

March 11, 1924.

1,486,791

N. W. NUTT

SEPARABLE ATTACHMENT PLUG

Original Filed Sept. 1, 1921

Fig. 1.

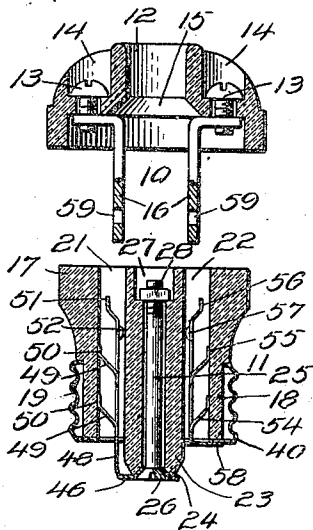


Fig. 2.

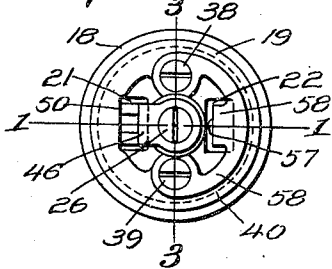


Fig. 3.

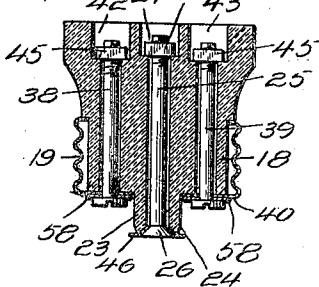


Fig. 4.

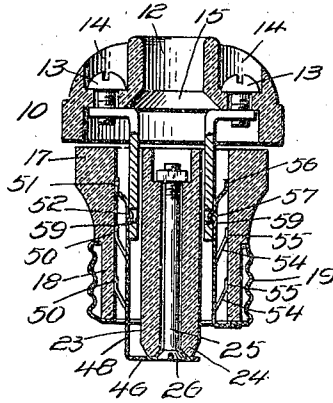


Fig. 5.

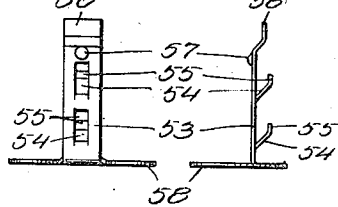
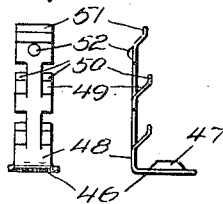


Fig. 6.



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UNITED STATES PATENT OFFICE.

NORMAN W. NUTT, OF TRENTON, NEW JERSEY.

SEPARABLE ATTACHMENT PLUG.

Original application filed September 1, 1921, Serial No. 497,518. Divided and this application filed January 12, 1923. Serial No. 612,189.

To all whom it may concern:

Be it known that I, NORMAN W. NUTT, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Separable Attachment Plugs, of which the following is a specification.

This invention relates to improvements in separable attachment plugs, is a division of my copending application Serial Number 497518 and has for its principal object to provide for certain refined features of construction and arrangement of the parts thereof, whereby to provide for more efficient electrical connection between the current conducting parts or contacts thereof.

Another object of the invention is to provide for certain novel forms of current conducting parts or contacts for separable attachment plugs, and which are adapted for an interlocking cooperation or engagement one with the other, whereby to prevent free separation thereof, and to otherwise effect a positive and effective electrical contact between the same, when the separable parts of the attachment plugs are joined together.

With the foregoing and other objects in view, the invention resides in the certain novel and useful construction and arrangement of parts, as well be hereinafter more fully described, set forth in the appended claim, and illustrated in the accompanying drawings, in which:—

Figure 1 is a sectional view of the plug, the same being taken on the line 1—1 of Figure 2,

Figure 2 is a bottom view of the base portion of the latter form of plug,

Figure 3 is a sectional view of the base portion of the plug, the same being taken on the line 3—3 of Figure 2,

Figure 4 is a sectional view corresponding to that of Figure 1, but showing the separable parts of the plug as joined together into operative relation one with respect to the other,

Figure 5 is a front and side elevation of the contact member to be electrically connected to the screw shell of the base portion of the modified form of the plug, and

Figure 6 is a front and side elevation of the center contact or member of the base portion of the latter plug.

