No. 737,231. PATENTED AUG. 25, 1903.

E. G. HAYNE.

TAP BORER.

APPLICATION FILED OCT. 30, 1902.

NO MODEL.

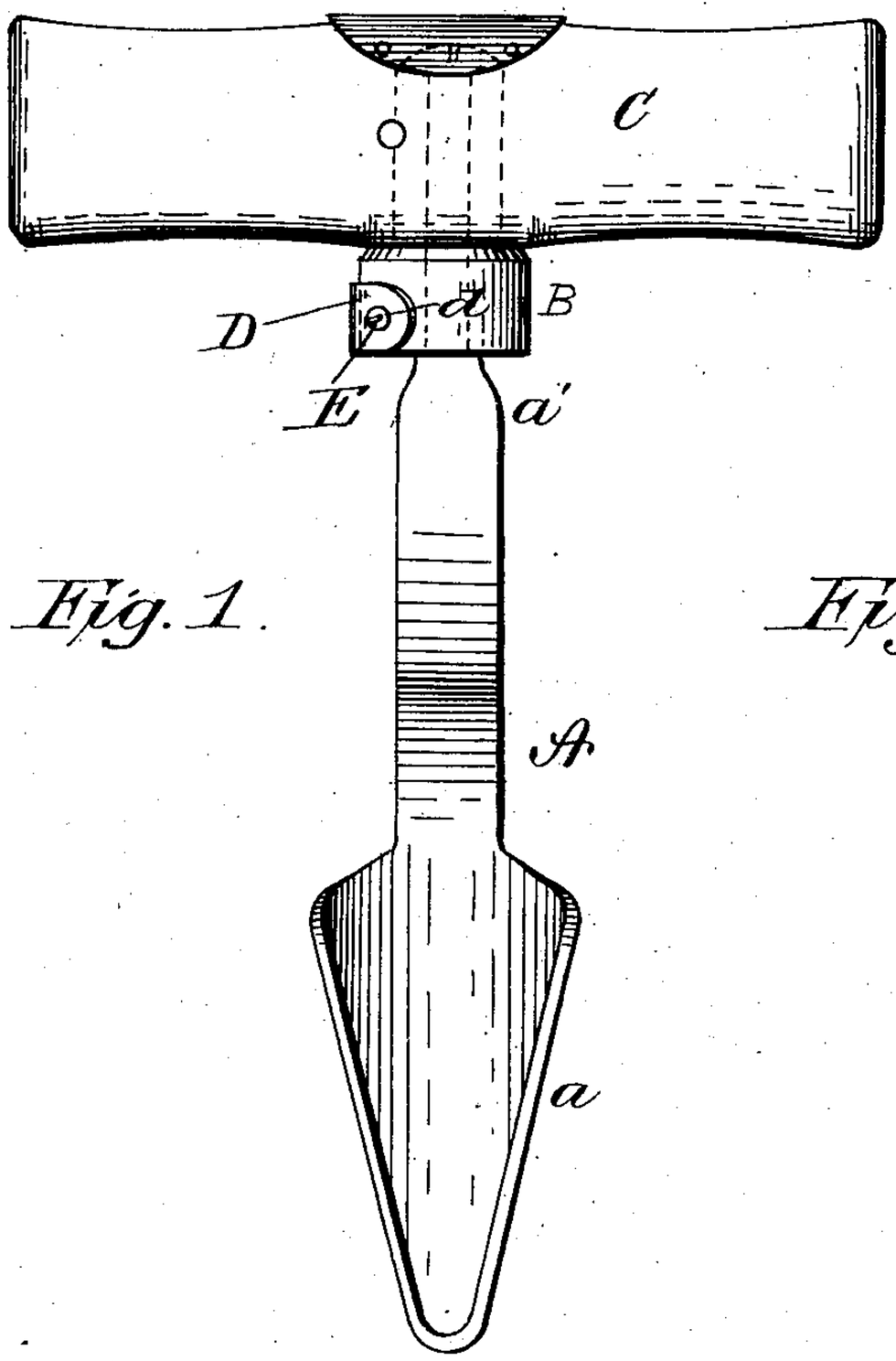

Fig. 1.

