May 19, 1925. 1,538,197

S. McCLATCHIE

ATTACHMENT PLUG

Filed Sept. 2, 1920

Fig. 1.

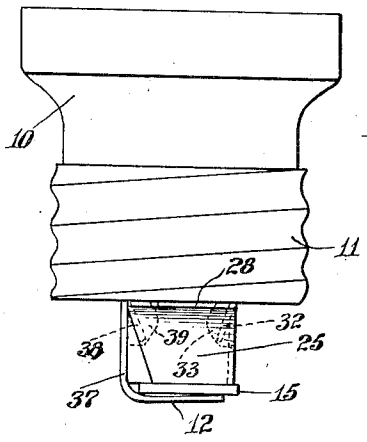


Fig. 2.

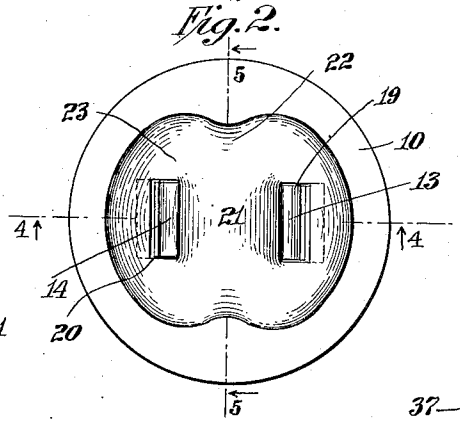


Fig. 6.

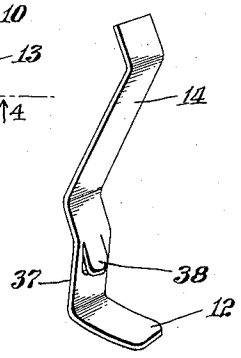


Fig. 3.

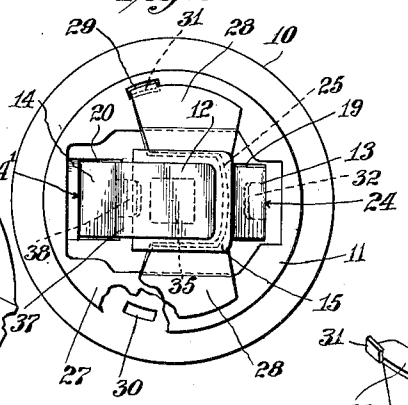


Fig. 7.

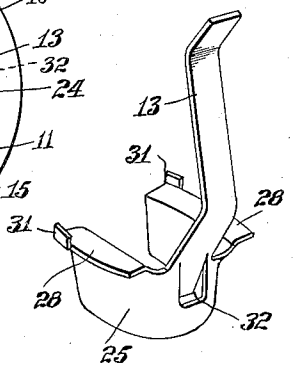


Fig. 4.

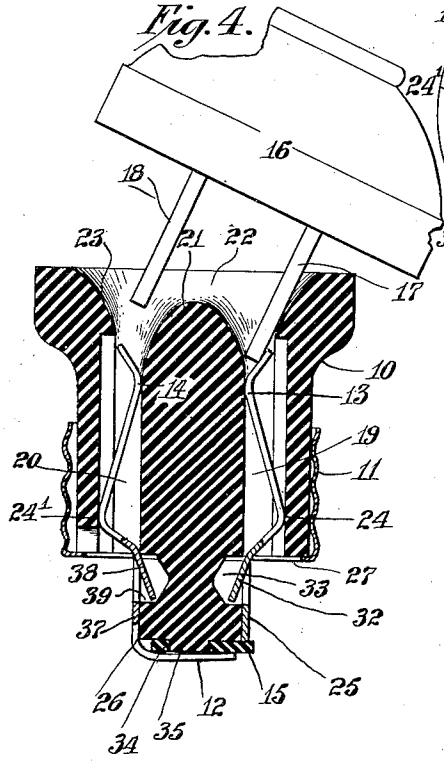


Fig. 5.

