

No. 644,024.

Patented Feb. 20, 1900.

E. M. WAGNER.  
ALARM LOCK.

(Application filed Oct. 2, 1899.)

(No Model.)

2 Sheets—Sheet 1.

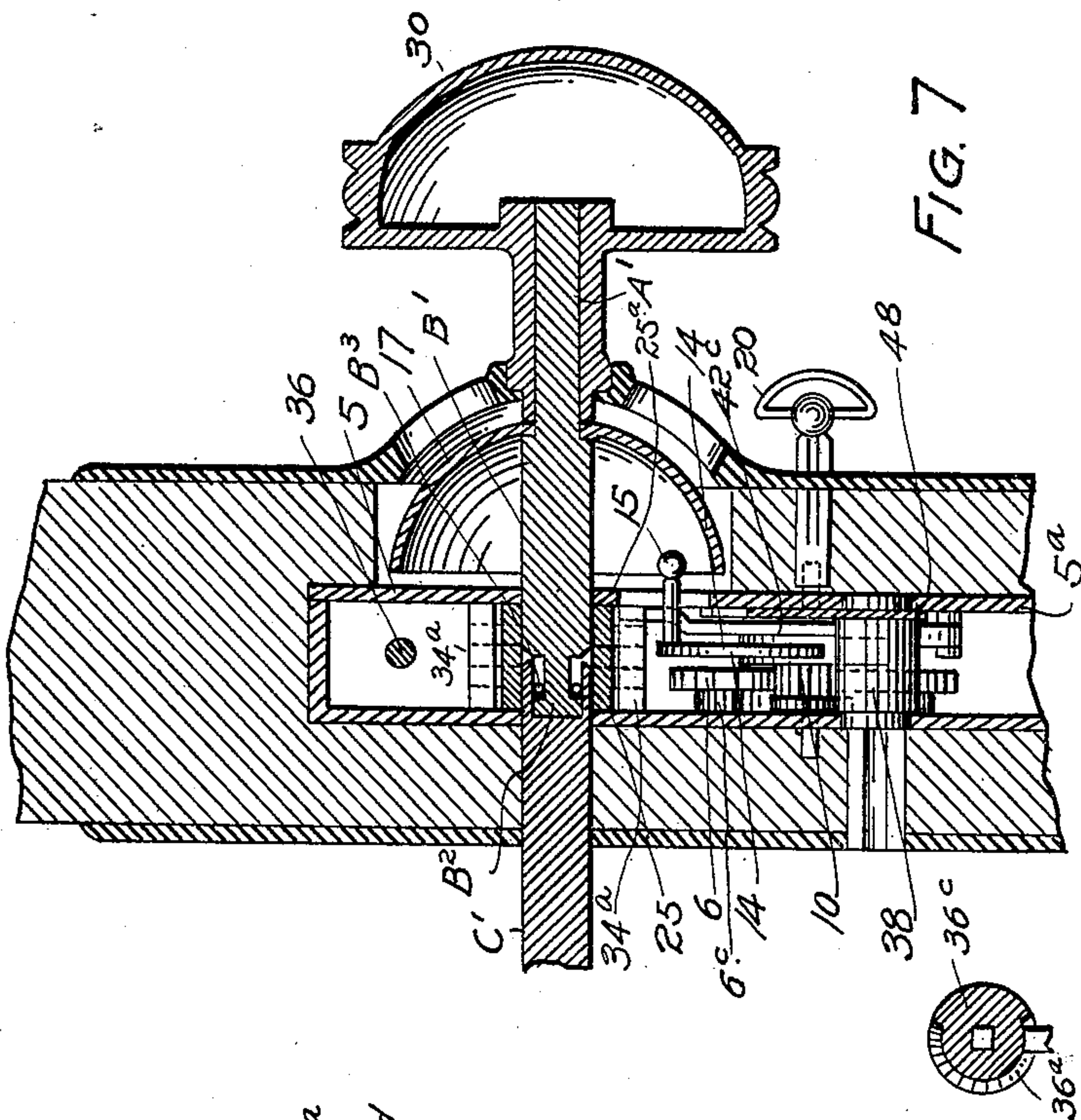


FIG. 1

