

July 6, 1926.

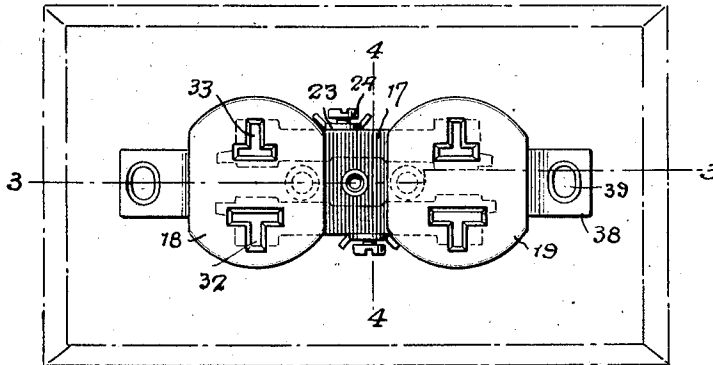
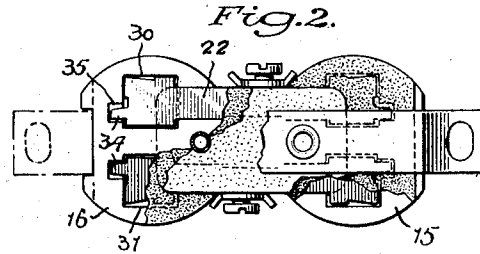
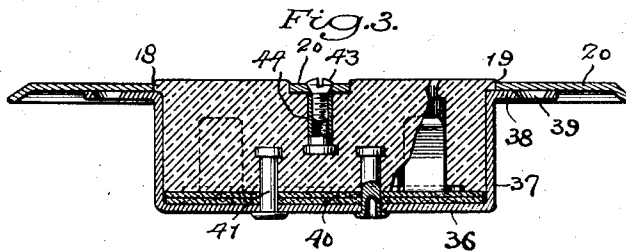
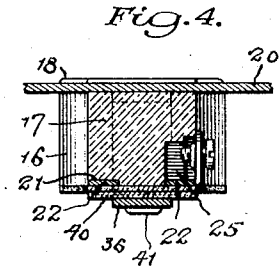
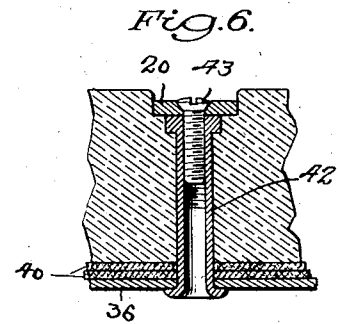
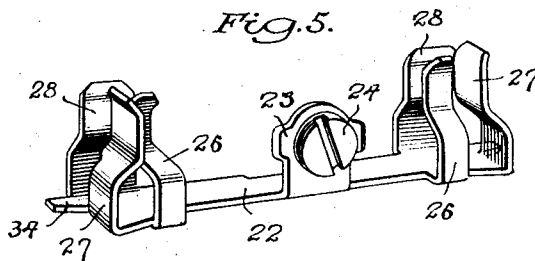
1,591,707

W. H. HARRINGTON

ATTACHMENT FOR PLUG RECEPTACLES

Filed Sept. 8, 1922
Fig. 1.

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 7.

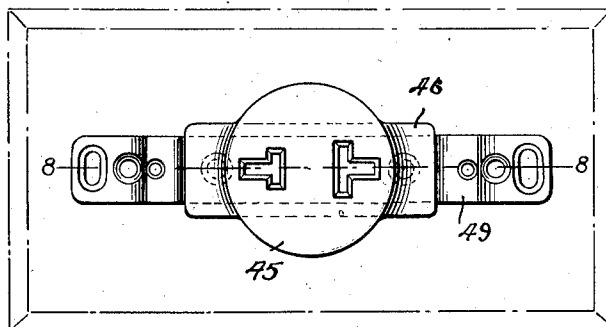


Fig. 8.

