

Oct. 8, 1929.

F. B. PHILBRICK ET AL

1,730,683

SIGNALING BOX

Filed Sept. 16, 1927

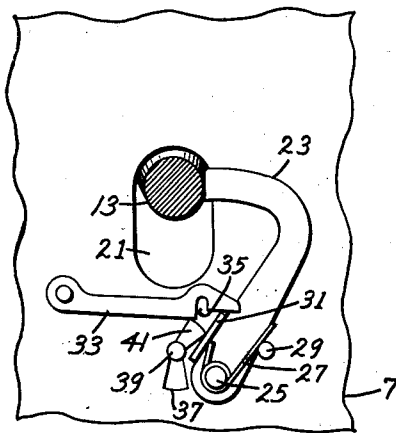


Fig. 1

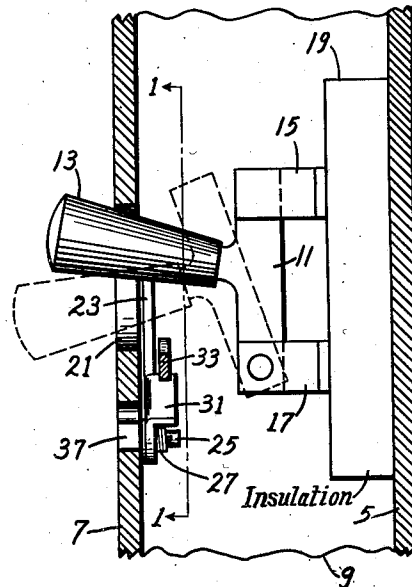


Fig. 2

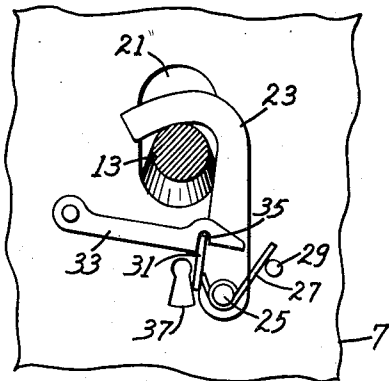


Fig. 3

INVENTOR
Frederick B. Philbrick
Frederic A. Raymond
BY
C. E. Beach
ATTORNEY

UNITED STATES PATENT OFFICE

FREDERICK B. PHILBRICK, OF NEEDHAM, AND FREDERIC A. RAYMOND, OF NEWTON CENTER, MASSACHUSETTS, ASSIGNORS TO THE GAMEWELL COMPANY, OF NEWTON UPPER FALLS, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

SIGNALING BOX

Application filed September 16, 1927. Serial No. 220,047.

This invention relates to signaling systems and more particularly to signaling mechanism contained within a casing and forming what is commonly termed a signaling station or box. One object of the invention is to provide a signaling station presenting an externally available signal-actuating member with signaling mechanism, the latter adapted when actuated to be held in signaling relation against any external interference and to present externally visible evidence of its active signaling position, there being associated with the station suitable unlocking means permitting only the authorized restoration of the signaling mechanism to its normal position.

The invention is herein illustrated in its application to signaling systems of the auxiliary fire alarm type where a main-line, code-signal transmitting mechanism is arranged for response to actuation of one or more stations connected on an auxiliary circuit or loop. In such cases it is common to provide an auxiliary loop in shunt to a main line magnet through which may be effected actuation of a master box or signal-transmitting mechanism in the main circuit, the act of breaking the shunt loop at one of the auxiliary stations serving to divert the main line current from the auxiliary loop to effect energization of the magnet and thus causing the tripping of the code-signal mechanism at the main line master box.

Master boxes of the shunt type, commonly used in municipal fire alarm circuits, are of the non-interfering and succession type, such that, during the transmission of the signal, the circuit stands open substantially throughout all intervals between signal impulses, the code signal comprising a plurality of circuit closures of comparatively brief and uniform duration. Since the tripping of the master or main-line box is dependent upon the flow of current in the main-line signaling circuit, if an auxiliary station controlling the shunt around the magnet of a master box should be operated to break the auxiliary shunt circuit during an open circuit period of the signal in the course of transmission from some other previously tripped main-line box

and the auxiliary station should thereafter close the auxiliary shunt circuit around such magnet before the main line circuit is again closed at the previously started box, the operation of such auxiliary station would fail to cause the tripping of its associated master box.

