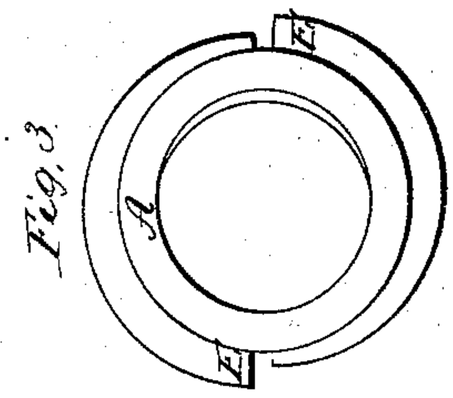
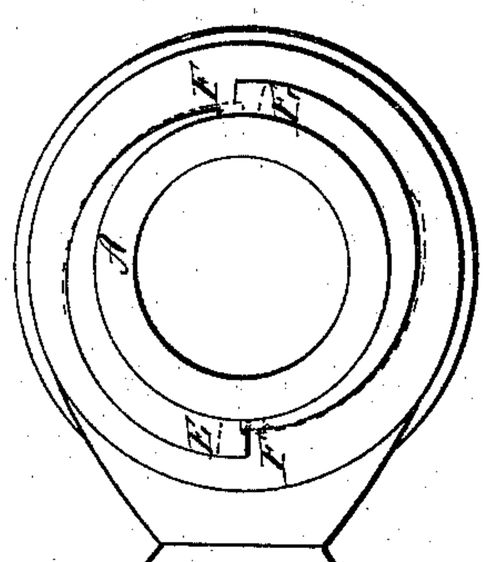
H. Getty,

Ratchet Drill,

No. 43,109, Patented June 14. 1864.

Fig. 3.





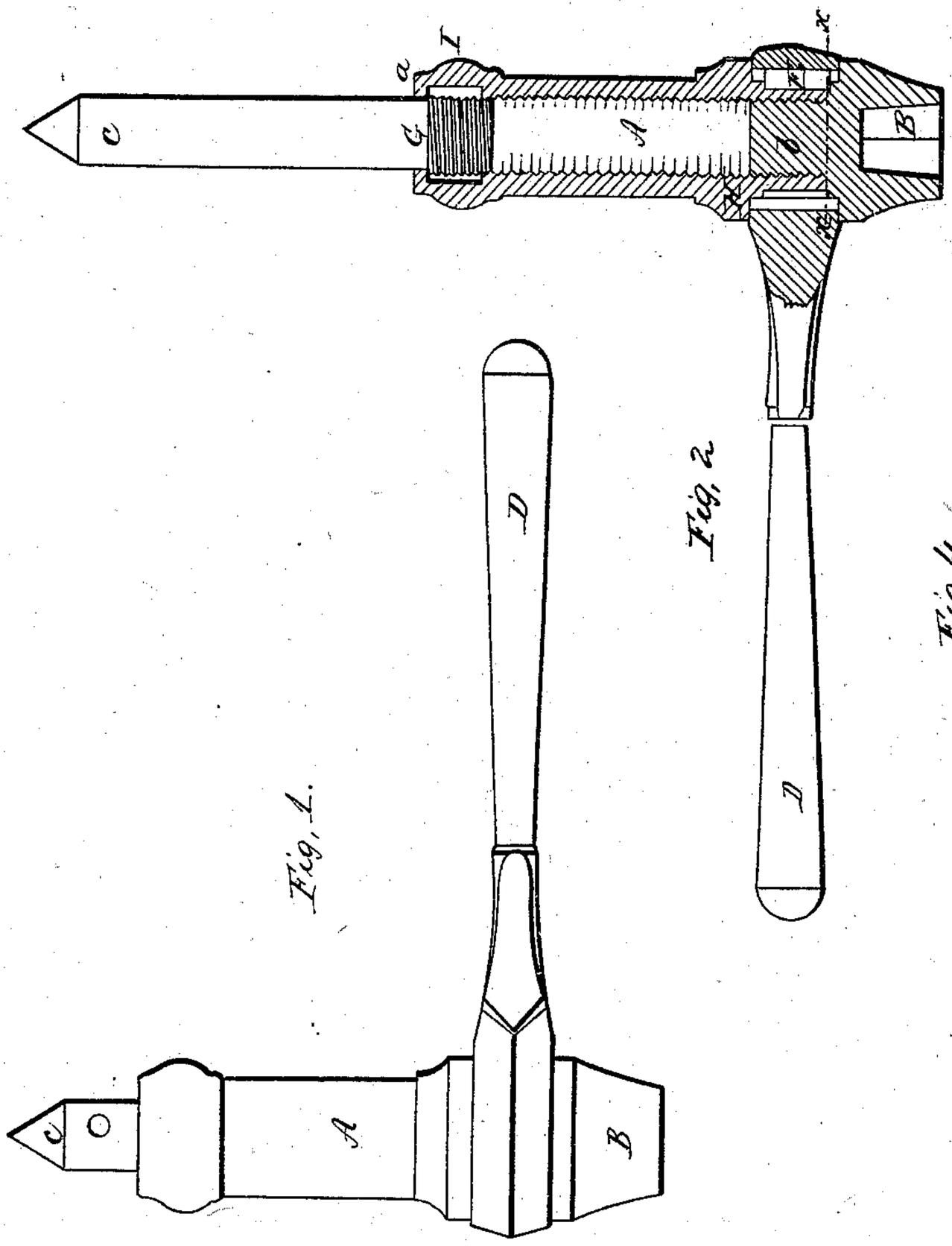
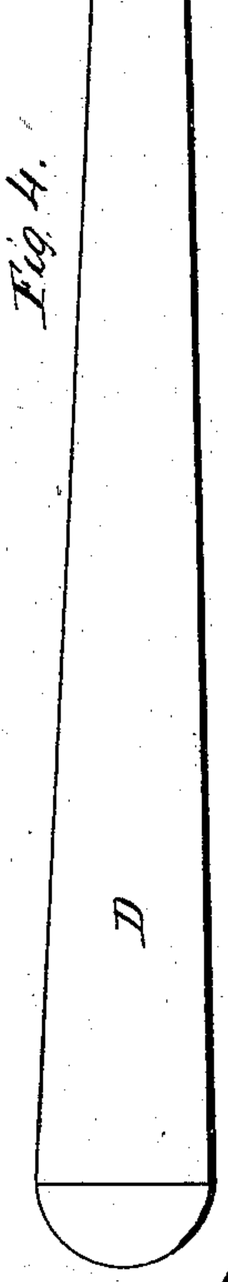