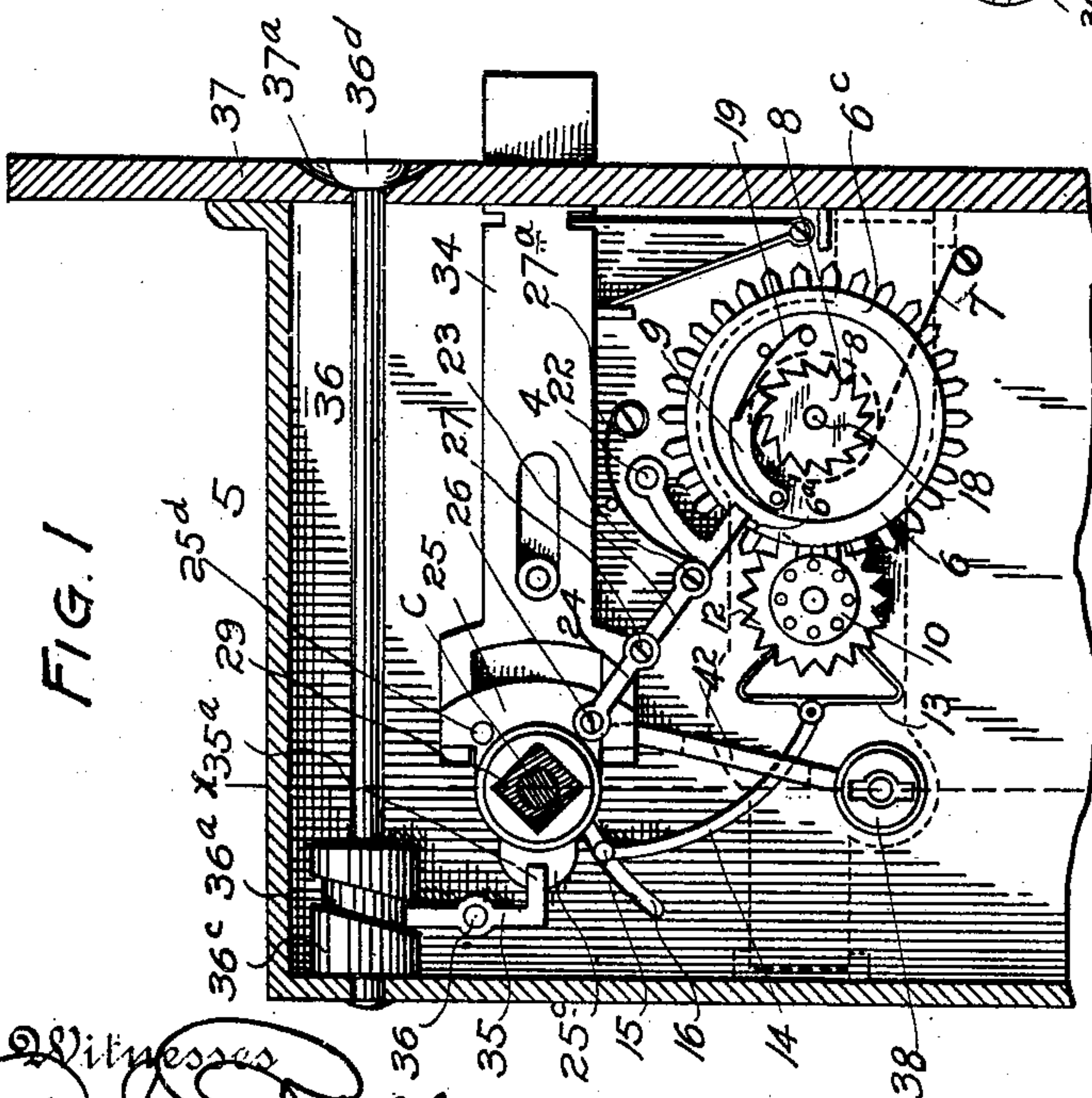


FIG. 2

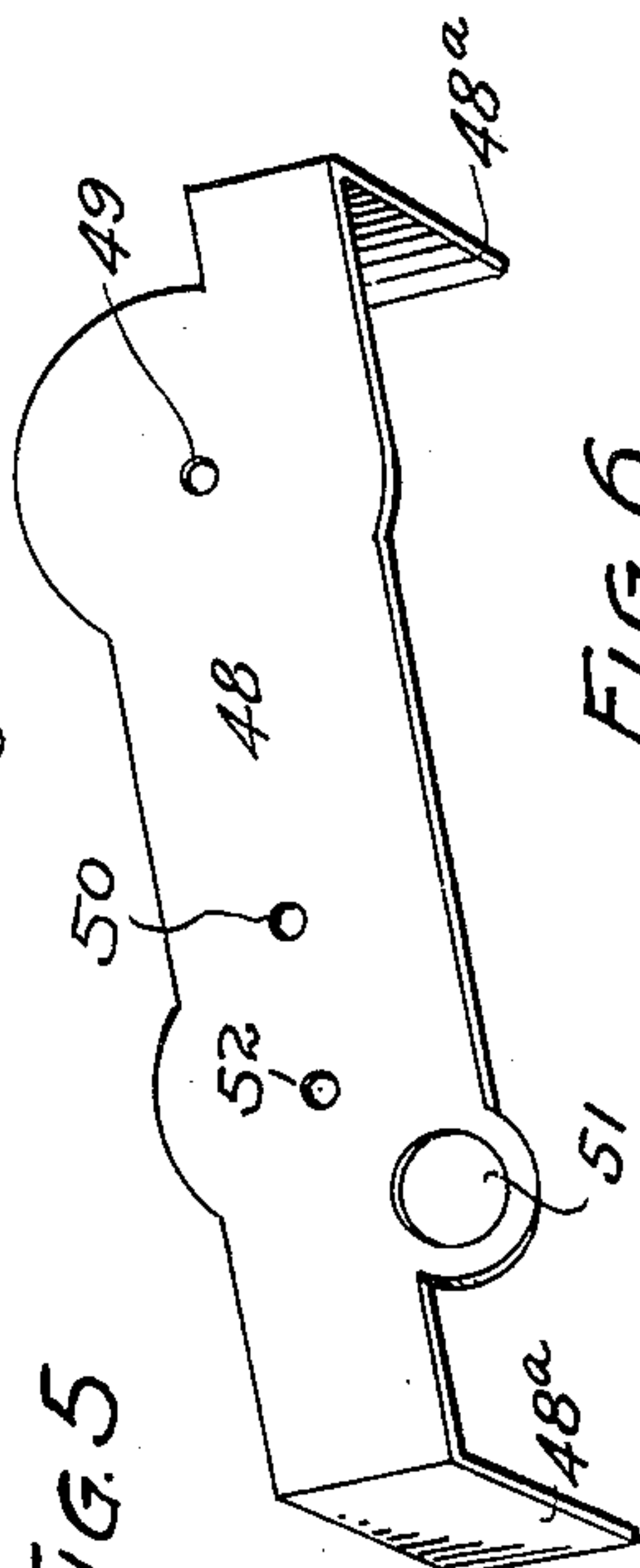


FIG. 3

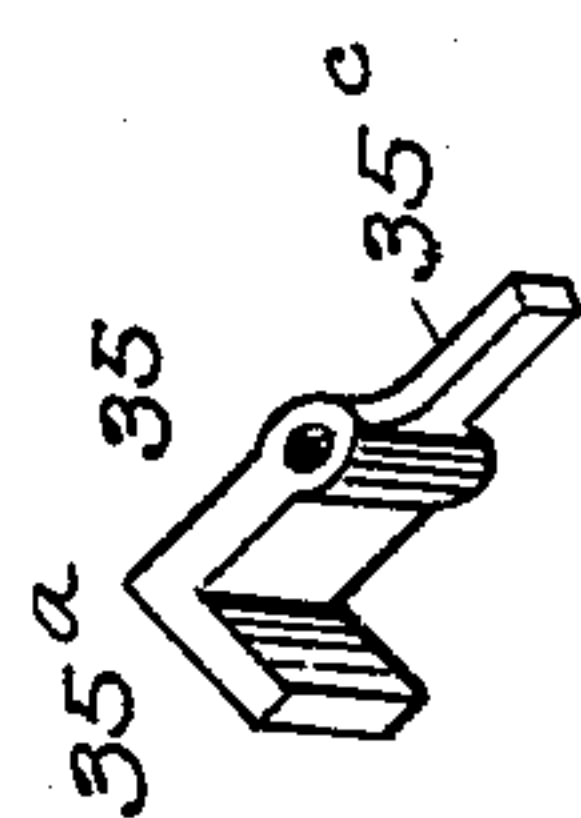


FIG. 4

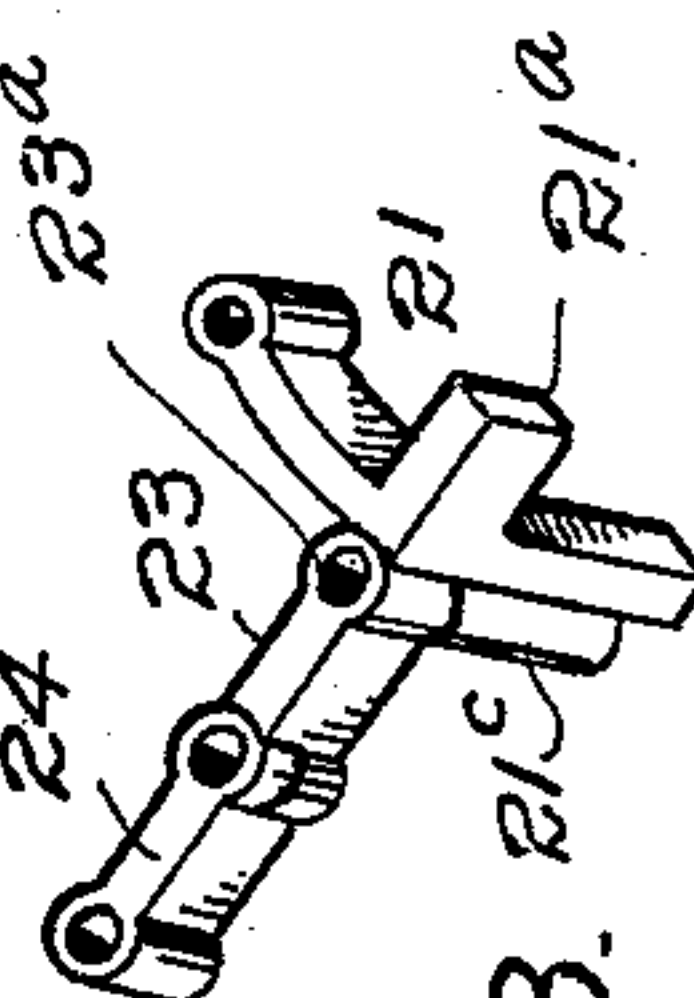


FIG. 5

Witnesses  
J. J. O'Connell  
Grace Mytinger

By his Attorney

Inventor  
E. M. Wagner

*[Signature]*

No. 644,024.

Patented Feb. 20, 1900.

E. M. WAGNER.

ALARM LOCK.

(Application filed Oct. 2, 1899.)

(No Model.)

