

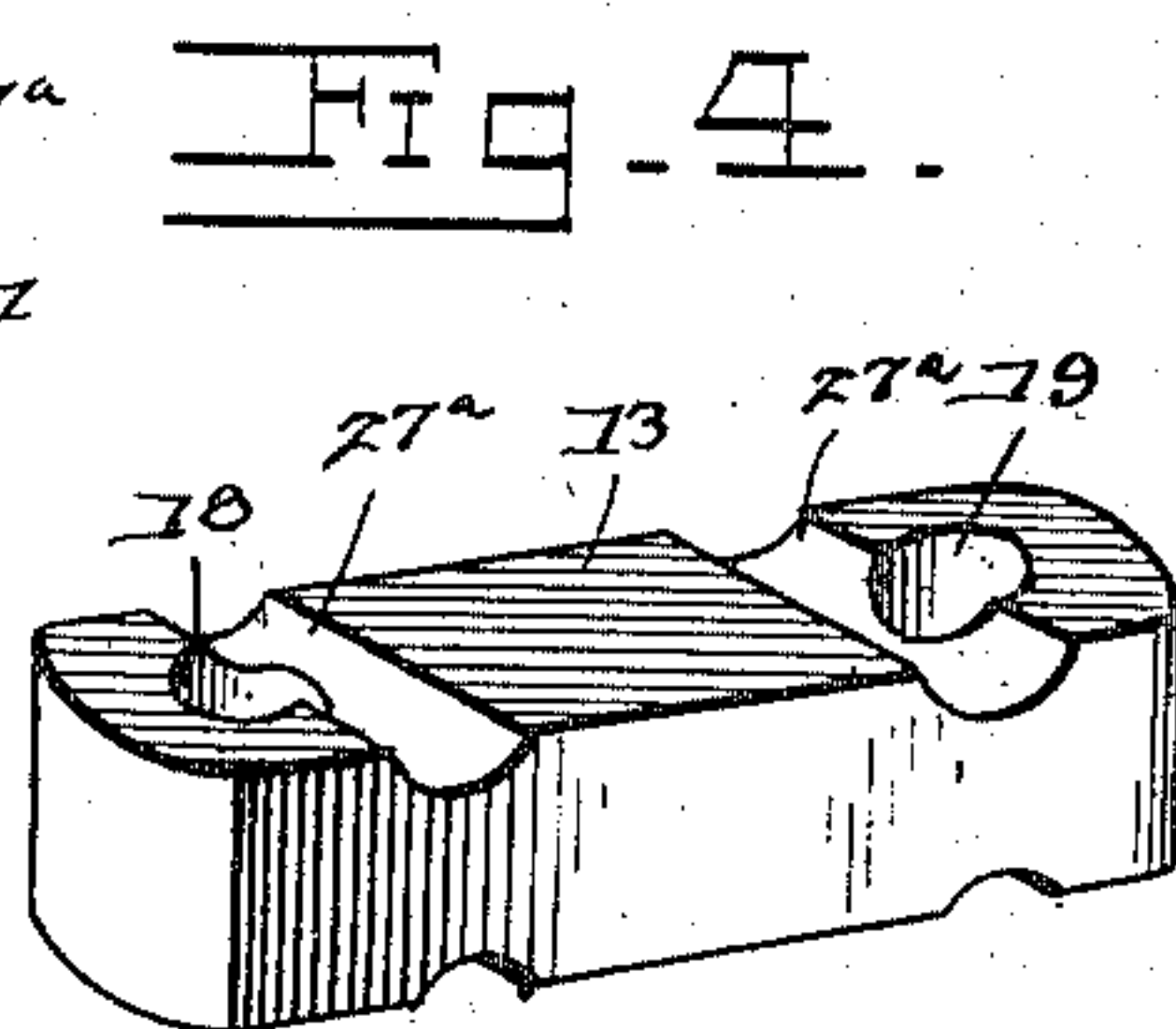
