

No. 677,196.

Patented June 25, 1901.

J. W. FREEMAN.
COMBINED DOOR KNOB AND BELL.

(Application filed Mar. 22, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

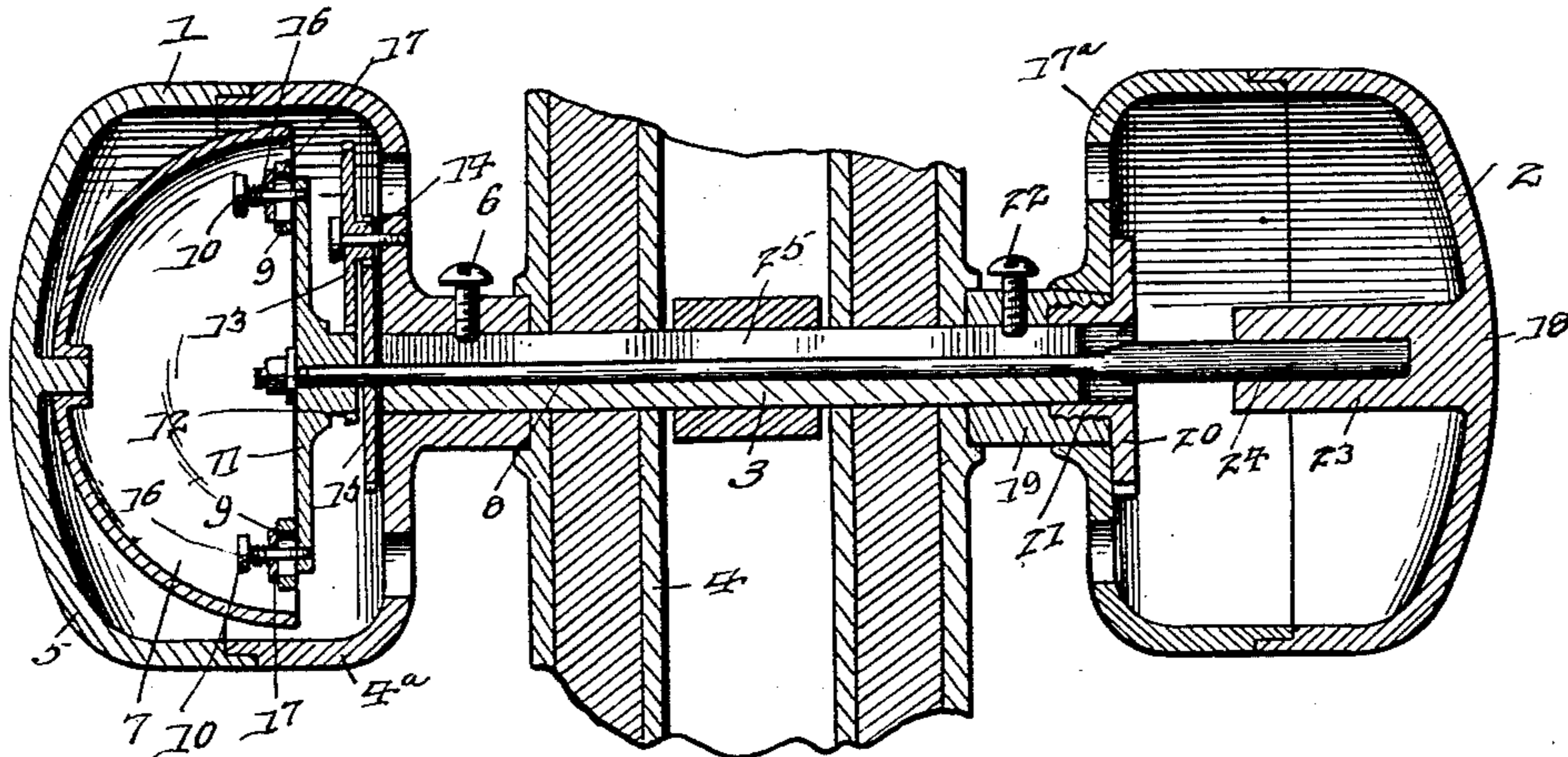


Fig. 2.