2 Sheets—Sheet 2.

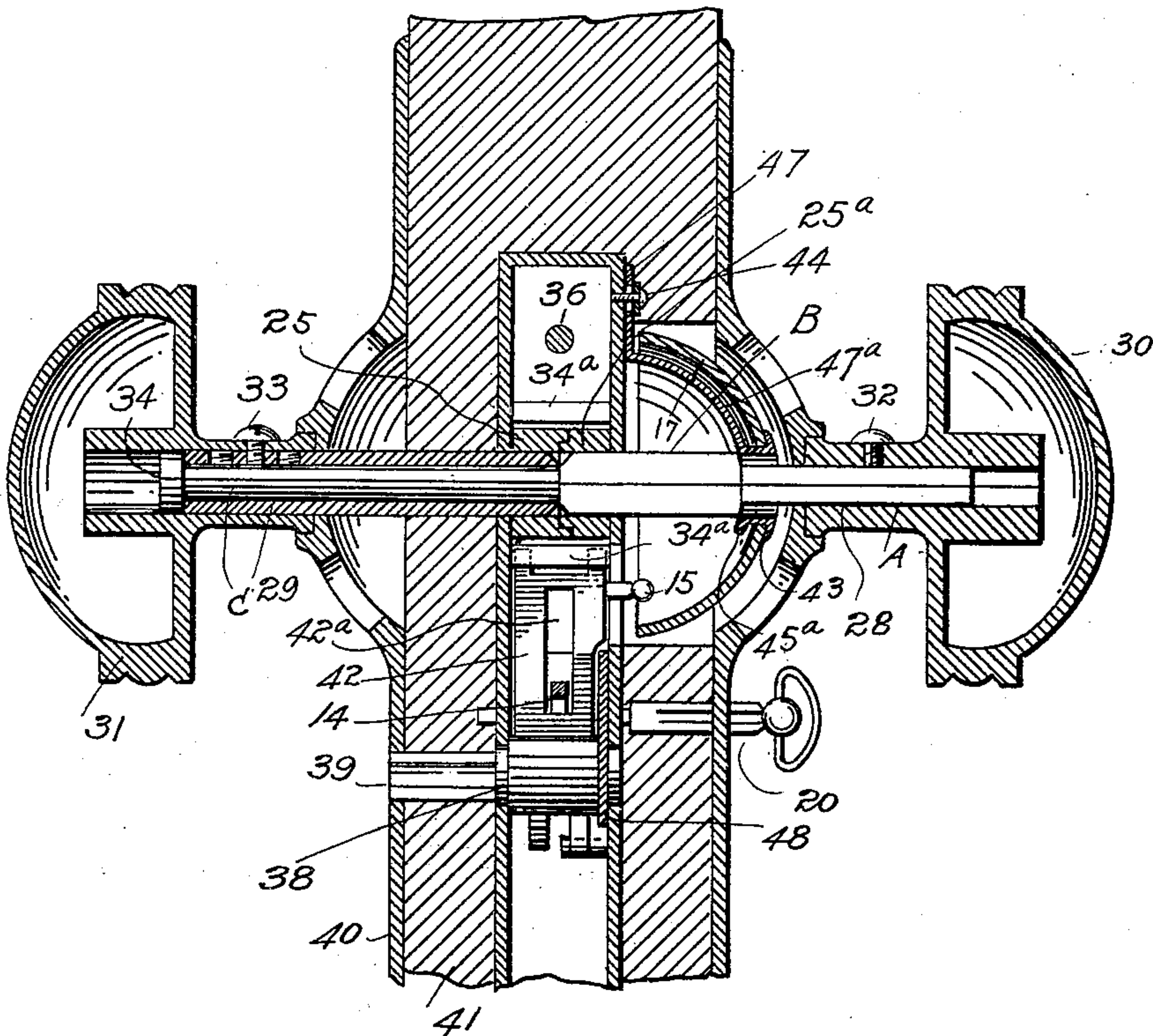


FIG. 2

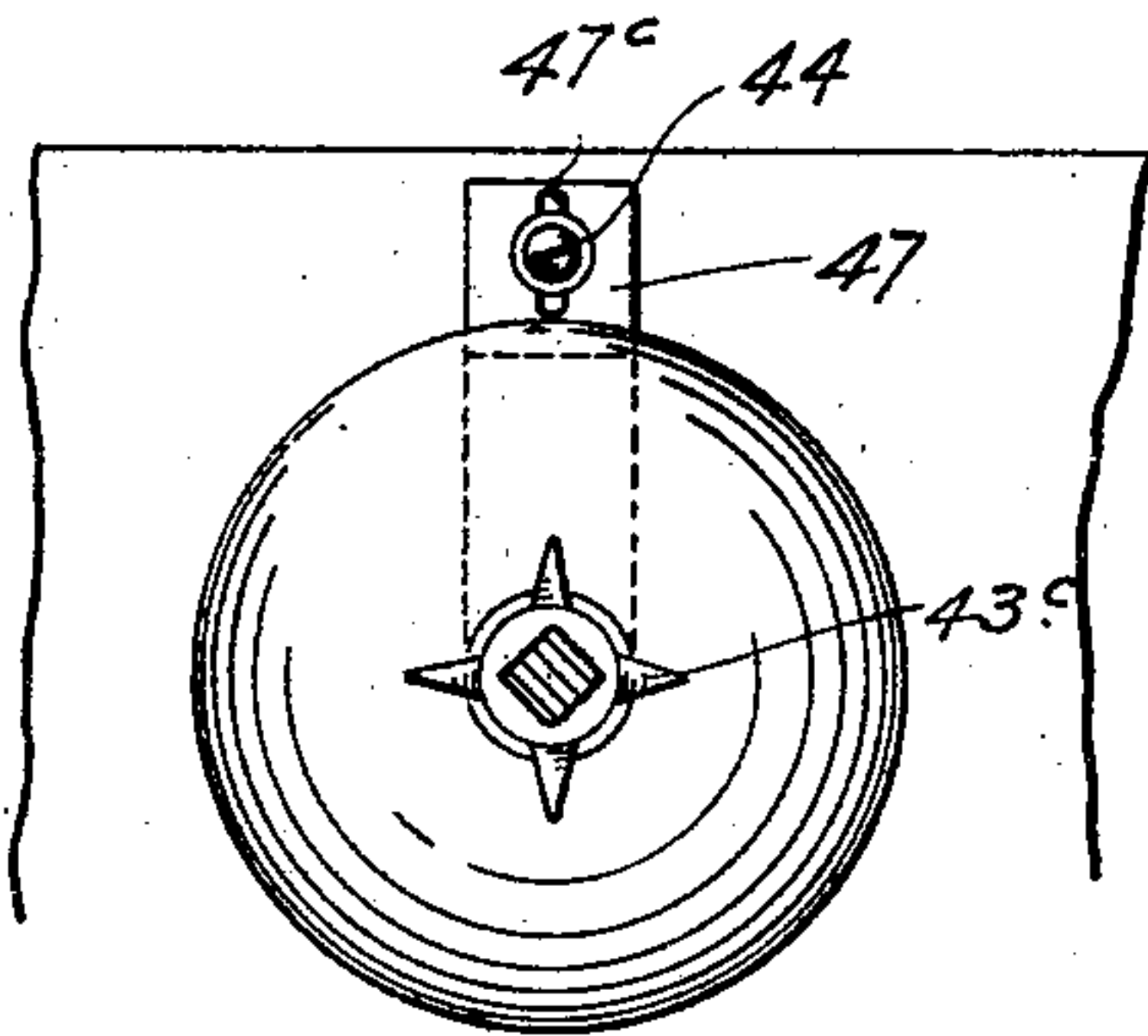


FIG. 8

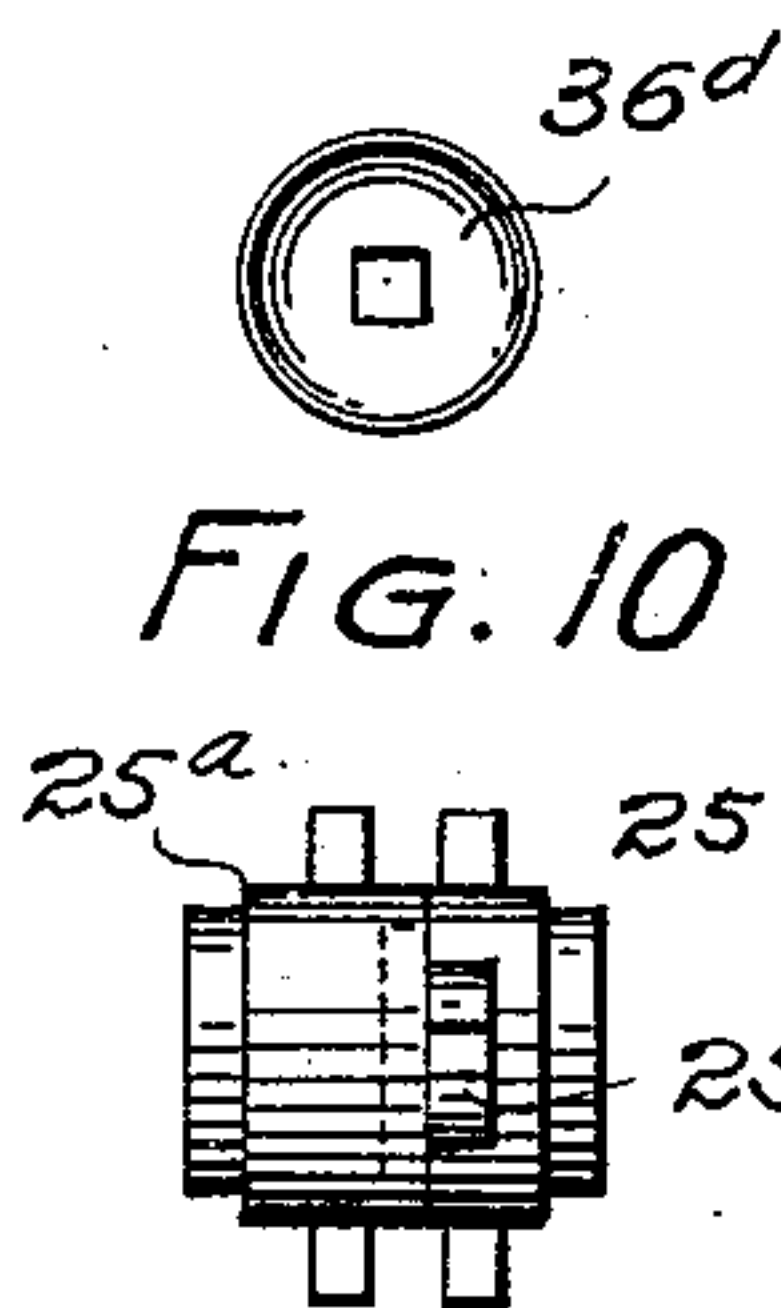


FIG. 10

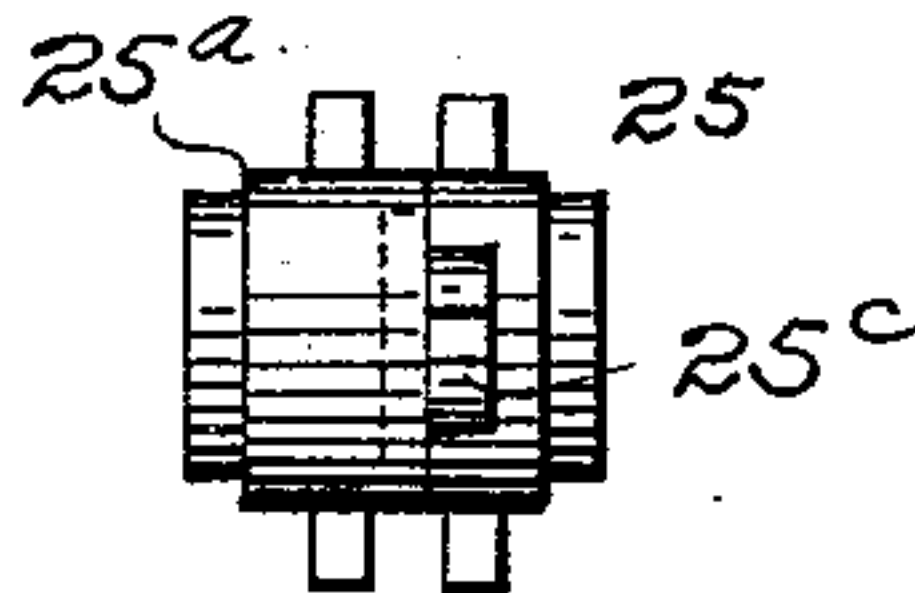


FIG. 11

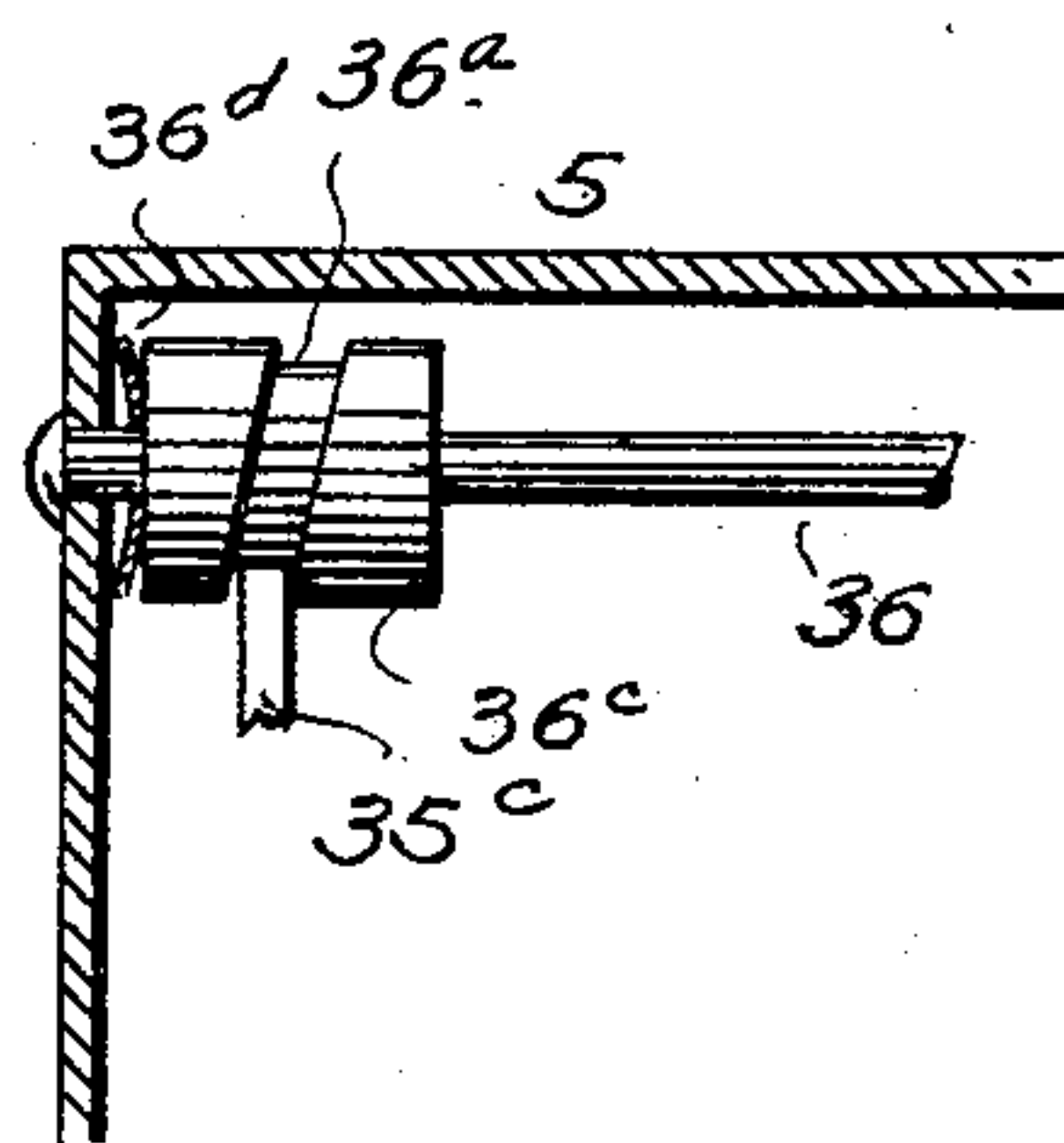


FIG. 9

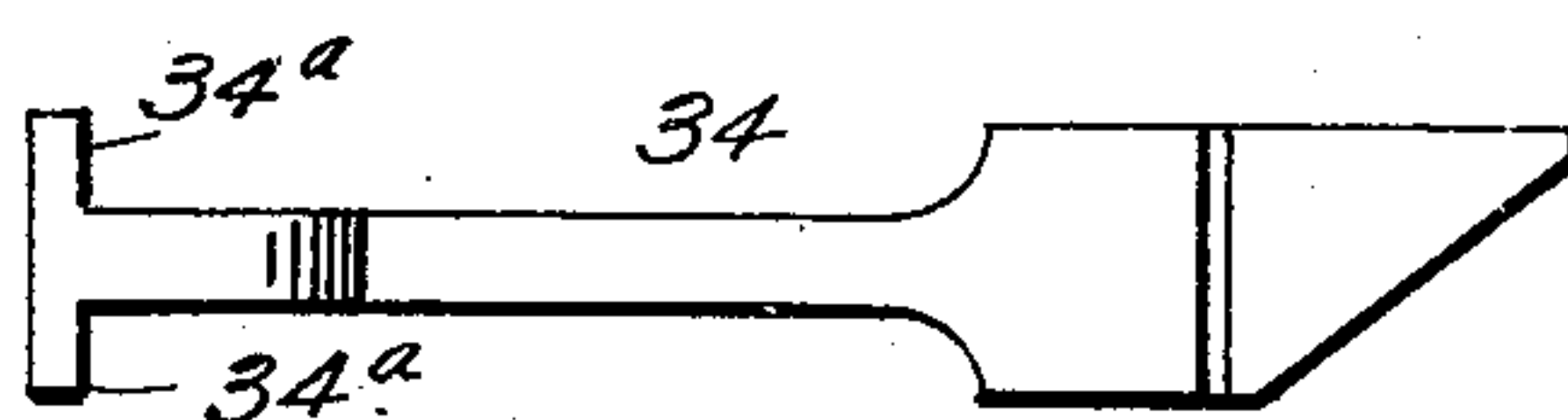


FIG. 12

WITNESSES:  
*J. J. Delandret.*  
*Grace Myttinger*

INVENTOR.  
*E. M. Wagner.*  
BY *A. J. Miller*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

EDWARD M. WAGNER, OF DENVER, COLORADO.

## ALARM-LOCK.

SPECIFICATION forming part of Letters Patent No. 644,024, dated February 20, 1900.

Application filed October 2, 1899. Serial No. 732,418. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD M. WAGNER, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Burglar-Alarm Locks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in