

Aug. 9, 1966

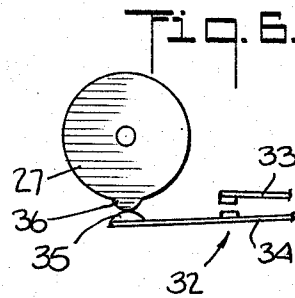
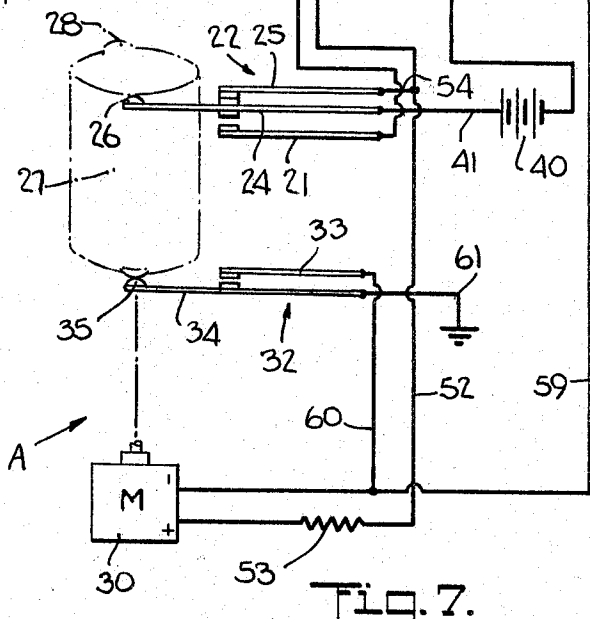
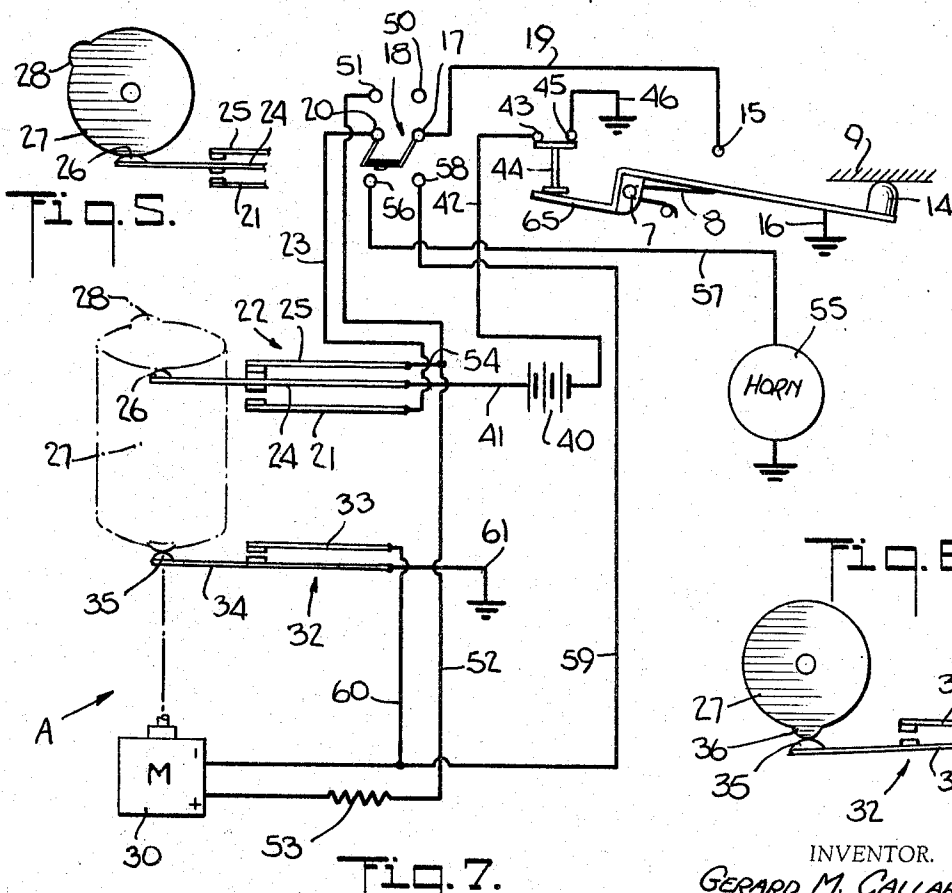
