A. W. SUMMERS & J. V. THOMPSON.

COMBINED DOOR LOCK AND BELL.

APPLICATION FILED MAR. 25, 1911.

1,022,275.

Patented Apr. 2, 1912.

2 SHEETS—SHEET 1.

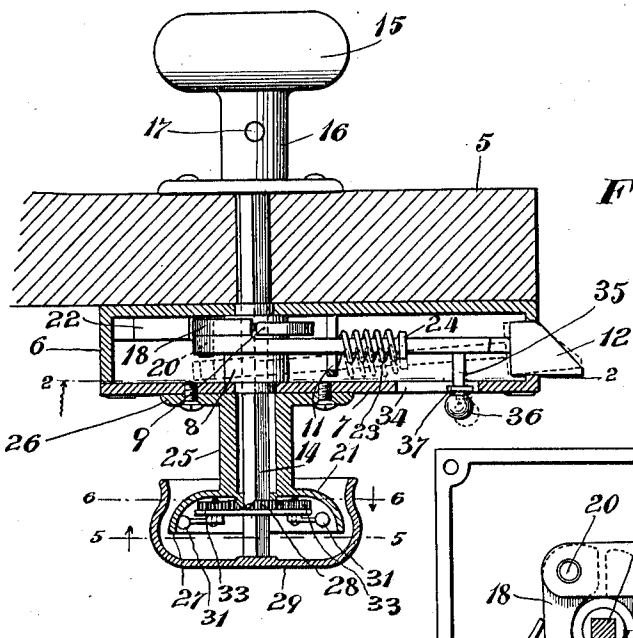

Fig. 1.

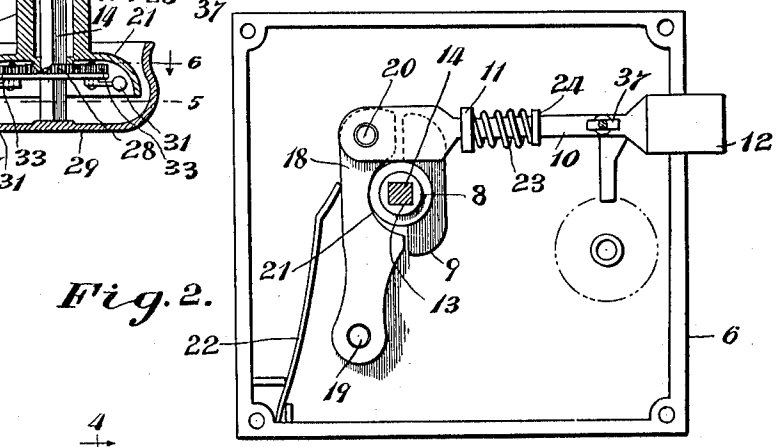

Fig. 2.

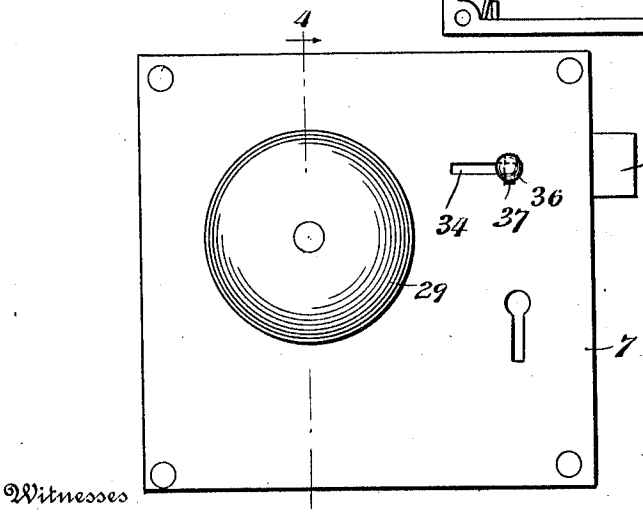

Fig. 3.

