

(No Model.)

2 Sheets—Sheet 1.

P. R. ERICKSON.

RATCHET DRILL.

No. 390,013.

Patented Sept. 25, 1888.

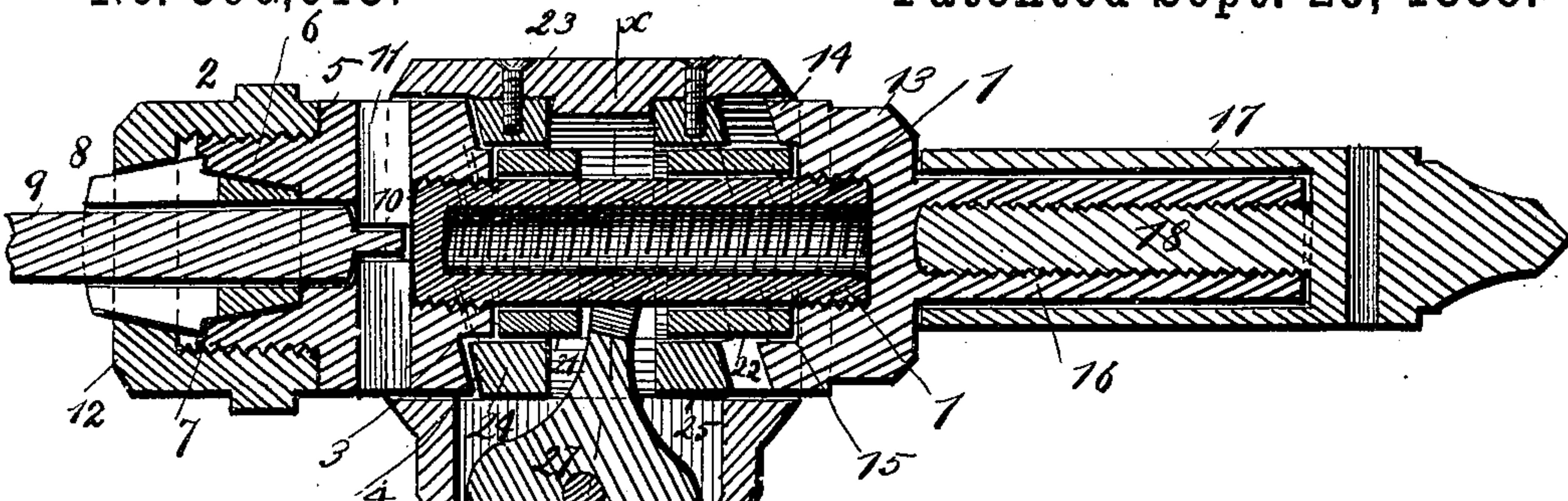


Fig. 1.

Fig. 2.

