May 26, 1936. R. S. EDWARDS 2,041,995

MOUNTING FOR SIGNALING DEVICES AND THE LIKE

Filed Oct. 14, 1933 2 Sheets-Sheet 1

Fig. 1.

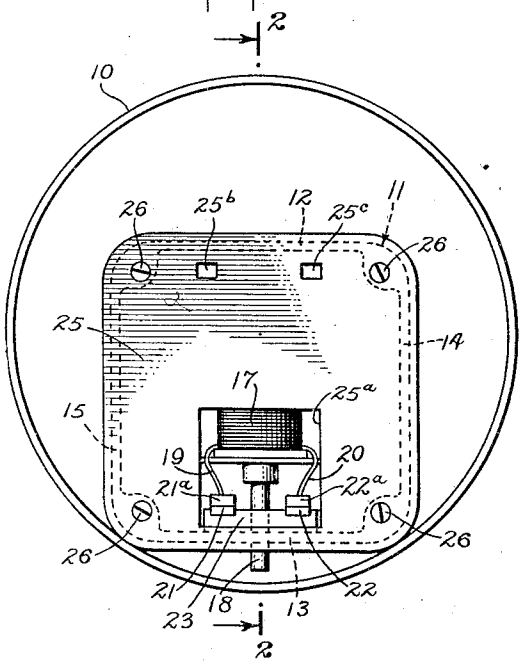


Fig. 2.

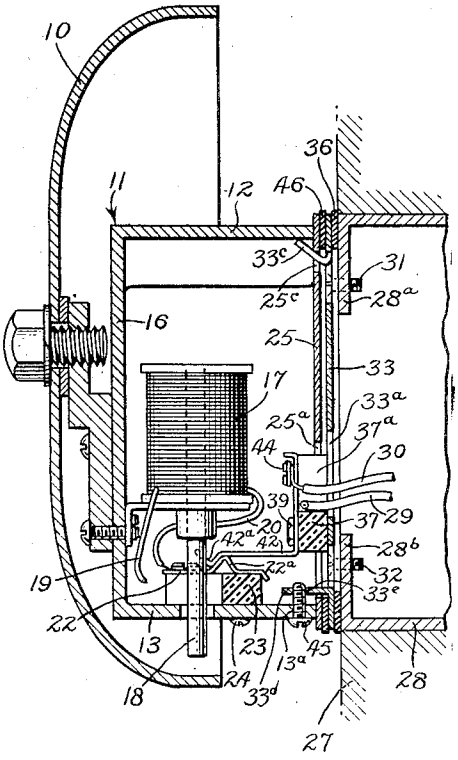
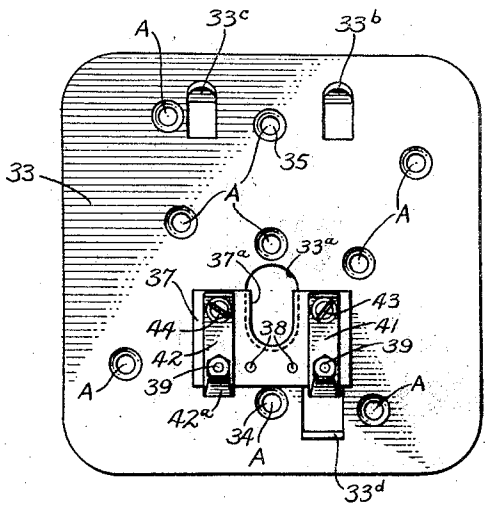


Fig. 3.



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MOUNTING FOR SIGNALING DEVICES AND THE LIKE

Filed Oct. 14, 1935 2 Sheets-Sheet 2

Fig. 4.

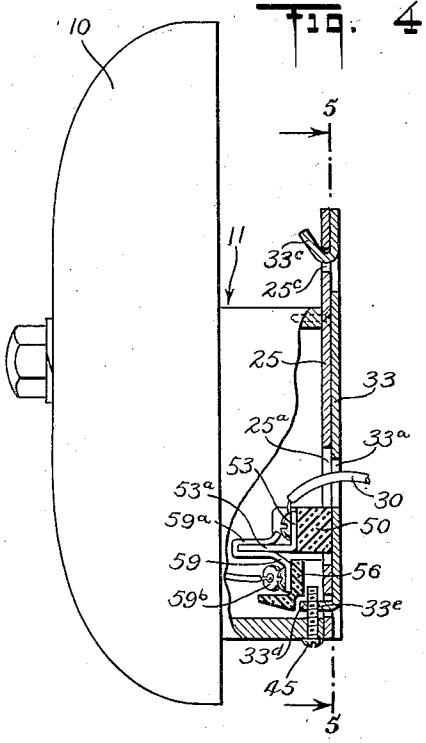


Fig. 5.

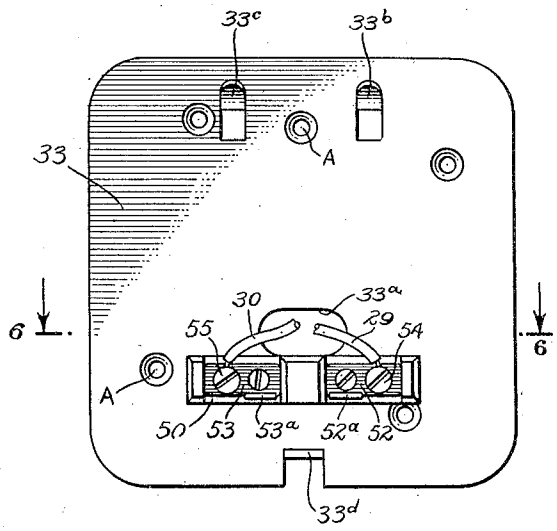


Fig. 8.

