

Filed March 24, 1949

BURGLAR ALARM

2 Sheets-Sheet 1

Fig. 1

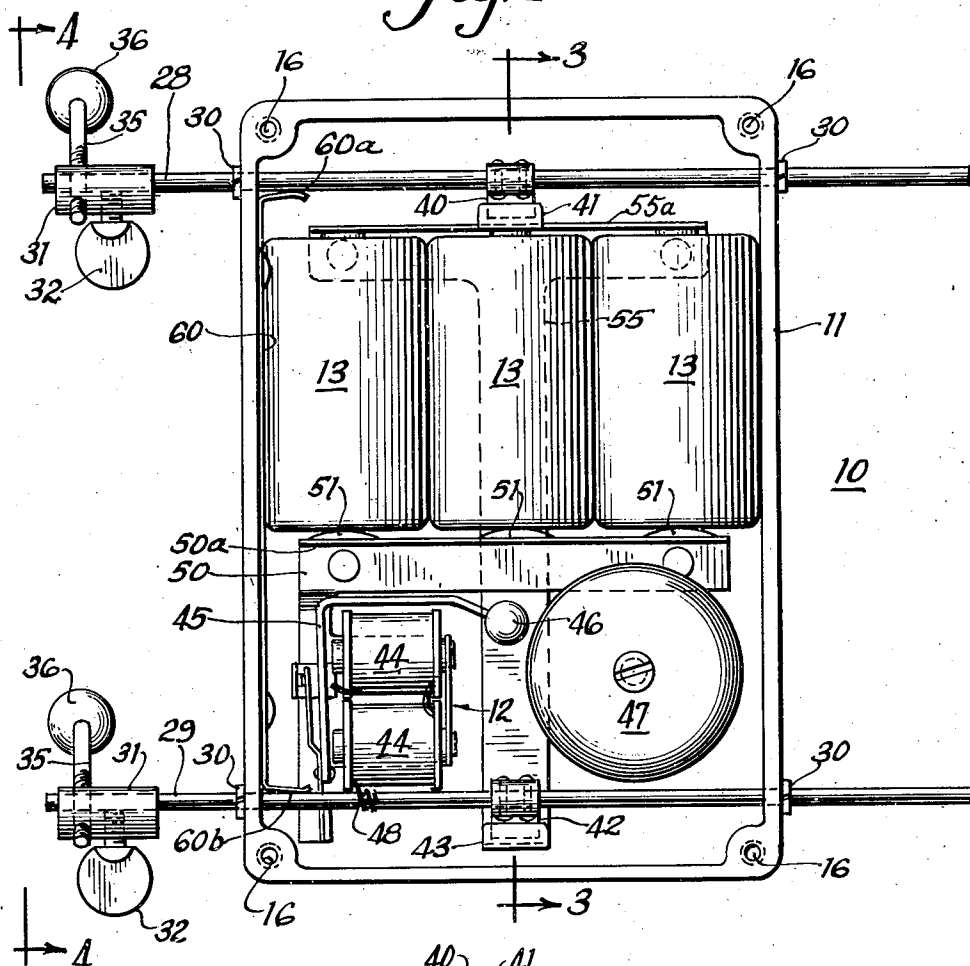
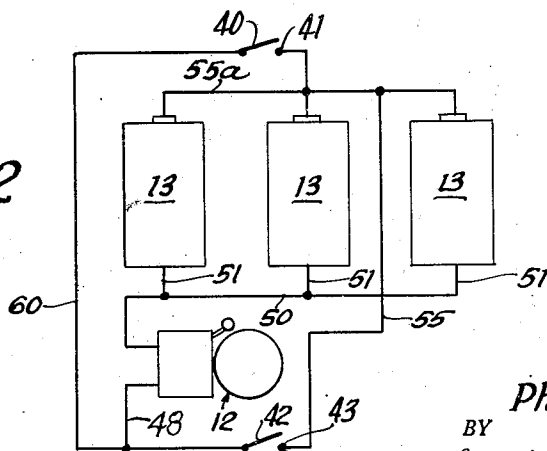


