

Aug. 2, 1927.

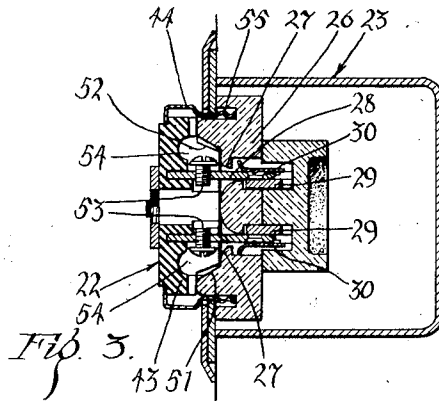
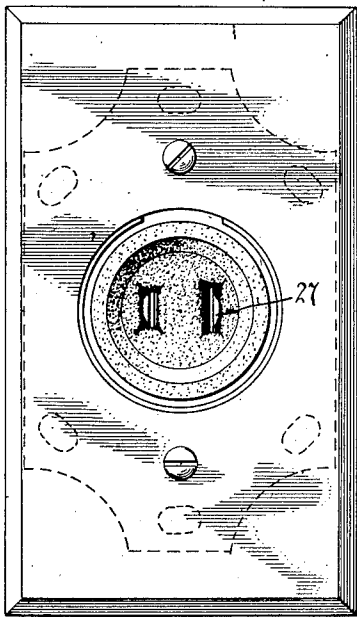
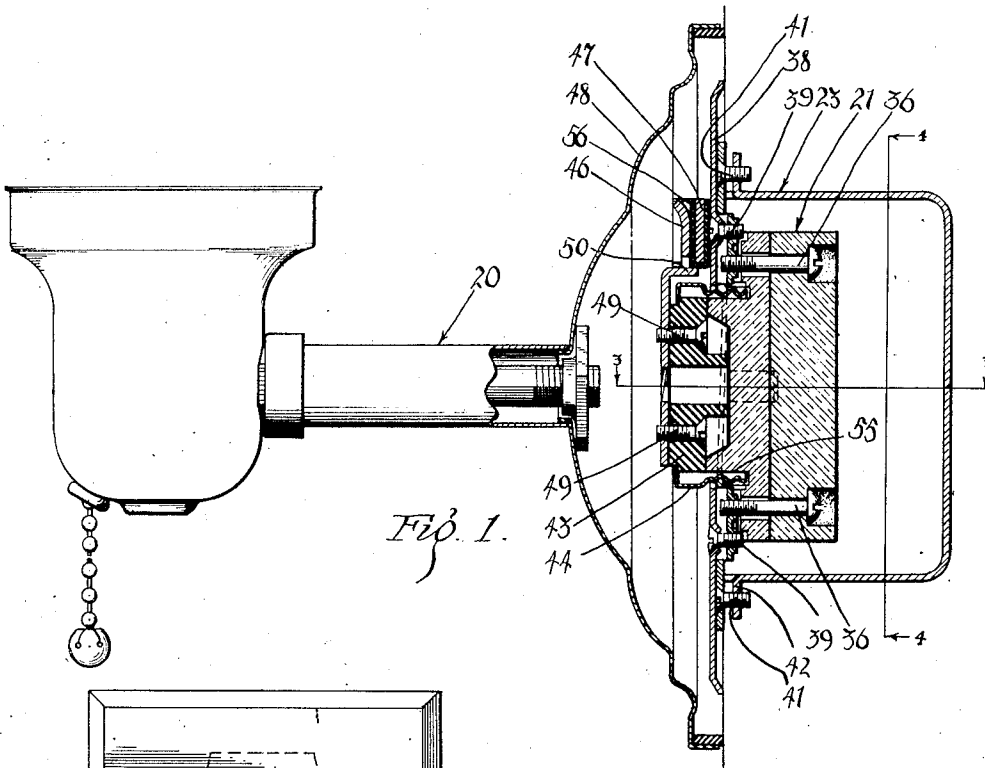
1,637,463