burglar-alarm locks of the class set forth in Letters Patent No. 632,664, issued to me September 5, 1899.

My present improvements are more especially intended to adapt the patented lock construction for use on front doors; and to this end provision is made for locking the outer knob against turning, while the inner knob is free to turn, and for retracting the latch-bolt by inserting a key from the outside without operating the alarm mechanism.

Further improvements relate to the spindle construction, the adjustability of the alarm-bell, and features of detail, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a section taken through the lock-casing, disclosing my improved mechanism, which is shown in elevation. Fig. 2 is a section taken on the line X X, Fig. 1. Figs. 3 and 4 are perspective views illustrating details of construction. Fig. 5 is a cross-section taken through the enlarged grooved portion of the shaft for operating the dog which engages the latch-bolt-operating cam and locks the outer knob against turning. Fig. 6 is a perspective view of an auxiliary plate adapted to hold the parts of the lock mechanism in place when one side of the casing is removed. Fig. 7 is a fragmentary section similar to Fig. 2, but showing a modified form of construction. Fig. 8 is a cross-section taken through the spindle, showing the bell and its adjustable bracket. Fig. 9 is a detail sectional view of the casing, the grooved shaft, and interposed spring-disk locking the shaft in position. Fig. 10 is a detail view of the said disk. Fig. 11 shows the two-

part cam for operating the latch-bolt. Fig. 12 is a detail view of the latch-bolt.

