

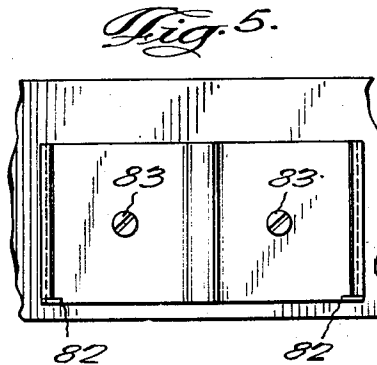
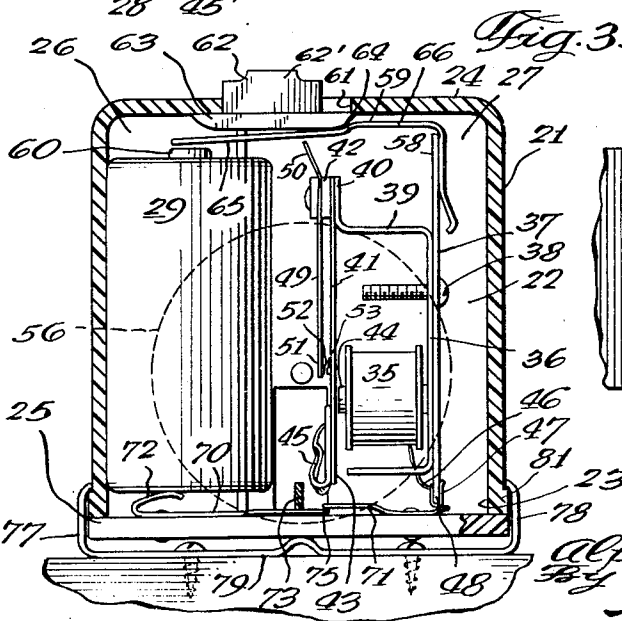
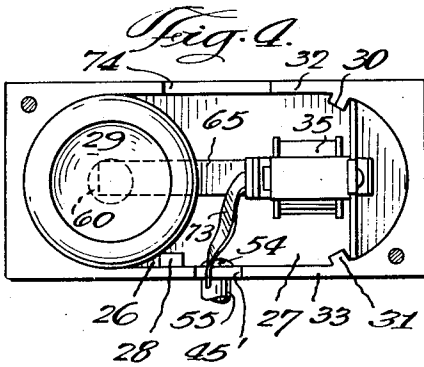
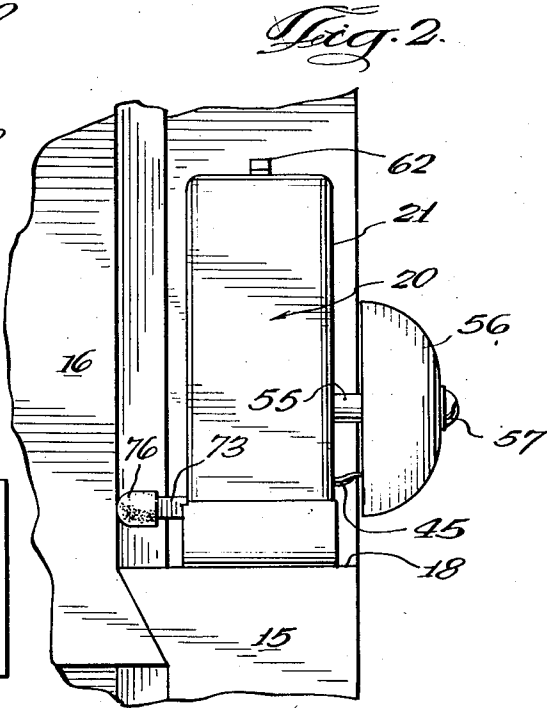
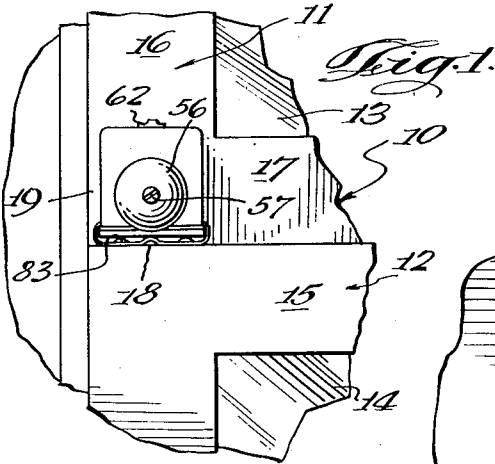
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A. G. ZIEMBA

