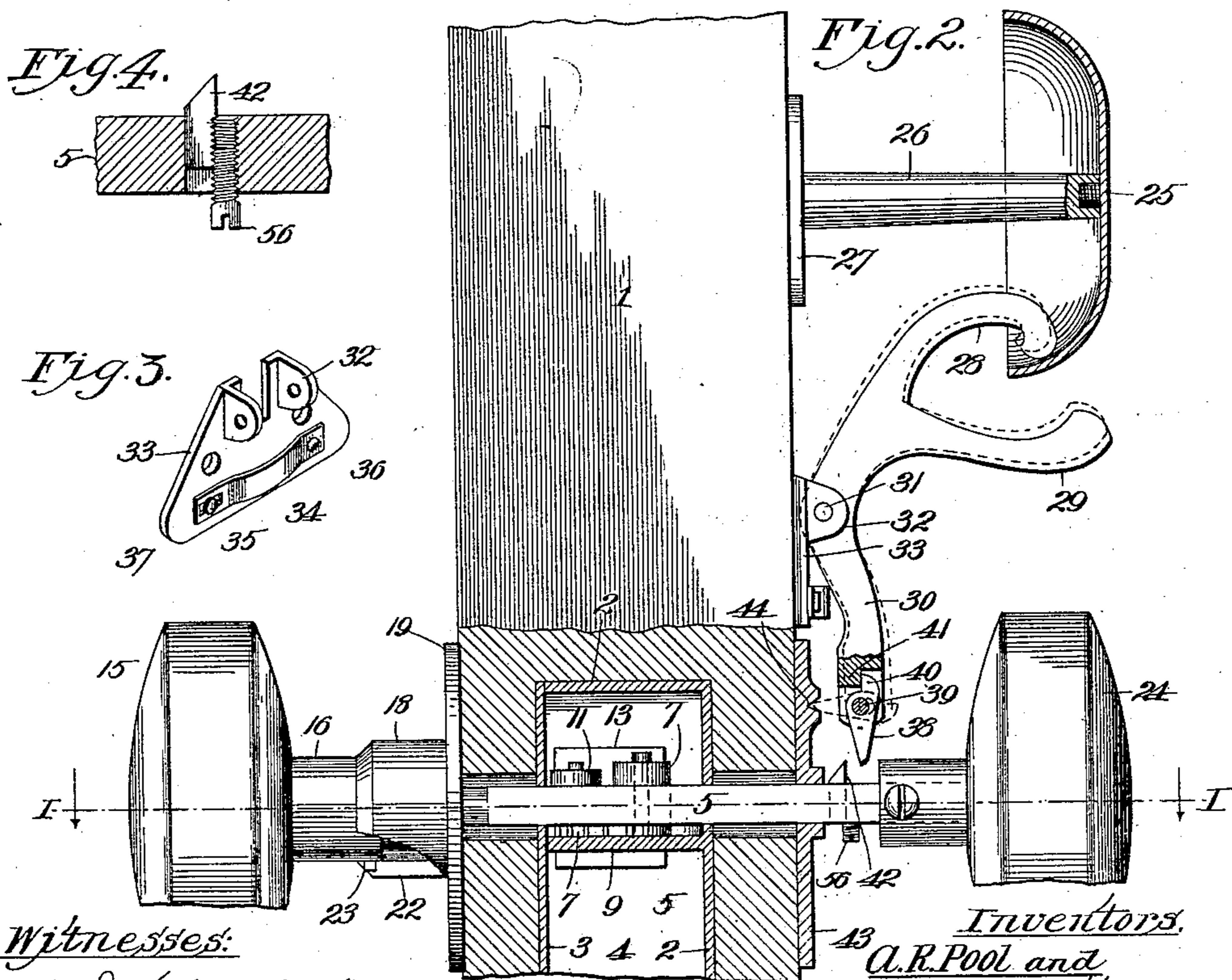
