July 10, 1956 W. P. LAVELLE 2,754,498

ALARM DEVICE FOR SUSPENDED ARTICLES

Filed April 29, 1954

FIG. 1.

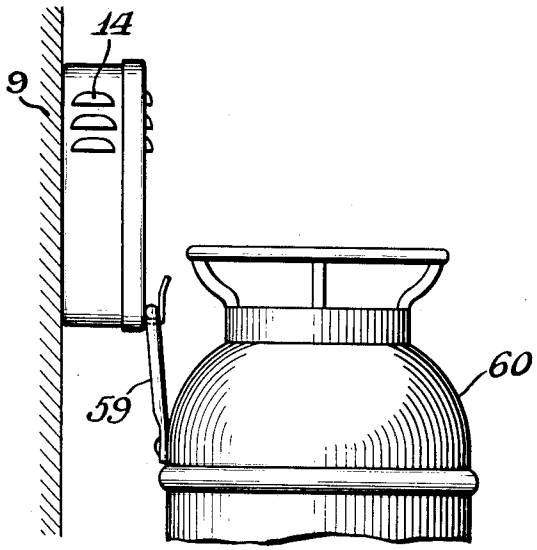


FIG. 3.

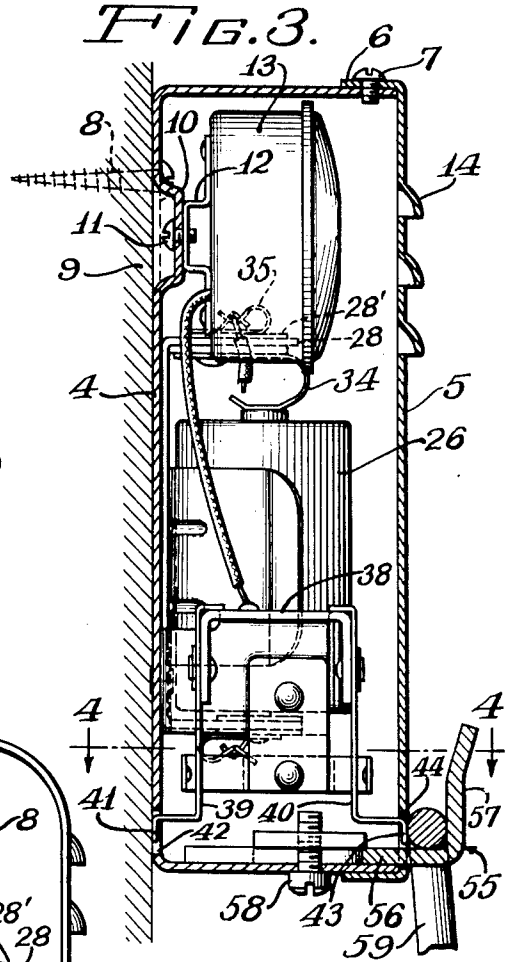


FIG. 2.

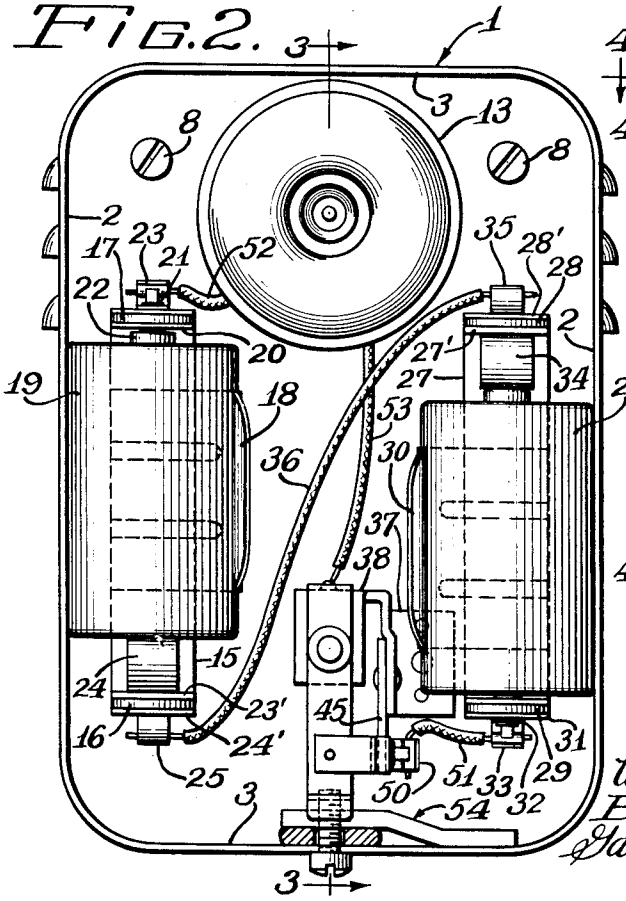
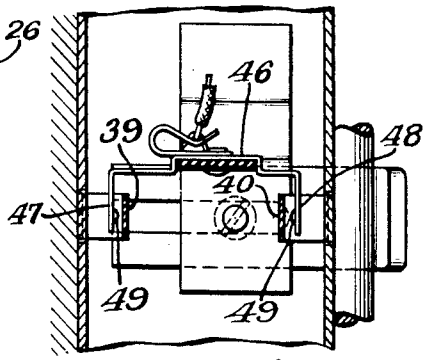


