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UNIT WALL BOX AND RECEPTACLE

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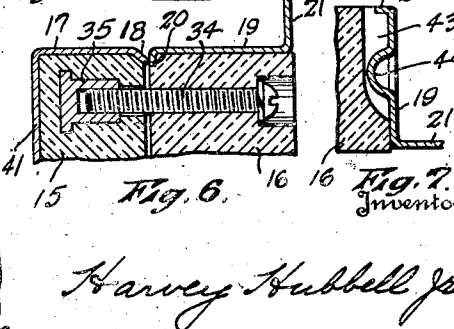
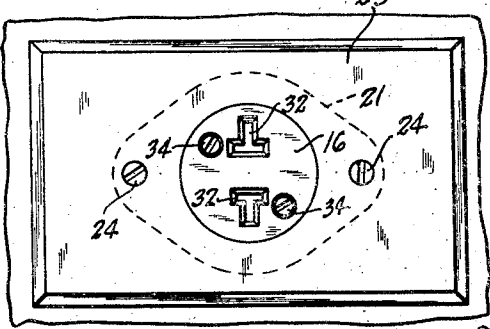
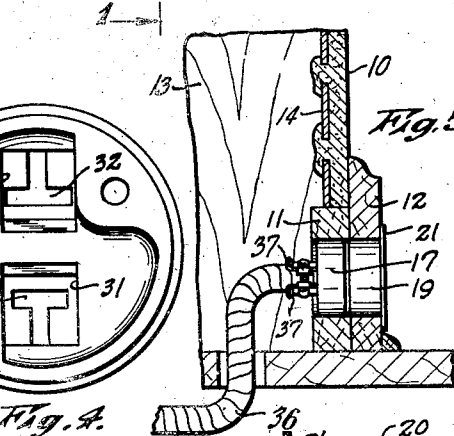
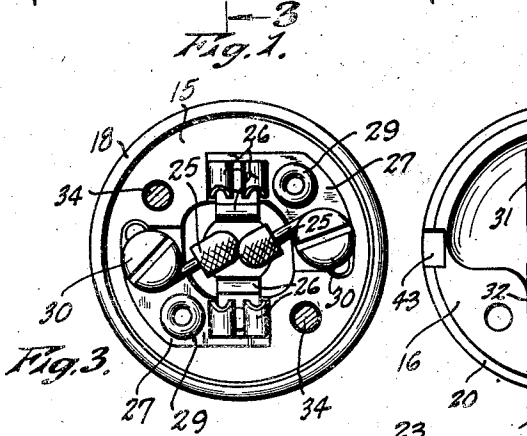
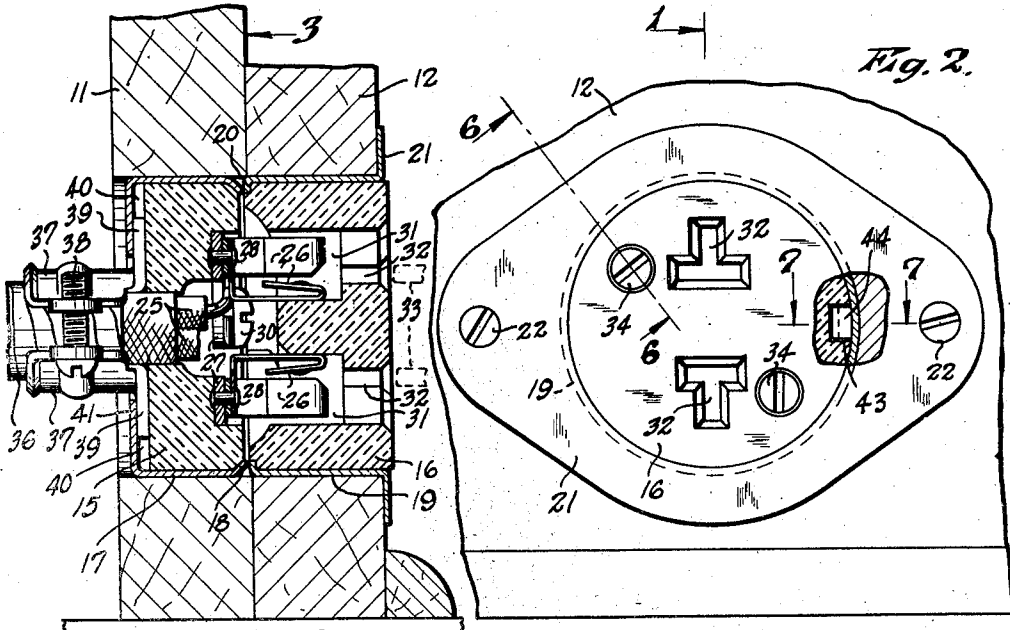