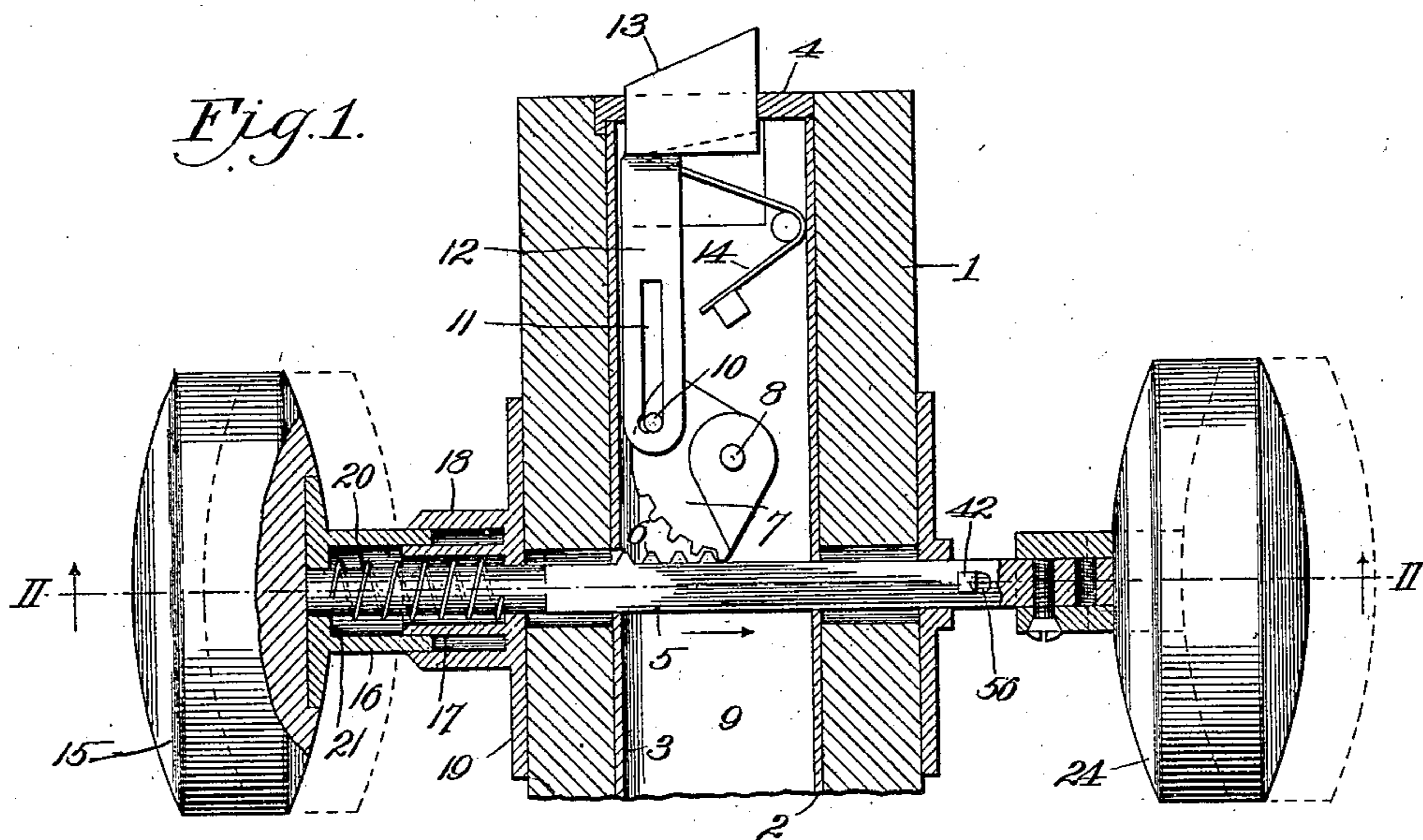