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PORTABLE WINDOW ALARM DEVICE

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Inventor
Alphonse G. Ziemba
By Silverman & Mullin
Attorneys

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PORTABLE WINDOW ALARM DEVICE

Alphonse G. Ziemba, Chicago, Ill.

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This invention relates generally to alarm devices and more particularly, relates to a novel portable alarm for installation on windows having relatively slidable sashes which when installed is substantially hidden from view to an observer on the outside of the building and is operable upon movement of either sashes.

The invention utilizes an electrically operated bell supplied from a dry cell to actuate the bell's clapper to sound the alarm. The general principles of such an arrangement are well known, however, one of the disadvantages of devices of this known character has been their inability to be installed on windows having relatively movable sashes in a position more or less hidden from view from exterior of the window. Such prior devices have been eye-catchers by reason of their bulkiness and hence detract from the secrecy value of the device. Other disadvantages have been difficulty of installing such prior devices, excessive cost of the devices and insufficient sensitivity to give the necessary alarm on slight movement of either window sash.

It is therefore a principal object of the invention to provide a device of the character described which by reason of its construction substantially eliminates all of the disadvantages hereinabove enumerated.

Another object of the invention is to provide a device of the character described which includes a novel bracket for removably attaching the device to the sash of a window.

Singular advantages of the alarm device embodying the invention include compactness of structure, its simple and economical construction, its durability and the sensitive control which the alarm affords.

With the foregoing and other objects of the invention which will become apparent hereinafter, a preferred embodiment has been described in detail and shown in the accompanying drawings in compliance with the patent statutes. It is contemplated that minor variations in the size, arrangement, proportion and construction of the several parts of the invention may occur to the skilled artisan without sacrificing any of the advantages or departing from the principles of the invention.

In the drawings:

Fig. 1 is a fragmentary front elevational view of a window frame having relatively slidable sashes and showing the alarm device embodying the invention installed thereon.

Fig. 2 is a side elevational view of the said alarm and shown in installed position.

Fig. 3 is a median sectional view showing the operating mechanism of the device.

Fig. 4 is a bottom plan view of the housing with the cover member removed to show the operating mechanism carried thereon.

Fig. 5 is a plan view of the mounting bracket for the device shown installed.

As heretofore stated, the mechanical and electrical components of the operating mechanism, such as the electrical circuit, the bell and clapper operated by a sole-

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noid, the actuating switch and the like are well understood in the art. In this invention, these components have been arranged and installed in a novel manner to achieve compactness and reduced size of the housing required to retain the components. The overall size of the alarm device achieved by this invention is so related to the width of conventional frame parts of the window such that upon installation, the device is substantially hidden from view by these parts to an observer on the exterior of the building. The device also has been constructed to operate on very slight relative movement of the window sashes. In addition, the device may be turned off at will so that the windows may be moved to any position desired and then reset to give the alarm upon subsequent movement of a sash. All of this is accomplished by a device characterized by its singular compact and economical structure.

Referring now to the drawings, the reference character 10 represents a conventional window frame having upper and lower relatively slidable sashes 11 and 12 with window panes 13 and 14 respectively. The sashes ordinarily are formed of interconnected wooden frame parts approximately three to four inches in width, the parts of which this invention is particularly cognizant being the horizontal upper frame part 15 of the lower sash 12 and the horizontal frame part 17 and vertical side frame part 16 of the upper sash. As seen in Fig. 1, the position of the sashes 11 and 12 indicates the window 10 is closed completely, the sash 11 being raised to its uppermost reach and the sash 12 completely lowered. On the interior of the window installation 10, the frame part 15 will provide a ledge 18 next adjacent the corner 19 made by the meeting thereof of parts 16 and 17 of sash 11. The dimensions of the corner 19 may be considered the width of part 17 and part 16 as seen in Fig. 1. Of course, there will be a like corner 19 on the opposite side of the sash 11.