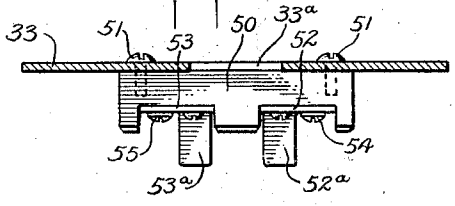
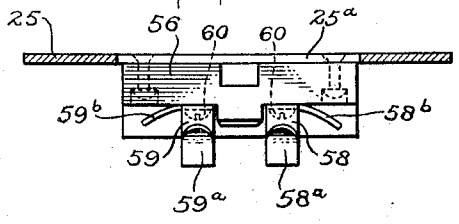


Fig. 7.



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UNITED STATES PATENT OFFICE

2,041,995

MOUNTING FOR SIGNALING DEVICES AND THE LIKE

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Application October 14, 1933, Serial No. 693,629

22 Claims. (Cl. 177—7)

This invention relates to mountings for electrical apparatus, particularly for signaling apparatus.

One of the objects of this invention is to provide a thoroughly practical and reliable signaling construction and mounting and to provide for speed and ease and economy of installation. Another object is to provide a construction of the above-mentioned character in which the signaling apparatus may be installed with a minimum amount of labor and with a mechanical and electrical reliability heretofore unachieved. Another object is to provide a construction of the above-mentioned character which will be capable of inexpensive manufacture, without detracting from the achievement of many advantages in installing and in practical operation. Other objects will be in part obvious or in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts as will be exemplified in the structure to be hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which are shown several of the various possible embodiments of my invention,

Figure 1 is a rear view of an electric signaling gong showing certain of the features coacting with the mounting means;

Figure 2 is a central vertical cross-section on an enlarged scale showing the signaling gong in installed relation to a wall or the like;

Figure 3 is a front plan view of the main mounting plate, shown on an enlarged scale, and with which the construction shown in Figure 1 coacts;

Figure 4 is a central vertical sectional view somewhat like that of Figure 2 showing another and preferred embodiment of my invention;

Figure 5 is a view substantially as seen along the line 5—5 of Figure 4;

Figure 6 is an end elevation of a contact-carrying block and related parts associated with the signaling gong construction, and

Figure 7 is a similar elevation of a contact-carrying block and related parts associated with the main mounting plate.

Similar reference characters refer to similar parts throughout the several views in the drawings.

As conducive to a clearer understanding of certain features of this invention it might here be noted that much inconvenience, many deficiencies and many difficulties have attended prior practice in the construction and mounting of various types of signaling apparatus such as is best and illustratively typified in large electrically-actuated gongs, such as are used for alarm signaling and other purposes. Not only are some of these signaling devices of considerable mass or weight and therefore difficult for an electrician or workman to handle when installing, but also they are, when installed, usually positioned at a substantial height from the floor, all of which factors are conducive to any thing but speedy, reliable and inexpensive installation, or removal for inspection or replacement, or the like; particularly when installing such devices, such factors as those just noted make it particularly difficult for the installer to achieve dependable and reliable electrical connection to the signaling circuit but also make it difficult to arrive at a dependable and speedy securing of the gong to the wall itself. Such prior practice embodies geninue dangers of injury or damage to the wiring and to the apparatus itself, not to mention the chances of physical injury to the workmen handling the usually heavy constructions. One of the dominant aims of this invention is to achieve a mechanical and electrical inter-relation of parts whereby such disadvantages as those just noted may be effectively overcome and eliminated and reliable mechanical and electrical installation achieved with a minimum of labor and inconvenience.

Turning now to Figures 1, 2 and 3, there is shown an electrically actuated signaling device illustratively in the form of an electric gong and including a gong 10 mounted in any suitable way upon and carried by a framework preferably taking the form of a hollow casing 11, the latter being preferably generally rectangular in shape and having, therefore, a top wall 12 and bottom wall 13 (Figure 2) and side walls 14 and 15 (Figure 1) closed by a front wall 16.

Conveniently the gong 10 is carried by the front wall 16 by any suitable means such as the bracket and screw construction as shown in Figure 2, the gong and casing 11 being preferably so proportioned that the casing is well received within and overlapped by the gong 10 itself, thus to achieve compactness of construction.

Within the casing 11 is mounted in any suitable manner the gong-striking mechanism and the latter may take any suitable form such as, for example, an electromagnet or solenoid 17 suitably secured within the casing 11 and operating upon a gong-striking plunger 18 which

extends through a wall of the casing 11 and has a line of movement such that, when the winding 17 is suitably energized from a suitable circuit, the plunger 18 is set into rapid movement toward and against the gong 10 to cause the latter to resound. In Figure 2 the gong-striking mechanism 17—18 is to be understood as purely illustrative of a possible form of such mechanism but in so far as my invention is concerned that mechanism, as above noted, may take any suitable form. In any event, the mechanism through which the signal is made effective embodies a winding and that winding has terminal conductors such as the conductors 19 and 20 indicated in Figure 2.