FIG. 4.



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ALARM DEVICE FOR SUSPENDED ARTICLES

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2 Claims. (Cl. 340—280)

This invention relates to improvements in a suspending support for sounding an alarm when the article suspended upon the support is removed therefrom by one unauthorized to do so, and is a continuation-in-part of my copending application for Letters Patent filed April 1, 1952, Serial No. 279,840, now Patent No. 2,683,260.

In my copending application for Letters Patent, hereinbefore identified, a device is contemplated which is particularly adaptable for suspending fire extinguishers from a wall, the device being so contrived that removal of the fire extinguisher from the support sounds an alarm indicating either that a fire exists and the device has been removed for legitimate use or that the device has been removed by one unauthorized for purposes, for instance of stealing the same. One of the features of the device resides in the fact that the support-alarm is substantially self-contained in the sense that, although the alarm is electrically operated, it carries its own power source and requires no exterior wire connections.

The present invention constitutes an improvement upon the device described in the aforesaid patent application in that an alarm will be set off if the support itself is removed from the wall whether or not the fire extinguisher is removed from the support.

As another feature of the invention, the support for the fire extinguisher is adjustable whereby different size bales or handle carried by the fire extinguisher may be accommodated.

Other objects and advantages of the present invention will be apparent from the accompanying drawing and following detailed description.

In the drawing,

Fig. 1 is a side elevational view of my improved device carried upon the exterior surface of a wall and supporting a conventional fire extinguisher.

Fig. 2 is an enlarged face view of the device with the cover removed.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a detailed sectional view taken on line 4—4 of Fig. 3.

Referring in detail to the drawings, 1 indicates a box having side walls 2—2 and end walls 3—3 and a rear wall 4. The box 1 is open at its front portion and is adapted to be closed by a removable cover 5, the cover being provided with a peripheral flange 6 which embraces the defining edge portions of the side and end walls. A plurality of screws 7, only one of which is shown, may be employed to removably secure the cover 5 upon the face of the box 1. The rear wall 4 of the box is provided with a plurality of apertures for the reception of screws or the like 8 which may be employed to secure the box 1 upon a supporting wall 9, as shown best in Figs. 1 and 2.

The rear wall 4 carries an inwardly offset portion 10 which is apertured to receive a mounting screw 11, the

screw being threadedly engaged with a bracket 12 rigidly secured to the rear portion of a signal device 13 which is carried within the box 1. The device 13 preferably comprises an electrically actuated horn of the vibrating diaphragm type. However, the device 13 may comprise an electric buzzer, an electric bell or the like. The cover plate 5 and the opposite side walls 2 adjacent the signal device 13 is provided with louver type openings 14 whereby the sound produced within the box by the signal device 13 may escape exteriorly of the box.

A U-shaped bracket 15 is mounted upon the inner face of the rear wall 4, said bracket having opposite inwardly extending arms 16 and 17, the lower and upper arm respectively. A laterally extending resilient clip 18 is also carried by bracket 15 and is disposed in spaced relationship to a side wall 2. A dry cell 19 is adapted to be positioned between the arms 16 and 17 and is removably retained in position by the resilient clip 18 which confines the cell 19 resiliently against the adjacent wall 2. The arm 17 carries an insulating bushing 20 through which an electrical jumper 21 extends, said jumper making contact with the positive pole 22 of the battery 19 and a spring contact clip 23. The opposite arm 16 carries an insulator 23′ which, in turn, carries a spring leaf contact member 24 which resiliently bears upon the negative pole of the battery 19. A spring contact clip 25 may be carried upon an insulator 24′, said clip being connected to the contact member 24 whereby the negative pole of cell 19 may be connected in series with the positive pole of an adjacent cell 26.

