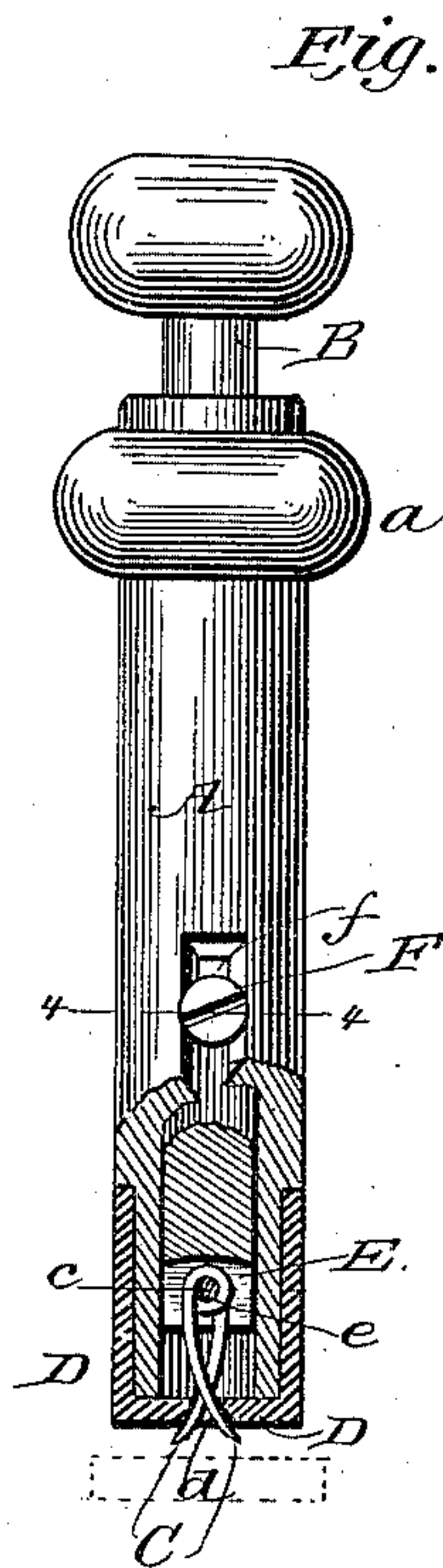
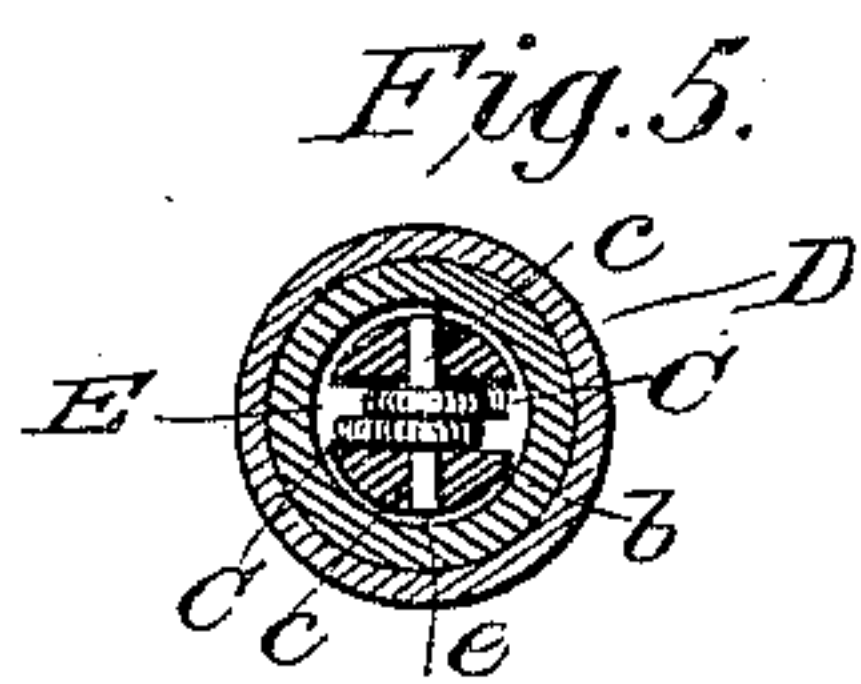