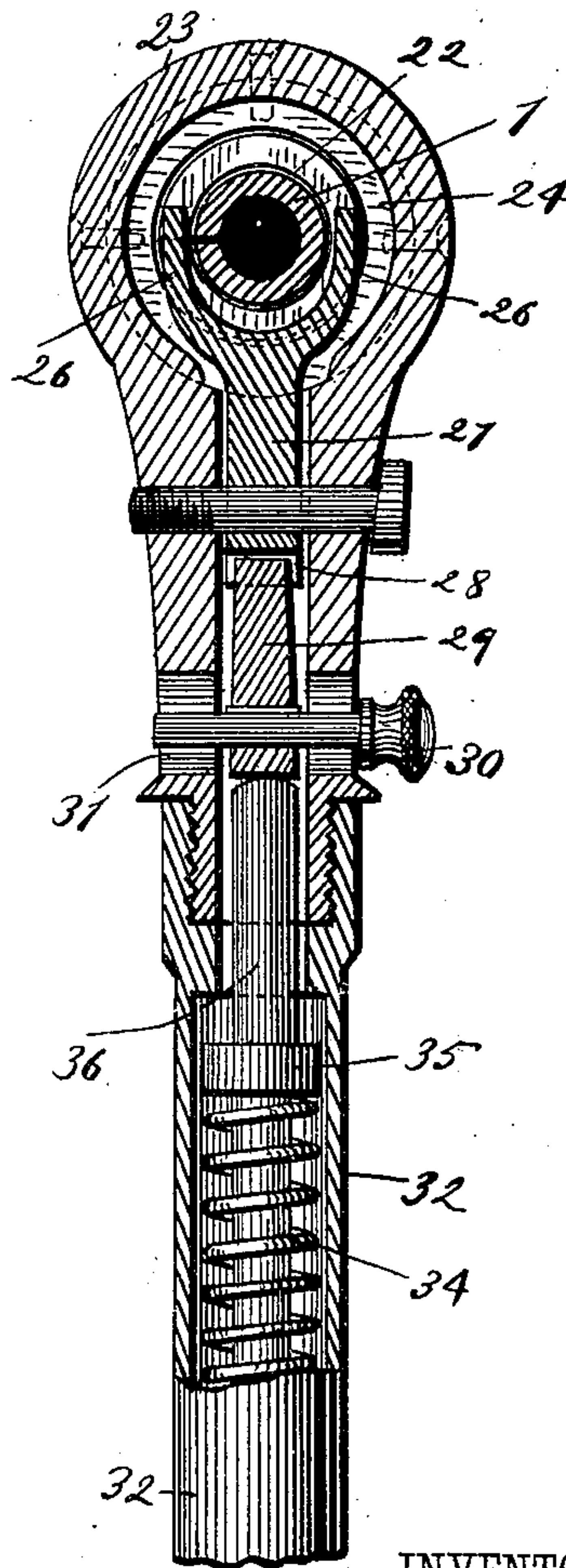
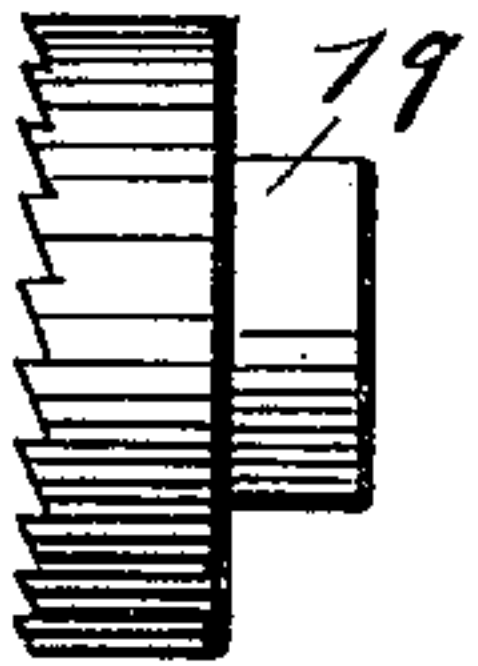


Fig. 8.



WITNESSES:

*Phil. C. Dietrich*  
*C. Sedgwick*

INVENTOR:

*P. R. Erickson*  
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(No Model.)

2 Sheets—Sheet 2.

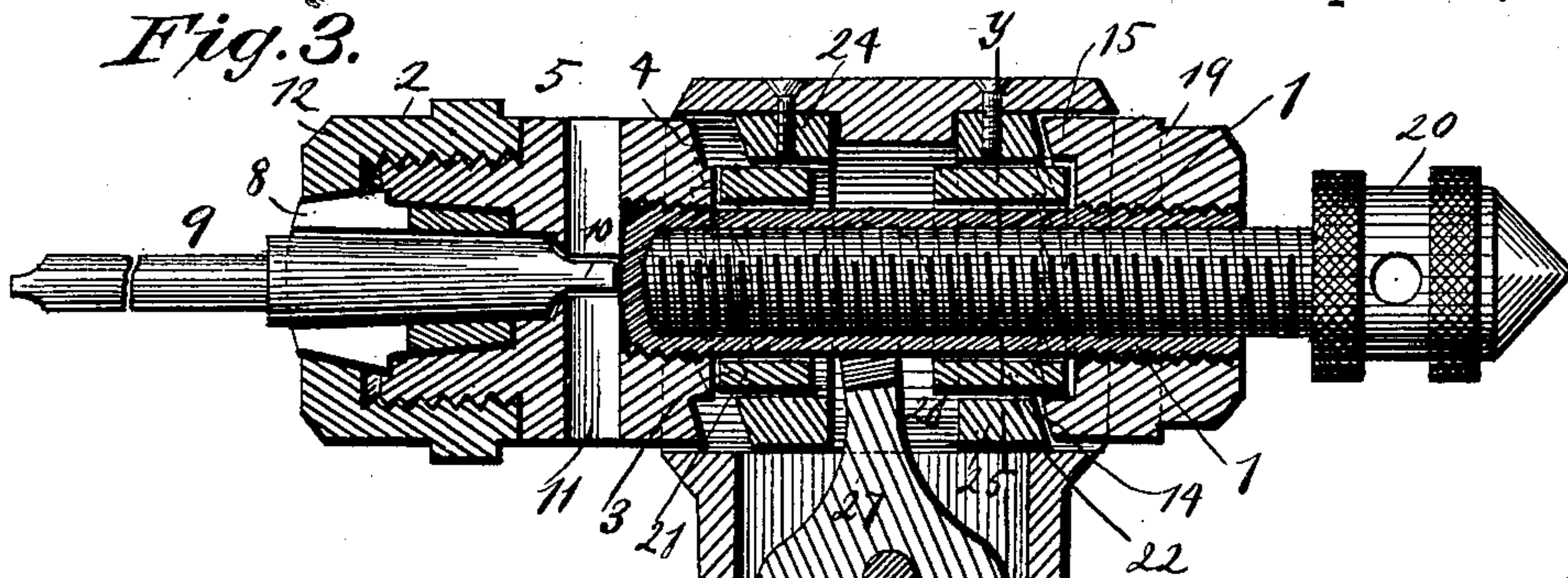
P. R. ERICKSON.