Witnesses

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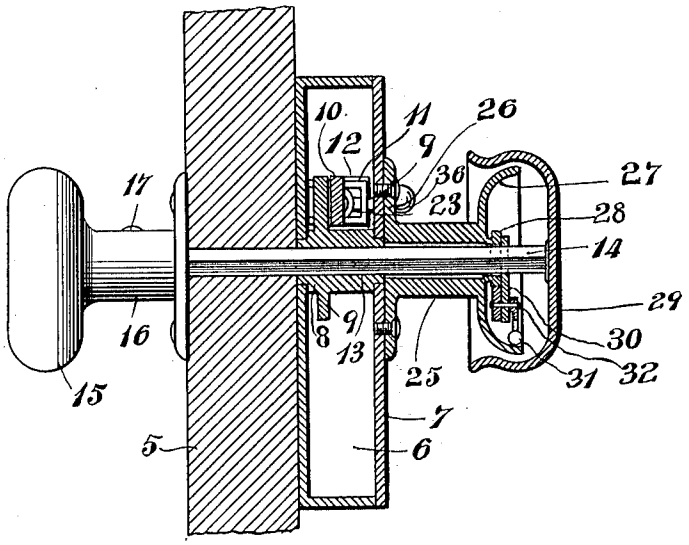

Fig. 4.

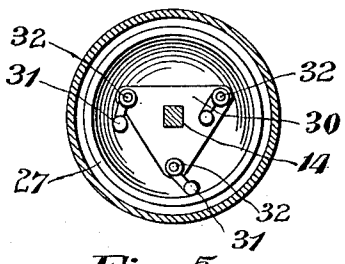

Fig. 5.

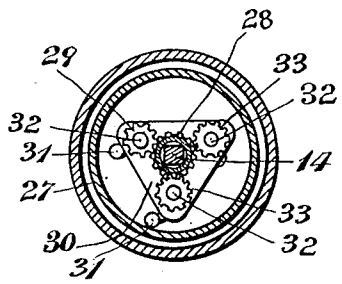

Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

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COMBINED DOOR LOCK AND BELL.

1,022,275. Specification of Letters Patent. Patented Apr. 2, 1912.

Application filed March 25, 1911. Serial No. 616,849.

To all whom it may concern:

Be it known that we, AMOS W. SUMMERS and JAMES V. THOMPSON, citizens of the United States, residing at Spencer, in the county of Roane and State of West Virginia, have invented new and useful Improvements in Combined Door Locks and Bells, of which the following is a specification.

The invention relates to locks and more particularly to the class of combined locks and bells.

The primary object of the invention is the provision of a lock in which a bell may be sounded on the releasing of the locking bolt in the lock, thus indicating that a person is tampering with the lock, or in the act of unlocking the same.

Another object of the invention is the provision of a lock in which one turning knob thereof for actuating the lock bolt is provided with a bolt, which latter is automatically operated when the knob is being turned, thus causing the sounding of the said bell, thereby giving a signal on the opening of a door or the like having such lock applied thereto.

A further object of the invention is the provision of a lock in which the locking bolt thereof may be held fast so as to prevent the unlocking of the lock exteriorly of a door having the same applied thereto, the locking bolt being operated by a door knob both exteriorly and interiorly of such door.

A still further object of the invention is the provision of a lock which is simple in construction, thoroughly reliable and efficient in operation, and inexpensive in manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a horizontal sectional view through a lock constructed in accordance with the invention, the same being shown mounted upon a swinging door. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Fig. 3 is a plan view, looking toward the inner face of the door. Fig. 4 is a sectional view on the line 4—4 of Fig. 3. Fig. 5 is a sectional view on the line 5—5 of Fig. 1. Fig. 6 is a sectional view on the line 6—6 of Fig. 1.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings, the numeral 5 designates generally a swinging door body, preferably constructed from wood, although the same may be of any other suitable material, and the same forms no part of the present invention, but is merely shown for the purpose of illustrating the mounting of the combined lock and bell, as will be hereinafter more fully described.

Mounted upon the inner face of the door 5 is a lock casing 6, provided with a removable front plate 7, the latter being detachably secured to the casing in the usual well-known manner. Within the casing is rotatably supported a hub 8 having formed thereon a substantially sector-shaped trip wing 9 which is adapted to release a locking bolt 10, the same being slidably mounted in a guide 11 formed integrally of the said casing 6. This bolt 10 has formed at its outer free end a beveled latch head 12 which works through a suitable opening cut in one side wall of the said lock casing 6, the latch head 12 being adapted for engagement with a keeper (not shown), the same being of the ordinary well-known construction, and is mounted in the usual manner upon a door casement or frame in the path of movement of the latch head 12 on the closing of the door. The rotatable hub 8 is provided with a squared central opening 13, in which is removably fitted a squared stem or knob supporting spindle 14, the same being also passed transversely through a suitable transverse opening formed in the door 5, and has mounted on the outer end thereof a door or turning knob 15, the latter being formed with a socketed shank or stem 16, in which is fitted the outer end of the said spindle 14, the stem 16 carrying the usual binding screw 17 which engages the spindle 14 for securely fastening the knob 15 thereon.

