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 RATCHET DRILL ATTACHMENT.
 APPLICATION FILED FEB. 3, 1909.

944,955.

Patented Dec. 28, 1909.

Fig. 1.

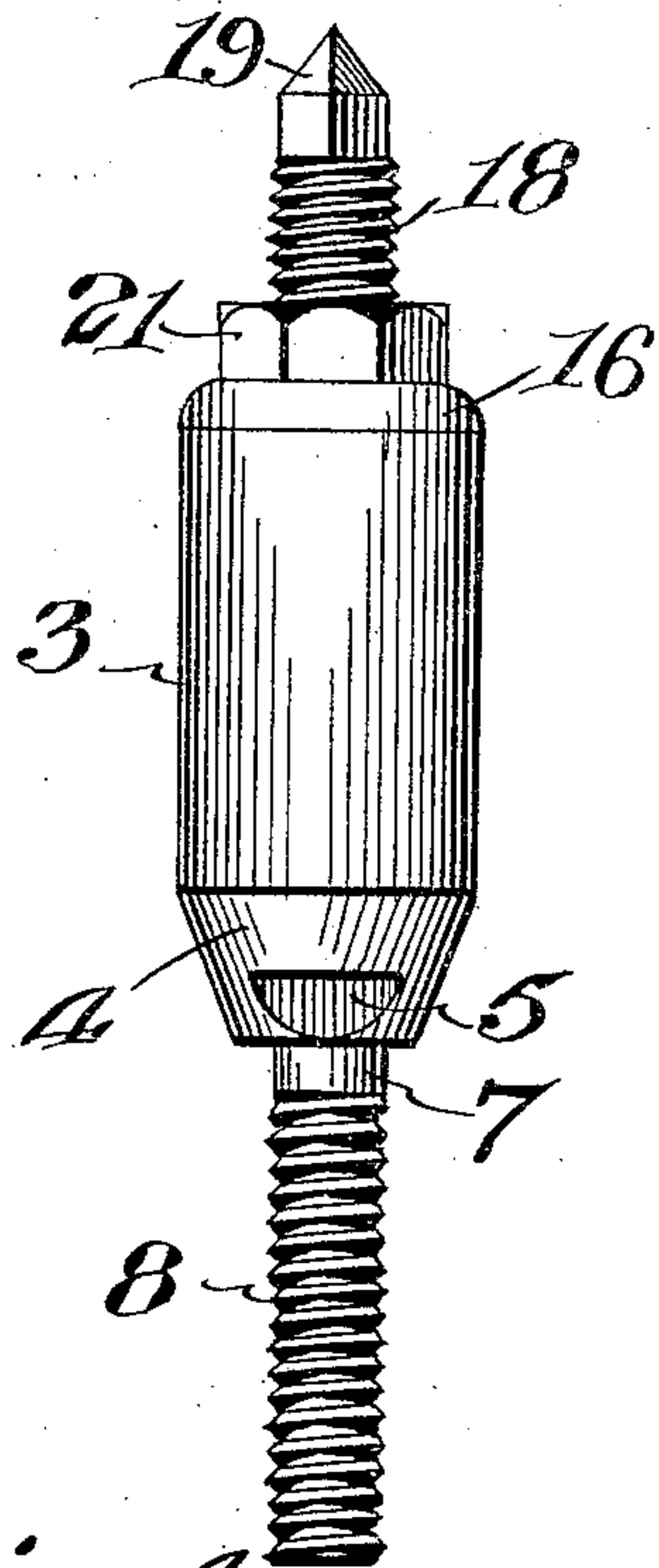


Fig. 2.

