

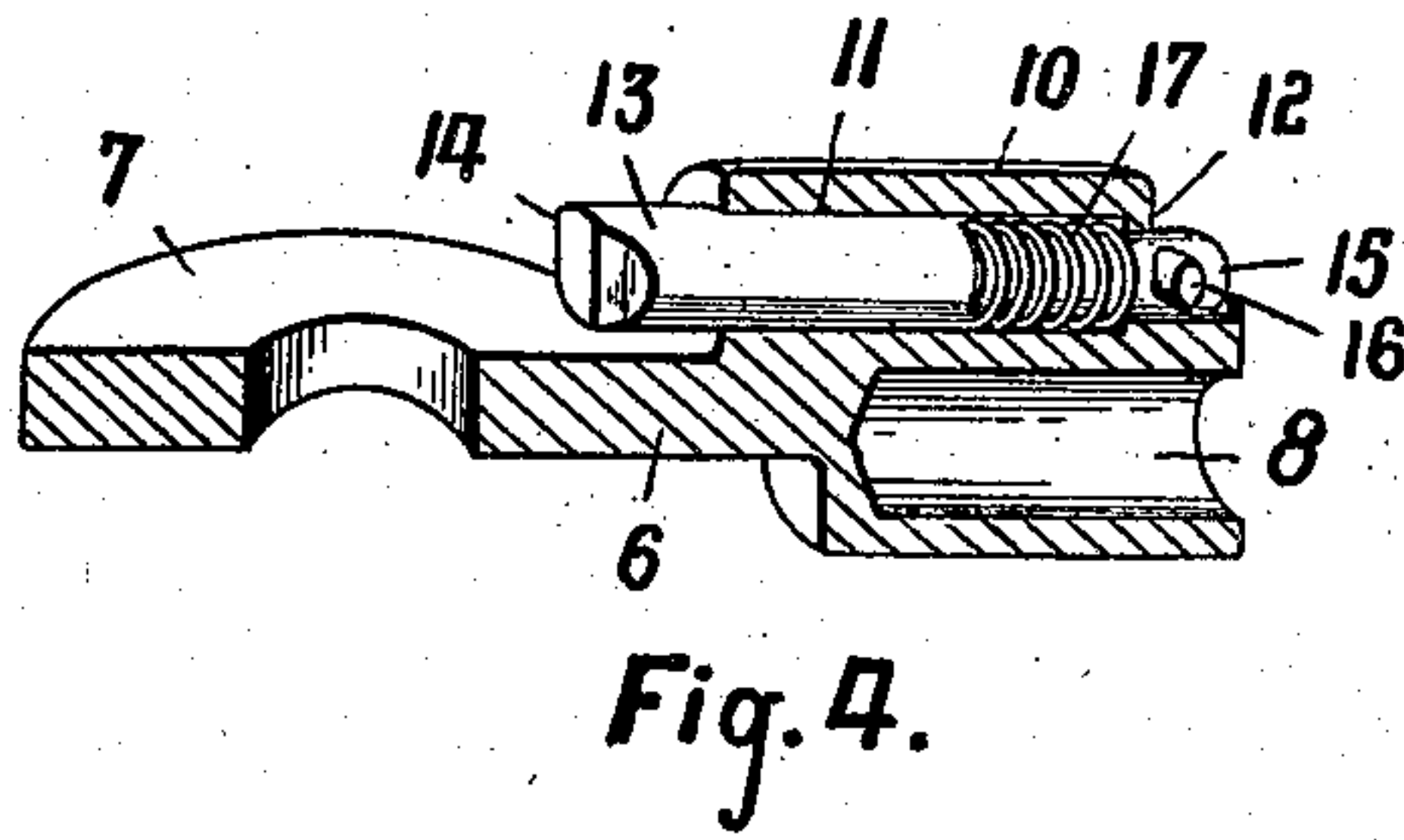
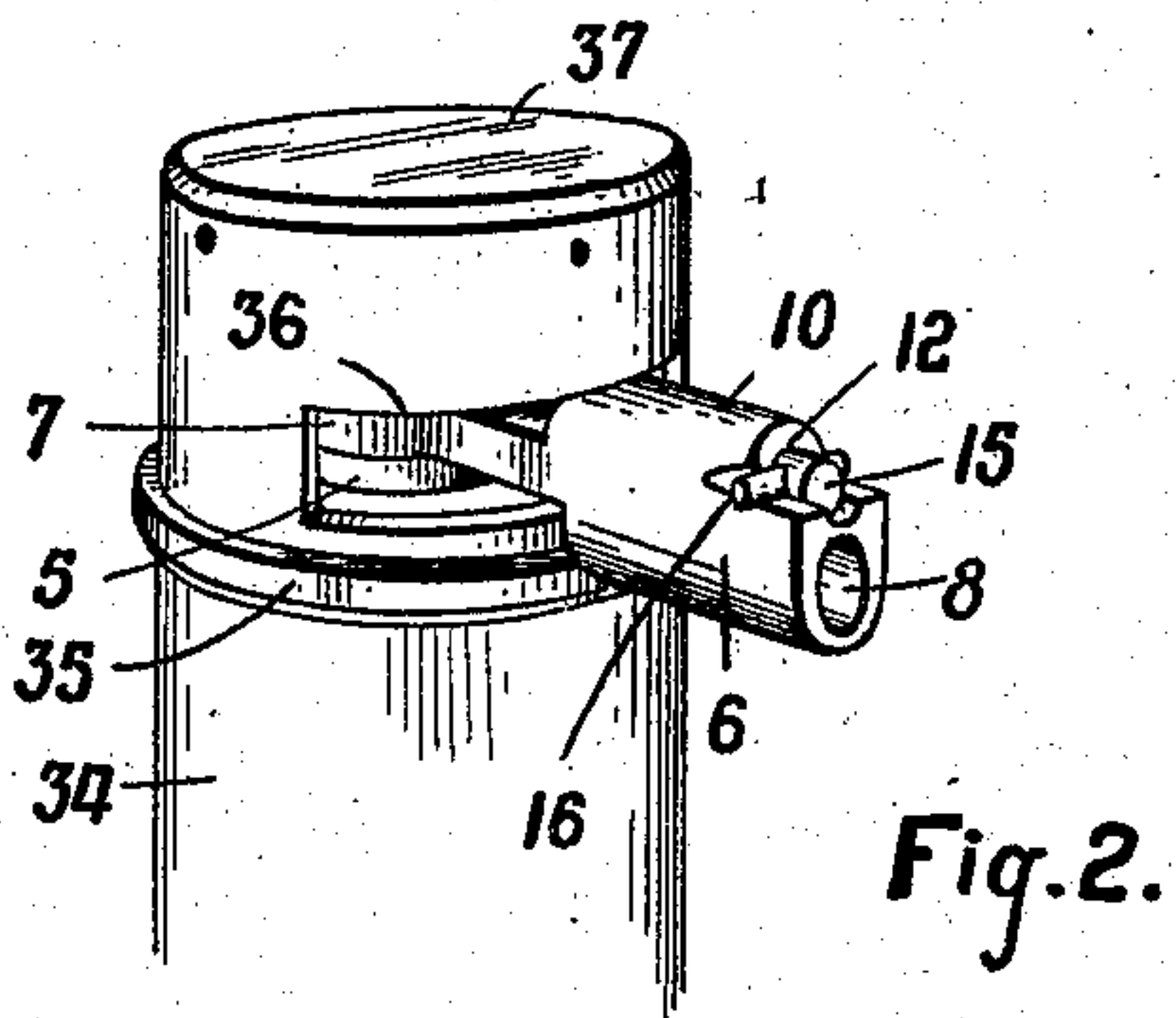