Fig. 2



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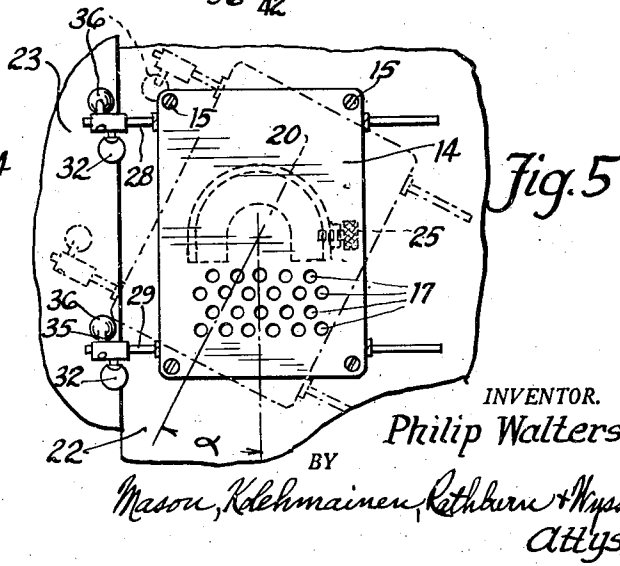
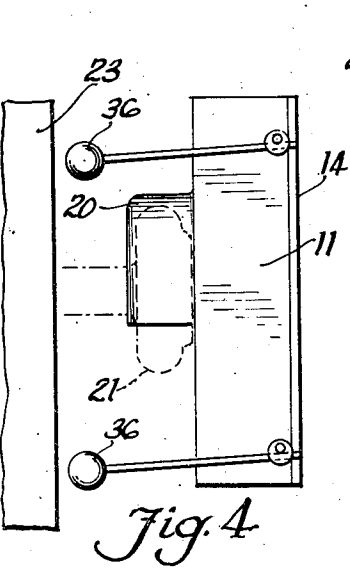
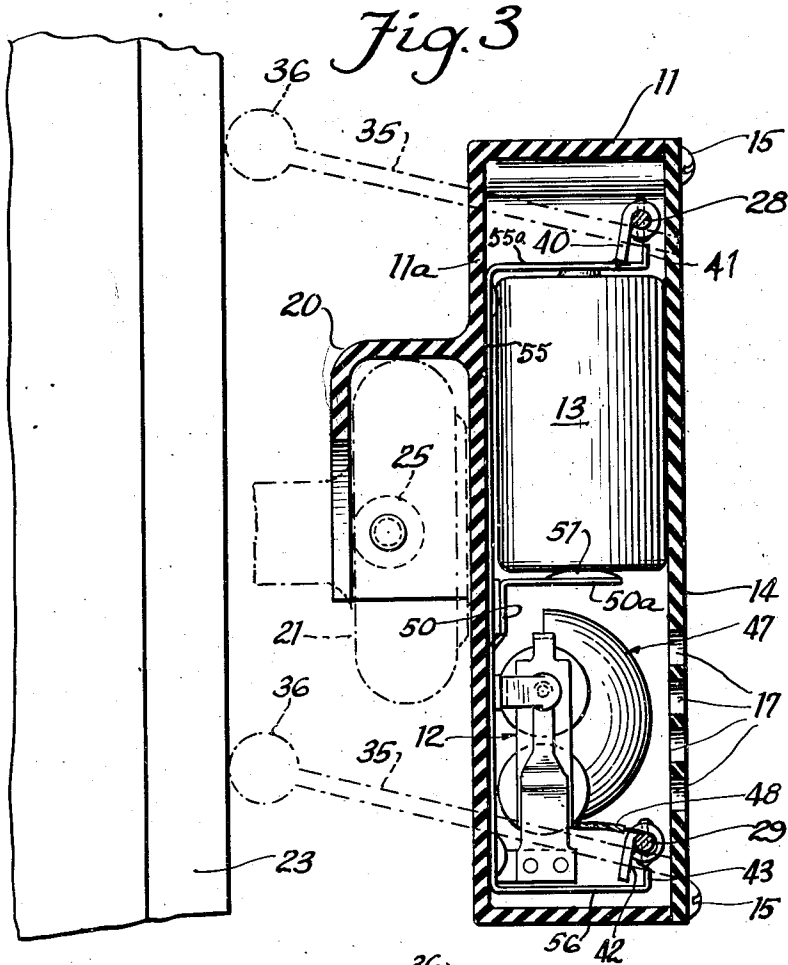
Oct. 25, 1949.

