

July 6, 1926.

1,591,773

A. H. NERO

ATTACHMENT PLUG RECEPTACLE

Filed June 25, 1921

2 Sheets-Sheet 1

Fig. 1.

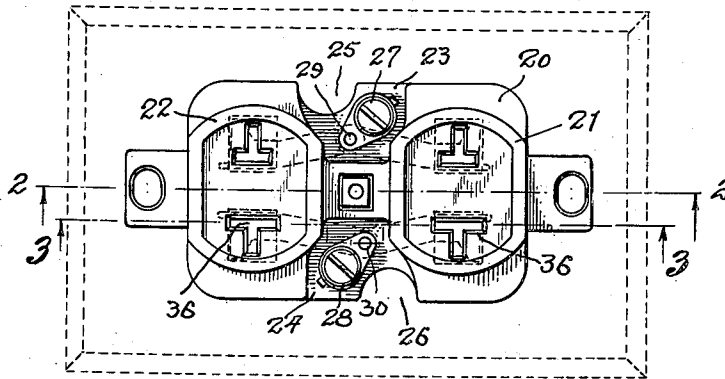


Fig. 2.

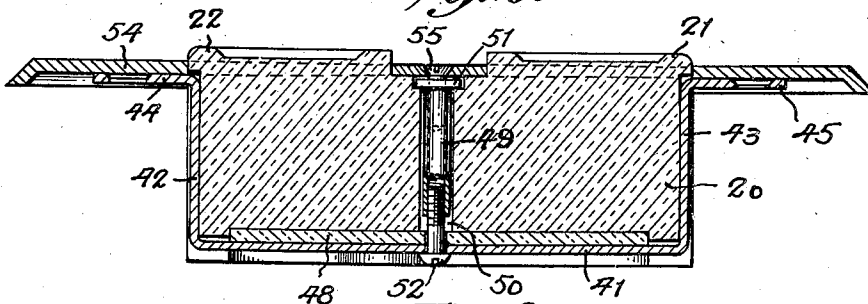


Fig. 3.

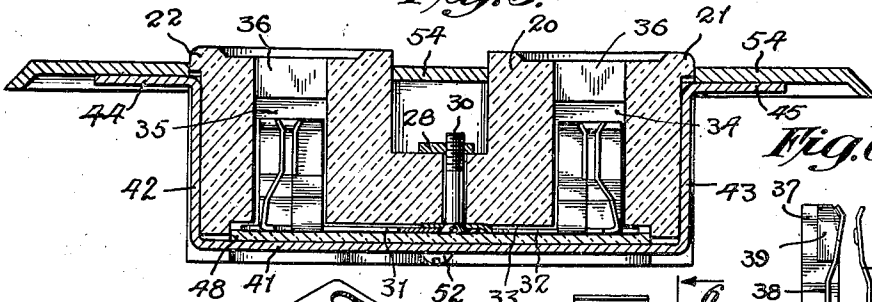


Fig. 6.

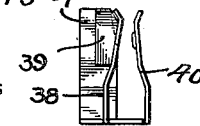


Fig. 4.

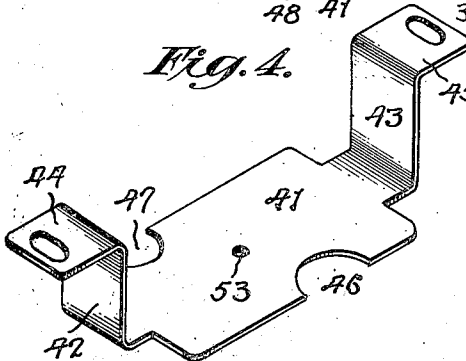
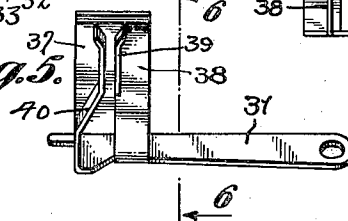


Fig. 5.



Inventor

ARYIO H. NERO

By his Attorneys

Strom and Strom

July 6, 1926.

1,591,773

A. H. NERO

ATTACHMENT PLUG RECEPTACLE

Filed June 25, 1921

2 Sheets-Sheet 2

Fig. 7.