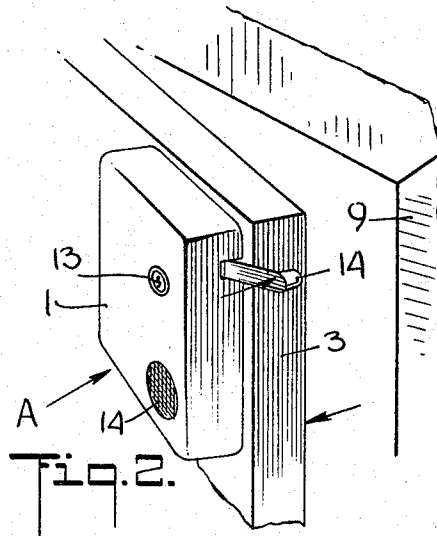
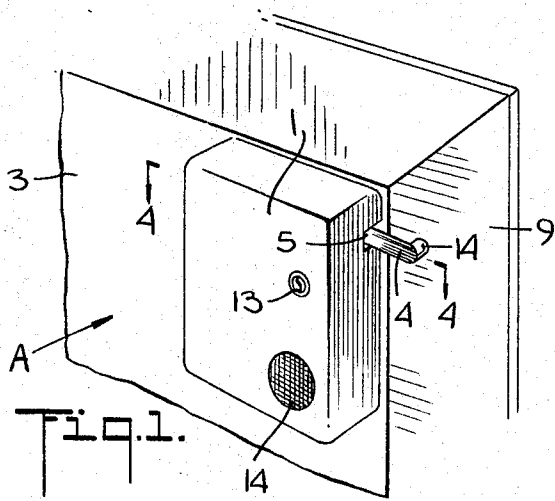
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3,266,029