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BURGLAR ALARM

2,486,234

Filed March 24, 1949

2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,486,234

BURGLAR ALARM

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Application March 24, 1949, Serial No. 83,277

6 Claims. (Cl. 177—314)

1

The present invention relates to portable burglar alarms and more particularly to self-contained portable alarms readily adapted for attachment to doors or the like for giving an alarm when the door is tampered with.

It is a well-known fact, established by many police records, that a great many thefts occur from the occupants of rooms while such occupants are asleep within such rooms. The thefts are occasioned by persons entering the rooms with pass keys and the like generally during the night time when the occupants of the rooms are asleep. This is particularly true in rooming houses and hotels where prior occupants of the rooms either retained the keys which they had or at small cost had duplicate keys made for the purpose of subsequently entering the room when inhabited by a later occupant. The reason for entering such rooms while the occupant is asleep is more or less obvious. In many cases the valuables which the thief wishes to obtain are carried around on the person of the occupant of the room and little of value is left in the room when the occupant is not there.

Accordingly it would be desirable to provide a self-contained burglar alarm which may readily be attached to a door or other entrance to a room without the requirement of any electrical connections or the like and which will operate to produce a loud audible sound whenever the door is tampered with, such as by someone turning the knob or beginning to open the door. Such an alarm performs a two-fold purpose in that it will usually scare the intruder away and in addition insures that the occupant is awake so that he can protect his valuables or call the police in the event that the intruder is not frightened away by the alarm. Preferably the alarm is sufficiently loud so that other occupants of the building are also aroused and capture of the intruder is insured if he is not frightened away by the alarm.

It is an object of the present invention to provide a new and improved portable burglar alarm.

It is another object of the present invention to provide a small compact self-contained burglar alarm which may be readily carried in a suit case or the like and which is universally applicable to all doors.

It is another object of the present invention to provide a self-contained burglar alarm which may be supported from a door knob and which is actuated in response to turning of the knob to which it is attached, or opening of the door, or both.

2

It is a further object of the invention to provide a portable burglar alarm for ready attachment to a door which when actuated will continue to give off an audible or similar signal even though the intruder restores the door to its initial position. Still another object of the present invention is to provide a portable self-contained burglar alarm which is simple and compact, fool-proof in operation and which is very inexpensive to manufacture.

Further objects and advantages of the present invention will become apparent as the following description proceeds, and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

Briefly, the present invention is concerned with a self-contained portable burglar alarm comprising a small casing supporting an audible alarm, preferably of the electrical type, and dry cells for operating the same. The alarm is provided with means for readily supporting it from the knob of the door and further includes readily adjustable means for adapting the same so that it is universally applicable to most any type of door whether the knob is on the right or left hand side and regardless of how far the alarm is from the door frame and the like.

For a better understanding of the present invention reference may be had to the accompanying drawings in which:

Fig. 1 is a front elevational view of the burglar alarm of the present invention with the cover removed and with the alarm supported in a position to produce an audible signal in response to a predetermined movement of certain parts thereof;

Fig. 2 is a schematic circuit diagram illustrating the electrical circuits involved in the self-contained burglar alarm of the present invention;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1, assuming that the cover of Fig. 1 is in place, with the alarm shown as associated with the knob of the door, and with certain portions of the mechanism shown in phantom to illustrate the operation thereof;

Fig. 4 is a view taken in the direction of the arrows 4—4 of Fig. 1, illustrating the position of the operating portions of the alarm if the door with which it is associated is opened sufficiently to actuate the alarm; and

Fig. 5 is a front elevational view of the alarm associated with a door illustrating the change in position of the alarm in response to turning of the knob supporting the same.

3

Referring now to the drawings, the self-contained burglar alarm of the present invention generally designated by the reference numeral 10 comprises a casing or housing 11 preferably formed of a molded plastic or the like. The casing is of rectangular configuration and the arrangement shown in Figs. 1 and 2 may be considered a full sized view indicating a very compact structure which may readily be transported in a suit case or even a handbag.

