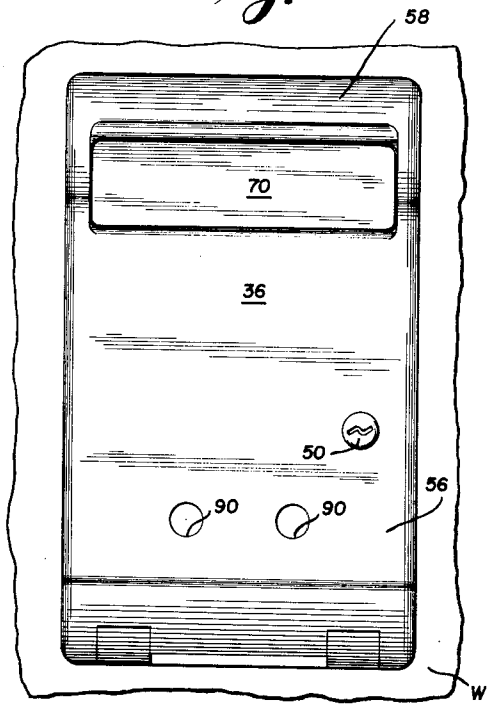
May 23, 1961 J. I. ELLMANN 2,985,741

SIGNALLING APPARATUS

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Fig. 1



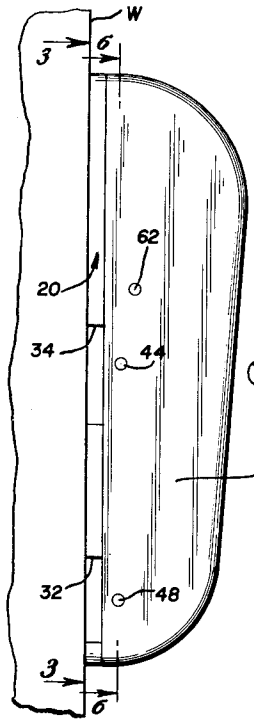


Fig. 2

Fig. 3

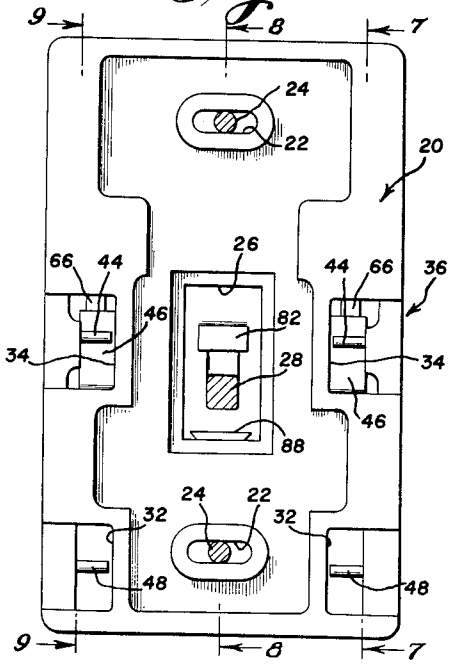


Fig. 4

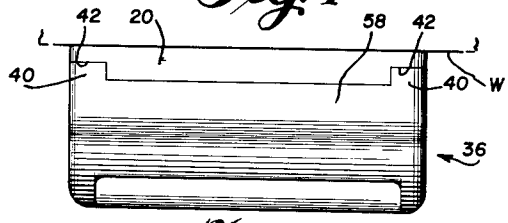
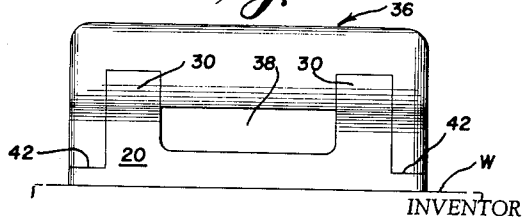


Fig. 5



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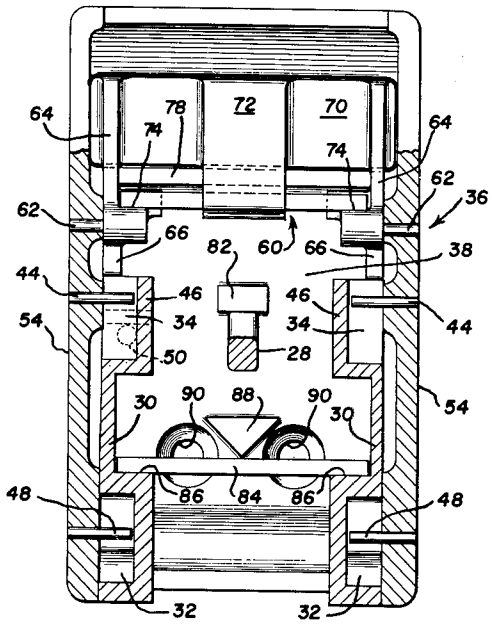
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Fig. 6