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COMBINATION ELECTRICAL CONNECTER AND FIXTURE SUPPORT

Filed Dec. 6, 1920

3 Sheets-Sheet 1.



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3 Sheets-Sheet 2

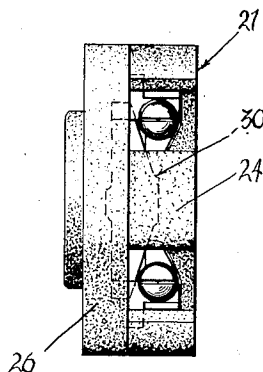


Fig. 5

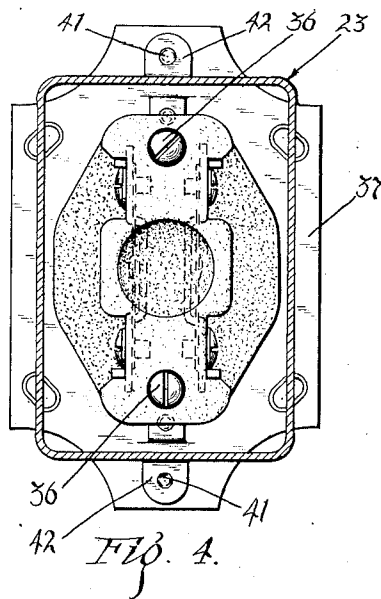


Fig. 4.

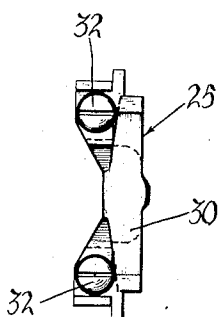


Fig. 7

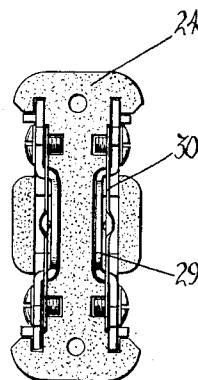


Fig. 6.

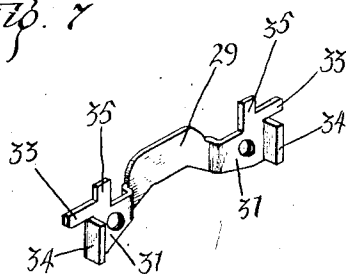


Fig. 8.

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3 Sheets-Sheet 3

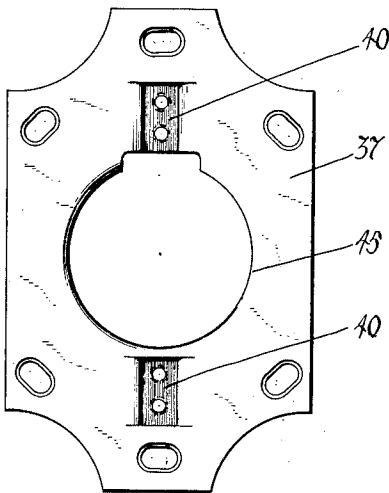


Fig. 9.

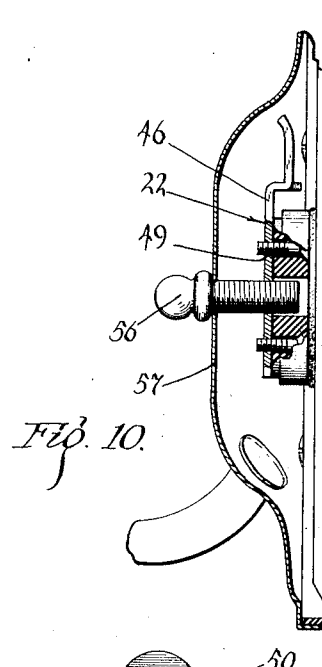


Fig. 10.