The signaling mechanism and hence the casing 11 are to be mechanically supported for operation while at the same time electrical connection to the winding 17 is to be achieved; in accordance with certain features of my invention these objects are achieved by a unique coaction of unique parts and in this connection it might first be noted that I mount and expose within the casing 11 as many of what I shall hereinafter term contact members as there are effective conductors necessary to complete the circuit of the energizing winding or windings. Illustratively, where the latter has two terminals or terminal conductors, such as the conductors 19—20 of Figure 2, I therefore provide, within the casing 11, two contact members 21 and 22 (Figure 1), the shape of which is preferably like that better shown in Figure 2, wherein contact member 22 is shown in side elevation.

Contact members 21 and 22 are suitably secured to a block 23 of insulating material, such as fiber, bakelite, or the like, and the latter may be mounted, for example, on the inner face of wall 13 of the casing 11, being secured thereto in any suitable manner as by screws 24. The contact members 21—22 are in turn secured, as by screws, rivets, or the like, to the upper face of the insulating block 23 and are laterally spaced from each other as is better shown in Figure 1, and to the left-hand ends of the contact members 21 and 22, as viewed in Figure 2, the conductors 19—20 are permanently secured as by a binding screw and preferably as by soldering, this connection being made in the course of manufacture of the signaling equipment itself so that the ultimate installer need not tamper with the conductors leading from the energizing winding.

The contact members 21—22 are made of a suitable sheet metal, such as phosphor-bronze and each has a V-shaped bend therein, as shown at 21^a and 22^a, respectively (Figures 1 and 2), the plane of the V-shaped bend extending at right angles to the plane of the wall to which the structure is to be secured.

The casing 11, as thus far described, is closed by a wall or plate member 25 (Figures 1 and 2) which may be detachably secured and sealed to the side, top, and bottom walls of the casing 11 in any suitable manner, for example, as by screws 26, as shown in Figure 1, the closing plate 25 being, of course, secured in place after the parts have been mounted inside the casing as already above described. This closing plate 25 is provided with a relatively large opening 25^a (Figures 1 and 2) near its lower edge, as seen in the drawings, and near its upper edge it is provided with two laterally spaced apertures 25^b and 25^c. Through the opening 25^a access to the contact members 21 and 22, for a purpose about to be described, may thus be gained.

Now the signaling device may be mounted against a wall either indoors or outdoors and preferably I provide for its being mounted upon and secured to an outlet box such as are now available as standard wiring construction and such as are frequently mounted entirely exposed for outdoor construction or are embedded in a wall, as is typical of indoor wiring. Accordingly, though I illustrate certain features of my invention particularly in connection with an outlet box, it is to be understood that I do not wish to be so limited but that my construction is capable of cooperation with a plane or blank wall itself.

In Figure 2 I have indicated at 27 a wall in which is embedded an outlet box 28 into which are brought, through suitable conduits, the conductors of the circuit of which the signaling device is to form a part. Though the conduit is not shown in Figure 2, the conductors are indicated at 29 and 30, these conductors representing the circuit to which the energizing winding 17 is to be connected.

The outlet box 28 is provided with suitable flanges, lugs, or the like, indicated at 28^a and 28^b for the reception of screws, as is usual in standard outlet box construction. To the outlet box, for example to the lugs or ears 28^a and 28^b as by the screws 31 and 32, I secure a main supporting or plate-like member 33 which is preferably given a contour substantially similar to that of the closing plate 25 of the casing 11 above described and which, as is also the case with the closure plate 25, is preferably made of a suitably heavy sheet metal which may be easily stamped into the desired shape and form.

The mounting plate 33 is shown in Figure 3 in plane or as seen from the left in Figure 2, and it will be seen to be provided with a plurality of holes A which are distributed throughout its area in such a way that any two or more thereof will be found to be so spaced that they may be utilized to have passed therethrough the screws for securing the plate to any of the various designs of outlet boxes available on the market, thus making the mounting plate 33 of universal applicability to existing outlet box constructions. In the illustrative case shown in Figure 2, holes indicated at 34 and 35 (see Figure 3) of the plurality of holes A are selected because their spacing corresponds to the spacing of the threaded holes in the lugs 28^a and 28^b of the type of outlet box construction illustrated by the box 28 of Figure 2.

Where the installation is to be an outdoor installation, I prefer to interpose a peripherally extending gasket 36 (Figure 2) between the plate 33 and the outlet box 28, thus forming a peripheral seal and protecting the electrical circuit and parts against moisture, rain, weather, and the like. Of course, where no outlet box is to be utilized, any two or more of the holes A of Figure 3 may be utilized to secure the supporting plate 33 directly against and to a wall or like surface.

Now plate 33 (Figures 2 and 3) adjacent its lower central portion and on its front face has secured thereto a block 37 of insulating material, such as fiber, bakelite, or the like, screws or rivets 38 being employed for the purpose, and the insulating block 37 is mounted in close relation or proximity to an aperture 33^a (Figures 2 and 3) in the plate 33. If desired, the block 37 may be cut out as indicated at 37^a to form a recess that registers partially with the apertures 33^a.

Upon the front face of the block 37 are secured as by screws or bolts 39 two sheet metal spring contact members 41 and 42, these contact members being made of a suitable spring metal, such as phosphor-bronze and being generally L-shaped as appears better in Figure 2 where contact member 42 is seen in side elevation. The two contact members are provided with binding screws 43 and 44, respectively, and as will be seen in Figure 3, the members are each on one side of the aperture 33a, as are also the binding screws 43—44.