Although a plastic or molded case is preferable from the standpoint of cost, it should be understood that the casing 11 might equally well be constructed of sheet metal or the like. As illustrated the casing 11 is of rectangular configuration and is adapted to contain an audible alarm generally designated at 12 and a plurality of dry cells designated at 13 which are preferably of the size commonly employed in flash lights and which may be purchased at substantially any hardware, variety, drug store, etc. The casing 11 has a depth sufficient to readily receive the dry cells 13 and effectively it comprises a rectangular box adapted to be closed by a cover member 14 which is illustrated as being fastened thereto by a plurality of screws or other fastening means 15 disposed at the four corners of the cover and threadedly engaged with cooperative threaded openings 16 in the casing 11. It will be understood that any other suitable means for attaching the cover 14 to the casing 11 may be employed. To make it easier to change batteries or dry cells when this is required, the casing may be provided with a groove so that the cover may be slid into position in the manner of a drawer guided by the groove with a suitable latch or other fastening means to provide ready access to the dry cells. In view of the fact that the audible alarm 12 is indicated as being mounted within the casing 11 the cover 14 is preferably provided with a plurality of openings 17 so that the audible signal may readily be transmitted outside the casing 11.

It will be understood that the audible alarm 12 might be disposed outside the casing 11 as for example by being mounted on the cover 14. In such case the casing 11 could be made substantially smaller since the space for the alarm 12 would not be necessary. However, with the alarm mounted on the cover 14 the casing 11 would effectively be increased in the dimension which heretofore was determined entirely by the diameter of the dry cells 13.

For the purpose of readily supporting the alarm 10 from a door knob or the like the rear wall 11a of the casing 11 preferably has integrally formed therewith a flanged arcuate portion 20 best shown in Figs. 3, 4 and 5 of the drawings which is adapted to readily receive therein the knob 21 of a suitable door 22 with which the knob 21 is associated. As illustrated the door 22 is associated with a suitable door frame 23 in the conventional manner. The integral portion 20 of the casing 11 for receiving the door knob 21 therein and consequently supporting the burglar alarm 10 therefrom is preferably provided with a set screw 25 best shown in Fig. 5 of the drawings by means of which the burglar alarm 10 may be clamped to the door knob 21. If the supporting portion 20 is formed of plastic material, a suitable threaded sleeve member may be molded therein for receiving the set screw 25 to provide the desired clamping action. It will be understood that if a metal case and a metal hook-shaped arcuate portion 20 are employed the set screw may be

4

directly threaded in the metal supporting portion 20. With this arrangement it will be apparent that the burglar alarm 10 will be bodily pivoted about the axis of the knob 21 when the knob is rotated. Such pivotal movement of the casing is clearly evident from Fig. 5 of the drawings where the normal non-operative position of the burglar alarm 10 is indicated by solid lines and the position of the burglar alarm when the knob 21 is rotated through an angle α in the clockwise direction as viewed from the cover side of the casing 11 is indicated by dotted lines.

In order that the burglar alarm 10 may be actuated to produce an audible signal in response to either direct opening of the door 22 or rotation of the knob 21, there are journaled within the casing 11 a pair of rotatable control members 28 and 29. As illustrated these rotatable control members are in the form of conducting rods or wire, such for example, as a heavy copper wire, and extend transversely of the casing, the control member 28 adjacent the upper end of the casing and the member 29 adjacent the lower end of the casing. A substantial portion of each end of the rods 28 and 29, which are disposed parallel to each other, extends outside the casing 11, as is clearly illustrated in Fig. 1 of the drawings. Any suitable means may be provided to prevent movement of the rods 28 and 29 in an axial direction relative to the casing 11. As illustrated a plurality of collars 30 may be clamped to each rod to limit longitudinal movement of the rods.

For the purpose of controlling the movement of the control members 28 and 29 there is associated with each control member a suitable sleeve 31 having a manually actuable set screw 32 for clamping the sleeve 31 in any position along either end of the rods 28 and 29 protruding outside of the casing 11. The sleeves 31 are furthermore provided with threaded openings extending in a plane perpendicular to the plane defined by the rods 28 and 29, for receiving rods 35 having weights 36 associated with the ends thereof. With this arrangement the control members 28 and 29 are weight actuated control members, the mass of the weights 36 tending to cause rotation of the control members 28 and 29.

