

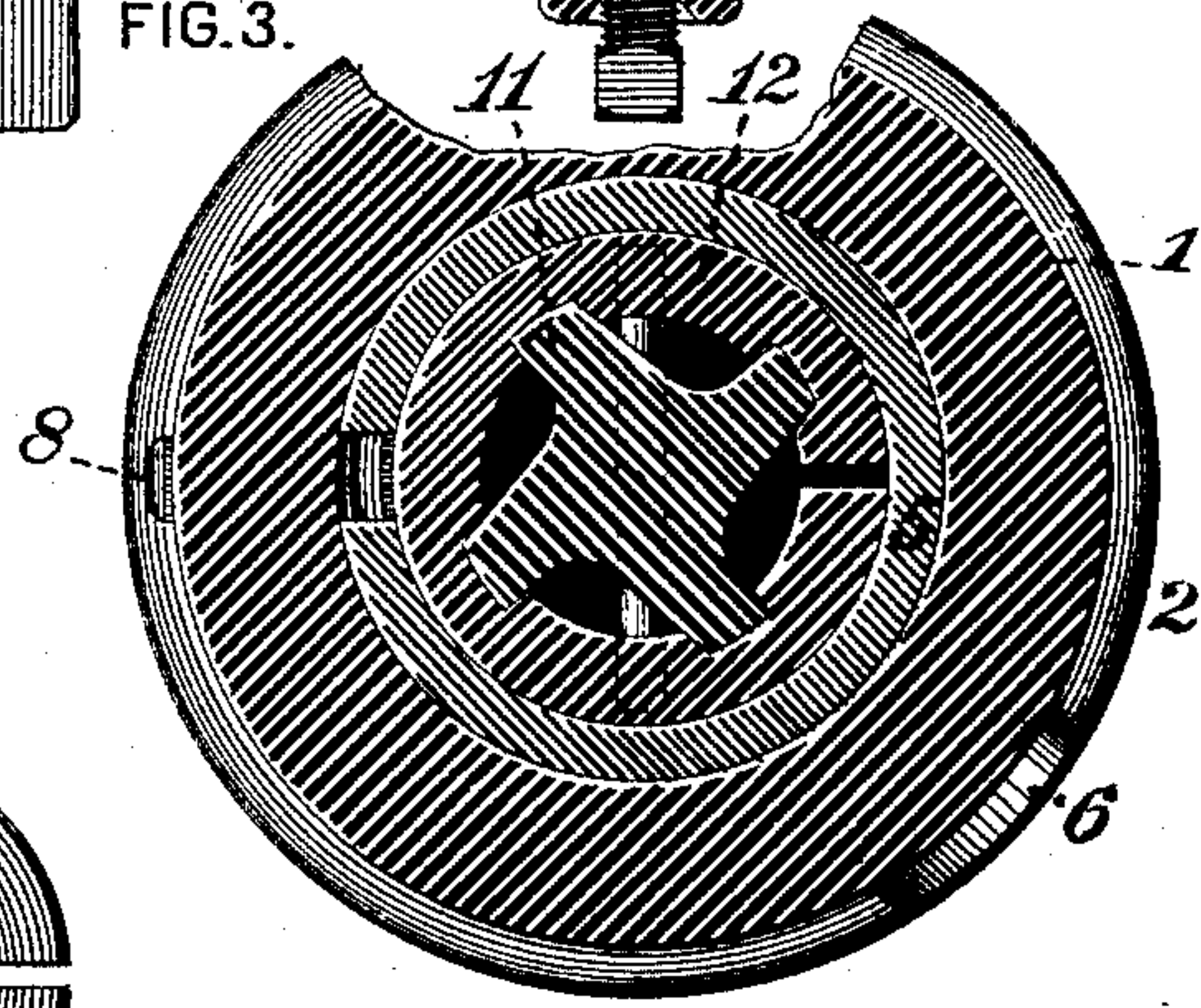
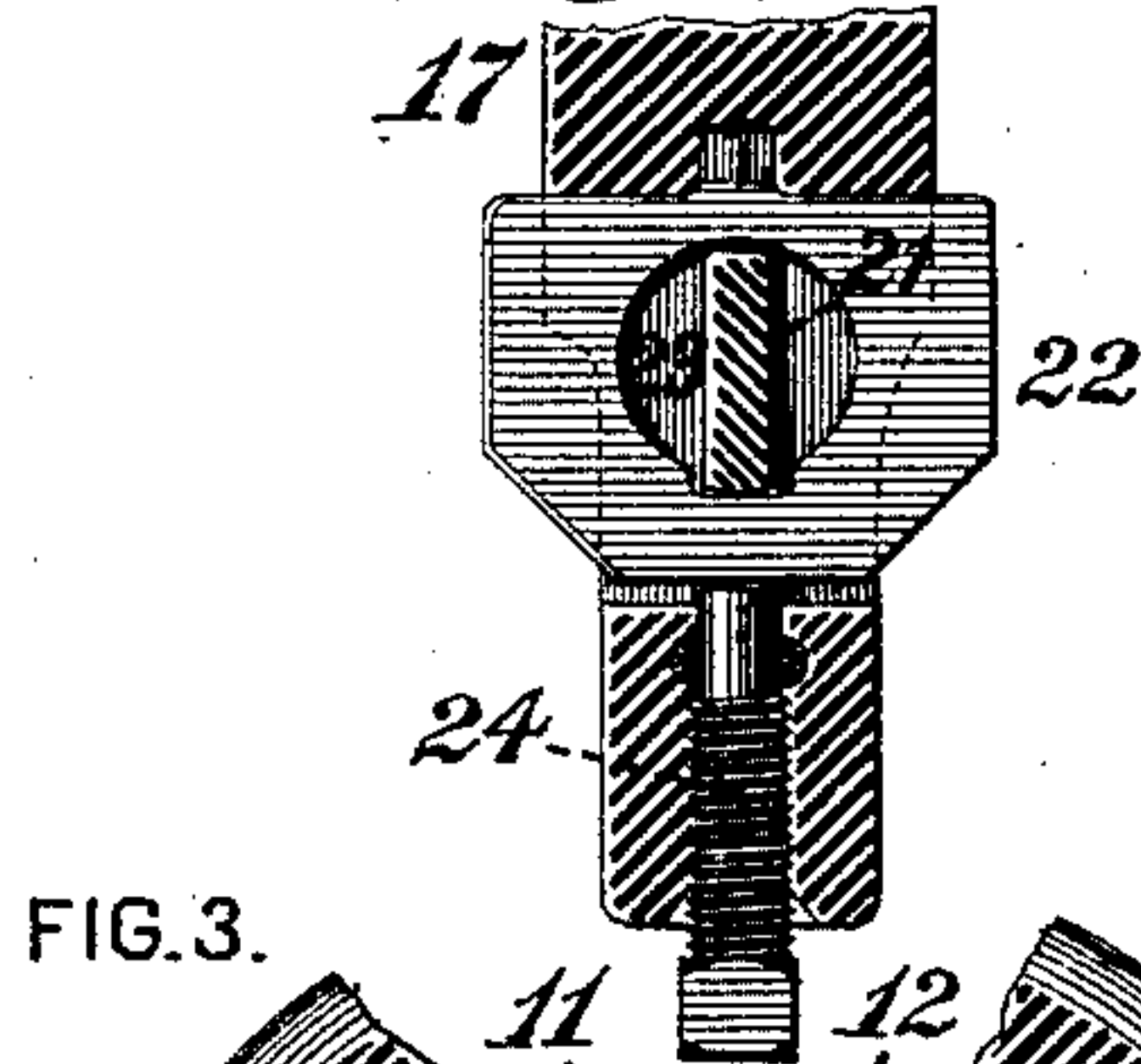