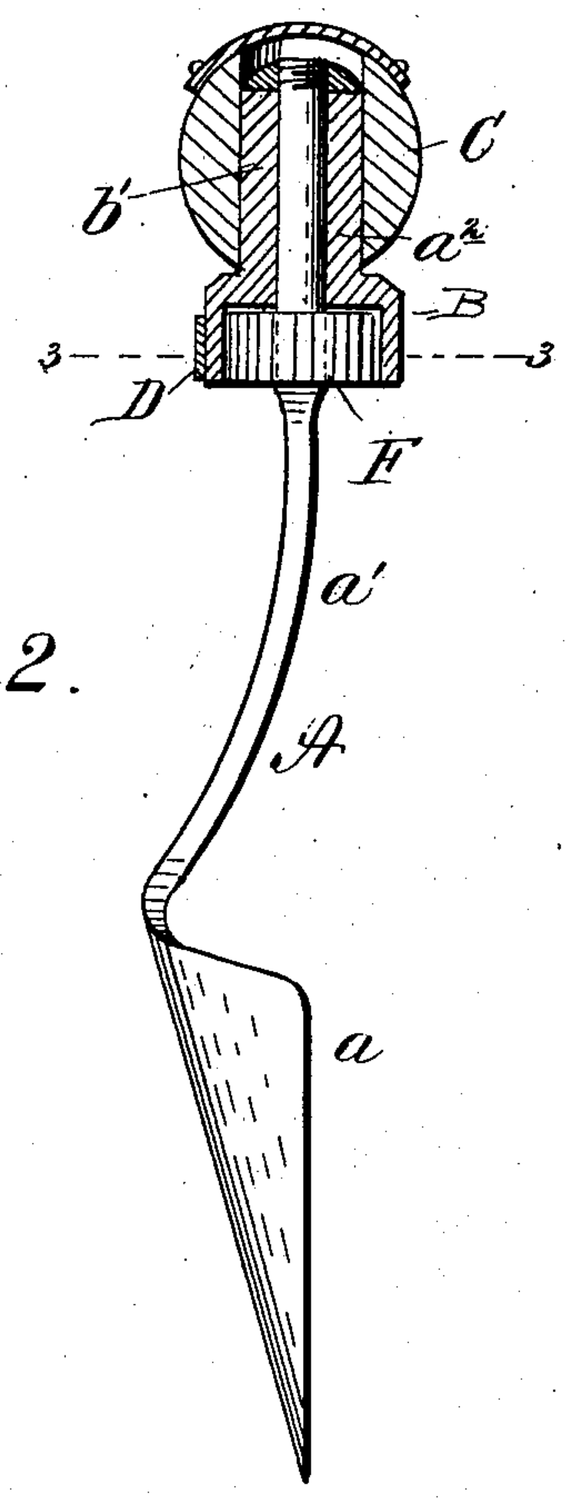

Fig. 2.

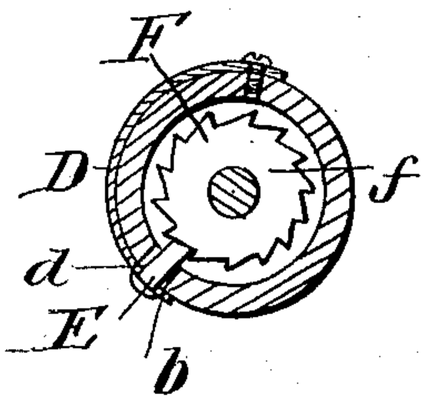

Fig. 3.

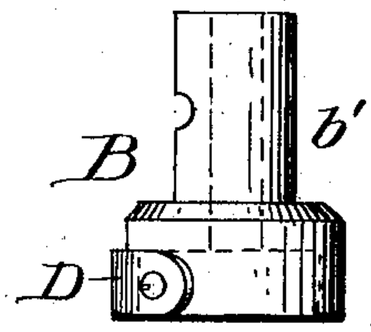

Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD G. HAYNE, OF OTTAWA, ILLINOIS.