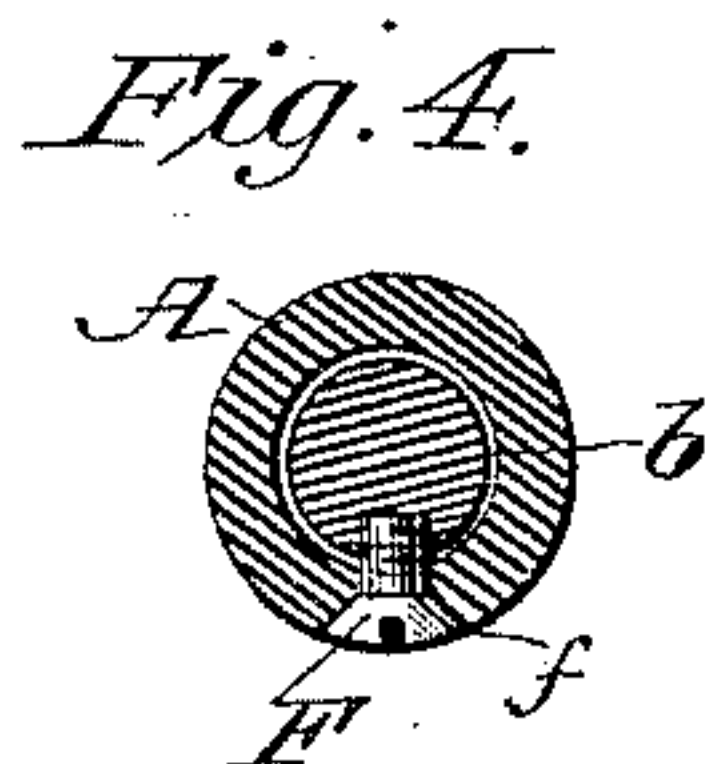