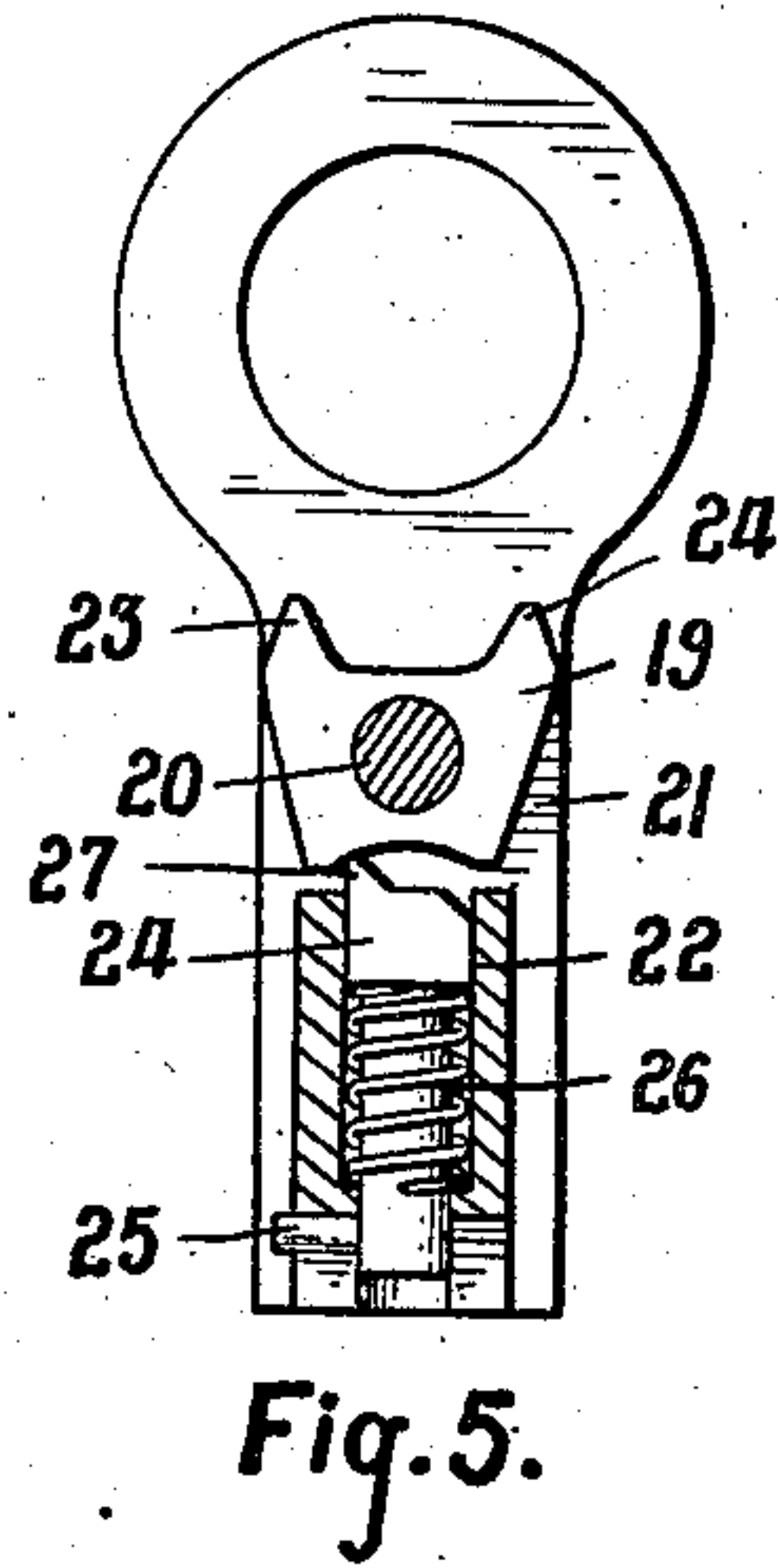