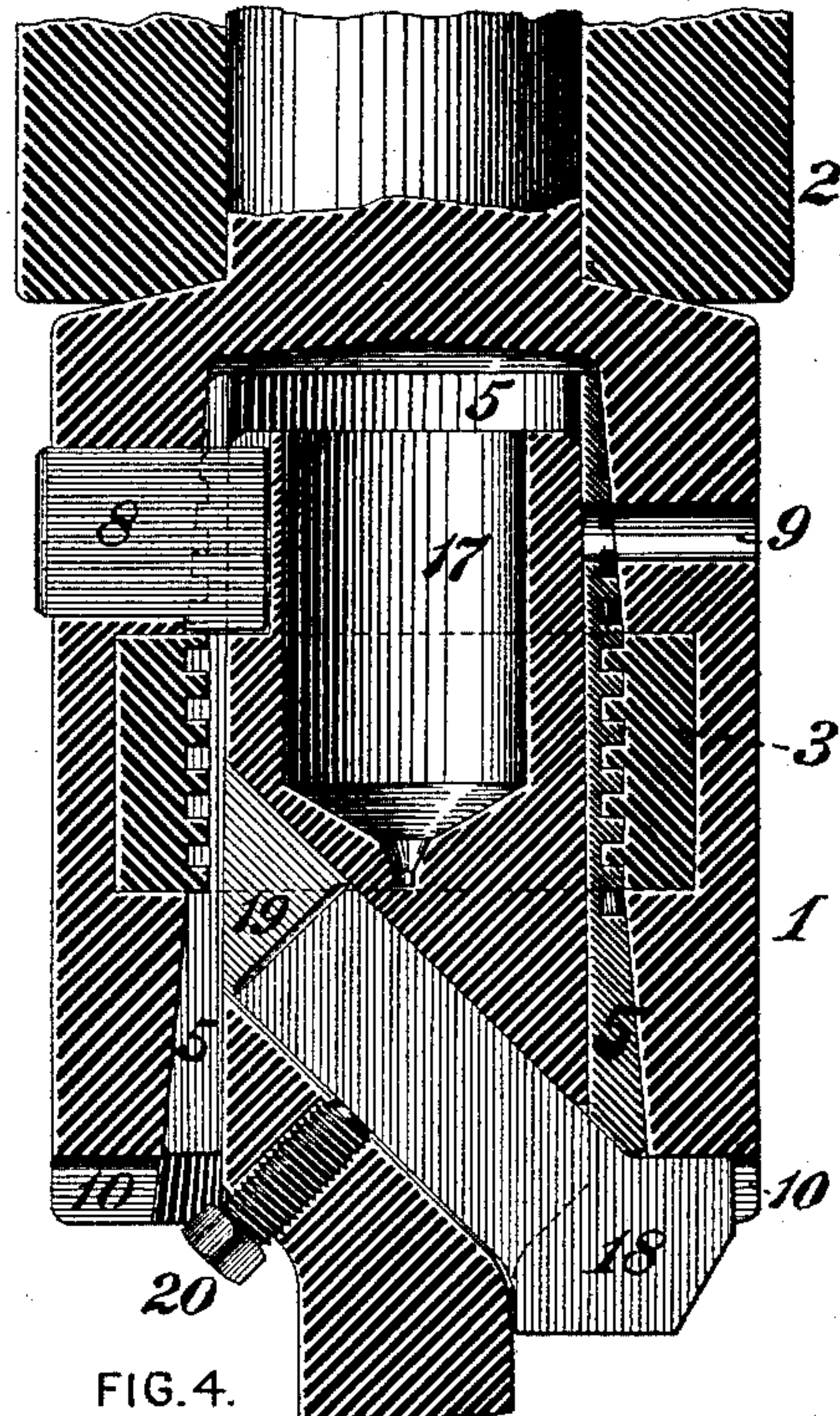
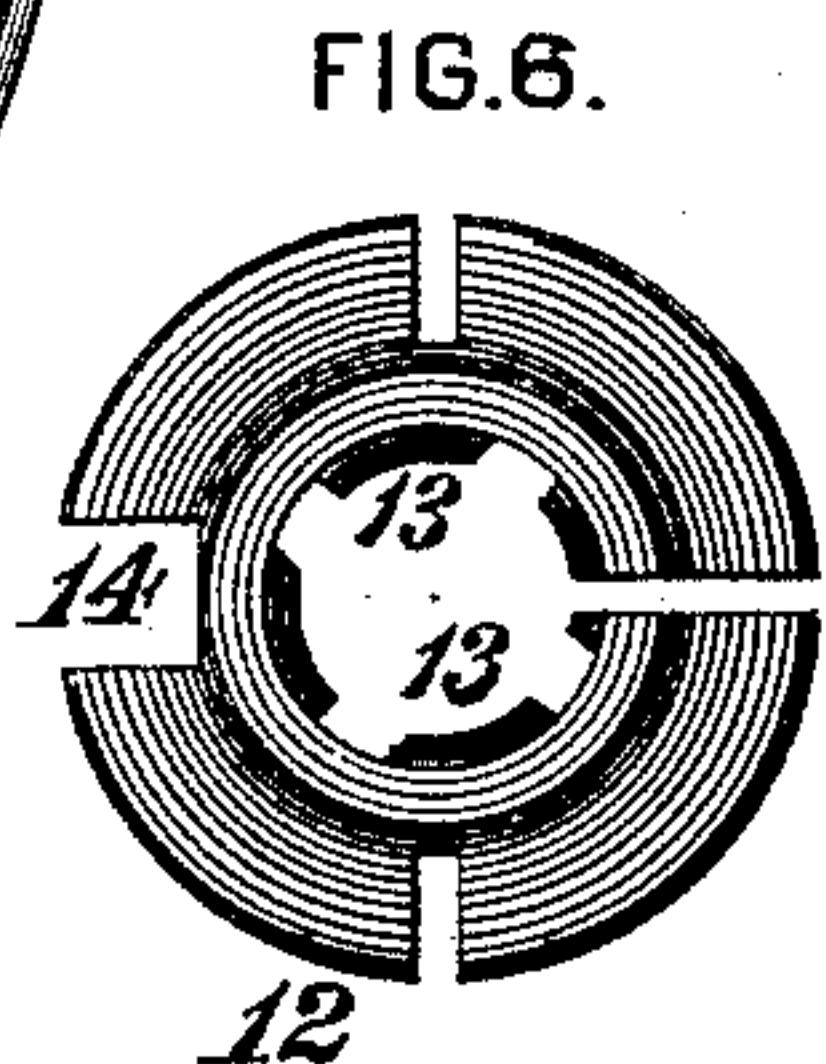