RATCHET DRILL.

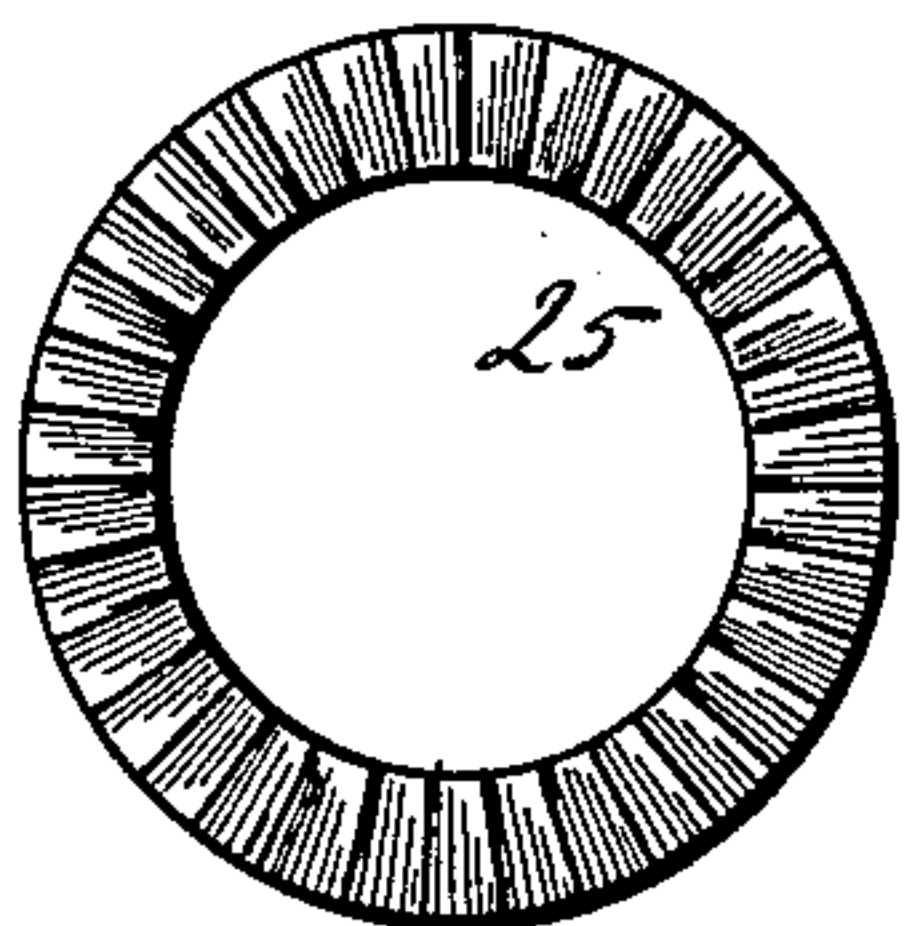
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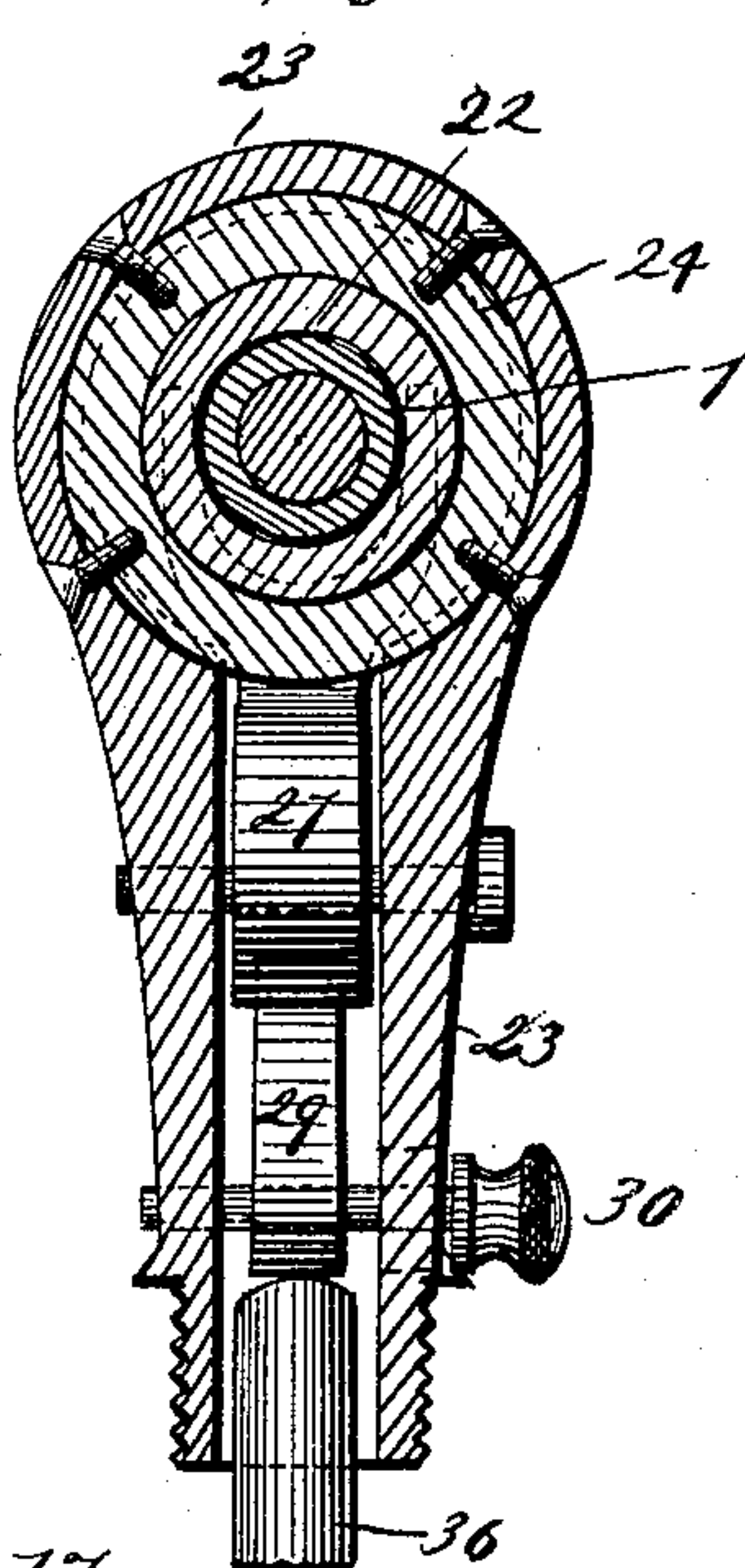
*Fig. 3.*