BURGLAR ALARM SYSTEM HAVING A DELAYED ALARM

Filed April 30, 1964

3 Sheets-Sheet 1



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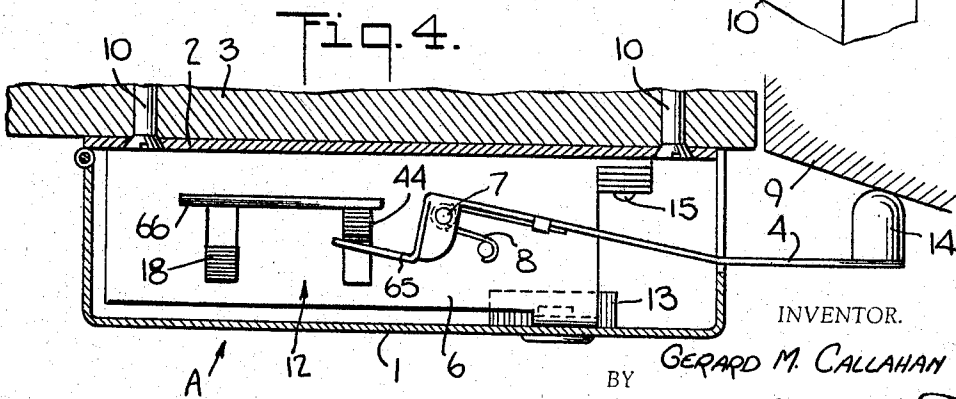
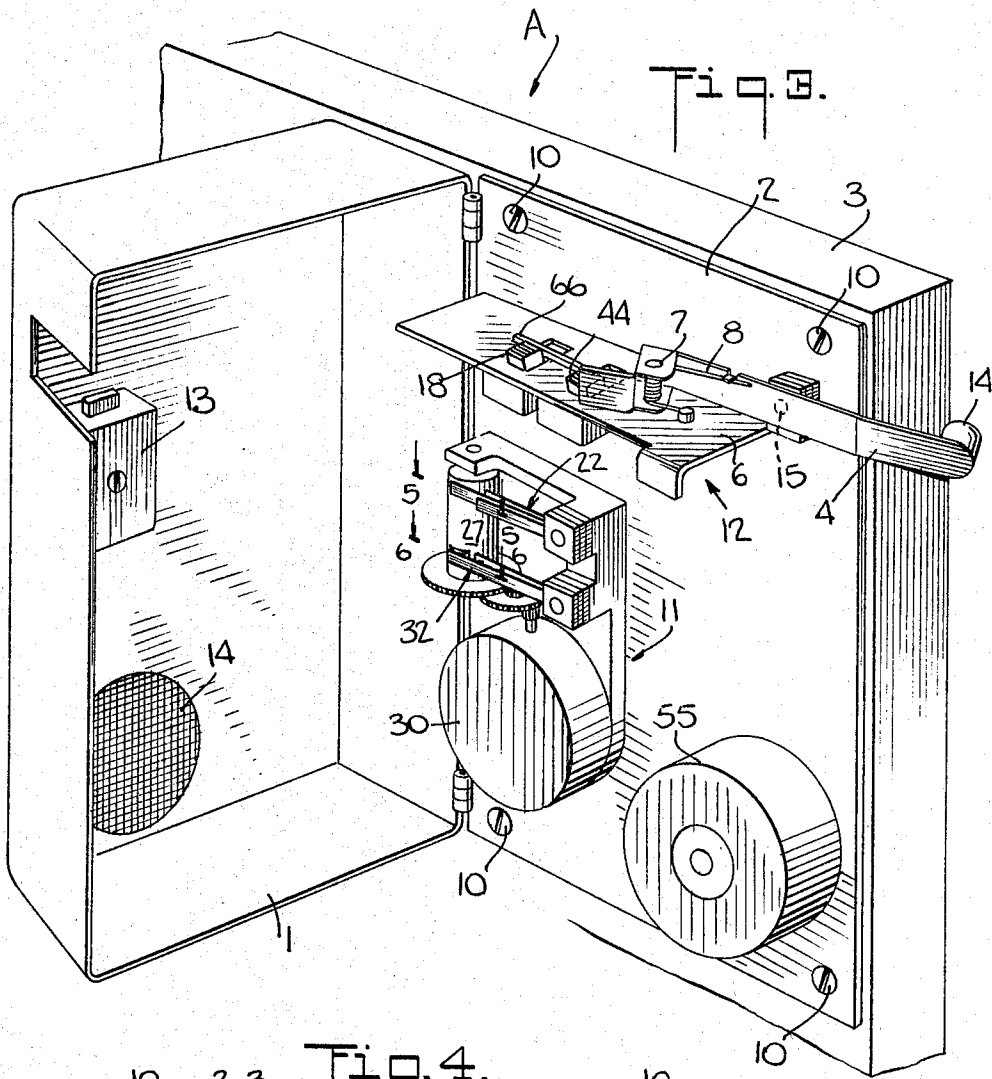
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BURGLAR ALARM SYSTEM HAVING A DELAYED ALARM