Fig. 1.

Fig. 2

Fig. 4.



Witnesses;

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UNITED STATES PATENT OFFICE.

HENRY GETTY, OF BROOKLYN, NEW YORK.

IMPROVED RATCHET-DRILL.

Specification forming part of Letters Patent No. **43,109**, dated June 14, 1864.

To all whom it may concern:

Be it known that I, HENRY GETTY, of the city of Brooklyn, county of Kings, and State of New York, have invented, made, and applied to use certain new and useful Improvements in the Construction and Operation of Ratchet-Drills; and I do hereby declare the following to be a full, clear, and correct description of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a perspective view of my improved drill, with the extending-screw at its lowest point; Fig. 2, a longitudinal vertical section of the same, with the extending-screw at its highest point; Fig. 3, an enlarged inverted cross-section of the same at the line *x x*, Fig. 2, with the part B and handle D removed to show the construction of the eccentric slides E E; Fig. 4, the same as Fig. 3, with the handle D on, to show the formation of the handle and the operation of the clutch.

Like parts of the invention are designated by the same letters of reference in the drawings.

All the ratchet-drills with which I am acquainted labor under the following disadvantages: First, when the workman is feeding out the extending-screw, he is liable to feed it so far as to allow it to come loose from the body of the drill, and thereby break it; second, the feeding-screw is generally unprotected, or if protected it is done in such a way as to add greatly to the expense of the drill; third, if a friction-clutch is used, it is generally costly, and is also exposed so that chips and dirt get into it and destroy its usefulness.

I have endeavored in my improved drill to overcome these difficulties.

The nature of my invention therefore consists in a new and improved mode of constructing the body of a ratchet-drill, as hereinafter fully shown, with an interior ring or flange at the top for the purpose of guiding and steadying the extending-screw, and also to prevent said screw from coming loose from the body of the drill, and in a new and reliable mode of protecting the screw from all external injury without adding anything to the expense, and in holding the screw firmly and without "shake" in any desired position; also, in providing its upper end with a recess to allow a clearance for a tap; also, in a new and improved mode of constructing the extending-screw, and in a new, cheap, and durable clutch for the operation of the drill.

