

March 11, 1958

J. GORDON
ALARM DEVICE

2,826,656

Filed April 24, 1956

2 Sheets-Sheet 1

Fig. 1

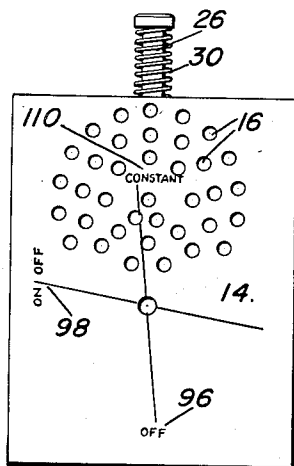


Fig. 2

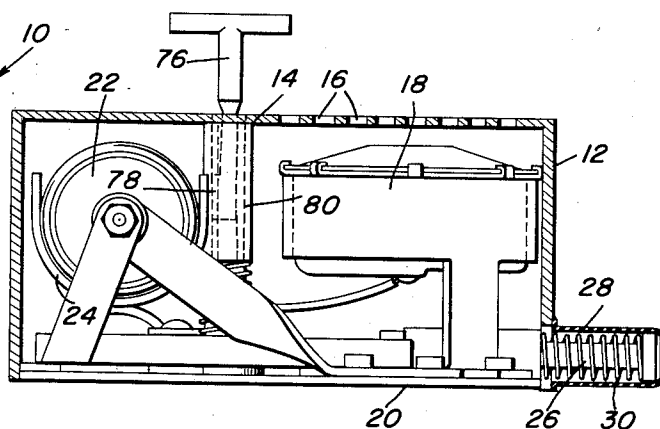


Fig. 3

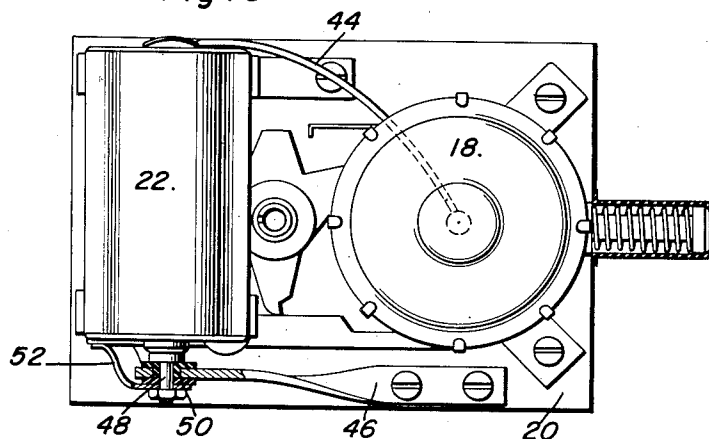


Fig. 5

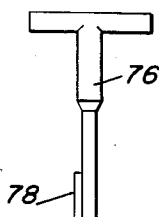
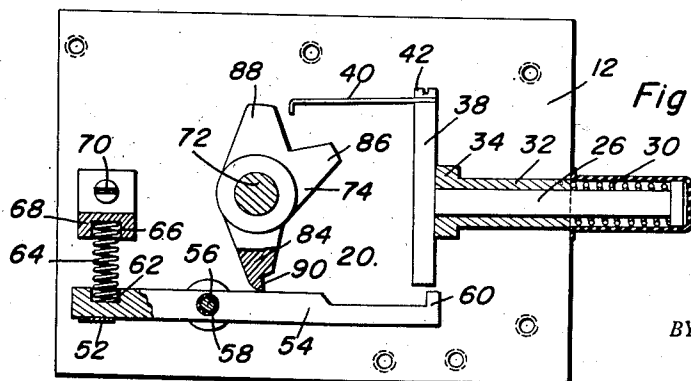