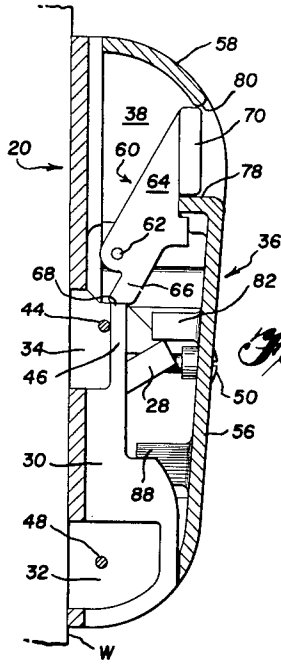


Fig. 7

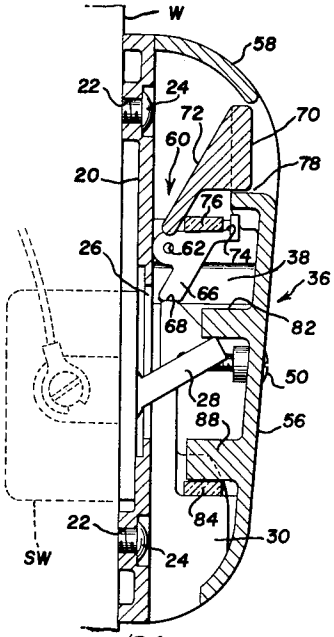


Fig. 8

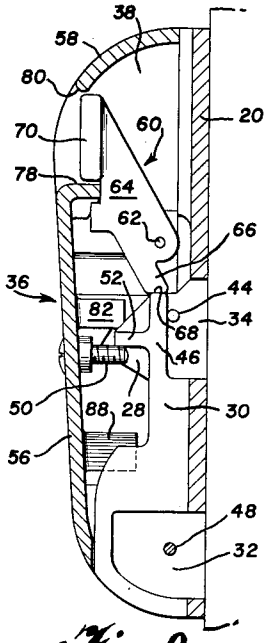


Fig. 9

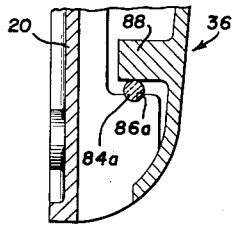


Fig. 10

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Fig. 11

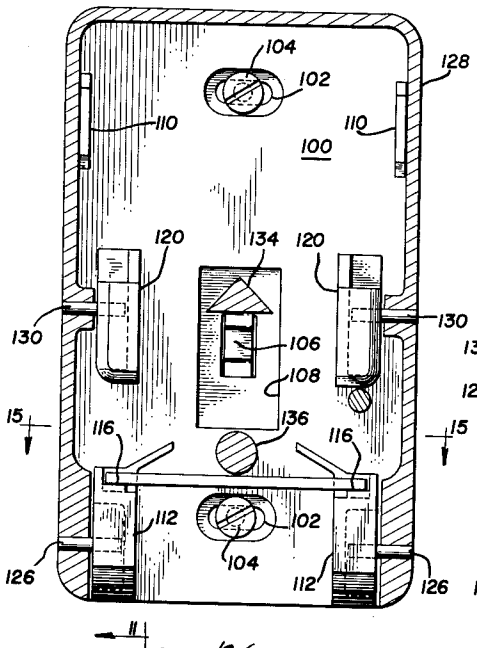


Fig. 12

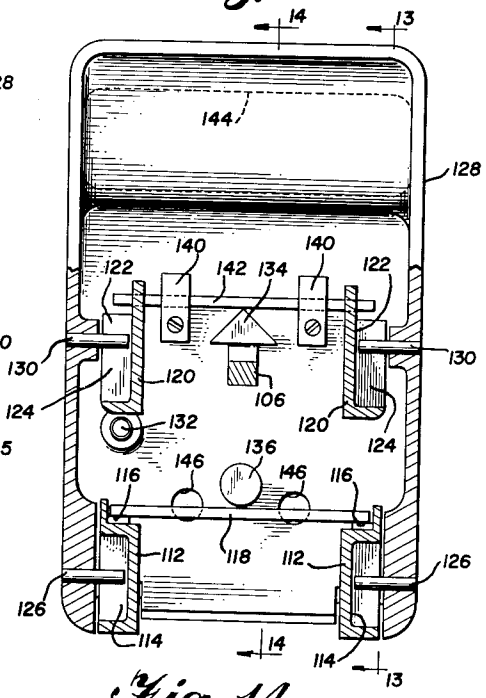


Fig. 13

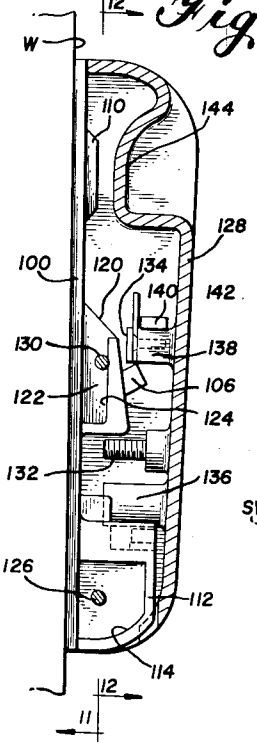


Fig. 14

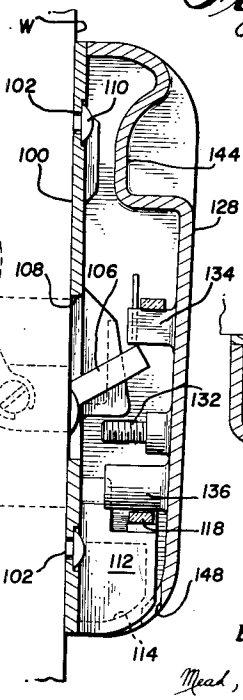
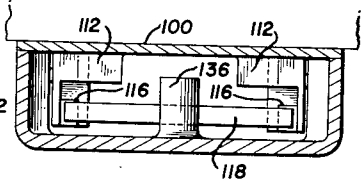


Fig. 15



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2,985,741

SIGNALLING APPARATUS

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Filed Nov. 18, 1959, Ser. No. 853,872

14 Claims. (Cl. 200—168)

This invention relates to signalling apparatus, and more particularly to switch actuators on station boxes for manually actuating an alarm system such as a fire or other emergency alarm.

Signalling apparatus of this type is widely employed in large buildings with the switch actuators being located throughout the building so that the emergency alarm may be actuated from any of a number of stations. In general, each station includes a switch connected into the alarm system in a fashion such that when the switch is actuated an electrical circuit is completed to the alarm. The switch is usually enclosed within a box or housing mounted at a convenient location upon a wall, and actuation of the switch is accomplished by some mechanism movably mounted upon the housing operable, when moved in a certain manner, to actuate the switch. Preferably, the switch actuating mechanism is so arranged that, once the switch is actuated, further manipulation of the actuating mechanism from the exterior of the housing will have no further effect on the position of the switch. This type of mechanism involves what is commonly known as a non-interfering action.

It is an object of the present invention to provide new and improved signalling apparatus for actuating an emergency alarm system wherein said apparatus includes a positive acting switch actuator.

It is another object of the present invention to provide such an apparatus wherein the switch actuator is a cover member which is movable bodily to actuate said alarm system.

It is a further object of the present invention to provide such an apparatus including a cover member and a frangible member, said cover member being maintained in a ready position by said frangible member, which must be broken to actuate the switch.

