G. HAYDEN.

Ratchet-Drill.

No. 169,262. Patented Oct. 26, 1875.

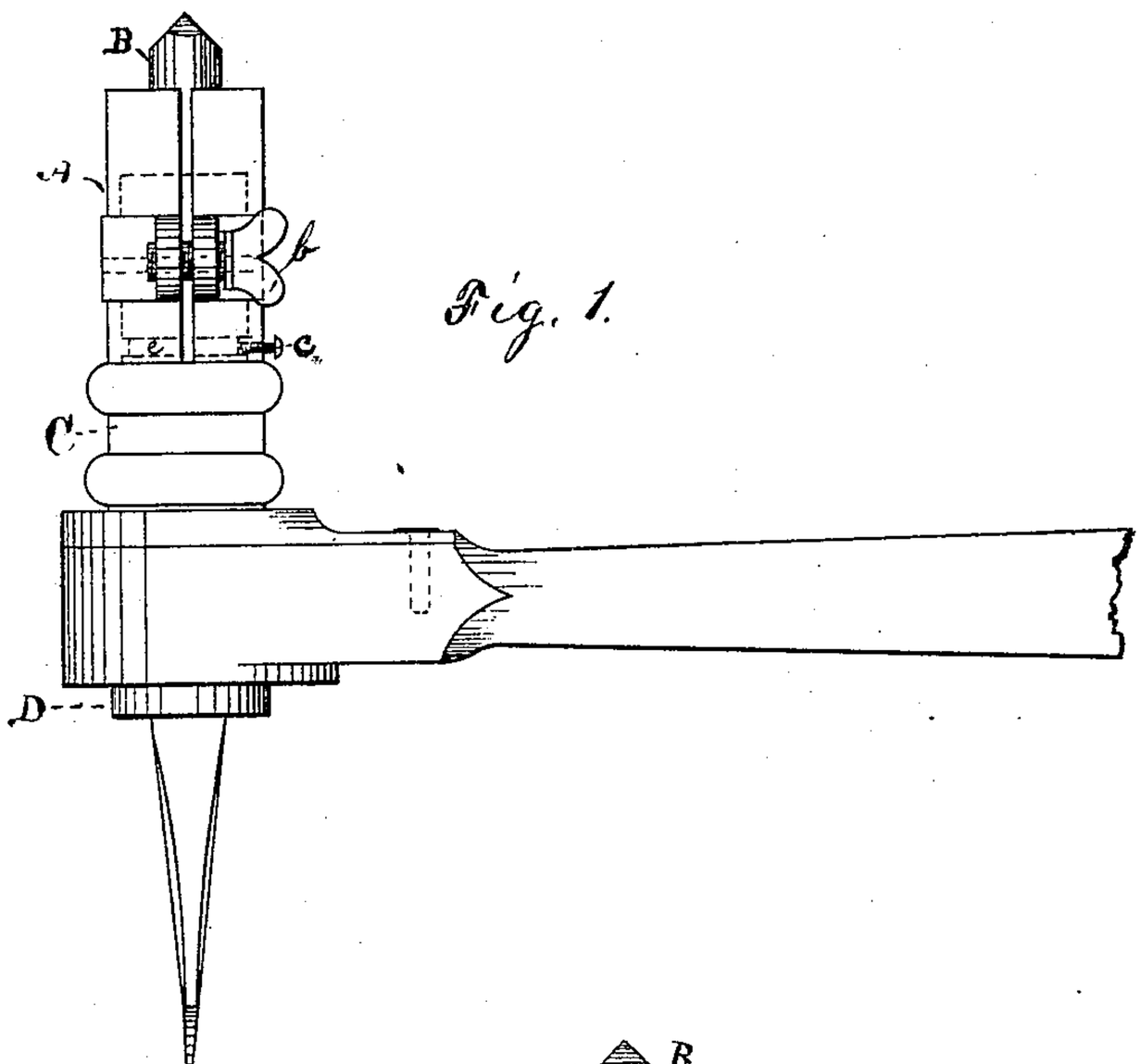

Fig. 1.

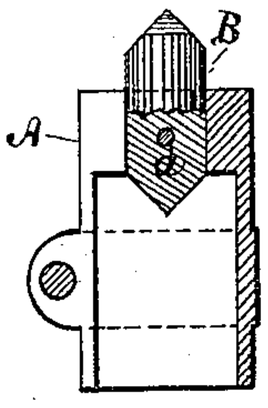

Fig. 2.

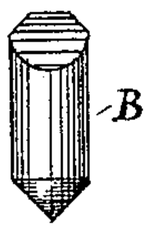

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE HAYDEN, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN RATCHET-DRILLS.

Specification forming part of Letters Patent No. **169,262**, dated October 26, 1875; application filed April 5, 1875.

To all whom it may concern:

Be it known that I, GEORGE HAYDEN, of the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Ratchet-Drills; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to certain improvements in ratchet-drills, whereby they are rendered more effective in their operation than has heretofore been accomplished; and it consists in the employment of an outer slotted sleeve, in the end of which is secured the wedge-shaped pin, said sleeve being adjusted upon an inner sleeve by means of a thumb-screw, and, also, by means of a set-screw in outer sleeve, fitting into an annular groove upon the inner sleeve, all as will be hereinafter more fully described, and pointed out in the claim.

Referring to the drawings, Figure 1 represents a side view of a ratchet-drill embodying my improvements. Fig. 2 is a section of the outer sleeve, showing wedge-shaped pin inserted in position. Fig. 3 is a side view of the wedge-shaped pin.

Similar letters of reference occurring in the several figures indicate like parts.

A represents an outer slotted sleeve, in the head of which is secured the wedge-shaped pin B, by means of a small pin, *a*, which passes through openings in the sides of the sleeve, and also through the pin B, as shown in Fig. 2. C represents the inner sleeve, which is screwed on the socket D, to which the drill is secured, a portion of said sleeve C being adapted to fit within the outer sleeve A, as shown in dotted lines in Fig. 1, and secured thereto by the set-screw *c* passing through the sleeve A, and fitting into the annular groove *e* in the inner sleeve C.

The outer sleeve A is adjusted in proper relation with the inner sleeve C by means of the thumb-screw *b*.

It will be observed that the center-pin B has its conical end downward, and the wedge-shaped end outward.

Heretofore such center-pins have been reversed—that is, the conical end outward, and made to rotate with the drill, which is not the case in the present invention, the sleeve A and center-pin being stationary in the operation of the same.

In the ordinary drill the operator has to stop the drill whenever he adjusts or sets the feed, thereby losing considerable time.

This disadvantage I obviate by means of the friction-sleeve A, adjusted by means of the thumb-screw *b*, and these parts being stationary allow of the inner sleeve C being turned at any time to adjust the feed.

The advantages of my improvements consist in its simplicity, its certainty and nicety of operation, and its being adapted equally well to the finest, as well as to the largest, drills by means of the adjusting thumb-screw in the friction-sleeve A.

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

In a ratchet-drill, the outer slotted sleeve A, the stationary inverted center-pin B, the pin *a*, the adjusting thumb-screw *b*, the set-screw *c*, and the annular groove *e*, all constructed and arranged to operate substantially as and for the purposes herein set forth and shown.

In testimony that I claim the foregoing as my own invention I affix hereto my signature in presence of two witnesses.

GEORGE HAYDEN.

Witnesses:

GEO. W. FRANCIS,

OLIVER DRAKE.