April 5, 1932. R. W. NANZ 1,852,754

ALARM

Filed Jan. 15, 1931

Fig. 1.

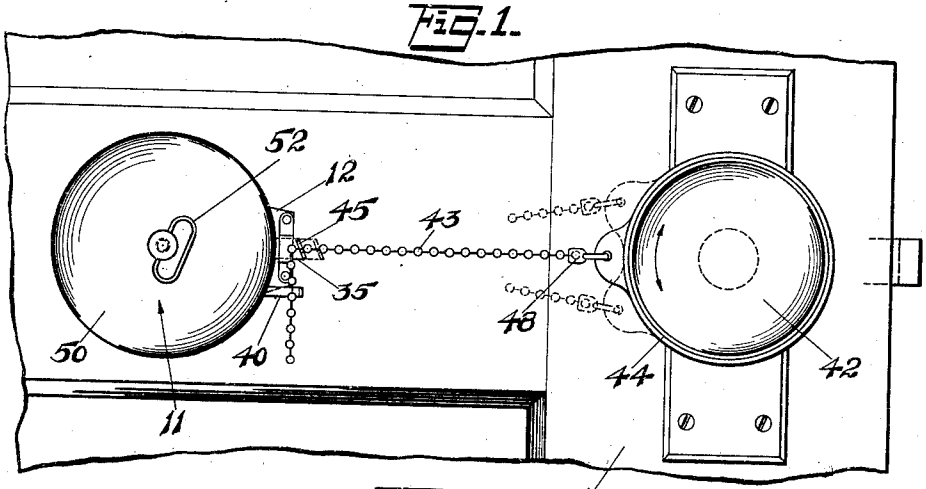


Fig. 2.

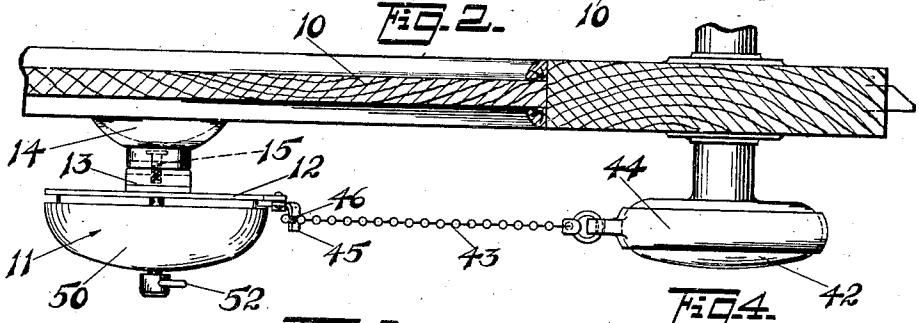


Fig. 3.

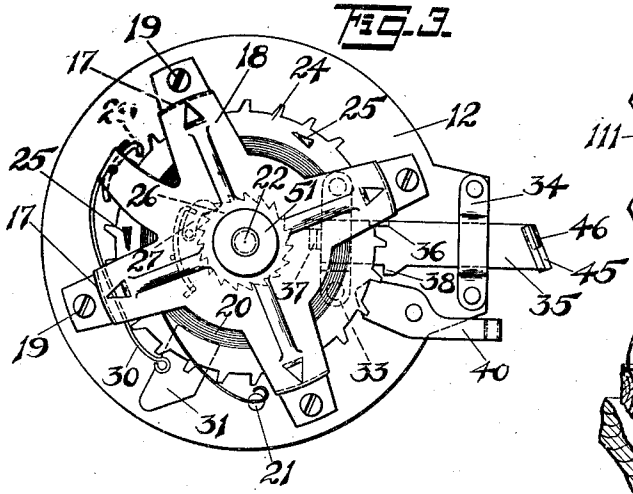
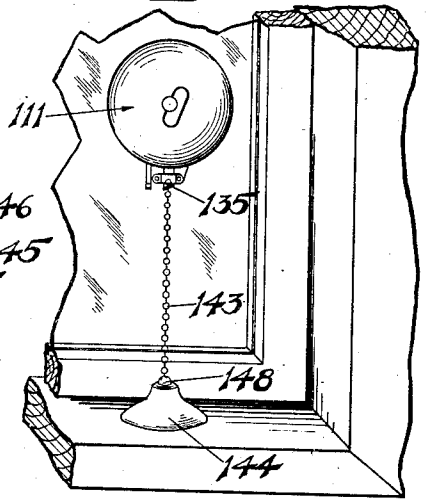


