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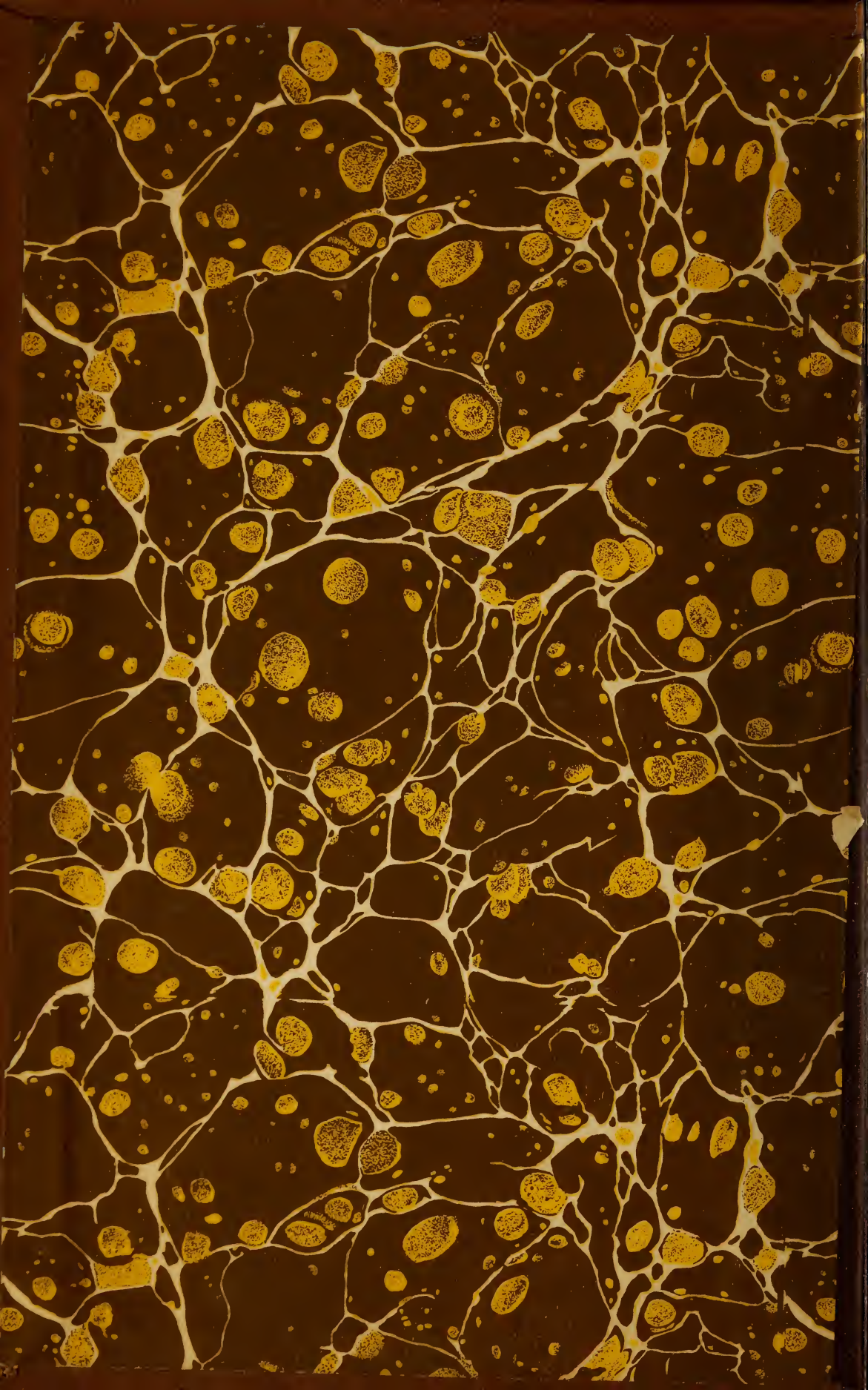

U. S. DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS

PLAIN AND THREAD PLUG AND RING GAGE BLANKS

RECOMMENDED COMMERCIAL STANDARD
as adopted by
THE AMERICAN GAGE DESIGN COMMITTEE

MISCELLANEOUS PUBLICATION, BUREAU OF STANDARDS, No. 100

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
BUREAU OF STANDARDS
GEORGE K. BURGESS, Director

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[REPORT OF THE AMERICAN GAGE DESIGN COMMITTEE]

I. DEVELOPMENT OF THE AMERICAN GAGE DESIGN STANDARDS

The American Gage Design Committee was formed in December, 1926, to consolidate for the benefit of industry at large the independent efforts which were already in progress on the part of a number of large industrial concerns, representatives of United States Government departments, and several of the leading gage manufacturers to simplify gaging practice through the adoption of standard designs for gage blanks and component parts. The designs developed by the American Gage Design Committee are now available to everyone and will minimize the necessity for the manufacture of special gages of the simpler types. The committee was given full support and recognition by engineering societies, the American Standards Association, the Bureau of Standards, the War and Navy Departments, and the National Screw Thread Commission. It should be pointed out, however, that the major work of the committee was contributed by industry itself, many of the country's largest industrial units in widely diversified fields being represented by active membership on the committee. Joint meetings were held with the National Screw Thread Commission throughout 1927 and 1928. Rapid progress was made in these meetings, and formal design standards were completed and adopted for plain plug and ring, and thread plug and ring gages of all sizes above 0.059 to and including 4½ inches diameter.

The meetings of the committee were open, and ideas and suggestions from all branches of industry were welcomed and given careful consideration, it being the earnest endeavor of the committee to crystallize the best design and construction of gage blanks, handles, and component parts for plain and thread gages. No attempt has been made to set gage tolerances or fits, the work being confined solely to selection of the best possible designs for gage blanks; but the work on fits and tolerances of the National Screw Thread Commission and of the Sectional Committee on the Standardization of Plain Limit Gages for General Engineering Work is available for use in connection with gages made to American Gage Design Standards.

The fullest cooperation was extended by all, proprietary patent rights being waived by individual gage manufacturers for the general benefit of industry.

In promulgating the new standards, the committee has not intended to obsolete existing stocks of gages in the hands of manufacturers or users; rather, it has been its intention to provide a standard which could be gradually adopted through replacement of existing stocks. Representing the best ideas of industry at large, including gage makers and gage users, the American Gage Design Standards should have whole-hearted support and be accepted and used by gage purchasers, and should render obsolete the wasteful and costly practice of requisitioning gages to individual design standards, which has existed in many cases heretofore. Tool supervisors and standards departments of large industrial concerns are particularly urged to adopt, as soon as practicable, the American Gage Design Standards as a substitute for any individual standards which may now be employed. The result will inevitably be the elimination of confusion in gage departments, and advancement in the direction of economy and quality of product.

The committee's efforts to make available in every instance the best possible design of gage blank was materially furthered by the generous action of the gage manufacturers represented on the committee, all of whom offered without reservation to dedicate to public use their proprietary patent rights on any gage construction, the utilization of which might be desired by the committee. The committee desires to make formal recognition in this report of the specific action of the Pratt & Whitney Co., of Hartford, Conn., and the Taft-Peirce Manufacturing Co., of Woonsocket, R. I., in contributing, respectively, their patented trilock plug gage design and patented single-unit thread-ring gage locking device to public use, as a part of this standardization program.

The American Gage Design Standards are detailed by description, line drawings, and dimensional tables in the pages that follow.

II. GENERAL CONFERENCE

The sessions of the American Gage Design Committee held October 12 and 13, 1928, in New Haven, Conn., assumed the functions of the general conference. Practically all of the leading producers and users had been invited, and the work of the committee was essentially complete.

The general conference formally adopted the report of the American Gage Design Committee as a commercial standard and voted to request the application of the certification plan by the Bureau of Standards.

The conference set the effective date for new production as July 1, 1929, and for clearance of existing stocks as not later than January 1, 1931.

It was the consensus of opinion that the standard should be regularly considered for revision every six months in order that it might be kept abreast with current practices and progress in the art.

III. STANDING COMMITTEE

The following standing committee was appointed by the chairman and approved by unanimous consent:

Col. J. O. Johnson, chairman, Ordnance Department, United States Army.
F. S. Blackall, jr., Taft-Peirce Manufacturing Co.
E. J. Bryant, Greenfield Tap & Die Corporation.
C. R. Burt, Pratt & Whitney Co.
A. C. Danekind, General Electric Co.
C. B. LePage, The American Society of Mechanical Engineers.
D. W. Ovaitt, General Motors Corporation.

The following, among others, have participated in the work of the American Gage Design Committee:

Erik Aldeborgh, the Standard Gage Co., Poughkeepsie, N. Y.
J. Chester Bath, John Bath & Co., Worcester, Mass.
H. W. Bearce, secretary, Bureau of Standards, Washington, D. C.
F. J. Benesch, machine manufacturing planning division, Western Electric Co., Hawthorne Station, Chicago, Ill.
*†F. S. Blackall, jr., chairman of editorial subcommittee, vice president and general manager, The Taft-Peirce Manufacturing Co., Woonsocket, R. I.
*‡E. J. Bryant, Greenfield Tap & Die Corporation, Greenfield, Mass.
*C. R. Burt, vice president and general manager, Pratt & Whitney Co., Hartford, Conn.
Fred Colvin, editor American Machinist, Tenth Avenue and Thirty-sixth Street, New York, N. Y.
*‡A. C. Danekind, manager's office, Building 44, General Electric Co., Schenectady, N. Y.
A. H. d'Arcambal, Pratt & Whitney Co., Hartford, Conn.
C. F. Dreyer, development engineer, mechanical inspection development, Western Electric Co., Hawthorne Station, Chicago, Ill.
George M. Foster, Northern Electric Co., Montreal, Canada.
John Gaillard, mechanical engineer, A. S. A., 29 West Thirty-ninth Street, New York, N. Y.
†‡W. H. Gourlie, gage division, Pratt & Whitney Co., Hartford, Conn.
A. Grieve, Chevrolet Motor Co., Detroit, Mich.
E. D. Hall, Western Electric Co., Hawthorne Station, Chicago, Ill.
E. A. Hanson, president, The Hanson-Whitney Machine Co., Hartford, Conn.
P. M. Herrick, Cadillac division, General Motors Corporation, Detroit, Mich.
H. D. Hiatt, Nash Motors Co., Racine, Wis.
W. L. Hindman, Dodge Bros., (Inc.), Detroit, Mich.
Commander H. B. Hird, Bureau of Engineering, Navy Department, Washington, D. C.
*Col. J. O. Johnson, chairman, chief, gage section, Ordnance Department, 3737 Munitions Building, Washington, D. C.
C. V. Johnson, sales engineer, The John-Sons Gage Works, Hartford, Conn.

* Member of standing committee.
† Member of editorial committee.
‡ Member of technical subcommittee.

‡H. S. Kartsher, 3211 Sycamore Road, Cleveland Heights, Ohio.

*C. B. LePage, assistant secretary, A. S. M. E., 29 West Thirty-ninth Street, New York, N. Y.

‡H. B. Lewis, Brown & Sharpe Manufacturing Co., Providence, R. I.

A. M. Lord, Taylor Instrument Cos., Rochester, N. Y.

‡L. M. McPharlin, Pierce-Arrow Motor Car Co., Buffalo, N. Y.

‡P. V. Miller, manager, small tool department, The Taft-Peirce Manufacturing Co., Woonsocket, R. I.

C. H. Moen, Muncie Products Co., Muncie, Ind.

W. C. Mueller, assistant superintendent of manufacturing planning, Western Electric Co., Hawthorne Station, Chicago, Ill.

R. S. Newton, the New York Air Brake Co., Watertown, N. Y.

W. J. Outcalt, standards section, General Motors Corporation, Detroit, Mich.

*‡D. W. Ovaitt, chairman of technical subcommittee, General Motors Corporation, c/o Buick Motor Co., Flint, Mich.

C. J. Oxford, chief engineer, National Twist Drill & Tool Co., Detroit, Mich.

Lieut. Col. E. C. Peck, Room 305, Lake Erie Bank Building, 1612 Euclid Avenue, Cleveland, Ohio.

Louis E. Peck, general manager, the Threadwell Tool Co., Greenfield, Mass.

Charles M. Pond, manager, small tool and gage division, Pratt & Whitney Co., Hartford, Conn.