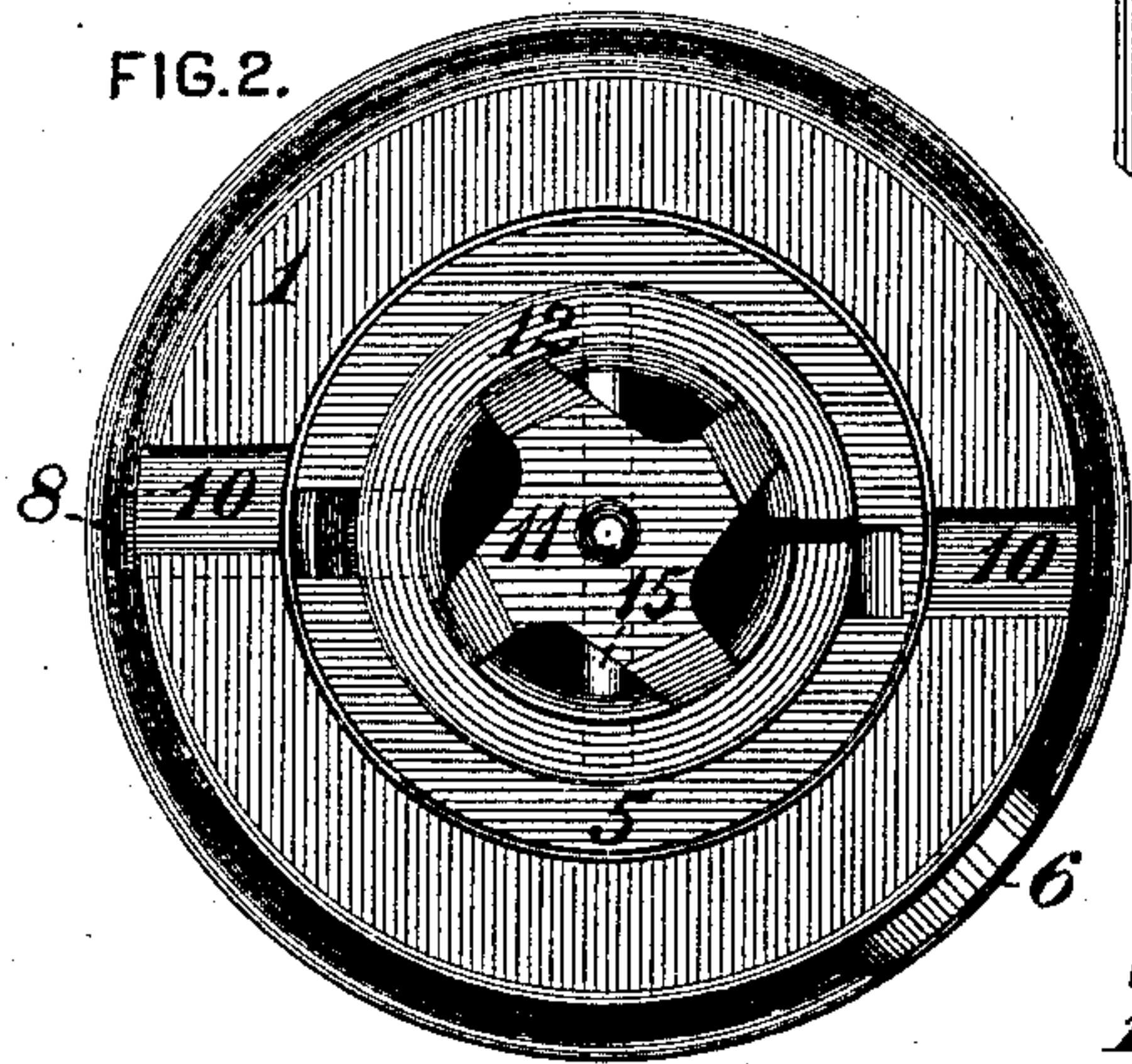
