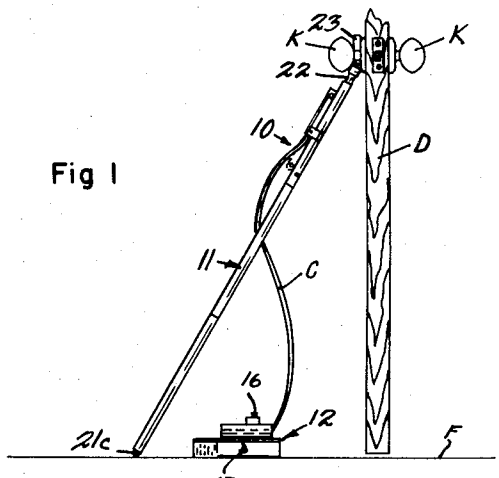
Jan. 20, 1959 F. E. MITCHELL 2,870,281

BURGLAR ALARM

Filed May 27, 1957

Fig 1



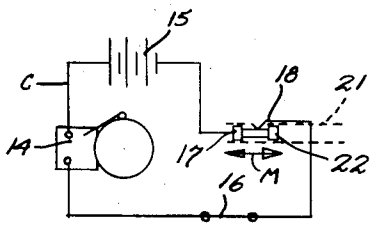


Fig 6

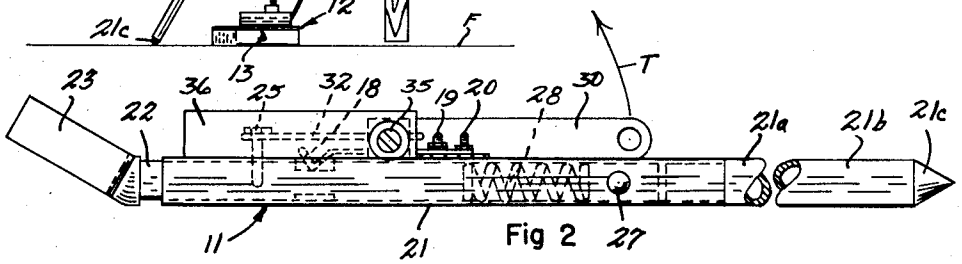


Fig 2

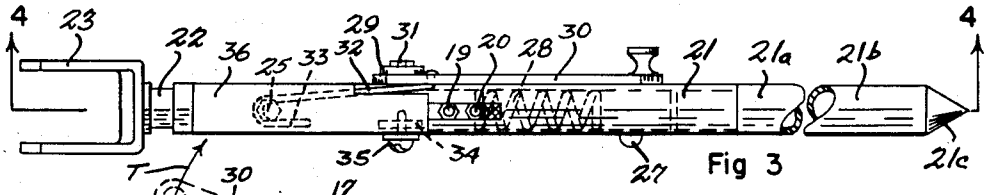


Fig 3

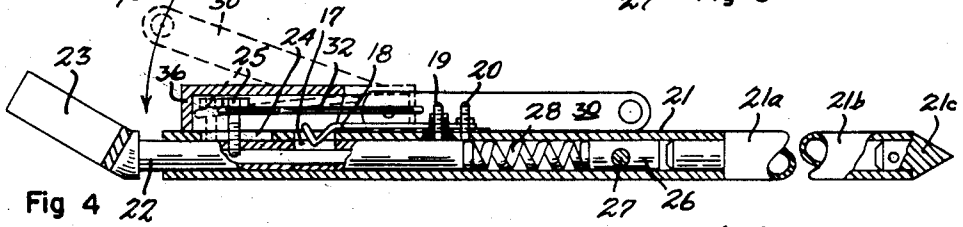


Fig 4

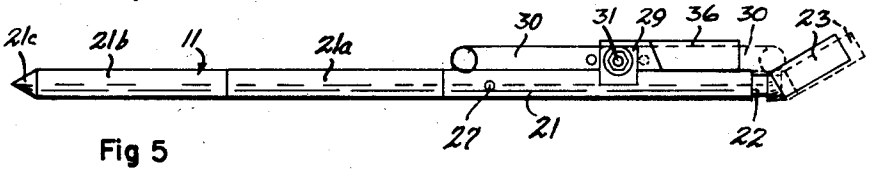


Fig 5

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BURGLAR ALARM

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Application May 27, 1957, Serial No. 661,825

6 Claims. (Cl. 200—61.93)

The present invention relates to signaling devices and more particularly to burglar alarms and alarm actuators.