It is therefore desirable that means should be provided whereby the signaling mechanism at the auxiliary station may be retained in its active signaling condition, when once operated, for a length of time at least sufficient to secure the tripping of its associated master box upon the next closure of any signal which may be in the course of transmission at the time such auxiliary station is operated.

It is also desirable in many situations, as, for example, in large institutions, office buildings or the like, in which a number of auxiliary transmitting stations are connected on the same auxiliary line, that it shall be possible to ascertain directly from the appearance of the station which one of the stations on the auxiliary line has been actuated to cause the tripping of the master box.

While this invention may have useful application to signaling systems other than the specific one instanced, an embodiment of our invention is herein shown for illustrative purposes in the form of a signaling box adapted particularly for auxiliary fire-alarm service, wherein the tripping member of the signaling device is automatically locked or held in tripped or active position whenever it has been subjected to functional actuation to cause the tripping of the master box, the construction being such that the signaling device cannot be restored to normal condition except through the use of a special key or release device held by some authorized person, and also such that the locked position of the tripping device itself serves as an indication of the actuation of the box.

In the drawings:

Figure 1 is a sectional elevation illustrating one embodiment of the invention, the section being taken through the handle of the tripping device on the line 1—1 in Fig. 2, with the handle in its normal, inactive or

non-signaling position, the locking mechanism on the inside of the outer wall of the box having been unlocked to permit the restoration of the handle to its non-signaling position;

Fig. 2 is an elevation, partly in section, taken through the signaling box showing the tripping device and the locking mechanism; and

Fig. 3 is a view similar to Fig. 1, showing the tripping device locked up in its active or signaling position.

Referring to the drawings and to the illustrative embodiment of the invention there shown, a signaling station for an auxiliary line station is illustrated, the same comprising a casing with top, bottom and side walls entirely enclosing and rendering inaccessible the signaling and locking devices within, there being shown in the drawings, however, only the rear wall 5, front wall 7 and one of the side walls 9 of the containing casing.

The signal-transmitting device comprises the hinged knife-switch 11 secured to the tripping handle 13 and adapted normally in its inactive or non-signaling position (full line position in Fig. 2) to close the auxiliary loop through the stationary contacts 15 and 17, the latter being mounted on the insulating base 19 secured to the rear wall 5 of the casing. The tripping handle 13 is of such length as to protrude through an opening in the front wall 7 of the casing and is of such size and shape as to be externally available for its manual depression to effect functional actuation which, with the arrangement of parts as shown, will open the switch and break the auxiliary loop. The opening is in the form of a vertical slot 21 through which the handle extends with a slight clearance, the slot being of sufficient length to permit the depression of the trip handle from the full line, non-signaling position shown in Fig. 2 to the dotted line or signaling position also there shown.

To assure the retention of the handle in its tripped position and the subsequent tripping of the main-line master box in case the tripping handle 13 is moved coincident with the transmission of a main line signal from some other main-line box, automatic latching mechanism is provided. This comprises a latch 23 pivoted at 25 on the inside of the outer wall of the box and the latch having a hook-shaped end, the tip of which bears against the side of the tripping lever when the latter is in its raised position, being pressed thereagainst by a coiled spring 27. The spring has one end abutting against a pin 29 which protrudes inwardly from the wall 7 and also serves to limit the outward movement of the latch 23. The opposite end of the spring bears against the face of the small flanged locking plate 31 formed on and extending outwardly from the latch 23.

In case the tripping handle 13 is depressed to cause the transmission of a signal through the tripping of the master box, the hooked end of the latch 23, under the action of the spring 27, snaps over the tripping handle and serves to hold it in depressed tripped position, the parts assuming the position shown in Fig. 3.