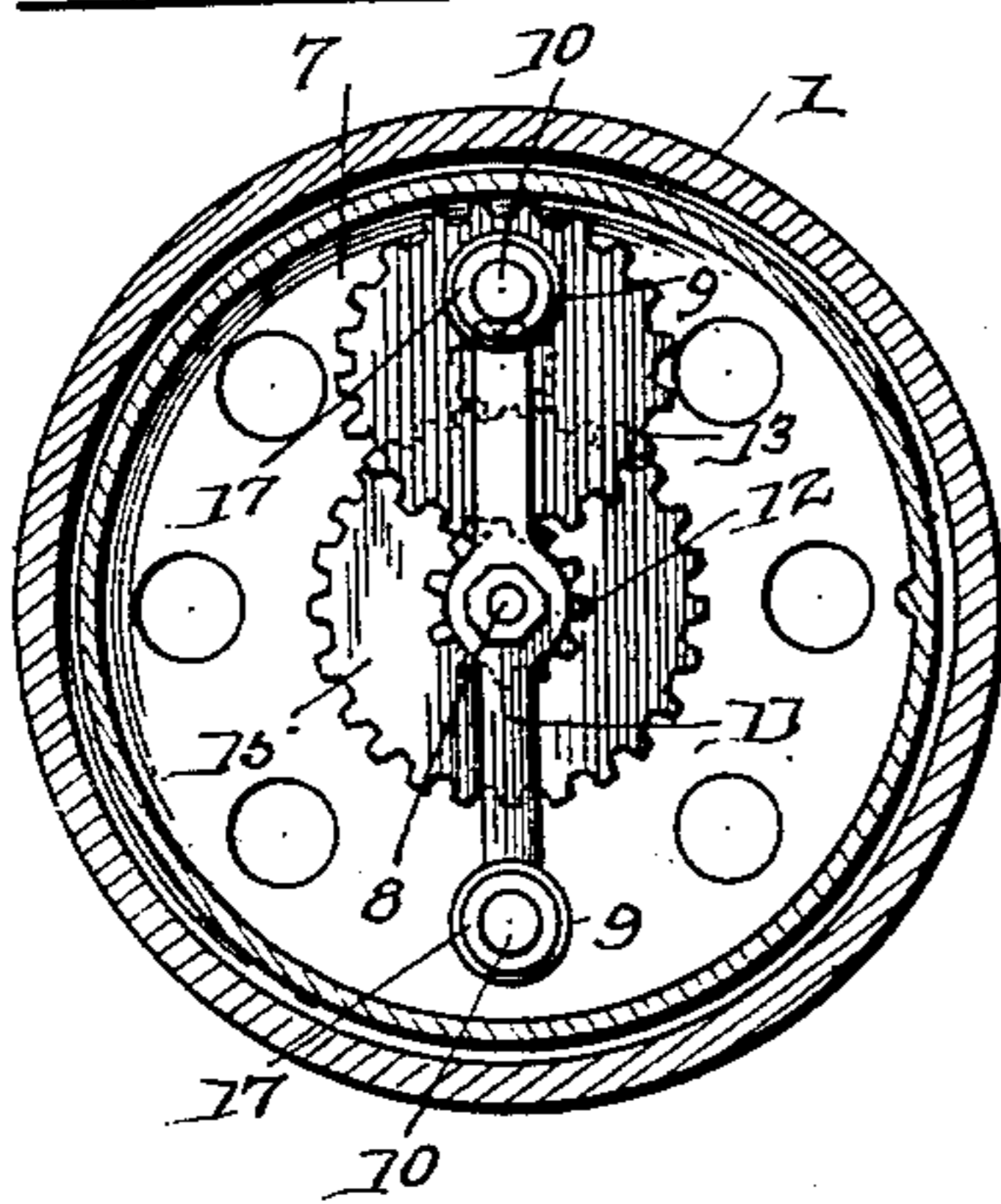


Fig. 3.