Fig. 4



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Fig. 6

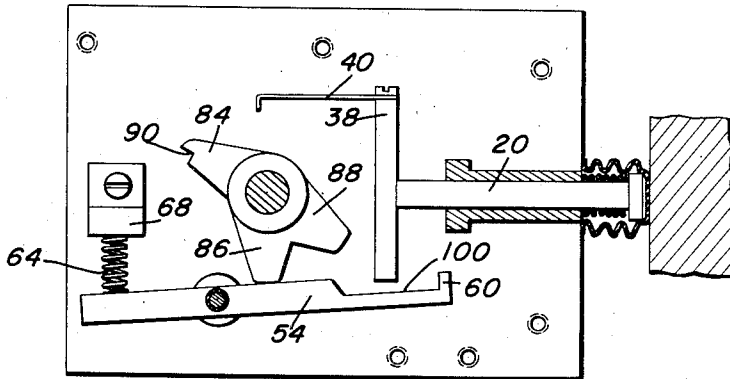


Fig. 7

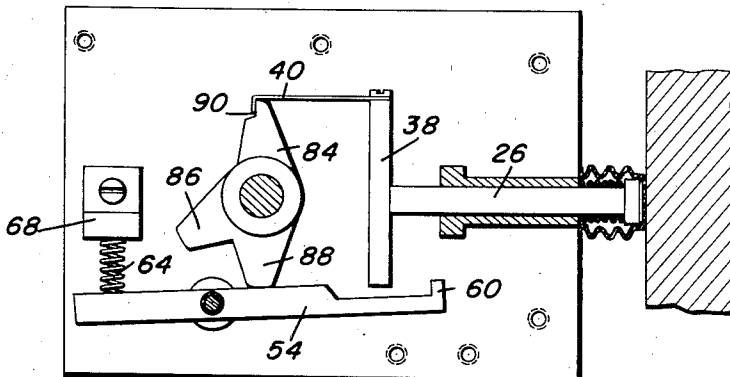
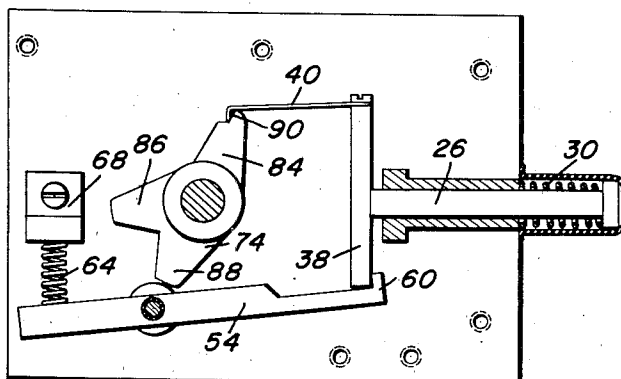


Fig. 8



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2,826,656

ALARM DEVICE

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4 Claims. (Cl. 200—61.62)

This invention relates to an electrical signalling apparatus employing a novel circuit making and breaking arrangement and which is especially adapted for use as a burglar alarm or the like.

The primary object of the present invention resides in the provision of an alarm device which is very flexible in use and which may be set for actuation upon the opening of a door with which the alarm device is associated so that alternatively the alarm will continue ringing once the door is opened independently of whether or not the door is subsequently closed or may be shut off when the door is closed.

The construction of this invention features the use of a contact arm which is engaged by a cam having eccentric portions adapted to hold the arm out of engagement with a contact mounted on a spring pressed plunger or permitting the contact arm to engage the contact on the spring pressed plunger so as to complete an operative electrical circuit from a battery to an alarm.

Still further objects and features of this invention reside in the provision of an alarm device that is simple in construction, efficient in use, easy to install, and relatively inexpensive to manufacture thereby permitting wide use and distribution.

These, together with the various ancillary objects and features of the invention which will become apparent as the following description proceeds are attained by this alarm device, a preferred embodiment of which has been illustrated in the accompanying drawings by way of example only, wherein:

Figure 1 is an elevational view of the alarm device of the present invention;

Figure 2 is a vertical sectional detail view of the alarm device illustrating in particular the position of the battery and the alarm;

Figure 3 is a sectional detail view of the alarm device as taken along the plane lying just beneath the top of the cover plate forming a portion of the housing of the invention;

Figure 4 is another horizontal sectional detail view as taken along a plane beneath that shown in Figure 3 and illustrating the various parts of the invention when in a "off" position;

Figure 5 is an elevational view of a key utilized in the invention;

Figure 6 is a sectional detail view similar to that of Figure 4 but showing the invention in a position where it will be actuated when the door with which it is associated is opened yet which will be cut off when the door is closed;

Figure 7 is a view similar to that of Figures 4 and 6 illustrating the component parts of the invention in position so that once the alarm has been actuated it will continue sounding with the door in a closed position; and

Figure 8 is a view similar to that of Figure 7 but illustrating the parts after the door has been opened.

