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FIRE ALARM BOX DOOR

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Fig. 5

Fig. 6

Fig. 7

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FIRE ALARM BOX DOOR

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This Invention relates to a fire alarm box and the like, and has particular reference to a front for a fire alarm box having a door through which the means for sounding the alarm is rendered accessible.

Certain types of fire alarm boxes used heretofore were so constructed that the only way to sound the alarm was to open a door to obtain access to a key or button, which, when actuated, sounded an alarm at the remote fire department central station or the like. These doors frequently froze shut during the winter time and could not be opened without thawing off the ice or striking the door with any available object to loosen the ice, and often the door was broken or damaged to such an extent that it had to be replaced. This nuisance of attempting to open the door frequently delayed or rendered impossible the sounding of the alarm, and constituted a serious menace to fire protection when it was intended to serve as a means for obtaining fire protection readily.

Also, doors of fire alarm boxes used heretofore occasionally became unlatched and remained open or partly open so that the moisture and dirt which would inevitably collect in the box injured it and impaired its efficiency.

In other former types of fire alarm boxes a glass had to be broken in order to obtain access to the alarm lever, key or button, and as an object for breaking the glass was not always available, delay in sounding the alarm frequently resulted, which would not have taken place had there been some other means of access to the alarm lever or the like. In each of these two former types the excited user had to read too many instructions at once before being able to sound the alarm, with the result that he become confused and delayed the sounding of the alarm, which would not take place had he been instructed to do one operation at a time by appropriate successive directions at the proper time.

These objections to the fire alarm boxes used heretofore are overcome by the present Invention, which provides alternative means for gaining access to the alarm lever, so that if the first means does not work for any reason, a second means remains which does work. The preferred arrangement of this invention includes a door which is normally biased to closed position but is readily opened only when it is intended to do so for access to the alarm lever. If this door should freeze shut or not be readily opened for any other reason, a frangible plate in the door permits access therethrough to the alarm lever.

The door is preferably weighted so that its center of gravity is so placed as to normally bias the door to closed position, aided, if desirable, by a spring or latch, or both.

Furthermore, initial instructions are preferably given regarding opening of the door, or if the door sticks, to break the glass. Secondary instructions regarding the manipulation of the lever are also given, but in a preferred arrangement, these secondary instructions are rendered visible to the user only after he has completed either one of the first operations, i. e., opened the door or broken the glass, so that he is not confused by too many directions at once. This advantage is obtained either by masking the glass or using opaque glass so that the secondary instructions adjacent the lever only become visible after the door has been opened or the glass broken, or in the preferred arrangement, by partially supporting a pivoted flap against the door or glass or both, so that it drops downwardly when the door is opened or the glass is broken to attract the user's immediate attention to the secondary instructions inscribed thereon.

In a modified arrangement, the door is so arranged that the mere opening thereof operates the alarm, and this is accomplished by a connection between the door and the alarm button or lever, so that the latter is depressed or otherwise operated in the proper fashion to sound the alarm.

For a better understanding of the invention, reference is made to the accompanying drawings, in which Figure 1 illustrates a fire alarm box equipped with the door of this invention which contains opaque, partially opaque, or masked glass; Fig. 2 illustrates the same when the glass is broken to expose the lever and the secondary instructions; Fig. 3 is a view of an opaque glass having instructions on the outside thereof; Fig. 4 is a vertical section through the novel door of this invention; Fig. 5 is a vertical section through the novel door of this invention equipped with an indicator or secondary direction flap; Figs. 6 and 7 are enlarged perspective views of two different forms of the indicator flap; Fig. 8 is a section through the door of this invention, showing the position of the indicator flap after the glass has been broken; Fig. 9 is a vertical section through the door of this invention showing the action of the modified form of flap illustrated in Fig. 7; and
Fig. 10 is a section through the modified form of the door of this invention which is adapted to automatically operate the alarm when it is opened.

In these drawings, numeral 10 designates a fire alarm box frame fitted with the usual housing 11, in which is contained the means for procuring the alarm. Pivoted on horizontal hinge pin 12 adjacent the top of the housing 10 is a door 13 having rearwardly directed flanges 14, which cooperate with the rim 15 on frame 16 for an enclosure for the lever 16, or button, key, or the like, which is connected to the alarm sounding mechanism in any well known way, so that when lever 16 is pulled downwardly the signal or alarm is operated. The side flanges 14 of the door are tapered downwardly toward the center line of the hinge 12, and the upper cross bar 13' is made heavy or weighted so that the center of gravity lies in cross bar 13' below and to the left of hinge pin 12 as seen in Fig. 4, whereby the door 13 is overbalanced to swing about hinge pin 12 in a counterclockwise direction against the frame 15 so that the door is normally biased in a closed position without other aid and will not fly open in high winds or stand open.

If desired, this overbalancing action may be supplemented by a spring 18 coiled about hinge pin 12 with one end and the rim 15 with the other end, as shown in Fig. 5, so as to urge the door 13 into closed position. This spring 18 is not essential, as the balancing of the door 13 is such as to maintain it closed at all times, but, in some cases, the spring 18 may be desired for requiring a considerably greater force to prevent any unintended opening thereof. A finger lug 17 at the lower edge of the door 13 aids the user in lifting it for access to lever 16.