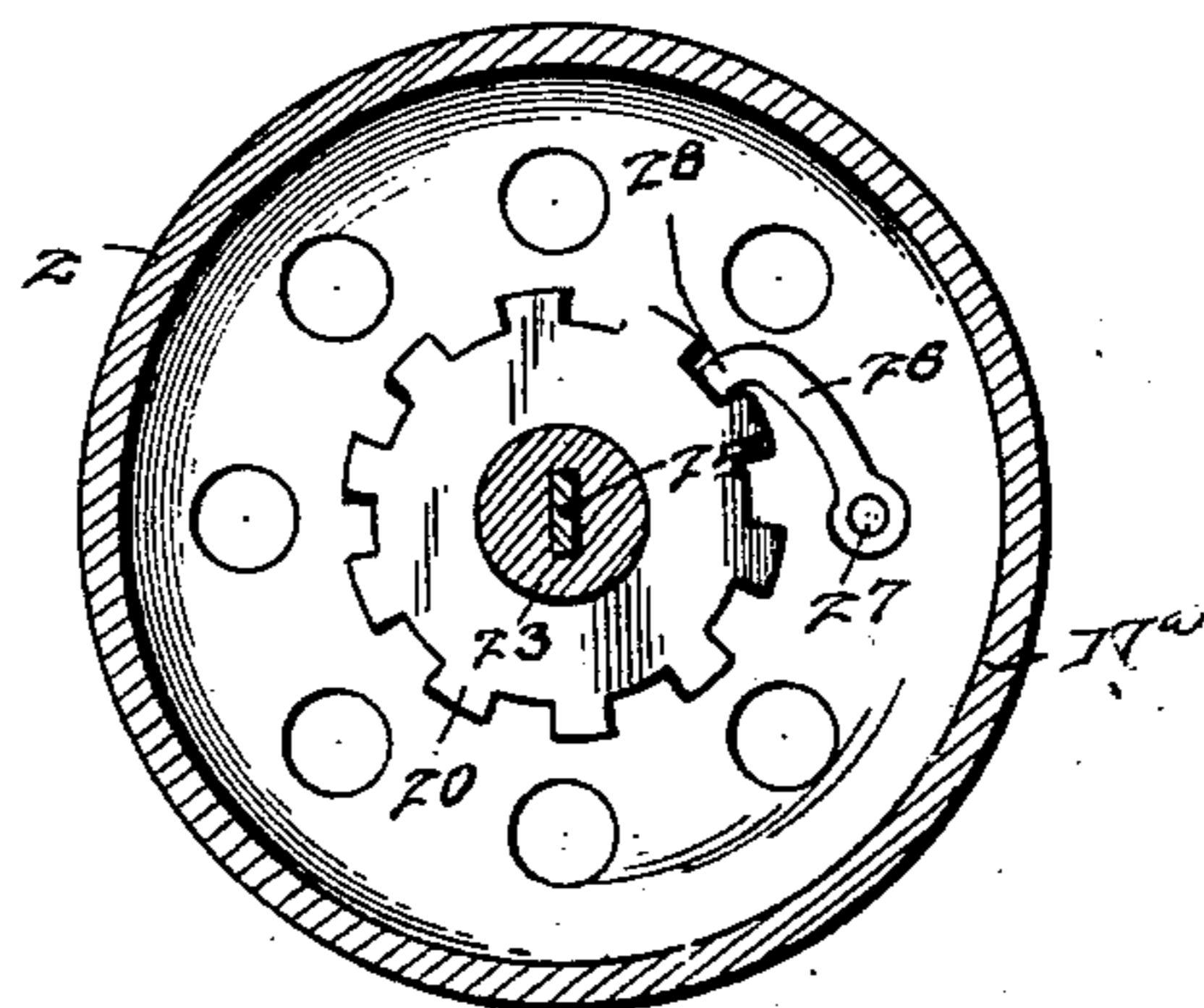


Fig. 5.

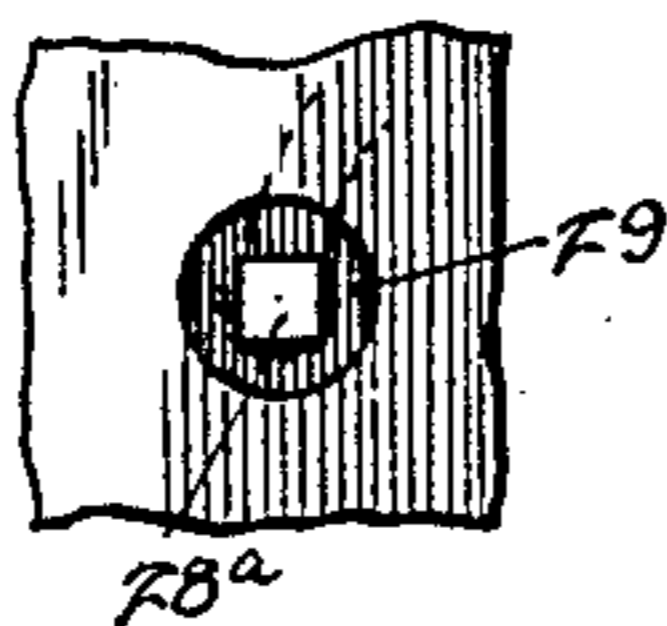


Fig. 4.

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Fig. 6.