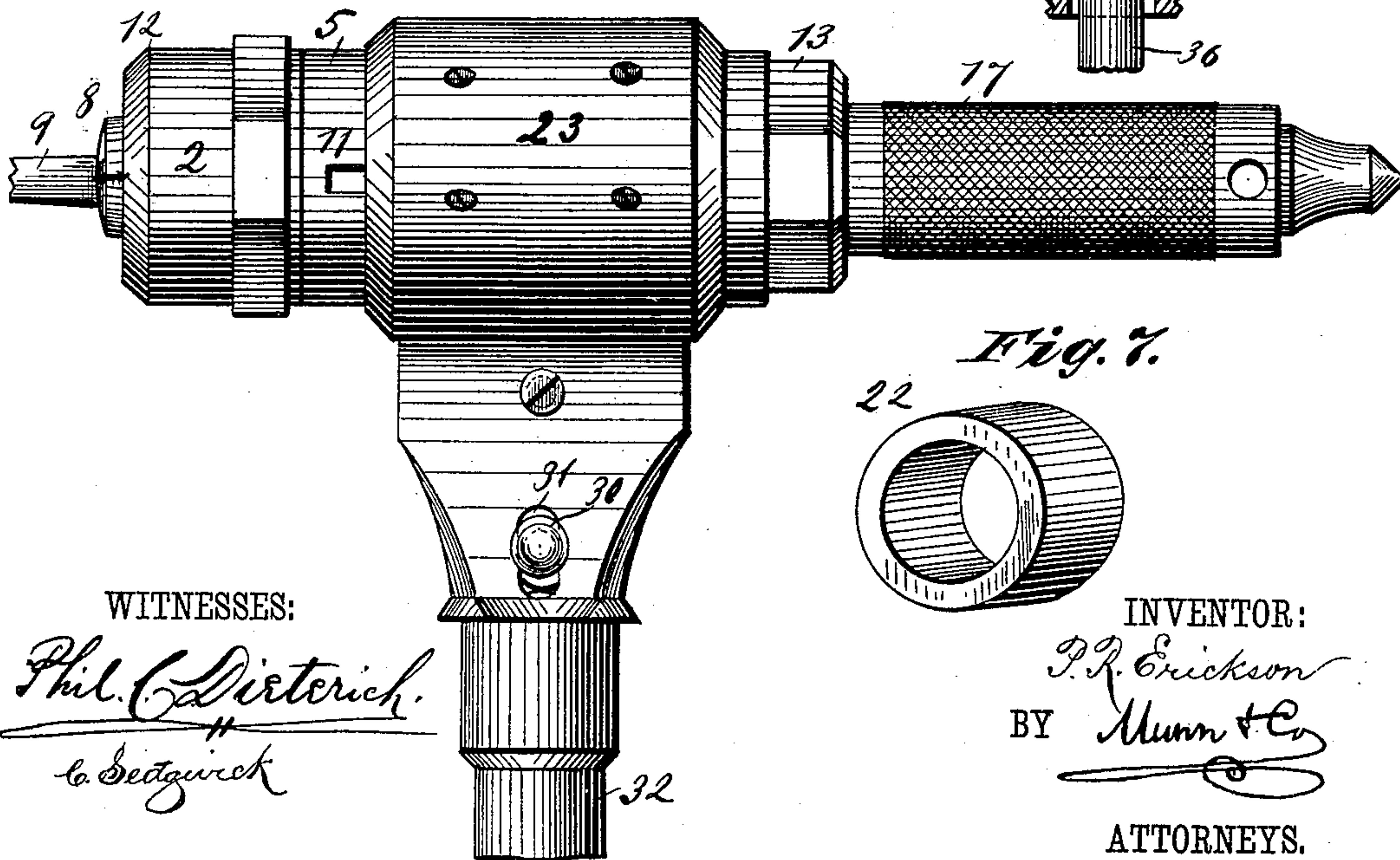
*Fig. 6.*



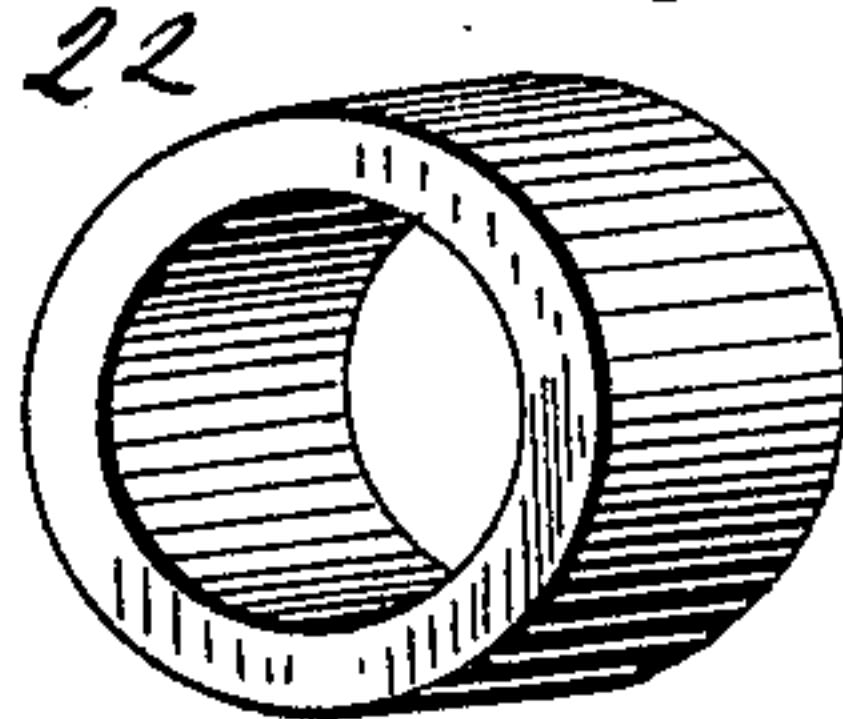
*Fig. 4.*



*Fig. 5.*



*Fig. 7.*



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# UNITED STATES PATENT OFFICE.

PETER R. ERICKSON, OF ISHPEMING, MICHIGAN.

## RATCHET-DRILL.

SPECIFICATION forming part of Letters Patent No. 390,013, dated September 25, 1888.

Application filed April 19, 1888. Serial No. 271,170. (No model.)

*To all whom it may concern:*

Be it known that I, PETER R. ERICKSON, of Ishpeming, in the county of Marquette and State of Michigan, have invented a new and  
5 Improved Ratchet-Drill, of which the following is a full, clear, and exact description.

My invention relates to an improvement in ratchet-drills, and has for its object to simplify  
10 the construction of such and provide a means whereby the drill may be readily inserted and the action of the drill reversed, and wherein, also, the device will be durable and can be conveniently manipulated.

The invention consists in the construction  
15 and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification,  
20 in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical longitudinal section through the device. Fig. 2 is a transverse section on line *xx* of Fig. 1. Fig. 3 is a vertical longitudinal section through a slightly-modified form, and Fig. 4 is a transverse section on line *yy* of Fig. 3. Fig. 5 is a side elevation; and Figs. 6, 7, and 8 are detail views.

In carrying out the invention a hollow interiorly-threaded spindle, 1, is provided with a chuck, 2, securely attached at one end, having integral with the inner face and in contact with the spindle a flange, 3, above which  
30 flange a series of teeth, 4, are produced.