No. 886,635.

PATENTED MAY 5, 1908.

A. R. POOL & W. ELLIOTT.  
DOOR LATCH MECHANISM.  
APPLICATION FILED FEB. 24, 1908.



Witnesses:

Fred V. Griffith  
H. C. Rodgers.

Inventors.

A. R. Pool and  
W. Elliott.

By *George Y. Chaspe* Atty.

# UNITED STATES PATENT OFFICE.

AUSTIN R. POOL, OF NEMAHA COUNTY, AND WILBERT ELLIOTT, OF JACKSON COUNTY,  
KANSAS.

## DOOR-LATCH MECHANISM.

No. 886,635.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed February 24, 1906. Serial No. 302,799.

*To all whom it may concern:*

Be it known that we, AUSTIN R. POOL and WILBERT ELLIOTT, citizens of the United States, residing, respectively, in Nemaha and Jackson counties, State of Kansas, have invented certain new and useful Improvements in Door-Latch Mechanisms, of which the following is a specification.

Our invention relates to door latch mechanisms and our object is to produce a mechanism of this character whereby the door can be opened by pushing or pulling on the knob accordingly as the one seeking entrance stands at the outer or inner side of the door.

A further object is to produce mechanism of this character of simple, strong, durable and inexpensive construction.

To these ends our invention consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed; and in order that it may be fully understood, reference is to be had to the accompanying drawings, in which—

Figure 1, is a horizontal section, taken on line I—I of Fig. 2, of a mechanism embodying our invention. Fig. 2, is a vertical section, taken on line II—II of Fig. 1, showing also a bell in section. Fig. 3, is a detached perspective view of a part of the bell-mechanism. Fig. 4, is an enlarged section of another portion of the bell-mechanism.

In the drawing, 1 indicates a door in which the lock is mounted. The lock-casing comprises the usual body-portion 2, cover plate 3 and face plate 4. Owing to the novel construction, the casing may be made smaller than that of the ordinary lock.

The knob-stem or shank 5 passes through square openings in the casing, and is adapted for longitudinal, not rotary, movement. A series of teeth or cogs 6 are formed on one side of the stem. A segmental gear 7, is mounted to turn upon a vertical stud 8, projecting upwardly from a horizontally-disposed shelf or partition 9 and its teeth mesh with the teeth of the stem 5 so that movement of the latter imparts rotatable movement to the gear, and the latter carries a pin 10 which normally lies at one end of a slot 11 in the latch-bolt 12. The latch-head 13 is pressed outwardly by any suitable spring, as for example 14 in Fig. 1. The slot 11 permits the latch to be forced in (when closing the door) without affecting the gear 7. In

case the latch-head 13 projects below the shelf 9 (as shown) the latter is cut away sufficiently to permit the said inward movement of the latch.

In Figs. 1 and 2, the left side is assumed to be the outer side of the door, and the latter to open inwardly.

The outside knob 15 is firmly secured to the end of the stem 5 in any preferred manner, and also secured to this knob (or cast integral therewith, if the knob is of metal) is a sleeve 16, of larger diameter than the stem 5. Said sleeve enters an annular groove between an inner and an outer sleeve 17 and 18, cast on the outer face of an escutcheon-plate 19, which is attached to the door in the usual manner. The inner sleeves 16 and 17 form a housing for an open helical spring 20, the inner end of which touches the plate 19, and the outer end of which touches the intumed flange 21 of sleeve 16. The outer sleeve 18, on plate 19, is not actually necessary, but is desirable, as it provides a reinforcement to resist any strong twisting movement which the knob may receive. To this end the sleeve 18 is provided with a slot 22, and sleeve 16, with a pin 23, adapted to slide therein when either knob is actuated.

The portion of the stem 5 embraced by the spring 20 is preferably rounded as shown and the inside knob 24 may be attached to the stem 5 as shown, or in any preferred manner. It will now be clear that, by pushing in the outside knob, or pulling the inside knob, the gear 7 will be turned by teeth 6, and will retract the latch by means of pin 10, and the same impulse upon the knob, 15 or 24, will give the initial opening movement to the door. The opening movement of the stem 5 compresses the spring 20, which spring stores the stem to the normal position as soon as the hand is removed from the knob, or possibly before, if the door turns easily upon its hinges.