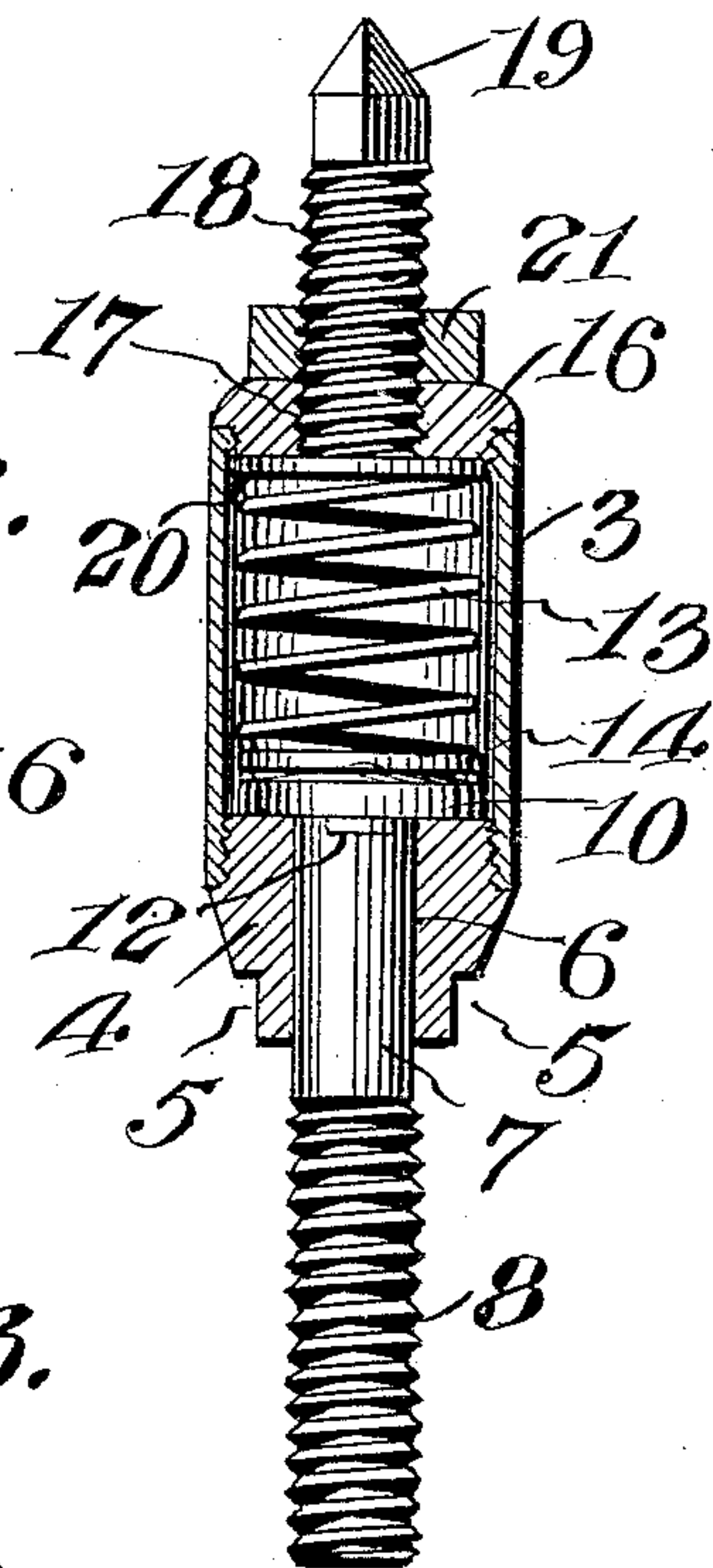


Fig. 6.