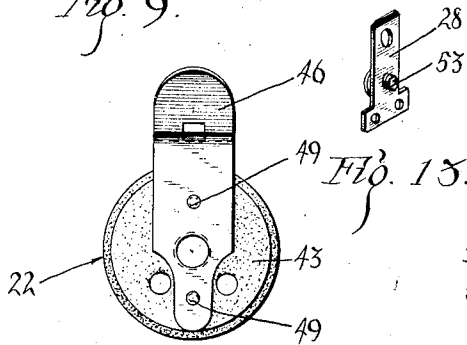


Fig. 12.

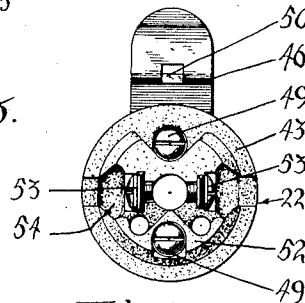


Fig. 11.

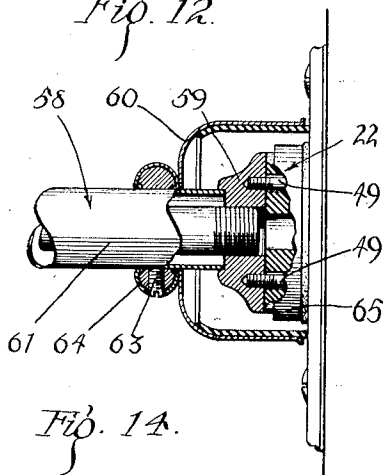


Fig. 14.

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UNITED STATES PATENT OFFICE.

REUBEN B. BENJAMIN, OF CHICAGO, ILLINOIS, ASSIGNOR TO BENJAMIN ELECTRIC MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

COMBINATION ELECTRICAL CONNECTER AND FIXTURE SUPPORT.

Application filed December 6, 1920. Serial No. 428,443.

My invention relates to electrical connector devices, and more particularly to a combination electrical connector and fixture support.

One of the objects of my invention is to provide a combination electrical connector and fixture support which can be readily connected and disconnected mechanically and electrically.

A further object of my invention is to provide such a device which will be durable and efficient in use, simple and compact in construction and cheap to manufacture.

A further object of my invention is to provide such a device which will be of compact construction so that it can be readily used in connection with outlet boxes which are already installed.

Further objects will appear from the detailed description to follow and from the appended claims.

In the drawings in which I have shown construction embodying my invention—

Fig. 1 is a part elevational, part sectional view showing a wall receptacle, and a fixture supported to cooperate therewith;

Fig. 2 is a face view of the receptacle with the fixture removed;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is a section on the line 4—4 of Fig. 1;

Fig. 5 is a side view of the receptacle;

Fig. 6 is a rear view of the receptacle without the cover;

Fig. 7 is a side view of one of the receptacle contacts;

Fig. 8 is a perspective view of one of the parts shown in Fig. 7;

Fig. 9 is a plan view of the cover of the outlet box;

Fig. 10 is an axial sectional view showing a different form of fixture;

Fig. 11 is a rear view of the electrical connector and fixture supporting device;

Fig. 12 is a front view of the electrical connector and fixture supporting device;

Fig. 13 is a perspective view of one of the contact blades; and

Fig. 14 is an axial sectional view showing another form of fixture.

Referring to Figs. 1 to 9 inclusive, and Figs. 11, 12, and 13, the construction shown

therein comprises an inverted angle socket fixture 20, a wall receptacle 21, with which the fixture 20 is electrically and mechanically connected, a combination electrical connector and fixture supporting device 22 (Figs. 1, 11 and 12) which electrically and mechanically connects the fixture 20 with the receptacle 21, and an outlet box 23 in which the wall receptacle 21 is mounted.