As the plate 33 is secured to the wall or outlet box as above described, the conductors 29 and 30 are brought out through the aperture 33a and after the plate 33 has been secured in place the conductors 29 and 30 are connected to the binding posts 43 and 44, thus extending the electrical circuit to the spring contact members 41—42. This connection will be seen to be an easy and simple one to achieve.

Plate 33, at its upper end, is provided with two inwardly and upwardly bent lugs 33b and 33c of which lug 33c is better shown in Figure 2, these two lugs being spaced laterally by the same distance as are the apertures 25b and 25c of the back plate 25 (see Figure 1) of the casing 11.

Having made the electrical connection above described, the workman takes the signaling structure, as shown in Figure 1, and carries it against the supporting plate 33 (Figure 2) so as to bring the hook-shaped lugs 33b and 33c (Figure 3) into the apertures 25b and 25c of Figure 1, respectively (see Figure 2), the lugs at once taking the weight of the gong or signaling structure, and then the workman swings the structure in counter-clockwise direction, as viewed in Figure 2, about an axis substantially through the lugs 33b—33c, thus bringing the back plate 25 into parallelism with and up against the mounting plate 33; due to the aperture 25a (see Figure 1), however, in the back plate 25, this swinging motion causes the contact members 41—42 and the supporting block 37 thereof to be, relatively speaking, entered into the casing 11, as appears clearly from Figure 2, whereupon certain unique coactions take place.

To begin with, the outer ends of the spring contact members 41—42 (the left-hand ends of the horizontal portions as viewed in Figure 2) are given a V-shaped bend, as appears better at 42a of Figure 2, with respect to the contact member 42, the V 42a being reversed with respect to the V 22a in the coacting contact 22.

Due to the yieldability of the free arms of the contacts 41—42, the V-shaped ends (42a, for example) are cammed upwardly and over the V-shaped projections 22a—21a of the contact members 22—21, respectively, and brought to the left of the latter, as seen in Figure 2; preferably the contact members 41—42 are made of a relatively stiff spring material so that this interengagement thereof with the contact members 21—22 offers substantially mechanical resistance to relative disengaging movement, the spring arms thus not only functioning to achieve and maintain a secure and dependent electrical interconnection and hence extension of the electrical circuit to the energizing winding 17 but also securely holding the casing 11 and parts carried thereby, against both upward movement and a swinging movement thereof in clockwise direction about an axis through the laterally spaced hook-shaped lugs 33b—33c. The tension of the spring member 41—42 (see Figure 2) is thus selected or designed to be substantial and preferably is so proportioned that the disengagement can be achieved by the application of manual force to the casing or gong construction and preferably without requiring the use of an instrument to pry the parts apart.

Adjacent the lower edge of the mounting plate 33, the latter has its metal stamped or cut and bent inwardly to provide a horizontally extending lug 33d (Figures 2 and 3), the latter being so disposed with respect to the aperture 25a (Figure 1) of the back plate 25 that the lug 33d is entered into the casing 11 and extends substantially parallel to and alongside of the bottom wall 13 (Figure 2). Lug or tongue 33d is provided with an aperture 33e into which is freely received the upper end of a screw 45 threaded into the threaded opening 13a in the bottom wall 13; when screw 45 is driven home and tightened up against the wall 13, it is thus locked against movement and its engagement with the lug 33d prevents detachment, by movements reverse of those earlier above described in connection with the assembly, of the casing 11 from the mounting plate 33. Where the installation is an outdoor installation, I may and preferably do interpose a gasket 46 extending peripherally, between the back plate 25 of casing 11 and the front face of the mounting plate 33, thus to seal the physical connection between these two plates.

Turning now to Figures 4–7 inclusive, I have there shown a preferred arrangement of certain parts, adaptable for signaling constructions where it is impracticable or otherwise undesirable for reasons such as availability of space or the like, to use the specific form of mechanical and electrical contact or connecting members and their respective mounts as above described in connection with Figures 1, 2 and 3, or where greater compactness of interior arrangement is desired or necessary. Accordingly, in Figures 4–7, in which parts identical to those shown in and already described in connection with Figures 1, 2 and 3 are identified by the same reference characters used in the last-mentioned figures, I have shown the mounting plate 33 provided with the conductor-receiving aperture 33a and alongside of the latter I have mounted an insulating block 50, extending transversely of the plate and secured thereto as by screws 51 (Figure 7); the block 50 is relatively narrow but has adequate length (see Figures 4, 5 and 7) and it has secured thereto as by screws, bolts, rivets, or the like, two contact members 52 and 53 provided with binding screws 54 and 55, respectively, for securing thereto the conductors 29—30. These contact members are secured flatwise in suitable recesses in the block 50 (Figure 7) and have horizontally directed arms 52a and 53a, respectively (Figures 4, 5 and 7).

Upon the inner face of the closure plate 25 and adjacent the large aperture 25a thereof is mounted an insulating block 56 of generally similar shape or construction as the insulating block 50 above described, and block 50 carries spring contact members 58 and 59 secured thereto as by screws, bolts, rivets 60, or the like, and provided with ears 58b and 59b to which the conductors 19 and 20 of the electromagnetic actuating mechanism 17 are permanently secured as by soldering.