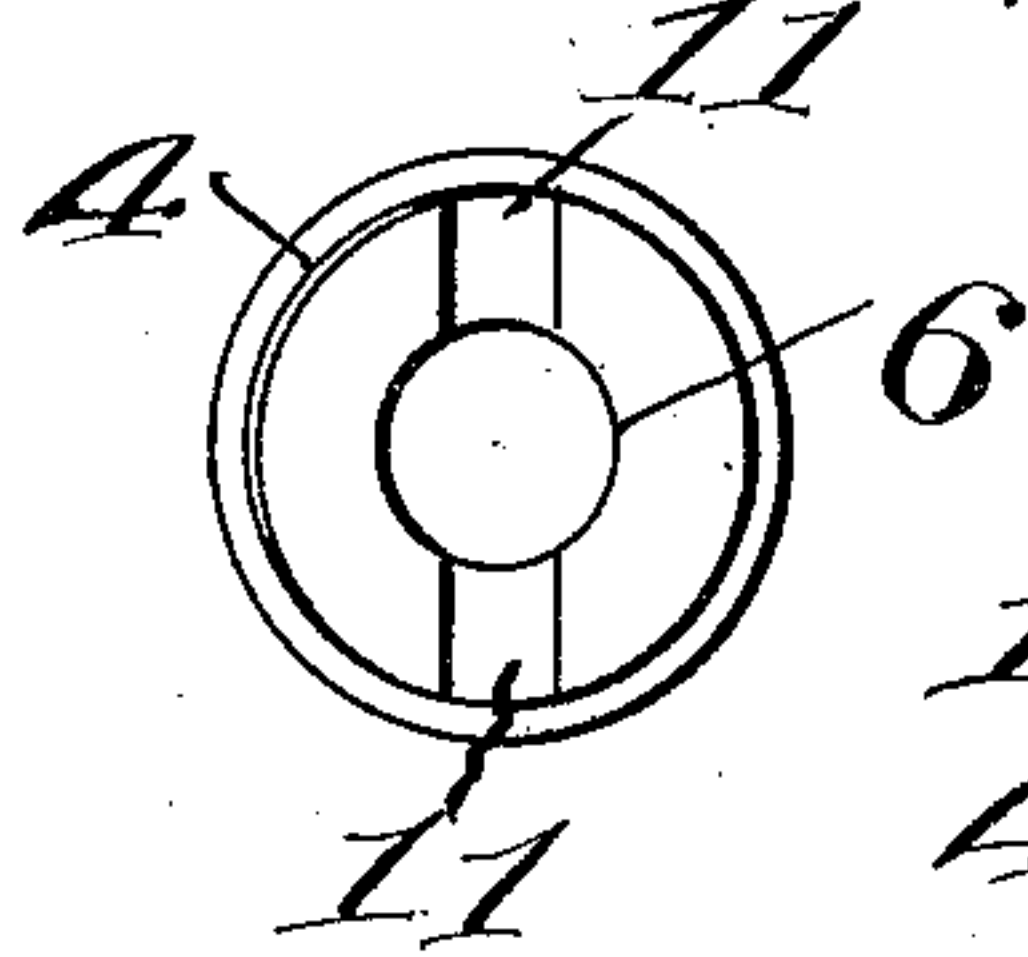


Fig. 3.