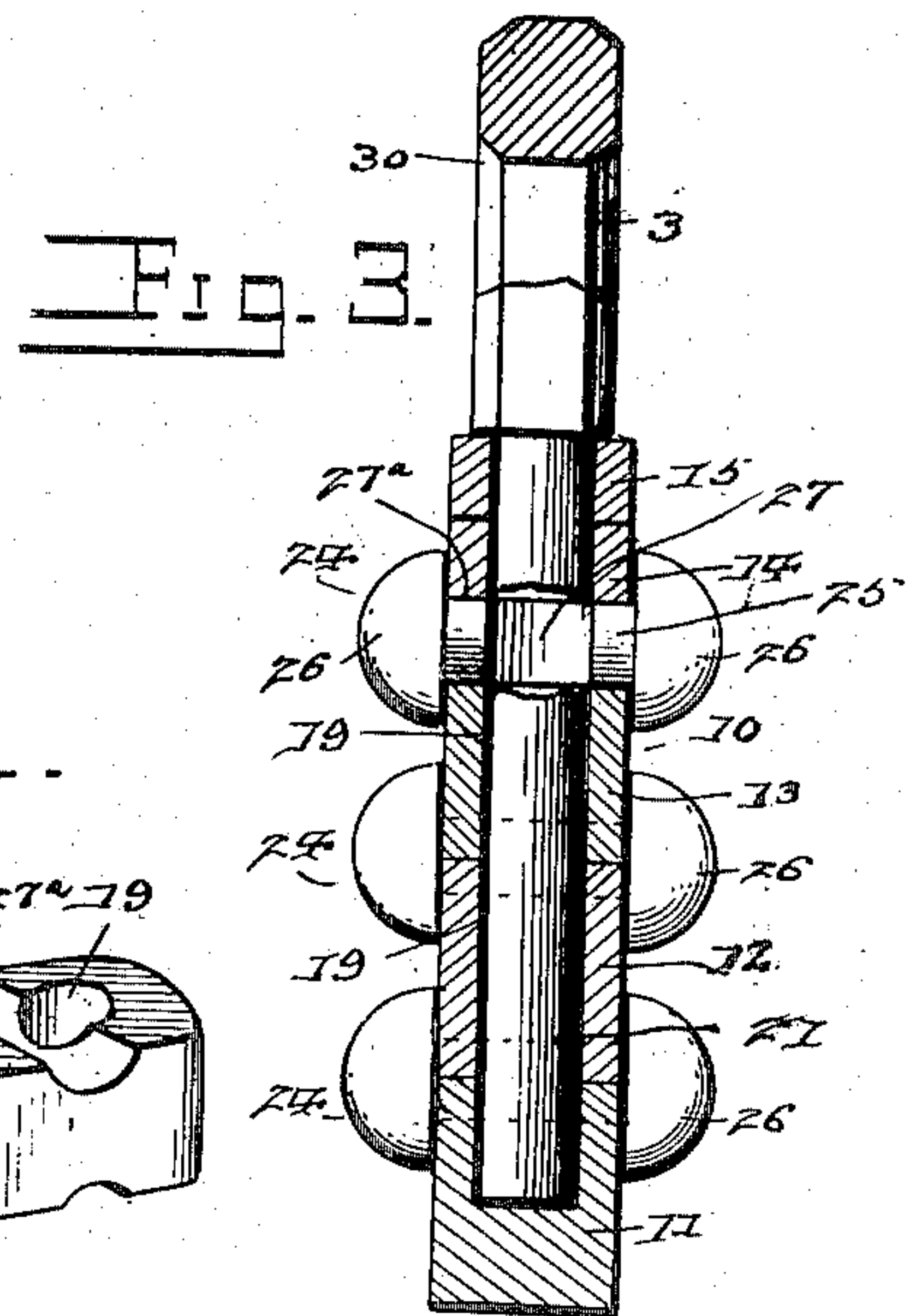
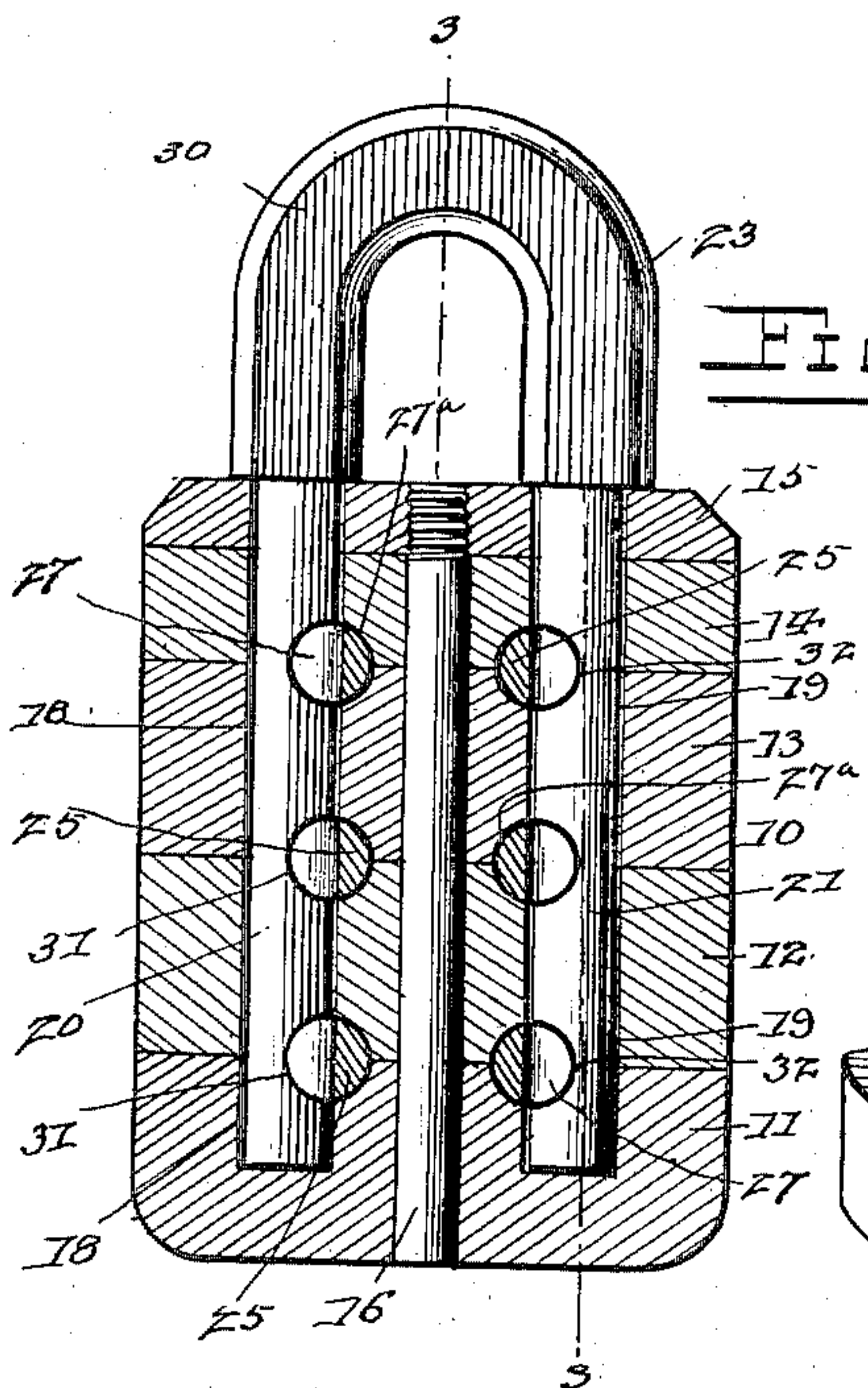