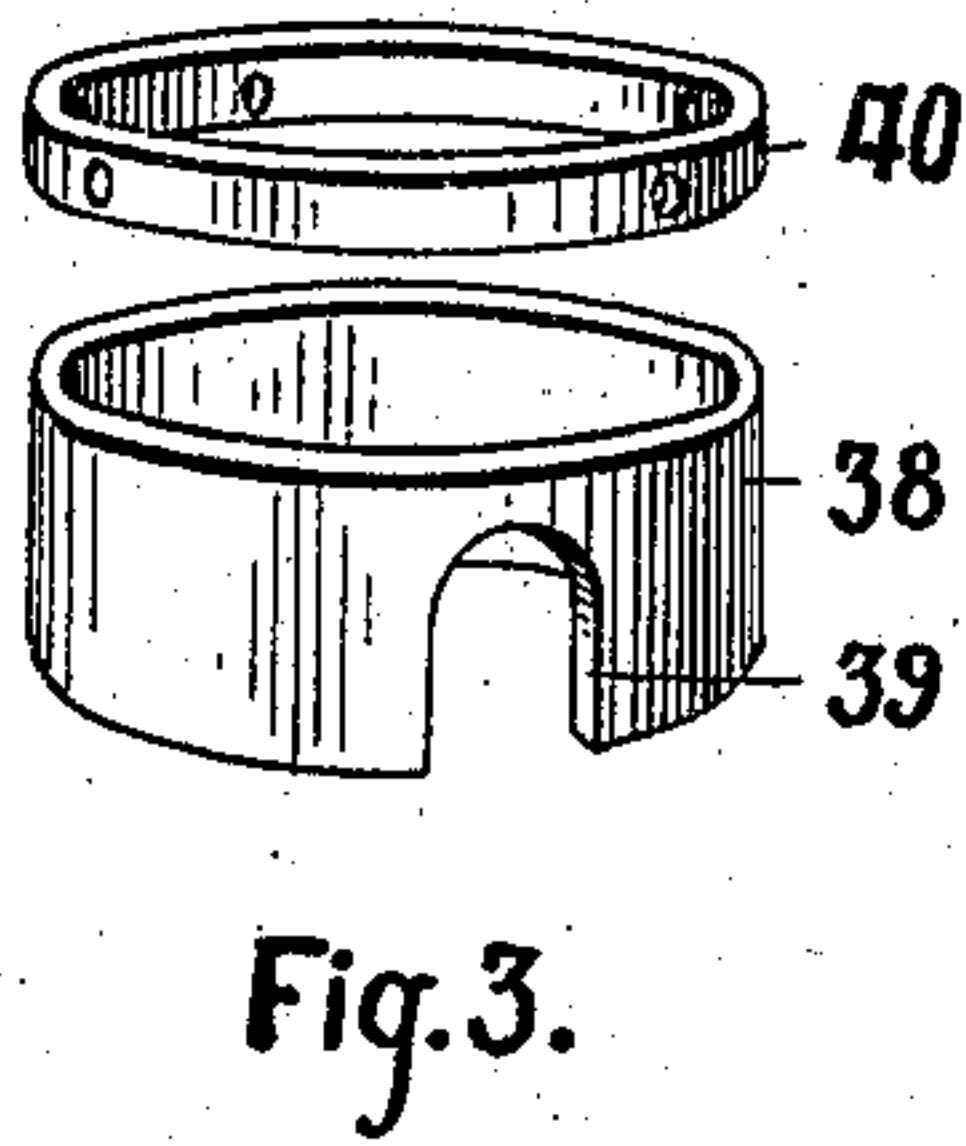
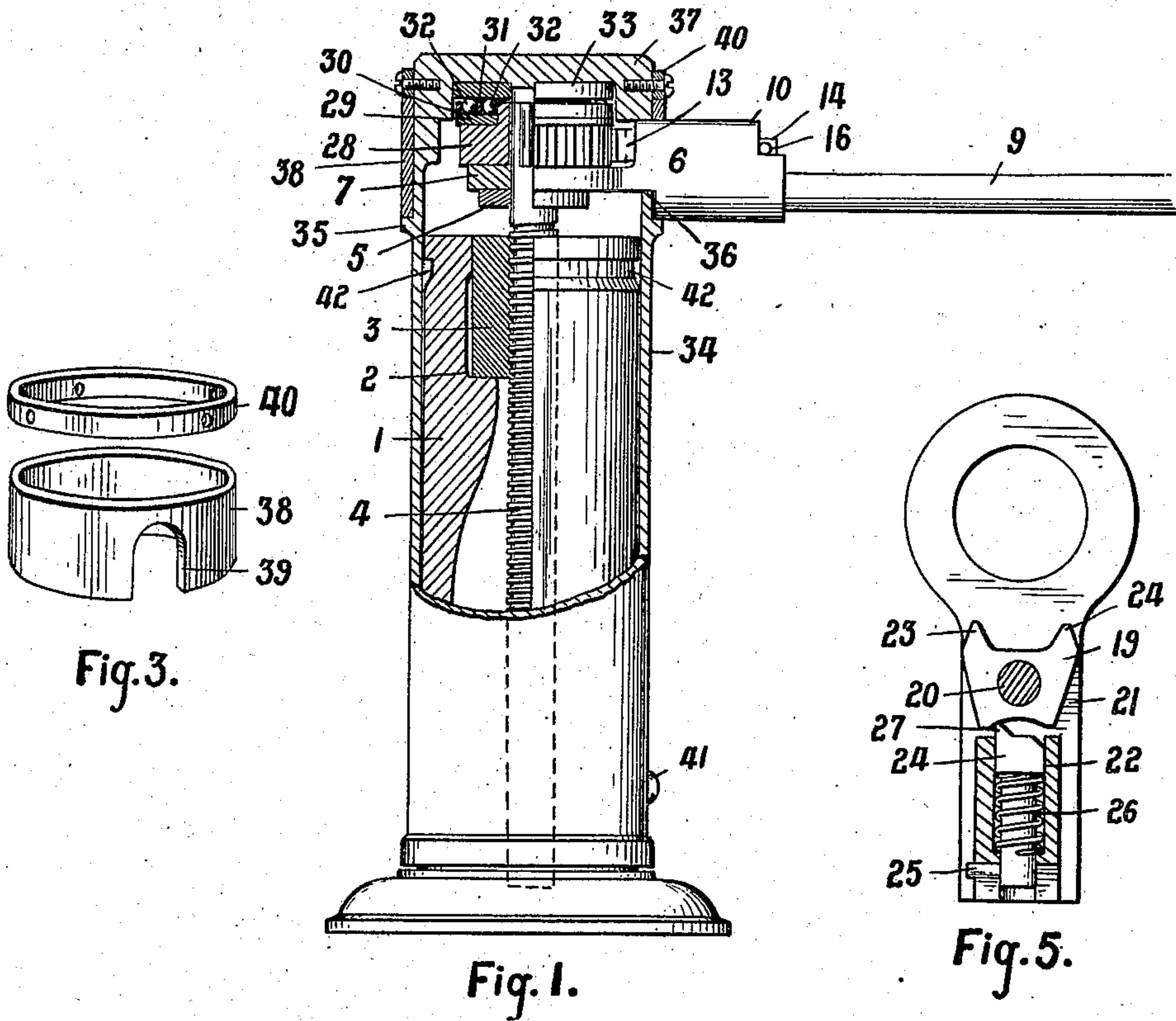
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LIFTING JACK.