It is still another object of the present invention to provide such an apparatus including a switch actuator for an emergency alarm system wherein a shielded frangible member is employed to maintain the actuator in its unactuated position and the actuator is slidably movable to rupture said frangible member.

The foregoing and other objects are achieved in a signalling apparatus which includes a generally rectangular vertical mounting plate having a conventional toggle switch supported upon its rearward surface with the toggle of the switch projecting forwardly through an opening in the mounting plate. A housing is slidably mounted upon the forward side of the mounting plate for movement between an upper and a lower position. An abutment on the interior of the housing engages the switch toggle to actuate the switch when the housing is moved from the upper position to the lower position. A frangible element in the form of a glass rod or bar is supported on the forward side of the mounting plate between two horizontally spaced shoulders. A second abutment on the interior of the housing overlies the glass bar between the shoulders when the housing is in its upper position. Actuation of the switch is accomplished by

manually pulling down on the housing with a force sufficient to break the glass bar.

The housing is maintained in sliding engagement with the mounting plate by means of a pair of pins which project horizontally inwardly from the opposed vertical sides of the housing and are slidably received within vertical recesses in members projecting from the mounting plate. The upper ends of the recesses are open whereby vertical movement of the housing above its upper position permits the pins to be disengaged from the recesses to permit access to the mounting plate and interior of the housing.

A second pair of inwardly projecting pins on the inner sides of the housing are received within enlarged recesses formed at the lower end on the mounting plate whereby the housing is loosely coupled for pivotal movement relative to the mounting plate. When the housing is in its ready position, it may be locked against disengagement of the pins from the guiding recesses by means of a key screw threaded through the housing and engageable beneath a downwardly facing flange on the mounting plate. The location of the key screw is such that the mounting plate may not be moved above the upper position, and hence the pins cannot clear the guiding recesses.

Other objects and features of the invention will become apparent by reference to the following specification and to the drawings.