C. H. Reynolds, The Sheffield Machine & Tool Co., Dayton, Ohio.

P. D. Ritchey, the Standard Gage Co., Poughkeepsie, N. Y.

C. E. Rundorff, research department, Buick Motor Co., Flint, Mich.

‡A. W. Schoof, gage development and standards department, Western Electric Co., Hawthorne Station, Chicago, Ill.

A. J. Schwartz, United States Naval Gun Factory, Navy Yard, Washington, D. C.

J. A. Siegel, Packard Motor Car Co., Detroit, Mich.

O. J. Snider, Cadillac Motor Car Co., Detroit, Mich.

H. B. Stringer, Winter Bros. Co., Wrentham, Mass.

H. L. Van Keuren, The Van Keuren Co., 12 Copeland Street, Watertown, Boston, Mass.

‡C. E. Watterson, president, The Sheffield Machine & Tool Co., Dayton, Ohio.

‡W. H. Weingar, 88 Maplewood Avenue, West Hartford, Conn.

K. D. Williams, Bureau of Engineering, Room 2326, Navy Department, Washington, D. C.

Charles E. Winter, Winter Bros. Co., Wrentham, Mass.

George R. Worner, Taylor Instrument Cos., Rochester, N. Y.

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* Member of standing committee.
† Member of editorial committee.
‡ Member of technical subcommittee.

IV. PROMOTION OF EXPORT TRADE

The question of promoting export trade on the basis of these standards was left to the discretion of the standing committee.

V. TERMINOLOGY

The following glossary is intended to clarify the meaning of certain technical terms employed in this report. The definitions are not intended to be general; rather they are specific as to their application to the American Gage Design Standards.

1. *American Gage Design Standard.*—The caption "American Gage Design Standard" has been adopted to designate gages made to the design specifications promulgated by the American Gage Design Committee.

2. A *plain cylindrical plug gage* is a complete unthreaded internal gage of single or double ended type for the size control of holes. It consists of handle and gaging member or members, with suitable locking means.

3. A *progressive cylindrical plug gage* is a complete unthreaded internal gage consisting of handle and gaging member in which the "go" and "not go" gaging sections are combined in a single unit secured to one end of the handle.

4. A *thread plug gage* is a complete internal thread gage of either single or double ended type, comprising handle and threaded gaging member or members, with suitable locking means.

5. The *gaging member* is that integral unit of a plug gage which is accurately finished to size and is employed for size control of the work. In taper lock gages, the gaging member consists of a shank and a gaging section.

6. The *gaging section* is that portion of the gage which comes into physical contact with the work. In the plug range above 1.510 to and including 4.510 inches, the gaging section is identical with the gaging member.

7. The *shank* (applied to taper lock gages only) is that portion of the gaging member which is employed for fixing the gaging member to the handle.

8. The term "*taper lock*" designates that construction in which the gaging member has a taper shank, which is forced into a taper hole in the handle. This design is standard for plug gages in the range above 0.059 inch to and including 1.510 inches, is optional for plain cylindrical and thread plug gages in the range above 1.510 inches to and including 2.510 inches, and is standard for pipe-thread plug gages up to and including 2-inch nominal pipe size.

9. A *reversible plug gage* is a plain cylindrical or thread plug gage, in which three wedge-shaped *locking prongs* on the handle are forced into corresponding *locking grooves* in the gaging member by means of

a single through screw thus providing a self-centering support with a positive lock. This design is standard for all plug gages in the ranges above 1.510 to and including 4.510 inches, with the exception of pipe thread plug gages, for which it is standard in the ranges above 2.510 to and including 4.510 inches.

10. *Lightening holes* are unfinished drilled holes provided in the heavier sizes of gaging members for the sole purpose of reducing the weight of the gage.

11. The *handle* is that portion of a plug gage which is employed as supporting means for the gaging member or members.

12. The *drift hole* or *drift slot* is a small hole or slot provided in the side of a taper lock gage handle near the "go" end through which a pin or drift may be inserted for the purpose of ejecting the gaging member from the handle.

13. A *plain ring gage* is an unthreaded external gage employed for the size control of external diameters. In the smaller sizes it consists of a gage body into which is pressed a *bushing*, the latter being accurately finished to size for gaging purposes.

14. A *thread ring gage* is an external thread gage employed for the size control of threaded work, means of adjustment being provided integral with the gage body.

15. The *flange* is that external portion of a large ring gage which is reduced in section for the purpose of lightening the gage.

16. The *hub* is the mid-section of a flanged ring gage. It determines the length of the gaging section.

17. The *thread ring gage locking device* is a means of expanding and contracting the thread ring gage during the manufacturing or resizing processes. It also provides an effectual lock. It comprises an *adjusting screw*, a *locking screw*, and a *sleeve*. For detailed description and illustration see page 33.

18. *Adjusting slots* are radial slots provided in thread ring gages in order to facilitate expansion and contraction of gage size by means of the adjusting device. An adjusting slot always terminates in an *adjusting slot terminal hole*.

19. The *locking slot* is that slot which passes entirely through the wall of a thread ring gage. In conjunction with the thread ring gage locking device, it permits expansion and contraction of gage size.

VI. DETAILS OF CONSTRUCTION, AMERICAN GAGE DESIGN STANDARDS

1. PLAIN CYLINDRICAL PLUG GAGE BLANKS AND HANDLES

Two separate designs have been adopted for plain cylindrical plug gages—the *taper lock* design for the range from 0.059 to and including 1.510 inches, and the *reversible* design with reversible

gaging members for the range from above 1.510 to and including 4.510 inches. For sizes above 0.240 inch to and including 2.510 inches, both straight and progressive gaging members are provided. Use of the taper lock design is optional for the size range from above 1.510 to and including 2.510 inches.

(a) TAPER LOCK DESIGN ABOVE 0.059 TO AND INCLUDING 1.510 INCHES

It was felt that the taper lock design was particularly well suited for the smaller sizes of plain plug gages. This type of gage is simple and is economical of production and maintenance. The gaging member has a taper shank which is forced into a taper hole in the handle. When properly assembled, the taper lock gage possesses the rigidity of a solid gage and is entirely free of shake or "wink." Drift slots or drift holes are provided near one end of the handle, permitting gaging members to be removed when replacement is necessary. In the case of double-end gages, one end is removed by running a rod through the hollow handle. In the smaller size ranges above 0.059 inch to and including 0.240 inch, a groove is provided near one end of the handle to designate the "not go" end, as the length of the "go" member in this range is often insufficient clearly to distinguish it from the "not go" member. The groove is omitted as unnecessary above 0.240 inch.

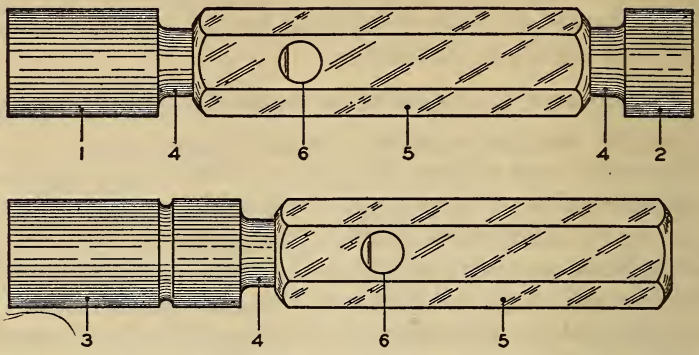
Complete dimensional tolerances have been established for the mating parts of gaging members and handles, insuring absolute interchangeability of gaging members and handles wherever manufactured. General details of construction will be apparent from Figure 1, page 8.

(b) REVERSIBLE DESIGN, ABOVE 1.510 TO AND INCLUDING 4.510 INCHES

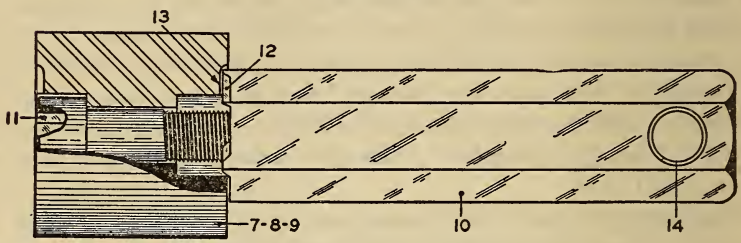
Considerations of rigidity of construction and long life have dictated the choice of the reversible design with reversible gaging members for the size range above 1.510 inches. With this construction there is no chance for shake or "wink" to interfere with the sensitive feel so necessary in gages of this type. Three wedge-shaped locking prongs on the handle are forced into corresponding grooves in the gaging member by a single through screw thus providing a self-centering support with a positive lock, and resulting in a degree of rigidity equivalent to that of a solid gage. The useful life of the plug is furthermore materially increased, as when one end is worn, the plug can be reversed and is then, for most purposes, as good as new.

The construction is protected by carefully worked out dimensional limits, and interchangeability is insured between gaging members and handles wherever manufactured. Details of construction will be apparent from Figure 1, page 8.

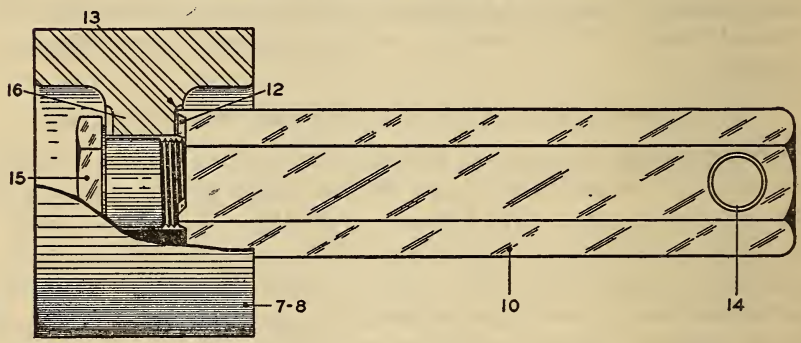
65540°—30——2



Range: Above 0.059 to and including 1.510 inches; Optional above 1.510 to and including 2.510 inches



Range: Above 1.510 to and including 2.510 inches



Range: Above 2.510 to and including 4.510 inches

FIGURE 1—*American Gage Design Standard plain cylindrical plug gages, details of construction*

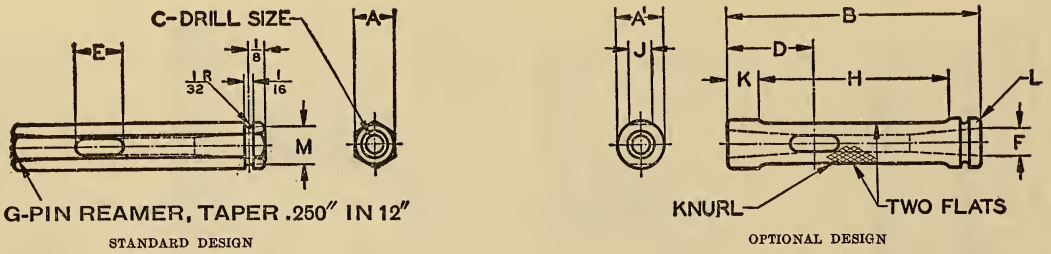
1. "Go" gaging member.
2. "Not go" gaging member.
3. Progressive gaging member.
4. Shank.
5. Taper lock handle.
6. Drift hole (or slot).
7. "Go" gaging member.
8. "Not go" gaging member.
9. Progressive gaging member.
10. Handle for reversible gage.
11. Socket head screw.
12. Locking prong.
13. Locking groove.
14. Cross-pin hole.
15. Hexagon head screw.
16. Web.

(c) HANDLES

Handles for both taper lock and reversible gages are of the hexagonal type. However, the use of round medium-knurled handles, while not recommended, is made optional in all sizes.

Handles as designed for taper lock and reversible gages offer a feature of economy in that they may be disassembled from gaging members when the latter are worn out or discarded for any other reason, and may then be reassembled with new gaging members, thus giving them, with reasonable care, practically indefinite life.