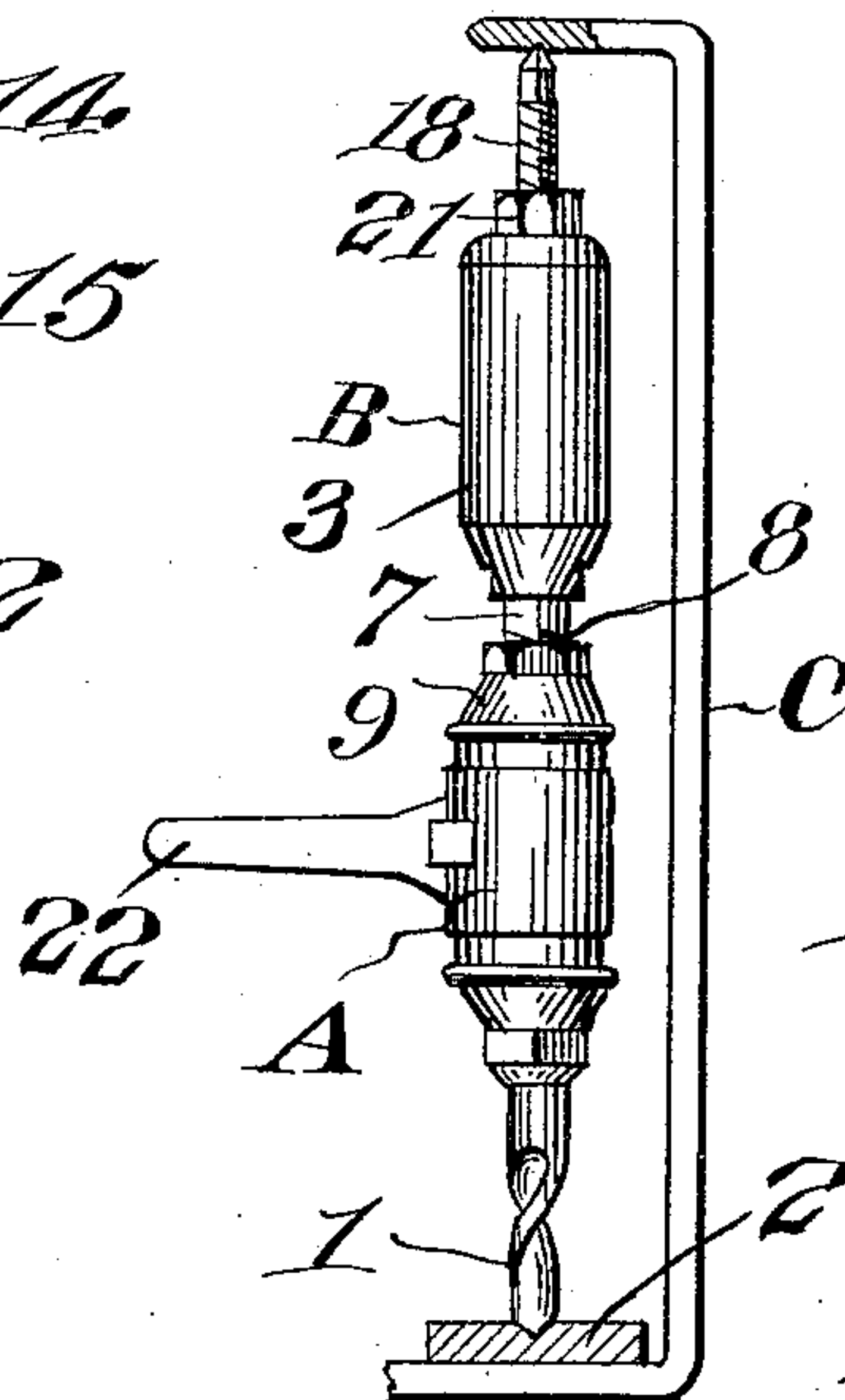


Fig. 5.