In the drawings:

Fig. 1 is a front elevational view of a signalling box embodying the invention;

Fig. 2 is a side elevational view of the signalling box of Fig. 1;

Fig. 3 is a rear elevational view of the signalling box of Fig. 1 taken on line 3—3 of Fig. 2;

Fig. 4 is a top plan view of the signalling box of Fig. 1;

Fig. 5 is a bottom plan view of the signalling box of Fig. 1;

Fig. 6 is a vertical cross-sectional view of the signalling box of Fig. 1 taken on line 6—6 of Fig. 2;

Fig. 7 is a vertical cross-sectional view taken on the line 7—7 of Fig. 3;

Figs. 8 and 9 are vertical cross-sectional views of the signalling box of Fig. 1 taken, respectively, on lines 8—8 and 9—9 of Fig. 3;

Fig. 10 is a partial cross-sectional view similar to the lower portion of Fig. 8 showing a modified form of frangible element;

Fig. 11 is a cross-sectional view of a modified form of signalling box embodying the invention, taken on the line 11—11 of Fig. 13;

Fig. 12 is a cross-sectional view of the box of Fig. 11 taken upon the same line as the sectional view of Fig. 11, but looking in the opposite direction;

Fig. 13 is a cross-sectional view taken on the line 13—13 of Fig. 12;

Fig. 14 is a cross-sectional view taken on the line 14—14 of Fig. 12; and,

Fig. 15 is a cross-sectional view taken on the line 15—15 of Fig. 11.

The signalling box shown in the drawings includes a mounting plate 20 which is formed with suitably located openings such as 22 (see Fig. 3) to permit mounting plate 20 to be mounted flush against the surface of a wall W as by screws 24 which pass through openings 22 and are threadably received in tapped holes either on the wall framework or a conventional electrical junction or switch box (not shown). An enlarged central opening 26 is likewise formed in plate 20 to permit the actuator 28 of a conventional toggle switch SW (see Fig. 8) to project outwardly through opening 26 beyond the outer side of mounting plate 20.

A pair of forwardly projecting vertically extending

shoulders designated generally at 30 (see Fig. 5) extend along the vertical sides of mounting plate 20 from the lower edge of the mounting plate to a location midway up each side of the plate. Each shoulder 30 is formed with a pair of recesses 32 and 34 which extend inwardly from the opposed vertical sides of the mounting plate. Recesses 32 and 34 assist in supporting and guiding a hollow housing designated generally at 36 in movement relative to mounting plate 20.

Housing 36 is preferably formed as an integral casting and projects outwardly from the front side of mounting plate 20 to define, with the mounting plate, an enclosed chamber 38. When in the normal or unactuated position shown in the drawings housing 36 overlies and substantially completely conceals mounting plate 20. Projecting ribs 40 extending along each side wall of housing 36 are received in grooves 42 formed along each vertical side of mounting plate 20 whereby housing 36 is partially supported and guided for vertical sliding movement relative to mounting plate 20.

A pair of oppositely disposed inwardly projecting pins 44 project inwardly from opposite sides of housing 36 to be received within the respective recesses 34 on mounting plate 20 in sliding engagement with the rearward surface of a flange 46 on shoulder 30 of the mounting plate. When pins 44 are engaged behind the respective flanges 46, as best seen in Figs. 3, 7 and 9, housing 36 is held against horizontal movement outwardly away from mounting plate 20, but may partake of vertical sliding movement relative to the mounting plate. Housing 36 may be swung away from mounting plate 20 by sliding the housing upwardly from the position shown in the drawings until pins 44 clear the upper end of flanges 46. The housing may then be pivoted outwardly away from mounting plate 20, but remains coupled to the mounting plate by the engagement between a second pair of inwardly projecting pins 48 fixed to the housing and received within the respective recesses 32 on mounting plate 20. The dimensions of recesses 32 are such that a sufficient range of vertical and horizontal movement of housing 36 relative to plate 20 is permitted for actuating and access purposes.

When pins 44 are seated in the respective recesses 34, movement of housing 36 to a position wherein mounting plate 20 is exposed is prevented by a locking screw 50 threadably received in the outer wall of housing 36 and projecting inwardly a sufficient distance to engage beneath a flange 52 (see Fig. 9) formed on one of shoulders 30. Engagement of screw 50 beneath flange 52 prevents housing 36 from being elevated to a position where pins 44 will clear the top of flange 46. Preferably, in order to prevent unauthorized access to the interior of the signalling box, screw 50 is formed with a slot which requires the use of a special key (see Fig. 1).

Housing 36 may be conveniently formed as a single integral casting including a pair of spaced opposed side walls 54, a front wall 56 and a top wall 58. As best shown in Fig. 6, pins 44 and 48 are formed separately and may be mounted upon housing 36 as by a drive fit. To normally maintain housing 36 in the ready position shown in the drawings, a latch assembly designated generally at 60 is pivotally supported between side walls 54 for pivotal movement about a horizontal axis established by a third pair of pins 62 which are fixedly placed in side walls 54 and project inwardly from the interior surface of the walls to be loosely received within bores formed in respective arms 64 of latch assembly 60.