The contact members 58—59 have horizontally extending portions 58a and 59a, respectively (see Figure 6) bent upwardly and away from the insulating block 56, so as to project over and to

the side of one longitudinal side face thereof, being U-shaped as better appears in Figure 4 where one of these portions is clearly shown. Both of these portions, moreover, are thus brought into a position virtually overhanging one of the longitudinal edges of the aperture 25ª in the closure plate 25.

When, therefore, the casing 11 with its related parts is hooked onto the hook-shaped lugs 33ᵇ—33ᶜ and swung downwardly about them to bring the closure or back plate 25 parallel with and against the supporting plate 33, the U-shaped portions 58ª—59ª carried by the insulating block 52 are carried into alinement with the horizontally projecting blade-like parts 52ª—53ª of the terminal or contact members 52 and 53, respectively, carried by the insulating block 50 on the mounting plate 33. The metal of the members 58—59 is again of suitable spring characteristics or resiliency, being made of a material such as phosphor-bronze and the U-shaped portions 58ª—59ª thereby acting to receive therein the blade members 52ª—53ª, respectively, securely gripping the latter and frictionally holding them against unintentional relative movement therebetween.

Not only is a secure and dependable electrical connection achieved, the interengagement being accompanied by a rubbing action as was true also of the construction of Figures 1, 2 and 3, but also the secure mechanical interlocking or interengagement or gripping of these parts holding the casing 11 with its related parts against upward movement as well as against such swinging movement as might bring about a demounting of the signaling apparatus from the mounting plate 33.

A screw 45 is again related to the bottom wall 13 of the casing and to the lug 33ᵉ of the mounting plate to lock the above described interengaged parts against disengaging relative movement.

The arrangement shown in Figures 4 and 7 is also illustrative of a construction, better shown in Figure 4, wherein the casing 11 may be made of materially smaller expanse than the closure plate 25 and hence also of the mounting plate 33, it being understood, of course, that the mounting plate 33 of Figures 4–7 may be mounted in any manner such as has been described above in connection with Figures 1, 2 and 3. For example, if the installation is an outdoor installation and the contacting surfaces require sealing, gaskets like gaskets 36 and 46 may be employed as indicated in Figure 4.

By my invention many important and thoroughly practical advantages are successfully achieved, some of which are pointed out above and others of which will be apparent from the foregoing description. It might be pointed out, however, that, insofar as certain aspects of my invention are concerned, I may entirely omit the locking screw 45 and its related and coacting parts and in that case I may depend entirely upon the mechanical interlocking or gripping between the spring contacts carried by the mounting plate and the spring contacts related to the casing; in such case, as already above indicated, the stiffness or yieldability of the contact springs is so chosen, as by selecting an appropriate metal or as by properly proportioning the cross-section or other dimensions of the parts, that the gripping of one contact by the other is so secure that I may rely entirely upon such gripping for achieving the maintenance of mechanical assembly of the parts in question. I have found in practice that these parts may be made so securely to grip or interengage that disengagement or dismounting of the casing 11 with its back plate 25 from the mounting plate 33 can be achieved only by using an appropriate tool to force or pry the parts apart. In such case it will be seen that I make it possible to achieve, where desired, the entire elimination of screws, bolts, or the like, in effecting a mechanical supporting or mounting of the structure though it might be further pointed out that, where I employ the locking screw 45 and related parts, these latter members are so related and coact in such a way that their employment and use do not detrimentally detract from such advantages as have just been pointed out.

Furthermore, where the construction is related to an outlet box (Figures 2 and 4, for example), I am also enabled to avoid projecting live or exposed contact members into the outlet box itself, thus achieving many further advantages, among which may be noted the avoidance of encroachment upon the space within the conduit box, the greater freedom and ease of completing the electrical connections, the avoidance of danger of crossing or otherwise interfering with other circuits or conductors in the conduit boxes, and many other advantages.

Furthermore, I am enabled to achieve a very important advantage in that in shipping the construction in question, the latter presents a totally enclosed construction as it were since, as seen better in Figure 2, there is a freedom from projecting parts, the mounting plate 33 being, for purposes of shipment, assembled to the back plate 25 and casing 11, thereby carrying into the casing 11 itself what would otherwise be projecting parts, such as the spring contact members.

Furthermore, the construction is easily adapted for universal application to existing standard wiring or circuit constructions. I have above pointed out the plurality of variously arranged holes A in the mounting plate 33 (Figure 3) and these holes are variously spaced so that any two or more of them will mate with the holes of standard wall boxes, outlet boxes, conduit boxes, switch boxes, gang covers, and the like, just to mention a few of the many available fixtures or fittings met with in practice.

It will thus be seen that there has been provided in this invention a construction in which the many objects and many advantages above pointed out as well as many others, are successfully achieved.

As many possible embodiments may be made of the above invention and as many changes might be made in the embodiment above set forth, it is to be understood that all matter hereinbefore set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim:—

1. In construction of the character described, in combination, an outlet box for mounting in a wall or the like and having means provided with threaded holes, a signaling device including a casing having therein electrically actuated means for controlling said signaling device and having interiorly exposed a contact member connected to said electrically actuated means, said casing having an opening in the back wall thereof positioned in operative relation to said contact member, a mounting member carrying an insulated

contact member on its front face and having its back face toward said outlet box, means coacting with said threaded holes for securing said mounting member to said outlet box, said mounting member having an aperture therein through which conductors from said outlet box may be drawn and connected to said second-mentioned contact member, and interengaging means on said mounting member and on said casing whereby said mounting member supports the weight of said casing, said second-mentioned contact member being positioned on said mounting member at such a point that it extends through the opening in said back wall of said casing and interengages said first-mentioned contact member.