The automatically-operated bell-mechanism, when used, is mounted on the inner side of the door, so that its operation cannot be prevented by a person who might wish to open the door without causing the bell to ring. The gong 25 is mounted on a post 26 having a foot-plate 27 secured by screws to the door. A double clapper comprising branch arms 28 and 29 and a downward extension 30, is pivoted on a pin 31 held by a bifurcated jaw 32, secured with screws to the

door. This jaw may if preferred be cast with the gong plate 27. A spring stop 34, secured to the plate-portion 33 of the jaw 32, as shown in Fig. 3, holds the lower arm of the clapper away from the door, in such a position that the inner clapper 28 is sufficiently out of contact with the gong to insure a clear ring when it strikes the same, and incidentally to prevent jingling of the clapper against the gong, owing to vibration of the building. To provide for proper operation of the clapper, the lower end of its arm 30 is provided with a movable extension 38, pivoted on a cross-pin 39. The lower end of this extension is free to be moved toward the door but is prevented from turning oppositely by a shoulder 40 thereof engaging a shoulder 41 at the upper end of the slot in which the member hangs.

A square hole is cut through the knob-stem 5 at a certain point and a pin 42 is snugly but adjustably fitted therein, with its upper end projecting a short distance above the stem, for actuating the pivoted member 38 when the stem is moved in the direction of the arrow. To hold the pin 42 in position, and to accurately, easily and positively adjust the same vertically, a screw 56 may be employed. A hole is drilled to receive said screw, at such a point that it will intersect the slot in which the pin 42 is held. The screw-hole is tapped while the pin 42 is in position as shown, and thereby a series of grooves are cut in one side of the pin, as shown. The adjusting-screw is inverted, with its end threads engaging the pin 42, and is turned up until the pin is brought into the position shown. Moving outwardly, the projection 42 impinges on the part 38 and pulls the same outward, until it suddenly releases it, owing to the upwardly curved path in which the latter is moved. The outward movement of the part 38 carries the clapper arm 30 with it, and throws the outer or lower clapper 29 sharply against the gong 25. The disengagement of the projection 42, as aforesaid, permits the clapper 29 immediately to drop, by gravity, and the upper or inner clapper 28 strikes the inside of the gong, but is instantly drawn out of contact therewith by the action of spring stop 34, which is secured at one end by a rivet 36 and loosely at its other end by a rivet 37, passing through a slot 35. This slot permits a slight

flattening of the spring when the inner clapper 28 strikes the bell. Thus, the bell is rung twice each time the stem 5 is moved inward, when the outer knob is pushed or the inner knob is pulled. Furthermore, the door itself need not be moved. The mere attempt of a person to open the door will ring the bell if the outer knob is pushed in. The door may be locked at the time, but the fact does not necessarily prevent the bell from ringing. The length of stroke imparted to the clapper arm 30 is adjustable by means of the screw, and any wearing off of part 42 or 38 may be taken up in this manner.

At times it is undesirable to let the bell ring every time the door is opened. By reference to Fig. 2, it will be observed that the inside escutcheon-plate 43 is formed with a recess or indentation 44, positioned substantially at the level of pivot-pin 31, and adapted to receive the point of the pivoted member 38 when the latter is turned in, to the position indicated by dotted lines. When placed in this position the part 38 is held out of the path of the projection 42, hence the bell will not be rung by movement of the knobs, or opening of the door. The clapper at this time stands in the dotted line position. The change from ringing to non-ringing position or vice versa can be made in a second and without the use of a tool.

The lock is assembled by inserting the body or casing in the mortise, screwing on the outer escutcheon-plate 19, inserting the stem 5 which carries sleeve 16 and the knob 15; screwing on the inside escutcheon-plate 43, and attaching the inside knob 24. Then the pin 42 and adjusting screw 56 are inserted in the aforesaid opening in the stem.

Having thus described our invention, what we claim and desire to secure by Letters Patent, is:

In a lock the combination of a latch, a segmental gear pivotally connected thereto, and a slidable, non-rotatable knob-stem provided with teeth to engage said gear and thereby retract the latch.

In testimony whereof we affix our signatures, in the presence of two witnesses.

AUSTIN R. POOL.  
WILBERT ELLIOTT.

Witnesses:

H. C. RODGERS,  
G. Y. THORPE.