In accordance with the present invention the sleeves 31 and the associated rods and weights 35 and 36 are suitably positioned on the control members 28 and 29 in dependence upon the particular door with which the burglar alarm 10 is associated. It will be understood that door knobs are not positioned, with respect to the associated door frame, in the same manner for all doors. Furthermore with reference to a particular side of a door the knobs are sometimes disposed on the right side and at other times on the left side. To be universally applicable therefore the sleeves 31 must be capable of being disposed on either the right or the left side of the casing 11 and must be adjustable along the longitudinal axis of the members 28 and 29 to accommodate door frames displaced laterally to a greater or less degree from the knob 21. Also the weights 36 which are adapted to rest against the door frame 23, for the non-operative position of the alarm, must be capable of being adjusted for variations in distance between the knob and the door. Preferably the adjustments for the distance of the knob 21 from the door 22, and the positions of the sleeves 31 relative to either end of the rods 28 and 29 are so made for the particular door that the weights 36 are normally in the position shown in phantom in Fig. 3 of

5

the drawings. If the door is opened the weights 36 will cause rotative movement of the rods 28 and 29 as is clearly indicated in Fig. 4 of the drawings where the door is moved away from the door frame 23. If on the other hand, the door knob 21 is rotated without opening movement of the door in the clockwise manner shown in Fig. 5 of the drawings the upper weight 36 will move clear of the door frame as shown to rotate the control member 28 even though the lower weight 36 does not permit rotation of the control member 29. If the rotation of the knob were in the other direction from that shown, it will be understood that the lower weight associated with the control member 29 would move free of the door frame 23 so that gravity could cause rotation of the rod 29.

For the purpose of actuating the alarm in response to the rotation of one or both of the control members 28 and 29, each of the control members 28 and 29 is operative to actuate a control switch for controlling the supply of energy from the dry cells 13 to the alarm 12. For the control member 28 the switch comprises a movable contact 40 and a stationary contact 41. For the control rod 29 the switch comprises a movable contact 42 and a stationary contact 43. The movable contacts 40 and 42 are mechanically supported for movement with the control members 28 and 29 and also electrically connected thereto.

The audible alarm 12 has been illustrated in the drawings as a conventional electric alarm of the type normally employed for door bells and the like including the conventional coils or windings 44 which are energized to attract the armature 45 which is associated with a suitable clapper 46 for engagement with a bell portion 47. A suitable switch is included in the alarm 12 to break the circuit immediately following energization of the windings 44 with the result that a continual oscillating motion of the clapper 46 striking against the bell portion 47 occurs upon the flow of electrical current through the windings 44.

In accordance with the present invention all electrical wires for the electrical circuit connecting the dry cells and alarm are dispensed with. To this end a suitable L-shaped bracket 50 is supported from the bottom 11a within the casing 11, including a lateral shelf portion 50a upon which the dry cells 13 may rest. The shelf portion 50a is preferably provided with raised protuberances 51 which engage with the central portions of the lower ends of the battery cases and consequently make electrical contact with the negative terminals of the batteries. The bracket 50 furthermore is electrically connected with one terminal of the audible alarm 12, so that it completes the circuit from the negative terminals of all the dry cells 13 to one terminal of the audible alarm 12.

For the purpose of making electrical connection with the positive battery terminals a T-shaped bracket 55 is provided having a resilient laterally projecting portion 55a extending in parallel relationship with the shelf portion 50a. This T-shaped bracket is also supported from the wall 11a of the casing 11. The resilient portion 55a is inherently biased toward the shelf portion 50a of the bracket 50 so that the dry cells may merely be inserted between the shelf portion 50a and the resilient portion 55a to insure without more satisfactory connection of the dry cells into the circuit. Three dry cells are illustrated as being connected in parallel. This number has been

6

found to be sufficient to operate a conventional audible alarm 12 and give many months of service. The T-shaped bracket 55, suitably fastened to the bottom 11a of the casing 11, comprises at the top of the T an extension 41 defining the stationary contact of the switch associated with the rod 28. The stationary contact 43 of the switch associated with the control member 29 on the other hand comprises an upwardly directed portion extending from a lateral projection 56 integrally formed with the lower end of the T-shaped bracket as best shown in Fig. 3 of the drawings.

