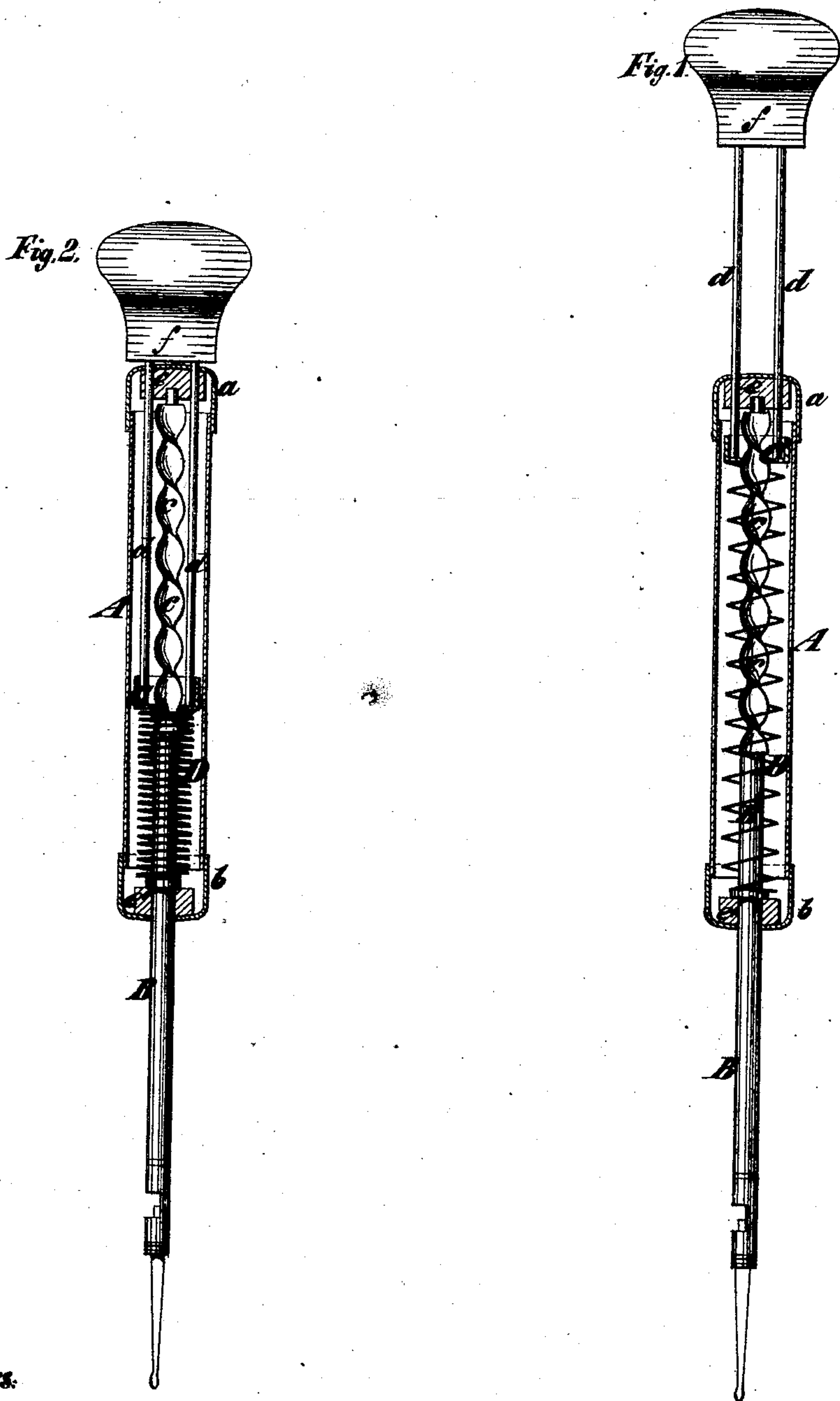


D. D. MACKAY.

Hand-Drills for Drilling Metal.

No. 157,099.

Patented Nov. 24, 1874.



Witnesses:

M. M. Zimph  
A. J. De Lacy.

Inventor:

Donald J. Mackay

# UNITED STATES PATENT OFFICE.

DONALD D. MACKAY, OF WHITESTONE, NEW YORK.

## IMPROVEMENT IN HAND-DRILLS FOR DRILLING METAL.

Specification forming part of Letters Patent No. **157,099**, dated November 24, 1874; application filed August 25, 1874.

*To all whom it may concern:*

Be it known that I, DONALD D. MACKAY, of Whitestone, in the State of New York, have invented certain new and useful Improvements in Machines for Rotating Tools and Implements; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making part of this specification.

My present invention consists in the combination of a rotary spindle or tool-holder; a stationary sleeve or hand-piece for holding such spindle while rotating and exerting pressure on it; a nut adapted to be impelled along a spiral portion of the spindle in reverse directions, within and independently of the said sleeve or hand-piece; and a plunger, one end of which is adapted to be grasped in the hand and the other end extending into the said hand-piece, and affixed to the said traveling-nut, whereby I produce a very simple and effective machine for rotating tools and implements.

In the accompanying drawing, Figure 1 is a longitudinal section of a machine made according to my invention, the said machine being represented as in its normal condition; and Fig. 2 is a similar section, showing the traveling-nut of the machine impelled downward along the spiral portion of the spindle, as in the act of boring.

A designates a hand-piece, which, in the example shown, consists of a short piece of tube, having caps *a* and *b* fitted on its ends. B designates a rotary spindle, which is journaled in the hand-piece—in the present instance, in two blocks, *e* and *e'*, at opposite ends of the hand-piece. The lower end of this spindle is shown as provided with a socket for the reception of a drill or other tool or implement. The upper part of this spindle, for a suitable distance, is provided with a worm or spiral thread. C is a nut or plate, provided with an opening through it, which is fitted to the spiral shank *c* of the spindle, so as to travel along the same. To the said nut C there is attached the plunger or mechanism for operating the nut outside of the stationary hand-piece, which mechanism, in the present instance, consists of two parallel rods, *d* *d*,

which are fastened at the lower ends to the said nut, and pass up through the cap *a* or top of the hand-piece, and are provided on their outer ends with a knob or push-piece, *f*. D designates a spring, which, in the present example, is arranged in the hand-piece, between the nut and the bearing-block *e'*, situated in the cap *b*. This spring is designed for throwing the nut C upward after being forced down by the plunger. Such spring assists in the operation of the device, but is not necessary, inasmuch as the plunger, when drawn out, will rotate the spindle without the aid of a spring.

To use this machine, the hand-piece is held in one hand, and, by means of it, the tool is pressed against the work with just as great or as little force as the operator desires. The plunger *d d f* is held in the other hand, and by it the nut C is caused to travel alternately forward and back along the spiral shank *c* of the spindle, while the tool-stock and tool are rotated in alternately reverse directions.

When the spring D is used a relaxing of the hold on the plunger will permit the said spring to force the nut in a backward or return direction.

The machine or instrument above described is simple, compact, and admirably adapted to light work, such as is generally done by jewelers and dentists. It is also adapted to be provided with stirring-wings, for use as an egg beater and muddler.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the stationary tubular hand-piece or sleeve A, inclosing a nut, C, adapted to travel back and forth lengthwise of said hand-piece or sleeve, and independently of it, the rotary spindle B, passing through said nut, and rotating within said hand-piece, and a plunger entering said hand-piece, and secured at one end to said nut for operating the same, substantially as herein set forth, whereby the tool may be directed to and pressed against the work by the stationary hand-piece and rotated by the plunger.

DONALD D. MACKAY.

Witnesses:

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A. J. DE LACY.