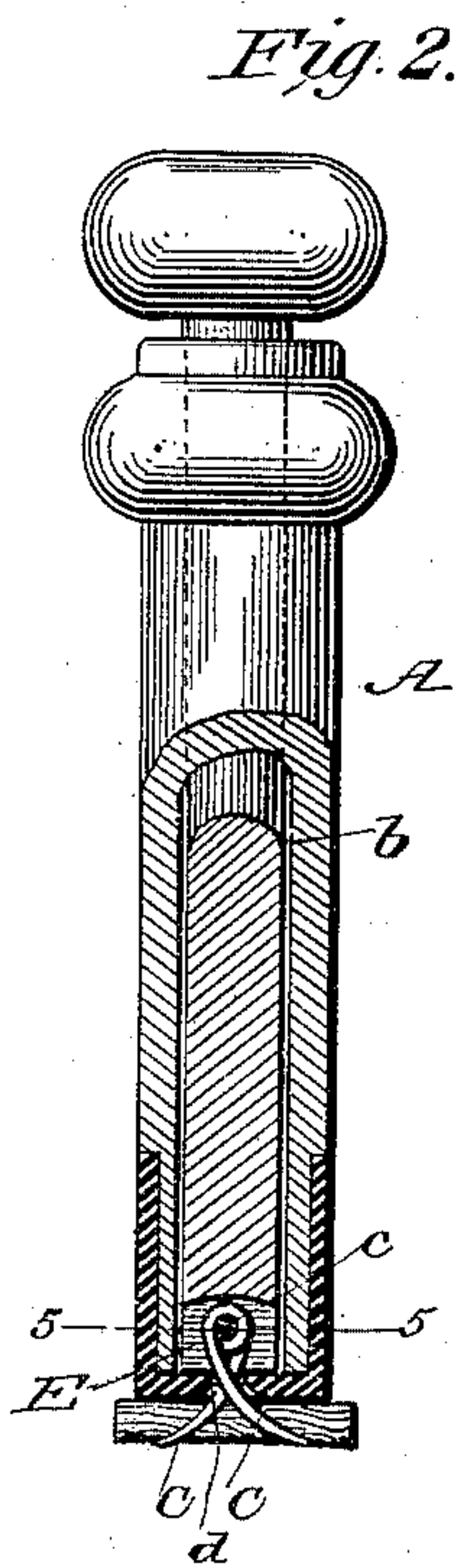
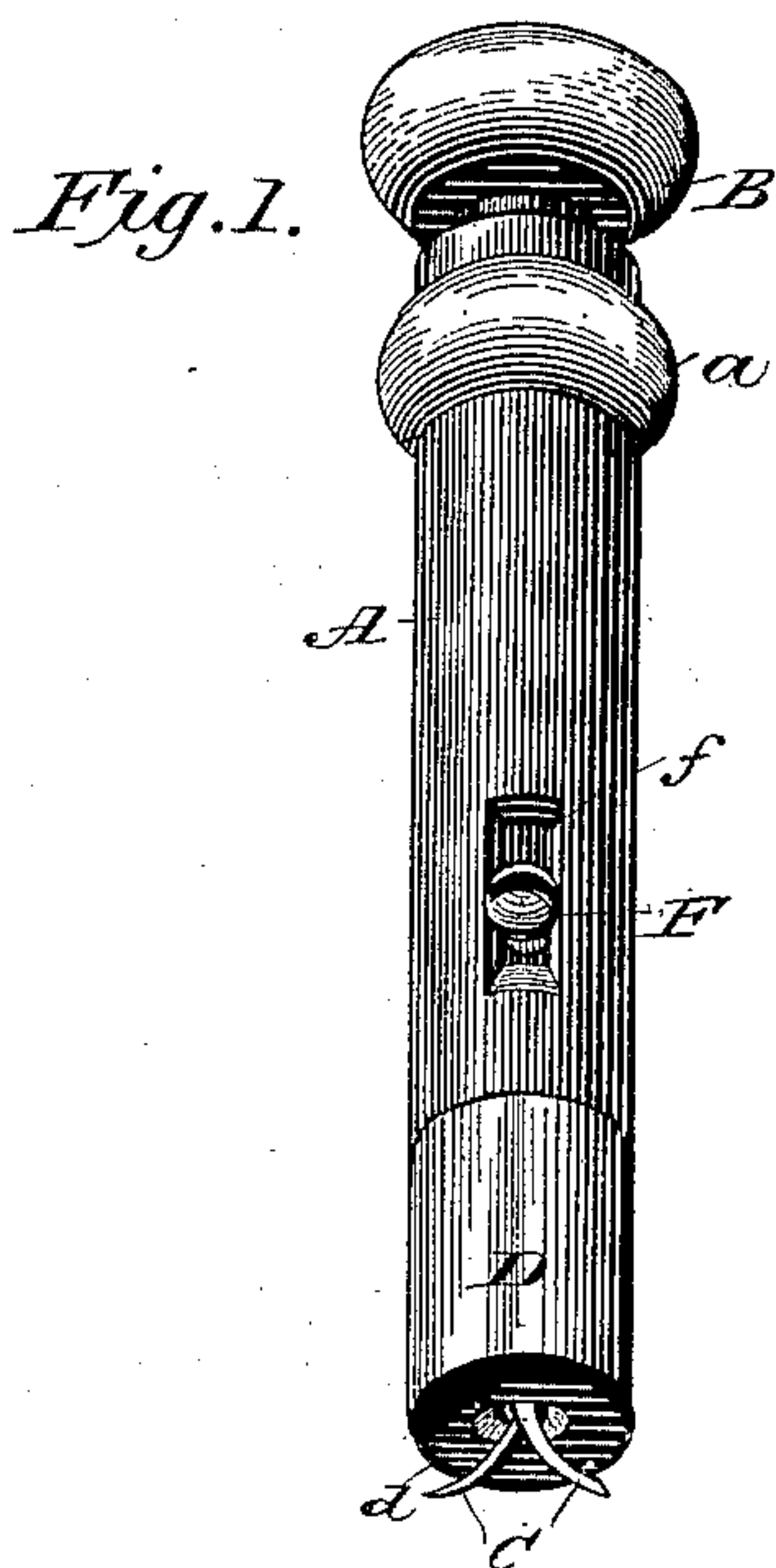