Similar reference characters indicating corresponding parts in the views, let the numeral 5 designate the lock-casing, in which are located the devices for operating the hammer of the alarm-bell. This mechanism comprises a spur-wheel 6, a spring 7, a ratchet-wheel 8, a dog 9, a lantern-wheel 10, a toothed escapement-wheel 12, a pallet 13, and an arm 14, provided with a hammer or clapper device 15, projecting through the slot 16 formed in the casing. This hammer is located in operative proximity to the bell or gong 17. The spur-wheel is loosely mounted on a shaft 18, journaled in the casing 5, and is operated by the recoil of the spring 7 through the instrumentality of the ratchet-wheel 8 and the dog 9. The ratchet-wheel is fast on the shaft 18, and the dog is pivotally mounted on the spur-wheel and held in engagement with the ratchet-wheel by a spring 19. The spring 7 is tightened by applying a key 20 to the shaft 18 and turning in the proper direction.

The alarm mechanism is held in the set position or the position locking the spring in the tightened position by a dog 21, fulcrumed on the casing at 22 and connected with the toggle member 23 by a screw-stud 4, which passes through an opening 23<sup>a</sup> in the toggle member and engages a sleeve 21<sup>c</sup>, formed integral with the dog. The other toggle member 24 is connected with the cam member 25 by a screw-stud 26. The toggle members 23 and 24 are connected with each other by a screw-stud 27. The dog 21 is provided with a projection 21<sup>a</sup>, which engages a recess 6<sup>a</sup>, formed in the face 6<sup>c</sup> of the spur-wheel adjacent the teeth, the thickness of the wheel being increased for the purpose. The dog 21 is normally held in engagement with the recesses of the spur-wheel by a spring 27<sup>a</sup>. When the outer knob is free to turn, its movement in either direction will actuate the spindle member 29 and the cam member 25 sufficiently to operate the toggle members 23 and 24 and disengage the dog 21 from the spur-wheel. The recoil of the spring 7 will then turn the ratchet-wheel 8 and the spur-wheel 6 and operate the hammer-arm through the instrumentality of the lantern-wheel 10, the escapement-wheel 12, and the pallet 13.

The spindle, as shown in Fig. 2 of the drawings, consists of male and female parts or



members 28 and 29. The male part 28 is attached to the inner knob 30 and extends through the female part 29, which is attached to the outer knob 31. The knobs 30 and 31 are attached to their spindle parts by screws 32 and 33, respectively. The outer extremity of the male spindle member is provided with a nut 34, which engages the end of the female part 29 and maintains the two spindle parts in operative relation. The construction and arrangement of the spindle parts are such that the two knobs may be turned independently of each other. The different portions of the male spindle part will for convenience be designated by the letters A, B, and C. The part A, to which the knob 30 is attached, is square in cross-section to engage a counterpart opening formed in the hub of the knob. The part B is enlarged and also square in cross-section to engage an opening of corresponding shape formed in the cam member 25<sup>a</sup>, whereby the turning of the knob and spindle operates said cam member and withdraws or retracts the latch-bolt 34. The spindle part C is circular in cross-section and engages an opening of corresponding shape formed in the member 29, in which it turns freely. The spindle member 29 is square exteriorly and engages a counterpart opening formed in the cam member 25, whereby the turning of the knob 31 actuates the cam part 25 and retracts the latch-bolt.

When it is desired to lock the outer knob 31 against turning, the hooked extremity 35<sup>a</sup> of the dog 35 is made to engage a recess formed in a projection 25<sup>c</sup> of the cam part 25. This dog is fulcrumed on the casing at 36, and its tail 35<sup>c</sup> projects into a cam-groove 36<sup>a</sup> of an enlarged part 36<sup>c</sup> of a shaft 36, journaled in the lock-casing at one extremity and in the face-plate 37 of the lock at the opposite extremity. The face-plate extremity of the shaft 36 is provided with a button 36<sup>d</sup>, located in a recess 37<sup>a</sup>, formed in the face-plate, whereby the button is flush with the surface of the plate. The button-recess 37<sup>a</sup> is of sufficient size to permit the grasping of the button by the thumb and finger for the purpose of turning the shaft sufficiently to manipulate the dog 35 and throw it into and out of engagement with the projection 25<sup>c</sup> of the cam member 25, according as it is desired to allow the outer knob to turn or lock it against turning. It is evident that the turning of the shaft will accomplish this function by virtue of the engagement of the tail of the dog with the inclined walls of the cam-groove 36<sup>a</sup>.

A slightly-modified form of construction is shown in Fig. 9, in which a space is left between the part 36<sup>c</sup> of the shaft and the lock-casing. In this space is located a spring disk or plate 36<sup>d</sup>, adapted to give an end thrust to the shaft 36 sufficient to hold the shaft in the adjusted position, but at the same time allowing it to turn freely for the purpose heretofore explained.

The manner of retracting the latch-bolt

from the outside of the door without setting off the alarm mechanism will now be described.

In the casing of the lock is journaled an arbor 38, in which is formed a keyhole accessible from the outside through an opening 39, formed in the escutcheon-plate 40 and registering with a suitable opening formed in the door 41. To this arbor is attached an arm 42, adapted to engage projections 34<sup>a</sup>, formed on the latch-bolt. This arm is slotted to straddle the bolt-actuating projections or horns of the cam part 25, whereby the turning of the arbor and the corresponding movement imparted to the arm 42 actuates the latch-bolt without turning the said cam part. The hammer-arm 14 passes through a slot 42<sup>a</sup>, formed in the latch-bolt-retracting arm or plate 42.

The bell 17 is made adjustable, whereby its position with reference to the hammer 15 may be regulated by means of a bracket 47, provided with a sleeve 43, upon which the bell is mounted. This bracket-sleeve is provided with a flange 45<sup>a</sup> on one side and projections 43<sup>c</sup> on the opposite side to hold the bell in place. The inner part of this bracket is curved to conform to the shape of the bell, as shown at 47<sup>a</sup>, while its outer extremity is bent to conform to the plane of the lock-casing, to which it is attached by means of a screw 44, passing through a slot 47<sup>c</sup>. The sleeve 43 is considerably larger than the spindle, whereby the necessary movement for adjusting purposes is permitted.