Fig. 8.

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UNIT WALL BOX AND RECEPTACLE

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7 Claims. (Cl. 247—15)

This invention relates to electrical receptacle outlets, and has for an object to provide a construction to do away with the wall outlet boxes now generally employed in mounting receptacles in a wall or baseboard.

The common practice at the present time in wiring a house is to mount a rectangular metal wall box in a recess in the wall wherever it is desired to locate an outlet receptacle, switch or similar device. It very often occurs, however, that when the house is wired there are not sufficient outlets provided, or they may not be located where it is later found to be desirable to have an outlet. These boxes and outlets can be mounted in the wall and the proper electrical connections made with the BX cable, the usual house wiring cable comprising insulated wires enclosed in a flexible metal casing, of the house wiring after the house is built, but it requires the making of a comparatively large opening in the wall, or if it is mounted in a baseboard a comparatively large opening must be cut in this board in order to mount this metal outlet box within a recess in the wall as the opening must be large enough for insertion of the box. It will be obvious that this operation is liable to mar the wall finish or wood work besides being expensive.

It is, therefore, an object of the present invention to provide a receptacle structure in which the usual wall box is not necessary, and in which it is not necessary to provide a greater opening in the wall or baseboard than is required for the receptacle itself.

Referring to the accompanying drawing,
 Fig. 1 is a vertical section through a portion of a wall and baseboard showing my improved receptacle in position therein, the receptacle being also shown in section and the plane of the section being substantially on line 1—1 of Fig. 2.

Fig. 2 is a front elevation looking from the right of Fig. 1 and with a portion of some of the elements broken away to show details of the construction.

Fig. 3 is a front elevation of the rear section of the receptacle, the plane of the view being substantially on line 3—3 of Fig. 1 and looking in the direction of the arrows but showing the spring contacts in elevation.

Fig. 4 is a rear end view of the front section of the receptacle.

Fig. 5 is a section on a smaller scale through a portion of the wall showing my improved receptacle in position and its connection to the BX cable of the house wiring system.

Fig. 6 is a detail section substantially on line 6—6 of Fig. 2.

Fig. 7 is a detail section substantially on line 7—7 of Fig. 2, and

Fig. 8 is a front elevation showing the front of the receptacle covered by a standard face plate.

In the drawing, I have shown a receptacle as mounted in a baseboard as this is a very common location for such outlets, but it will, of course, be understood it is not limited to use in this location but it may be mounted in any wall structure. The ordinary plaster wall is indicated at 10 and the backing boards at 11 with the baseboard indicated at 12. and 13 indicates the usual studding of the wall structure to which is secured the lath 14 (Fig. 5). In my improved construction the usual standard metal wall outlet box is omitted entirely, so that this improved construction is really a wall box and receptacle combined in one unit and is sold on the market as such and is installed as such.

This wall box and receptacle construction comprises an insulating body and a protective metal casing therefor, and for convenience in mounting the contacts and in making connections with the lead wires is made in two sections. The insulating body is composed of the rear and front sections 15 and 16 respectively, and the metal casing is also in two sections, one for each of the body sections. The rear body section 15 is enclosed by section 17 of the casing which is a cupped member enclosing this section and is turned in at the front edge 18 to engage over the front edge of the section 15 to retain it in the casing. The front section 16 of the body is enclosed by the front section 19 of the casing. This portion of the casing has an intumed flange 20 at its rear end to hold the body section in position and at its front edge is provided with a laterally extending flange 21 to rest against the front surface of the wall or baseboard in which it is mounted. This flange has openings for securing screws 22, and these openings are spaced from each other and are so located with respect to the receptacle body as to correspond with the location and spacing of the securing screws of the standard face plate or wall finishing plate, as indicated in Fig. 8, where 23 indicates the standard face plate and 24 the securing screws therefor, the flange 21 being shown in dotted lines.