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Witnesses.

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UNITED STATES PATENT OFFICE.

RICHARD ORION HOPKINSON AND ROBERT LAVERS EDGCOMBE, OF WATERVILLE, QUEBEC, CANADA.

LIFTING-JACK.

No. 885,050.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed September 6, 1907. Serial No. 391,680.

To all whom it may concern:

Be it known that we, RICHARD ORION HOPKINSON and ROBERT LAVERS EDGCOMBE, subjects of the King of Great Britain, and residents of the town of Waterville, in the Province of Quebec, in the Dominion of Canada, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

10 The invention relates to improvements in lifting jacks, as described in the present specification and illustrated by the accompanying drawings that form part of the same.

15 The invention consists essentially in the novel arrangement and construction of parts whereby the member engaging a toothed wheel mounted on the jack screw moves in a horizontal plane and is suitably incased to one side of the shell portion of the device.

20 The objects of the invention are to devise a simple and compact construction, to reduce the dimensions of the machine in proportion to the rise of its screw and to eliminate the use of beveled gears, as the main feature in the lifting of the shell.

25 In the drawings, Figure 1 is a side elevation of the jack partially in section showing one form of operating the toothed member mounted on the screw from the lever socket piece. Fig. 2 is a perspective detail of the upper portion of the jack showing the arrangement of lever socket illustrated in Fig. 1 and having the ring shield removed. Fig. 3 is a perspective detail of the ring shield and the locking ring thereabove. Fig. 4 is an enlarged perspective detail of the lever socket and of the spring-held pawl in said socket, in longitudinal section. Fig. 5 is an enlarged plan view in detail of another form of spring-held pawl.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, 1 is the standard, hollow and having suitable circular recess 2 in its inner walls in which the nut 3 is fixed.

4 is the main screw turning in the nut 3.

5 is a collar fixedly mounted on the screw 4 immediately above the threaded portion thereof.

50 6 is the lever socket piece having the inner ring portion 7 loosely encircling the screw 4 immediately above the collar 5, the socket 8 into which the handle 9 is inserted and the boss 10 above the socket 8 and through

which the orifice 11 extends, said orifice having an inwardly extending flange 12 therearound at its outer end.

13 is a pawl inserted in the orifice 11 and extending inwardly therebeyond having the toothed inner end 14 and the reduced outer end 15 extending beyond the flanged end of the orifice 11 and a cross-head 16 secured thereto.

17 is a spiral spring encircling the pawl 13 between the shoulder formed by the reduced outer end 15 and the flange 12 and holding the pawl to its inward position.

It will thus be seen that by pulling the pawl outwardly so that the cross head 16 is beyond the outer end of the lever socket piece 6, the tooth 14 of said pawl may be reversed by simply rotating said pawl in the orifice 11.

In Fig. 5, 19 is another form of pawl. The pawl 19 is pivoted on the pin 20 in a prepared recess 21 at the inner end of the orifice 22 and projects inwardly beyond said recess having the two beveled teeth 23.

