Nov. 23, 1926. 1,608,201

J. M. COBURN ET AL

ALARM SYSTEM

Filed March 2, 1922

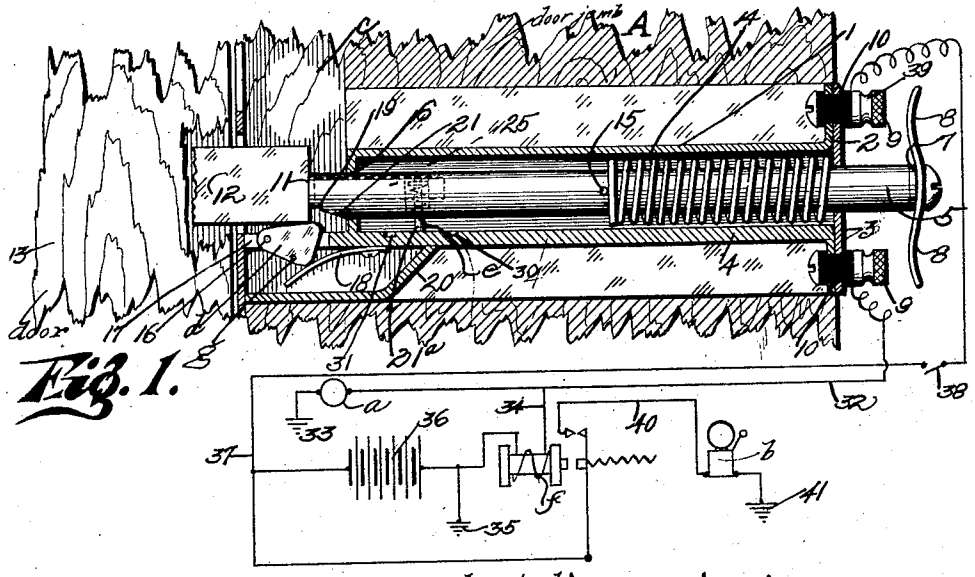


Fig. 1.

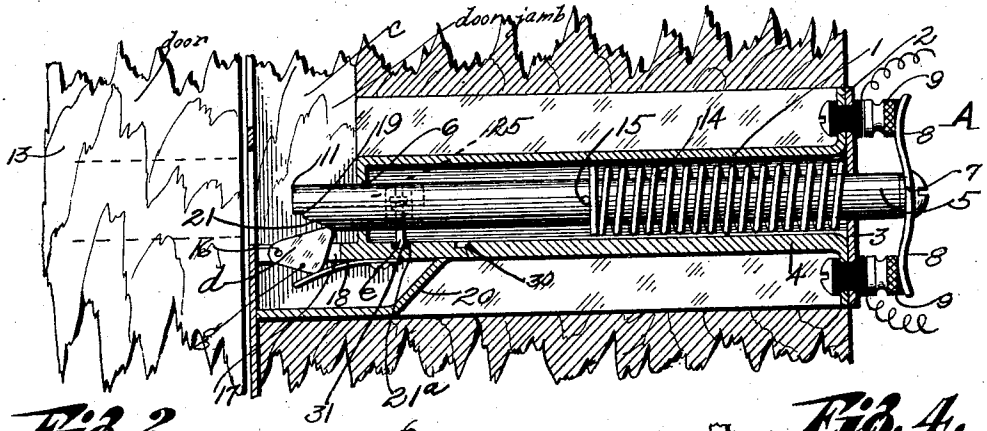


Fig. 2.

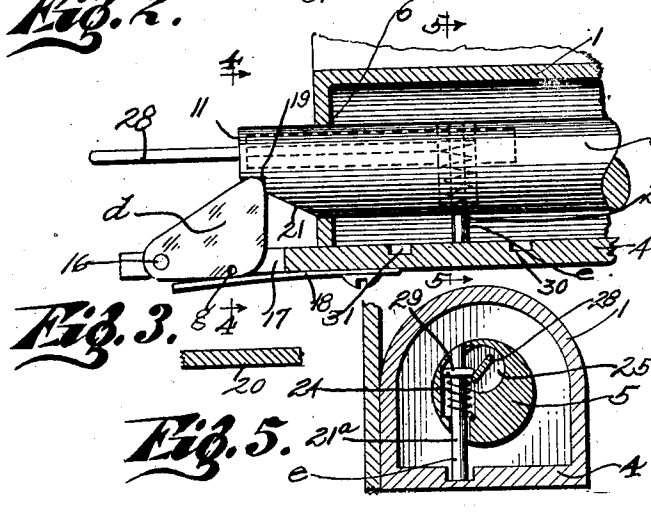


Fig. 3.