As best seen in Figs. 7 and 9, each of arms 64 includes an integral latching projection 66 which projects downwardly below the pivotal axis defined by pins 62 to normally be seated upon the upper ends of a latching abutments 68 defined by the upper end of the respective flanges 46. Arms 64 project upwardly above the pivotal axis defined by pins 62 and a latch actuator bar 70 rigidly interconnects the uppermost ends of the respective arms 64. As best seen in Figs. 7 and 9, the center of gravity of the assembly, including arms 64 and actuator bar 70, is such that latch assembly 60 is gravitationally maintained in the position shown in Figs. 7 and 9 to thus normally position the latching assembly for movement into latching engagement with the respective latching abutment 68 upon mounting plate 20. Projecting rearwardly from the central portion of actuation bar 70 is an arm 72 which serves to augment the gravitational biasing action and also serves to maintain in position between a pair of spaced facing shoulders 74 on each of arms 64 a spare glass bar 76 whose function will be described in more detail below.

As best seen in Figs. 7–9, the upper edge of front wall 56 terminates in an inwardly projecting horizontal web 78 which projects inwardly into the interior of housing 36 to define an abutment against which arms 64 rest when latch assembly 60 is in the position shown in the drawings. The abutting engagement between the inner edge of web 78 and arms 64 positions actuating bar 70 within an opening in housing 36 defined by the space between web 78 and the lower edge 80 of top wall 58. As best seen in Fig. 1, actuating bar 70 substantially fills the opening thus defined which extends substantially the entire distance between opposed side walls 54 of housing 36. The exposed surface of actuating bar 70 is recessed rearwardly from the exterior of the housing and top wall 58 normally overhangs bar 70 so that latch assembly 60 may be actuated only by an object capable of passing through the opening defined between web 78, edge 80 and side walls 54 in a generally horizontal direction.

An inwardly projecting abutment 82 on the interior of front wall 56 projects inwardly into chamber 38 to overlie switch actuator 28. The location of abutment 82 may vary in accordance with the type of signalling switch employed; its function is to drive the switch actuator in switch operating movement when housing 36 is moved vertically downwardly with respect to the switch.

To prevent actuation of switch SW in the event of the inadvertent release of latching assembly 60, a frangible element in the form of a glass bar or rod 84 is supported upon and extends between two horizontally spaced seats 86 formed on the respective shoulders 30 of mounting plate 20. A rearwardly projecting abutment 88 integrally formed on the inner surface of front wall 56 is located to be supported or to overlie glass bar 84 when housing 36 is in the position shown in the drawings. Preferably, a pair of openings 90 extend through front wall 56 so that glass rod 84 may be inspected from the exterior of the housing. As indicated by a comparison of Figs. 8 and 10, glass rod 84 may take the form of a flat bar-like rod cut from a glass pane or may be circular in cross section as indicated at 84*a* in Fig. 10. Where the circular rod 84*a* is employed, a suitably formed seating groove 86*a* may be formed in the bar seat.

To install the signal box, the switch SW, indicated in dotted lines in Fig. 8, will be installed in a recess formed as in a vertical wall in a conventional manner and positioned so that the switch toggle projects outwardly from the surface of the wall in the manner shown in Fig. 8. The switch will be oriented so that when its toggle is in the position shown in Fig. 8 the switch is in its normal or non-actuated position. The switch employed is a conventional toggle switch which is actuated by pivoting actuator 28 downwardly from the position shown in Fig. 8 in a well known manner.

Assuming that the signal box is in the closed condition shown in the drawings, it is prepared for installation by first backing off locking screw 50 until the inner end of the screw will clear locking abutment 52 (Fig. 9). When screw 50 is backed off clear of abutment 52, housing 36 may be moved upwardly relative to mounting plate 20 until pins 44 pass above latching abutment 68.

The upper end of housing **36** may then be swung outwardly away from mounting plate **20**, housing **36** remaining coupled to mounting plate **20** by virtue of the location of pins **48** within the respective recesses **32** of the mounting plate. Recesses **32** are sufficiently enlarged so that housing **36** may partake of a general pivoting movement downwardly until housing **36** projects away from mounting plate **20** at approximately 90°. This fully exposes the outer face of mounting plate **20** and the plate may be then attached to the wall or to the junction box within which switch SW is mounted by screws **24**. When the mounting plate is fixedly attached to the wall, switch actuator **28** will project outwardly from the wall through opening **26** in the mounting plate **20**. The switch actuator is then positioned as shown in Fig. 8 and a glass bar **84** is placed upon the seats **86** as shown in the drawings. A spare glass bar **76** may be placed in the latching assembly **60** by pivoting assembly **60**, while the housing is in its fully open position, until access to shoulders **74** is provided. The latch assembly is then returned to the position relative to housing **36** shown in the drawing.

The box is now ready to be closed and is closed by lifting and swinging housing **36** upwardly so that pins **44** pass above abutments **68**. This will place the side walls **54** of housing **36** within grooves **42** and the housing is lowered to locate pins **44** behind ribs **46**. The housing is further lowered until latches **66** are seated upon latching abutments **68**. As explained above, the shape of latch assembly **60** is such that it is gravitationally maintained in the latching position during the aforementioned lowering movement. With the housing thus latched against further lowering movement relative to mounting plate **20**, locking screw **50** is turned in and passes beneath rib **52** into the position shown in Fig. 9. With the screw in the Fig. 9 position, housing **36** cannot be lifted upwardly with respect to mounting plate **20** a sufficient distance to permit pins **44** to clear flanges **46**.