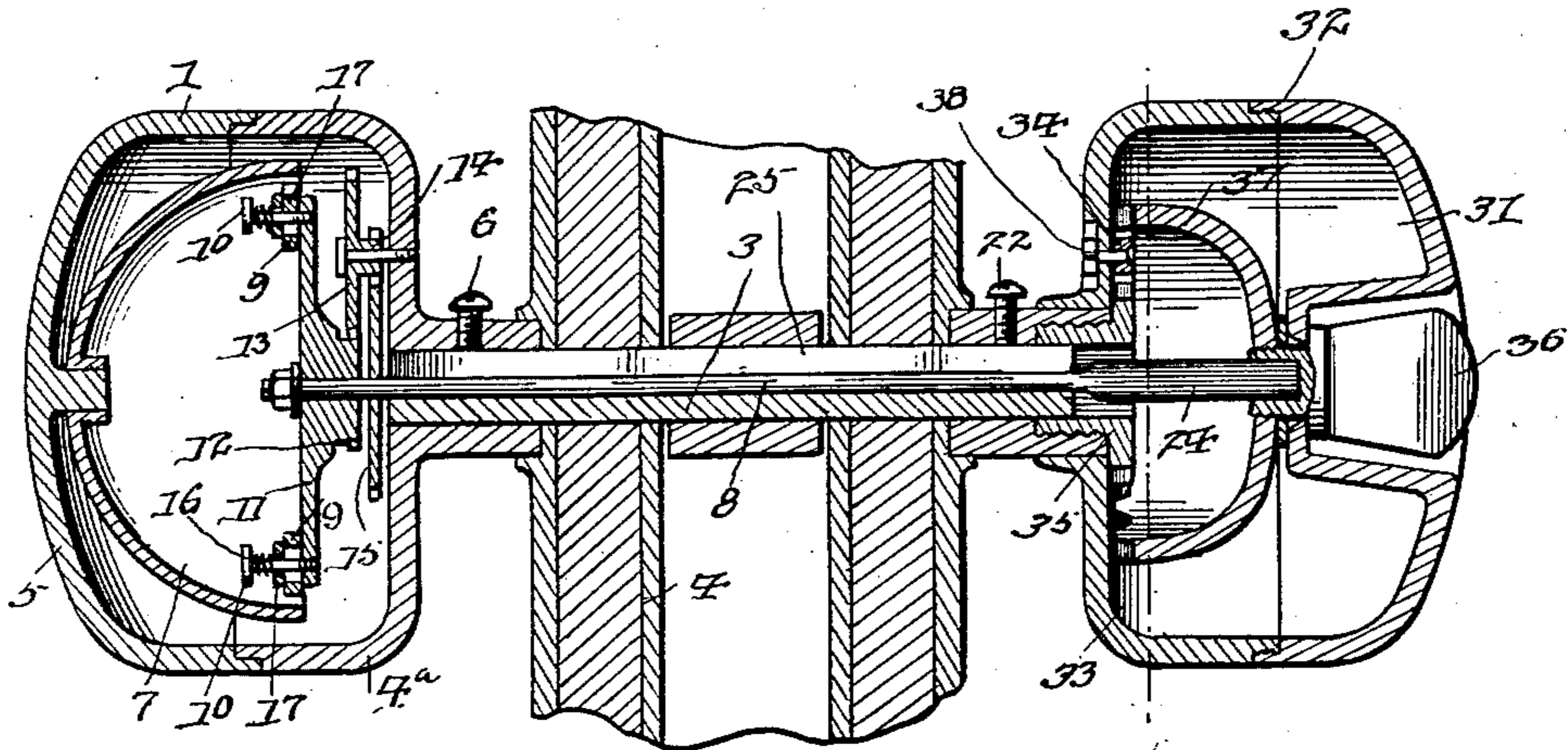


Fig. 7.