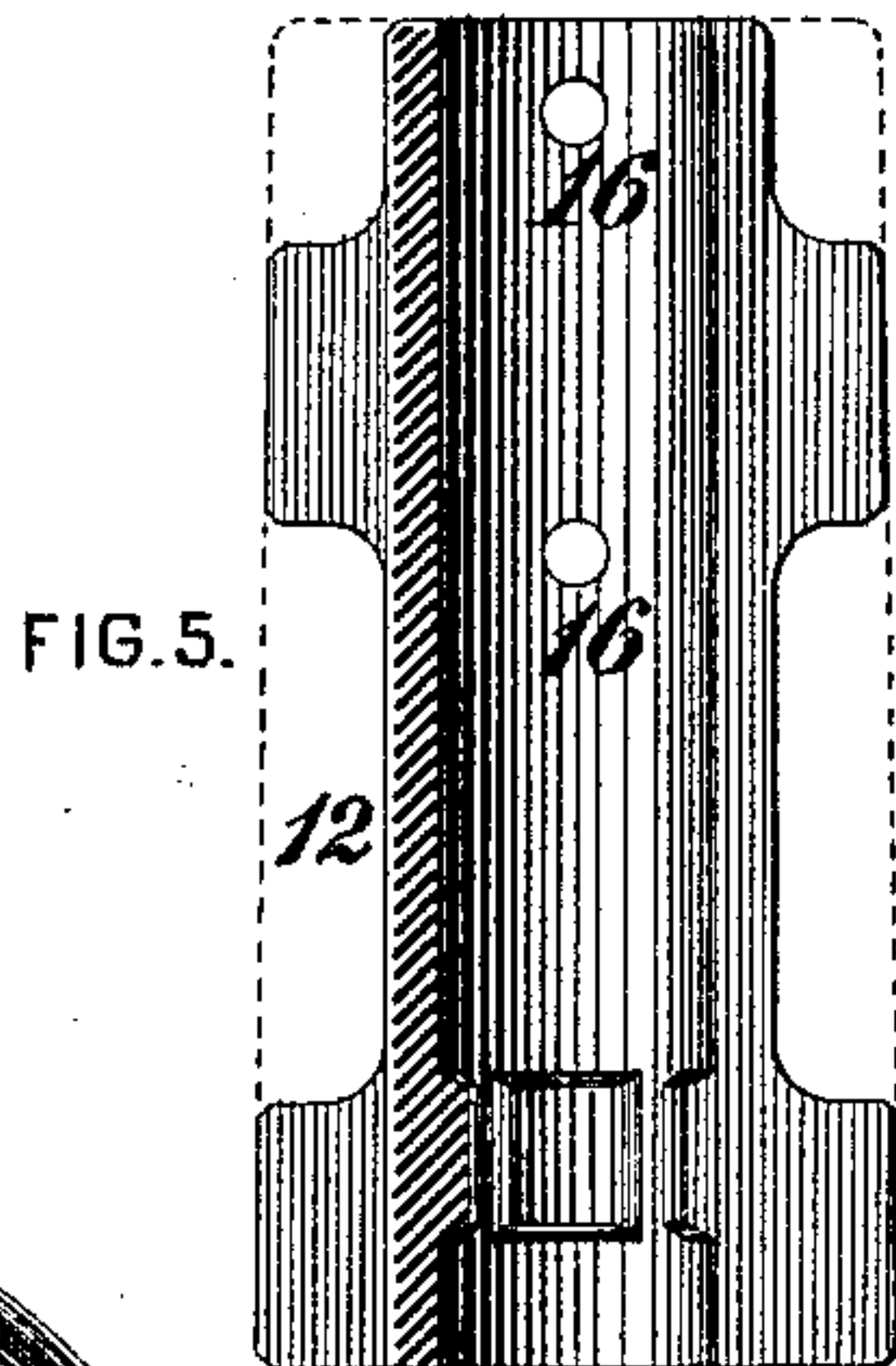
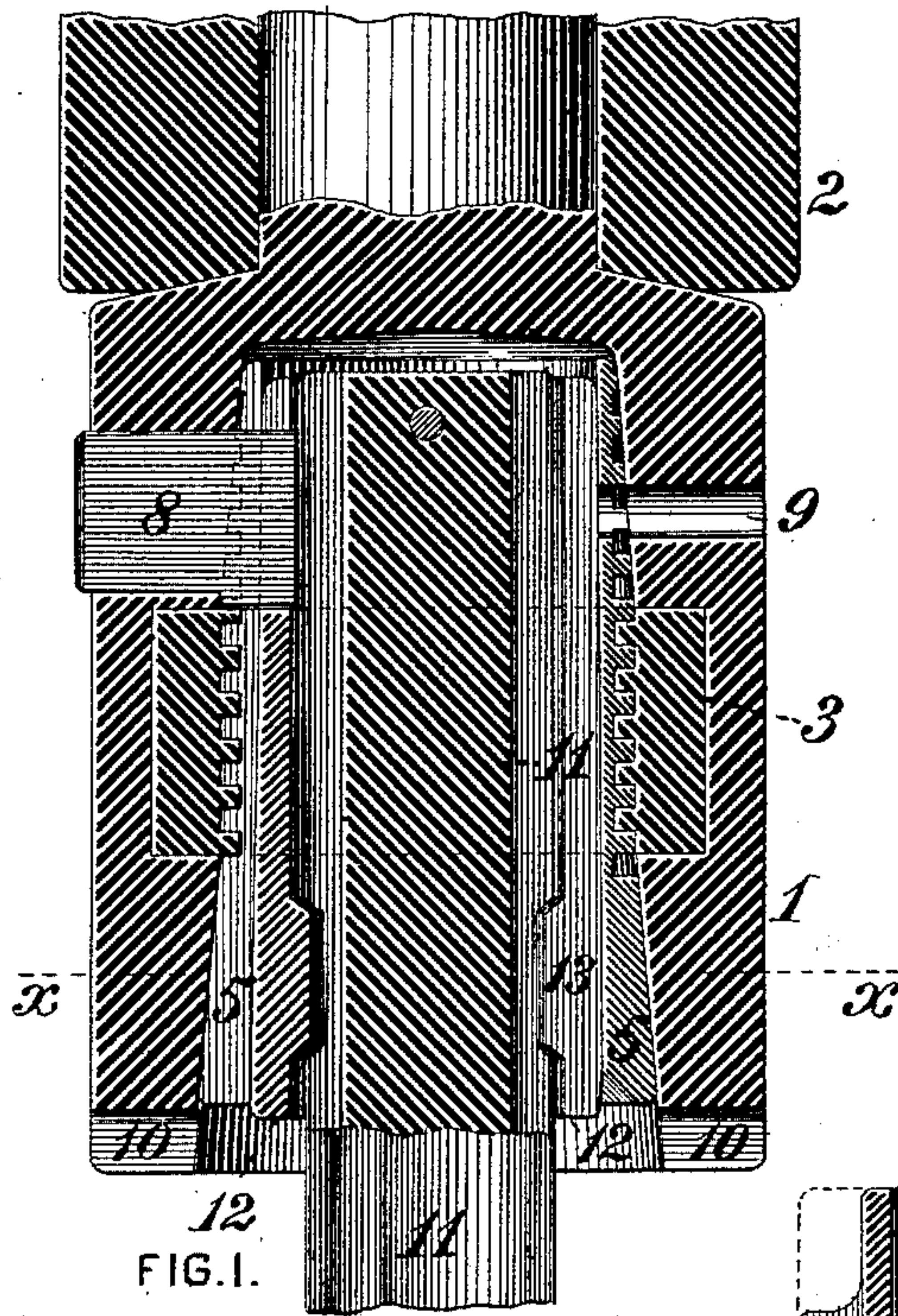
(No Model.)