Fig. 4.



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UNITED STATES PATENT OFFICE

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ALARM

Application filed January 15, 1931. Serial No. 508,893.

This invention relates to alarms, and more particularly to portable burglar alarms which may be removably attached to closures.

An object of the invention is to provide a burglar alarm which may be attached to a closure, such as a door or a window, in such a manner that the alarm will be actuated when an attempt is made to open the closure.

A further object of the invention is to provide a portable burglar alarm which is so small, light and compact that it may be easily carried from place to place and used by travellers, vacationists, salesmen, etc. on the doors or windows of hotel rooms and the like, or by tenants or homeowners on different closures in an apartment or home.

An additional object of the invention is to provide a portable burglar alarm which may be readily and easily attached to or removed from a door, window or other closure without the use of any kind of tools and without marking or marring the closure in any way.

A still further object of the invention is to provide a portable alarm having the characteristics described and which is at the same time simple, durable, and inexpensive.

In accordance with one embodiment of the invention, there is provided a base member having means thereon for detachably securing the base to one part of a closure without marring it. A signalling device, such as a bell operated by a clockwork mechanism, is mounted on the base member and is provided with a release member detachably connected through a flexible connecting element to an attaching member which may be detachably secured to another part of the closure without marring it.

The above outlined and other objects and features of the invention will be clearly apparent from the following detailed description of specific embodiments thereof, taken in conjunction with the annexed drawings, in which:

Fig. 1 is a fragmentary, elevational view of a door with a portable burglar alarm embodying the invention attached in operative position thereto;

Fig. 2 is a fragmentary, transverse sectional view of the door with the alarm shown in Fig. 1 attached thereto;

Fig. 3 is an enlarged view of a portion of the alarm with some parts removed, and

Fig. 4 is a side elevational view of the alarm provided with a modified form of attaching member and shows the alarm attached to a window.

Referring now to the drawings, in which like reference numerals designate like parts throughout the several views, the numeral 10 indicates a door to which is attached an alarm unit designated generally by the numeral 11. The alarm unit 11 comprises a base member 12 upon the back side of which is mounted a bridge member 13 having a closure engaging vacuum cup 14 secured thereto by any suitable means, such as a small threaded stud 15. A frame member 18 (Fig. 3) provided with legs 17—17 is secured upon the opposite side of the base member 12 by means of screws 19—19 and a clockwork mechanism is positioned between the frame member 18 and the base member 12. The clockwork mechanism includes a spring 20 which is secured at one end to a stud 21 projecting from the base member 12 and which is attached at the opposite end to a shaft 22 positioned centrally with respect to and extending outwardly at right angles to the base member 12 through the frame member 18. Positioned immediately below the spring 20 and loosely mounted upon the shaft 22 is an escapement wheel 24 which is provided with a plurality of lugs 25—25 struck downwardly therefrom as seen in Fig. 3. A ratchet wheel 26 is rigidly mounted upon the shaft 22 directly below the escapment wheel 24 so as to engage a spring pressed pawl 27 mounted upon the underside of the escapement wheel 24. Pivoted adjacent the escapement wheel 24 and in operative relation therewith is a pallet 29 having an arm 30 carrying a clapper 31 secured thereto.

