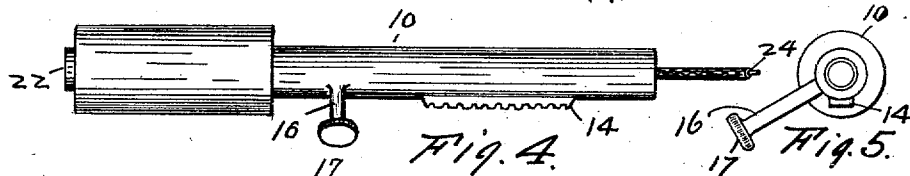
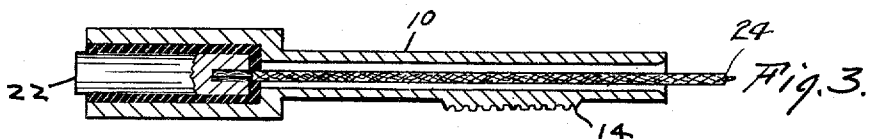
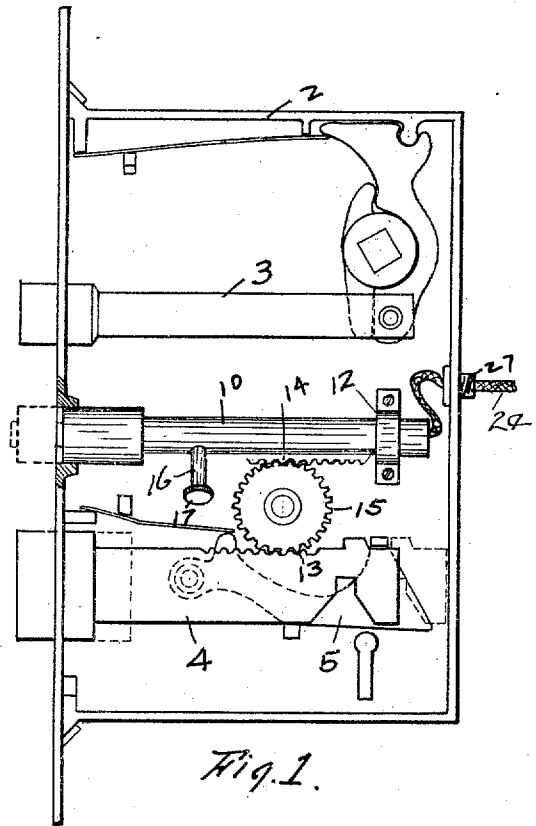
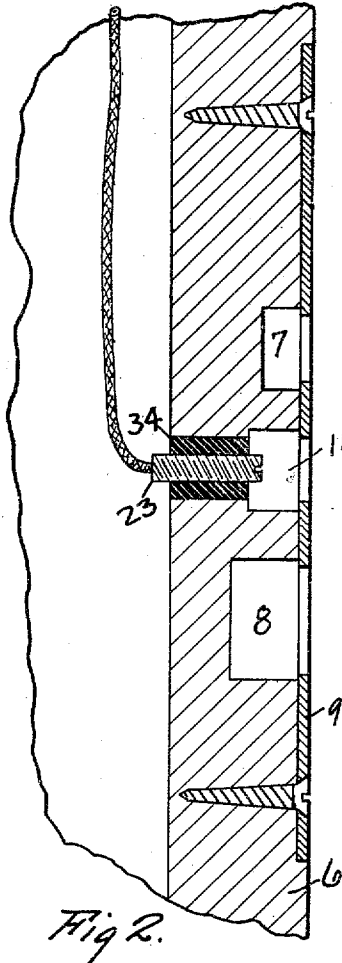


956,580.

Patented May 3, 1910.

2 SHEETS—SHEET 1.



WITNESSES

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2 SHEETS—SHEET 2.