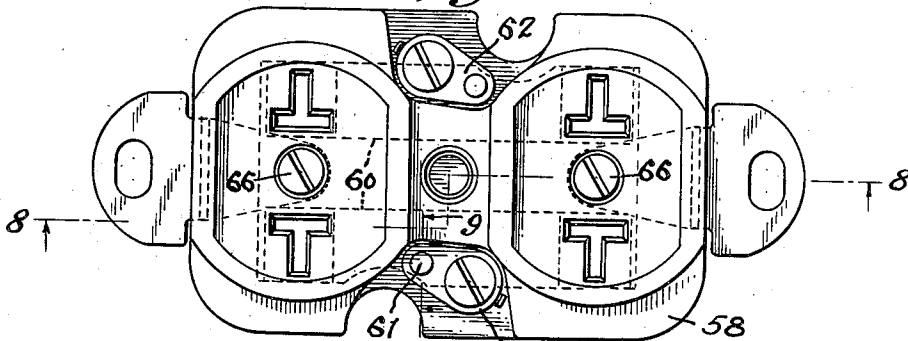


Fig. 8.

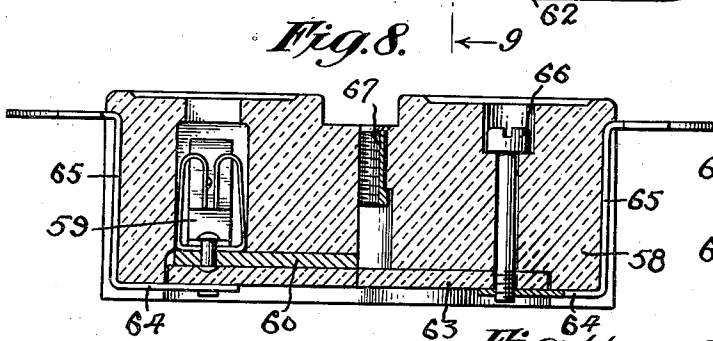


Fig. 9.

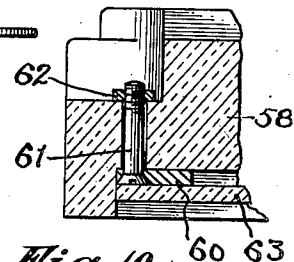


Fig. 11.

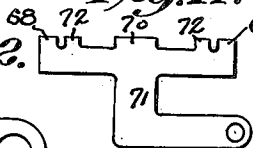


Fig. 12.

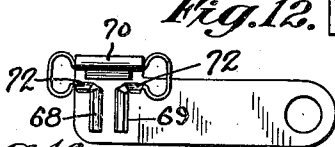


Fig. 10.

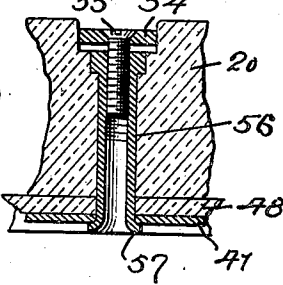


Fig. 15.

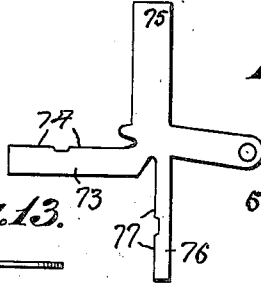


Fig. 14.

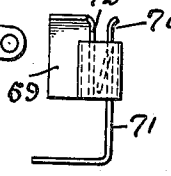


Fig. 13.

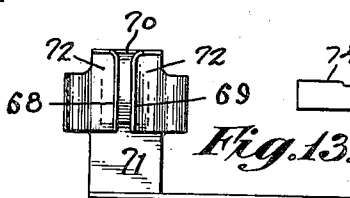


Fig. 16.

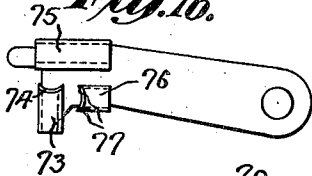


Fig. 17.

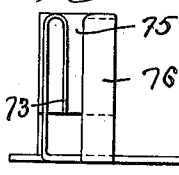
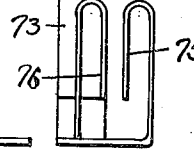


Fig. 18.



Inventor

ARVID H. NERO

By his Attorneys

Strom and Strom

Patented July 6, 1926.

1,591,773

UNITED STATES PATENT OFFICE.

ARVID H. NERO, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE ARROW ELECTRIC COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

ATTACHMENT PLUG RECEPTACLE.

Application filed June 25, 1921. Serial No. 480,335.