(No Model.)

M. A. TWITCHELL.
WAD PULLER.

No. 416,975.

Patented Dec. 10, 1889.



WITNESSES:
Fred G. Dieterich
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INVENTOR:
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UNITED STATES PATENT OFFICE.

MYRON A. TWITCHELL, OF MOVILLE, IOWA.

WAD-PULLER.

SPECIFICATION forming part of Letters Patent No. 416,975, dated December 10, 1889.

Application filed February 1, 1889. Serial No. 298,407. (No model.)

To all whom it may concern:

Be it known that I, MYRON A. TWITCHELL, of Menville, in the county of Woodbury and State of Iowa, have invented a new and useful Improvement in Wad-Pullers, of which the following is a specification.

My invention is an improved wad puller or extractor intended for use in removing wads from shells when it is desired to remove the load from the shell or when it is desired to extract such wad for any other purpose.

The invention consists in the novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view of my improvement. Figs. 2 and 3 are side views, partly in section. Fig. 4 is a cross-section on about line 4 4, Fig. 3; and Fig. 5 is a cross-section on line 5 5, Fig. 2.

My improved device consists of a body A and a plunger B, sliding therein and provided with the teeth or fingers C C. The body A has a longitudinal opening or bore b, and is provided at its lower end with a contracted opening d, such opening being preferably formed in a metallic plate D, forming the base of a ferrule, with which the body A is provided at such end; but manifestly the body A may be made in one piece. Near its upper end the body A is adapted at a to be gripped by the hand, preferably by forming an annular rib or flange at such point, as shown. The plunger B moves longitudinally in the body A, and has the teeth or fingers C supported on its lower end and movable through the guide-opening d, such fingers being so arranged that when the fingers are protruded through the opening d they will spread or flare outward in such manner as to enter the wad, against which the end of the puller is placed in a reverse diagonal direction, so that the wad when so entered is clamped by the fingers or teeth against the lower end of the body A and may be readily drawn from the shell.

In pivoting the teeth or fingers to the plunger-rod I form the inner or lower end of such rod with a slot E, across which extends a rod or pin e, and the fingers C have at their in-

ner ends eyes c, which receive the pin e, the fingers being so pivoted to the plunger-rod. When the fingers are closed or drawn into the body, their portions next to the plunger-rod are somewhat separated, while they converge from such portions toward their points, which rest in the opening d, as shown. Consequently these fingers, when forced through opening d, are flared outward in opposite directions.

In broadly referring to the invention the fingers may be said to constitute a gripper whereby to engage the wad. The longitudinal motion of the plunger-rod is limited by a pin or stud F thereon entering a longitudinal slot f in the body, as shown.

In using the device the plunger is drawn upward to adjust the fingers into the body A, and the device is then placed against the wad and the plunger depressed, which operation forces the teeth or fingers outward into the wad, gripping such wad. Now by drawing on the body A the wad may be readily extracted, and after being extracted from the shell the wad may be discharged by drawing the plunger-rod upward, as will be readily seen.

The device, as will be appreciated, is quite simple, and is small enough to be conveniently carried in the pocket.

Having thus described my invention, what I claim as new is—

1. The improved wad-puller herein described, comprising the body portion and the plunger movable in said body portion, and provided at its inner or lower end with a laterally-operating gripper whereby to engage the wad, substantially as set forth.

2. The improved wad-puller herein described, consisting of the body portion A, having a longitudinal bore and provided at the lower end thereof with a contracted opening, the plunger-rod movable in said body portion, and the teeth or fingers constituting the gripper, such fingers being pivoted at one end to the plunger-rod and movable within the contracted opening at the end of the body portion, substantially as set forth.

3. In a wad-extractor, the combination, with the body portion having a contracted open-

ing at its lower end, of the gripping teeth or fingers movable through said opening and adapted in use to clamp the wad against the end of the body portion, together with a support for said teeth or fingers, substantially as set forth.

4. The wad-puller, substantially as herein described and shown, consisting of the body portion having a rib *a* and a longitudinal bore *b*, end plate D, having contracted opening *d*, the plunger-rod having a slot E and cross-rod or pin *e* at its inner end, and the teeth or fingers pivoted at their inner ends on such pin or cross-rod, substantially as set forth.

5. The improved wad-puller, substantially as herein described, consisting of the body portion, a gripper adapted to engage the wad and movable laterally into and out of such engagement, and the plunger movable longitudinally with respect to the body portion and arranged to operate the gripper, substantially as set forth.

MYRON A. TWITCHELL.

Witnesses:

ANDERSON T. WRIGHT,
CHARLES A. WRIGHT.