To complete the electrical circuit the control members 28 and 29 must be electrically connected with the other terminal of the alarm 12. This is accomplished by connecting the control member 29 by means of a conductor 48, sufficiently flexible to permit limited movement of the control member 29, with the windings 44 of the audible alarm 12. In order that this other terminal of the audible alarm 12 may also be connected with the control member 28 a suitable electrical conductor 60 in the form of a conducting strip is fastened to one side wall of the casing 11 as is clearly indicated in Fig. 1 of the drawings. This conductor 60 is provided at its ends with brush portions 60a and 60b electrically engaging with the rods 28 and 29 respectively. The stationary contacts 41 and 43 limit the extreme rotative movement in one direction of the control members 28 and 29 and rotation in the other direction is limited by engagement of the movable contacts 40 and 42 with the cover member 14.

The electrical circuit embodied in the burglar alarm 10 will be readily understood in view of the detailed description included above. However, in Fig. 2 of the drawings, this electrical circuit is illustrated schematically with the corresponding parts thereof designated by the same reference numerals as in the preceding figures. Whenever either one of the movable switch members 40 or 42 is actuated to engage its associated contact 41 or 43, the dry cells 13 are connected across the alarm 12 so that an audible signal is produced.

In view of the detailed description included above the operation of the alarm 10 will be readily understood by those skilled in the art. The burglar alarm 10 is applied first of all to the knob 21 of a suitable door and the weights 36 are adjusted so as to engage the door frame adjacent the knob 21 with the arms 35 slightly above the horizontal as indicated in Fig. 3 of the drawings. This means that the sleeves 31 must be properly adjusted along the rods 28 and 29 and on the proper side of the casing 11 depending upon whether the door knob is to the right or left of the particular frame in question. The set screw 25 is adjusted so as to clamp the alarm 10 to the knob 21. With these adjustments, which can be made in a matter of a few seconds, the burglar alarm 10 is ready for instant operation either in response to pivotal movement of the knob 21 as shown in Fig. 5 of the drawings upon the mere turning of the knob, or upon opening of the door without turning the knob. It will be understood that there are door knobs where the inside knob is not rotated in response to turning the outside knob and in those cases operation occurs upon the slightest opening movement of the door 22 as is clearly evident from an examination of Fig. 4 of the drawings.

From the above discussion it will be apparent that a very compact and inexpensive burglar

alarm has been provided which will cost no more than a good grade of conventional flashlight, and which will take up no more space in one's luggage than such flashlight. The dry cells 13 are capable of giving service for a long time and satisfactory foolproof operation of the burglar alarm 10 can be expected. It will also be observed that when the alarm is set off by freeing one or both of the weights 36, that the alarm will continue to ring even if the knob is returned to its original position or the door is reclosed. Manual resetting is necessary to terminate operation of the alarm.

While there has been shown and described a particular embodiment of the present invention, it is not desired that the invention be limited to the construction shown and described, for it will, of course, be obvious to those skilled in the art, that changes and modifications may be made without departing from the invention in its broader aspects, and it is therefore aimed in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of this invention.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A portable self-contained burglar alarm comprising a casing, supporting means associated with said casing for mounting said casing on a door knob, means for clamping said supporting means to said knob whereby pivotal movement of the door knob causes pivotal movement of said casing, an alarm supported by said casing, a replaceable source of electrical energy supported by said casing, a control circuit including a switch for connecting said source to actuate said alarm, and weight operated means for said switch adapted to be held in the non-operative position by engagement with the frame of a door associated with said door knob, said weight operated means closing said switch in response to either pivotal movement of said knob or opening movement of said door.

2. A portable self-contained burglar alarm comprising a casing, an arcuate hook shaped member attached to the rear of said casing adapted to be hooked over a door knob, pivotal movement of said door knob causing pivotal movement of said casing when mounted on said door knob, an electric alarm supported by said casing, a dry cell, a control circuit including a switch for connecting said dry cell to energize said alarm, and gravity operated means for controlling the closing of said switch comprising a weight pivotally supported from said casing, and adjustable means for adjusting the position of said weight to engage the frame of a door with which said knob is associated to maintain said switch in an open position, a slight movement of said door in the opening direction or pivotal movement of said knob freeing said weight from said frame to close said switch and actuate said alarm.