Filed April 30, 1964

3 Sheets-Sheet 2



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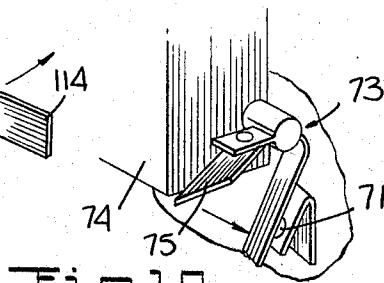
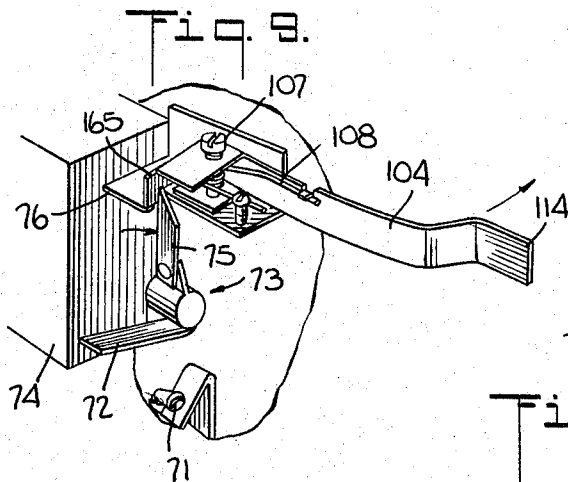
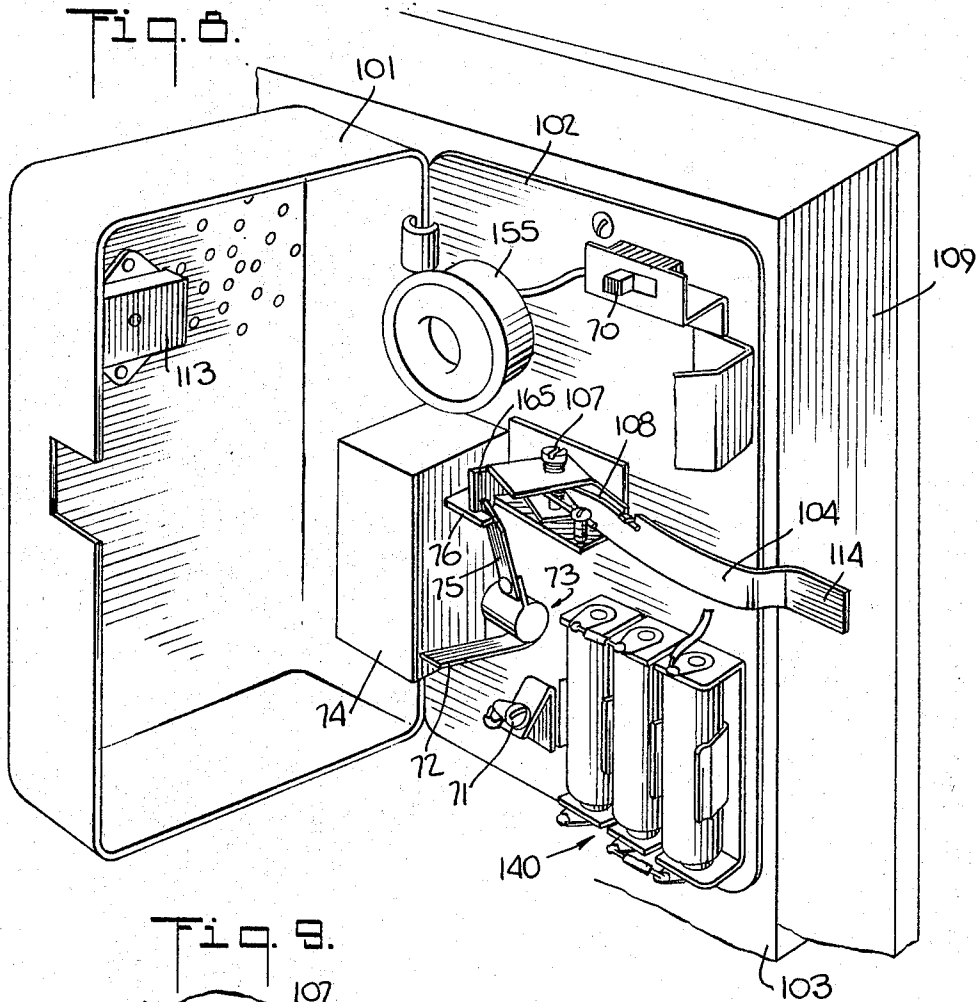
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BURGLAR ALARM SYSTEM HAVING A DELAYED ALARM

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3 Sheets-Sheet 3



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3,266,029

**BURGLAR ALARM SYSTEM HAVING A  
DELAYED ALARM**

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8 Claims. (Cl. 340-274)

The present invention relates to an alarm and more particularly to an improved burglar alarm adapted to be mounted on a door and to sound when the door is opened.

Numerous burglar alarms have been used in the prior art. However, most of these are rather complicated to operate and expensive to manufacture.

The present invention has for one of its objects the provision of an improved burglar alarm which is simple to operate because it operates with a simple timing motor.

Another object of the present invention is the provision of an improved self contained burglar alarm which may be easily mounted on a door without special tools.

Another object of the present invention is the provision of an improved burglar alarm which has longer life and which requires a minimum of maintenance because it utilizes a minimum of moving parts.