Fig. 5.

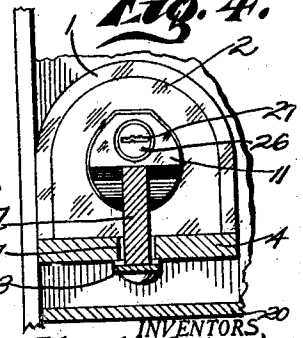


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ALARM SYSTEM.

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This invention relates to alarm systems, and particularly to an alarm the switch member of which is adapted to operate in conjunction with a door lock. The invention has for an object the provision of a suitable alarm system which is simple in construction and which may be easily installed and will operate in a positive manner when so installed.

In practicing the invention we provide a suitable switch member which may be placed in a door jamb and which switch member may be locked open or closed so as to operate when the main lock of the door is disturbed. The switch member may in turn operate various devices such as a light or an audible alarm of some form to call attention to a transgression of some person unlawfully upon the premises in an attempt to force an opening through the door.

With the above and other objects in view, the invention consists in the novel and useful provision, formation, construction, combination, association and relative arrangement of parts, members and features, as illustrated in some of its embodiments in the accompanying drawing, described in the following detail description, and finally pointed out with particularly in claims.

In the drawing:

Figure 1 is a fragmentary view, certain parts being in section, of a switch member adapted to be placed in a door jamb and to operate in conjunction with the lock bolt for the door, said figure likewise illustrating a wiring diagram for operating a light and bell member when the switch member is closed;

Figure 2 is a view similar to Figure 1, showing the switch member closed;

Figure 3 is a fragmentary cross sectional view showing the switch member held in an operative position, the said view being an enlargement of details shown in Figure 1;

Figure 4 is a fragmentary cross sectional view taken on the line 4—4 of Figure 3 and looking in the direction of the appended arrows; and

Figure 5 is a fragmentary cross sectional view taken on the line 5—5 of Figure 3 and looking in the direction of the appended arrows.

Corresponding parts in all the figures are designated by the same reference characters.

Referring with particularity to the drawing, A designates in its entirety a switch member for operating various alarm devices, such as a light *a*, or an audible member *b*, or both together. The said switch A includes a casing 1 provided with an annular flanged end 2 adapted to hold an annular plate member 3. The base 4 of said casing may be flat, as shown in Figures 4 and 5, while the remaining portion thereof may be curved as shown in said figures. This is simply a matter of preference. Within the casing 1 is a stem or bolt 5 which passes through an opening in the plate 3 and likewise through an opening in an end 6 of the casing. The bolt 5 may be irregular in cross section and the opening in the end 6 likewise irregular so as to act as a guide for the bolt during movement thereof. One end of the bolt, as 7, carries contact fingers or arms 8. These contacts arms, dependent upon movement of the bolt 5, may contact with posts 9, as illustrated in Figure 2. The posts 9 are provided with insulated portions 10 confined within openings between the annular flange end 2 and the plate 3. The casing 1 is adapted to be placed in a door jamb *c* in such a position that an end 11 of the bolt 5 may contact at certain times with a lock bolt 12 in a door 13. Assuming that the door jamb has been suitably recessed for reception of the casing 1, the bolt 5 is so arranged that it may be locked in various positions relative to the casing 1, and this locking is accomplished in the following manner: Normally a coil spring 14 surrounds the bolt 5 and has one end abutting against the plate 3, while an opposite end of the spring engages a pin 15 passing transversely through the bolt 5. The spring being under compression will immediately move the bolt when the bolt 5 is released so that the contact arms or fingers 8 may engage the posts 9. Movement of the bolt 5, however, may be restrained by suitable means *d*, which may be a detent, as well as by means *e*. The means *d* may be pivoted as at 16 and movable within a slot 17 in the base 4. A spring member 18 normally urges the means *d* upwardly to where it may engage the walls surrounding a notch 19 adjacent the end 11 of the bolt 5. The means *d* may be provided with a pin *g* to limit the upward movement thereof. This is illustrated best in Figure 3. Obviously the detent or means *d* by engaging either an end, or the notched portion 19, will prevent movement in one direction of the bolt 5. The base 4 is provided with an extension casing 20

