistance Heating for Paraffin Elimination
	0293	"Therm-A-Valve" - Insulated Valve Coverings
	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 Ehnancer
	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
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
1.12400		OIL AND GAS PIPELINES
	0421	Flexible Drill Pipe
	0431	Method and Apparatus for Removing Excess Water from Subterranean Wells.

1.13000 OIL SHALE

0321 Process for Recovery of Oil from Oil Shale Simultaneously Producing Hydrogen

1.13100 TAR SANDS

0268 Apparatus for Enhancing Chemical Reactions

1.14000 NATURAL GAS
1.20000 ALTERNATE FUELS
1.23000 HYDROGEN
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

2.00000 ENERGY CONVERSION FROM NATURAL SOURCES(NOT INCLUDED IN SUBS. 2 SERIES)
2.10000 SOLAR COLLECTORS

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
2.50000 WATER POWER PROCESSES (INLAND)

0351 Flash Gate Board

3.00000 ENERGY CONVERSION FROM SECONDARY SOURCES

0273 Open Cycle Latent Heat Engine
0445 Condenser Tube Insertion Device

3.10000 COMBUSTION ENGINES AND COMPONENTS THEREOF
3.10100 STIRLING ENGINES, MECHANICAL

0456 A Large, Balanced Compounded, Hydraulic Stirling Engine with Rotary Shaft Output

3.11000 RECIPROCAL ENGINES, MECHANICAL

0343 Electronic Octane
0374 Expansion Compression System for Efficient Power Output Regulation of Internal Combustion Engines

3.12000 ROTARY ENGINES, MECHANICAL

0387 Quiet Operating Internal Combustion Engine with Complete Highly Efficient Expansion Cycle

3.13000 TURBINE ENGINES, MECHANICAL

0478 The "Triple Design Cycle" Cogeneration Program

3.14000 FUEL SYSTEMS, MECHANICAL

0411 The Wide-Open-Throttle Approach to Greater Automotive Fuel Efficiency

3.14100 CARBURETORS AND MODIFICATIONS THEREOF

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
3.30000 AIR COMPRESSORS AND MOTORS
3.40000 HYDRAULIC PUMPS AND MOTORS

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

0366 High Energy Semiconductor Switch

3.60000 CHEMICAL THERMODYNAMICS

0454 Mercury-Free PVT Apparatus for Thermophysical Property Analyses of Hydrocarbon Reservoir Fluids

3.70000 MECHANICAL THERMODYNAMICS

0440 Microtube Strip Heat Exchanger

3.80000 HEAT PUMPS AND REFRIGERATION
4.00000 ENERGY STORAGE AND DISTRIBUTION

0271 Hydrogen Storage System
0391 Compressed Gas Energy Storage

4.11000 ELECTRICAL STORAGE (BATTERIES)
4.12000 ELECTRICAL DISTRIBUTION (TRANSFORMERS, SWITCHGEARS, CONTROLS)

0376 Machine and Method for Producing Energy-Saving Transformers Incorporating Amorphous Metal Cores

4.30000 THERMAL ENERGY STORAGE

0252 Thermal Bank
0475 Auxiliary Air Conditioning, Heating and Engine Warming System for Trucks

5.00000 TRANSPORTATION

0357 TUBEEXPRESS Pneumatic Capsule Pipeline Transport System

5.10000 AIR TRANSPORTATION

0307 Vortex Generators for Aft Regions of Aircraft Fuselages
0368 Aircraft Minimum Drag Speed System

5.20000 WATER TRANSPORTATION

0287 Automatic Variable Pitch Marine Propeller
0345 Tulleners Wave Piercer
0462 Energy Efficient Asymmetric Pre-Swirl Vane and Twisted Propeller Propulsion System

5.30000 RAIL TRANSPORTATION

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

5.40000 HIGHWAY VEHICLES AND SYSTEMS
5.42000 VEHICULAR POWER SYSTEMS
5.42100 COMBUSTION ENGINE VEHICLES
5.43000 VEHICULAR COMPONENTS

0303 Battery Heating Device
0311 Auxiliary Truck Heater
0455 Thermoelectric Generator for Diesel Engines

5.43100 VEHICLE TRANSMISSIONS

0420 The Utah Transmission/Continuously Variable Speed Wind Generator
0448 New Automatic Transmission for Road Vehicles
0470 Flat Belt Continuously Variable High Speed Drive

5.43200 VEHICLE BRAKING SYSTEMS (INCLUDES REGEN. BRAKING SYSTEMS, ETC.)
5.43300 VEHICLE WHEELS AND TIRES
5.43500 VEHICLE BODY AND CHASSIS DESIGN
5.43800 VEHICLE AIR CONDITIONING