Another object of the present invention is the provision of an improved burglar alarm which may be inexpensively manufactured.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings, forming a part of the specification, wherein:

FIG. 1 is a perspective view showing the alarm of the present invention in position on a door;

FIG. 2 is a perspective view similar to FIG. 1 showing the position of the alarm after the door is opened;

FIG. 3 is a perspective view showing the alarm door in open position to expose the operating mechanism of the alarm of the present invention;

FIG. 4 is a sectional view thereof taken along line 4-4 of FIG. 1 showing the control arm;

FIG. 5 is a sectional view taken along line 5-5 of FIG. 3 showing a triple decker contact blade assembly and a control cam therefor;

FIG. 6 is a sectional view taken along line 6-6 of FIG. 3 showing a double decker contact blade assembly and a control cam therefor;

FIG. 7 is a diagrammatic plan view showing the electric circuit of the present invention;

FIG. 8 is a perspective view of a modification of the present invention;

FIG. 9 is a detail perspective view showing the control mechanism of the present invention; and

FIG. 10 is another detail view showing the means for closing the circuit to the sounding horn.

Referring to the drawings, the burglar alarm A of the present invention comprises an outer casing or door 1 hingedly connected to a back plate 2 adapted to be mounted on the edge of a door 3 by means of screws 10.

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The casing 1 is provided with an alarm or signal, in the form of a horn 55, operated by timing motor assembly 11 and control arm assembly 12. The outer casing 1 is provided with a lock 13 and a mesh 14 opposite horn 55.

The control arm assembly 12 is provided with a control arm 4 which extends out of the outer casing 1 through an opening 5 therein. The control arm 4 is provided with a knob 14 and is hingedly mounted on the frame 6 at 7 and is biased by a spring 8 to a position in the direction of the back plate 2 of the alarm.

When the casing 1 is closed and the alarm is set (in a manner which will be described in more detail below) the knob 14 of arm 4 will strike the molding 9 around the door jamb and the arm 4 will be pressed inwardly against the action of the spring 8 to place the circuit in operative position. When the door 3 is open, the spring 8 will force the control arm 4 to its normal position to close a circuit (described hereinbelow) which will sound the horn 55.

The circuit for the alarm of the present invention is shown in detail in FIG. 7 and comprises a control contact 15 adapted to be closed by the control arm 4 (which is grounded at 16) when the door 3 is opened. Control contact 15 is connected to a double throw double pole regulator switch 18 which controls horn 55, a triple decker contact blade assembly 22, motor 30 and double decker contact blade assembly 32.

The triple decker contact blade assembly 22 comprises longer central contact blade 24 and shorter upper and lower contact blades 21 and 25, respectively. The central blade 24 has a cam follower 26 at its free end which normally rests on a cam drum 27 rotated by motor 30 and is in the path of a cam 28 on drum 27. The central contact blade 24 is normally in contact with the lower contact blade 25. However, when the drum 27 is rotated by motor 30 and cam 28 comes under the cam follower 26, the central contact blade 24 is lifted to break the circuit between the central contact blade 24 and lower contact blade 25 and to move the central blade 24 into contact with upper blade 21 to close a circuit therewith.

The double decker contact blade assembly 32 comprises a short contact blade 33 and a long contact blade 34. The long contact blade 34 is grounded through a lead 61 and has a cam follower 35 at its free end which is normally resting on a cam 36 on the drum 27 to maintain the long blade 34 in a raised position and out of control with blade 33. As soon as the drum 27 begins to rotate, the cam follower 35 moves off of the cam 36 so that the long blade 34 is lowered and the two blades 32 and 33 move into contact with each other to close a circuit.

The cams 28 and 36 are spaced from each other not only longitudinally but also circumferentially so that there is a predetermined time lag between the operative position of cam 36 and operative position of cam 28. This time differential may be adjusted by merely changing the circumferential spacing between the cams 28 and 36.

The control contact 15 is in circuit with one common contact 12 of the regulator switch 18 by a lead 19. The other common contact 20 of switch 18 is in circuit with the upper contact blade 21 of triple decker contact blade assembly 22.