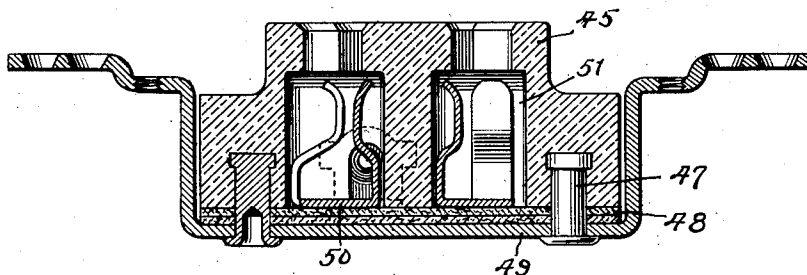


Fig. 9.

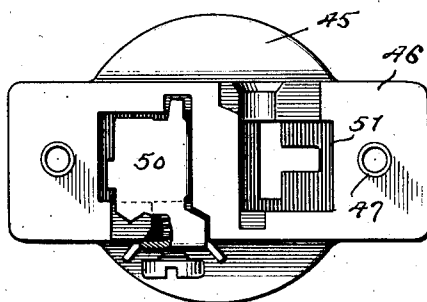


Fig. 10.

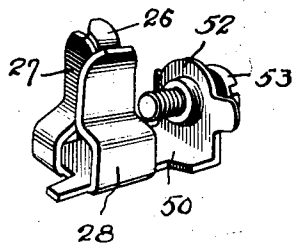
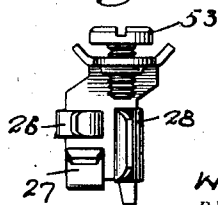


Fig. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HARRINGTON, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE ARROW ELECTRIC COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

ATTACHMENT-PLUG RECEPTACLE.

Application filed September 8, 1922. Serial No. 586,911.

My invention relates to attachment plug receptacles, and particularly to receptacles of the flush type. The object of my invention is to simplify and improve the structure of both the insulating body and electrical conductors of the receptacle, while maintaining full electrical and mechanical efficiency of the structure.

In the accompanying drawings—

Fig. 1 is a plan view of a duplex flush receptacle in which my invention is embodied in one form;

Fig. 2 is a broken inverted plan thereof;

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

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

Fig. 5 is a perspective of the combined terminal and contact element for the receptacle;

Fig. 6 is a section of a modified construction of the means for holding the parts assembled;

Fig. 7 is a plan view of a single flush receptacle in which the invention is embodied;

Fig. 8 is a section on the line 8—8, Fig. 7;

Fig. 9 is a broken inverted plan of the body portion of the receptacle;

Fig. 10 is a perspective of one of the combined wire terminal and receptacle contact elements; and

Fig. 11 is a plan view of the same.

The construction shown in Figs. 1 to 6 inclusive illustrates a duplex receptacle, affording two sets of receptacle contacts arranged in parallel in a single fitting. The insulating body of the fitting comprises two spaced bays 15 and 16, each having a pair of contact chambers, said bays being united by an integral web 17 of less diameter. On the upper face of the body, the web 17 is depressed, and the bosses 18 and 19 thus formed by the upper portions of the bays, project into or through similarly shaped apertures in the face plate 20 for a flush receptacle such as shown, as is now common practice in the art.

Seated in longitudinally extending recesses 21 in the lower face of the bays 15 and 16 and web 17 are straps 22, one at each side of the longitudinal center line of the base. Offset from each strap is a wire terminal lug 23 carrying a binding screw 24 by means of which a lead wire may be secured thereto. In assembled position the straps lie with their outer edges substantially aligned with the side walls of the

web 17, and the offset wire terminal lugs 23 lie against and are supported by the opposite side walls of the web which takes the strains incident to the turning down of the screws 24 to bind the lead wires. To accommodate the shanks of these screws, the web 17 is recessed at appropriate points 25. Inasmuch as the straps 22 are identical, one being reversed with respect to the other, on opposite sides of the web 17, and further inasmuch as the terminal lugs 23 are offset from the straps 22 at a point to one side of the longitudinal center of the strap, the binding screws are spaced longitudinally apart on opposite sides of the web 17. The recesses 25 to accommodate the inner ends of the binding screws are thus offset from one another, and the strength of the web is thus maintained.