2 Sheets—Sheet 1.

L. R. FAUGHT.  
DEVICE FOR HOLDING METAL CUTTERS.

No. 327,149.

Patented Sept. 29, 1885.



WITNESSES:

*R. H. Whittlesey*  
*C. M. Clarke*

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ATTORNEY.



(No Model.)

2 Sheets—Sheet 2.

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FIG. 7.

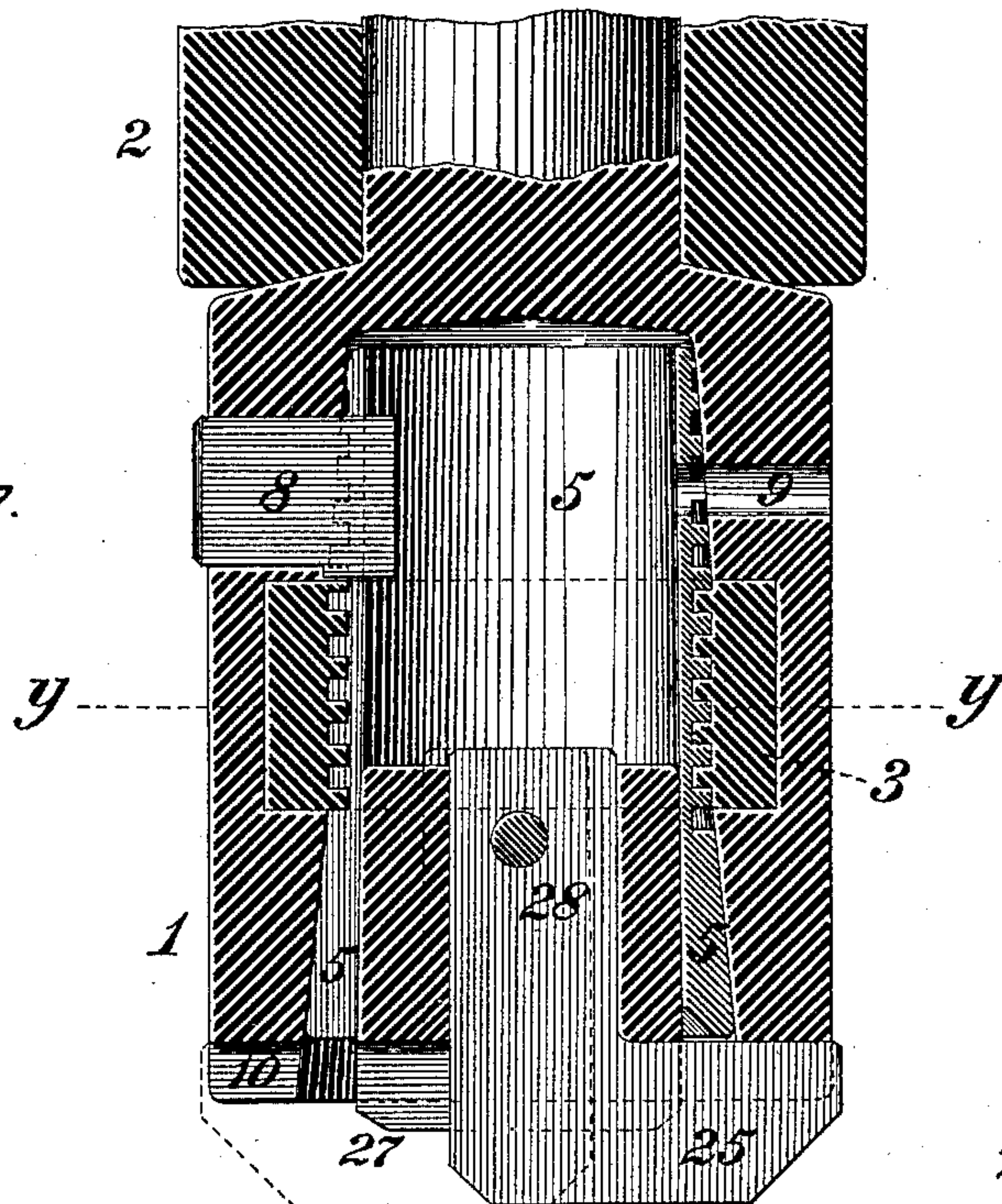


FIG. 10.