To actuate switch SW, it is necessary to first disengage latching assembly from latching abutments **68**. This is accomplished by inserting the fingers into the opening between web **78** and top wall **58** and pushing actuating bar **70** rearwardly into the housing. This action pivots the latching assembly about the axis defined by pins **62** and latches **66** are rotated forwardly to clear the forward sides of latching abutments **68**. When the latch is disengaged by the foregoing action, housing **36** is still maintained in the position shown in the drawings by virtue of the supporting relationship between the glass bar **84** and abutment **88** on the housing. It is thus necessary to manually pull housing **36** downwardly with a force sufficient to break glass bar **84**. This action is extremely convenient to perform since the manual operation of releasing latch assembly **60** places the finger tips above web **78** on the housing and the housing may be easily pulled down with substantially the same movement employed to disengage the latch.

Since the modified form of box shown in Figs. 11–15, inclusive, has substantially the same external appearance as the box described above, the modified form has been shown only in cross-section. As in the previous embodiment, the box of Figs. 11–15 includes a generally rectangular mounting plate **100** formed with bolt-receiving openings **102** through which mounting bolts **104** may pass to secure mounting plate **100** in fixed position upon a vertical wall surface W. A signalling switch SW (Fig. 14) is supported by any conventional means (not shown) on the rear side of mounting plate **100** at a location where the switch actuator **106** projects forwardly through an opening **108** in mounting plate **100**. As in the previous embodiment, signalling switch SW is of a conventional snap-acting construction.

The structure for supporting and guiding the housing upon mounting plate **100** is somewhat modified from the previously described embodiment. As best seen in Fig. 15, the forward surface of mounting plate **100** is substantially flat. Two upstanding ears **110** near the upper end of the mounting plate replace the grooves **42** employed in the previously described embodiment. Adjacent the lower end, two forwardly projecting shoulders **112** are integrally cast with the mounting plate and project forwardly from the front of the mounting plate. Enlarged recesses **114** are formed in each of shoulders **112** and open outwardly toward the vertical side edges of mounting plate **100**. At their upper ends, shoulders **112** are formed with flat, substantially horizontal supporting surfaces **116** which define a supporting seat for the respective ends of an elongated frangile element in the form of a glass bar or strip **118**.

Approximately midway of the height of mounting plate **100**, a second pair of forwardly projecting shoulders **120** are likewise cast integral with mounting plate **100** and formed with recesses **122** opening outwardly toward the adjacent vertical side of the mounting plate. As in the previous embodiment, the upper end of each recess **122** is open, while the forward side **124** of each recess is parallel to the vertical surface of the mounting plate.

A pair of inwardly projecting pins **126** are fixedly secured to the side walls of a hollow housing **128** and are received within recesses **114** in the same fashion as pins **48** are received within recesses **32** of the previously described embodiment. A second pair of pins **130** are normally received within the respective recesses **124** to guide and constrain housing **128** to sliding vertical movement in contact with the forward surface of mounting plate **100** as long as pins **130** are received within recesses **124**. A locking screw **132** is threaded through the forward side of housing **128** to normally be disposed beneath one of the shoulders **120**. When in its innermost position, shown most clearly in Figs. 13 and 14, locking screw **132** projects beneath a shoulder **120** and is engageable with the lower side of the shoulder to prevent movement of housing **128** upwardly a sufficient distance to lift pins **130** clear of recesses **124**.

As in the previously described embodiment, housing **128** is cast with two integral vertically spaced projections **134** and **136**. Projection **134** is located to lie above the switch actuator and is employed to drive actuator **106** in switch operating movement when the housing is moved from its normal upper position shown in Figs. 11–14 to a lower position, not illustrated but defined by the engagement of pins **126** with the lower walls of their respective recesses **114**. Projection **136** is located to lie immediately above the frangible element **118** when the housing is in its normal upper position and, as believed apparent from the description of the previous embodiment, frangible element **118** must be broken by projection **136** in order to permit housing **128** to be moved to its lower, switch actuating position.

A pair of lugs **138** project inwardly from housing **128** on either side of projection **134**. Sheet metal strips **140** are bolted to the inner ends of projections **138** to define a pocket within the housing where spare glass bars such as bar **142** may be stored within the housing.

Latch assembly **60** of the previous embodiment is not employed in the embodiment of Figs. 11–15 and, in order to provide a convenient surface for manually actuating the box, a recess **144** is cast into the front wall of housing **128**. Recess **144** occupies generally the same position as the latch actuator access opening of the previously described embodiment.

As in the previous case, housing **128** is formed with a pair of observation openings such as **146** aligned with frangible element **118** so that the element may be inspected from the exterior of the device. The front wall of housing **128** is interrupted at its lower end as at **148** to define an opening through which fragments of a ruptured fragible element may drop during switch actuation.