TAP-BORER.

SPECIFICATION forming part of Letters Patent No. 737,231, dated August 25, 1903.

Application filed October 30, 1902. Serial No. 129,415. (No model.)

To all whom it may concern:

Be it known that I, EDWARD G. HAYNE, a citizen of the United States, residing at Ottawa, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Tap-Borers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a new and useful improvement in tap-borers or tools for cutting holes, such as in lead pipes.

The invention consists in the construction hereinafter pointed out.

In the drawings, Figure 1 represents a face view of the device. Fig. 2 represents an edge view of the device, partly in section. Fig. 3 represents a sectional view taken through the line 3 3, Fig. 2. Fig. 4 represents a side view of the top of the box where it is held in the handle.

In the drawings, the letter A represents the shank of the cutting-tool, having any desired shape at the point *a*, the drawings showing the concavo-convex or shovel shape. At its upper end *a'* this shank A has its tang formed angular and projecting therefrom a circular stem a^2. On the upper end *a'* at the stem a^2 there is secured around the shank A a ratchet F. The stem a^2 is held securely, but loosely, in a handle C, the ratchet F being located in a circular box B, secured to the under side of the handle C. This box B may have a tubular extension *b'*, which extends into but not through the handle C, the circular stem a^2 fitting snugly but loosely in such handle, but not passing through the handle C. In this box B is made a hole *b*, through which passes a pin E, which on the inside engages the teeth of the ratchet *f* of the ratchet F and on the outside is held to the loose end *d* of a flat spring D, the other end *d'* of which is secured to the outside of the box B.

In practice the point of the tool is started in the pipe where the hole is to be cut and a half-turn given by means of the handle C. The pin E, engaging a tooth of the ratchet F, turns the shank A. After giving this half-turn by reversing the handle a half-turn the pin E is drawn back around the teeth of the ratchet F. As soon as this backward half-turn is given the spring D forces the pin E down against another tooth *f* of the ratchet, and the tool is ready for another forward half-turn. In operation the handle C is grasped on the top with the pressure just over the point *a*, and as the shank does not pass through the handle this may be readily done. This operation is continued until the desired hole is cut.

I am aware of United States Patent No. 176,811, May 2, 1876, wherein is shown a screw-driver having a shank fitting loosely within the handle and provided with two ratchets, which are alternately engaged by a sliding spring-pawl. In this device the pawl is arranged vertically and held in position by its elasticity and has to be moved to engage first one and then the other ratchet, so as to turn the screw-driver in one direction and then in the other. This construction requires an elongated handle, such as a screw-driver has and is necessary in such a device which is used for turning in both directions, so as to turn a screw in and out, and hence a single ratchet and pawl would render the device inoperative as a screw-driver. My device is for cutting holes in a pipe and is intended to cut in one direction only, the pawl effectually preventing the device from turning backward, but permits only the handle to be turned back for another stroke. In this device the flat spring D is not arranged vertically, as it has no adjustment, as in the patented device, but is arranged horizontally and has one end, *d'*, securely fastened to the outside of the box B, the other, *d*, loose and carrying the pin E and does not depend upon its elasticity for holding it in place.

Having described my invention, what I claim is—

A tap-borer, consisting of the shank, A, having the cutting-point, *a*, the upper end, *a'*, and circular stem, a^2; the handle, C, within which is loosely fitted the circular stem, a^2, of the shank; the box, B, secured to the handle, C, and having the hole, *b*; the ratchet, F, se-

cured to the upper part of the shank, A, within the box, B; and the spring-pawl, D, secured on the outside of the box, B, at one end, *d'*, and carrying at its loose end, *d*, the pin, E; and the pin, E, passing through the hole, *b*, of the box, B, and engaging the ratchet, F, as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD G. HAYNE.

Witnesses:
FRANK SWEGER,
GEORGE P. HILLS.