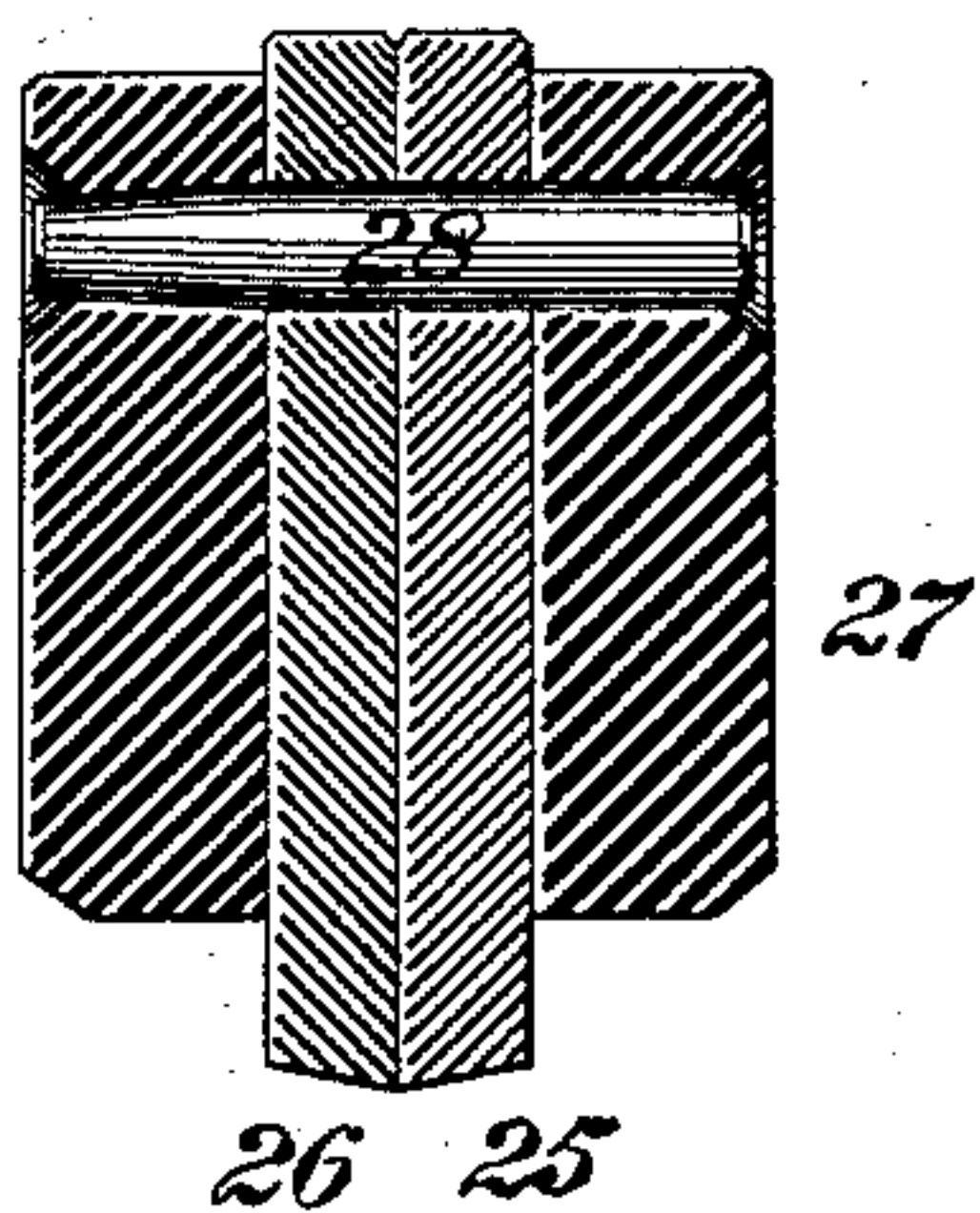


FIG. 9.

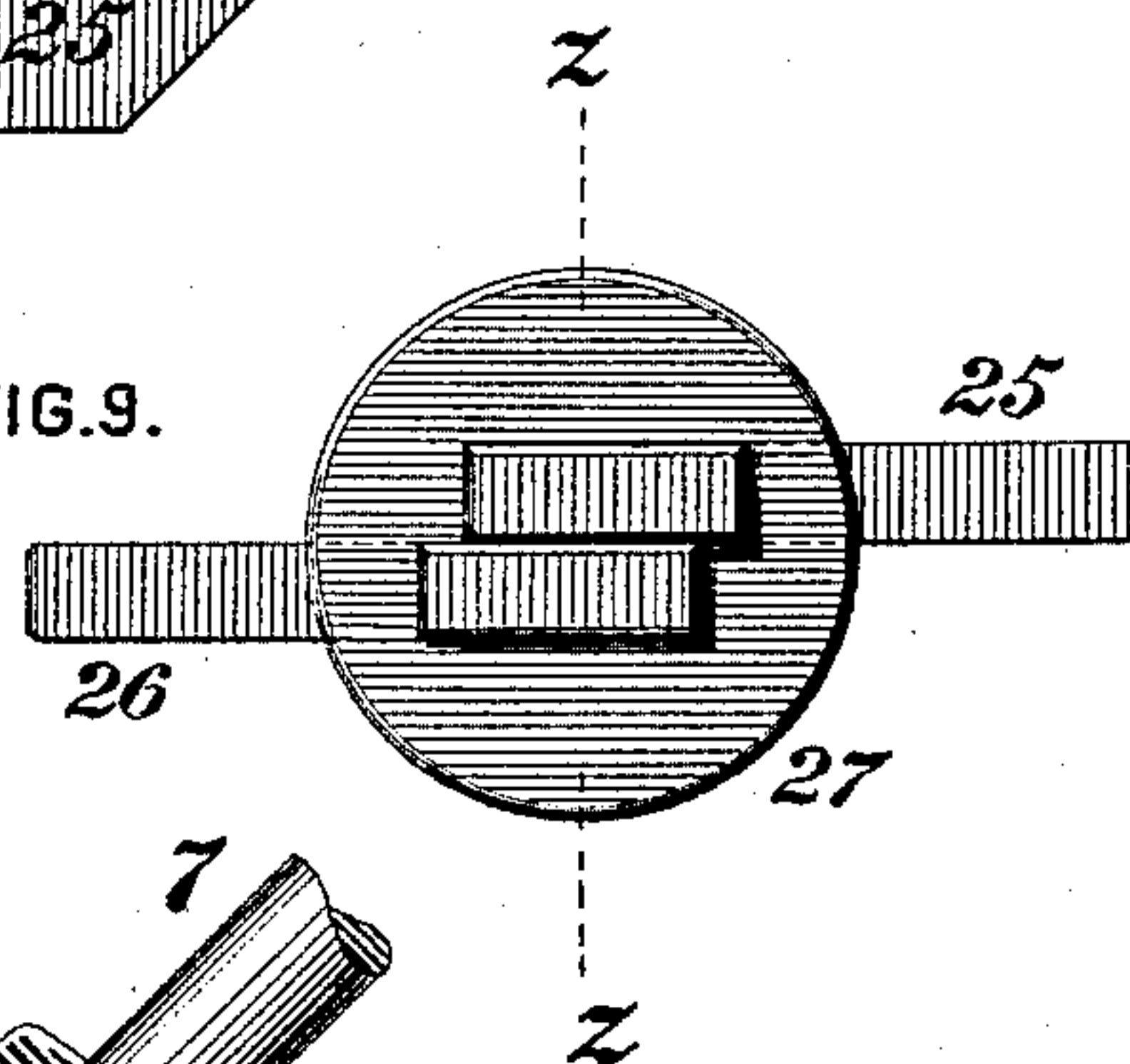
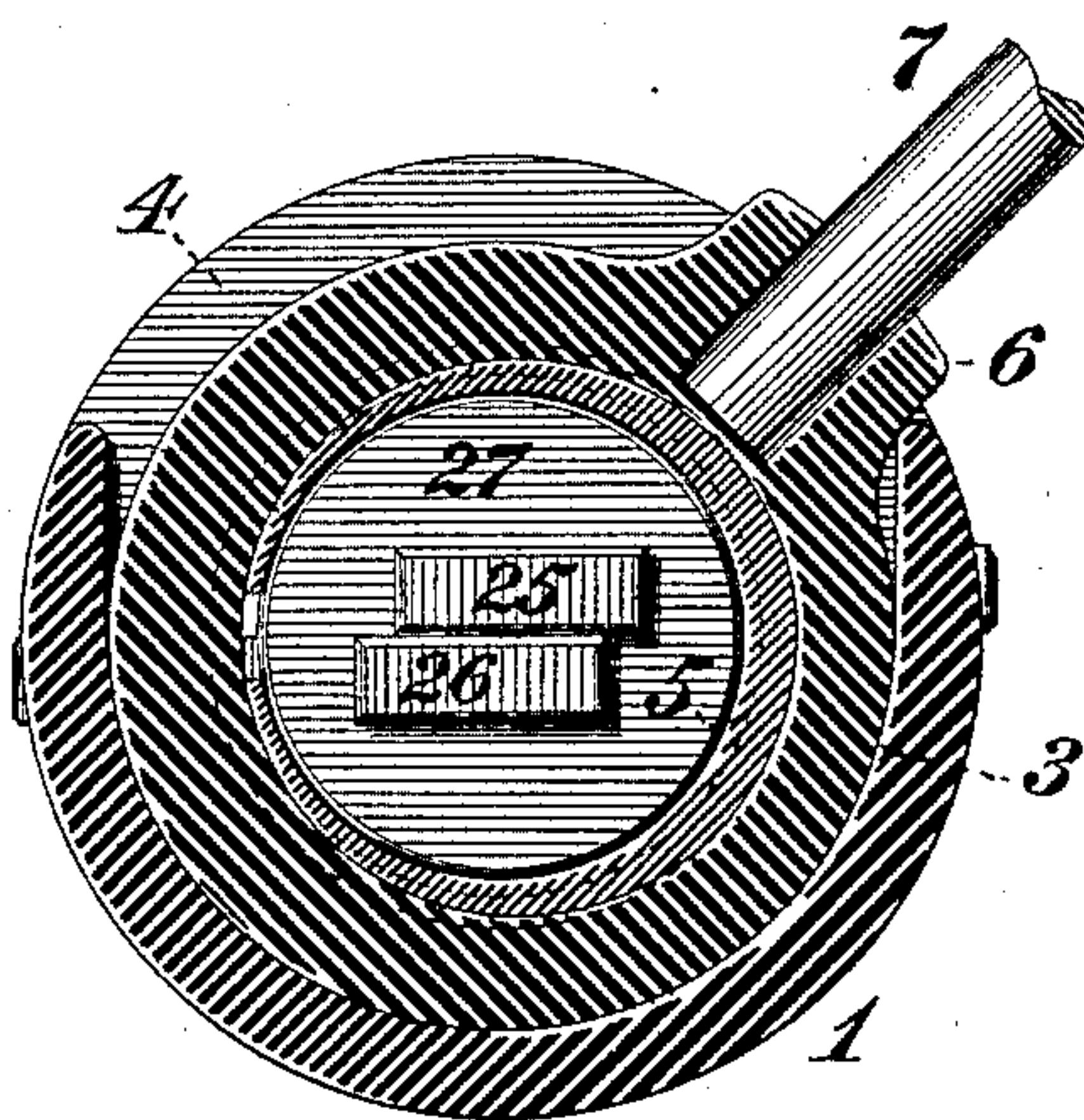