The front of the door 13 is open, and normally closing this opening is a sheet of glass 18 which may be clear, translucent, opaque, partly opaque, or masked, depending upon the requirements. In Fig. 1, the glass is shown masked or partially opaque, and having an opening for exposing the lever 16. When the glass 18 is broken, definite secondary instructions are given on the back plate 22, as shown in Fig. 2. In other arrangements, the glass may be clear so that the secondary instructions shown in Fig. 2 are visible at all times, or the glass may be translucent and opaque, and the instructions may be inscribed on the outer surface thereof, as shown in Fig. 3.

It is preferred, however, that the user be informed of the different steps in succession, so that it will not be necessary for him in his excitement to read a great many instructions, but on the contrary, read one set of instructions, act upon them, and then as a result of this act be given further information and instructions. In accordance with this desirable object, a flap 20, shown in detail in Fig. 6, is pivoted across the housing 11 on a pivot 21 mounted either on the door flanges 14 or on the door 13, so as not to move with the door. In the first arrangement, the flap is pivoted at one side on the door and its other side 20 lies against the rear surface of the glass plate 18, as shown particularly in Fig. 5, and it also serves to hold the glass 18 in place. In the second arrangement, the flap 20 is shown in perspective in Fig. 6, and preferably consists of a sheet metal plate bent to an L shape and bearing on its front surface the legend "Pull lever" or the like, which is not visible when the flap is positioned as shown in Fig. 5, even if the glass 19 is transparent. Of course, if the glass is masked or opaque as shown in Figs. 1 and 4, the flap 20 is not visible at all.

If the door 13 is opened, and the breaking of the glass 18 has not become evident, or the door remains inactive, and the user sees the instructions for operating the lever 16 on the back plate 22 and acts accordingly. If, however, it is necessary to break the glass 19 for any reason, the flap 20 is no longer supported thereby, but drops downwardly about its pivot 21, as shown in Fig. 8, and in phantom in Fig. 5, to display its legend to the user who acts according to the instructions thereof, by reaching through the opening in the door formerly occupied by the glass 19 and operating the lever 16 in the manner in which he has been directed by the legend on the flap 20. The dropping of the flap 20 attracts the user's attention thereto much more quickly than would a stationary legend, as the eye notes a movement at once.

In Fig. 7 is shown a modified form 20' of the flap, this flap being made longer than the flap 20, and being pivoted at 23 across the door frame or rim 16 as shown in Fig. 9. The flap 20' is bifurcated at 24 so as to enable it to drop around the lever 16 either when the door 13 is opened or when the glass 18 is broken. By dropping around or over the glass 18, in the case in Fig. 9, the legend is immediately brought to the user's attention, and the lever 16 also, so that there is no delay or confusion as to what to do next. This bifurcated flap 20' may be used with a plain door 13, or one having either transparent, translucent, or masked glass 18, in which cases the legend is visible until the door has been opened or the glass 18 has been broken, when it immediately flashes into view to inform the user of the next operation.

In this arrangement, as well as in that of Fig. 5, the flap 20 or 24 is restored to its elevated position in engagement with the rear surface of panel 19 when the latter is replaced in the door 13. This is accomplished by raising the flap beyond its normal elevated position while the panel is being replaced and then letting it fall against the rear surface of the panel in a manner readily understood.

In Fig. 10 is shown a modified arrangement whereby the signal is given without any other action on the part of the user except the opening of the door. In this arrangement, the door 13 is constructed as before except that the plate 19 need not be glass in this case as it is not necessary to break it, and the door hinge is fitted with a lever 25, which moves downwardly as shown in Fig. 10. Pivoted to the end of this lever 25 is a push rod 26 having a button 27 at its lower end which engages in a socket in lever 16, whereby the alarm is normally energized. It will be seen that the push rod 26 is curved to clear the rim or door frame 15 in the manner shown in phantom in Fig. 10. Accordingly, when the door 13 is lifted by the finger lug 17, the lever 25 thereof pushes push rod 26 downwardly to operate the alarm lever or button 16.

The push rod 26 may be made disconnectable from lever 16 and plate 19 breakable so that if the door 13 should freeze shut, the user may break glass 18 in the door 13, or, in the alternative, independently of the push rod connection 25.

In any of the arrangements shown, the spring 18 may be used to force the door 13 to closed position or it may be omitted as the overbalanced door is urged to closed position. Also, in the arrange-
In a fire alarm box, the combination of a frame having a handle for operating an alarm, a movable panel in front of the handle, an aperture-shaped flap bearing on one surface thereof visible indicia pertaining to the operation of the handle, a pivot on the frame near the handle for one side of the flap, the opposite side of the flap being supported in suspended position against the panel with the aperture in registry with the handle, whereby the flap swings downwardly by gravity over the handle about its pivot to display its indicia when released by movement of said panel.

3. In a fire alarm box, the combination of a frame, a door hinged thereon, a handle on the frame behind the door for operating an alarm mechanism, a flap bearing visible indicia on one surface thereof pertaining to the operation of the handle, a pivot on the frame near the handle for one side of the flap, and a transparent panel in said door normally engaging the opposite side of said flap to maintain it in suspended position whereby said indicia are substantially invisible from the front of the panel, said flap being operable to swing downwardly by gravity about its pivot to display its indicia when released by movement of said panel.

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