Operation of the embodiment of Figs. 11–15 is sub-

stantially the same as operation of the previously described embodiment, with the exception that since the latch assembly has been omitted, it is not necessary to actuate the latch assembly in order to release the housing for switch actuating movement.

While I have described certain embodiments of my invention, it will be apparent to those skilled in the art that the embodiment described above may be modified. Therefore, the foregoing description is to be considered exemplary rather than limiting and the true scope of my invention is that defined in the following claims.

What I claim as my invention is:

1. Signaling apparatus comprising a mounting plate, a hollow housing overlying said mounting plate and projecting outwardly from one side of said plate to define an enclosed chamber therewith, a signaling switch actuator projecting into said chamber, means supporting said housing upon said plate for guided lateral sliding movement relative to said plate between a first and a second position, abutment means on said housing projecting into said chamber and located to drive said actuator in switch operating movement upon sliding movement of said housing from said first position to said second position, and frangible means located within said chamber, said frangible means being engageable by means on said housing to rupture said frangible means upon sliding movement of said housing from said first position to said second position.

2. Signaling apparatus comprising a vertically disposed mounting plate, a hollow housing overlying said mounting plate and projecting outwardly from one side of said plate to define an enclosed chamber therewith, a signaling switch actuator projecting into said chamber, means supporting said housing upon said plate for guided vertical sliding movement relative to said plate between an upper and a lower position, a first abutment on said housing projecting into said chamber and located to drive said actuator in switch operating movement upon sliding movement of said housing from said upper position to said lower position, a pair of horizontally spaced support means on said mounting plate projecting into said chamber, an elongate frangible bar supported upon and extending between said support means, and a second abutment on said housing projecting to said chamber, said second abutment being located immediately above said frangible bar at a point midway between said support means when said housing is located in said upper position.

3. Signaling apparatus as defined in claim 2 wherein said housing is formed with a forwardly opening recess therein for assisting manual movement of said housing from said upper to said lower position.

4. Signaling apparatus as defined in claim 2 including means defining a pair of housing guiding recesses on said mounting plate, a pair of pins fixedly secured upon said housing and respectively slideably received in said recesses to constrain said housing to sliding vertical movement relative to said mounting plate between said upper and lower positions, each of said recesses having an opening at the upper end thereof to permit said pins to be disengaged therefrom upon movement of said housing upwardly beyond said upper position, and releaseable locking means in said housing engageable with abutment means on said mounting plate to prevent movement of said housing beyond said upper position.

5. Signaling apparatus as defined in claim 4 including means on said mounting plate defining a pair of second recesses on said mounting plate, said second recesses opening outwardly of each vertical side of said mounting plate, a pair of second pins fixedly secured to said housing and projecting inwardly therefrom to be respectively received in said second recesses, said second recesses being enlarged with respect to said second pins to permit vertical movement of said housing between said lower position and a position wherein said first-mentioned pins are disengaged from said first-mentioned recesses, said second recesses being operable to permit said housing to be pivoted outwardly away from said front side of said mounting plate while maintaining said housing and said mounting plate in permanent coupled relationship.

6. Signaling apparatus as defined in claim 5 wherein said means defining said second recesses comprises a pair of shoulders projecting forwardly from said mounting plate adjacent the lower end thereof, the upper surfaces of said pair of shoulders including means thereon defining said support means for said frangible bar.

7. Signaling apparatus comprising a mounting plate, a hollow housing overlying one side of said mounting plate and projecting outwardly from said one side of said plate to define an enclosed chamber in said one side of said mounting plate, a signaling switch mounted upon said plate and having an actuator projecting into said chamber, means supporting said housing upon said mounting plate for guided movement relative to said mounting plate between a first and a second position, abutment means on said housing projecting into said chamber and located to drive said actuator in switch operating movement upon movement of said housing from said first position to said second position, releaseable latch means mounted upon said housing upon said chamber normally engaged between said housing and said mounting plate to latch said housing in said first position, said housing having an opening therein affording access to said latch means from the exterior of said housing for the manual release of said latch means, and frangible means located within said chamber engaged between said housing and said mounting plate operable until broken to maintain said housing in said first position.

8. Signaling apparatus comprising a mounting plate, a hollow housing overlying one side of said mounting plate and projecting outwardly from said one side of said plate to define an enclosed chamber at said one side of said mounting plate, a signaling switch mounted upon said plate and having an actuator projecting into said chamber, means supporting said housing upon said mounting plate for guided movement relative to said mounting plate between a first and a second position, abutment means on said housing projecting into said chamber and located to drive said actuator in switch operating movement upon movement of said housing from said first position to said second position, a latching abutment projecting from said one side of said mounting plate into said chamber, latch means pivotally supported upon said housing within said chamber and engageable with said latching abutment to latch said housing in said first position, said housing having an opening therein affording access to said latch means from the exterior of said housing whereby said latch means may be manually pivoted out of latching engagement with said latching abutment, and frangible means located within said chamber engaged between said housing and said mounting plate operable until broken to maintain said housing in said first position.