The alarm device embodying the invention has been designated generally by the reference character 20. Same includes a housing 21 of generally rectangular cross-section, preferably moulded from a suitable synthetic plastic material of which many types are available, although it will be appreciated that other materials such as wood, paperboard and the like also would be suitable. The housing 21 has an interior chamber 22 substantially the entire dimension thereof open at the bottom end 23 and closed at the upper end thereof by the wall 24. The open end 23 is adapted to be closed off by the cover member 25 movably attached to the housing by suitable screw fasteners in a well known manner. The cover 25 may be formed of the same material as the housing 21.

Referring to Fig. 4, the interior chamber 22 of the housing may be considered to be divided into a pair of compartments designated 26 and 27 by reason of the elongate rail 28 formed on a side wall of the housing. The size of compartment 26 is sufficient to accommodate therein the dry cell 29 in its cross-sectional dimension as seen in Fig. 3, with rail 28 preventing shifting movement of the dry cell.

The compartment 27 is provided with a pair of oppositely aligned protruding rails 30 and 31 integral with opposite side walls 32 and 33 respectively forming abutments by means of which certain electrical components of the device are retained secure in the housing.

Referring to Fig. 3, such components include solenoid 35 attached on a substantially C-shaped metal bracket 36 affixed to an elongate insulating wafer 37 by means of the fastener 38. The upper arm 39 of this bracket is bent at its end to provide a flange 40 to which is secured one end of a resilient sheet metal strip 41 in electrical contact therewith. The opposite free end 43 of the strip 41 extends past the core 44 of the solenoid 35, said free

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end 43 mounting the clapper 45 of the alarm. The clapper 45 is irregularly bent to extend laterally from the strip 41. The lead 46 from the solenoid 35 is anchored to U-shaped metal contact member 47 secured over the edge of adjacent end 48 of wafer 37. Mounted on the flange 40 insulated therefrom and from the member 41 by means of washer 42 is an elongate resilient metal strip 49 having one end 50 projecting a substantial amount past the arm 40 and extending oppositely to said end 50 substantially parallel to the member 41. The opposite end 51 of strip 49 on its surface facing the member 41 has a contact 52 aligned opposite contact 53 provided on the member 41.

To install the aforesaid electrical components in compartment 27, the wafer is lowered into the compartment, flanged end 40 first, with the side edges of wafer engaged behind the rails 30 and 31 respectively. This is done prior to installation of cell 29 in compartment 26. The width of the compartment at this point is sufficient to provide a sliding fit of the wafer and the engaged rails 30 and 31 prevent shifting. To accommodate the clapper 45, there is a slot 45' in wall 33 permitting passage of the free end of the clapper exterior of the housing. Secured on the exterior of wall 33 by means of fastener 54 is a hollow sleeve 55 whose free end is internally threaded for attaching thereto of metal cup 56 by means of fastener 57 so that the cup overlies the free end of the clapper 45.

Mounted on the opposite end 58 of the wafer is an elongate resilient metal strip 59 which extends outwardly on the same side of wafer 37 as the bracket 36 is mounted sufficiently to reach into the compartment 26 and overlie the central pole 60 of the dry cell and normally spaced therefrom. The strip 59 will also be spaced from contact 50.

The contact strip 59 is positioned adjacent the wall 24 spaced therefrom. Slidably mounted in a slot 61 in wall 24 is a switch button 62 having a finger portion 62' projecting outwardly of the said wall and an elongated runner portion 63 integral therewith. The runner 63 is engaged against the adjacent surface of the strip 59, said strip having a transverse bend 64 providing offset portions 65 and 66 over which the runner 63 is capable of riding.