The alarm device comprising the present invention is

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generally designated by reference numeral 10. This alarm device includes a housing 12 including a cover plate 14 provided with apertures 16 in the top thereof and in alignment with an alarm such as a buzzer, bell or the like 18 which is mounted on the base plate 20 also forming a part of the housing 12. A battery 22 forms a source of electrical power for the invention and is mounted in a battery holder 24 supported on the base 22.

Slidably mounted for movement with respect to the base is a plunger 26 which may be provided with an outer casing 28 of a suitable resilient and flexible material and which may be spring pressed to a normally extended position by means of a coil spring 30 disposed about the plunger 26 and engaging the plunger guide 32 rigidly mounted in the housing 12. The plunger guide 32 includes a collar 34 forming a stop for limiting the outwardmost position of the plunger 26. The plunger 26 carries a contact 38 in the form of a bar to which a wire hook 40 is attached by means of a screw 42 or other suitable fastener.

A conductor 44 connects the negative terminal of the battery 22 to the alarm 18 which is connected to the base 20 forming a ground.

A strap 46 is mounted on the base 20 and carries a contact 48 insulated by a bushing 50 from the strap 46 and hence from the base 20 which is connected by means of a conductor 52 to a contact arm 54 pivotally mounted as at 56 on the base 20 and insulated therefrom by means of an insulative bushing 58. The contact arm 54 has a contact finger 60 preferably integrally formed therewith and is also provided with a recess 62 for the reception of a spring 64 which is engaged at its other end in a recess 66 and an insulative bracket 68 affixed to the base 20 as by fasteners 70. The spring 64 thus urges the arm 54 continuously toward the contact 38.

Rotatably mounted by means of a shaft 72 with respect to the base 20 is a cam 74 formed of an insulative structure. A key 76 having a splined portion 78 is adapted to fit within a suitable recess 80 formed in the shaft 72 so that upon rotation thereof the cam 74 is rotated.

The cam 74 is provided with three eccentric portions 84, 86, and 88. The first of these cam portions 84 extends radially outwardly from the shaft 72 the greatest distance and is provided with a recess forming a shoulder 90 therein. The cam portion 86 is annularly offset from the cam portion 84 and the cam portion 88 which is of a similar shape and size as the cam portion 86 is diametrically opposed to the cam portion 88.

As can be seen in Figure 4, the cam portion 84 is of sufficient size to hold the contact arm 54 so that even the contact finger 60 is held out of engagement with the contact 38 independent of whether the plunger 26 is in an inwardly depressed or outwardly extended position. Hence when the key is turned to the off position as indicated at 96, Figure 1, the alarm 18 will not be sounded independent of the position of the plunger 26.

However, when the key 76 is rotated to the "on-off" position as indicated at 98, see Figure 1, the cam portion 86 is rotated so as to engage the contact arm 54. As is recognized, the spring 64 normally urges the contact arm to rotate towards the contact 38. In this position, with the plunger 26 inwardly depressed, the contact arm 54 will be spaced from the contact 38 especially due to the recess 100 in the contact arm 54. However, upon release of the plunger 26 by opening the door, the contact 38 will engage the contact finger 60 to complete an operative electrical circuit from the battery 22 to the alarm 20 through the contact arm 54 and through the contact 38 which is grounded thereby sounding the alarm. Subsequent closing of the door will depress the plunger 26.

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Of course, when the plunger 26 is again depressed and the finger 60 no longer is engaged by the contact 38 and the circuit is broken.

When the key 76 is rotated to the position as is indicated at constant on the face of the top 14 of the housing 12 and as indicated at 110, the eccentric surface 88 will engage the contact arm 54. With plunger in the closed position initially, the contact 38 is held out of engagement with the contact arm 54 and the contact finger 60. However, upon opening of the door, the plunger 26 will be spring pressed by its spring 30 to an outwardly extended position. This will cause the hook 40 to engage the shoulder 90 of the eccentric portion 84 and rotate the cam 74 to a position where the contact finger 60 will lock with the contact 38 thus continuously sounding the alarm. If the plunger 26 is pressed inwardly, the contact arm 54 will still remain in engagement therewith since the cam 74 will not engage the contact arm 54 in the position to which it has been rotated.