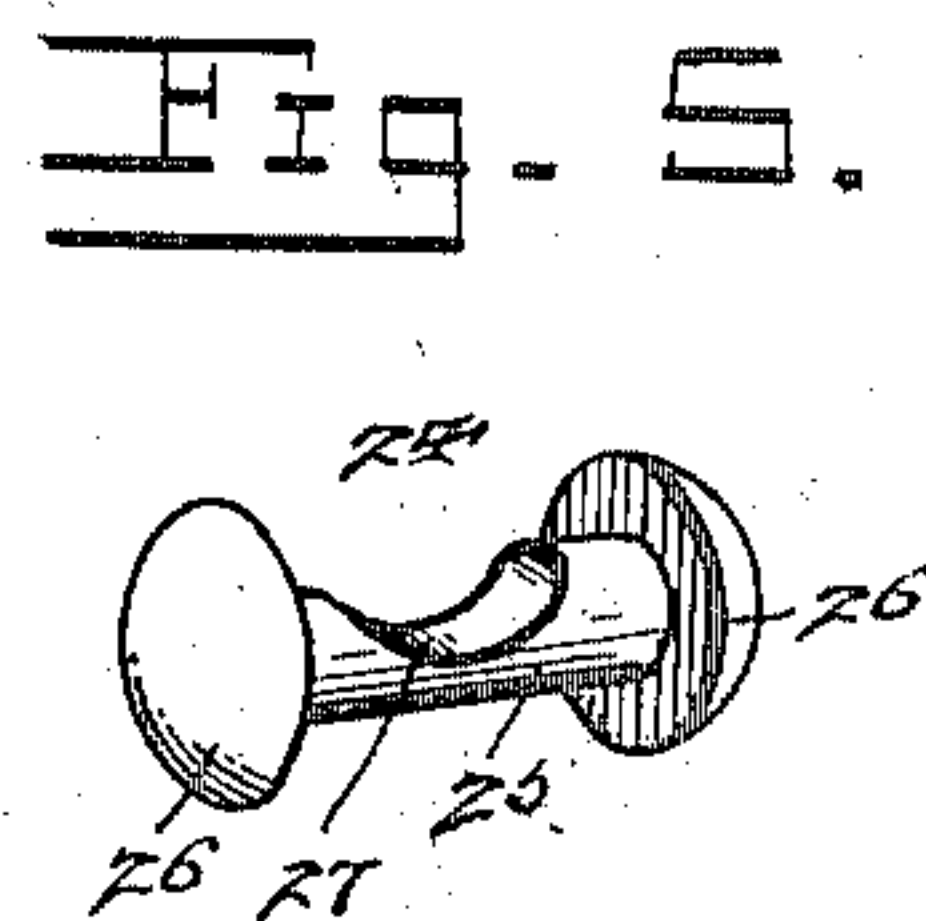