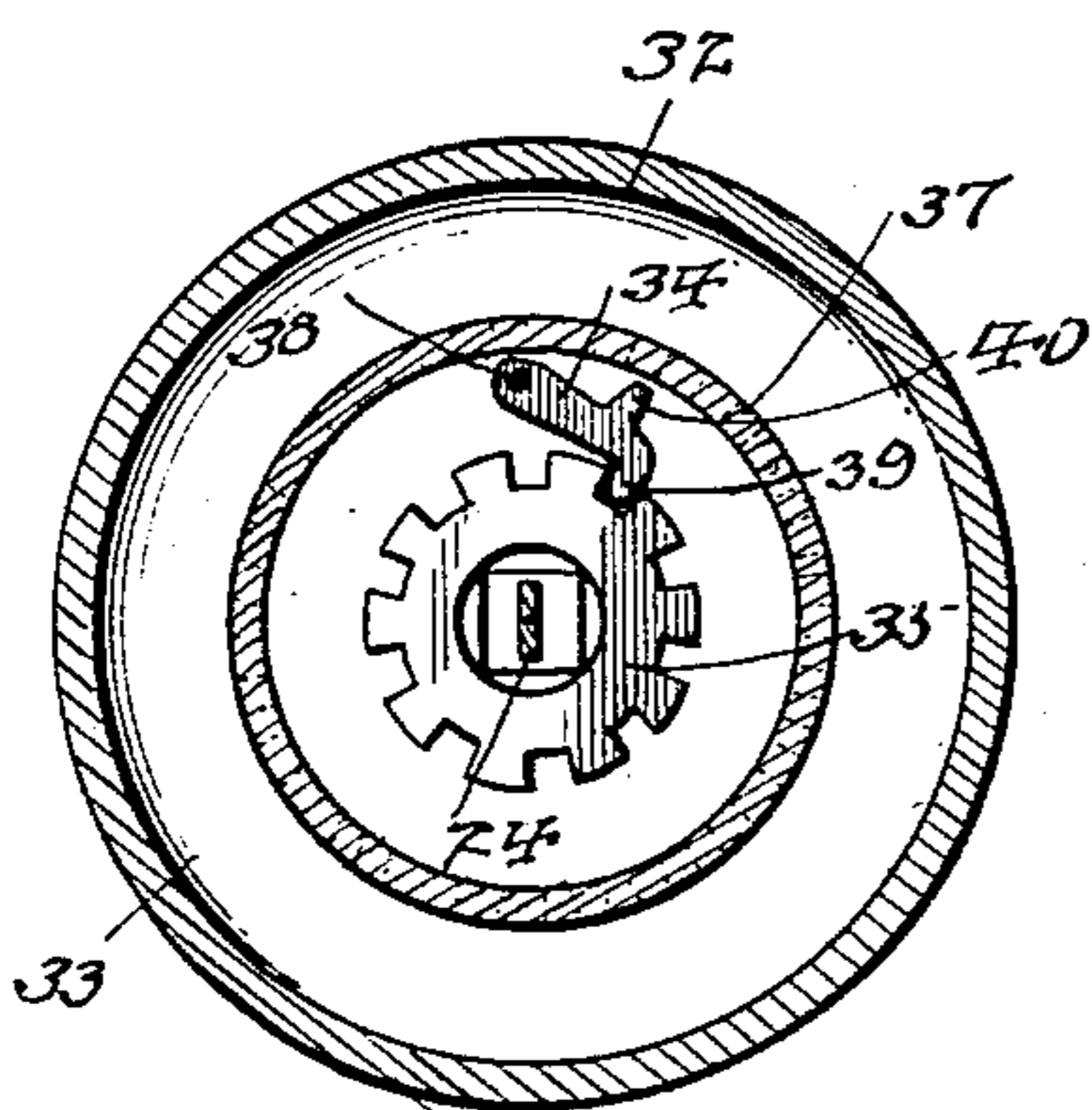
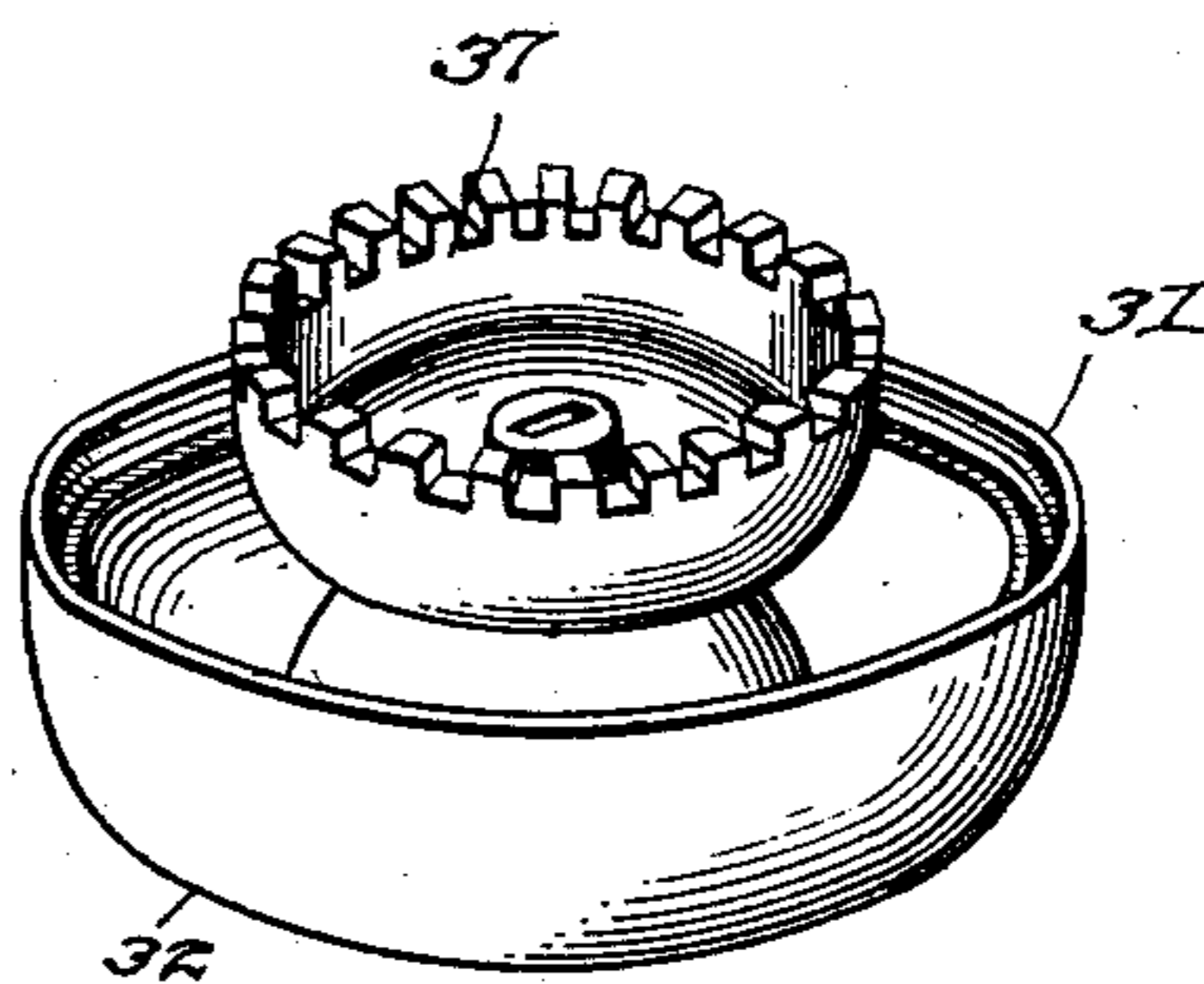