Frequently, persons entering a house, motel, hotel room, or other place for petty thievery or burglary, will find it necessary to incapacitate the occupant or occupants in order to effect an escape. This often results in physical violence to render the occupant or occupants unconscious or to securely bind them.

Also, it has been found that often an entry made with the intention of theft results in brutal assaults, murders, kidnappings, and similar crimes. For this reason, much effort is expended in devising new and more intricate locks for securing doors of dwellings and other places of occupancy.

However, it has been found that skilled burglars are capable of opening even the most intricate locks and may gain entrance by very quietly so doing.

The present invention seeks to overcome the necessity of improving locks and other securing means by providing a need which has existed for many years for an inexpensive burglar alarm which may be utilized in the average home and which may be carried by a traveler for use in hotel or motel rooms, and other places where he may spend the night.

The invention further contemplates providing a device of such construction that any attempt to open a door protected thereby, will cause an audible sound and any attempt to remove the device without opening the door will also cause the alarm signal to operate, and therefore, provides a device which effectively protects the occupants against secret entry into the home or room through the door.

Another object of the invention is to provide an inexpensive burglar alarm which is effective in its operation and which is easily operated without complicated attachments.

A still further object of the invention is to provide a device which may be quickly and easily applied to a door of any place of occupancy without marring the door or other parts of the building.

These and other important objects of the invention will become apparent during the course of the following description when considered in combination with the accompanying drawing.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings which form a part of this specification and in which like numerals are employed to designate similar parts.

In the drawings:

Figure 1 is a vertical elevation showing a fragmentary edge portion of a door with the burglar alarm constituting the subject matter of this invention applied thereto;

Figure 2 is an enlarged side elevation having parts broken away for convenience of illustration;

Figure 3 is a plan view on the same scale as Figure 2;

Figure 4 is a vertical longitudinal cross section taken through the alarm actuator as at line 4—4 in Figure 3;

Figure 5 is a slightly reduced elevation of the opposed side of the alarm actuator; and

Figure 6 is a wiring diagram of the burglar alarm.

In Figure 1 of the drawing, the lower portion of a door D having the conventional door knobs K is disclosed. The burglar alarm is indicated in its entirety by the numeral **10** and is made of two portions, the alarm actuator **11**, and the alarm **12**. The alarm comprises a housing **13** which contains an audible signal such as bell **14** and a battery **15**. A manually operable off-on switch **16** is also carried by the housing to de-energize the circuit when found desirable.

The alarm actuator **11** is provided with a pair of make-and-break contacts **17** and **18** which are connected in series in the circuit C with the audible signal **14**, battery **15**, and switch **16**, by means of wires connected to posts **19** and **20**.

It will be seen in Figure 4 that the post **19** is insulated from the body of the alarm actuator **11** and is electrically connected to the contact **18**. The post **20** is electrically as well as mechanically secured to the outer rigid electrically conductive member **21** which forms a part of the alarm actuator.

The outer rigid member **21**, it is seen, is segmental and has at least one and preferably two separable sections **21***a* and **21***b* for convenience in providing a small size for placing in a suitcase or overnight bag when traveling.

Telescopically associated with the rigid member **21** is a second rigid electrically conductive member **22** which is also tubular in cross section and freely slides within the member **21** making electrical contact therewith. At its outer end, member **22** is provided with a bifurcation or yoke **23** which is disposed at a slight angle from the axis of the member **22**, and the purpose of which is seen in Figure 1 wherein the yoke straddles the neck of the door knob K to assist in holding the device in position for actuation upon movement of the door.

A longitudinally extending slot **24** is formed in the side wall of the member **21** and a bolt **25** extends downwardly through this slot and threads into the member **22**. It will thus be seen that relative axial rotation of member **22** with respect to member **21**, is precluded by the bolt **25**, and also telescopic or rectilinear movement (shown by arrow M) between the two members **21** and **22** is permitted within limits controlled by the bolt **25** striking the ends of the slot **24**.

Close to the end opposed to the member **22**, member **21** is provided with a plug **26** which is secured therein as by rivet **27**. Before the member **22** is telescopically united with member **21** a compression spring **28** is disposed within the member **21** and then the member **22** is placed in its proper relationship. Spring **28** is compressed by entrance of member **22** and therefore the member **22** is biased toward one limit of its movement.

As noted in Figure 4, the contact **17** is merely an aperture formed in the side wall of the member **22** and the contact **18** has a V-shaped tongue which extends downwardly into this aperture. Therefore, regardless of which direction the member **22** moves from its position midway its limits of movement as shown in Figure 4, the contact **17** will strike the contact **18** making electrical connection and sounding the audible signal **14**.