Referring now to Fig. 3, the lid 25 has riveted thereto on the interior surface thereof a pair of resilient metallic leaf members 70 and 71 arranged end to end. The leaf member 71 is adapted to engage contact 47 for circuit connection with the solenoid. The contact 70 is upwardly turned at its opposite end as indicated at 72 to engage the second pole of battery 29 when the lid is installed. Also mounted on the lid 25 is a spring biased switch arm 73 which when the lid is installed projects outwardly through a suitable opening 74 in the side wall 32. The end of the switch arm 73 disposed on the interior of the housing is normally biased against the contact member 70 to maintain the adjacent ends of contacts 70 and 71 physically separated as indicated at 75. The opposite protruding end of the arm 73 has a friction shoe 76, preferably of rubber, attached thereon as shown in Fig. 2.

The mounting bracket for device 10 is shown in Fig. 5. The same comprises a channel-shaped member the arms 77 and 78 of which are spaced apart a sufficient distance to slidably receive therebetween the device with the side walls 32 and 33 substantially parallel to the plane of the sash 11. As seen in Fig. 3, the connecting web 79 of the bracket is upwardly creased at 80 to provide an upstanding boss upon which the device 10 rests. The height of the arms 77 and 78 is such as to slidably embrace the externally protruding boss portions 81 provided at the lower end 23 of the housing. The extremes of arms 77 and 78 may be inwardly turned and suitable stops 82 may be provided opposite the entrance to the bracket to prevent the device from passing completely through arms 77, 78.

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The device 10 with cover 25 attached on housing 21 is installed on the ledge 18 opposite corner 19. The bracket is secured on said ledge 18 by means of screws 83, the bracket being positioned adjacent the end of frame part 15 with its entrance opposite stops 82 away from sash 11. The device 10 is then slid between arms 77 and 78 into abutting engagement with the stops 82. The length of switch arm 73 is sufficient to frictionally engage against the vertical frame part 16 of sash 11.

In its normal position, the switch arm 73 maintains the contact members 70 and 71 physically separated at their adjacent ends. As shown in Fig. 3, when the runner 63 is engaged on the section 65, the member 59 will be physically separated from the pole 60. This is the normal open circuit arrangement of the device which permits relative movement of the sashes even with the switch arm 73 engaged with sash 11. To set the device for operation, the button 62 is moved to the right as viewed in Fig. 3 causing runner 63 to ride upon the bend 64 onto section 66 and depressing the member 59 into electrical engagement with pole 60. In this condition, the device is set to operate upon relative movement of the sashes.

Now consider that either the bottom sash 12 is moved upwardly or the upper sash 11 is moved downwardly in an attempt to burglarize. In the case of either such movement, the switch arm will be moved downwardly by reason of frictional engagement of shoe 76 with frame part 16. The end of the arm 73 normally spring biased against contact member 70 maintaining same separated from contact member 71 is lifted and the adjacent ends of said contact members 70 and 71 will become physically engaged closing the circuit from the dry cell 29 to the solenoid 35. Thus, in case of movement of either of the sashes 11 and 12, the clapper will be reciprocated to sound the alarm. Extremely sensitive operation is obtained since even the slightest movement of the sashes is sufficient to pivot the arm 73 setting off the alarm.

Thus, singular advantages are achieved. The window sashes may be left partially open, such as in warm weather, the device set to operate by movement of the button 62' to establish contact between the cell and the contact arm 59. If it is desired to move the sashes for any reason, the button 62' may be moved to break the connection between arm 59 and the dry cell, and then the device reset after the windows are moved. A further advantage is that by means of the universal bracket mounting described, the device 10 may be removed from one window and mounted on another window which has the mounting bracket attached thereon. Thus, one device may be used on any window it is desired to leave open.