My invention relates to attachment plug receptacles, and particularly to certain features of improvement in the construction of the porcelain and metal parts, and by which the manufacture of a device of this character is simplified and economized, while at the same time an efficient and serviceable article is produced.

Referring to the accompanying drawings—

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

Figs. 2 and 3 are sections on the lines 2—2, 3—3, respectively, of Fig. 1;

Fig. 4 is a perspective of a supporting yoke;

Fig. 5 is a perspective of one of the receptacle contacts;

Fig. 6 is an end elevation of the latter;

Fig. 7 is a plan of a modified construction;

Figs. 8 and 9 are sections on the lines 8—8, 9—9, respectively, of Fig. 7;

Fig. 10 is a section through a modification of the yoke-engaging element of the type illustrated in Figs. 1 to 3;

Fig. 11 is a plan of a blank from which a modified form of contact is shaped;

Figs. 12, 13 and 14 are, respectively, plan side and end views of this type of contact;

Fig. 15 is a plan of a blank of a further modified form of contact;

Figs. 16, 17 and 18 are, respectively, plan side and end elevations of the contact formed from the blank shown in Fig. 15.

The body of the receptacle in the form illustrated comprises a one-piece block 20 of insulating material, having on its face a pair of bosses 21 and 22 for a duplex type of receptacle. At a point between the bosses, the receptacle is recessed on its opposite sides to form a pair of depressed ledges 23 and 24 channeled at 25 and 26 to form wire ways leading to the ledges on which the binding screw terminals 27 and 28 are mounted. These terminals are respectively secured in position by bolts 29 and 30 passing through the block of insulation and engaging the straps 31 and 32, which lie in appropriate channels 33 formed in the lower face of the body and lead to chambers 34 and 35 which lie within the area defined by the respective bosses 21 and 22, through which appropriate openings 36

are formed to guide the jack blades of a co-operating plug into the contact chamber. The respective contacts are accommodated in the several chambers and are of like general formation, and are preferably integral with their respective connecting straps 31. As here shown, they are substantially similar to those indicated in my copending application Serial No. 476,263, filed June 9, 1921, and comprise a pair of brushes 37 and 38, the latter having a wing 39 offset substantially at right angles thereto to cooperate with a third brush 40 lying at right angles to the plane of the brush 39 so that the contact is adapted to receive blades lying at right angles to each other.

To support the receptacle in a suitable outlet box, when the invention is applied to a flush receptacle of the type shown, I provide a supporting yoke 41 extending the full length of the receptacle body and underlying the latter, and provided with up-standing end straps 42 and 43 abutting against the opposite ends of the receptacle and having offset lugs 44 and 45 pierced to receive the usual screws by which the yoke is mounted upon the side lugs of the outlet box. As will be noted, the strap 41 is marginally notched at 46 and 47 in register with the wire ways 25 and 26 in the side of the porcelain to afford unobstructed accommodation for the lead wires at this point.

Interposed between the yoke 41 and the straps of contacts 31 is a sheet 48 of insulating material of any suitable character, such as fiber, mica, or the like. It will be observed that the contacts are thus supported not only by the bolts 30, which electrically connect them to their respective binding terminals, but also by the yoke 41 which underlies the brush ends of the contacts and takes the thrust of the jack blades when a plug is inserted.

To secure the yoke 41 in position, I have indicated a tapped ferrule 49 passing through a central hole 50 in the body 20 of the receptacle and having a head 51 seated in a depression in the face of the receptacle body to prevent it from turning. A screw bolt 52 passing through the hole 53 in the yoke and through the insulation, takes into the tapped ferrule to secure the yoke on the body of the fitting.

Also associated with the receptacle is a

face plate 54 apertured to accommodate the bosses 21 and 22, and having a beveled hole in register with the ferrule 49 to permit the securing screw 55 to pass therethrough and take into the opposite end of the ferrule from that engaged by the screw 52 for the yoke.

A modified ferrule is indicated in Fig. 10 which eliminates the necessity for the screw 52, inasmuch as the ferrule 56 is spread at its lower end 57 to form a rivet which secures the yoke 41 and plate 48 of insulation in position beneath the body of the receptacle.