9. Signaling apparatus comprising a mounting plate, a hollow housing located at one side of said mounting plate and projecting outwardly from said plate to define an enclosed chamber at said one side of said mounting plate, a signaling switch mounted upon said plate and having an actuator projecting into said chamber, means supporting said housing upon said mounting plate for sliding movement relative to said plate between an upper and a lower position, abutment means on said housing projecting into said chamber and located to drive said actuator in switch operating movement when said housing is moved from said upper to said lower position, an upwardly facing latching abutment projecting outwardly from said one side of said mounting plate into said chamber, a latch member supported upon said housing for pivotal movement about a horizontal axis within said chamber, said axis of pivotal movement of said latch member being located above said latching abutment on

said mounting plate when said housing is in said upper position, said housing having an opening therein located above said axis, a latch actuator mounted upon said latch member to be located within said opening when said housing is in said first position and said latch member is engaged with said latching abutment, and frangible means located within said chamber engaged between said housing and said mounting plate operable until broken to maintain said housing in said first position.

10. Signaling apparatus comprising a one-piece housing including a pair of spaced parallel vertical side walls, a front wall and a top wall, said top wall having a lower edge spaced vertically above the upper edge of said front wall to define an opening extending across the front of said housing, a latch assembly pivotally supported within said housing, an actuating bar on said latch assembly gravitationally biased to normally rest in a first position against the inner side of said front wall within said opening, a mounting plate adapted to support said housing for sliding vertical movement relative to said plate between an upper position and a lower position, a signaling switch mounted upon said mounting plate and having a switch actuator engageable by said housing to be moved from an inoperative position to an operative position upon movement of said housing from said upper position to said lower position, a latching abutment on said mounting plate engageable with said latch assembly when said housing is in said upper position and said latch actuator is in said first position to latch said housing in said first position, said latching assembly being disengageable from said latching abutment upon movement of said actuator inwardly of said housing away from said opening, and means engaged between said mounting plate and said housing to maintain said housing in said upper position upon disengagement of said latch assembly from said latching abutment until a downward force of a predetermined magnitude is applied to said housing.

11. Signaling apparatus comprising a one-piece housing having a pair of spaced parallel vertical side walls, a front wall and a top wall, said front wall having an opening extending across the front of said housing, a latch assembly comprising a pair of like arms, each of said arms being pivotally supported on the inner side of said side walls for pivotal movement about a horizontal axis located adjacent the rearward edge of said side walls below said opening, an actuating bar fixedly secured to and extending between the upper ends of said latch arms to be gravitationally biased to a first position wherein said bar is located within said opening, a mounting plate adapted to support said housing for sliding vertical movement relative to said plate between an upper position and a lower position, a signaling switch mounted upon said mounting plate and having a switch actuator engageable by said housing to be moved from an inoperative position to an operative position upon movement of said housing from said upper position to said lower position, a pair of latching abutments projecting outwardly from said mounting plate to be engaged respectively by the lower ends of said latch arms when said housing is in said upper position and said actuator is in said first position to latch said housing in said upper position, said arms being disengageable from said latching abutments upon pivotal movement of said arms about said horizontal axis by movement of said actuator inwardly of said housing in a direction away from said opening to permit movement of said housing from said upper position to said lower position, and means engaged between said mounting plate and said housing to maintain said housing in said upper position upon disengagement of said latch arms from said latching abutments until a downward force of a predetermined magnitude is applied to said housing.

12. Signaling apparatus comprising a generally rectangular mounting plate having parallel vertical side edges, shoulders on said mounting plate projecting forwardly from said plate adjacent each vertical side edge thereof, each of said shoulders having a vertically elongated recess extending downwardly from the upper end of each shoulder and inwardly from each side edge of said plate, a housing including a front wall, vertical side walls projecting rearwardly from opposite sides of said front wall and a top wall, a pair of pins projecting inwardly from the side walls of said housing slideably received within the recesses on said shoulders to maintain said housing in sliding engagement with said mounting plate during movement of said housing between an upper position and a lower position relative to said plate, a signaling switch mounted upon said mounting plate and having an actuator projecting from said plate toward said housing, abutment means on said housing projecting toward said plate and located to drive said switch actuator in switch operating movement upon movement of said housing from said upper position to said lower position, and frangible means for resisting movement of said housing to said lower position.

13. Signaling apparatus as defined in claim 12 including a downwardly facing abutment on said mounting plate, and locking means mounted on said housing and movable into engagement with said abutment to prevent movement of said housing upwardly beyond said upper position.

14. Signaling apparatus as defined in claim 12 including a pair of horizontally spaced upwardly facing seats projecting forwardly from said mounting plate, said frangible means comprising a frangible bar supported upon and extending between said seats, and an abutment projecting inwardly from the front wall of said housing to overlie said bar when said housing is in said upper position whereby said bar is operable until broken to maintain said housing in said upper position.

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