At opposite ends of each strap 22 I provide offset contact fingers 26, 27 and 28, so shaped and related to each other that they form cooperating contact brushes, each group adapted to receive and engage jack blades inserted either (1) between the face of the brush 28 on the one hand, and the face of brush 26 and edge of brush 27 on the other hand, or (2) in a position at right angles to the foregoing, that is between the face of brush 27 on the one hand, and the edge of brush 26 on the other hand, with an edge engagement of the jack blade by the face of the brush 28. To receive these contacts, each bay 15 and 16 of the receptacle is recessed from its lower face to afford a pair of wells 30 and 31, to which open from the upper face of the receptacles a pair of T-slot apertures 32 and 33 for the guidance of jack blades into engagement with the receptacle contacts in either of the two positions above mentioned.

Each strap 22 is also provided at its opposite ends with a lug 34 adapted to be received in a recess 35 adjacent the wells 30 and 31. These lugs have the function of retaining the straps 22 in position and resisting the frictional drag of the jack blades when the latter are withdrawn from engagement with the contacts.

To support the straps 22, and their associated elements on the insulating body, I provide a yoke 36 extending beneath the latter and having upwardly angled ends 37 with offset lugs 38 pierced at 39 to accommodate screws by which the receptacle may be

mounted in an outlet box (not shown), in accordance with the usual practice. Inasmuch as the yoke 36 is of metal, it is spaced from the straps 22 by sheets of insulating material 40, such as fiber, mica, or the like, which may be arranged above the yoke, or both above and below, and with the yoke, mechanically support the straps 22 and serve to hold them in position, and prevent contact with stray wire beards.

The yoke may be secured to the insulating body in any suitable way. Thus, as illustrated in Figs. 1 to 4, the heads of rivets 41 are molded in the insulating body of the receptacle, at a point intermediate the straps 22, while their shanks pass through the insulation 40 and yoke 36, and are spread beneath the latter. In Fig. 6 a single rivet 42 is used passing through the body of the receptacle.

The face plate 20 may be secured in position by a screw 43 taking into a tapped rivet 44 molded into the upper portion of the web 17 of the body, or into the tapped upper end of the rivet 42 in the construction shown in Fig. 6.

In the modification shown in Figs. 7 to 11 inclusive, the underlying features are identical. Thus, the insulating body comprises a boss 45 integral with the web 46. Let into the lower face of the insulating body are rivets 47 which pass through the insulating plates 48 and yoke 49 to hold the latter in position beneath the base and to support the combined wire terminal and contact members 50. In this construction, which embodies the invention in a single outlet receptacle, each strap 50 has but a single set of contact lugs 26, 27 and 28 offset therefrom, and entering the contact chambers 51, one at each end of the body. The wire terminal lugs 52 lie against the opposite sides of the web 46, and the latter is pierced to accommodate the shanks of the binding screws 53. In this construction the shanks of the binding screws enter the respective chambers 51, in which the associated contacts of the strap are arranged.

In both constructions, the invention presents marked economies over receptacles in common use, by reason of the reduction in amount of material employed in the body of the fitting, the combination of the wire terminal with the receptacle contacts as an integral unit, the support not only of the receptacle body itself in the outlet box, but also of the contact straps upon the insulating body of the receptacle by means of the yoke piece, while the means for securing the yoke in position are of the simplest possible character. The appearance of the receptacle is an improvement upon those in which the securing screws pass through the exposed portion of the insulating body, the bosses of the present construction having

merely guide slots for the jack blades of the cooperating plug. The receptacle contacts are adapted for cooperation with both tandem and parallel blades, and for polarity construction of the latter. The shallow base permits the receptacle to be mounted in wall moldings, while when mounted in outlet boxes an increased wiring space is available. The one-piece contact and wire terminal construction insures the best possible electrical connection between these parts, with no possibility of defect through the loosening of securing screws, and the like. The arrangement of the binding screws at the sides of the webs enables wiremen to effect a loop connection with the binding screw without difficulty. The one-piece supporting yoke definitely locates the position of the holes 39 for the reception of the mounting screws, and the latter may be positioned exactly in register with the tapped holes in the lugs of a standard outlet box.