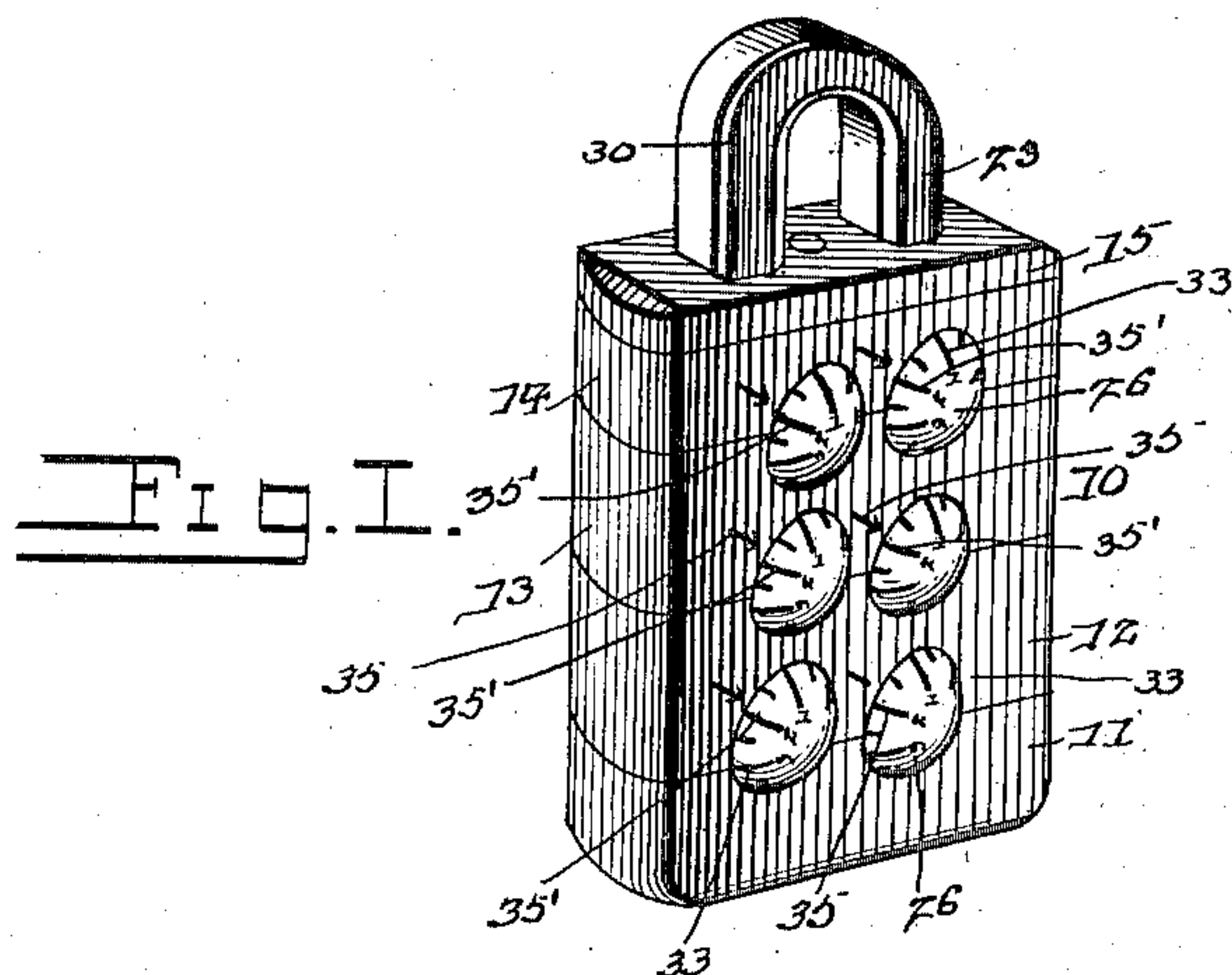
No. 661,560.