24 is a pin introduced in the orifice 22 and having a shoulder intermediate of its length and reduced outer end similar to the stem portion of the pawl 19 and a corresponding cross head 25 at its outer extremity. The pin 24 is encircled by a spiral spring 26 between a suitable stop at the outer end of the orifice 22 and a shoulder formed by the reduced portion, said spring exerting a continuous inward pressure on said pin, the inner end of said pin being shaped so as to have an inwardly extending point 27 at one of its sides, consequently on whichever side the inwardly extending point 27 is, that side will press on the back of the pawl 19 and swing said pawl on its pivot and thus hold the tooth on that side to the extreme inner position. The turning of the pin 24 in its orifice will bring the point 27 to the other side and swing the pawl 19 to its other position, swinging the tooth on that side inwardly.

28 is a toothed wheel fixedly mounted on the screw 4 immediately above the ring portion 7 of the lever socket 6 and engaged by the pawl 13, so that any pull on the handle 9 will turn the toothed wheel 28 and consequently the main screw 4 and the said pawl being spring-held, the handle may be pushed backwardly without turning said wheel 28, as the tooth of said pawl is beveled on one

side and readily slides from one tooth to another of the toothed wheel 28 in one direction.

29 is a disk plate having a central orifice and loosely encircling the upper end of the main screw 4 and resting on the toothed wheel 28, said disk plate having an upwardly extending flange 30 from the rim thereof and supporting a plurality of rings 31 of smaller diameter, said flange and said rings forming ball races into which are introduced the balls 32.

33 is a disk plate having a central orifice and loosely encircling the upper end of the main screw 4, said disk plate 33 resting on the balls 32.

34 is a shell carried upwardly by the screw 4, said shell having an annular shoulder 35 towards its upper end and a circumferential opening 36 at one side and above said shoulder, the said lever socket piece 6 extending through said opening 36 and moving from end to end therein.

The top 37 of the shell 34 is removable, so that the pieces may be readily assembled, or the said top 37 may be cast with the shell, as in assembling the shell may be turned head down and the various parts placed therein and, surrounding the upper end of the shell, the ring shield 38 is placed having the slot 39 through which the lever socket piece extends.

The ring shield 38 moves with said lever socket on the motion of the latter from end to end of the circumferential opening 36 and is for the purpose of preventing the entrance of dust to the operating parts.

40 is a locking ring securely attached to the shell and holding the ring shield 38 in place. The parts thus assembled, it will be readily understood that any pull on the handle will rotate the toothed wheel 28 and consequently the main screw 4 and as the pawl tooth is beveled, at each push rearwardly on the handle, said pawl will slip from tooth to tooth of the wheel 28 and on the next pull said wheel will again be rotated continuously turning the main screw 4 in the fixed nut 3, until the said screw reaches its top position, when the spring-held latch bolt 41, secured in the wall

of the shell 34 at the lower end thereof, will spring into the groove 42 at the top end of the standard 1 and in order to lower the jack, said bolt is released from engagement with said groove by prying its head upwardly from the wall of said shaft.

Many minor departures from general construction may be made in the building of this particular jack, the main features being the peculiar arrangement of the lever socket piece in relation to the main screw for the purpose of eliminating bevel gears as the main operating members and yet provide an equal stiff construction.

What we claim as our invention is:

In a lifting jack, the combination with the standard and the main screw turning therein, of a lever socket piece having an inner ring extension therefrom suitably supported on said screw, a socket and a pawl orifice having an inwardly extending flange at its outer end forming a stop, a toothed wheel fixedly mounted on said screw above said inner ring extension, a plurality of thrust plates loosely mounted on said screw above said toothed wheel, a shell inclosing said standard, said screw and said mechanism, and having a circumferential opening through which said lever socket piece extends, a pawl having a reduced outer portion and a cross head at its outer extremity and a beveled tooth at its inner extremity and extending inwardly through said pawl orifice, a spiral spring encircling the reduced portion of said pawl between the flanged wall of said orifice and shoulder formed at the beginning of the reduced portion, and a ring shield having an opening for said lever socket piece and rotating on said shell with the horizontal movement of said socket piece and securely locked thereon by a fixed ring, substantially as described.

Signed at city of Montreal Province of Quebec, Canada, this 31st day of August 1907.

RICHARD ORION HOPKINSON.
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Witnesses:

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