FIG. 8.



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# UNITED STATES PATENT OFFICE.

LUTHER R. FAUGHT, OF PHILADELPHIA, PENNSYLVANIA.

## DEVICE FOR HOLDING METAL-CUTTERS.

SPECIFICATION forming part of Letters Patent No. 327,149, dated September 29, 1885.

Application filed November 21, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, LUTHER R. FAUGHT, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain  
5 new and useful Improvements in Devices for Holding Metal-Cutters, of which improvements the following is a specification.

The object of my invention is to provide effective and desirable means for securing and  
10 holding cutters for drilling and boring metal in a spindle by which they are rotated, or held in true position while the work rotates, in such manner that the cutters may be readily and expeditiously connected to and de-  
15 tached from the spindle, and held firmly as against vibration or independent axial movement therein during operation.

My improvements, while specially designed for use in connection with a cutter having  
20 four or more continuous cutting ribs or wings projecting from and formed in one piece with a central bar or core, as set forth in an application for Letters Patent filed by me under date of October 22, 1884, Serial No. 146,220,  
25 are equally applicable to cutters of other descriptions, which are secured removably in a boring bar or stock. The improvements claimed are hereinafter fully set forth.

In the accompanying drawings, Figure 1 is  
30 a longitudinal central section through a cutter-chuck embodying my invention, the same being shown as holding a continuous four-bladed boring-cutter; Fig. 2, an end view in elevation of the same; Fig. 3, a transverse section  
35 at the line *xx* of Fig. 1; Fig. 4, a longitudinal central section through the chuck when holding a boring-bar fitted with separate and removable boring and facing cutters; Fig. 5,  
40 a longitudinal central section through a sleeve or bushing adapted to a continuous cutter similar to but of smaller diameter than that shown in Figs. 1 and 2; Fig. 6, a plan or top  
view of the same; Fig. 7, a longitudinal central section through the bushing when holding  
45 a pair of facing-cutters; Fig. 8, a transverse section through the same at the line *yy* of Fig. 7; Fig. 9, a plan or top view of the facing-cutters and their socket, and Fig. 10 a vertical central section through the same at the line  
50 *zz* of Fig. 9.

In the practice of my invention I provide

a chuck or socket, 1, which may either be formed integral with the spindle 2 of a drilling or boring machine, or, preferably, as shown, be made separate therefrom and fixed  
55 therein in the usual manner. The chuck 1 is bored out centrally in conical or tapered form, the greater diameter of its bore being at the end farthest from the spindle 2, and is recessed around its bore, at and adjacent to the  
60 middle of the length thereof, to receive a circular nut, 3, having a substantial thread, which is inserted through a lateral opening, 4, in the chuck corresponding in width with the  
65 diameter of the nut, and fits accurately within the recess thereof concentric with the bore. A sleeve or bushing, 5, which is rendered flexible by being longitudinally split or divided on one side throughout its length, and is provided  
70 with an external screw-thread engaging the thread of the nut 3, is fitted in the bore of the chuck 1, the periphery of the sleeve being of corresponding taper with the bore above and below its middle portion, which engages the  
75 nut 3, and its inner surface being continuously tapered or conical from its upper to its lower end. A lateral hub or boss, 6, is formed upon the nut 3 for the insertion of an operating-lever, 7, by which the nut may be partially ro-  
80 tated within the recess of the chuck, and in such rotation the nut, by the engagement of its thread with that of the sleeve 5, will compress the latter firmly upon a socket or stem inserted in its tapered bore. Rotation of the  
85 sleeve 5 is prevented by a key, 8, fitting in a key-way in the chuck 1 and in an enlarged recess at the upper end of the longitudinal division of the sleeve 5, said key being driven into position by a drift inserted through an opening, 9, in the opposite site of the chuck.  
90 Radial slots 10 are formed in the lower end of the chuck 1, from its bore to its periphery, for the reception of facing-cutters, as presently to be described. The provision of a tapered outer bearing-surface on the sleeve 5,  
95 on each side of the nut 3, enables the clamping action of the sleeve to be exerted uniformly throughout the length of an inserted socket or stem, and utilizes the greatest practicable proportion of the periphery as bearing-  
100 surface.