2. In construction of the character described, in combination, an outlet box for mounting in a wall or the like and having means provided with threaded holes, a signaling device including a casing having therein electrically actuated means for controlling said signaling device and having interiorly exposed a contact member connected to said electrically actuated means, said casing having an opening in the back wall thereof positioned in operative relation to said contact member, a mounting member carrying an insulated contact member on its front face and having its back face toward said outlet box, means coacting with said threaded holes for securing said mounting member to said outlet box, said mounting member having an aperture therein through which conductors from said outlet box may be drawn and connected to said second-mentioned contact member, and interengaging means on said mounting member and on said casing whereby said mounting member supports the weight of said casing, said second-mentioned contact member being positioned on said mounting member at such a point that it extends through the opening in said back wall of said casing and interengages said first-mentioned contact member, said two contact members having interengaging portions, at least one of which is relatively yieldable, for holding said casing against movement in a direction away from said mounting member.

3. In construction of the character described, in combination, an outlet box for mounting in a wall or the like and having means provided with threaded holes, a signaling device including a casing having therein electrically actuated means for controlling said signaling device and having interiorly exposed a contact member connected to said electrically actuated means, said casing having an opening in the back wall thereof positioned in operative relation to said contact member, a mounting member carrying an insulated contact member on its front face and having its back face toward said outlet box, means coacting with said threaded holes for securing said mounting member to said outlet box, said mounting member having an aperture therein through which conductors from said outlet box may be drawn and connected to said second-mentioned contact member, and interengaging means on said mounting member and on said casing whereby said mounting member supports the weight of said casing, said second-mentioned contact member being positioned on said mounting member at such a point that it extends through the opening in said back wall of said casing and interengages said first-mentioned contact member, said second-mentioned contact member being carried by an insulating block supported by said mounting member, said insulating block being shaped and positioned to be received into said casing through the opening in the rear wall of the latter.

4. In construction of the character described, in combination, an outlet box for mounting in a wall or the like and having means provided with threaded holes, a signaling device including a casing having therein electrically actuated means for controlling said signaling device and having interiorly exposed a contact member connected to said electrically actuated means, said casing having an opening in the back wall thereof positioned in operative relation to said contact member, a mounting member carrying an insulated contact member on its front face and having its back face toward said outlet box, means coacting with said threaded holes for securing said mounting member to said outlet box, said mounting member having an aperture therein through which conductors from said outlet box may be drawn and connected to said second-mentioned contact member, and interengaging means on said mounting member and on said casing whereby said mounting member supports the weight of said casing, said second-mentioned contact member being positioned on said mounting member at such a point that it extends through the opening in said back wall of said casing and interengages said first-mentioned contact member, said first-mentioned contact member being carried by an insulating block positioned adjacent the opening in said back wall and said second-mentioned contact member being carried by an insulating block carried by said mounting member, at such a point that it enters said casing through said opening in said rear wall.

5. In construction of the character described, in combination, a mounting member having means for attaching it to a wall or the like, an insulating block carried on the front face of said mounting member and carrying contact means, a casing having therein contact means and electrically actuated mechanism one terminal of which is connected to said second-mentioned contact means, means for detachably securing said casing to said mounting member, said means including both of said contact means, a wall of said casing having an aperture therein through which said insulating block with its contact means enters into said casing and whereby said two contact means are brought into mechanical and electrical interengagement.

6. In construction of the character described, in combination, a mounting member having means for attaching it to a wall or the like, an insulating block carried on the front face of said mounting member and carrying contact means, a casing having therein contact means and electrically actuated mechanism one terminal of which is connected to said second-mentioned contact means, means for detachably securing said casing to said mounting member, said means including both of said contact means, a wall of said casing having an aperture therein through which said insulating block with its contact means enters into said casing and whereby said two contact means are brought into mechanical and electrical interengagement, one of said contact means having portions for yieldably gripping the other of said contact means.

7. In construction of the character described, in combination, a mounting member having means for attaching it to a wall or the like, an insulating block carried on the front face of said mounting member and carrying contact

means, a casing having therein contact means and electrically actuated mechanism one terminal of which is connected to said second-mentioned contact means, means for detachably securing said casing to said mounting member, said means including both of said contact means, a wall of said casing having an aperture therein through which said insulating block with its contact means enters into said casing and whereby said two contact means are brought into mechanical and electrical interengagement, one of said contact means having a part forming substantially a recess and the other of said contact means being relatively yieldable and having a part adapted to enter into said recess.

8. In construction of the character described, in combination, a mounting member having means for attaching it to a wall or the like, a frame carrying electrically actuated mechanism and having a wall portion adapted to be seated against said mounting member, said mounting member and said wall portion having interengageable parts whereby said frame is detachably supported by said mounting member, and means for preventing disengagement of said interengageable parts, said means including a contact member carried by said mounting member and a contact member carried by said frame member and having said mechanism electrically connected thereto, said contact members having means for interlocking one contact member with the other.