Referring to the drawing, wherein

similar characters of reference designate corresponding parts throughout the several views thereof, the numeral 10 indicates the cap portion of the attachment plug, and the numeral 11 the base portion thereof, both portions 10 and 11 being formed of an insulating material or composition, such as porcelain or the like.

The top portion 10 is provided with a centrally disposed opening 12 through which the usual conductors or leads (not shown) are inserted for attachment to the usual contact screws 13 passed downwardly through recesses 14 formed in the cap portion to either side of the central opening 12, the recesses 14 being, after the screws 13 are positioned therein, filled with a sealing material, whereby the latter are held against movement or displacement from operative position. The lower face of the cap 10 is preferably concaved or otherwise suitably recessed as at 15 to admit of the conductors being twisted or knotted, after insertion through the opening 12, whereby all strain is taken from the ends thereof connecting the contact screws 13. Secured to the lower ends of the screws 13 are the clutch engaging contact members or fingers 16, the connected ends of these fingers 16 being angularly bent for engagement with the screws 13, and are arranged to dispose the free end portions thereof in projecting or depending spaced parallel relation one with respect to the other.

The base portion 11 of the plug is formed at its upper end 17, as of a diameter corresponding to that of the cap portion 10, and is exteriorly reduced in diameter inwardly from its lower end 18 to receive thereon a usual form of threaded metal shell 19, adapted for engagement with the correspondingly threaded shell of a lamp bracket or the like (not shown). The base portion is formed to provide a pair of channel ways 21 and 22 extending longitudinally thereof and spaced diametrically apart one from the other in a manner to be aligned with the contact fingers 16 of the cap portion 10, which are adapted to be inserted within the same. The base or plug portion 11 is further formed to provide a central cylindrical portion 23, which is projected outwardly of the reduced end portion thereof, and the free end of this portion is formed substantially frustro-conical as at 24, so that its extreme outer end is of sub-

stantially equal diameter to that of the head of a contact bolt or screw 25, which is passed inwardly of a bore formed centrally and longitudinally in the portion 23, the reduced end portion 24, of the latter, being counter-sunk to seat the head 26 of the bolt or screw 25 and dispose the same flush in the plane of the end face of the portion 23, the inner end of the bolt or screw 25 being secured within the recess 27 by means of a nut 28.

The contact member associated with the channel way 21 comprises a metal strip having an angularly bent outer end portion 46 which is apertured as at 47 for engagement under the heads of the center screw 25, and the leg portion 48 of the strip, as shown in Figure 6, is stamped out at its opposite side edges to provide pairs of end portions 49, which are bent outwardly from one side of the leg portion 48, and have their free ends bent as at 50 to normally lie parallel to the latter portion 48. The inner free end portion 51 of the leg portion 48 is similarly bent to correspond to the angular disposition of the tongues 49, and immediately inward of the bends thereof the leg portion 48 is provided with a projection 52, which extends outwardly from the face of the same in a direction opposite to that of the tongue portions 49. The leg portion 53 of the contact member arranged within the channel way 22, as in Figures 1 and 4, may be formed correspondingly with respect to the leg portion 48 of the other of the modified forms of the contact members, or the same will be constructed in the manner as shown in Figure 5, wherein tongue portions 54 are struck outwardly from the longitudinal center of the leg to one side thereof, and have their free end portions 55 bent to lie in a plane parallel to the adjacent face of the latter. The inner free end of the leg portion 48 is angularly bent as at 56 in a direction corresponding to that of the tongues 54, and immediately inward of the portion 56, the leg portion is provided with a raised projection or the like 57, which extends therefrom in a direction opposite to that of the tongues 54. The outer end of the leg portion 53 is angularly bent to provide a substantially semi-circular portion 58, corresponding to the portion 37 of the other form of the contact member or jaw, which is apertured for engagement under the head of the bolts or screws 38 and 39, and clamped thereby into electrical contact with the projecting portion 40 of the screw shell 19 of the plug.