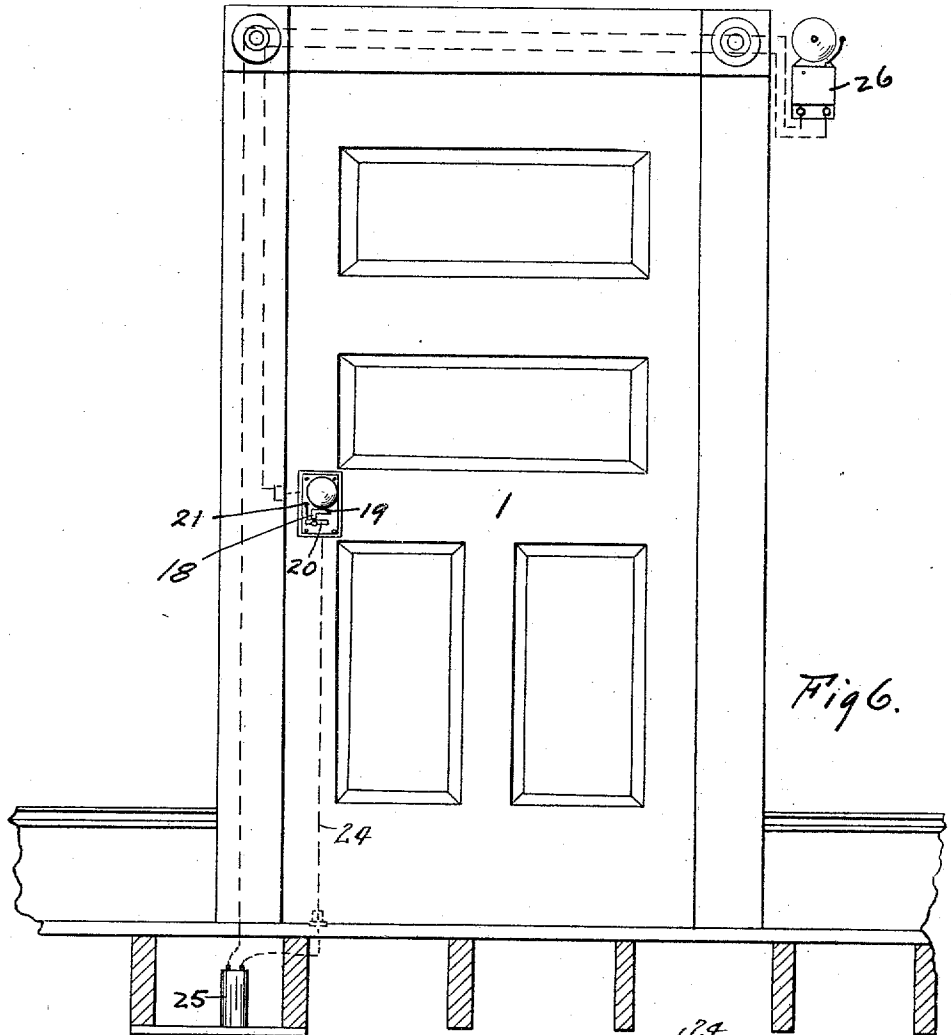


Fig. 6.

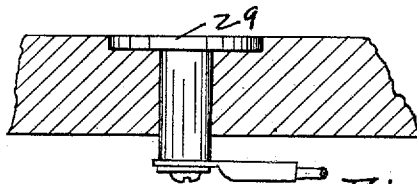


Fig. 7.

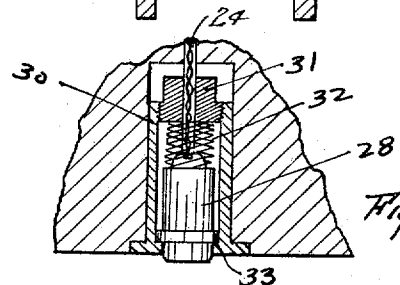


Fig. 8.

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LOCK-ALARM.

956,580.

Specification of Letters Patent.

Patented May 3, 1910.

Application filed June 10, 1909. Serial No. 501,321.

To all whom it may concern:

Be it known that I, JAMES F. HOWARD, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Lock-Alarms, of which the following is a specification.

This invention relates to an alarm designed to be sounded when an attempt is made to unlock a door, and it consists in a novel construction and arrangement of parts to be hereinafter described and claimed.

It is the object of the invention to operatively connect the bolt of the door lock to a second bolt carrying a circuit closing device, the connection being such that when the first-mentioned bolt is retracted, the circuit-closing bolt is advanced into a keeper on the door jamb, where it closes an electric circuit in which a bell is interposed, and at the same time keeps the door locked, thus affording double protection. Means are also provided for setting the circuit-closing bolt in inoperative position, in order that the door may be opened without sounding the alarm, said means being operated from the inside of the door.

In the accompanying drawings, Figure 1 is a face view of the lock employed in connection with the invention, the cover plate of the lock casing being removed. Fig. 2 is a vertical section of the door jamb and the parts carried thereby. Fig. 3 is a longitudinal section of the circuit-closing bolt. Fig. 4 is an elevation, and Fig. 5 is an end view of said bolt. Fig. 6 is an elevation of the door and the adjoining parts, showing the electric circuit diagrammatically. Figs. 7 and 8 are sectional details showing the means for connecting the circuit wire carried by the door to the circuit wire which is carried by the door casing.

Referring to the drawings, 1 denotes a door, and 2 the casing of an ordinary lock having a latch bolt 3, and a dead bolt 4, together with a tumbler 5 coöperating with the latter, these parts, except as hereinafter described, being constructed to operate in the usual manner. The door jamb 6 has keeper sockets 7 and 8 for the respective bolts, and is fitted with a striker plate 9. In the lock casing is mounted a third bolt 10, which is located between the bolts 3 and 4, and extends parallel to the same. This bolt is adapted to be shot into a keeper

socket 11 made in the door jamb. It is cylindrical in form so that it may be rotated for a purpose to be presently described, and at its rear end it is supported in a guide 12 mounted in the lock casing.