It will further be noted from Fig. 1, that the alarm device is made of sufficient size such as to fit behind the corner 19 of the sash 11. The height of the device is such as not to project any substantial distance above the part 17. Thus, the alarm is substantially hidden by the corner 19 to an observer from exterior of the window frame 10.

It is believed the invention has been described in sufficient detail to enable a thorough understanding of the principles thereof. It is contemplated that minor structural changes may be made without departing from the scope of the invention as set forth in the claims appended.

What is desired to secure by Letters Patent of the United States is:

1. A portable window alarm device adapted to be removably installed on a window frame having relatively movable upper and lower sashes, said device comprising a housing having an upper end wall and open at its opposite end, a cover member removably attached over said open end, a solenoid operated electrical warning bell system on the interior of the housing including a dry cell connected to operate the solenoid, a manually operable switch mounted on said end wall between a pole of said dry cell and the solenoid, an elongate spring biased switch arm pivotally mounted on said cover member between the op-

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posite pole of said dry cell and the solenoid with an end of the said arm protruding outwardly through a wall of the housing, said device adapted to be installed on the lower sash with the protruding end of said switch arm frictionally engaged against a frame part of the upper sash, said manual switch being manually movable between positions opening and closing the circuit between said one pole and solenoid and said switch arm normally maintaining the circuit between said opposite pole and solenoid open and being movable to a position closing the said circuit resulting in a warning being sounded when the sashes are moved one relative to the other only when said manual switch has been moved to circuit closing position thereof, and means for removably mounting said device on the upper frame part of the lower sash comprising, a channel-shaped bracket having a pair of arms and a connecting web, a passageway through the web for insertion of a fastener to secure the bracket to said upper frame part with the channel opening upwardly, said housing having protruding formations on opposite side walls thereof, said arms being spaced apart sufficiently to slidably accommodate the housing therebetween with the boss formations embraced by said arms.

2. A portable window alarm device adapted to be installed on a window frame having relatively movable upper and lower sashes, said device comprising a housing having an electrical warning bell system on the interior thereof including a solenoid operated bell and dry cell connected to energize the solenoid, a spring biased switch arm connected between said cell and solenoid having an end thereof protruding outwardly through a wall of said housing and normally biased to an open position, said device adapted to be installed on the lower sash with the protruding end thereof frictionally engaged with the upper sash, said switch arm being moved to closed position resulting in an alarm given when the sashes are moved one relative to the other, said housing being separated into a pair of internal compartments, said dry cell being received in one of the compartments, said solenoid being mounted on an insulating wafer, the second compartment having oppositely aligned rails protruding therein from opposite side walls of the housing, said wafer being frictionally engaged behind said rails with the solenoid received in the second compartment and a conductor ex-

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tending between compartments to electrically connect said dry cell and solenoid one to the other.

3. A device as described in claim 2 in which said conductor is a resilient metal strip arranged normally physically spaced from a pole of said dry cell, and there is a second switch slidably mounted on said housing having internal portions in engagement with said metal strip, said switch being movable to bias the strip into physical engagement with a said pole whereby upon movement of the first switch, the warning will be sounded.

4. A portable window alarm device adapted to be installed on a window frame having relatively movable upper and lower sashes, said device comprising a housing having an electrical warning bell system on the interior thereof including a solenoid operated bell and dry cell connected to energize the solenoid, a spring biased switch arm connected between said cell and solenoid having an end thereof protruding outwardly through a wall of said housing and normally biased to an open position, said device adapted to be installed on the lower sash with the protruding end thereof frictionally engaged with the upper sash, said switch arm being moved to closed position resulting in an alarm given when the sashes are moved one relative to the other, said housing being open at one end thereof, a cover member removably attached over said open end, said first switch being mounted on said cover member and said second switch being mounted on the closed end of the housing, and means for removably installing said device on said lower sash comprising, a channel-shaped bracket member having an opening in the connecting wall thereof for accommodating a fastener, said device being slidably embraced between the arms of the channel member, said bracket having stop means for limiting sliding movement of the device unidirectionally and said connecting web having upstanding integral formations on which the device is supported.

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