Patented Nov. 13, 1900.

A. N. STALL.
COMBINATION LOCK.

(Application filed Aug. 20, 1900.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

ADAM NEWTON STALL, OF GREENVILLE, SOUTH CAROLINA.

COMBINATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 661,560, dated November 13, 1900.

Application filed August 20, 1900. Serial No. 27,476. (No model.)

To all whom it may concern:

Be it known that I, ADAM NEWTON STALL, a citizen of the United States, residing at Greenville, in the county of Greenville and State of South Carolina, have invented a new and useful Combination-Lock, of which the following is a specification.

This invention relates to combination-locks in general, and more particularly to combination-padlocks, the object of the invention being to provide a simple and efficient construction which will be durable and cheap of manufacture and wherein the combination may be readily changed, the parts of the lock being held in their coöperative positions by means of the shackle, which when removed permits of changing the combination.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a perspective view showing the complete lock. Fig. 2 is a section taken in the plane of the shackle, the shackle being shown in elevation, as also the connecting-bolt. Fig. 3 is a section taken at right angles to the section represented in Fig. 2 and through the recess which receives a leg of the shackle, said leg being shown in elevation and being partly broken away to show one of the locking-pins, the section being taken on line 3 3 of Fig. 2. Fig. 4 is a perspective view showing one of the members of the body of the lock. Fig. 5 is a detail perspective view showing one of the locking-pins.

Referring now to the drawings, the body 10 of the lock is shown substantially rectangular in form, although it will be understood that it may have any desired specific shape within certain limits; and it consists of a plurality of separable sections 11, 12, 13, 14, and 15, the lower section carrying a bolt 16, which is passed upwardly through perforations in the sections thereabove, the uppermost section having its perforation threaded to screw onto the upper threaded end of the bolt. The bolt acts to hold the sections against separation, and these sections cannot be disassembled without first removing the upper section 15 from the bolt.

At each side of the line of perforations 17, which receives the bolt 16, there is formed a second line of perforations 18 and 19, respec-

tively, the perforations in the lowermost section 11 extending only part way therethrough, as shown, and with these lines of perforations are engaged the legs 20 and 21 of a shackle 23.

To hold the shackle within the body of the lock, rotatable locking-pins 24 are provided, each pin comprising a central cylindrical body portion 25, having heads 26 at both ends, as shown in detail in Fig. 5 of the drawings, and in the cylindrical body portion of each pin is formed a transverse groove 26, which is semi-circular in cross-section.