It will be noted, as shown in Fig. 1, that the receptacle 21 and combination device 22 are both made relatively thin, so as to occupy little depth from front to back so that the receptacle 21 can be used in shallow outlet boxes, and so that the device 22 can be used with fixtures in which there is not much room from front to back to accommodate the supporting device.

In the receptacle 21, this compact construction is secured to a large extent, by the construction of the receptacle contacts as shown particularly in Figs. 5, 6, 7 and 8. The receptacle 21 referred to comprises an insulating base 24 which supports the combination binding terminal and contact device 25 and an insulating cover 26 which extends across the front of the receptacle contact, and is provided with a pair of funneled entrance openings 27 through which the contact blades 28 of the connector device 22 are inserted into engagement with the devices 25.

As shown in Figs. 5, 6 and 7, the contact and binding terminal device 25 comprises a rigid sheet metal stamping 29, (Fig. 8) and a yielding or spring contact member 30, having juxtaposed contact portions between which the blades 28 of the plug-in device are inserted, as shown in Fig. 3. It will be noted that the yielding spring contact member 30 does not extend in the same direction as the contact blade 28, as in the usual construction, but extends transversely thereto, thereby enabling a shallower construction of the receptacle to be secured. The rigid sheet metal stamping 29 serves as a mounting for the yielding contact member 30, and in addition is provided with binding plate portions 31 into which the binding screws 32 are threaded. It will be noted that the central contact portion of the stamping 29 is offset inwardly, so that the central portion of the spring contact 30 lies on one side of the stamping, while the end portions of the

spring contact lie on the other side of the stamping, as shown in Fig. 6. This enables the ends of the insulating base 24 to be made of substantial width whereby rugged construction of the base is secured. The base 24 is provided with suitably shaped recesses to receive the stamping 29 and spring contact members 30, these recesses being provided with suitable shoulder portions for engagement with the positioning shoulders 33 and 34 on the stamping 29.

In assembling the receptacle 21, the spring contact 30 is placed in position with respect to the stamping 29, so that its central portion is opposite the central portion of the stamping 29, and so that its ends are engaged by the upwardly extending lugs 35 of the stamping. The stamping 29 and spring contact 30 are then slipped into the recesses in the insulating base 24, being positioned in these recesses by the shoulders 33 and 34. The cover 26 is then put in place on the insulating base 24 and the screws 36 (Figs. 1 and 4) are inserted through registering openings in the base 24 and cover 26 and screwed into the sheet metal cover 37 (Fig. 9) of the outlet box 23.

A suitable ornamental cover 38 is provided in addition to the substantial cover 38 for the outlet box 23, this ornamental finishing cover 38 being secured to the cover 37 by means of screws 39, extending through openings in the ornamental cover 38 and threaded into the cover 37.

In order to provide clearance for the ends of the screws 38, the cover 37, at the point where the screw 36 makes connection therewith, has a strap portion 40, struck inwardly therefrom, so that the cover 37 is set in slightly at this point as shown in Figs. 1 and 9, so that the ends of the screws 36 do not come into engagement with the ornamental cover 38. The cover 37 is secured to the outlet box 23, by means of a pair of screws 41 (Figs. 1 and 4) which extend through openings in the cover 37 and are threaded into ears 42 which extend outwardly from the outlet box 23.

The combination electrical connector and fixture supporting device 22 comprises an insulating base 43, which supports the contact blade 28 previously referred to, a swivel threaded connector ring 44, swiveled with respect to the insulating base 43 and constructed for threaded engagement with the helical edge of the circular opening 45 (Fig. 9) of the cover 37, and an upwardly extending supporting post or hook 46 behind which the transversely extending strap 47 of the fixture 20 is slipped, to secure the fixture in place with respect to the fixture supporting device 22.

This transversely extending strap 47 is secured to the canopy 48 of the fixture. The post or hook 46 is secured to the insulating

base 43 by means of a pair of screws 49 which extend through openings in the insulating base and are threaded into the strap 46. In order to position the transversely extending strap with respect to the post 46, the post is provided with a rearwardly extending lug 50 struck inwardly therefrom, with which the lower edge of the strap 47 engages as shown in Fig. 1.