The rear section 15 of the insulating body has an opening for the lead wires 25, and mounted on the front portion of this section are the standard type of spring contacts 26. As is usual in these constructions these contacts have spring portions

mounted on a mounting or plate 27 to which they are secured by rivets 28 or other suitable means. Securing rivets or inserts 29 are molded in the section 15 and extend through the plates 27 and are rolled over to secure the plates and the contacts to the section in the usual manner. These plates also carry the binding screws 30 for connection of the lead wires with the contacts.

The front section 16 of the body is provided with chambers or recesses 31 opening through its rear wall to receive and enclose the spring contacts 26, as shown in Fig. 1, and in its front wall this section is provided with knife blade slots 32 leading to these chambers or recesses for passage of the contact blades 33 of an attachment plug cap (not shown) to engage the spring contacts 26 in the usual manner. The two sections are secured together by screws 34 passing through openings in the front section 16 of the body, and the heads being preferably countersunk therein, as shown in Fig. 6, and screw into inserts 35 molded into the rear section 15.

It is preferred that the receptacle be circular in cross section as indicated as this is a simple structure to make, but, of course, it may be of other shapes if desired. If the body sections 15 and 16 are circular the casing sections 17 and 19 are made cylindrical to correspond. This shape also simplifies the operation of mounting the receptacle in a wall or baseboard because all that is necessary is to bore an opening in the wall or baseboard of a size to receive the assembled receptacle as shown, and to draw the BX cable 36 of the house wiring through the opening and make proper connections of the lead wires to the binding screws 30. The rear section of the receptacle also carries a pair of clamping elements 37 which have curved portions to clamp on opposite sides of this flexible cable, it being understood that this cable is usually covered with a flexible metal casing, and these clamps are clamped to this cable by clamping screws 38. A simple way of securing the clamp to the receptacle is to provide the clamping elements with laterally extending feet 39 placed in transverse channels 40 in the rear wall of the section 15 and under the rear wall 41 of the section 17 of the casing by which the feet will be retained in the channel, and which arrangement will permit lateral movement of the clamping elements for proper insertion of the cable between them and for the clamping operation.

It will now be apparent that the cable is firmly secured to the rear section of the casing and body and the electrical connections are properly made. The front section of the body and casing is now placed against the front wall of the rear section and secured thereto by inserting the screws 34. In this position the spring contacts 26 are in the recesses or chambers 31. The assembled receptacle is now inserted into the opening in the baseboard or wall pushing the extra length of the BX cable back into the wall and the parts to the position shown in Figs. 1 and 5. The device is then secured in position by inserting the wood screws 22 through the flange 21 and the device is ready for use. If desired the front section 16 of the body may be provided with a notch or groove 43 in one side wall as shown in Figs. 2 and 7, and a lug 44 struck inwardly from the side wall of the casing to extend into this recess to hold the body section against turning movements in the casing.

If desired to use the standard type of rectangular face plate or finishing plate to correspond with other outlets already installed, a standard face plate 23 may be placed over the flange 21 as indi-

cated in Fig. 8, and secured by screws 24 passing through this plate and the flange 21.

It will be apparent from the foregoing description that the device is very simple in construction and may be installed in a wall or baseboard without the necessity of gouging out a relatively large opening for the standard wall outlet box with the consequent marring of the wood work or wall. It also simplifies the installation as the casing and receptacle are mounted as a unit, doing away with the separate operations of inserting the wall outlet box and then mounting and adjusting the receptacle in it as in the old constructions. The metal casing 17-19 meets the underwriter's requirements for a protective metal casing enclosing the outlet receptacle.