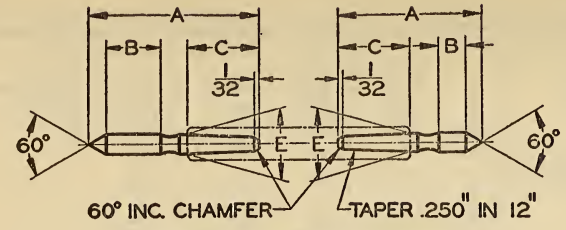
TABLE 1.—*Plain cylindrical plug gage handles, taper lock design, range above 0.059 to and including 0.240 inch*



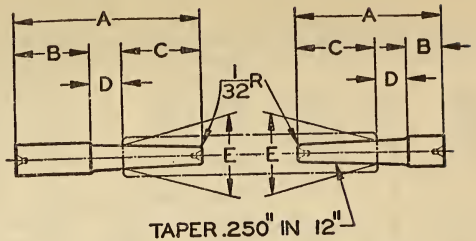
Handle size No.	Range, plain cylindrical plug		General dimensions														
	Above—	To and including—	*A*	*A'*	*B*	*C* Drill size	*D*	*E*	*F*		*G*	*H*	*J*	*K*	*L*	*M*	
									Min.	Max.						Min.	Max.
	Inch	*Inch*	*Inch*	*Inch*	*Inches*		*Inch*	*Inch*	*Inch*	*Inch*	*No.*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
000	0. 059	0. 105	3/16	1/4	1 1/2	No. 34 (0.111)	9/16	5/64 by 1/4	0. 125	0. 126	000	1	5/32	1/4	1/32	0. 172	0. 177
00	. 105	. 150	1/4	5/16	1 3/4	No. 29 (0.136)	5/8	3/32 by 5/16	. 155	. 156	0	1 1/4	3/16	1/4	1/32	. 235	. 240
0	. 150	. 240	5/16	3/8	2	No. 20 (0.161)	11/16	1/8 by 3/8	. 180	. 181	2	1 1/2	3/16	1/4	1/32	. 297	. 302

NOTE.—The purpose of the groove in the "not go" end of the handle is to distinguish the "not go" from the "go" end.

TABLE 2.—*Plain cylindrical plug gaging members, taper lock design, range above 0.059 to and including 0.240 inch*



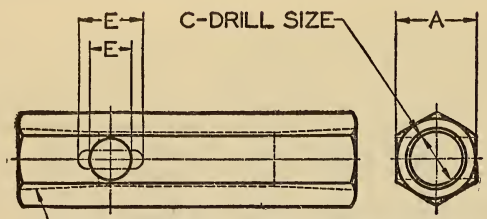
ABOVE 0.059 TO AND INCLUDING 0.150 INCH



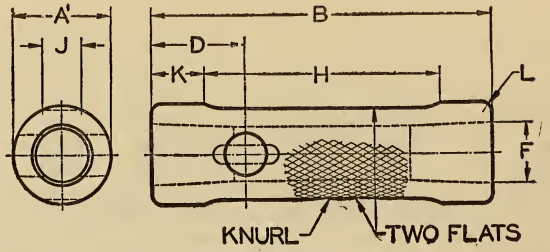
ABOVE 0.150 TO AND INCLUDING 0.240 INCH

Handle size No.	Range		General dimensions											
			Go						Not go					
	Above—	To and including—	A	B	C	D	E		A	B	C	D	E	
							Min.	Max.					Min.	Max.
	Inch	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
000	0. 059	0. 105	$1\frac{5}{32}$	$\frac{3}{8}$	$\frac{1}{2}$	------	0. 125	0. 126	$3\frac{1}{32}$	$\frac{3}{16}$	$\frac{1}{2}$	------	0. 125	0. 126
00	. 105	. 150	$1\frac{11}{32}$	$\frac{7}{16}$	$\frac{9}{16}$	------	. 155	. 156	$1\frac{1}{8}$	$\frac{7}{32}$	$\frac{9}{16}$	------	. 155	. 156
0	. 150	. 240	$1\frac{15}{32}$	$\frac{19}{32}$	$\frac{5}{8}$	$\frac{1}{4}$	. 180	. 181	$1\frac{5}{32}$	$\frac{9}{32}$	$\frac{5}{8}$	$\frac{1}{4}$	. 180	. 181

TABLE 3.—*Plain cylindrical plug gage handles taper lock design, range above 0.240 to and including 1.510 inches*



STANDARD DESIGN

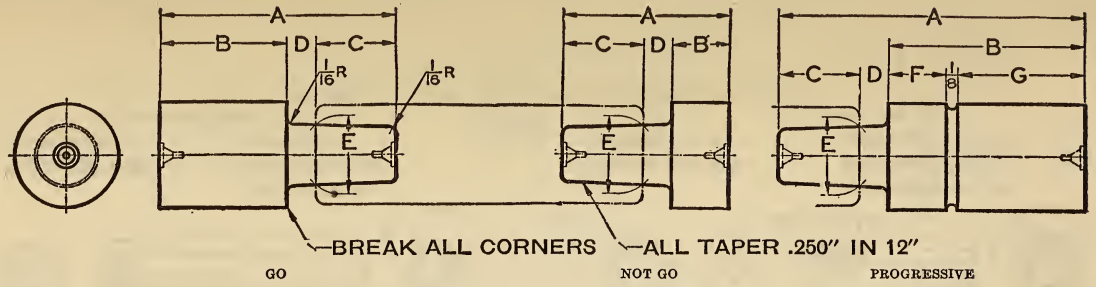


OPTIONAL DESIGN

Size	Range, plain cylindrical plug		General dimensions												
	Above—	To and including—	*A*	*A'*	*B*	*C* Drill size	*D*	*E*	*F* Min.	*F* Max.	*G*	*H*	*J*	*K*	*L*
	Inches	*Inches*	*Inches*	*Inches*	*Inches*		*Inches*	*Inch*	*Inch*	*Inch*	*No.*	*Inches*	*Inch*	*Inch*	*Inch*
1	0. 240	0. 365	3/8	7/16	2 3/4	7/32	25/32	1/8 by 1/2	0. 239	0. 240	4	1 3/4	7/32	1/2	1/16
2	. 365	. 510	1/2	5/8	3	L (0. 290)	25/32	*Diameter* 15/64	. 309	. 310	6	2	3/8	1/2	1/16
3	. 510	. 825	11/16	13/16	3 1/4	25/64	27/32	11/32	. 409	. 410	7	2 1/4	7/16	1/2	3/32
4	. 825	1. 135	7/8	1 1/16	3 5/8	37/64	63/64	3/8	. 609	. 610	10	2 1/2	7/16	9/16	3/32
5	1. 135	1. 510	1 1/8	1 5/16	4	25/32	1 1/8	7/16	. 809	. 810	11	2 3/4	1/2	5/8	1/8
5, optional, see note	1. 510	2. 510	1 1/8	1 5/16	4	25/32	1 1/8	7/16	. 809	. 810	11	2 3/4	1/2	5/8	1/8

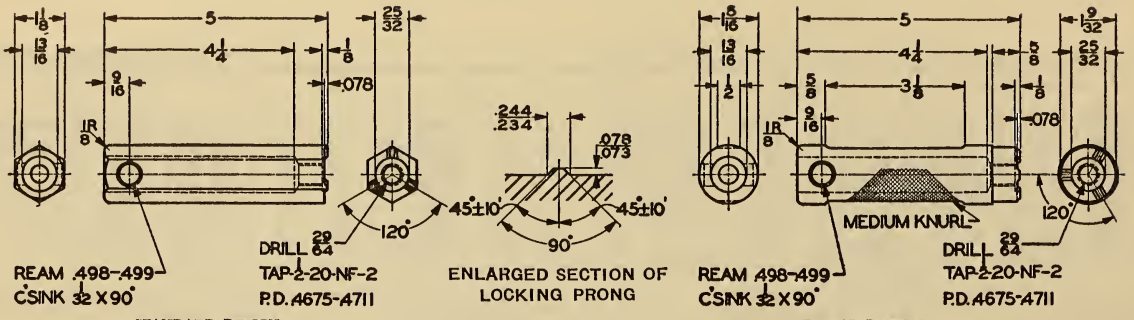
NOTE.—The use of taper lock plain cylindrical plug gaging members and handles is optional in the range above 1.510 to and including 2.510 inches, but the use of the reversible design is standard for all sizes above 1.510 inches.

TABLE 4.—*Plain cylindrical plug gaging members, taper lock design, range above 0.240 to and including 1.510 inches*



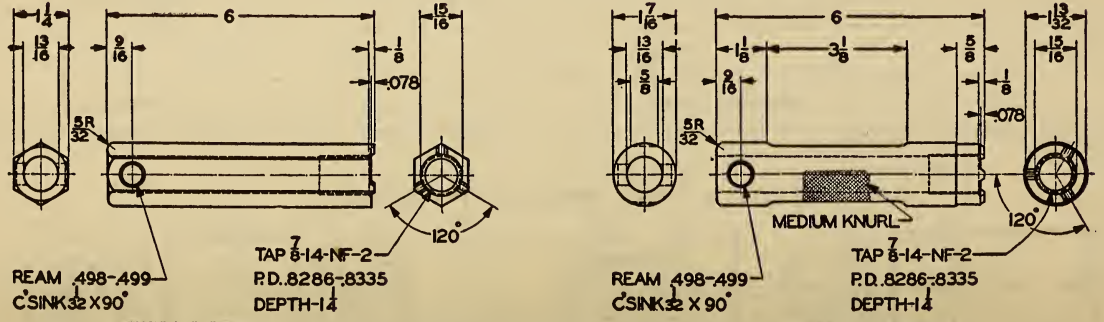
Handle size No.	Range		General dimensions																	
			Go						Not go						Progressive							
	Above	To and including	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		F	G
							Min.	Max.					Min.	Max.					Min.	Max.		
	Inches	*Inches*	*In.*	*In.*	*Inch*	*In.*	*Inch*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inches*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inches*
1	0. 240	0. 365	1¾	¾	¾	¼	0. 239	0. 240	1 5/16	5/16	¾	¼	0. 239	0. 240	2 3/16	1 3/16	¾	¼	0. 239	0. 240	5/16	¾
2	. 365	. 510	2	1	¾	¼	. 309	. 310	1⅜	⅜	¾	¼	. 309	. 310	2½	1½	¾	¼	. 309	. 310	⅜	1
3	. 510	. 825	2¼	1¼	¾	¼	. 408	. 410	1½	½	¾	¼	. 408	. 410	2⅞	1⅞	¾	¼	. 408	. 410	½	1¼
4	. 825	1. 135	2 9/16	1⅜	⅞	5/16	. 608	. 610	1 13/16	⅝	⅞	5/16	. 608	. 610	3 5/16	2⅛	⅞	5/16	. 608	. 610	⅝	1⅜
5	1. 135	1. 510	2⅞	1½	1	⅜	. 808	. 810	2 1/16	¾	1	⅜	. 808	. 810	3¾	2⅜	1	⅜	. 808	. 810	¾	1½
5, optional, see note	1. 510	2. 010	3¼	1⅞	1	⅜	. 808	. 810	2¼	⅞	1	⅜	. 808	. 810	4¼	2⅞	1	⅜	. 808	. 810	⅞	1⅞
5, optional, see note	2. 010	2. 510	3⅜	2	1	⅜	. 808	. 810	2¼	⅞	1	⅜	. 808	. 810	4⅜	3	1	⅜	. 808	. 810	⅞	2

NOTE.—The use of taper lock plain cylindrical plug gaging members and handles is optional in the range above 1.510 to and including 2.510 inches, but the use of the reversible design is standard for all sizes above 1.510 inches.