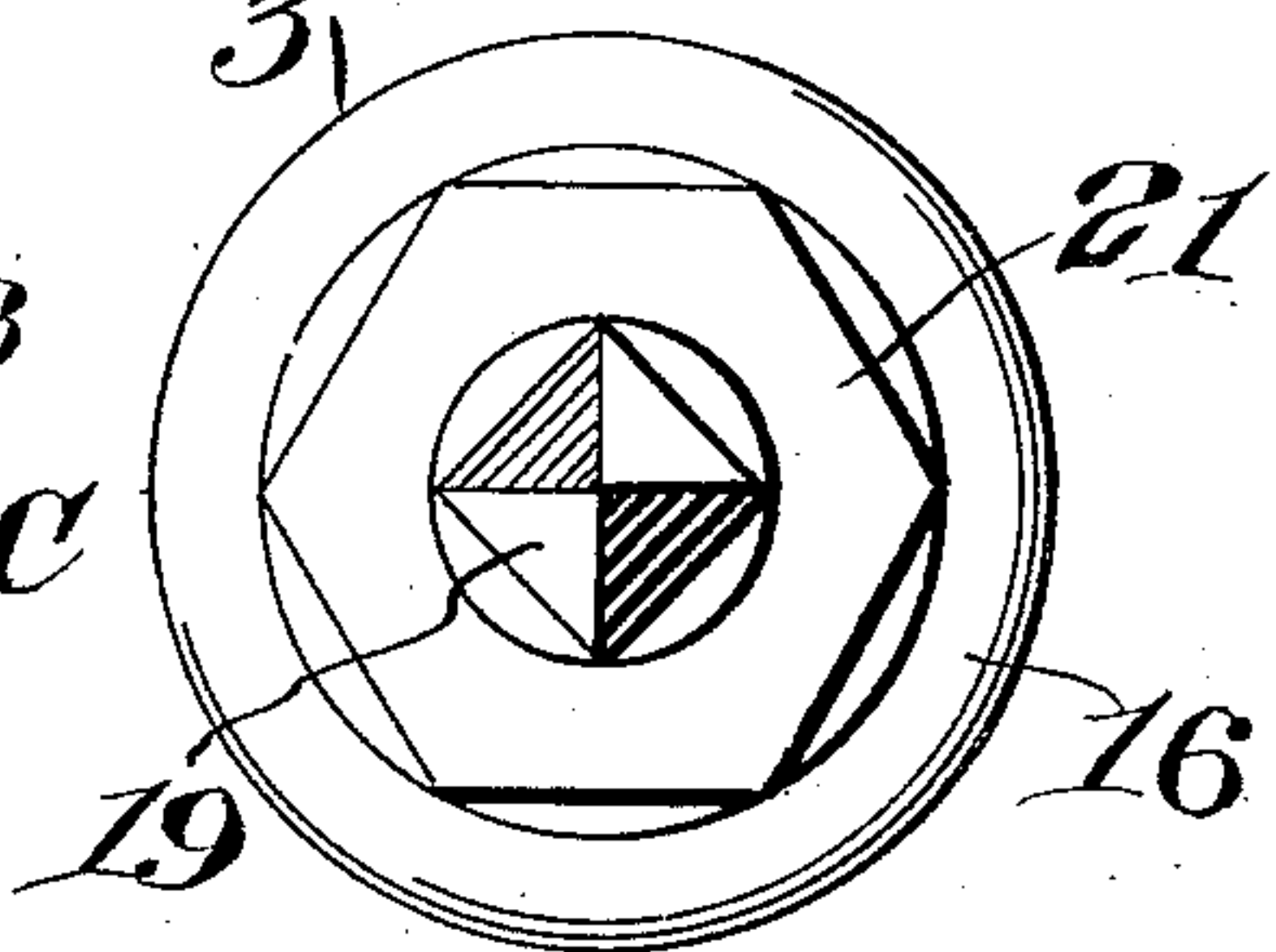
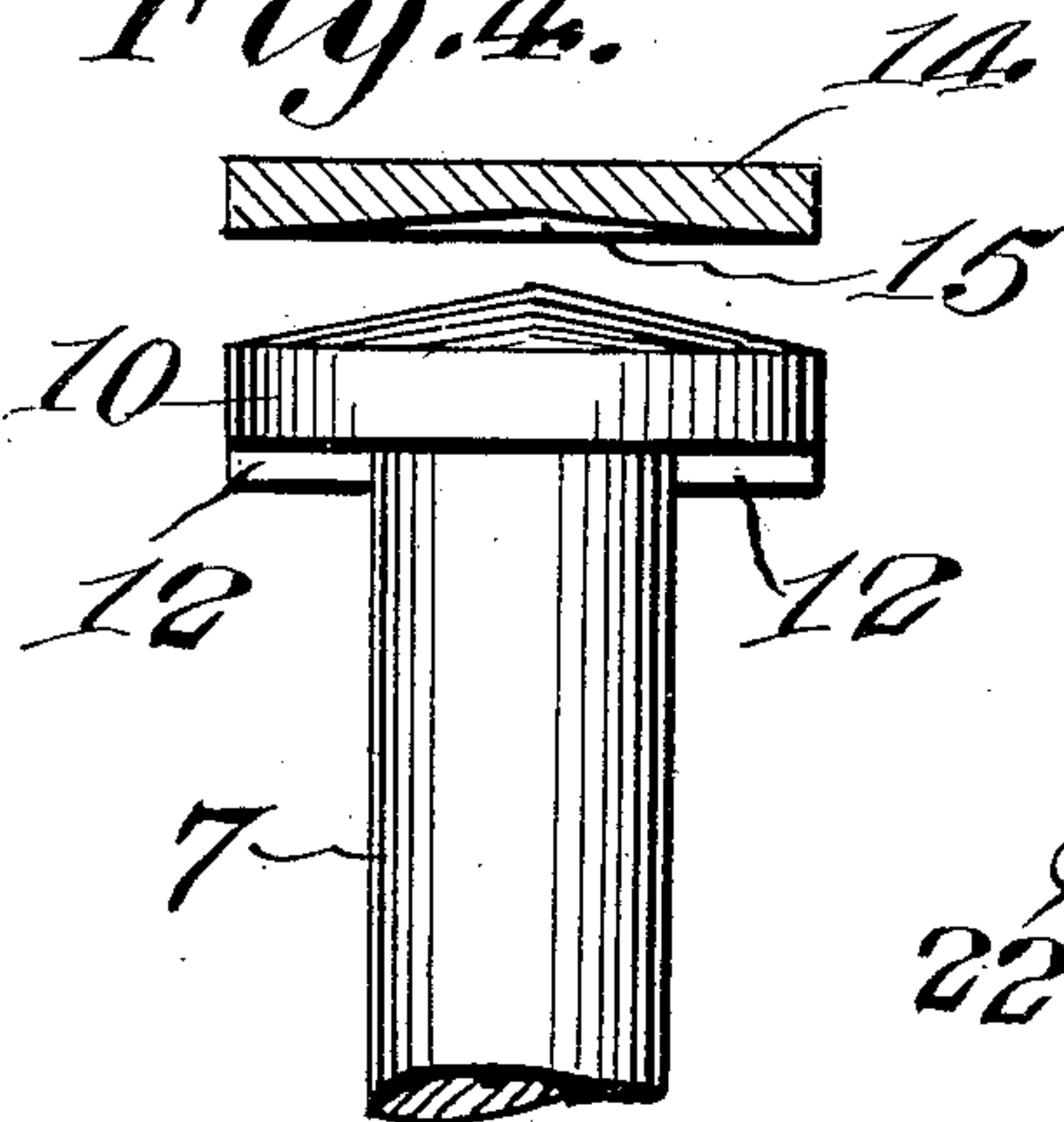