A special object of my invention is to enable



a series of continuous cutters, of the construction set forth in my application Serial No. 146,220, before referred to, and of different standard diameters, to be held in a common  
 5 chuck; and to this end I provide for each diameter of the continuous cutters 11, Figs. 1 to 3, a longitudinally-divided flexible bushing, 12, the bore of which is of such diameter as to readily admit the cutter 11, and is provided  
 10 with a series of inwardly-projecting bearings, 13, against which the leading edges of the cutting wings or ribs of the cutter 11 abut, thereby preventing the rotation of the latter independently of the bushing. The axial re-  
 15 lation of the bushing with the sleeve 5 is maintained by the key 8, the inner end of which enters a corresponding recess, 14, in the periphery of the bushing 12, which is turned to tapering or conical form upon its  
 20 outer surface, in correspondence with the bore of the sleeve 5. Figs. 5 and 6 illustrate a bushing suited to a continuous cutter of smaller diameter than that shown in Figs. 1 to 3, and adapted to the chuck 1 and sleeve 5  
 25 of said first-named figures, said bushing having a series of projections on its periphery which are turned off to the taper of the bore of the sleeve 5, the transverse section of which is indicated by dotted lines in Fig. 5. It will  
 30 be seen that a special bushing is required for each diameter of continuous cutters employed, and that the several bushings must conform in the taper of their peripheries with the bore of the sleeve 5, in order, as is designed to be  
 35 the case, that any member of the series may be adapted to be held in the sleeve 5 and chuck 1. The cutter 11 is held in position longitudinally in the bushing 12 when the latter is released from the clamping action of the sleeve  
 40 5 by a pin, 15, passing through holes 16 in the bushing 12. A double series of holes may be provided, as shown, to admit of lowering the cutter as the same becomes worn in use and is shortened by repeated regrinding.  
 45 The chuck 1 and sleeve 5 above described may be employed with equal facility and effectiveness in holding a boring bar or stock provided with separate and removable boring or facing cutters, or both, as illustrated in Fig.  
 50 4. The boring-bar 17 is turned to a taper corresponding with the bore of the sleeve 5, and is provided with a lateral recess to receive the head or inner end of the key 8, by which it is held as against rotation independently  
 55 of the sleeve 5, and is locked firmly therein by the compression thereof by the movement of the nut 3, as in the case of the continuous cutter and its bushing. In the instance shown the boring-bar 17 carries a facing-cutter, 18,  
 60 which fits in one of the slots, 10, at the bottom of the chuck 1, and is secured in an inclined transverse slot, 19, in the boring-bar by a set-screw, 20, as in my Letters Patent No. 241,482, dated May 17, 1881. The boring-bar is also  
 65 provided, adjacent to its lower end, with a pair of boring-cutters, 21 22, fitting in dia-

metric slots at right angles one to the other, the cutter 21 passing through and bearing against an opening, 23, in the cutter 22, and both cutters being secured in position by a  
 70 longitudinal clamping-screw, 24, engaging a thread in the boring-bar, as in my Letters Patent No. 302,831, dated July 29, 1884. The bar 17 and its accessories may be inserted and secured in and removed from the chuck  
 75 with the same facility as a continuous cutter and its bushing, and the substitution of one for another may be readily and quickly effected, as from time to time required.

Figs. 7 to 10, inclusive, illustrate the ap-  
 80 plication of the chuck for holding a pair of facing-cutters, 25 26, through the intermediation of a cutter-socket, 27, which is turned upon its periphery to fit within the bore of the socket 5, and is slotted longitudinally ad-  
 85 jacent to and on opposite sides of a transverse plane, to receive the vertical portions of the L-shaped facing-cutters 25 26, which are held in position longitudinally in the socket by a pin, 28, the horizontal portions of  
 90 the cutters fitting in corresponding slots in the lower end of the socket and in the slots 10 of the chuck 1.

The constructions of Figs. 4 and 7 to 10, inclusive, in which the cutters are held in rigid  
 95 stocks in lieu of a yielding bushing, are herein illustrated to explain more fully the construction and adaptabilities of my improved cutter-chuck; but the same are not claimed as of my  
 100 present invention, as they constitute the subject-matter of a separate application for Letters Patent by me.

My improvements present the advantages of simple and comparatively inexpensive construction, ready adaptability to use with cut-  
 105 ters of different sizes and constructions, and the capacity of firmly holding the cutters in operation while admitting of their ready connection and detachment as required.

I claim as my invention and desire to secure  
 110 by Letters Patent—

1. The combination, substantially as set forth, of a chuck or socket having a conical or tapered central bore, a nut fitting a recess  
 115 in the chuck concentric with the bore thereof, and a longitudinally-divided sleeve, having an external screw-thread engaging the thread of the nut, and also a conical or tapered bearing corresponding with the bore of the chuck on each side of said nut. 120

2. The combination, substantially as set forth, of a chuck or socket having a conical or tapered bore, a nut fitting a recess in the  
 125 chuck concentric with its bore, a longitudinally-divided sleeve fitting the bore of the chuck and having an external screw-thread engaging the thread of the nut, a longitudinally-divided bushing fitting within said sleeve and a continuous cutter having a series of wings or ribs integral with a central core or  
 130 body and engaging bearing projections on the inner surface of the bushing.



3. The combination, substantially as set forth, of a conically-bored chuck, an internal nut, a longitudinally-divided threaded-sleeve fitting the bore of the chuck and engaging the  
5 thread of the nut, and a key fitting in a key-way in the chuck and engaging a slot in the sleeve.

4. The combination, substantially as set forth, of a chuck or socket having a conical  
10 or tapered bore, a nut fitting a recess in the chuck concentric with its bore, a longitudinally-divided sleeve fitting the bore of the chuck and having an external screw-thread engaging the thread of the nut, and a longi-  
15 tudinally-divided bushing fitting within said sleeve.

5. The combination, substantially as set forth, of a continuous cutter having a series of wings or ribs integral with a central body, and a longitudinally-divided bushing having  
20 an externally-tapered surface adapted to fit within the clamping-sleeve of a chuck, a bore of diameter to fit around the wings of the cutter, and a series of internal projections acting as abutments for said wings.

LUTHER R. FAUGHT.

Witnesses:

CHAS. E. PANCOAST,  
WM. I. DAY.