Arranged within the lock casing 6 is a swinging link or arm 18, the same being supported for swinging movement upon a pivot 19, mounted within the said casing 6, and this arm 18 is loosely connected by means of a pivot pin 20 to the inner end of the sliding bolt 10, and is disposed in the path of movement of the tripping wing 9, so that upon the turning of the hub 8 by the hand knob 15, the wing 9 will act upon

the arm 18 for retracting the bolt 10 within the casing 6, thereby unlocking the door. The arm 18 is provided with a semi-circular shaped notch 21, receiving the hub 8 when the bolt is extended for the locking of the door.

Working against the arm 18 is the free end of a leaf spring 22, the opposite end of which is suitably fixed to or integral with the lock casing 6, the spring being adapted to act upon the arm 21 to assist it in moving the bolt 10 in locking position. Surrounding the bolt 10 is a coiled expansion spring 23, one end of which has its bearing against the guide 11 for the bolt and its opposite end works against an abutment collar 24 carried by the said bolt 10, the said spring 23 being adapted to shoot the bolt 10 to locking position after the same has been moved to a released position on the turning of the knob 15, which is disposed at the outside of the door. Surrounding the inner end of the turning spindle 14 is a hollow stem 25, the same being formed at its inner end with a base flange 26, which is suitably fixed to the front plate 7 on the lock casing 6, while the outer end of the stem 25 is formed with a disk or saucer shaped bell body 27 adapted to be sounded, in a manner as will be hereinafter more fully described. Formed in the bell body 27, concentrically with respect to the spindle 14, is a stationary gear 28, the spindle 14 being passed centrally through a suitable circular opening formed in the said gear and has fixed to its outer end a hollow knob-like shell 29, the same serving as a closing head for the bell body 27.

Fixed to the spindle 14, within the bell body 27 and adjacent to the stationary gear 28 is a substantially triangular shaped plate 30, the latter having pivotally connected thereto at intervals outwardly swinging bell clappers 31, which may be of any ordinary well-known construction, and are adapted to strike the bell body 27 for the sounding thereof. These clappers 31 are mounted upon swiveled studs 32, the same having fixed thereto pinions 33 which mesh with the gear 28, so that on rotating the spindle 14, the pinions 33 will be caused to rotate and impart a similar movement to the clappers 31, thereby effecting the sounding of the bell body 27 for giving forth a signal.

Provided in the front plate 7 of the lock casing 6 is an elongated slot 34, through which is passed the stem 35 of a locking member, the outer end of the stem being formed with a finger knob 36, while its inner end is swiveled in the bolt 10, so that the stem 35 may be rotated. This stem 35 is formed with laterally extending opposed wings 37 which are adapted to be brought into alinement with the slot 34, so as to lie outside of the front plate 7, and when the wings 37 are turned at right angles thereto, the bolt 10 will be disengaged from the pivot 20 of the link 18, thus preventing the retracting of the bolt 10 on the turning of the knobs carried by the spindle 14, and in this manner the lock cannot be manipulated for the unlocking thereof to permit the opening of the door.

Upon releasing the locking member and pushing inwardly thereon the bolt 10 is moved, so that the same will engage the pivot 20, thereby connecting it to the link 18, so that upon turning of the spindle 14, the lock may be actuated for unlocking the same, and also the simultaneous sounding of the bell.

What is claimed is:

1. The combination with a lock having a turning spindle, of a stationary inner knob section surrounding the spindle and having a circular concave outer end, a triangular-shaped plate fixed to the spindle and having pivotal clappers mounted at the corners thereof, a stationary gear surrounding the spindle and carried by the inner knob section, and pinions fixed to the pivots of the clappers and meshing with the gear.

2. The combination with a lock having a turning spindle, of a stationary inner knob section surrounding the spindle and having a circular concave outer end, a triangular-shaped plate fixed to the spindle and having pivotal clappers mounted at the corners thereof, a stationary gear surrounding the spindle and carried by the inner knob section, pinions fixed to the pivots of the clappers and meshing with the gear, and a shell fixed to the spindle and inclosing the said concave end of the knob section.

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

AMOS W. SUMMERS.
JAMES V. THOMPSON.

Witnesses:
J. H. CAMP,
E. R. HUNDLEY.