Fig. 4.



Witnesses :-

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UNITED STATES PATENT OFFICE.

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RATCHET-DRILL ATTACHMENT.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ALBERT F. DERRICK and RICHARD W. GARRISON, citizens of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Ratchet-Drill Attachments, of which the following is a specification.

This invention relates to ratchet drills and more particularly to an attachment therefor in the nature of a device for automatically feeding the drill and regulating the drilling pressure so as to obviate the danger of the drill snapping under undue power.

The invention has for one of its objects to improve and simplify the construction and operation of devices of this character so as to be comparatively simple and inexpensive to manufacture, reliable and efficient in use, and so designed as to be readily applied to an ordinary ratchet drill.

Another object of the invention is the provision of a device of the character referred to including a yieldingly mounted feed screw which, under ordinary conditions, is prevented from turning so that a step by step movement of the ratchet drill will feed the latter continuously, the screw being yieldingly mounted to permit the same to turn with the ratchet drill when the pressure on the drill point becomes excessive owing to too rapid feed or excessive hardness of the metal being drilled when the metal varies in density.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one embodiment of the invention, Figure 1 is a side view of the attachment. Figure 2 is a longitudinal section thereof. Figure 3 is a side view showing the attachment applied to a drill in operative position. Figure 4 is a detail view showing the inner or head end of the feed screw and the bearing plate therefor. Figure 5 is a plan view of the device. Figure 6 is a plan view of the collar or sleeve in which the head is mounted.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawing, and more par-

ticularly to Fig. 1, A designates an ordinary ratchet drill provided with a tool or twist drill 1, and attached to the ratchet drill is the feed device and pressure regulator B which, together with the drill, is supported in an ordinary brace or "old man" C whereby the drill is maintained in operative relation to the work 2.