Guide members 33 and 34 are positioned on one side of the base member 12 to permit a release member 35 to slide therein in order to cause a lug 36 projecting upwardly from the release member 35 to engage or disengage the lugs 25—25 on the escapement wheel 24.

The extent of movement of the release member 35 is limited by the lug 36 and by a lug 37 extending upwardly from the rear or inner end of the release member, either the lug 36 or the lug 37 engaging the guide member 33 when the release member is moved inwardly or outwardly to its extreme positions. Pivotally mounted adjacent the release member 35 is a locking member 40 which may be rotated in a clockwise direction from the position shown in Fig. 3 so that the inner end thereof may engage the outer edge of a shoulder 38 on the release member 35 and will lock the same when the release member is in its inner or engaging position as seen in full lines in Fig. 1.

The release member 35 is connected by means of a flexible connecting element 43 to an attaching member 44 which, in the embodiment illustrated in Figs. 1 and 2, consists of an expansible circular member made of a resilient material, such as rubber, and which is designed to engage a knob 42 mounted on the door 10 and to turn therewith to actuate the release member 35 when the knob is turned. In order that the flexible connecting element 43 may be readily replaced if broken or the length thereof adjusted, the release member 35 is provided with a bent-over portion 45 at the outer end thereof which has a slot 46 therein for engaging the links or segments of the flexible connecting element 43, and the knob engaging member 44 is provided with a link engaging socket 48 for detachably receiving one end of the flexible connecting element 43.

A bell 50 is positioned over the frame 18 and rests upon a collar 51 encircling the shaft 22 above the frame 18 and the shaft 22 extends outwardly through a hole formed centrally of the bell 50 so that a winding key 52 may be threaded upon the end of the shaft 22.

The operation of this embodiment of the invention is as follows: The release lever 35 is pressed inwardly in the position shown in full lines in Fig. 1 so that the lug 36 formed thereon will engage one of the lugs 25—25 on the escapement wheel 24, thereby preventing rotation of this wheel, and the locking member 40 is moved inwardly into locking position. The winding key 52 is then turned to wind up the spring 20, the locked release lever meanwhile preventing the spring from unwinding. The knob engaging member 14 is next positioned upon the enlarged portion of the knob 42, the flexible connecting element 43, which has one extremity fastened in the socket 48, is secured within the slot 46 in the upturned end 45 of the release member 35 and the alarm unit 11 is positioned upon the door 10 adjacent the knob 42 by means of the vacuum cup 14, with the release lever 35 in alignment with the knob and so positioned that there is as little slack as possible in the connecting element 43. The locking lever 40 is then released to place the alarm in operative position.

It will be readily seen that if the door knob 42 is turned in either direction to open the door, the knob engaging member 44 will rotate with the knob and in so doing will exert a pull upon the connecting member 43 which will cause the release member 35 to be pulled outwardly into the position shown in dotted lines in Fig. 1 and in full lines in Fig. 3. When the release lever 35 is in this position the lug 36 will no longer engage the lugs 25—25 on the escapement wheel 24 and will permit the spring 20 to rotate the escapement wheel and oscillate the pallet 29 so that the clapper 31 will repeatedly strike the bell 50 to give an alarm.

In the event that it is desired to keep the alarm upon the door and to use the door without actuating the alarm when the knob is turned, the release member 35 is pressed inwardly and the locking member 40 is rotated so that the inner end thereof will engage the shoulder 38 on the release member and thus prevent the operation of the alarm. When the release lever is locked by the locking member 40, the attaching member 44 will yield sufficiently to prevent the connecting element 43 from breaking when the door knob is turned.