for confining the spring 18 and a portion of the means *d*, as illustrated in Figures 1 and 2. The bolt 5 is likewise provided with an inclined surface or cam surface 21 ranging from the notch 19. Assuming that the bolt 5 has been pushed inwardly so that the contact arms are spaced from the contact posts 9, and that the means *d* is engaging the notch 19 and holding the bolt in such a position, locking the door, that is, passing the bolt 12 within the door jamb, will cause said bolt 12 to engage an edge of the means *d* forcing it downwardly so that the means *d* will disengage the notch 19, whereupon the bolt 12 will engage the end 11 of the bolt 5. This is illustrated in Figure 1. If, now, the lock were turned in the door 13, outward movement of the bolt 12 with respect to the door jamb *c* would allow the bolt 5 to move and the contact fingers 8 would engage the contact posts 9, being urged to assume said position under influence of the spring member 14. It is thus evident that if a switch of this character were utilized, every movement of the lock bolt would operate the switch and consequently operate any alarm system associated therewith, such as the light *a* or the audible member *b*. This of course is not to be desired, and as a result further means *e* are provided for the very purpose of overcoming this undesirable feature. The means *e* may include a tumbler or pin 21^a received within an opening 22 in the bolt 5. Said bolt 5 is chambered as at 23 so as to confine the pin 21^a and likewise a coil spring 24 surrounding said pin and engaging one of the chamber walls and likewise engaging a portion of the pin. The bolt 5 is provided with a longitudinal bore 25 within which bore is confined a member 26 formed with a key slot 27. Upon inserting a key 28 within the key slot 27 and turning said key, a portion of said key will engage a flange or collar 29 which will lift the pin 21^a. The base 4 of the casing 1 is provided with two spaced notches 30 and 31, and the pin 21^a may engage either one or the other of said notches for the purpose of holding the bolt 5 in such a position that the contact fingers 8 may not engage the posts 9 or be in such a position that the fingers may engage the posts. Assume that the door has been closed and the bolt 12 "shot," we will then have the parts in the position as illustrated in Figure 1. If then the bolt 12 is released the bolt 5 will slide within the casing 1 under the urging influence of the spring 14 and cause the arms 8 to engage the posts 9 and the pin 21^a will engage the notch 31, as illustrated in Figure 2. Obviously then the bolt 5 cannot be pushed back to disengage the contact arms from the posts 9, as the switch is locked in a closed position. If a proper key 28 is then inserted through the key slot 27 and turned, the pin 21^a may be lifted and an inward pushing of the key will allow the bolt to be pushed backward within the casing so that the arms 8 will disengage the posts 9. The means *d* will move upwardly and engage the notch 19 and hold the bolt "cocked," as it were, or a further inward movement of the bolt will allow the pin 21^a to engage the notch 30 so that the bolt 5 will not be shot, irrespective of movement of the lock bolt 12. To release the pin 21^a from the notch 30 only requires an insertion of the key 28 so as to lift the pin from the notch, whereupon either the end 11 or the notch 19 may engage the means *d*. It is then possible to assume two positions of the switch member A, one to be utilized during the day time, if desired, whereby a person may pass in and out of the door without operating the switch member, or it may be so set as to operate the switch member each time the bolt 12 is released from the door jamb. Various electrical circuits may be utilized with the switch member, but we have illustrated in Figure 1 one circuit which has proved useful. A circuit wire 32 may pass to a terminal of the light *a* with the other terminal of the light *a* grounded as at 33. A conductor 34 likewise connects with the circuit wire 32 passing to a terminal of a retarded relay *f*, while the other terminal of said relay is grounded as at 35 and likewise connects with a terminal of a source of current supply 36, the second terminal of said source of current supply connecting with a conductor 37. The conductor 37 has a switch interposed therein, as at 38 and connects with the second post 9 shown at 39. The conductor 37 connects with an armature of the relay *f*. Movement of the armature causes the same to complete a circuit through a conductor 40 leading to a terminal of the bell member *b*, the second terminal of said bell member being grounded as at 41. The fingers 8 will complete a circuit between the posts 9 and first operate the light *a*. The relay may be so adjusted as to operate after a given time interval so that tampering with or moving the bolt 12 so as to cause movement of the bolt 5 sufficient to cause the fingers 8 to engage the posts 9, will first operate the light *a* and then operate the audible signal *b*. If then, the movement of the bolt 12 were lawful it would be a simple matter to open the door, insert the proper key within the slot 27 turning the same to disengage the pin 21^a from the notch 31, push the bolt 5 back to where the means *d* would engage the notch 19 to hold the bolt 5 in position until the lock bolt 12 were shot, without operating the bell or audible signal *b*. If the tampering with the bolt, however, were unlawful, the light *a* would turn on and the intruder possibly being unaware of the audible signal or switch A would not attempt to move the bolt 5 thereof, nor would he succeed in moving it