As shown in Fig. 7 of the drawings, the bell 17 surrounds the reduced portion A' of the spindle and is held between the hub 28 of the knob and a shoulder formed on the spindle between the reduced part A' and the enlarged part B'; also, as shown in this view, the two parts B' and C' of the spindle are centrally swiveled by means of a socket formed in one part, in which is located a head B<sup>2</sup>, formed on the other part. The two spindle parts are held in operative relation by pins B<sup>3</sup>, fast in the part C' and passing through a circular groove formed in the part B' adjacent the head B<sup>2</sup>. By means of this construction the two spindle parts are adapted to turn independently of each other. The latch-bolt-retracting device shown in Fig. 7 is also slightly different from that shown in Fig. 2 and heretofore explained. In Fig. 7 a narrow arm 42<sup>c</sup> is attached to the arbor 38. This arm 42<sup>c</sup> is located to one side of the hammer-arm and arranged to engage but one projection 34<sup>a</sup> of the latch-bolt.

An auxiliary casing-plate 48 is shown in Fig. 6. This plate is adapted to hold the parts mounted on the shafts 10 and 18 and the arbor 38 in place when one of the lock-casing plates 5<sup>a</sup> is removed. The auxiliary plate is provided with openings 49, 50, and 51 and adapted to receive the extremities of the shafts 18 and 10 and the arbor 38, respectively. An opening 52 is adapted to receive



a fastening-screw. (Not shown.) This plate 48 is also provided with inwardly-projecting flanges 48<sup>a</sup>, whose extremities are adapted to engage the opposite sides of the lock-casing.

5 The cam 25 is provided with an opening 25<sup>d</sup>, in which the screw-stud 26 is inserted when the latch-bolt and cam are turned over or placed in the reversed position, whereby the same construction is adapted for use on doors 10 that swing in either direction—that is, toward the right or left. As shown in Fig. 1 of the drawings, the parts are arranged for use on a door that swings toward the left. If the door is hung to swing toward the right, 15 the latch-bolt and its operating cam members will be reversed. In this case the screw-stud 26 would engage the opening 25<sup>d</sup> of the cam and the extremity of the toggle member 23, containing the opening 23<sup>a</sup>, would be placed 20 below the sleeve 21<sup>c</sup> of the dog 21. In other respects the position of the alarm mechanism would remain the same.

Having thus described my invention, what I claim is—

25 1. In a burglar-alarm lock, the combination of a latch-bolt, its operating-spindle composed of male and female members, one member passing entirely through the other and the two members being connected to rotate inde- 30 pendently of each other, means applied to the extremity of one member and engaging the extremity of the other member for locking the two members in operative relation, alarm mechanism arranged to be set off by a move- 35 ment of one spindle member and suitable means for locking the said member against movement.

2. The combination of the latch-bolt, the operating cam members, a spindle composed 40 of two parts arranged to operate the cam members independently of each other, a rotary shaft having one extremity exposed on the face-plate of the lock, and a suitable connection between the said shaft and one of the 45 cam members whereby the latter may be locked against movement at will.

3. The combination of the latch-bolt, the operating cam members, a spindle composed 50 of two parts arranged to operate the cam members independently of each other, a rotary shaft having one extremity exposed on the face-plate of the lock, said shaft being provided with a cam-groove, and a dog fulcrumed 55 on the casing, one extremity of the dog projecting into said groove while the other extremity is adapted to engage one of the cam members whereby the said cam member and its corresponding spindle part are locked 60 against movement.

4. The combination of the latch-bolt, the operating cam members, a spindle composed 65 of two parts arranged to operate the cam members independently of each other, a rotary shaft having one extremity exposed on the face-plate of the lock, a suitable connection between the said shaft and one of the cam

members whereby the latter may be locked against movement at will, and a spring interposed between the lock-casing and a shoulder on the shaft whereby an end thrust is 70 given the shaft to lock it temporarily in the desired position of adjustment.

5. The combination with the latch-bolt and its operating cam members, of a spindle composed of two parts to which the knobs are re- 75 spectively attached, one spindle part being hollow and the other part passing entirely therethrough, a stop-nut applied to the extremity of one part and engaging the adjacent extremity of the other part for connecting the 80 two parts in operative relation, the two parts operating independently of each other.

6. In a burglar-alarm lock the combination of the knob-spindle, the alarm-bell through 85 which the spindle passes, and the bell-hammer, the bell being adjustably mounted on the lock-casing.

7. In a burglar-alarm lock the combination of the knob-spindle, the alarm-bell, a sleeve 90 mounted in an opening in the bell, and through which the spindle passes, the sleeve being larger than the spindle part to permit adjustment, the sleeve being provided with a bracket adjustably mounted on the lock-casing.

8. In a burglar-alarm lock the combination 95 of the latch-bolt-retracting cam, alarm mechanism arranged to be set off by the movement of the cam, and means operated by the key for retracting the bolt without moving the cam.

9. In a burglar-alarm lock the combination 100 of the latch-bolt-retracting cam, alarm mechanism arranged to be set off by the movement of the cam, and means operated by the key for retracting the bolt without moving the cam, and comprising a key-actuated arbor in- 105 serted in the lock-casing and an arm fast on said arbor and engaging the bolt.

10. In a burglar-alarm lock the combination of the spindle, the bolt-retracting cam oper- 110 ated by the spindle, alarm mechanism provided with a spur-wheel, two toggle members movably connected together, one member being pivotally connected with the said cam, and a spring-held dog fulcrumed on the cas- 115 ing and engaging the spur-wheel to lock the alarm mechanism in the set position, and a connection between the other toggle member and the dog whereby the movement of the cam actuates the dog and releases the alarm 120 mechanism.

11. In a burglar-alarm lock the combination with the lock-casing inclosing the alarm mech- 125 anism, and an auxiliary plate for retaining the alarm mechanism in place when one side of the lock-casing is removed.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD M. WAGNER.

Witnesses:

GRACE MYTINGER,  
A. J. O'BRIEN.