With the alarm actuator **11** disposed as shown in Figure 1, with its point **21***c* fixed on the rug, carpet, or floor of the room, and the yoke **23** bearing against the neck of the door knob K, and with the members **22** and **21** disposed midway the limits of movement, the circuit through audible signal **14** is broken. But when attempt is made to swing the door in either direction toward or away from the alarm actuator **11**, the relative position of the members **22** and **21** is changed and the contact **18** will strike the contact **17**, sounding the audible signal **14**, thus pro-

viding means for warning occupants of a dwelling place that effort has been made to open the door.

It will also be noted that member 21 is provided with an upstanding bracket 29 which is rigid therewith, and a manually operable crank 30 is pivotally secured thereto by means of bolt 31.

A link 32 is carried by the crank 30 and has a hook 33 which encircles the bolt 25, and when the crank 30 is disposed in the full line position as shown in Figure 4, the hook holds the member 22 against the bias of spring 28 with the member disposed midway its limits of movement. However, when the crank 30 is released and removed to the dotted line position of Figure 4, the link 32 is released permitting the bolt 25 to shift to the dotted line position and the spring 28 thus moves the member 22 wherein contact is made between contacts 17 and 18.

In actual operation the crank 30 is placed in the full line position as shown in Figure 4, while the alarm actuator is being placed with the yoke straddling the neck of the knob and the point 21c secured against the floor. Then, the crank 30 is moved as shown at T of Figure 4, to the broken line position, but since the members 22 and 21 are held against spreading by their being secured at their respective ends 21c and 23 by the knob and the floor F, the alarm is not sounded. At such time, however, as the door is swung it will either compress spring 28 shifting the members 21 and 22 toward each other, or release spring 28 which shifts the members 21 and 22 away from each other and causing the contacts 17 and 18 to make connection and sound the alarm.

A second lip 34 is carried by the member 21 and a screw 35 is employed to secure a cover or housing 36 in covering relationship to the switch elements.

Having thus described my invention, I claim:

1. For use in a burglar alarm having an electrical circuit for energizing said alarm; an alarm actuator comprising a pair of telescopically united rigid members adapted for telescopic movement relative to each other within defined limits; one said member having spaced contacts fixed thereon and adapted to constitute one pole for said electrical circuit, the other said member having a single contact fixed thereon disposed intermediate said spaced contacts and adapted to alternately electrically connect to said spaced contacts as said telescopic members approach their opposed limits of movement; and yieldable means biasing said members toward one said limit of telescopic movement.

2. The invention as defined in claim 1, further characterized by a manually operable lever releasably interconnecting said rigid members and opposing said biasing means to releasably fix said members midway their limits of movement.

3. For use in a burglar alarm having an electrical circuit; an actuator for said signaling device comprising a pair of telescopically united rigid tubular members adapted for telescopic movement relative to each other within defined limits; each said member carrying an electrical contact electrically connected for making and breaking said electrical circuit; said contacts having means to break said circuit when said members are disposed midway their limits of movement, and make said circuit when said members approach their limits of movement in either direction; and resilient means biasing said members toward one said limit of movement.

4. An alarm actuator comprising a pair of telescopically united rigid tubular members; means limiting relative telescopic movement of said members within predetermined limits and precluding relative axial rotation therebetween; a pair of electrically cooperable make-and-break contact points on said actuator, one supported on one member and insulated from both members and the other contact supported upon the other member; said contacts having means for breaking contact when said members are disposed midway their limits of movement, and for making contact with each other when said members approach their limits of movement in either direction; and resilient means biasing said members toward one said limit of movement.

5. The invention as defined in claim 4, wherein one said contact comprises an encircling ring within which is disposed the other said contact, whereby relative movement in any direction radially of the ring causes the contacts to make connection.

6. An alarm actuator comprising a pair of rigid members adapted for movement relative to each other in a confined path and within defined limits of movement; a pair of electrically cooperable make-and-break contacts on the actuator, one said contact being supported and insulated relative to its supporting member and having a pair of spaced contact points; the other said contact having a single contact point disposed intermediate said spaced contact points for breaking connection when said members are disposed midway their limits of movement, and making connection when said members approach their limits of movement in either direction; and resilient means biasing said members toward one said limit of movement.

References Cited in the file of this patent

UNITED STATES PATENTS

985,720	Ambuhl	Feb. 28, 1911
1,695,686	Hess	Dec. 18, 1928
2,692,924	Williams et al.	Oct. 26, 1954

FOREIGN PATENTS

11,916 of 1914	Great Britain	Feb. 11, 1915
30,616	Denmark	Oct. 27, 1922