On the bolts 4 and 10 are racks 13 and 14, respectively, which are geared together by an intermediate pinion 15 mounted in the lock casing, whereby the bolt 10 is shot forward when the bolt 4 is retracted, and retracted when the bolt 4 is shot forward, the two bolts thus moving simultaneously in opposite directions. Inasmuch as the bolt 10 is also rotatable it may be swung out of gear with the pinion 15, whereby it is disconnected from the bolt 4 and thus brought into inoperative position. In order that this may be conveniently done, the bolt 10 is fitted with a laterally projecting stem 16 having at its outer end a knob 17. This stem extends through a vertical slot 18 in the lock casing, to the outside thereof, on the inside of the door. The slot has at its upper end a lateral branch 19, and at its lower end laterally extending branches 20 and 21, the latter extending in the direction of the door jamb, and along which the stem moves when the bolt 10 is shot forward. Upon moving the stem into the slot 18 and pushing it upwardly therein, the bolt 10 is rotated to disengage its rack from the pinion 15. When the stem is brought in line with the extension 21, the rack is thrown in mesh with the pinion, and the bolt will be shot forwardly when the bolt 4 is retracted, the stem moving along said slot.

The bolt 10 is tubular as shown in Fig. 3, and in the head of the bolt is a socket in which is mounted a pin 22, said pin being suitably insulated from the walls of the socket. The pin projects a short distance from the head, and is adapted to engage a contact device 23 mounted in the socket 11. To the pin is connected a wire 24 forming a portion of an electric circuit including a battery 25, and a bell 26. This wire passes out of the lock casing through an insulating bushing 27, and is led to the bottom of the door where it is connected to a pin 28 adapted to come in contact with a plate 29 embedded in the floor. From this plate a wire extends to and is connected to one of the poles of the battery 25. The other pole of the battery is connected by a wire to one of the terminals of the bell 26. From the other terminal of the bell a wire is led to the

contact device 23 and connected thereto. The wires will be suitably embedded in the wood-work, and also insulated.

The pin 28 is mounted in a sleeve 30 let into the bottom edge of the door flush therewith. The inner end of the sleeve is closed by a screw plug 31 having an opening through which the wire 24 passes to the pin, and between the plug and the pin is mounted a coiled spring 32 for normally holding the pin projected a short distance from the bottom of the door, so that it may come in contact with the plate 29, the latter being so positioned that contact is made when the door is in closed position. The outward movement of the pin is limited by a shoulder thereon engageable with a shoulder 33 in the sleeve 30. The plate 29 is let into the floor flush therewith. When the door is opened the pin rides off the plate whereby the circuit is broken at this point.

The contact device 23 is a pin connected to the circuit wire as already described. The pin is carried by a block 34 of insulating material set in the door jamb, and it projects into the socket 11 in line with the pin 22 so as to be engaged thereby when the bolt 10 is shot into said socket, thereby closing the circuit and sounding the bell.

The operation of the alarm will be apparent from the foregoing description but it may be summarized as follows: Upon closing the door the pin 28 comes into contact with the plate 29, thereby closing the circuit at this point. The bolt 10 is now set into operative position in the manner already described. The door is then locked by the bolt 4, it being shot forward into the socket 8 by a key in the ordinary manner. The branch slot 20 permits the bolt 10 to move inwardly when the bolt 4 is shot forwardly. Now, if an attempt is made to retract the bolt 4, the bolt 10 is shot forward into the socket 11, and before the bolt 4 is entirely withdrawn

from its socket 8, the head of the bolt 10 enters the socket 11, and the pin 22 strikes the pin 23, thereby closing the circuit and causing the bell to be sounded, and at the same time the door is locked by the bolt 10.

The mechanism herein described is simple in structure, and can be cheaply and easily installed. It effectually serves the purpose for which it is designed, and affords double protection by actuating the alarm and also keeping the door locked.

The branch slot 19 is provided for locking the bolt 10 in inoperative position, the stem 16 being carried into this slot whereby it is held and prevented from rotating the bolt to engage its rack with the pinion 15.

I claim:

1. In an alarm, the combination with an electric circuit, including a signal; of a lock having a pair of bolts provided with racks, a pinion in mesh with the racks, one of the bolts being connected to the circuit, and said bolt being rotatable to disengage its rack from the pinion, keepers for the bolts, and a contact carried by the keeper of the rotatable bolt engageable thereby when it is shot.

2. In an alarm, the combination with an electric circuit including a signal; of a lock having a pair of bolts provided with racks, a pinion in mesh with the racks, one of the bolts being connected to the circuit, and said bolt being rotatable to disengage its rack from the pinion, a lock casing having a slot, a stem projecting from the rotatable bolt through the slot of the lock casing to the outside thereof, keepers for the bolts, and a contact carried by the keeper of the rotatable bolt engageable thereby when it is shot.

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

JAMES F. HOWARD.

Witnesses:

H. E. SMITH,
NETTIE KING.