To enable those skilled in the arts to make and use my invention, I will now proceed to describe the construction and operation of the same.

A, Figs. 1 and 2, shows the body of my improved drill. It is formed of malleable, cast, or wrought iron, or other suitable material. It is provided at the top with an interior projecting ring or flange, *a*, bored out to fit the plain cylindrical part of the extending-screw C, for the purpose of guiding and steadying said screw, and also to prevent said screw from coming loose from the body of the drill A. It is also provided with a recess, I, Fig. 2, which forms a clearance for a plug-tap, thus allowing the tap to cut a full thread up to the bottom of said recess, without having the tap come in contact with the interior ring or flange, *a*. It is also provided at it slower part with a shoulder, H, Fig. 2, for the purpose of holding the handle D and sliding eccentrics E E in their proper positions. It is tapped or screwed in the inside from the lower end of recess I to its lower extremity, for the purpose of receiving the extending-screw C, and also to allow the part B, Fig. 2, to be firmly connected with it.

B, Fig. 2, is the lower part of the drill. It is made of the same material as A, and is provided with a male screw, *b*, to connect it to the part A. It is also provided with a shoulder the same as H on the body A, and for the same purpose, and has a taper hole made for the reception of the square of the operating-drill.

C, Figs. 1 and 2, is the extending-screw for feeding the drill as the work progresses. It is made of a piece of the best steel. One end is what is called "upset" to make it large enough to cut on it the male screw G, Fig. 2, which screw is then cut on it to fit the female screw of the body A. This screw G only extends from the bottom of C about one inch, and the rest of C is made truly cylindrical and plain to fit the hole made in the top of A. A conical point is formed on its upper end. A small hole is drilled across it near the top, to

insert a lever to unscrew it by when in use. It is then hardened and tempered at the cone, and it is completed.

D, Figs. 1, 2, and 4, is the handle, made of malleable, cast, or wrought iron, or other suitable material. It has a hole made large enough to allow it to go on the body A, below the shoulder H, and has formed in its interior two recesses with two eccentric curves in opposite directions, into which recesses the sliding eccentrics E E are accurately fitted, as shown very clearly in Fig. 4. The ends of these recesses form two lips or projections, F F, the use of which will be explained hereinafter.

E E, Figs. 3 and 4, are two eccentric sliders. Their form is very clearly shown in Fig. 3. They are truly turned in the inside to fit the body A, underneath the shoulder H, in an annular recess made for that purpose, and their exterior surfaces are formed in two eccentric curves in opposite directions, to fit into the recesses in handle D, as shown in Fig. 4.

The parts having been constructed as described, the extending-screw C is inserted in the body A from below. The sliders are then put on A below the shoulder H. The handle D is then put on over the sliders E E, and part B is firmly screwed into A, which holds all the parts in their proper positions. The operating-drill is inserted in B, and the drill is ready for use.

I shall now proceed to describe the operation of the same. The extending-screw C is worked in the usual manner, and fed out as the drilling progresses until the part G reaches the interior ring or flange, *a*, in the upper part of A. It cannot go any farther, and yet is held very firmly, because the interior ring or flange, through which it passes, will not permit the screwed part G to come loose from the part A, as shown very clearly in Fig. 2. When the handle D is turned to the right, with the drill in an upright position, as in Fig. 2, the projecting lips of the handle F F, Fig. 4, strike the broad ends of the sliders E E and carry them round with them. When moved in this direction, they produce no effect on the body of the drill. They are shown in this position by the black lines in Fig. 4. But when the handle is moved toward the left, with the drill in the same position, the eccentric interior surfaces of the recesses bind on the eccentric sliders E E, which are thereby firmly pressed against the body A, and the whole is then carried round toward the left. This position is clearly shown in Fig. 4 by the red lines. By reversing these positions alternately the operations are repeated, and the work is drilled.

Having thus fully described the construction and operation of my improved drill, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The body A, with its interior ring or flange, *a*, and recess I, for the purposes described.

2. The screw C, constructed as shown, for the purposes specified.

3. The handle D, with its curved recesses and projections or lips F F, substantially as described, for the purposes specified.

4. The eccentric sliders E E, constructed as shown, for the purposes specified.

HENRY GETTY.

Witnesses:

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