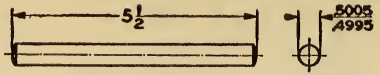
STANDARD DESIGN — OPTIONAL DESIGN

No. 6 handle. Range: Above 1.510 to and including 2.510 inches

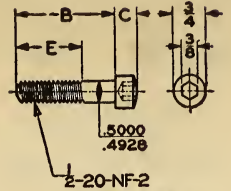


STANDARD DESIGN — OPTIONAL DESIGN

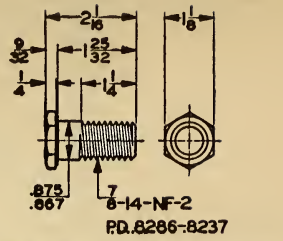
No. 7 handle. Range: Above 2.510 to and including 4.510 inches



Cross bar, Nos. 6 and 7 handles (optional)



Socket head cap screw, No. 6 handle



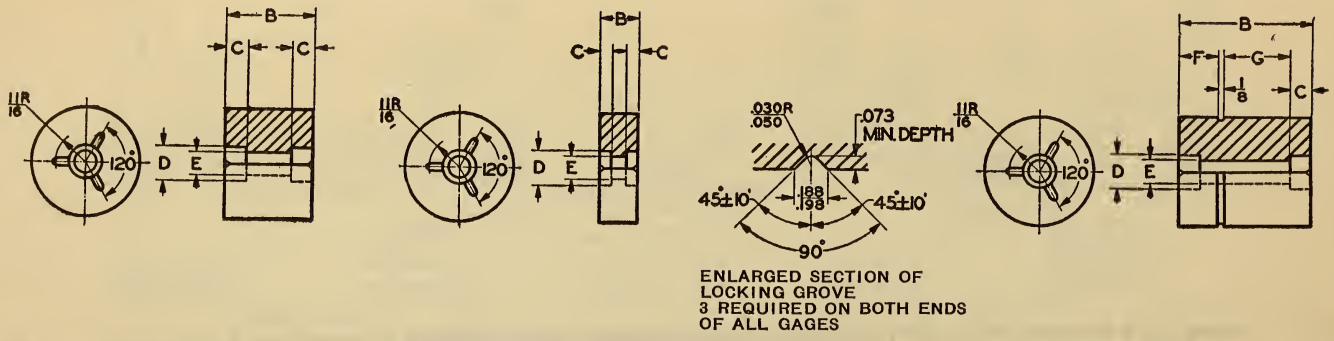
Hexagon head cap screw, No. 7 handle

Plug	B	C	E
	Inches	*Inch*	*Inches*
Not go	1½	3/8	1¼
Go	2¼	½	1½
Progressive	3¼	½	2⅛

FIGURE 2.—*Plain cylindrical plug gage handles, reversible design, range above 1.510 to and including 4.510 inches*

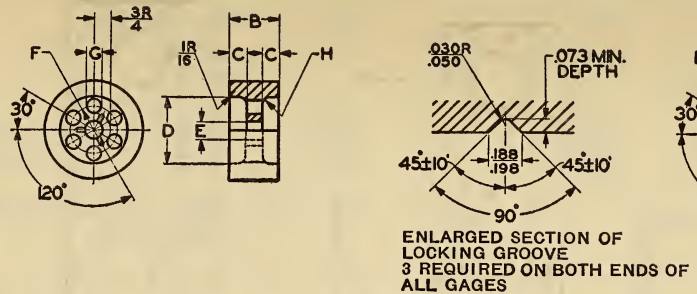
65540°—30—3

TABLE 5.—*Plain cylindrical plug gaging members, reversible design, range above 1.510 to and including 2.510 inches*



Handle size No.	Range		Go				Not go				Progressive					
	Above—	To and including—	*B*	*C*	*D*	*E*	*B*	*C*	*D*	*E*	*B*	*C*	*D*	*E*	*F*	*G*
	Inches	*Inches*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inches*
6	1. 510	2. 010	1 7/8	1/2	25/32	17/32	7/8	9/32	25/32	17/32	2 7/8	1/2	25/32	17/32	7/8	1 7/8
6	2. 010	2. 510	2	1/2	25/32	17/32	7/8	9/32	25/32	17/32	3	1/2	25/32	17/32	7/8	2

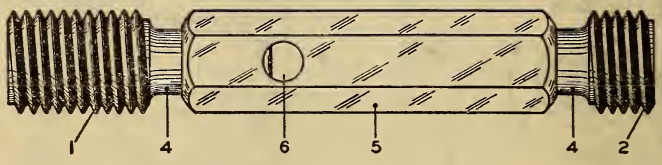
TABLE 6.—*Plain cylindrical plug gaging members, reversible design, range above 2.510 to and including 4.510 inches*



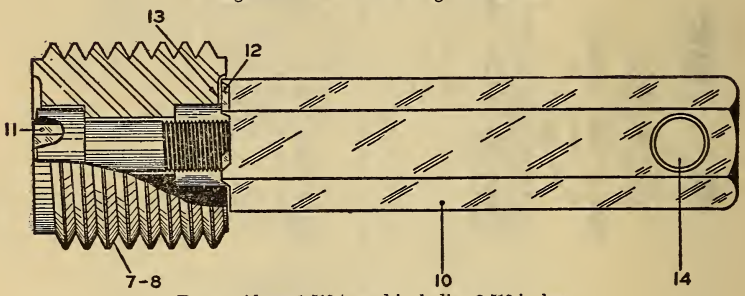
Handle size No.	Range		Go							Not go						
	Above—	To and including—	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*B*	*C*	*D*	*E*	*F*	*G*	*H*
	Inches	*Inches*	*Inches*	*Inch*	*Inches*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inches*	*Inch*	*Inches*	*Inch*	*Inch*
7	2. 510	3. 010	2 1/8	1 1/16	1 7/8	29/32	------	------	3/16	1	1/8	1 7/8	29/32	------	------	3/16
7	3. 010	3. 510	2 1/4	3/4	2 1/4	29/32	------	------	5/16	1	1/8	2 1/4	29/32	------	------	3/16
7	3. 510	4. 010	2 1/4	3/4	2 5/8	29/32	------	------	5/16	1	1/8	2 5/8	29/32	------	------	3/16
7	4. 010	4. 510	2 1/4	3/4	3	29/32	1 1/16	3/4	5/16	1	1/8	3	29/32	1 1/16	3/4	3/16

2. THREAD PLUG GAGE BLANKS AND HANDLES

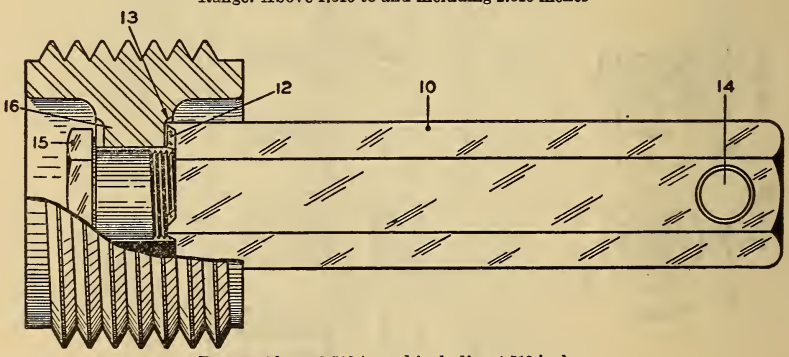
The taper lock and reversible designs have been adopted for thread plug gage blanks and handles and follow the plain cylindrical plug gage designs described on pages 6 and 7, with the exception that the length of thread-gaging members is slightly different in some instances and the use of taper lock blanks and handles for pipe-thread plug gages is standard to and including 2 inches nominal pipe size. General details of construction will be apparent from Figure 3. Data sheets for thread plug gages are set forth on pages 19 to 28, and a separate table specifying the taper lock handles and gaging members for pipe-thread plug gages is set forth on page 24.



Range: No. 0 to and including 1.510 inches



Range: Above 1.510 to and including 2.510 inches

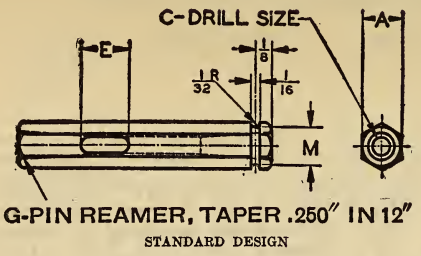


Range: Above 2.510 to and including 4.510 inches

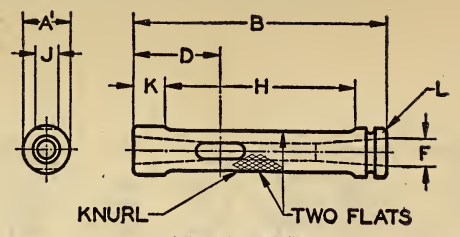
FIGURE 3.—*American Gage Design Standard thread plug gages, details of construction*

1. "Go" gaging member.
2. "Not go" gaging member.
4. Shank.
5. Taper lock handle.
6. Drift hole (or slot).
7. "Go" gaging member.
8. "Not go" gaging member.
10. Handle for reversible gage.
11. Socket head screw.
12. Locking prong.
13. Locking groove.
14. Cross-pin hole.
15. Hexagon head screw.
16. Web.

TABLE 7.—*Thread plug gage handles, taper lock design, range No. 0 to No. 12, inclusive*



STANDARD DESIGN

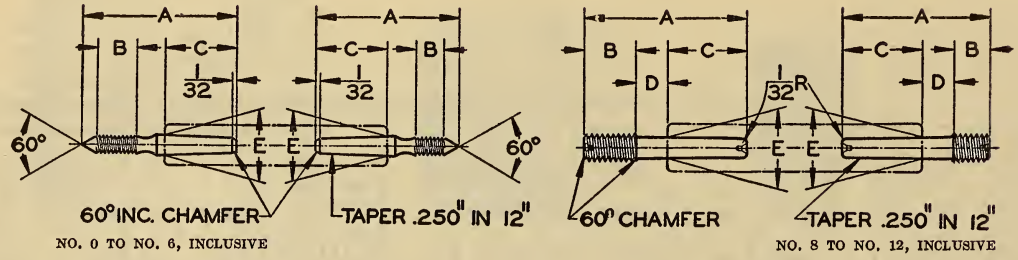


OPTIONAL DESIGN

Handle size No.	Range (inclusive), thread plug		General dimensions														
	From—	To—	*A*	*A'*	*B*	*C* Drill size	*D*	*E*	*F* Min.	*F* Max.	*G*	*H*	*J*	*K*	*L*	*M* Min.	*M* Max.
	No.	*No.*	*Inch*	*Inch*	*Inches*		*Inch*	*Inch*	*Inch*	*Inch*	*No.*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
000	0	3	3/16	1/4	1 1/2	No. 34 (0. 111)	9/16	5/64 by 1/4	0. 125	0. 126	000	1	5/32	1/4	1/32	0. 172	0. 177
00	4	6	1/4	5/16	1 3/4	No. 29 (0. 136)	5/8	3/32 by 5/16	. 155	. 156	0	1 1/4	3/16	1/4	1/32	. 235	. 240
0	8	12	5/16	3/8	2	No. 20 (0. 161)	11/16	1/8 by 3/8	. 180	. 181	2	1 1/2	3/16	1/4	1/32	. 297	. 302

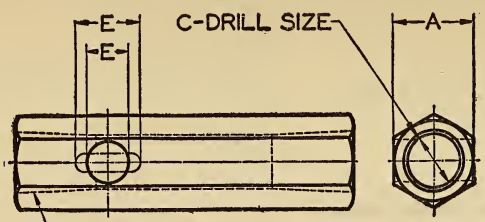
NOTE.—The purpose of the groove in the "not go" end of the handle is to distinguish the "not go" from the "go" end.

TABLE 8.—*Thread plug gaging members, taper lock design, range No. 0 to No. 12, inclusive*

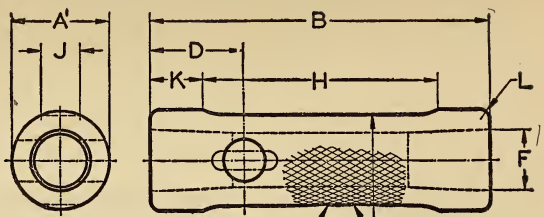


Handle size No.	Range				General dimensions											
	Nominal, inclusive		Decimal		Go						Not go					
	From—	To—	Above—	To and including—	A	B	C	D	E		A	B	C	D	E	
									Min.	Max.					Min.	Max.
	No.	*No.*	*Inch*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
000	0	3	0. 059	0. 105	1 1/32	1/4	1/2	------	0. 125	0. 126	31/32	3/16	1/2	------	0. 125	0. 126
00	4	6	. 105	. 150	1 7/32	5/16	9/16	------	. 155	. 156	1 1/8	7/32	9/16	------	. 155	. 156
0	8	12	. 150	. 240	1 9/32	13/32	5/8	1/4	. 180	. 181	1 5/32	9/32	5/8	1/4	. 180	. 181

TABLE 9.—*Thread plug gage handles, taper lock design, range ¼ to 1½ inches, inclusive*



STANDARD DESIGN

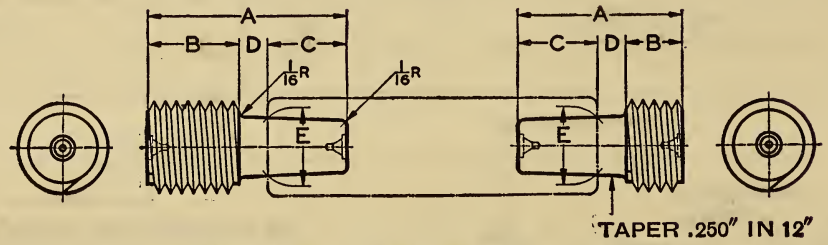


OPTIONAL DESIGN

Handle size No.	Range (inclusive), thread plug		General dimensions												
	From—	To—	*A*	*A'*	*B*	*C* Drill size	*D*	*E*	*F* Min.	*F* Max.	*G*	*H*	*J*	*K*	*L*
	Inches	*Inches*	*Inches*	*Inches*	*Inches*		*Inches*	*Inch*	*Inch*	*Inch*	*No.*	*Inches*	*Inch*	*Inch*	*Inch*
1	¼	5/16	⅜	7/16	2¾	7/32	25/32	⅛ by ½	0. 239	0. 240	4	1¾	7/32	½	1/16
2	⅜	½	½	⅝	3	L (0. 290)	25/32	15/64 diam.	. 309	. 310	6	2	⅜	½	1/16
3	9/16	¾	11/16	13/16	3¼	25/64	27/32	11/32 diam.	. 409	. 410	7	2¼	7/16	½	3/32
4	⅞	1⅛	⅞	1 1/16	3⅝	3/64	63/64	⅜ diam.	. 609	. 610	10	2½	7/16	9/16	3/32
5	1¼ Above 1. 510 (See note.)	1½ 2. 510	1⅛	1 5/16	4	25/32	1⅛	7/16 diam.	. 809	. 810	11	2¾	½	⅝	⅛
			1⅛	1 5/16	4	25/32	1⅛	7/16 diam.	. 809	. 810	11	2¾	½	⅝	⅛

NOTE.—In the range above 1.510 to and including 2.510 inches the No. 5 handle is standard for taper pipe thread gages and optional for other thread plug gages. See footnote, Table 10.