The chuck consists of a body, 5, provided, as aforesaid, with the teeth and flange at one end, and at the other end with a reduced exteriorly-threaded portion, 6. The body is further provided with a bore, 7, extending  
40 longitudinally through, which bore is of varied diameter, as shown in Figs. 1 and 3, the outer or larger portion of the bore being adapted to receive a split bushing, 8, purposed to hold the drill 9, the intermediate portion, the shank of the drill, and the inner and smallest portion of the bore, which is rectangular, being provided to receive a rectangular projection, 10,  
45 at the end of aforesaid drill-shank. Through the body, from side to side, an aperture, 11, is  
50 projected, for a purpose hereinafter set forth.

To complete the chuck, a clamping-ring, 12, is screwed upon the body over the bushing, a portion of the exterior of which ring is faced to receive a wrench. The end of the spindle upon which the chuck is secured is preferably  
55 made solid.

Upon the outer end of the spindle 1 a head-piece, 13, is screwed, provided at the upper edge upon the inner end with a series of teeth, 14, and within said teeth with an annular recess, 15. The outer end of the cap is faced to receive a wrench, and from said end a hollow and interiorly-threaded cylindrical shank, 16, is projected, which shank may be of any approved length. Over the cap-shank a sleeve, 65  
17, is slid, closed at the outer end, which end is adapted to a proper bearing upon a breast-plate or other suitable rest. The sleeve 17 is made to slide upon the cap-shank, and is held at any point thereon through the medium of  
70 an interior central and longitudinal threaded tongue, 18, the tongue being adapted for entrance in the bore of the cap-shank 16, as illustrated in Fig. 1.