9. In construction of the character described, in combination, a mounting member having means for attaching it to a wall or the like, a frame carrying electrically actuated mechanism and having a wall portion adapted to be seated against said mounting member, said mounting member and said wall portion having interengageable parts whereby said frame is detachably supported by said mounting member, and means for electrically connecting said mechanism to an external circuit and preventing disengagement of said interengaging parts, said means including a block of insulating material carried by said mounting member, a contact member carried by said block, said frame being cut away to permit said block and said contact member to enter thereinto, a contact member carried by said frame and having said mechanism electrically connected thereto, said first-mentioned contact member being positioned in the line of movement of said second-mentioned contact member as said frame is moved into assembled relation relative to said mounting member and said parts are interengaged, one of said contact members being yieldable and said contact members being shaped so that one yieldably interengages the other.

10. In construction of the character described, in combination, a mounting member having means for attaching it to a wall or the like, a frame carrying electrically actuated mechanism and having a wall portion adapted to be seated against said mounting member, said mounting member and said wall portion having interengageable parts whereby said frame is detachably supported by said mounting member, and means for electrically connecting said mechanism to an external circuit and preventing disengagement of said interengaging parts, said means including a block of insulating material carried by said mounting member, a contact member carried by said block, said frame being cut away to permit said block and said contact member to enter thereinto, a contact member carried by said frame and having said mechanism electrically connected thereto, said first-mentioned contact member being positioned in the line of movement of said second-mentioned contact member as said frame is moved into assembled relation relative to said mounting member and said parts are interengaged, said contact members having coacting parts adapted mechanically to interengage upon said movement taking place and to resist movement in reverse direction.

11. In construction of the character described, in combination, a mounting plate having means for attaching it to a wall or the like and having adjacent its upper end an upwardly opening hook-shaped part, a casing having therein electrically actuated mechanism having adjacent the upper part of the rear wall thereof an aperture for receiving said hook-shaped part, whereby said casing with said mechanism may be swung downwardly about said hook-shaped part to bring said rear wall against said mounting plate, said rear wall having adjacent its lower portion an aperture, an insulating block carried by said mounting plate and in the line of movement of said aperture in said rear wall as the latter with the casing is swung downwardly about said hook-shaped part and against said mounting plate, whereby said block enters said casing, a contact member carried by said insulating block, and a contact member within said casing and in electrical connection with said mechanism for interengagement with said first-mentioned contact member as said casing is swung against said mounting plate.

12. In construction of the character described, in combination, a mounting plate having means for attaching it to a wall or the like and having adjacent its upper end an upwardly opening hook-shaped part, a casing having therein electrically actuated mechanism having adjacent the upper part of the rear wall thereof an aperture for receiving said hook-shaped part, whereby said casing with said mechanism may be swung downwardly about said hook-shaped part to bring said rear wall against said mounting plate, and means for electrically connecting said mechanism to an external circuit and for resisting swinging of said mechanism in reverse direction, said means including contact means movable with said casing and connected to said mechanism and contact means carried by said mounting plate and positioned in the line of movement of said first-mentioned contact means as said casing is swung toward said mounting plate.

13. In construction of the character described, in combination, a mounting plate having means for attaching it to a wall or the like and having adjacent its upper end an upwardly opening hook-shaped part, a casing having therein electrically actuated mechanism having adjacent the upper part of the rear wall thereof an aperture for receiving said hook-shaped part, whereby said casing with said mechanism may be swung downwardly about said hook-shaped part to bring said rear wall against said mounting plate, means for electrically connecting said mechanism to an external circuit and for resisting swinging of said mechanism in reverse direction, said means including contact means movable with said casing and connected to said mechanism and contact means carried by said mounting plate and positioned in the line of movement of said first-mentioned contact means as said casing is swung toward said mounting plate, and means operable

from the exterior of said casing for locking said casing to said mounting plate.

14. In a construction of the character described, in combination, a mounting member having means for attaching it to a flat surface, a signaling device including a casing containing electrically actuated mechanism, said casing having a plurality of openings therein, means accessible through one of said openings comprising a member having opposed yieldable portions forming therebetween a recess, said mounting member having means thereon to coact with said openings, said means comprising a hook-shaped member adapted to engage said casing by entering through one of said openings and a fixed member adapted to pass through another of said openings and to enter said recess to be engaged by said yieldable portions, whereby said casing is wholly supported by said hook-shaped member and said fixed member on said mounting member.

15. In a construction of the character described, in combination, a mounting member having means for attaching it to a flat surface, a signaling device including a casing containing electrically actuated mechanism, said casing having a plurality of openings therein, means accessible through one of said openings comprising means having opposed yieldable portions forming therebetween a recess, said mounting member having means thereon to engage said openings, said last-mentioned means comprising a hook-shaped member adapted to engage said casing by entering into one of said openings and a fixed member adapted to pass through another of said openings and to enter said recess to be engaged by said yieldable portions, whereby said casing is wholly supported by said hook-shaped member and said fixed member on said mounting member, and means whereby said casing is normally held in close proximity to said mounting member, said means comprising interengaging angular projections in said recess and on said slidable member.