0449 Fuel Savings in the Heavy Trucking Industry Through Cool Storage

6.10000 DESIGN, CONSTRUCTION AND CONSTRUCTION PRACTICES

0283 Aluminum Roofing Chips
0289 An Earthquake Barrier

6.20000 HEATING, COOLING, VENTILATING

0390 Wicks Efficient Fuel Utilization System

6.20100 HEATING, COOLING, AND VENTILATING INSTRUMENTS AND CONTROLS

0291 Selective Zone Isolation for HVAC System
0360 Temperature Controllable Heat Valve
0372 FS 630 Heat Pump Thermostat Control

6.23000 BOILERS AND FURNACES (INDUSTRIAL)

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

6.23100 BOILER AND FURNACE FLUE HEAT RECOVERY

0469 Recuperator of Flue Gas Heat

6.23200 BOILER AND FURNACE AIR AND OXYGEN INDUCTORS AND INJECTORS
6.23400 BOILER AND FURNACE 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
6.25000 HEAT PUMPS

0253 High Performance Heat Pump
0371 Wallace Energy Systems Solar Assisted Heat Pump Water Heater

6.26000 AIR CONDITIONING & REFRIGERATION

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 Closed 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

6.27000 VENTILATING SYSTEMS
6.30000 HOT WATER SUPPLY
6.31000 HEATING SYSTEMS (HOT WATER)
0339 Recycoil II
0407 An Extended Range Tankless Water Heater

6.32000 HOT WATER CONSERVATION DEVICES AND PRACTICES

0296 Shower Bath Economizer
0382 System for Recovery of Waste Hot Water Heat Energy

6.40000 INSULATION AND INSULATING PRACTICES

0282 Insulated Siding
0380 Blow-In Blanket System

6.50000 ELECTRICAL WIRING AND FIXTURES

0297 Series (Two-Wire) V-Controller

6.60000 PLUMBING AND FIXTURES

0416 Self-Contained Pipe Freezing Unit
0436 The Russell Self-Piloted Check Valve

7.00000 INDUSTRIAL PROCESSES

0251 Process and Apparatus 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 Materials
0452 Magnetic Thin Films Formed in a Glow Discharge

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
0461 Thermally Stable Polyenaminonitriles

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 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

7.01500 WATER AND WASTE TREATMENT

0480 AlasCan Composting Toilet and Greywater Treatment Systems

7.01600 PACKAGING AND CONTAINERS

0258 Corrosion Protection Process for Bore Hole Tool

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 Machine to Produce Ultra-Fine Coal
0422 High Efficiency Ozone Generating System
0432 Water Hammer Pile Driver
0438 Microwave Reflection by Synthetic Metals

7.02000 TEXTILES, FABRICS, RUGS, CLOTHING

0342 Raw Fines Medium Coal Washing System

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

7.03000 FOOD, FEEDS, LEATHER, FURS, FEATHERS, ETC.
7.04000 LUMBER, WOOD, WOOD PRODUCTS INDUSTRIAL PROCESSES

0367 Disintegration of Wood

7.06000 PETROLEUM, OIL AND NATURAL GAS INDUSTRIES

0259 Hydrostatic Support Sleeve and Rod - Gas Release Probe
0329 Modularized Pneumatic Tractor with Debris Liquefier
0397 In Service Tank Bottom Leak Detection and Repair System
0428A T-By Tray
0428B Uni-Frac Column

7.08000 STONE, CLAY AND GLASS
7.09000 PRIMARY METALS

0441 Method and Apparatus for Applying Metal Cladding of Surfaces and Products Formed Therby

7.10000 CIVIL ENGINEERING

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

0265 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
0373 Tobacco Harvesting Machine
0474 Sweep-Spike Combination Tillage Tool
0486 Cotton Stalk and Shredder with Re-Bedder

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

7.40000 MECHANICAL CONTRIVANCES (NON-VEHICULAR)

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

7.50000 SOLAR INDUSTRIAL

0364 Intermittent Solar Ammonia Absorption Cycle (ISAAC)

8.10000 CONSUMER EDUCATION AND BEHAVIOR

0306 An Efficiency Computer for Heated or Air Conditioned Buildings

8.20000 APPLIANCES

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

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)

0274 Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency

9.00000 MISCELLANEOUS

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
0477 "Ultra Design Method" - Method for Designing Apparel by Computer

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

9.51000 ELECTRICAL DEMAND, OVERLOAD OR CONSUMPTION INDICATORS

0465 Multiconductive Base Form Microchip Carrier/Connector

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

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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[ ] DOCUMENT DESCRIBES A COMPUTER PROGRAM; SF-185, FIPS SOFTWARE SUMMARY, IS ATTACHED.

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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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