TABLE 10.—*Thread plug gaging members, taper lock design, range ¼ to 1½ inches, inclusive*

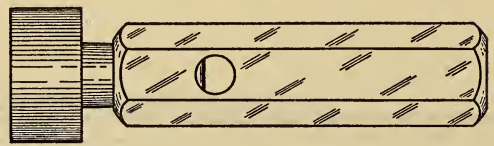


Not less than three full threads must remain on "Not go" plug

Handle size No.	Range				Threads per inch	General dimensions										
	Diameters					Go						Not go				
	Nominal range, inclusive		Decimal range			A	B	C	D	E		A	B	C	D	E
	From—	To—	Above—	To and including—						Min.	Max.					Min.	Max.
	Inches	Inches	Inches	Inches		Inches	Inches	Inch	Inch	Inch	Inch	Inches	Inch	Inch	Inch	Inch	Inch
1	1/4	5/16	0.240	0.365		1 1/2	1/2	3/4	1/4	0.239	0.240	1 5/16	5/16	3/4	1/4	0.239	0.240
2	3/8	1/2	.365	.510		1 3/4	3/4	3/4	1/4	.309	.310	1 3/8	3/8	3/4	1/4	.309	.310
3	9/16	3/4	.510	.825		1 7/8	7/8	3/4	1/4	.408	.410	1 1/2	1/2	3/4	1/4	.408	.410
4	7/8	1 1/8	.825	1.135		2 3/16	1	7/8	5/16	.608	.610	1 13/16	5/8	7/8	5/16	.608	.610
5	1 1/4	1 1/2	1.135	1.510	Coarser than 12	2 5/8	1 1/4	1	3/8	.808	.810	2 1/8	3/4	1	3/8	.808	.810
5	1 1/4	1 1/2	1.135	1.510	12 and finer	2 3/8	1	1	3/8	.808	.810	2 1/8	3/4	1	3/8	.808	.810
5	1 1/2	2	1.510	2.010	Coarser than 12	2 7/8	1 1/2	1	3/8	.808	.810	2 1/8	3/4	1	3/8	.808	.810
5	1 1/2	2	1.510	2.010	12 and finer	2 3/8	1	1	3/8	.808	.810	2 1/8	3/4	1	3/8	.808	.810
5 [1]	1 1/2	2	1.510	2.010	7 and coarser	3 1/4	1 7/8	1	3/8	.808	.810	2 1/4	7/8	1	3/8	.808	.810
5 [1]	1 1/2	2	1.510	2.010	Finer than 7, coarser than 16.	2 5/8	1 1/4	1	3/8	.808	.810	2 1/4	7/8	1	3/8	.808	.810
5 [1]	1 1/2	2	1.510	2.010	16 and finer	2 1/4	7/8	1	3/8	.808	.810	2 1/4	7/8	1	3/8	.808	.810
5 [1]	2	2 1/2	2.010	2.510	7 and coarser	3 3/8	2	1	3/8	.808	.810	2 1/4	7/8	1	3/8	.808	.810
5 [1]	2	2 1/2	2.010	2.510	Finer than 7, coarser than 16.	2 3/4	1 3/8	1	3/8	.808	.810	2 1/4	7/8	1	3/8	.808	.810
5 [1]	2	2 1/2	2.010	2.510	16 and finer	2 1/4	7/8	1	3/8	.808	.810	2 1/4	7/8	1	3/8	.808	.810

[1] The use of taper lock thread plug gaging members and handles is optional for straight thread plug gages in the ranges above 1.510 to and including 2.510 inches, but the reversible design is recommended as standard. For taper pipe thread plug gages see Table 11, p. 24.

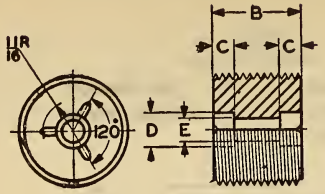
TABLE 11.—*Pipe thread plug gage handles and gaging members, taper lock design, range ⅛ to 2 inches, inclusive*



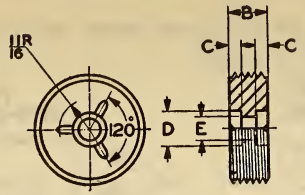
Taper lock gaging members and handles are standard for pipe thread-plug gages to and including 2 inches nominal pipe size. The general dimensions of handles and gaging members which are referred to in this table are given in Tables 9 and 10, pp. 21 to 23.

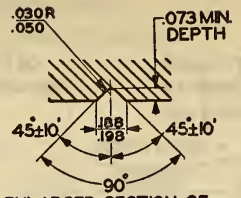
Nominal pipe size	Handle No.	Gaging member, use "not go" blank for range—	Nominal pipe size	Handle No.	Gaging member, use "not go" blank for range—
Inches		*Inches*	*Inches*		*Inches*
⅛	2	⅜ to ½.	1	5	1¼ to 1½.
¼	3	9/16 to ¾.	1¼	5	1½ to 2.
⅜	3	9/16 to ¾.	1½	5	1½ to 2.
½	4	⅞ to 1⅛.	2	5	2 to 2½.
¾	4	⅞ to 1⅛.			

TABLE 12.—*Thread plug gaging members, reversible design, range above 1½ to and including 2½ inches*

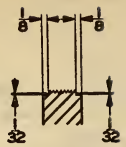


NOT LESS THAN THREE FULL THREADS MUST REMAIN ON "NOT GO" PLUG.



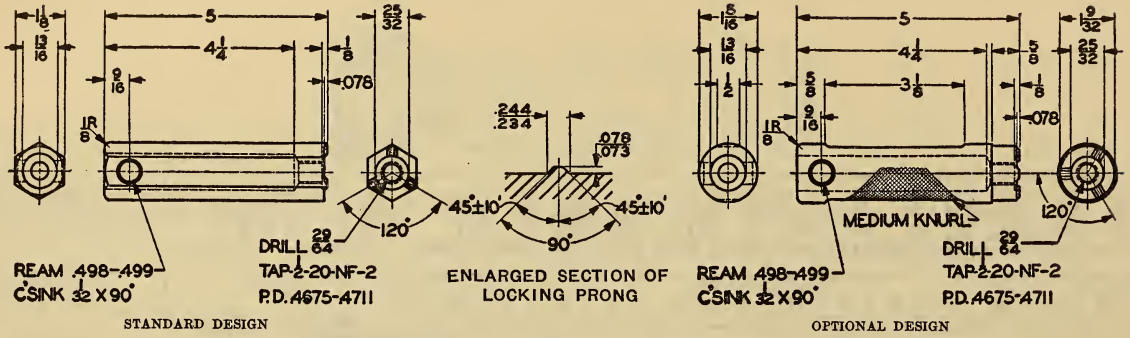


ENLARGED SECTION OF INTERNAL LOCKING MEMBER 3 REQUIRED ON BOTH ENDS OF ALL GAGES.

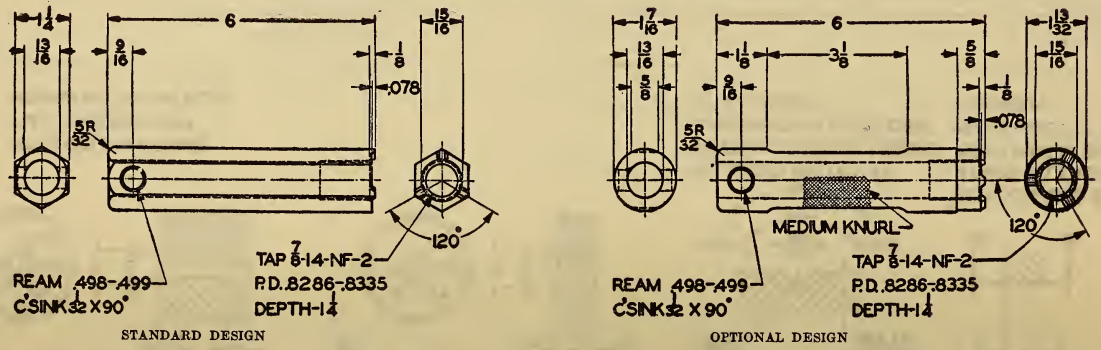


"NOT GO" GAGES 16 T.P.I. & FINER RELIEVED ON BOTH ENDS 32 BELOW SHARP ROOT OF THRD. AS SHOWN.

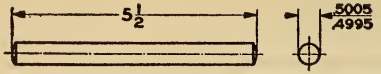
Handle size No.	Range		Go												Not go			
	Above—	To and including—	7 threads per inch and coarser				Finer than 7 threads per inch and coarser than 16				16 threads per inch and finer				All pitches			
			B	*C*	*D*	*E*	*B*	*C*	*D*	*E*	*B*	*C*	*D*	*E*	*B*	*C*	*D*	*E*
	Inches	*Inches*	*Inches*	*Inch*	*Inch*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
6	1. 510	2. 010	1⅞	½	25/32	17/32	1¼	⅜	25/32	17/32	⅞	9/32	25/32	17/32	⅞	9/32	25/32	17/32
6	2. 010	2. 510	2	½	25/32	17/32	1⅜	⅜	25/32	17/32	⅞	9/32	25/32	17/32	⅞	9/32	25/32	17/32



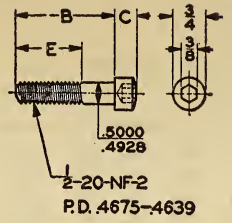
No. 6 Handle. Range: Above 1.510 to and including 2.510 inches



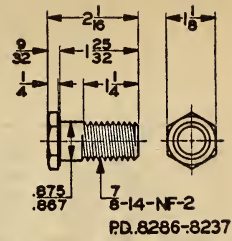
[No. 7 handle. Range: Above 2.510 to and including 4.510 inches



Cross bar, Nos. 6 and 7 handles (optional)



Socket head cap screw, No. 6 handle

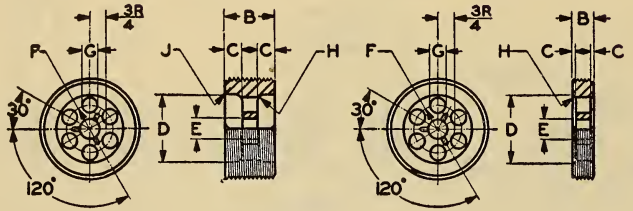


Hexagon head cap screw, No. 7 handle

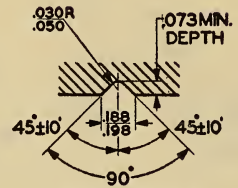
Plug	B	C	E
	Inches	*Inch*	*Inches*
Not go, all pitches. Go, 16 threads per inch and finer	1½	⅜	1¼
Go, pitches coarser than 16 threads per inch	2¼	½	1½

FIGURE 4.—*Thread plug gage handles, reversible design, range above 1.510 to and including 4.510 inches*

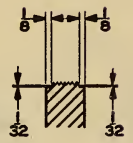
TABLE 13.—*Thread plug gaging members, reversible design, range above 2½ to and including 4½ inches*



NOT LESS THAN THREE FULL THREADS MUST REMAIN ON "NOT GO" PLUG.