16. In a construction of the character described comprising, in combination, a substantially rectangular plate having a plurality of openings in staggered relation thereon, said openings being capable of receiving therethrough means whereby said mounting member may be affixed to a flat surface on which it is to be mounted, portions upstruck from the surface of said mounting member, said portions comprising hook-shaped members, insulating blocks on the surface of said mounting member, contacts carried by said insulating blocks, said mounting member having an opening adjacent said blocks adapted to have electrical connections passed therethrough, a signaling device including a casing containing electrically actuated mechanism and means to support said casing on said mounting member, said means comprising recesses in said casing adapted to engage said upstruck hook-shaped portions and said casing having interiorly thereof contact means operatively related to a recess in said casing through which said insulating blocks enter to present the contacts carried thereby to said contact means.

17. In a construction of the character described comprising, in combination, a substantially rectangular plate having a plurality of openings in staggered relation thereto, said openings being capable of receiving therethrough means whereby said mounting member may be affixed to a flat surface on which it is to be mounted, portions upstruck from the surface of said mounting member, said portions comprising hook-shaped members, insulating blocks on the surface of said mounting member, contacts carried by said insulating blocks, said mounting member having an opening adjacent said blocks adapted to have electrical connections passed therethrough, a signaling device including a casing containing electrically actuated mechanism and means to support said casing on said mounting member, said means comprising recesses in said casing adapted to engage said upstruck hook-shaped portions, means within said casing semi-rigidly to engage said contact on said mounting member whereby said means and said contact form a secondary supporting member for said casing.

18. In a construction of the character described, comprising, in combination, a substantially rectangular plate having a plurality of openings in staggered relation thereto, said openings being capable of receiving therethrough means whereby said mounting member may be affixed to a flat surface on which it is to be mounted, portions upstruck from the surface of said mounting member, said portions comprising hook-shaped members, insulating blocks on the surface of said mounting member, contacts carried by said insulating blocks, said mounting member having an opening adjacent said blocks adapted to have electrical connections passed therethrough, a signaling device including a casing containing electrically actuated mechanism and means to support said casing on said mounting member, said means comprising recesses in said casing adapted to engage said upstruck hook-shaped portions, means within said casing semi-rigidly to engage said contact on said mounting member, said means comprising a metallic contact member so shaped as to form a recess, the sides of said recess being yieldable, whereby said contact member carried by said insulating block may slidably enter said recess and be engaged by said sides of the recess, whereby said recess and said contact member form a secondary supporting means for said casing.

19. In a construction of the character described comprising, in combination, a substantially rectangular plate having a plurality of openings in staggered relation thereto, said openings being capable of receiving therethrough means whereby said mounting member may be affixed to a flat surface on which it is to be mounted, portions upstruck from the surface of said mounting member, said portions comprising hook-shaped members, insulating blocks on the surface of said mounting member, contacts carried by said insulating blocks, said mounting member having an opening adjacent said blocks adapted to have electrical connections passed therethrough, a signaling device including a casing containing electrically actuated mechanism and means to support said casing on said mounting member, said means comprising recesses in said casing adapted to engage said upstruck hook-shaped portions, means within said casing semi-rigidly to engage said contact on said mounting member whereby said means and said contact form a secondary supporting member for said casing, and means to hold said casing in close proximity to said mounting member.

20. In a construction of the character described comprising, in combination, a substantially rectangular plate having a plurality of openings in staggered relation thereto, said open-

ings being capable of receiving therethrough means whereby said mounting member may be affixed to a flat surface on which it is to be mounted, portions upstruck from the surface of said mounting member, said portions comprising hook-shaped members, insulating blocks on the surface of said mounting member, contacts carried by said insulating blocks, said mounting member having an opening adjacent said blocks adapted to have electrical connections passed therethrough, a signaling device including a casing containing electrically actuated mechanism and means to support said casing on said mounting member, said means comprising recesses in said casing adapted to engage said upstruck hook-shaped portions, means within said casing semi-rigidly to engage said contact on said mounting member whereby said means and said contact form a secondary supporting member for said casing, and means substantially free from the weight of said casing for holding said casing against movement away from said mounting member.

21. In a construction of the class described, in combination, a substantially flat mounting member to be mounted flush against a wall surface, and a signaling device having a casing containing electrically actuated mechanism and adapted to be supported by said mounting, said casing having a substantially flat rear wall, all of said electrically actuated mechanism being contained in said casing whereby said mounting member and said casing may be fitted flush against a substantially flat surface, said mounting member having contact means positioned in front of the front face thereof, means for insulatingly holding said contact means spaced away from the said front face of said mounting member, said casing having an aperture in the rear wall thereof through which said contact means is passed when the flat rear wall of said casing and the flat mounting member are brought face to face, and contact means within said casing and in electrical connection with said mechanism positioned to be engaged by said first-mentioned contact means as the latter enters said casing.

22. In a construction of the character described, in combination, a substantially flat mounting member to be mounted against a flat surface, a signaling device having a casing containing electrically actuated mechanism adapted to be supported by said mounting member, said casing having a substantially flat back wall having openings therein, and upstruck portions on said mounting member adapted to engage said mounting member through said openings, said upstruck portions and their interengagement with said mounting member through said openings forming a pivotal connection between said casing and said mounting member whereby said mounting member and said casing, when said casing is swung about the axis of said pivotal connection, are substantially flush against each other, electrical connecting means comprising two separable parts, means mounting one of said parts on said mounting member, means mounting the other of said parts with respect to said casing and in a position such that, when said casing is swung about the axis of said pivotal connection, said two parts are brought into connection or disconnection depending upon the direction of swing, said second-mentioned part being in electrical connection with said mechanism.

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