Various modifications in details of construction will occur to those dealing with the problem, without departing from what I claim as my invention.

I claim—

1. An attachment plug receptacle comprising a molded insulating body recessed from its lower face to afford a contact chamber, a contact entering said chamber from said lower face of the body, and having an associated wire terminal lying against a side of said body, sheet insulation underlying said contact, means for securing said contact in position, and receptacle supporting means engaged by said securing means.

2. An attachment plug receptacle comprising an insulating body recessed from its lower face, a contact member lying against the lower face of said body and having a contact projecting into said recess in the body, and an offset wire terminal lug lying against a side of said body, a sheet metal strap passing beneath the insulating body and serving to support said contact member against the lower face of the body, in assembled position, and means for securing said strap to the insulating body, together with means for insulating said strap from the contact member.

3. An attachment plug receptacle comprising an insulating body recessed from its lower face to afford a contact chamber with lateral channel opening to said contact chamber, said body being pierced from its outer face to afford a guideway for a jack entering said chamber, in combination with a contact member adapted to enter said chamber from the back of the body, an associated wire terminal adapted to lie against the side of the body member, a binding screw carried by said wire terminal and accommodated in said lateral channel in the body during the insertion of the contact

into said chamber, sheet insulation underlying said contact in assembled position, and means for securing said sheet insulation to the base to support the contact in said chamber.

4. An attachment plug receptacle comprising an insulating body recessed from its lower face to afford a contact chamber with lateral channel opening to said contact chamber, said body being pierced from its outer face to afford a guideway for a jack entering said chamber, in combination with a contact member adapted to enter said chamber from the back of the body, an associated wire terminal adapted to lie against the side of the body member, a binding screw carried by said wire terminal and accommodated in said lateral channel in the body during the insertion of the contact into said chamber, sheet insulation underlying said contact in assembled position, together with a sheet metal member arranged beneath the receptacle body and sheet insulation and secured to the body to support said contact brush and wire terminal in assembled position.

5. An attachment plug receptacle comprising an insulating body recessed from its lower face to afford contact-receiving chambers, and pierced from its outer face to afford guideways leading to said chambers, contacts arranged below the body of the receptacle and projecting into said chambers, associated wire terminals extending from said contacts to exposed position at the side of the receptacle body, in combination with a metallic strap passing beneath the receptacle body and contact chambers, a sheet of insulation separating said strap from the contacts arranged in said chambers, and means for permanently attaching said strap to the insulating body, said strap affording means for supporting the contacts in their respective chambers and also means for supporting the receptacle body in an appropriate location.

6. An attachment plug receptacle comprising a molded insulating body recessed from its lower face to afford contact-receiving chambers and pierced from its outer face

to afford guideways leading to the chambers, contacts extending into said chambers from the lower face of the receptacle, associated wire terminals extending from said contacts to exposed position at the side of the receptacle body, sheet insulation underlying said contacts, a sheet metal member underlying said sheet insulation, together with securing means molded into the lower face of the receptacle body and affording means for securing the sheet metal member in position.

7. An attachment plug receptacle comprising a molded insulating body recessed from its lower face to afford contact-receiving chambers and pierced from its outer face to afford guideways leading to the chambers, contacts extending into said chambers from the lower face of the receptacle, associated wire terminals extending from said contacts to exposed position at the side of the receptacle body, sheet insulation underlying said contacts, a sheet metal member underlying said sheet insulation, together with securing means molded into the lower face of the receptacle body and affording means for securing the sheet metal member in position, said sheet metal member embracing the opposite ends of the receptacle body and affording means for mounting the receptacle in an appropriate location.

8. An attachment plug receptacle comprising a molded insulating body recessed from its lower face to receive contacts and on opposite sides to receive wire terminals, in combination with a pair of one-piece combined contact and wire terminal units, each of said units being applied to the receptacle body from its lower face, with the contact housed within the body, and its associated wire terminal exposed at the side of the body, the wire terminals of said units being located at opposite sides of the body, in combination with sheet insulation underlying said units, means for securing said insulation to the body, and receptacle supporting means engaged by said securing means.

In testimony whereof I have signed my name to this specification.

WILLIAM H. HARRINGTON.