The central blade 24 of the triple decker blade assembly

22 is in circuit with a source of power, such as the batteries 40, through lead 41. The batteries 40 are in circuit with contact 43 of a push button master switch 44 through lead 42. The master switch 44 is controlled by the rear tailstock 65 of the control arm 4 to close the circuit between the contact 43 and a contact 45 which is grounded through lead 46. Thus, when the door 3 is closed and the control arm 4 is swung inwardly around pivot 7, the tailstock 65 moves master switch 44 to close the circuit between contacts 43 and 45.

The regulator switch 18 has a pair of contacts 50 and 51, with contact 51 connected to one side of the motor 30 by lead 52 through resistor 53 to reduce the voltage. The contact 51 is also in circuit with the upper contact blade 25 of the triple decker blade assembly 22 by a branch 54. The switch 18 has a second pair of contacts 56-58 in which a sounding horn 55 (grounded at one end) is connected to contact 56 through a lead 57. The other contact 58 is connected to the other side of the motor 30 through a lead 59 and is also connected to the short contact blade 33 of the double decker contact blade assembly 32 by a branch 60.

If desired, regulator switch 18 and master switch 44 may be operated simultaneously by providing master switch 44 with a bar 66 which extends across but is not connected to regulator switch 18. Thus, whenever master switch 44 is moved to the operative position, regulator switch 18 is moved to a position closing contacts 56-58. However, when regulator switch 18 is moved to a position closing contacts 50-51, the master switch 44 is not affected.

FIG. 7 shows the position of the parts when the unit is ready for operation. The housewife has placed the regulator switch 18 to a position where it closes contacts 56 and 58 and has simultaneously moved the master switch 44 to a position where contacts 43 and 45 open.

When the door is closed, the knob 14 on control arm 4 will strike the molding 9 around the door jamb to move the control arm 4 around pivot 7 so that its rear tailstock 65 moves the master switch 44 to a position closing the contacts 43 and 45. It will also be noted that in this position the circuit between control arm 4 and the control contact 15 is open.

When the door 3 is open, the control arm 4 moves under the force of a spring 8 into contact with the control contact 15. Thus, a circuit is closed to one end of the motor 30 through lead 19, contacts 17-58 and lead 59. The circuit to the motor 30 is completed through resistor 53, lead 52, branch 54, contact blades 24 and 25 of the triple decker blade assembly 22, battery 40 and thence to ground through lead 42, closed contacts 43 and 45 and lead 46.

The motor starts turning to rotate the cam drum 27. As soon as the cam drum 27 starts its rotation, the cam 36 moves out from under the cam follower 35 of the long blade 34 of the double decker blade assembly 32. This closes the circuit between the contact blades 33 and 34 and these contact blades remain closed until the cam 36 again strikes the cam follower 35.

As the cam drum 27 continues to rotate, the cam 28 comes under the cam follower 26 at the end of central blade 24 to break the circuit between the contact blades 24 and 25 thereby breaking the circuit to the motor 30 so that it stops rotating. At the same time, the circuit between the contact blades 21 and 24 is closed so that a circuit is closed to the horn 55 through contact blades 21 and 24, lead 23, contacts 20-56 of regulator switch 18 and lead 57. The horn 55 will now sound and will continue to sound until the regulator switch 18 is moved to its second position where it opens the contacts 56 and 58 and closes the contacts 51 and 50.

With the regulator switch 18 in this second position, the circuit to the horn 55 is broken so that it stops sounding. However, a circuit is completed to the motor 30 through lead 46, contacts 43, 45 of switch 44, lead 42, battery

assembly 40, contact blades 21, 24 of triple decker 22, lead 23, contacts 20-51 of regulator switch 18, lead 52 and resistor 53 to one side of the motor 30. The other side of the motor 30 completes the circuit to ground through the lead 59, branch 60, contact blades 32, 33 of double decker 32, and lead 61. Hence, the motor 30 begins to rotate again thereby moving the cam 28 from under the cam follower 26 on the long blade 24 of triple decker 22 so that contact between 21 and 24 is broken and a circuit is closed between blades 24 and 25 so that power is still supplied to the motor 30. When the cam 36 moves under the cam follower 35 of double decker 32, it lifts the contact blades 34 to move blade 34 out of contact with blade 33 to break the circuit to the motor 30 thereby stopping the motor 30 so that the parts are now back to their original positions.