unless he had a proper key, and hence the audible signal would operate at a given time, dependent upon a setting of the retarded relay *f*. In one adaptation of the invention the same key that opens the main lock of the door might be utilized for setting the switch A. However, it would be preferable to utilize, say, a switch member A for the rear or back door, and a second switch member A for the front door. The key that operates the main door lock for the back door might be utilized for setting the switch A of the front door, while the main key for the front door lock could be utilized for setting the switch A for the rear door. This would necessitate but two keys and no confusion would ever arise by this means.

It is obvious that many changes and variations and modifications may be made in practicing the invention, in departure from the particular description herein or the showing in the drawing, without departing from the true spirit of the invention or the scope of the appended claims.

Having thus disclosed our invention, we claim and desire to secure by Letters Patent:

1. A switch device adapted to be placed in a door jamb and to have a part thereof contact at times with a lock bolt in a door, said switch including a casing, a spring-impelled bolt within said casing, a switch arm carried by said bolt and posts mounted on said casing and adapted to be bridged by said switch arm dependent upon movement of the bolt, said bolt being formed adjacent one end with a notch and with a cam face, a resiliently actuated detent carried by the casing and normally engaging said notch, and means for locking the said spring-impelled bolt to maintain the switch arm in bridging engagement between the posts or spaced from said posts, and whereby when the lock bolt is moved inwardly of the door jamb the same releases the detent from engagement with said notch, movement of the lock bolt in an opposite direction permitting the spring-impelled bolt to move to position to switch arm into engagement with the said posts, and to lock the said spring-impelled bolt when the switch arm is so positioned.

2. A switch device adapted to be placed in a door jamb and to have a part thereof contact at times with a lock bolt in a door, said switch including a casing, a spring-impelled bolt within said casing, a switch arm carried by said bolt and posts mounted on said casing and adapted to be bridged by said switch arm dependent upon movement of the bolt, said bolt being formed adjacent one end with a notch and with a cam face, a resiliently actuated detent carried by the casing and normally engaging said notch, and means for locking said spring-impelled bolt to maintain the switch arm in bridging engagement between the posts or spaced from said posts, and whereby when the lock bolt is moved inwardly of the door jamb the same releases the detent from engagement with said notch, movement of the lock bolt in an opposite direction permitting the spring-impelled bolt to move to position the switch arm into engagement with the said posts, and to lock said spring-impelled bolt when the switch arm is so positioned; said means including a locking pin carried within said spring-impelled bolt, a key-way within said spring-impelled bolt adapted to receive a key for operating said locking pin, and a pair of spaced recesses in said casing to receive said locking pin.

In testimony whereof, we have signed our names to this specification.

JOHN M. COBURN.
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