Having thus set forth the nature of my invention, what I claim is:

1. A unit wall box and electric receptacle structure adapted to be mounted in an opening in a wall comprising an insulating body composed of a plurality of sections, one of said sections having an opening for lead wires, spring contacts mounted on said section, a metal protective casing enclosing the section, a clamp secured by said casing for clamping a conduit carrying said leads, another section having recesses to enclose said contacts and knife blade slots leading to said recesses, a protective casing enclosing the second section provided with a flange to engage the surface of the wall in which the receptacle is mounted, and means for securing the sections together.

2. A unit wall box and electric receptacle structure comprising a pair of insulating body sections, a protective metal shell snugly enclosing each section and embracing the walls thereof, spring contacts mounted on one of said sections, means for connecting lead wires with said contacts, the other section having recesses in its rear wall adapted to enclose the spring contacts and provided in its front wall with knife blade slots leading to said recesses, means for detachably securing the sections together, said means serving to secure the metal shells on the sections, and means on one of said metal shells for securing the receptacle in an opening in a wall.

3. A unit wall box and electric receptacle structure comprising a pair of circular insulating body sections, a cylindrical shell enclosing each section, one of said sections having an opening for lead wires in the rear end thereof, spring contacts mounted on said section, means for connecting the lead wires with said contacts, clamps secured to said section for clamping a cable carrying said lead wires, the other section having recesses in its rear wall to enclose said contacts and knife blade slots in its front wall leading to said recesses, screws extending longitudinally through the second section and threaded into the first section to secure them together in axial alignment, the shell for the second section being provided with a flange to engage the surface of the wall in which the receptacle is mounted, and means for securing the flange to said wall.

4. A unit wall box and electric receptacle structure comprising a pair of circular insulating body sections, a cylindrical shell enclosing each section and embracing the walls thereof, one of said sections having an opening for lead wires in the rear end thereof, spring contacts mounted on said section, means for connecting the lead wires with said contacts, metal inserts in said section, the other section being provided with recesses to enclose said contacts and knife blade slots

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leading to said recesses, screws extending longitudinally through the second section and threaded into said inserts to secure the sections together, the shell of the second section being provided with a flange to engage the surface of a wall in which the receptacle is mounted, and means for securing the flange to the wall.

5 5. A unit wall box and electric receptacle structure comprising a pair of circular body sections of insulating material, a cylindrical metal shell enclosing each section, one of said sections having a central longitudinal passage therethrough for lead wires and recesses in its front wall, spring contacts mounted in said recesses and projecting forwardly from the front wall of said section, means for connecting the lead wires with said contacts, the other section having longitudinal recesses opening from its back wall into which the contacts project and longitudinal knife blade contact slots leading from the front wall to said recesses, means for securing the two sections together in axial alignment, a flange on the shell for the second section to engage the surface of the wall in which the device is mounted, the shell for the first section having an inwardly extending end wall, and a clamp for securing the cable, said clamp held between said end wall and the end of the section, said structure being assembled as a unit outside the wall and adapted to be mounted as such in an opening in the wall.

6. A unit wall box and electric receptacle structure comprising a plurality of sections each com-

prising an insulating body member and a protective casing enclosing the same, one of said sections having an opening for lead wires, spring contacts mounted on said section, means for connecting leads with the respective contacts, another of said sections having recesses to receive the contacts and knife blade slots leading to said recesses, means securing the sections together, and said means serving also to secure the body members and casings of the respective sections in assembled relation.

7. A unit wall box and electric receptacle structure comprising a pair of insulating body sections, a separate metal protective shell enclosing each section, one of said sections having an opening for lead wires in the rear end thereof, spring contacts mounted at the front portion of said section and projecting forwardly therefrom, means for connecting the lead wires with said contacts, the other section having recesses opening through its rear wall to receive and enclose said contacts and also having knife blade slots in its front wall leading to said recesses, screws extending longitudinally through one of the sections and into the other to secure them together in axial alignment, the shell for the second section being provided with a flange to engage the surface of the wall in which the receptacle is mounted and adapted to be secured thereto, said structure being adapted to being assembled outside the wall as a unit and mounted as such in an opening in the wall.

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