Fig. 8.



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UNITED STATES PATENT - OFFICE.

JOHN WESLEY FREEMAN, OF DENVER, COLORADO, ASSIGNOR OF THREE-FOURTHS TO JAMES L. WILSON, OF SAME PLACE.

COMBINED DOOR KNOB AND BELL.

SPECIFICATION forming part of Letters Patent No. 677,196, dated June 25, 1901.

Application filed March 22, 1901. Serial No. 52,392. (No model.)

To all whom it may concern:

Be it known that I, JOHN WESLEY FREEMAN, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Combined Door Knob and Bell, of which the following is a specification.

The invention relates to improvements in combined door knobs and bells.

One object of the present invention is to improve the construction of door-knob bells and to provide a simple and comparatively inexpensive device adapted to be readily arranged to enable a door to be operated from the exterior without ringing the bell and to be set so that the outer knob will rotate freely on the spindle to avoid turning the same and to ring the bell.

A further object of the invention is to provide a device of this character which when the outer knob is free to turn on the spindle will result in ringing the bell when the said knob is turned and which when the knob is rigid with the spindle will permit the bell to be rung without rotating the spindle.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a longitudinal sectional view of a combined door knob and bell constructed in accordance with this invention. Fig. 2 is a transverse sectional view of the inner knob, illustrating the construction and arrangement of the bell and the bell-ringing mechanism. Fig. 3 is a detail view of the inner section of the outer knob, illustrating the construction of the locking mechanism for rigidly connecting the outer knob with the spindle. Figs. 4 and 5 are detail views illustrating the manner of mounting the pawl or dog. Fig. 6 is a longitudinal sectional view similar to Fig. 1, illustrating another form of the invention. Fig. 7 is a transverse sectional view on line 7 7 of Fig. 6. Fig. 8 is a detail perspective view of the outer section of the outer door-knob, illustrating the construction of the ratchet of the thumb-piece or handle for operating the bell-sound-

ing mechanism when the knob is rigid with the spindle.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 and 2 designate inner and outer door-knobs, which are mounted on the inner and outer ends of a spindle 3, extending through a door 4 and designed to be connected with a mortise or other lock in the ordinary manner.