In Figs. 7, 8 and 9 I have shown a modified construction in which the nature of the contacts and the yoke are changed with appropriate alterations also in the porcelain body 58 of the receptacle. As here shown, the corresponding contacts 59 of each of the bosses of the receptacle are mounted at opposite ends of a common connecting bar 60, into which takes the screw bolt 61 connecting to one of the wire terminals 62. To support the terminals a plate 63 of insulation is let into the base below the straps 60, and is engaged at opposite ends of the receptacle by the offset base flanges 64 of the angled yoke pieces 65. The latter in this instance are held in place by screw bolts 66 passing down centrally of each boss and engaging the offset base flange 64 of the yoke straps at opposite ends of the receptacle. This construction is not as desirable as that previously described, since in the latter the area of the boss is kept free from other apertures than those which serve to guide the jack blades of an associated plug into the contact chambers.

In this modification the ferrule is also altered and comprises a relatively short member 67, tapped to receive the face plate holding the screw.

In Figs. 11, 12, 13 and 14 I have shown a modified form of contact differing from that of Figs. 5 and 6 in that the brushes 68 and 69, which lie at right angles to the brush 70, are formed from lateral wings projecting from opposite sides of the standard 71 of the brush 70. Portions 72 of the respective wings face the brush 70 and cooperate therewith and engage a jack inserted at right angles to the space between the brushes 68 and 69.

Another form of contact is shown in Figs. 15, 16, 17 and 18. In this form none of the brushes has contact portions facing at right angles to each other. A substantially equivalent effect, however, is secured by so arranging the brushes that an inserted jack blade bears against the edge of a brush faced at right angles thereto. Thus, as will be seen from Fig. 16, the brush 73 affords at its edges 74 a contact with the blade engaging the face of the brush 75, the spring pressure of which tends to force the blade

against the edges 74 of brush 73, as well as against the face of brush 76. Similarly, the brush 73 tends to force the jack blade into contact with the edges 77 of the brush 76, thus increasing the area of the wiping engagement against both faces of the blade in each case. Moreover, the edge contact with the respective blades afforded by the edges 74 of brush 73, and the edges 77 of the brush 76, tends to stiffen the contact and guide the blade therefor more firmly and securely into proper position. There is less danger therefore of injuring the spring action of the contact by deforming the latter through improper insertion of the jack blade.

Various other modifications will readily occur to those dealing with the construction, without departing, however, from what I claim as my invention.

I claim—

1. An attachment plug receptacle comprising an insulating base recessed in its lower face and pierced within the area of said recess to afford a plurality of pairs of contact chambers and pairs of guideways leading thereto through the opposite face of the base, a plurality of pairs of contacts insertable into said chambers from the lower face of the base, supporting means arranged in said recess and common to said contacts and comprising a sheet of insulation, and sheet metal means underlying said insulation and secured to the base.

2. An attachment plug receptacle comprising an insulating base recessed in its lower face and pierced within the area of said recess to afford a plurality of pairs of contact chambers and pairs of guideways leading thereto through the opposite face of the base, pairs of contacts insertable into said chambers from the lower face of the base, supporting means arranged in said recess and common to said contacts and comprising a sheet of insulation, and sheet metal means underlying said insulation and secured to the base, said metal means comprising means for supporting the receptacle in an outlet box.

3. An attachment plug receptacle comprising an insulating body, jack-receiving contacts, and a receptacle-carrying strap metal yoke member extending below the receptacle body to afford a support for certain of said contacts, together with means for insulating said yoke from the contacts.

4. An attachment plug receptacle, comprising an insulating body recessed from its lower face to form contact chambers, jack-receiving contacts extending into said chambers from the lower face of the body, and a receptacle-carrying strap metal yoke extending beneath said body and serving to support said contacts in position in said chambers, together with means for insulating said yoke from said contacts.

5. An attachment plug receptacle, comprising an insulating body, a face plate overlying the same, a supporting strap metal yoke member underlying the same, a ferrule mounted in the body, said ferrule affording means for securing the said yoke and plate in position.

6. In a push plug receptacle comprising a molded body part channelled in its end and back faces, a punched metal frame shaped to the ends and back of the body and lying therein, means engaging the metal frame to secure the same to the body, said body having receiving slots and contact parts supported in said slots by said frame, together

with insulation separating the frame from the contacts.

7. A push plug receptacle comprising a molded body part, a punched metal frame underlying the latter, and an anchor member for securing the said frame to the body part, said anchor member having a tubular end projecting from the lower face of the body part and disposed through the punched frame, said tubular end being spread to rivet the parts together.

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

ARVID H. NERO.