When an authorized person enters, the time differential between the operative position of cams 36 and 28 is sufficient to give the person time to unlock the casing 1 and open it and to move the regulator switch 18 down to the position closing contacts 50 and 51 so that the horn will not sound. However, an unauthorized person, such as a burglar, will not be able to do this since he will not have the key to the lock 13.

The embodiment of the present invention shown in FIGS. 8 through 10 is similar to the embodiment shown in FIGS. 1 to 7 and has an outer casing 101 having a lock 113 hingedly mounted to the back plate 102 mounted on door 103. A horn 155 is connected to a battery assembly 140 through a manually operable master switch 70. The circuit is completed through a stationary contact 71 and movable contact arm 72 which is one arm of a spring pressed lever 73 operated to a spring motor assembly 74. When the contact arm 72 strikes contact 71, the circuit to the horn 155 is closed and the horn sounds. Openings 114 are provided in the casing 101 to permit the sound to move freely out of the casing 101.

A control arm 104 is pivotally mounted at 107 and is spring biased by spring 108 toward the door jamb 109 and has a rear upstanding tailstock 165 and an operative position 114. The lever 73 is provided with a rear arm 75 which is pivotally mounted at 56. A stationary hook 76 is provided above pivoted arm 75 and adjacent upstanding tailstock 165 of the control arm 104 which lies behind rear arm 75.

When the housewife leaves the house, she opens the casing 101, moves the master switch 70 to the "on" position and rotates the lever assembly 73 until the pivoted rear arm 75 lies underneath the hook 76 and in front of tailstock 165. The rotation of assembly 73 will wind the spring motor (not shown) in spring motor assembly 74. Leaving the parts in this position, she closes the casing 101 and closes the door 103. The control arm 104 strikes the door jamb 109 and moves against action of spring 108.

When the door is opened, the control arm 104 is moved by spring 108 in the direction of the arrow so that its tailstock moves the pivoted arm 75 out from under the hook 76. This enables the lever assembly 73 to rotate under power supplied by spring motor assembly 74 to move contact arm 72 toward the stationary contact 71. When the two contacts 71 and 72 close, the circuit to the horn 155 is closed.

If an authorized person is opening the door, the timing motor will give him sufficient time within which to open the casing 101 and to break the circuit by moving the master switch 70 to the "off" position. However, an unauthorized person will not be able to do so since he does not have the key to lock 113.

It will thus be seen that the present invention provides an improved alarm which is simple to operate and easily mounted on a door and which may be inexpensively manufactured.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without

sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. An alarm comprising an enclosure, a pivotally mounted control arm in said enclosure and having a portion thereof extending from said enclosure, an electric circuit in said enclosure comprising a control contact adapted to close said circuit by pivotal movement of said control arm, and a pair of master contacts adapted to be closed by said control arm, alarm means and a power supply in said circuit, rotatable timing means in said circuit, a motor adapted to rotate said timing means, regulator switch means having a first position for closing the circuit to said motor to rotate said timing means and a second position for breaking the circuit to said alarm, first contact means having a first position in circuit with the first position of said regulator switch to prevent operation of the alarm means for a predetermined length of time, said contact means being operable by rotation of said timing means to a second position in circuit with the first position of said regulator switch for closing the circuit to said alarm to cause the alarm to operate, second contact means operable by rotation of said timing means to a position in circuit with the second position of the regulator switch means to close the circuit to the motor said first contact means being operable at a predetermined position along the path of movement of said timing motor remote from the point of operation of said second contact means.

2. An alarm as claimed in claim 1 wherein said first contact means is a triple decker contact blade assembly having a long contact blade and a pair of short contact blades.

3. An alarm as claimed in claim 1 wherein said second contact means comprises a double decker contact blade assembly having long and short contact blades.