Another modification of the invention is illustrated in Fig. 4 and this modification is designed especially for use upon a window or other closure which slides instead of rotating like a door, although it may likewise be used upon a rotating closure. In this modification an alarm unit 111 may be secured by means of a vacuum cup similar to the cup 14 on the back side thereof to a window pane or sash and another vacuum cup 144, which is substituted for the knob engaging member 44, is fastened upon a window sill or frame in alignment with a release lever 135. The vacuum cup 144 is provided with a link engaging socket 148 for receiving one end of a flexible connecting element 143 which is connected at or near its other end to the release lever 135. As will be evident from the drawings, if an attempt is made to raise the window or other slidable closure, the vacuum cup 144 will tend to stick to the window sill and exert a pull upon the connecting element 143 which will actuate the release member 135 and thereby cause the alarm to ring.

In this modification the vacuum cup 144 is constructed so that it will require less force to pull it off of the portion of the window frame to which it is attached than is required to pull the vacuum cup supporting the alarm unit 111 from the window pane or portion of the window to which it is attached. Therefore, the vacuum cup 144 will always yield before the vacuum cup supporting the alarm unit does and the alarm unit will not be pulled off the window when the window is

moved a distance greater than the extent of movement of the release lever 135.

While specific embodiments of the invention have been illustrated and particular uses of the invention have been described, various changes may be made in the shape, size, and arrangement of the parts and the alarm may be used for other purposes and in other positions without departing from the spirit and scope of the invention as defined in the annexed claims. For example, the two types of alarm described hereinbefore need not necessarily be used upon closures of the kinds illustrated, but may be used upon other types of closures. The alarms may also be used in different positions on the same closures and operate equally well.

As is well known, many doors have pivoted latches thereon which are controlled by levers mounted at right angles thereto, which levers extend through openings in the doors so that they may be manually operated to control the latches. A burglar alarm of the type illustrated in Figs. 1 and 2 may be used with satisfactory results on a door of this type by looping the expansible knob engaging band around the latch several times and attaching the alarm unit to the door below the latch in an inverted position so that when the latch is moved the alarm will be actuated. The alarm may be likewise used on this type of door by looping the expansible band around one of the levers controlling the latch and attaching the alarm unit to the door either above or below the lever depending on the direction the lever operates to disengage the latch.

Another advantage of the type of alarm illustrated in Figs. 1 and 2 is that the alarm may be placed in operative position while the door is open and left in operative condition after the door has been closed by holding the knob against movement when the door is being closed and permitting the latch to operate and to snap into engaging position without movement of the knob. In this way the alarm may be set while a person is within a room and the person may leave the room and still leave the alarm operative so that it will give a signal when the door is again opened.

Also, the modification illustrated in Fig. 4 for use upon a sliding closure and employing a vacuum cup for connecting the release lever on the alarm unit to a portion of the closure may be used with substantially equal success upon a rotating closure, such as a door. In this case the alarm unit would be secured upon the door frame and the vacuum cup on the end of the flexible connecting element would be secured to the door proper, or vice versa as may be desired. In either case, if the door is opened or moved any appreciable distance, the alarm will be released and will give a signal.

Likewise the embodiment illustrated in Figs. 1 and 2 may be positioned with the alarm unit secured upon the door frame and with the expansible band placed upon the door knob. In this position the alarm will be actuated either when the knob is turned or when the door is moved without the knob being turned, as may be the case when the door latch is not securely caught in its keeper.

It is believed to be evident that alarms embodying the invention may be attached in any suitable way to almost any type of closure and will operate successfully as long as the operation of the closure causes relative movement between the part of the closure to which the alarm unit is attached and the part of the closure to which the release lever is connected. Hence in the following claims, the word "closure" may be interpreted to mean not only the closure proper, i. e. the door or window, but also the door or window frame, sill or jamb. Furthermore, the resilient means for connecting the signal controlling means to a closure defined in the annexed claims includes both the expansible band shown in Figs. 1 and 2, the vacuum cup shown in Fig. 4, and other similar connecting means.

It is believed to be evident from the foregoing description that portable burglar alarms made in accordance with this invention may be readily carried from place to place in one's pocket or travelling bag and may be easily and removably attached to closures without the aid of tools and without marring the closures. This invention therefore provides simple, inexpensive and durable alarms which are portable and easily utilized for the protection of persons and property.