A U-shaped bracket 27 is mounted upon the inner face of the rear wall 4 opposite to bracket 15, bracket 27 also having opposite, inwardly extending arms 28 and 29, the upper and lower arms respectively. A laterally extending resilient clip 30, similar to clip 18, is carried by bracket 27 and is disposed in spaced relationship to a side wall 2, the dry cell 26 being removably retained between the arms 28 and 29 by clip 30. The arm 29 carries an insulating bushing 31 through which an electrical jumper 32 extends, said jumper making contact with the negative pole of cell 26 and spring clip 33. The opposite arm 38 carries an insulator which, in turn, carries a spring leaf contact member 34 which resiliently bears upon the positive pole of cell 26.

A spring contact clip 35 may be carried upon an insulator 28′, said clip being connected to the contact member 34, whereby the positive pole of cell 26 may be connected to the negative pole of cell 19 by means of conductor 36.

A bracket 37 may be mounted upon the inner face of the rear wall 4 and may carry a U-shaped supporting structure 38. A resilient metal contact tongue 39 may be mounted upon one leg of the structure 38 and a similar contact tongue 40 may be similarly mounted upon the opposite leg of the structure. Adjacent the end of tongue 39, said tongue carries an offset feeler arm which is adapted to protrude through aperture 42 provided in the rear wall 4. A similar offset feeler arm 43 is carried by tongue 40 and protrudes through aperture 44 provided in cover 5.

An insulating plate 45 is also carried by bracket 37 and carries at an end portion thereof a contact point support 46. The support 46 comprises a contact arm 47 which is disposed adjacent tongue 39 and an opposite contact arm 48 disposed adjacent tongue 40. Each contact arm 47 and 48 carries a contact point 49 which when said tongues spring outwardly make electrical contact with the respective tongues.

A contact clip 50 is mounted upon the contact point

support 46 and a conductor 51 connects clip 33 on bracket arm 29 to the support 46 and, hence, to both contact points 49. A conductor 52 connects clip 23 carried by bracket arm 17 to the signal device 13 and a conductor 53 connects tongues 39 and 40 to the opposite side of the device 13.

If a metal box is employed the U-shaped support 38 may be grounded and by grounding one side of the device 13 the conductor 53 may be eliminated.

It will be noted that the tongues 39 and 40 and the contact arms 47 and 48 comprise independently openable, parallel connected switches between the series connected cells 19 and 26 and the device 13. The functions of these switches will be hereinafter more fully described.

The normal position of tongues 39 and 40 is such that the feeler arms 41 and 43 protrude outwardly from the planes of the rear wall 4 and the cover 5, respectively. When the box 1 is mounted upon wall 9, as hereinbefore described, the feeler arm 41 is urged inwardly through aperture 42 by its contact with the surface of the wall. Hence, contact between the tongue 39 and the contact point 41 of arm 47 is broken. If, however, the box 1 is removed from the wall, the tongue 39 is thus freed to move to its normal position and hence said tongue will make contact with the point 49 carried by arm 47 and the circuit to the device 13 will be completed. Accordingly, an audible signal will be given by the device 13.

A bracket 54 is mounted upon one of the end walls 3, said bracket being spaced, at one of its end portions, from the inner surface of the wall 3. A hanger 55 comprises a bifurcated end portion 56 and a supporting portion 57. The bifurcated end portion 56 is adapted to be slidably positioned beneath the bracket 54 whereas the supporting arm 57 extends outwardly from the face of the cover 5, the arm 56 being positioned through aperture 44 provided in the cover. Bracket 54 may be threaded and a screw or the like 58 may extend through the wall 3 and through the bifurcated arm 56 and into threaded engagement with the bracket 54. Thus, the member 55 may be rigidly secured to the wall 3 with the arm 57 at an adjustable degree of proximity to the outer surface of the cover 5. The arm 57 of the member 55 comprises essentially a hook support whereby the handle or bale 59 of a conventional fire extinguisher 60 may be supported.