ENLARGED SECTION OF LOCKING GROOVE 3 REQUIRED ON BOTH ENDS OF ALL GAGES.



"NOT GO" GAGES 16 T.P.I. & FINER RELIEVED ON BOTH ENDS 3/32 BELOW SHARP ROOT OF THRD. AS SHOWN.

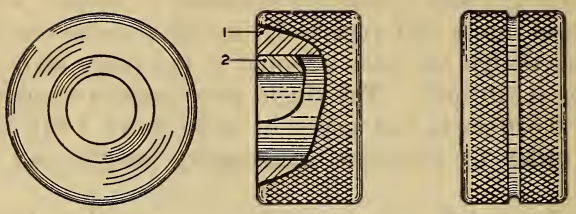
Handle size No.	Range		Go											Not go			All			
	Above—	To and including—	7 threads per inch and coarser				Finer than 7 threads per inch and coarser than 16				16 threads per inch and finer			All pitches			All pitches			
			B	*C*	*H*	*J*	*B*	*C*	*H*	*J*	*B*	*C*	*H*	*B*	*C*	*H*	*D*	*E*	*F*	*G*
	Inches	*Inches*	*Inches*	*Inch*	*Inch*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inches*	*Inch*	*Inches*	*Inch*
7	2. 510	3. 010	2⅛	11/16	3/16	1/16	1½	3/8	3/16	1/16	1	1/8	3/16	1	1/8	3/16	1⅞	29/32	------	----
7	3. 010	3. 510	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	2¼	29/32	------	----
7	3. 510	4. 010	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	2⅝	29/32	------	----
7	4. 010	4. 510	2¼	¾	5/16	1/16	1½	3/8	¼	1/16	1	1/8	3/16	1	1/8	3/16	3	29/32	1 1/16	¾

3. PLAIN RING GAGE BLANKS

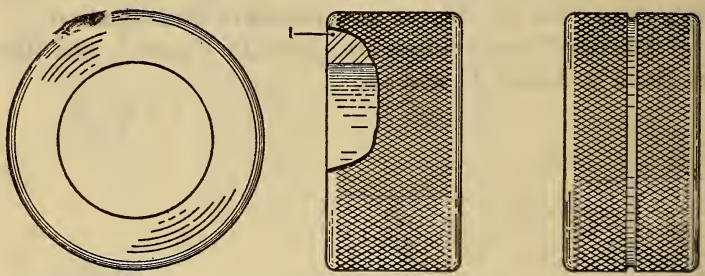
The use of the solid ring-gage design for external size control, being fairly well established, the committee's work on plain ring gages was concerned chiefly with matters of proportion. In the smaller sizes of plain ring gages it was felt desirable to employ a hardened bushing pressed into a soft gage body, in place of the one-piece ring gage, and this design has been adopted in the range above 0.059 to and including 0.510 inch. The single piece gage is employed in all cases above 0.510 inch, but gages in sizes above 1.510 inches are flanged, in order to eliminate unnecessary weight and facilitate handling.

No dimensional difference exists between "go" and "not go" blanks of identical size range, but an annular groove is provided in the periphery of "not go" blanks as a means of identification.

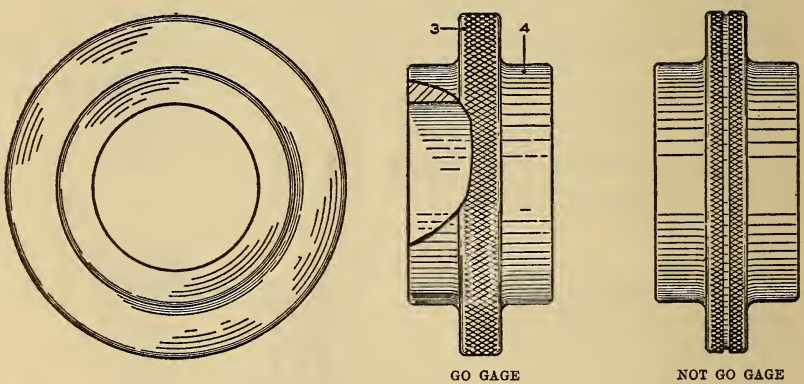
General details of construction are shown in Figure 5, and dimensions are given in Tables 14 and 15.



Range: Above 0.059 to and incldng 0.510 inch



Range: Above 0.510 to and including 1.510 inches

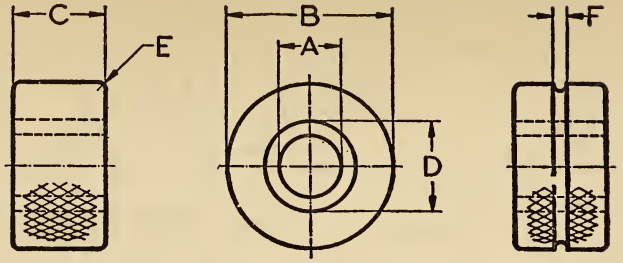


Range: Above 1.510 to and including 4.510 inches

1. Body.
2. Bushing.
3. Flange.
4. Hub.

FIGURE 5.—*American Gage Design Standard plain ring gages, details of construction*

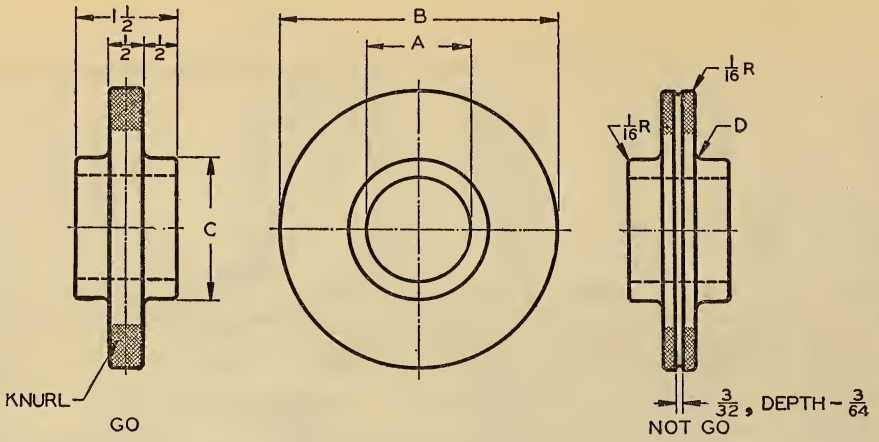
TABLE 14.—*Plain ring gages, range above 0.059 to and including 1.510 inches*



Ring size No.	A Range		General dimensions					
	Above—	To and including—	B Outside diameter	C Thickness	D Bushing diameter	E Radius	F "Not go" groove width	Length of bushing
	Inches	*Inches*	*Inches*	*Inches*	*Inch*	*Inch*	*Inch*	
00	0. 059	0. 150	15/16	3/16	3/8	1/32	1/32	(1)
0	. 150	. 240	15/16	3/8	7/16	1/32	1/16	(1)
1	. 240	. 365	1 1/8	9/16	9/16	1/16	3/32	(1)
2	. 365	. 510	1 3/4	3/4	3/4	1/16	3/32	(1)
3	. 510	. 825	1 3/4	15/16	(2)	3/32	3/32	(2)
4	. 825	1. 135	2 1/8	1 1/8	(2)	3/32	3/32	(2)
5	1. 135	1. 510	2 1/2	1 5/16	(2)	3/32	3/32	(2)

[1] Bushings are 1/16 inch longer than ring thickness, but are ground flush after hole is finished.
[2] Sizes 3, 4, and 5 are solid.

TABLE 15.—*Plain ring gages, range above 1.510 to and including 4.510 inches*



Ring size No.	A Range		B	C	D
	Above—	To and including—	Outside diameter	Hub diameter	Radius
	Inches	*Inches*	*Inches*	*Inch*	*Inch*
6	1. 510	2. 010	4⅛	$A+\frac{7}{8}$	⅛
7	2. 010	2. 510	4⅝	$A+\frac{7}{8}$	⅛
8	2. 510	3. 010	5½	$A+1$	3/16
9	3. 010	3. 510	6	$A+1$	3/16
10	3. 510	4. 010	6⅞	$A+1\frac{1}{8}$	¼
11	4. 010	4. 510	7⅜	$A+1\frac{1}{8}$	¼

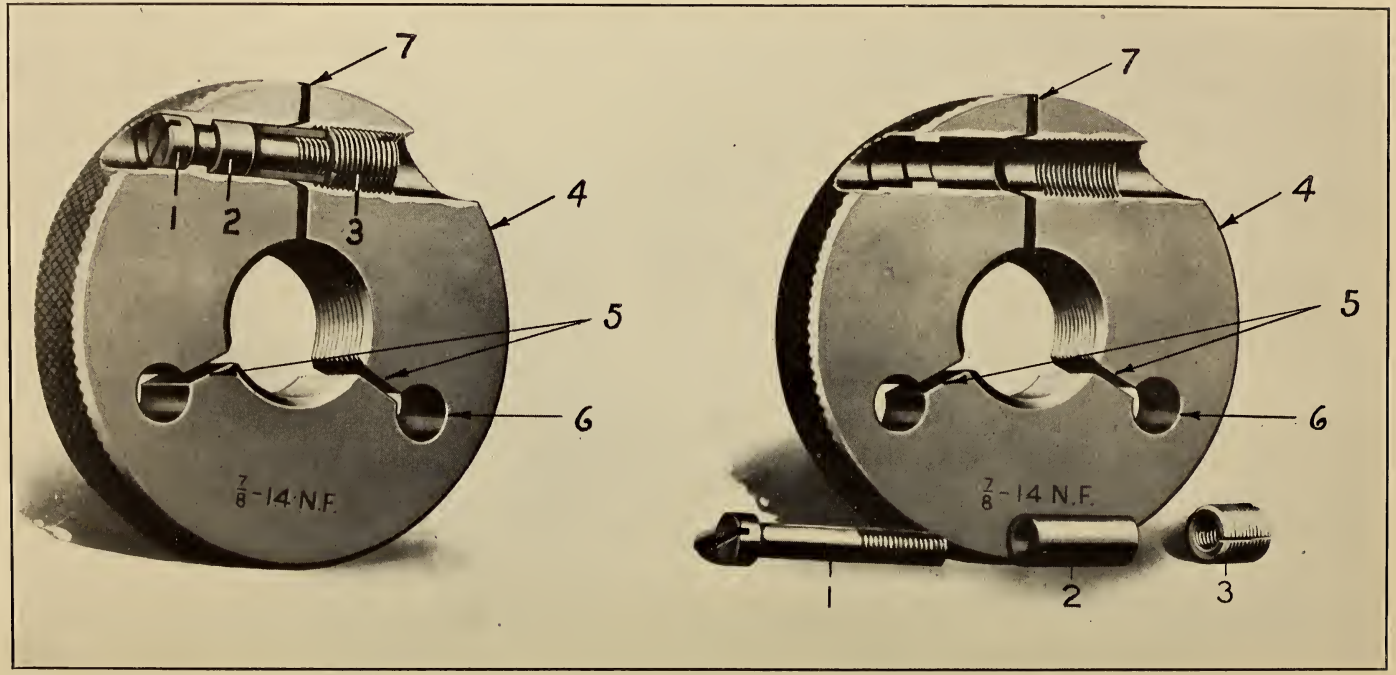


FIGURE 6.—*American Gage Design Standard thread ring gage locking device, details of construction, range No. 0 to 4½ inches, inclusive*

1, Locking screw; 2, Sleeve; 3, Adjusting screw; 4, Body; 5, Adjusting slot (one slot in range No. 0 to 5/16 inch, two slots in range 3/8 inch and larger); 6, Adjusting slot terminal hole; 7, Locking slot.