When the key 76 is rotated to the position as is indicated at constant on the face of the top 14 of the housing 12 and as indicated at 110, the eccentric surface 88 will engage the contact arm 54. With plunger in the open position initially and the alarm sounding when contact 38 is in contact with 60, when plunger arm 26 is depressed, causing hook 40 to bypass eccentric surface 84 and shoulder 90, releasing contact 38 from any contact with 54 causing cessation of alarm. The above provides for the purpose of having the alarm initially shut off by setting the closing of the door from the outside so that when the premises are left empty, the opening of the door again will bring the alarm to operate in the constant position until turned off with the key.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A circuit making and breaking device comprising a base, a plunger movable with respect to said base, spring means urging said plunger to an outward position, a contact carried by said plunger, a contact arm pivotally mounted with respect to said base, spring means normally urging said contact arm towards said contact, a cam rotatably mounted with respect to said base and spaced from said plunger, said cam being engageable with said contact arm to hold said contact arm away from said contact, said contact arm having a contact finger, said cam including three eccentric portions, the first of said eccentric portions being engageable with said contact arm to hold said contact arm and said contact finger out of engagement with said contact when said plunger is in either an inwardly depressed position, or an outwardly extended position, the second and third of said eccentric portions being engageable with said contact arm to hold said contact arm out of engagement with said contact when said plunger is in an inwardly depressed position but permitting said contact arm to engage said contact finger when said plunger is in an outwardly extended position.

2. A circuit making and breaking device comprising a base, a plunger movable with respect to said base, spring means urging said plunger to an outward position, a contact carried by said plunger, a contact arm pivotally mounted with respect to said base, spring means normally urging said contact arm towards said contact, a cam rotatably mounted with respect to said base and spaced from said plunger, said cam being engageable with said

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contact arm to hold said contact arm away from said contact, said contact arm having a contact finger, said cam including three eccentric portions, the first of said eccentric portions being engageable with said contact arm to hold said contact arm and said contact finger out of engagement with said contact when said plunger is in either an inwardly depressed position, or an outwardly extended position, the second and third of said eccentric portions being engageable with said contact arm to hold said contact arm out of engagement with said contact when said plunger is in an inwardly depressed position but permitting said contact arm to engage said contact finger when said plunger is in an outwardly extended position, a hook carried by said plunger and movable therewith, said hook being engageable with said first eccentric portion when said plunger is moving from an inwardly depressed position to an outwardly extended position and with said third eccentric portion engaging said contact arm so as to rotate said cam to permit said contact arm to engage said contact.

3. A signal device comprising a housing having an electrically conductive base, a plunger movable with respect to said base, spring means urging said plunger to an outward position, a contact carried by said plunger, a contact arm pivotally mounted with respect to said base, spring means normally urging said contact arm towards said contact, a cam rotatably mounted with respect to said base and spaced from said plunger, said cam being engageable with said contact arm to hold said contact arm away from said contact, said contact being grounded to said base, said contact arm when engaging said contact completing an operative electrical circuit, said contact arm having a contact finger, said cam including three eccentric portions, the first of said eccentric portions being engageable with said contact arm to hold said contact arm and said contact finger out of engagement with said contact when said plunger is in either an inwardly depressed position, or an outwardly extended position, the second and third of said eccentric portions being engageable with said contact arm to hold said contact arm out of engagement with said contact when said plunger is in an inwardly depressed position but permitting said contact arm to engage said contact finger when said plunger is in an outwardly extended position.

4. A signal device comprising a housing having an electrically conductive base, a plunger movable with respect to said base, spring means urging said plunger to an outward position, a contact carried by said plunger, a contact arm pivotally mounted with respect to said base, spring means normally urging said contact arm towards said contact, a cam rotatably mounted with respect to said base and spaced from said plunger, said cam being engageable with said contact arm to hold said contact arm away from said contact, said contact being grounded to said base, said contact arm when engaging said contact completing an operative electrical circuit, a hook carried by said plunger and movable therewith, said hook being engageable with said first eccentric portion when said plunger is moving from an inwardly depressed position to an outwardly extended position and with said third eccentric portion engaging said contact arm so as to rotate said cam to permit said contact arm to engage said contact.

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