The attachment B consists of a barrel or cylinder 3 internally threaded at both ends and in the lower end thereof is screwed a sleeve 4 which has parallel faces 5 at opposite points for accommodating the wrench in order to screw or unscrew the sleeve. This sleeve has a smooth bore 6 in which is slidably disposed the smooth cylindrical shank 7 of the feed screw 8, which latter projects below the sleeve and is threaded in the body 9 on the ratchet drill so that the step by step movement of such body will feed the ratchet drill for boring the work. The inner end of the screw has a flat or disk-shaped head 10 which bears on the inner face of the sleeve 4, which inner face has oppositely-disposed recesses 11, as shown in Fig. 6, for receiving radial lugs 12 on the under face of the head 10 that serve as a key for preventing relative turning of the screw under normal conditions of operation. The screw is maintained in depressed position with the lugs 12 engaging in the slots 11 by a helical compression spring 13 disposed within the barrel or cylinder 3, and the lower end of this spring rests upon a plate 14 loosely mounted in the cylinder and against which the upper surface of the head bears. This upper surface of the head is conical, as shown in Fig. 4, to engage in a slightly hollow conical bearing 15 in the bottom face of the plate 14. In the upper end of the cylinder is threaded a cap 16 that has a central threaded opening 17 for receiving the spring tensioning screw 18, and on the upper end of the screw is a squared point 19 which enters an opening in the upper arm of the brace C and serves to prevent the attachment from turning. The inner end of the screw bears on a plate 20 on which the upper end of the spring abuts, and by adjusting the screw inwardly, the tension of the spring can be increased. This adjusting screw 18 is clamped in set position by a jam nut 21 engaging the threads thereof and cooperating with the cap 19 to hold the screw fast.

In operation, the ratchet drill and attach-

ment are set up in the brace C in the manner shown in Fig. 3 and the drill is manipulated by the back and forth movement of the handle 22 of the ratchet drill so that a step
 5 by step rotary movement is imparted to the twist drill. By the movement of the ratchet drill in this manner, the relatively stationary screw 8 advances the ratchet drill for boring the work. Should the drill fail to
 10 advance in proportion to the pitch of the screw 8, the latter will gradually yield inwardly against the tension of the spring 12 and, if the pressure becomes excessive owing, for instance to a harder or denser portion of
 15 the metal being encountered by the drill, the screw will move inwardly to such an extent as to disengage the lugs 12 from the slots 11, thereby relieving the pressure from the twist drill while at the same time allowing the
 20 feed of the drill to be accommodated to the nature of the metal.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the
 25 method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while we have described the principle of operation of the invention, together with the device which we
 30 now consider to be the best embodiment thereof, we desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims
 35 appended hereto.

Having thus described the invention, what we claim is:—

1. A device of the class described comprising a chambered body having a smooth
 40 opening in one end thereof, a screw having a smooth portion slidably mounted in the opening, a head on the inner end of the screw, interlocking means between the head and body, a spring within the body and
 45 pressing on the head for normally maintaining the said means in interlocking relation and permitting the screw to move inwardly to disengage the said interlocking means, and means on the ends of the body opposite from
 50 the screw for holding the device in operative relation with a supporting brace.

2. A device of the class described comprising a barrel, a sleeve removably secured to
 55 smooth bore, a feed screw having a smooth

shank slidably mounted in the bore, a head on the inner end of the screw having its under face presented to the inner face of the sleeve, a slot in one of the faces, a lug on the other face engaging in the slot for preventing relative turning of the sleeve and screw under normal conditions, a spring in the barrel constantly pressing on the head to maintain the lug engaged in the slot, and means for adjusting the tension of the spring
 60 supported on the end of the body opposite from the screw and for holding the device in operative position.

3. A device of the class described comprising a barrel, a sleeve removably secured
 70 to one end of the barrel and provided with a smooth bore, a feed screw having a smooth shank slidably mounted in the bore, a head in the inner end of the screw having its under face presented to the inner face of the
 75 sleeve, a slot in one of the faces, a lug on the other face engaging in the slot for preventing relative turning of the sleeve and screw under normal conditions, a spring in the barrel constantly pressing on the head to
 80 maintain the lug engaged in the slot, a screw in the end of the body opposite from the first-mentioned screw and arranged to vary the tension of the spring, and a point on the end of the screw of non-circular cross-
 85 section.

4. A device of the class described comprising a barrel having alining openings at opposite ends, one opening being smooth and the other threaded, a feed screw having
 90 a smooth shank slidably mounted in the smooth opening, a screw threaded in the other opening, a spring in the barrel, plates between the inner ends of the screw and spring, interlocking means between the barrel and feed screw for preventing relative
 95 turning while the spring is fully extended, said interlocking means being automatically released by inward pressure on the feed screw, means for clamping the second screw
 100 in fixed relation to the barrel, and a non-circular pointed tip on the outer end of the second screw.

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:

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