3. A burglar alarm comprising a molded casing, supporting means integrally formed with said casing for mounting said casing on a conventional door knob, means for clamping said supporting means to said knob whereby pivotal movement of the door knob causes pivotal movement of said casing, an electric alarm supported in said casing, a pair of spaced conducting members mounted within said casing and spaced to support one or more flash light batteries therebetween and simultaneously connect said batteries in parallel if more than one is employed, an electric circuit comprising said spaced conducting members and an electric switch for connecting said batteries

to said alarm, a rotatable member journaled in said casing for operating said switch, and gravity operated means connected to said rotatable member including a weight adapted to rest against the adjacent portion of the door frame of the door associated with said knob to hold said switch in the open position, said gravity operated means being operated to close said switch and actuate said alarm in response to either pivotal movement of said knob or opening movement of said door.

4. A burglar alarm comprising a casing, supporting means fastened to said casing for mounting said casing on a conventional door knob, means for clamping said supporting means to said knob whereby pivotal movement of the door knob causes pivotal movement of said casing, an electric alarm supported by said casing, a pair of spaced parallel conducting members supported within said casing spaced to support one or more flash light batteries therebetween and simultaneously connect said batteries in parallel if more than one is employed, an electric circuit comprising said spaced conducting members and a pair of parallel arranged electric switches for connecting said batteries to said alarm, a pair of rotatable members transversely journaled in said casing at opposite ends thereof and disposed in parallel relationship, means for operatively connecting one of said control members with one of said switches, means for operatively connecting the other of said control members with the other of said switches, a first gravity operated means adjustably connected to one of said members for pivoting said one member to close said one switch, and a second gravity operated means adjustably connected to the other of said members for pivoting said other member to close said other switch, each of said gravity operated means including a weight adapted to rest against the adjacent portion of the door frame of the door associated with said knob to hold its associated switch in the open position, both of said gravity operated means being operated to close both said switches to actuate said alarm in response to opening movement of said door, and one or the other of said gravity operated means being moved free of said frame to close its associated switch and actuate said alarm in response to pivotal movement of said knob.

5. A burglar alarm comprising a molded casing, supporting means integrally formed with said casing for mounting said casing on a conventional door knob, means for clamping said supporting means to said knob whereby pivotal movement of the door knob causes pivotal movement of said casing, an electric alarm supported in said casing, an electric circuit in said casing including said alarm, a T-shaped conducting bracket mounted in said casing with the top of the "T" disposed transversely of said casing, an L-shaped bracket mounted in said casing with one leg of the "L" disposed transversely of said casing and in spaced parallel relationship with said top of said "T", said top of said "T" and one leg of said "L" being spaced to receive one or more flash light batteries therebetween for electrical connection to said brackets, said electric circuit including said brackets, an electric switch in said circuit for controlling the connection of said batteries to said alarm, a rotatable member journaled in said casing for operating said switch, gravity operated means connected to said rotatable member including a weight adapted to rest against the frame portion of a door with which

9

said knob is associated to hold said switch in the open position, said gravity operated means being operated to close said switch and actuate said alarm in response to either pivotal movement of said knob or opening movement of said door.

6. A burglar alarm comprising a casing, supporting means fastened to said casing for mounting said casing on a conventional door knob, means for clamping said supporting means to said knob whereby pivotal movement of the door knob causes pivotal movement of said casing, an electric alarm supported by said casing, a pair of spaced parallel conducting members supported within said casing spaced to support one or more flash light batteries therebetween and simultaneously connect said batteries in parallel if more than one is employed, an electric circuit comprising said spaced conducting members and a pair of parallel arranged electric switches for connecting said batteries to said alarm, a pair of parallel rotatable rod members transversely journaled in said casing adjacent the top and bottom thereof, means for operatively connecting one of said control members with one of said switches, means for operatively connecting the other of said control members with the other of

10

said switches, a first gravity operated means connected to one of said members for pivoting said one member to close said one switch, and a second gravity operated means connected to the other of said members for pivoting said other member to close said other switch, and adjustable means for connecting each of said gravity operated means with its associated rod member to fit any door frame whether the knob is at the right or left side thereof and regardless of the position of the knob relative to the frame, each of said gravity operated means including a weight adapted to rest against the adjacent portion of the door frame of the door associated with said knob to hold its associated switch in the open position, both of said gravity operated means being operated to close both said switches to actuate said alarm in response to opening movement of said door, and one or the other of said gravity operated means being moved free of said frame to close its associated switch and actuate said alarm in response to pivotal movement of said knob.

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No references cited.