When the member 55 has been properly adjusted relative to the box 1, that is, with the arm 57 disposed at a predetermined degree of proximity with respect to the outer face of the cover 5, the insertion of the handle 59 upon the hook thus formed causes the tongue 40 to be flexed inwardly from its normal position. The flexing of the tongue 40 inwardly breaks contact with the contact point 49 carried by the arm 48 and thus the circuit to the device 13 is not completed through this portion of the switch. It can readily be seen that if the handle 59 is removed from its position upon the member 55, the feeler arm 43 will be free to protrude outwardly through aperture 44 and hence tongue 40 will make electrical contact with arm 48 and the circuit to the device 13 will be completed.

The purpose of the present device is to sound a warning whenever the fire extinguisher 30 is removed from its supported position upon the wall 9. If the fire extinguisher is removed from the hook member 55 for its intended purpose, that is, to extinguish a fire, the device 13 will be actuated by the movement of the tongue 40 following the removal of the handle 59 from the hook member 55. Thus a warning is sounded to the occupants of the building of the existence of the fire. If, on the other hand, the fire extinguished 60 is removed from the hook member 55 for an unauthorized purpose, such as to appropriate the fire extinguisher, a warning will also be sounded. Hence, theft of the fire extinguisher will be discouraged.

Inasmuch as the device comprising the present invention is substantially self-contained, that is, it carries its own power supply, a thief may conceive of the idea of removing the box 1 together with the fire extinguisher from the wall 9. If this is done, however, tongue 39, upon removal of the box from the wall, will complete the circuit to the signal device 13 through the contact arm 47. Hence, a warning signal is given which also will discourage theft of the extinguisher.

Although, for purposes of illustration, the device comprising the present invention has been used as a support for a fire extinguisher, it is readily apparent that it may be employed as a warning or protective device for other hanging objects such as paintings or the like which may be the object of a thief's intention. Hence, it is not intended that the present invention be limited to its association with a fire extinguisher.

By virtue of the fact that the hook member 55 is adjustable relative to the face of the cover 5, the device may be adapted to support objects which may have varying sizes of hands. For instance, fire extinguishers of different makes have different diametered and shaped handles which may be accommodated by the present device.

I claim as my invention:

1. An alarm comprising in combination, a closed container having opposite side walls, opposite end walls and a rear wall, said container being adapted to be carried by a vertical support with its rear wall flush with said support, a removable closure plate for said container constituting a front wall therefor, at least one of said walls being sound permeable, a switch mounting member positioned within said container, a pair of spaced contacts carried by said mounting member, a pair of spaced resilient switch arms carried by said mounting member in normally outwardly flexed closed position with respect to respective contacts to form front and rear switches, said cover plate being provided with an aperture through which a portion of the front switch arm resiliently protrudes, a hook member adjustably carried by said container and having a supporting portion extending outside of said cover plate adjacent said protruding front switch arm whereby an element positioned within the confines of the hook member flexes said front switch arm inwardly of said container to hold said arm spaced from its adjacent contact, the rear wall of said container being provided with an aperture through which the rear switch arm resiliently protrudes whereby the support upon which the container is carried flexes said rear switch arm inwardly to hold said rear switch arm spaced from its adjacent contact, a power supply carried in said container, an electrical cycle device carried in said container, and means connecting the two switches in parallel with said power supply and cycle device.

2. An alarm comprising in combination, a closed container having opposite side walls, opposite end walls and a rear wall, said container being adapted to be carried by a vertical support with its rear wall flush with said support, a removable closure plate for said container constituting a front wall therefor, at least one of said walls being sound permeable, a U-shaped switch mounting member positioned within a leg disposed adjacent the rear wall of the container and the other leg disposed adjacent the closure plate, a pair of spaced contacts carried by said mounting member, a resilient switch arm respectively carried by each leg of the mounting member in outwardly resiliently braced position to form normally closed front and rear switches, said closure plate being provided with an aperture through which a portion of the front switch arm resiliently protrudes, a hook member adjustably carried by said container and having a supporting portion extending outside of said closure plate adjacent said protruding front switch arm whereby an element positioned within the confines of the hook member flexes said front switch arm inwardly of said container to hold said arm spaced from its adjacent contact, the rear wall of said container being provided with an aperture

through which the rear switch arm resiliently protrudes whereby the support upon which the container is carried flexes said rear switch arm inwardly to hold said rear switch arm spaced from its adjacent contact, a power supply in said container, an electrical signal device carried in said container, and means connecting the two switches in parallel with said power supply and signal device.

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