The inner knob is composed of inner and outer sections 4 and 5, suitably secured together, the inner section 5 being secured to the inner end of the spindle 3 by a screw 6 in the usual manner and being adapted to rotate the said spindle to operate the lock. The outer section of the inner knob is provided with a bell 7, which is adapted to be engaged by suitable bell-ringing mechanism, which may be of any suitable construction, to be operated by the rotation of a shaft 8, extending through a central groove or opening of the spindle and connected with the outer knob, as hereinafter described. The bell 7 is provided with an interior lug or projection adapted to be engaged by a pair of clappers 9, consisting of rings mounted on pins 10 of a rotary support 11, which is journaled on the inner end of the shaft 8 and which is connected with the same by gearing, whereby when the shaft is turned in either direction the support 11 will be rapidly rotated and will cause the clappers to strike the projection or lug of the bell. The support is provided with a pinion 12, which meshes with the gear-wheel 13, and the latter carries a pinion 14, which meshes with a gear-wheel 15 of the shaft 8. The gear-wheel 15 is fixed to the shaft 8, and as the latter is rotated it communicates motion to and rapidly rotates the support. The clappers are held in position by coiled springs 16, mounted on the pins 10 and interposed between the heads thereof and washers 17. The bell-ringing mechanism, which comprises the clappers, their support, and the gearing for transmitting motion to the latter from the shaft, may be of any preferred construction, and the bell, which is located within the inner knob, may be secured to the outer section thereof in any desired manner.

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The outer knob is composed of inner and outer sections 17 and 18, the inner section being journaled on the outer end of the spindle by means of a sleeve 19 and a notched disk or wheel 20, which is provided with an exteriorly-threaded sleeve or tubular extension 21, extending into and engaging an interiorly-threaded portion of the sleeve 19. The sleeve 19 is detachably secured to the outer end of the spindle by a screw 22 or any other suitable means, and the disk or wheel 20, which is located within the outer knob, engages the inner face of the inner section to retain the same on the sleeve 19. The outer section 18 of the outer knob is provided with a central inwardly-extending stem or shank 23, which is provided with a socket for the reception of the outer end of the shaft, which is provided with a flattened portion 24, whereby it is interlocked with the knob and is adapted to be rotated by the same when the said knob is free to turn on the spindle. The spindle is preferably provided with the longitudinal groove 25 to receive the shaft; but any other construction may be employed, and the outer knob is locked rigid with the spindle by means of a pivoted dog or pawl 26, mounted on the inner section of the outer knob and provided at one end with a stem 27 and having its other end 28 extended at an angle to form a tooth or projection for engaging the notches of the disk or wheel. The inner portion of the stem 27 is rounded to form a pivot and is arranged in a perforation of the inner section of the knob 2, and the outer end of the stem 27 is enlarged to form a head 28^a, which is arranged in a recess 29 of the knob and is adapted to be engaged by a key, whereby the dog is oscillated to engage it with and disengage it from the disk or annular flange 20. When the pawl or dog is out of engagement with the notched disk or flange 20, the knob is free to rotate on the sleeve and is adapted to rotate the shaft and actuate the bell engaging or ringing mechanism. When the pawl or dog is in engagement with the notched disk or flange, the outer knob is locked rigid with the spindle and is adapted to turn the same without ringing the bell.

In Fig. 6 of the accompanying drawings is illustrated another form of the invention, in which the flattened portion 24 of the shaft 8 engages a shank or stem 30, carried by the outer section 31 of the outer knob 32. The inner section 33 of the outer knob 31 is constructed substantially the same as the inner section 17^a of the knob 2 and is adapted to rotate freely on the outer end of the spindle when a pivoted dog 34 is not in engagement with the ratchet disk or flange 35. The shank or stem 30 is journaled on the outer section of the door-knob 31 and is provided with a handle or thumb-piece 36, and it carries a flared ratchet 37. The thumb-piece or handle 36 is arranged within a depression or recess of the outer section of the knob 31 and is adapted to be turned independently there-