In order that the device 22 may project as slightly as possible from the face of the receptacle, the insulating cover 26 of the receptacle is provided with a frusto-conical depression 51 in its front face, in order to provide clearance for a correspondingly shaped frusto-conical portion 52 of the insulating base 43. This frusto-conical portion 52 of the base 43 gives the base the necessary strength, and as this portion 52 extends into the insulating cover 26 of the receptacle it does not cause any additional outward projection of the device 22. In order to provide clearance for the binding screws 53 which are threaded into the contact blades 28, and to permit access for screwing and unscrewing the insulating base 43 is recessed at 54.

In order to provide clearance for screwing in the threaded connecting ring 44 without adding to the thickness of the construction, the insulating cover 26 is provided with an annular recess 55 in its outer face which receives the inner edge of the threaded connector member 44 as shown in Figs. 1 and 3.

If it is desired that the fixture 20 shall be insulated with respect to the fixture supporting device 22, a strip of insulation 56 is bent around the strap 47, at that portion which lies behind the post 46.

To disconnect the fixture and supporting device, referring to Fig. 1, the fixture 20 is lifted up so as to disengage the transversely extending strap 47 from the post 46, the swivel ring 44 is unscrewed to disconnect the device 22, and the device 22 is then withdrawn from the receptacle, leaving a substantially flush receptacle as shown in Fig. 2.

The construction shown in Fig. 10 is substantially the same as the form just described, except that a different type of fixture is used, which is connected to the fixture supporting device 22, by means of an ornamental screw 56 which extends through a central opening in the canopy 57 and is threaded into a central opening in the post 46.

The construction shown in Fig. 14 is substantially the same as in the form just described except that here the fixture 58 is secured to a metal casting 59, which is secured to the fixture supporting device 22 by means of the screws 49, which in the other forms were used to secure the post 46 in place.

An ornamental housing or finishing cover

60 may be slipped over the stem 61 of the fixture 58 to cover up the fixture supporting member 22.

To disconnect the fixture, the set screw 63 is loosened to permit the retaining ring 64 and the ornamental housing 60 to be slipped back on the stem 58, so that access may be had to the threaded securing ring 65.

Having thus described my invention what I now claim as new and desire to secure by Letters Patent is:

1. A receptacle for cooperation with a plug-in device, which plug-in device has a pair of contact blades, said receptacle having a pair of contact devices for cooperation with said contact blades respectively, each of said contact devices comprising two elongated members extending transversely of the blades between which the blades are received, one of said elongated members being substantially rigid, and the other being a bow spring, said rigid portion having its central portion on one side of the bow spring and its ends on the other side of the bow spring.

2. A receptacle construction comprising a pair of contact devices, an insulating face member having a pair of entrance openings affording access to said contact devices, an insulating back member, said face and back member being separable on a plane parallel

to the face of the receptacle, said contact devices being housed between said face and back members, each of said contact devices comprising an elongated laterally yieldable leaf-spring member lying in a plane parallel to the face of the receptacle, and a stiff metal bar extending alongside said leaf-spring member between which and said leaf-spring member a cooperating contact blade may be received.

3. A receptacle construction comprising a pair of contact devices, an insulating face member having a pair of entrance openings affording access to said contact devices, an insulating back member, said face and back member being separable on a plane parallel to the face of the receptacle, said contact devices being housed between said face and back members, each of said contact devices comprising an elongated laterally yieldable leaf-spring member lying in a plane parallel to the face of the receptacle, a stiff metal bar extending alongside said leaf-spring member between which and said leaf-spring member a cooperating contact blade may be received and a binding screw threaded into said metal bar.

In witness whereof, I have hereunto subscribed my name.

REUBEN B. BENJAMIN.