To lock the latch in its holding position, there is provided a pivoted locking dog 33 which overlies the plate 31. The underface of the dog 33 has the recess 35 formed therein and is so shaped that, when the latch 23 is normally positioned (as shown in Fig. 1), it bears upon the upper edge of the locking plate 31, but when the latch moves to the position which brings said plate into alignment with said recess (as shown in Fig. 3) gravity, which may be assisted by a spring (not shown), will cause the dog to drop over the plate, so that the upper edge of said plate will be situated within said recess 35. This locks the latch in its holding position until such time as the dog may thereafter be lifted and freed from the flanged locking plate 31.

It will be observed that, when the tripping handle is depressed, its position gives visible, external evidence of the active position of the signal transmitting device so that the auxiliary station from which the signal has been sent can be immediately detected. In this position, however, the tripping handle is definitely locked against any unauthorized, outside manipulation, the depressed position of the handle preventing access to the locking dog 33 through the slot 21, so that when the handle is depressed such access to the parts as is necessary to lift the dog 33 and release the latch is impossible except through the use of an authorized release key.

To provide for the authorized release of the handle, the wall 7 is provided with a key-hole 37 through which there may be inserted a key 39, the web 41 of which is so shaped as to first engage the underside of the locking dog, between its pivot and the recess 35, to lift the same free from the locking plate 31, and then, by further movement, to engage the plate 31 and force the latch back against the stop pin 29, whereupon the handle 13 may be again raised to its normal position and the device restored to its inactive or non-signaling position.

For illustrative purposes, a simple form of key is herein shown, but it is obvious that an unlocking device of more intricate and complicated mechanism may be employed if desired, it only being necessary that the catch may be lifted and the latch thrown back only by some form of authorized key.

While we have herein shown and described for the purposes of illustration one specific embodiment of the invention, it is to be understood that extensive deviations may be made from the illustrative embodiment of the in-

vention and from the number, form and relative arrangement of the parts herein shown, all without departing from the spirit thereof.

Claims:

- 5 1. A signaling box for a signaling system comprising an enclosing casing containing signaling means, an actuating handle protruding through an opening in the casing presenting an externally accessible end movable
10 across said opening from a non-signaling to a signaling position, a pivoted latch within the casing having its end normally bearing against the side of the handle but adapted to move automatically across the portion of said
15 opening which is occupied by said handle when in its non-signaling position to overlie and hold said handle when in its signaling position, a spring to move the latch to its holding position, and an externally inaccessible
20 pivoted locking dog to automatically engage and lock the latch when moved to its holding position, the casing having a keyhole through which the latch may be unlocked and moved from its holding position by the use of an
25 authorized key to permit the handle to be restored to its non-signaling position; the formation and arrangement of said latch and of said dog, relative to one another, to said key hole and to said opening, such that any key
30 inserted in said key hole will be effective to position said latch to permit restoration of said handle only in the event that such key is so formed that, when rotated after insertion in said key hole, it will move said dog to dis-
35 engage same from said latch before acting to withdraw said latch from the path of said handle. 70
2. A signaling box for a signaling system comprising an enclosing casing containing
40 signaling means, an actuating handle protruding through an opening in the casing presenting an externally accessible end movable across said opening from a non-signaling to a signaling position, a pivoted latch within
45 the casing having its end normally bearing against the side of the handle and biased to move across the portion of said opening which is occupied by said handle when in its non-signaling position to overlie and hold said
50 handle when in its signaling position, and an externally inaccessible pivoted locking dog to automatically engage and lock the latch when moved to its holding position, the casing having a key hole through which the latch may
55 be unlocked and moved from its holding position by the use of an authorized key to permit the handle to be restored to its non-signaling position; the formation and arrangement of said latch and of said dog, relative to one another, to said key hole and to said opening,
60 such that any key inserted in said key hole will be effective to position said latch to permit restoration of said handle only in the event that such key is so formed that, when
65 rotated after insertion in said key hole, it will 75

move said dog to disengage same from said latch before acting to withdraw said latch from the path of said handle.

In witness whereof, we hereunto subscribe our names, this 18th day of August, 1927. 80

FREDERICK B. PHILBRICK.
FREDERIC A. RAYMOND. 85

75

80

85

90

95

100

105

110

115

120

125

130