of to sound the alarm or bell when the outer knob 31 is rigid with the spindle by reason of the pivoted dog or pawl 34 being in engagement with the notched disk or wheel 35. This construction allows the bell to be rung without turning the knob. The pivoted pawl or dog 34, which has a stem 38 and which is adapted to be operated similar to the dog or pawl 26, is provided at its engaging end with inwardly and outwardly extending teeth 39 and 40, adapted to engage, respectively, the notched disk or wheel 35 of the spindle and the ratchet 37 of the shank or stem 30 of the thumb-piece or handle 36, whereby the outer knob may be locked rigid with the spindle for rotating the same, or may be arranged to rotate freely on and independently of the spindle. When the knob is rigid with the spindle, the shank or stem 30 and its thumb-piece or handle 36 may be operated to ring the bell; but when the outer knob turns freely on the spindle the outer tube 40 of the dog or pawl 34 is in engagement with the flared ratchet 37, whereby the stem or shank 30 and the thumb-piece or handle are rigidly connected with each other. When the pawl or dog is in engagement with the flared ratchet, any rotation of the knob will sound the alarm by rotating the central shaft 8. The flared ratchet extends over and surrounds the ratchet 35, which is rigid with the spindle, and by oscillating the pivoted dog or pawl 34 it is carried into engagement with one or the other of these ratchets. The said ratchet 37 may be secured to the inner end of the shank or stem 30 by any suitable means, and it is provided at its periphery with longitudinally-projecting teeth, forming intervening spaces or notches to be engaged by the pawl or dog. The stem or shank 30 is provided at its inner end with a socket to receive the flattened end of the shaft, which is connected with the bell-sounding mechanism.

It will be seen that the combined door knob and bell is exceedingly simple and inexpensive in construction and that the locking device is readily manipulated to secure the outer knob rigid with the spindle or to enable it to rotate freely thereon. It will also be apparent that in the second or principal form of the invention the bell may be operated when the outer knob is rigid with the spindle and that it will be automatically sounded when the knob is free to turn on the spindle.

What I claim is—

1. In a device of the class described, the combination of a spindle, an inner knob having a bell or alarm, an outer knob journaled at the outer end of the spindle, a shaft extending from one knob to the other, mechanism connected with the inner end of the shaft for sounding the bell or alarm, and means for rigidly connecting the outer knob with the spindle to enable the same to turn the spindle, substantially as described.

2. In a device of the class described, the

combination of a spindle, an inner knob having a bell or alarm, an outer knob journaled at the outer end of the spindle, mechanism arranged at the inner end of the spindle for sounding the bell or alarm, a locking device for rigidly connecting the outer knob with the spindle, and connections between the outer knob and the mechanism for sounding the bell or alarm, whereby the same may be sounded when the outer knob rotates freely or independently of the spindle, substantially as described.

3. In a device of the class described, the combination of a spindle, an inner knob having a bell or alarm, a shaft extending through the spindle, mechanism connected with the inner end of the shaft for sounding the bell or alarm, an outer knob connected with the shaft and journaled at the outer end of the spindle, and a locking device for connecting the outer knob with the spindle, said locking device being located within the outer knob and being adapted to be operated by a key, substantially as described.

4. In a device of the class described, the combination of a spindle, an inner knob secured to the spindle and having an alarm or bell, a shaft extending through the spindle, an outer knob journaled at the outer end of the spindle and connected with the shaft, a notched disk or flange connected with the spindle and located within the outer knob, a dog or pawl located within the outer knob and arranged to engage the notched disk or flange, and provided with a stem extending through the knob and adapted to be operated by a key, and mechanism operated by the shaft for sounding the bell or alarm, substantially as described.

5. In a device of the class described, the combination of a spindle, an inner knob secured to the spindle, a sleeve 19 mounted on the outer end of the spindle, an outer knob

journaled on the sleeve, a notched disk having a sleeve or extension secured to the said sleeve 19, a pawl or dog mounted on the outer knob for engaging the disk or flange, mechanism for sounding the bell or alarm of the inner knob, and connections between the outer knob and such mechanism, substantially as described.

6. In a device of the class described, the combination of a spindle, an inner knob having an alarm, an outer knob journaled on the outer end of the spindle and provided with a shank or stem connected with and adapted to sound the alarm, and means for alternately connecting or locking the outer knob rigid with the spindle and with the stem or shank, substantially as described.

7. In a device of the class described, the combination with a spindle, an outer knob journaled thereon, a shank or stem journaled on the outer knob, ratchets carried by the spindle and by the shank or stem, and a locking device arranged to engage either of the ratchets and mounted on the outer knob, substantially as described.

8. In a device of the class described, the combination of a spindle, an outer knob journaled thereon, a stem or shank mounted on the outer knob, a ratchet located within the outer knob and connected with the spindle, a second ratchet carried by the stem or shank and located adjacent to the said ratchet, and a movable locking device arranged to engage either of the ratchets, substantially as described.

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

JOHN WESLEY FREEMAN.

Witnesses:

JAS. L. WILSON,
LOUIS MOLNAR.