4. THREAD RING GAGE BLANKS

The committee found universal accord as to the superiority of the adjustable thread ring gage over the solid type, with the result that all American Gage Design Standard thread ring gage blanks are equipped with an effective device for adjusting and locking the gage in the manufacturing or resizing processes. Of the many locking devices considered the single-unit locking device was finally adopted as standard, as it permits a minimum diameter of blank for a given size range, and provides a simple adjustment and positive lock without introducing any mechanical stresses into the gage body which might tend to create distortion after setting. Referring to Figure 6, the construction and operation of this device is as follows:

The adjusting screw, *3*, is threaded externally and internally and split longitudinally. Turning this screw to the right exerts pressure on the sleeve, *2*, against the shoulder in the left-hand side of the gage here shown, thus spreading the ring. Once the ring has been properly adjusted by means of adjusting screw, *3*, the adjustment is locked by tightening locking screw, *1*. The tightening of locking screw, *1*, exerts a pull between the shoulder immediately under its head and the internal threads of the adjusting screw, *3*, which causes the adjusting screw to expand into the threads in the wall of the gage, the thrust of this action being taken up longitudinally by the sleeve, *2*. Therefore, the clamping is accomplished by expansion of the adjusting screw equally in all directions and not by the application of any eccentric forces that tend to distort the gage or upset the adjustment. The locking pressure, it is seen, is taken up centrally in the locking screw itself as the reacting support is directly under the head of the locking screw in the form of a shoulder in the gage. The sleeve, *2*, being accurately fitted, serves as a large dowel to maintain the alignment of the gage.

Three types of thread ring gage blanks have been provided as illustrated in Figure 7, namely:

1. A thin flat disk type with one adjusting slot for all sizes and pitches, both "go" and "not go," No. 0 to 5/16 inch, inclusive.

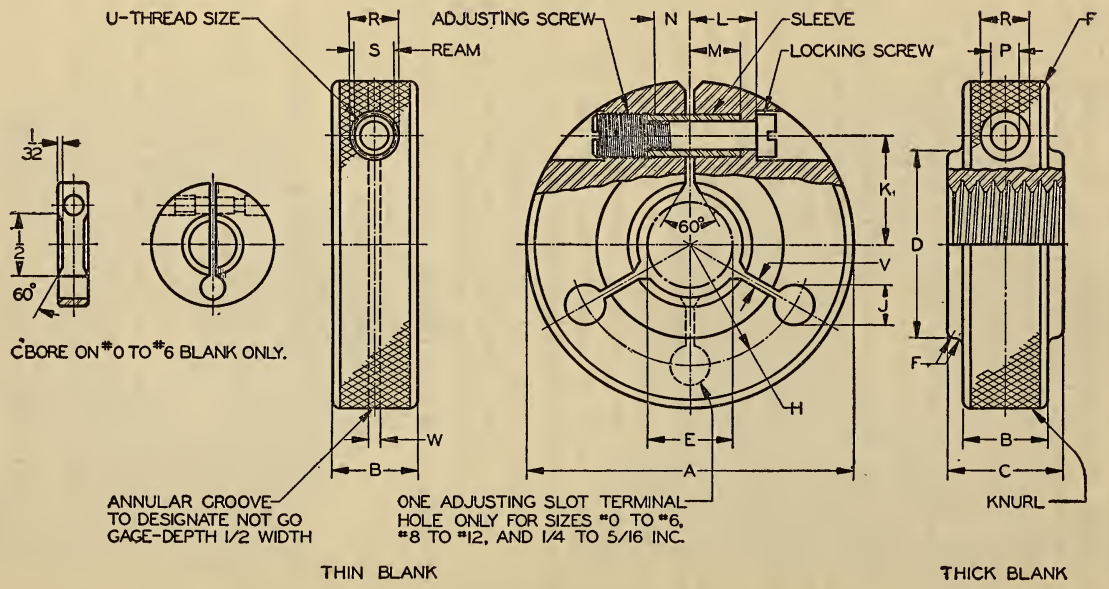
2. A thin flat disk type with two adjusting slots for the following: (*a*) All sizes and pitches, "go" and "not go," above 5/16 to and including ½ inch; (*b*) fine pitches,[1] "go" and "not go," above ½ to and including 4½ inches; (*c*) coarse pitches, "not go" only, above ½ to and including 4½ inches.

3. A thick flanged type with two adjusting slots for all "go" coarse pitch gages, above ½ to and including 4½ inches.

Dimensions for thread ring gage blanks in the range from No. 0 to 4½ unches, inclusive, and of parts for the thread ring gage locking device, are given in Tables 16, 17, 18, and 19.

[1] Specific information as to the meaning of the terms "fine pitches" and "coarse pitches," as used above, is given in the footnote to Table 16, p. 35.

TABLE 16.—*Thread ring gages, range No. 0 to 4½ inches, inclusive*



Nominal range, inclusive	Decimal range, above and including—	General dimensions																			
		A	*B*	*C*	*D*	*E*	*F*	*H*	*J*	*K*	*L*	*M*	*N*	*P* Drill size	*R* Drill size	*S* Ream		*U*			*V*	*W*
																Min.	Max.	Size	Pitch diameter			
																			Min.	Max.		
	Inches	*Inches*	*Inch*	*Inches*	*Inches*	*Inches*	*Inch*	*Inches*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*			*Inch*	*Inch*		*Inch*	*Inch*	*Inch*	*Inch*
Nos. 0 to 6	0.059	1	¼	------	------	------	1/32	5/16	5/32	5/16	7/32	5/32	1/16	No. 41 (0.0960)	1 1/64 (0.1719)	0.1370	0.1373	No. 8-36	0.1460	0.1478	0.010 (1)	1/32
	.150																					
Nos. 8 to 12	.150	1	¼	------	------	------	1/32	5/16	5/32	5/16	7/32	5/32	1/16	No. 41 (0.0960)	1 1/64 (0.1719)	.1370	.1373	No. 8-36	.1460	.1478	1/64	1/32
	.240																					
¼ to 5/16	.240	1 3/8	1 1/32	------	------	5/32	1/32	7/16	3/16	3/8	1 1/32	¼	1/8	No. 31 (0.1200)	7/32 (0.2187)	.1810	.1813	No. 12-28	.1928	.1950	1/32	1/16
	.365																					
3/8 to ½	.365	1 3/4	7/16	------	------	3/16	3/64	1 9/32	¼	1 5/32	½	3/8	3/16	No. 25 (0.1495)	17/64 (0.2656)	.2150	.2153	¼-28	.2268	.2290	1/32	3/32
	.510																					
9/16 to ¾	.510	2 3/16	9/16	¾	1 1/16	1 1/32	1/16	¾	5/16	1 1/16	1 7/32	1 3/32	7/32	No. 7 (0.2010)	21/64 (0.3281)	.2720	.2723	5/16-24	.2854	.2878	1/16	3/32
	.825																					
7/8 to 1 1/8	.825	2 5/8	1 1/16	1 5/16	1½	9/16	1/16	3 1/32	5/16	7/8	1 7/32	1 3/32	9/32	No. 1 (0.2280)	25/64 (0.3906)	.3340	.3344	3/8-24	.3479	.3503	1/16	3/32
	1.135																					
1¼ to 1½	1.135	3¼	¾	1⅛	1⅞	2 7/32	1/16	1 3/16	3/8	1⅛	5/8	7/16	5/16	17/64 (0.2656)	29/64 (0.4531)	.3890	.3894	7/16-20	.4050	.4076	1/16	3/32
	1.510																					
1⅝ to 2	1.510	3¾	1 3/16	1¼	2⅜	1 3/16	3/32	1 7/16	3/8	1⅜	5/8	7/16	5/16	17/64 (0.2656)	29/64 (0.4531)	.3890	.3894	7/16-20	.4050	.4076	1/16	1/8
	2.010																					
2⅛ to 2¼	2.010	4½	⅞	1 5/16	2⅞	1 19/32	3/32	1¾	7/16	1 11/16	1 3/16	9/16	7/16	21/64 (0.3281)	33/64 (0.5156)	.4510	.4515	½-20	.4675	.4701	3/32	1/8
	2.510																					
2⅝ to 3	2.510	5	⅞	1⅜	3⅜	2	3/32	2	7/16	1 15/16	1 3/16	9/16	7/16	21/64 (0.3281)	33/64 (0.5156)	.4510	.4515	½-20	.4675	.4701	3/32	1/8
	3.010																					
3⅛ to 3½	3.010	5½	1 5/16	1 7/16	3 7/8	2 7/16	3/32	2 7/32	7/16	2 3/16	1 3/16	9/16	7/16	21/64 (0.3281)	33/64 (0.5156)	.4510	.4515	½-20	.4675	.4701	3/32	1/8
	3.510																					
3⅝ to 4	3.510	6 3/8	1 5/16	1½	4 5/8	2 15/16	3/32	2⅝	½	2 9/16	1	¾	5/8	13/32 (0.4062)	41/64 (0.6406)	.5710	.5715	5/8-18	.5889	.5919	3/32	1/8
	4.010																					
4⅛ to 4½	4.010	7¼	1	1½	5⅜	3⅜	3/32	3 1/32	½	3	1	¾	5/8	13/32 (0.4062)	41/64 (0.6406)	.5710	.5715	5/8-18	.5889	.5919	3/32	1/8
	4.510																					

[1] Approximate.

NOTE.—Thin gage blanks are to be used for all "not go" thread ring gages, all American National fine-thread "go" ring gages, and American National coarse-thread "go" ring gages up to and including the one-half inch size. Thick blanks are to be used for all American National coarse-thread "go" ring gages above the one-half-inch size.

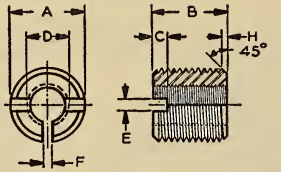
It is recommended that standard thread ring gage blanks be used for special pitches as follows:

No. 0 to ½ inch, inclusive, thin blanks for all pitches.

Above ½ inch to and including 1⅛ inches, thin blanks for 12 threads per inch and finer, and thick blanks for all "go" gages in pitches coarser than 12 threads per inch.

Above 1⅛ inches, thin blanks for 10 threads per inch and finer, and thick blanks for all "go" gages in pitches coarser than 10 threads per inch.

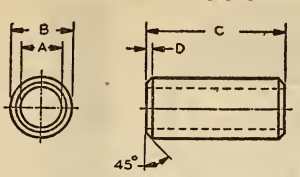
TABLE 17.—*Thread ring gage adjusting screws*



A			Minor diameter		*B*[1]	*C*	*D*				*E*	*F*	*H*
Size	Pitch diameter		Minimum	Maximum			Size	Pitch diameter		Tap drill			
	Minimum	Maximum						Minimum	Maximum				
	Inch	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*		*Inch*	*Inch*	*No.*	*Inch*	*Inch*	*Inch*
No. 8–36	0. 1442	0. 1460	0. 1315	0. 1333	3/16	3/64	No. 2–64	0. 0759	0. 0773	50 (0. 070)	1/32	1/64	0. 020
No. 12–28	. 1906	. 1928	. 1744	. 1766	1/4	3/64	No. 4–48	. 0985	. 1001	42 (. 093)	1/32	1/64	. 020
1/4–28	. 2246	. 2268	. 2084	. 2106	5/16	1/16	No. 6–40	. 1218	. 1235	32 (. 116)	3/64	1/32	. 020
5/16–24	. 2830	. 2854	. 2641	. 2665	5/16	1/16	No. 10–32	. 1697	. 1716	20 (. 161)	3/64	1/32	1/32
3/8–24	. 3455	. 3479	. 3266	. 3290	3/8	5/64	No. 12–28	. 1928	. 1950	14 (. 182)	1/16	3/64	1/32
7/16–20	. 4024	. 4050	. 3797	. 3823	7/16	5/64	1/4–28	. 2268	. 2290	3 (. 213)	1/16	3/64	1/32
1/2–20	. 4649	. 4675	. 4422	. 4448	1/2	3/32	5/16–24	. 2854	. 2878	I (. 272)	5/64	1/16	3/64
5/8–18	. 5859	. 5889	. 5607	. 5637	9/16	3/32	3/8–24	. 3479	. 3503	Q (. 332)	5/64	1/16	3/64

[1] Tolerance on length $B = \pm 1/64$ inch.