4. An alarm as claimed in claim 1 wherein said regulator switch is a double throw double pole switch.

5. An alarm comprising an enclosure, a pivotally mounted control arm in said enclosure having a portion thereof extending from said enclosure and an inner portion, an electric circuit in said enclosure having a control contact adapted to be closed by said control arm, a pair of master contacts adapted to be closed by a master switch actuated by the inner portion of said control arm, alarm means in said outer casing, a rotatable cam drum having first and second circumferentially spaced cams thereon, a motor adapted to rotate said cam drum, a triple decker contact blade assembly having a long central contact blade and short upper and lower contact blades, said long contact blade having a cam follower in the path of said first cam, a double decker contact blade assembly comprising a long contact blade and a short contact blade, said long contact blade having a cam follower in the path of said second cam, a double throw double pole regulator switch in said enclosure having a pair of common contacts and a pair of first and second contacts, a power source in circuit with the long blade of the triple decker contact blade assembly and with said master switch, said regulator switch being in circuit with said control contact and with the upper blade of said triple decker contact blade assembly, said regulator switch being in circuit with said motor, with the short blade of the double decker contact blade assembly and with said alarm means, said regulator switch being in circuit with the motor and with the lower short blade of the triple decker contact blade assembly.

6. An alarm comprising an outer casing, a pivotally mounted spring biased control arm in said outer casing having a portion thereof extending from said outer casing, an electric circuit in said outer casing having a control contact adapted to be closed by said control arm, said control arm being grounded and having a rear tailstock, a pair of master contacts adapted to be closed by a master switch actuated by said tailstock, one of said master contacts being grounded, alarm means in said outer casing, a

cam drum having first and second circumferentially spaced cams, a motor adapted to rotate said cam drum, a triple decker contact blade assembly having a long central blade and short upper and lower contact blades, said long contact blade having a cam follower in the path of said first cam, a double decker contact blade assembly comprising a long contact blade and a short contact blade, said long contact blade having a cam follower in the path of said second cam, a double throw double pole regulator switch in said outer casing having a pair of common contacts and a pair of first and second contacts, a battery source in circuit with the long blade of the triple decker contact blade assembly and with the other contact of the master switch, one of the common contacts of the regulator switch being in circuit with said control contact, the other common contact of said regulator switch being in circuit with the upper blade of said triple decker contact blade assembly, one of said first contacts of the regulator switch being in circuit with said motor and with the short blade of the double decker contact blade assembly, the other first contact of said regulator switch being in circuit with said alarm means and one of the second contacts of the regulator switch being in circuit with the motor and with the lower short blade of the triple decker contact blade assembly whereby positioning the regulator switch to the first position and closing of the control contact by the control arm will first energize said motor to rotate the cam drum, stop the motor and close the circuit to the alarm means and whereby positioning of the regulator switch to the second position will break the circuit with the alarm means and will energize the motor to rotate the cam drum until the parts return to their original positions.

7. An alarm comprising an outer casing having alarm means therein, a power source in circuit with said alarm means, a master switch adapted to open and close said circuit, stationary and movable contacts in said circuit adapted to complete the circuit when they close, a spring motor adapted to move the movable contact to a position where it closes the stationary contact, said movable contact having a pivotally mounted rear arm, a hook adapted to cooperate with said rear arm to prevent the movable contact from moving, a pivotally mounted control arm mounted in and extending from said casing, said control arm having an upstanding tailstock positioned behind the rear arm of the movable contact and having a path of movement across at least a portion of the hook into engagement with said rear arm for rotating said rear arm about its pivot and out of the hook whereby actuation of the control arm will cause the tailstock to move the rear arm out from under the hook thereby permitting the movable contact to move to a position where it closes with the stationary contact and completes the circuit to the alarm means.

8. An alarm comprising an outer casing having alarm means therein, a battery source in circuit with said alarm means, a master switch adapted to open and close said circuit, stationary and movable contacts in said circuit adapted to complete the circuit when they close, a spring motor adapted to move the movable contact to a position where it closes the stationary contact, said movable contact having a pivotally mounted rear arm, a hook adapted to cooperate with said rear arm to prevent the movable contact from moving, a pivotally mounted control arm mounted in and extending from said casing, said control arm having an upstanding tailstock positioned behind the rear arm of the movable contact and having a path of movement across at least a portion of the hook into engagement with said rear arm for rotating said rear arm about its pivot and out of the hook whereby actuation of the control arm will cause the tailstock to move the rear arm out from under the hook thereby permitting the spring motor to move the movable contact to a position where it closes with the stationary contact and completes the circuit to the alarm means.

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