What is claimed is:

1. In a portable burglar alarm for use on a closure, signalling means, vacuum means for supporting the signalling means upon one part of a closure, and means for controlling the signalling means through engagement with another part of the closure which is movable with respect to the part to which the signalling means is secured.

2. In a portable burglar alarm, signalling means, vacuum means for securing the signalling means to one part of a closure, means for controlling the signalling means, and means for connecting the controlling means to another part of the closure.

3. In a portable burglar alarm, a base member, vacuum means for detachably securing the base member to one part of a closure, signalling means carried by the base member, a release lever for controlling the signalling means, an operating element attached to the release lever, and resilient means for connecting the operating element to a part of the closure which is movable with respect to the part to which the base member is attached.

4. In a portable burglar alarm for use

with a closure having a latch thereon, a base member, a vacuum cup mounted thereon for detachably securing the base member to a closure; signalling means including a clockwork mechanism and a bell mounted on the base member; a release member designed to prevent the operation of the signalling means when in one position and to release the signalling means when in another position; a flexible operating element attached to the release member; and an expansible member attached to the release operating element and designed to detachably engage the latch operating portion of the closure.

5. In a portable burglar alarm, signalling means, vacuum means for securing the signalling means to the body of a door, means for controlling the signalling means, means for engaging the knob of the door so as to be movable therewith, and means for connecting the knob engaging means to the controlling means whereby the controlling means will be actuated when the knob is turned.

6. In a portable burglar alarm, signalling means; a vacuum cup associated therewith for detachably securing the signalling means upon the body of a door; and means for releasing the signalling means including a release member, a resilient member for detachably engaging the knob of the door so as to be movable therewith, and a connecting element for connecting the release member to the knob engaging means whereby the release member will be actuated to release the signalling means when the door knob is turned.

7. In a portable burglar alarm, signalling means, a vacuum cup for securing the signalling means to the body of a door, means for controlling the signalling means, an expansible band for detachably engaging the knob of a door, and means for connecting the expansible band to the controlling means whereby the controlling means will be actuated when the knob is turned.

8. In a portable burglar alarm, signalling means, a vacuum cup for securing the signalling means to the body of a door, means for controlling the signalling means, a rubber band for detachably engaging the knob of a door, and means for connecting the rubber band to the controlling means whereby the controlling means will be actuated when the knob is turned.

9. A portable burglar alarm provided with a vacuum cup for attaching the alarm to a closure, alarm controlling means, and another vacuum cup for connecting the controlling means to a part of the closure which is movable with respect to the part of the closure to which the alarm is attached.

10. In a portable burglar alarm, signalling means, a vacuum cup for securing the signalling means to a closure, means for controlling the signalling means, a second vacuum cup for engaging another portion of the closure, and means for connecting the second mentioned vacuum cup to the controlling means, the parts of the closure to which the signalling means is secured and the controlling means is connected being parts between which there is relative movement when the closure is operated.

11. A portable burglar alarm provided with a vacuum cup for attaching the alarm to a closure, alarm controlling means, and another vacuum cup for connecting the controlling means to a part of the closure which is movable with respect to the part of the closure to which the alarm is attached, the vacuum cups being so designed that more force is required to remove one of the cups from the closure than is required to remove the other cup therefrom.

12. A portable burglar alarm provided with a vacuum cup for attaching the alarm to a closure, alarm controlling means, and another vacuum cup for connecting the controlling means to a part of the closure which is movable with respect to the part of the closure to which the alarm is attached, the second mentioned vacuum cup being so designed that less force is required to remove it from the closure than is required to remove the first mentioned vacuum cup therefrom.

Signed at Akron, in the county of Summit and State of Ohio, this 9th day of January A. D. 1931.

ROBERT W. NANZ.