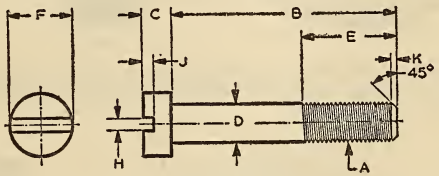
TABLE 18.—*Thread ring gage sleeves*



A	B		C[1]	D
	Minimum	Maximum		
	Inch	*Inch*	*Inches*	*Inch*
No. 43 (0.089)	0. 1368	0. 1370	1/4	0. 010
No. 32 (.116)	. 1808	. 1810	7/16	. 020
No. 27 (.144)	. 2148	. 2150	5/8	. 020
No. 10 (.193)	. 2718	. 2720	13/16	1/32
No. 2 (.221)	. 3337	. 3340	3/4	1/32
F (.257)	. 3887	. 3890	13/16	1/32
P (.323)	. 4507	. 4510	1 1/16	3/64
25/64 (.391)	. 5707	. 5710	1 1/2	3/64

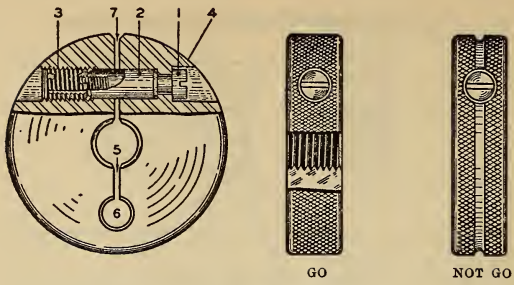
[1] Tolerance on length $C = \pm 1/64$ inch.

TABLE 19.—*Thread ring gage locking screws*

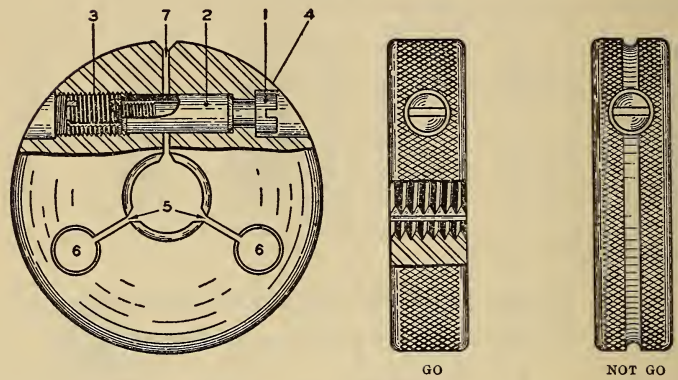


A			B[1]	C	D		E	F	H	J	K
Size	Pitch diameter				Min.	Max.					
	Min.	Max.									
	Inch	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
No. 2–64	0. 0745	0. 0759	29/64	5/64	0. 0840	0. 0860	3/16	5/32	1/32	3/64	0. 010
No. 4–48	. 0969	. 0985	23/32	3/32	. 1100	. 1120	5/16	3/16	1/32	3/64	. 020
No. 6–40	. 1201	. 1218	1	1/8	. 1360	. 1380	7/16	7/32	3/64	1/16	. 020
No. 10–32	. 1678	. 1697	1 1/16	1/8	. 1880	. 1900	7/16	9/32	3/64	1/16	1/32
No. 12–28	. 1906	. 1928	1 3/16	5/32	. 2140	. 2160	1/2	11/32	1/16	1/16	1/32
1/4–28	. 2246	. 2268	1 23/64	3/16	. 2480	. 2500	9/16	13/32	1/16	5/64	1/32
5/16–24	. 2830	. 2854	1 23/32	1/4	. 3105	. 3125	5/8	15/32	5/64	3/32	3/64
3/8–24	. 3455	. 3479	2 3/16	5/16	. 3730	. 3750	3/4	19/32	5/64	3/32	3/64

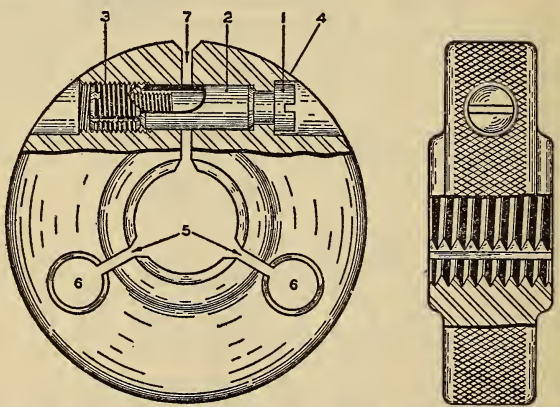
[1] Tolerance on length $B = -1/32$ inch.



Range: No. 0 to and including 0.365 inch, "go" and "not go" gages, all pitches



Range: 0.365 to and including 0.510 inch, "go" and "not go" gages, all pitches; 0.510 to and including 4.510 inches, "go" and "not go" gages, fine pitches; 0.510 to and including 4.510 inches, "not go" gages only, coarse pitches



Range: 0.510 to and including 4.510 inches, "go" gages only, coarse pitches

FIGURE 7.—*American Gage Design Standard thread ring gages, details of construction, range No. 0 to 4½ inches, inclusive*

1. Locking screw.
2. Sleeve.
3. Adjusting screw.
4. Body.
5. Adjusting slot.
6. Adjusting slot terminal hole.
7. Locking slot.

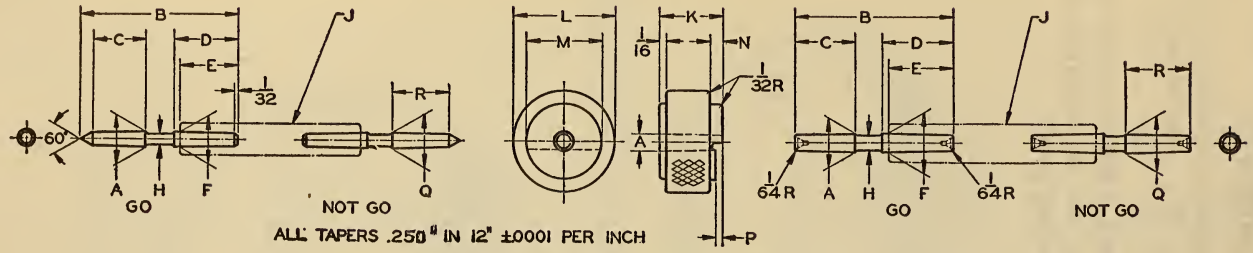
VII. APPENDIX

1. TAPER PLUG AND RING GAGES FOR CHECKING TAPER LOCK HANDLES AND GAGING MEMBERS

It has been deemed advisable to formulate specifications for a complete set of finished gages for inspecting the taper shanks and handles of gages of taper lock design.

A complete set consists of a taper plug and a taper ring for each size range. General details of construction will be apparent from drawings, and Tables 20 and 21, on the following pages.

TABLE 20.—*Plug and ring gages for checking handles and gaging members of taper lock plug gages, range above 0.059 to and including 0.240 inch*



PLUG GAGES FOR CHECKING HANDLES

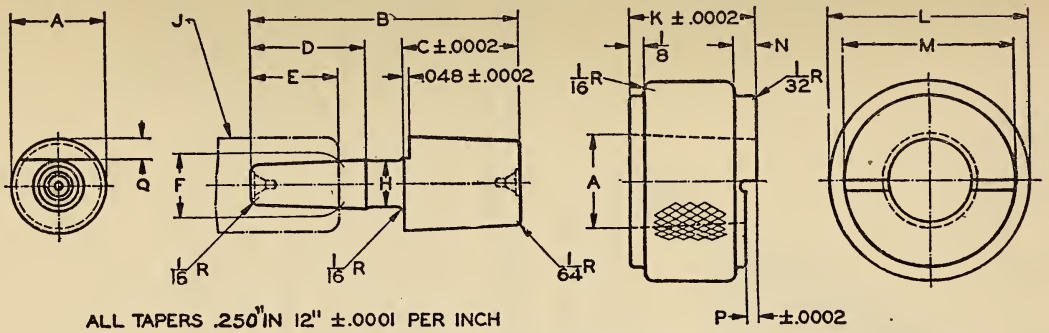
Handle size No.	Go		Not go		Go and not go						Handle No.
	A	*C* ±0.0002	*Q*	*R* ±0.0002	*B*	*D*	*E*	*F* Min.	*F* Max.	*H*	*J*
	Inch	*Inch*	*Inch*	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	
000	0.125	0.4520	0.126	0.5000	1 3/8	9/16	1/2	0.125	0.126	3/32	000
00	.155	.5145	.156	.5625	1 17/32	5/8	9/16	.155	.156	1/8	00
0	.180	.5770	.181	.6250	1 17/32	11/16	5/8	.180	.181	9/64	0

RING GAGES FOR CHECKING GAGING MEMBERS

Size	*A*	*K* ±0.0002	*L*	*M*	*N*	*P* ±0.0002
	Inch	*Inch*	*Inches*	*Inch*	*Inch*	*Inch*
000	0.126	0.5480	1	3/4	1/8	0.0480
00	.156	.6105	1	3/4	1/8	.0480
0	.181	.6730	1 1/8	7/8	1/8	.0480

NOTE.—In the range above 0.059 to and including 0.240 inch, the taper limits established by the American Gage Design Committee for handles and shanks may be readily maintained by the use of the gages shown above, in which the taper-plug gage is a double-end limit gage. Equally satisfactory results may be secured using a single-end taper-plug gage in which a scribed line represents the minimum size of hole and the shoulder of the gage represents the maximum size of hole. Both designs are sanctioned by the American Gage Design Committee.

TABLE 21.—*Plug and ring gages for checking handles and gaging members of taper lock plug gages, range above 0.240 to and including 1.510 inches*



PLUG GAGES FOR CHECKING HANDLES

Handle size No.	A	B	C	D	E	F		H	Handle No.	Q
						Min.	Max.		J	
	Inch	*Inches*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*		*Inch*
1	0. 240	2	0. 7500	1	3/4	0. 239	0. 240	3/16	1	0. 025
2	. 310	2	. 7500	1	3/4	. 239	. 240	1/4	2	. 025
3	. 410	2	. 7500	1	3/4	. 309	. 310	5/16	3	. 050
4	. 610	2 3/16	. 8750	1	3/4	. 408	. 410	13/32	4	. 100
5	. 810	2 5/16	1. 0000	1	3/4	. 408	. 410	13/32	5	. 200

TABLE 21.—*Plug and ring gages for checking handles and gaging members of taper lock plug gages, range above 0.240 to and including 1.510 inches*—Continued

RING GAGES FOR CHECKING GAGING MEMBERS

Size	*A*	*K*	*L*	*M*	*N*	*P*
	Inch	*Inches*	*Inches*	*Inches*	*Inch*	*Inch*
1	0. 240	0. 7980	1⅛	⅞	5/32	0. 0480
2	. 310	. 7980	1¼	1	5/32	. 0480
3	. 410	. 8460	1⅜	1⅛	3/16	. 0960
4	. 610	. 9710	1 9/16	1 5/16	3/16	. 0960
5	. 810	1. 0960	1¾	1½	3/16	. 0960

NOTE.—In the range above 0.240 to and including 1.510 inches, the taper limits established by the American Gage Design Committee for taper lock handles and shanks may be readily maintained by the use of the gages shown above, in which the taper plug gage is of the single-end limit type, with a ground step representing the minimum size hole. Equally satisfactory results may be secured using a single-end taper-plug gage, in which a scribed line represents the minimum size of hole and the shoulder of the gage represents the maximum size of hole. Both designs are sanctioned by the American Gage Design Committee.

2. OFFICIAL MONOGRAM FOR DESIGNATING PRODUCTS MADE TO AMERICAN GAGE DESIGN STANDARDS

The optional use of the monogram shown in Figure 8, to identify gages made to American Gage Design Standards, is sanctioned by the committee. The monogram, it will be noted, consists of the initials "AD," the right hand side of the "A" and the straight side of the "D" being common. The monogram, if used, should be placed adjacent to the maker's trade-mark.

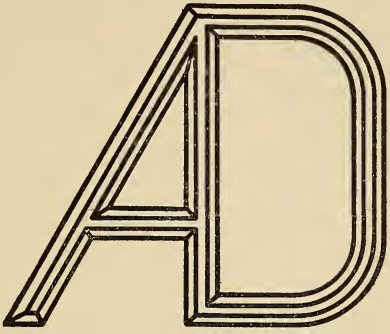


FIGURE 8.—*Official monogram for designating products made to American Gage Design Standards*

3. APPLICATION OF AMERICAN GAGE DESIGN STANDARDS TO SPECIAL TYPES OF GAGES, RECOMMENDED PRACTICE

While the American Gage Design Standards have been adopted with specific types and sizes of gages in mind, it is recommended that standard blanks and handles be used wherever practicable in the design and manufacture of special gages, the design of which did not come within the scope of the committee's work.

Where lengths and diameters are entirely special and blanks of standard dimensions can not be utilized, it is further recommended that standard handles and fittings be used.

Observance of this practice will tend to reduce costs and facilitate procurement.

VIII. INDEX