In order to adapt the device for a low or  
75 boiler ratchet, the top piece or cap is unscrewed and replaced by a short interiorly-threaded cap, 19, as illustrated in Fig. 3, and a rod, 20, provided with a suitable head, is screwed through the cap 19 into the spindle 1. Between the cap and the chuck two collars, 21 and 22, of different width, are held to slide upon the spindle—one ring, the narrowest, engaging the flange upon the chuck, and the other entering the recess in the cap.  
85

A housing, 23, is provided for the device, in which the spindle 1 and its attached parts are held, the said housing being adapted to rotate upon the spindle. Within the housing, at suitable distances apart, toothed rings 24 and  
90 25 are secured, the teeth being upon the outer edges and adapted to mesh, respectively, with the teeth upon the chuck-body and cap. The said rings are further adapted to encircle the respective collars 21 and 22, and to them the  
95 housing is held by screws, as shown in Figs. 1, 3, and 4.

Between the collars 21 and 22 the spindle is partially surrounded by the bifurcated arms 26 of a shifting-lever, 27, which lever is piv-  
100



oted in the housing below the spindle, as illustrated in Figs. 1 and 3. The lower or pivoted end of the shifting-lever is at right angles to the bifurcated end, and at that point in the under edge a recess, 28, is cut, preferably more or less segmental.

As a means of actuating the shifting-lever, a dog, 29, is provided, whose upper end is adapted for engagement with the lever within the recess, the lower end being secured to a headed pin, 30, or equivalent device, which device is projected through a longitudinal slot, 31, in the housing, as illustrated in Fig. 5.

To the housing a tubular handle, 32, is secured by a screw-thread, or in any other suitable manner, as illustrated in Figs. 1 and 2, in the extremity of which handle a plug, 33, is screwed. Upon the plug one end of a coil or spindle spring, 34, is made to bear, the other end resting against a collar, 35, integral with a pin, 36, which pin is projected partially through the spring, and likewise carried to an engagement with the base of the dog 29. Thus by screwing the plug into or out of the handle the dog is made to engage the shifting-lever in a more or less positive manner.

In operation, when it is desirable to manipulate the device either to the right or left, the pin 30 is given about an eighth turn, which so spaces the collars as that in the manipulation of the handle the toothed rings secured to the housing may be made to engage with either the teeth upon the chuck or those upon the cap. When the shifting-lever is thrown positively to the right or left, the spindle is carried in the opposite direction, and the ring upon that side brought into engagement with the proper set of teeth fixed to the spindle, disengaging at the same time the other ring.

The slot in the chuck is intended to receive a drill or other suitable tool, while the body may be conveniently held stationary while the cap is being compressed upon the bushing by the aid of a wrench, thus obviating the necessity of two wrenches.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a spindle, a chuck secured at one end having an inner toothed surface, a detachable cap at the other end, provided with an inner toothed surface, a supporting device carried by the cap, and collars loosely mounted upon the spindle, of a hous-

ing, toothed rings interiorly secured to the same, a shifting-lever pivoted in the housing, and means, substantially as described, for actuating said lever, as and for the purposes set forth.

2. The combination, with a spindle, a chuck secured at one end having an inner toothed surface, a detachable cap at the opposite end, provided with an inner toothed surface, a supporting device carried by the cap, and collars loosely mounted upon the spindle, of a housing, toothed rings interiorly secured to the same, a bifurcated shifting-lever pivoted in the housing, an actuating-dog engaging said lever, and means, substantially as described, for manipulating and controlling the dog, as and for the purposes herein set forth.

3. The combination, with a spindle, a chuck secured at one end of the spindle, having an inner toothed surface, a detachable cap held upon the opposite end of said spindle, provided with an inner toothed surface, a supporting device carried by the cap, and collars loosely mounted upon the spindle, of a housing, toothed rings interiorly secured to the same, a bifurcated and recessed shifting-lever pivoted in the housing, an actuating-dog engaging said lever, a handle secured to the housing containing a spring, and a shouldered pin bearing upon said spring and against said dog, substantially as and for the purposes herein set forth.

4. The combination, with a hollow interiorly-threaded spindle, a chuck secured at one end of said spindle, having an inner toothed surface, a detachable cap secured at the other end of said spindle, having also an inner toothed surface, a supporting device sustained by said cap, and collars loosely mounted upon the spindle, of a housing provided with a slot in one face, toothed rings interiorly secured to the same, a bifurcated shifting-lever pivoted in the housing, an actuating-dog engaging said lever, a headed pin attached to said lever and projecting through the slot in the housing, a handle attached to the housing, a spring coiled in said handle, and a shouldered pin resting upon said spring and bearing against the dog, substantially as shown and described.

PETER R. ERICKSON.

Witnesses:

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