With the parts of the devices assembled as indicated for the same, and when it is desired to couple the cap portion 10 onto the base or plug portion 11, the contact fingers 16 of the former are inserted into the complemental channelways 21 and 22 of the plug and between the contact members and one wall of

the channelways 21 and 22. The free ends of the tongues 49, 50, 54 and 55 are in normal engagement with the opposite walls of the channelways 21, 22, such wall of each channelway being the wall opposite the one between which and the contact member is positioned a contact finger. The free ends of the contact members 51 and 56 are normally free of engagement with that wall of the channelways with which the other tongues engage. When the contact members 16 of the cap member are inserted into the complemental ends of the channel ways 21 and 22, the tongues 51, 56 act to guide the finger 16 along the flat side faces of the leg portions 48, 53, placing the tongues 51, 56 under tension to assure of good electrical contact between the fingers 16 and the leg portions 48, 53. When the fingers 16 are inserted in the channelways 21 and 22, the tongues 51, 56 are shifted to engage a wall of the said channelways, as shown in Fig. 4. The fingers 16 are provided with openings 59, formed inwardly from the free ends thereof, and, the projections 52, 57 of the contact jaws, will snap into such engagement, whereby to prevent accidental separation of the cap member 10 from the base or plug portion 11, and to otherwise make it necessary to subject the parts to a slight pulling strain in opposite directions to accomplish the separation thereof when desired.

The extremely important and valuable features of the invention primarily resides in the provision of the resilient or spring contact members or jaws within the channel ways 21 and 22, of the base portion 11 of the plug, whereby a very efficient and effective electrical contact is established between the same and the contact fingers 16 of the cap portion 10 of the plug; also in the interlocking of the projections 52, 57 with the apertures or recesses 59 formed in the contact fingers 16 of the cap member 10 to prevent the accidental separation of the parts of the attachment plug; further, in the arrangement of the tongue portions of the base contact members or jaws acting to retain the latter parallel to the opposite walls of the channel ways 21 and 22, whereby to effect a rubbing contact between the faces of the same opposed to those of the cap contact fingers 16; and in the angularly bent or flared end portions of the base contact members for guiding the cap contact fingers 16 into proper contacting relation with respect to the base contact members or jaws. It is to be noted also that the resiliency of the base contact members or jaws assures of the positive contact of the same with the cap contact fingers 16 irrespective of the fact as to whether or not the latter are straight or have become slightly irregular in shape during the constant use of the same. By making the contact members or jaws from single

pieces of sheet metal, the same can be cheaply manufactured and of a sufficient rigidity in construction as to be durable and efficient in use.

5 It is well understood that, while the preferred embodiments of the devices have been described and illustrated herein in specific terms and details of construction and arrangement, various changes in and
10 modifications of the same may be resorted to without departing from the spirit of the invention, or the scope of the claim appended hereto.

15 Having thus fully described the invention, what is claimed, is:—

A contact member for separable attachment plugs, comprising a strip of sheet metal having a plurality of tongue portions displaced from and to one side of the op-

posite longitudinal edges thereof and ar- 20
ranged to tension the strip into operative contacting position, the free end portion of the said strip being angularly bent in a manner to act as a guide for the cooperative engagement with the strip of a complemen- 25
tally disposed contact member, and a projection formed on said strip inwardly from the angularly bent end portion thereof and on the side of the same opposite to that from which the tongue portions are pro- 30
jected, said projection being adapted for engagement in an aperture formed in the said complementary contact member for retaining the same in cooperative contacting engage- 35
ment with the said strip.

In testimony whereof, I affix my signature hereto.

NORMAN W. NUTT.