The locking-pins 24 are engaged with perforations 27^a, formed transversely through the body 10 of the lock, said perforations being circular in cross-section and one-half of the cross-section of each perforation or slightly more than one-half thereof intersecting its corresponding or respective series of perforations 18 and 19. The grooves 27 of the pins are of such dimensions and locations that the pins may be rotated to cause the grooves thereof to aline with their respective lines of perforations 18 and 19 and form continuous passages through the body of the lock, or may be further rotated to lie with their unbroken surfaces transversely of the lines of perforations.

The shackle of the lock comprises parallel legs 20 and 21, having a connecting-web 30, the legs being adapted to enter and fit snugly in the lines of perforations 18 and 19, respectively, said legs having transverse grooves 31 and 32 in the inner faces of their legs, which when the shackle is in proper position aline with the transverse perforations 27^a. When in such alinement, when the pins are rotated to cause their unbroken portions to pass transversely through the lines of perforations 18 and 19 they will engage the transverse grooves 31 and 32, respectively, and will hold the shackle from withdrawal. When the pins are rotated to aline their transverse grooves with the lines of perforations, the shackle may be readily lifted from the body 10. It will be noted that the lines of perforations 18 and 19 are continued through the uppermost section 15 of the body of the lock, whereby when the shackle is in place it prevents rotation of this upper member and precludes dismemberment of the lock-body.

The perforations 27 are formed half in each

of the mutually-adjacent sections of the body 10, as shown, and this arrangement of the perforations provides for changing the combination of the lock in the manner to be presently explained.

The heads 26 of the locking-pins are provided with radial marks 33, of which one mark 35' on each head is the key-mark of that pin. When the key-mark is in proper position, the pins are in position to permit withdrawal of the shackle. A mark in the form of a dot 34 or an indentation is formed upon the head of each pin, the angular distances of these dots from the key-marks of their respective heads being different, and upon the body of the lock adjacent each of the heads is a key-mark 35 in the form of an arrow or having any other desired appearance.

To unlock the lock, each of the pins is rotated until its mark 34 is adjacent to its respective key-mark 35. The key-marks 35' of the heads of the pins will then be different distances from the marks on the body 10. The heads have the marks 33 thereon indicated by numbers, as shown, and thus, by then moving each head through a certain distance or a certain number of marks the key-mark of the head is brought to aline with the key-mark of the body and the lock is unlocked.

When the lock is assembled, the pins of the upper sections unlock at certain numbers, the next lower pins at other numbers, and the lowermost pins at certain other numbers. If then the sections 12 and 13 and their pins be interchanged, the combination will be changed.

It will of course be understood that in practice any desired number of sections may be used and that various other modifications of the specific construction shown may be made, and, furthermore, that any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

1. A combination-lock comprising a sectional body portion, a bolt for holding the sections in coöperative relation and with which one end section is removably engaged to hold it in place, a locking-shackle engaged with the sections to prevent independent rotation thereof with respect to the bolt to re-

move the removable end section, and locking-pins for holding the shackle in place, said pins being disposed in engagement with mutually-adjacent sections to prevent rotation thereof upon the bolt when the shackle is removed.

2. A lock comprising a body portion built up of sections, a bolt carried by one end section and passed through the remaining sections, the second end section having threaded engagement with the bolt, a shackle for engagement with the sections, means for holding the shackle against removal, said shackle being adapted when in place to prevent unscrewing of the end section, and locking-pins for the shackle disposed in engagement with the mutually-adjacent sections to prevent rotation of the sections upon the bolt when the shackle is removed.

3. A combination-lock comprising a body portion built up of sections, said body portion having transverse perforations formed partly in mutually-adjacent sections, locking-pins in the perforations, and a shackle adapted to enter the body and for engagement by the locking-pins, the sections of the body and their pins being interchangeable to vary the combination.

4. A combination-lock comprising a body portion built up of sections, a bolt carried by one end section and passed through the remaining sections, the opposite end section having threaded engagement with the bolt to hold the intervening sections thereon, additional alining perforations in the sections, a shackle for engagement with said alining perforations and having slots therein, transverse perforations formed partly in each of mutually-adjacent sections of the body and intersecting their respective lines of perforations, locking-pins in the transverse perforations and adapted for rotation into and out of the slots of the shackle, the sections of the body being interchangeable with their pins, to permit of changing the combination of the lock.

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

ADAM NEWTON STALL.

Witnesses:

H. C. MARKLEY,
T. B. WHITMIRE.