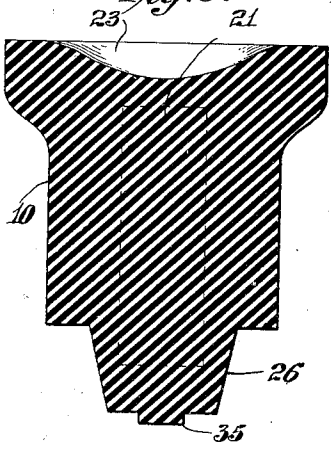
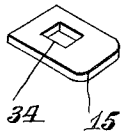


Fig. 8.



Attest:

Mitchell

by

Inventor:

Stanley McClatchie

Attys

Patented May 19, 1925. 1,538,197

UNITED STATES PATENT OFFICE.

STANLEY McCLATCHIE, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR TO BENJAMIN ELECTRIC MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ATTACHMENT PLUG.

Application filed September 2, 1920. Serial No. 407,627.

To all whom it may concern:

Be it known that I, STANLEY McCLATCHIE, a citizen of the United States of America, residing at Cambridge, Middlesex County, Massachusetts, have invented a new and useful Attachment Plug, of which the following is a specification.

My invention relates particularly to a construction adapted to receive the movable part of what is commonly termed a "separable plug." It will be obvious that certain features of it may be organized in various ways, although I have shown it embodied only in the form of an attachment plug receptacle.

One object is to provide a construction which can be made and assembled inexpensively. Another object is to provide a construction which is adapted to receive any form of standard two-bladed plug-cap, and from which the plug-gap may be withdrawn at substantially any angle. In other words, it provides angular separation to a great degree. Another object is to provide a construction into which the plug-cap can be readily inserted, even in the dark. Another object is to so design the parts that they may be made at minimum cost. Another object is to so construct such a device that it may be readily assembled without the use of tools and at a minimum of expense.

In the particular form shown, the plug consists of an insulating body, a screw shell surrounding a part of the body, two special spring contacts adapted to be snapped into the body, and an insulating member. One of the spring contacts has a foot portion, which holds the screw shell in place, and the other spring contact has a foot portion serving as a center contact, and the insulating member is interposed between the feet of the two spring contacts, so as to take up the strain developed between the screw shell and the center contact in screwing the plug into a socket. The details of the preferred form will be understood from the following specification, although it should be distinctly understood that I do not consider the invention limited to the particular form shown and described.

Fig. 1 is a side view of one form of attachment plug embodying the improvements of my invention;

Fig. 2 is a view of the outer end of the same, adapted to receive an ordinary two-bladed separable plug-cap;

Fig. 3 is a view of the opposite end, adapted to be screwed into an ordinary socket;

Fig. 4 is a longitudinal sectional view on the plane of the line 4—4 of Fig. 2 and showing a two-bladed separable plug-cap in the act of insertion or separation at an angle;

Fig. 5 is a sectional view of the insulating body, taken on the plane of the line 5—5 of Fig. 2;

Figs. 6 and 7 are perspective views of the two spring contact members with their attached feet; and

Fig. 8 is a perspective view of the insulating spacer.

The insulating body 10 is formed to support the ordinary type of screw shell 11 and the center contact 12. The two spring contacts 13 and 14 are provided with outwardly flaring tips housed within the insulating body, so as to properly guide the blades of the cap. The insulating spacer 15 is interposed between the center contact 12 and the end of the contact 13.

In order to facilitate an understanding of the construction and operation I have illustrated the insulating part 16 of a separable plug-cap having two long blades 17 and 18 of the standard type, adapted to engage the contacts 13 and 14 within the insulating body 10.

The body 10 is provided with longitudinal passages 19 and 20 to receive the contacts 13 and 14. An insulating barrier 21 is provided between the contacts 13 and 14 and the outer end of it is rounded off and depressed from the outer end of the body, as shown in Fig. 4. The entrances leading to the spring contacts 13 and 14 are dished out and funneled, as at 22 and 23, at the outer end of the barrier 21 and adjacent the tips of the contacts 13 and 14, respectively, so as to provide inclined pockets for the blades 17 and 18 leading to the contacts 13 and 14, to facilitate their insertion and also to facilitate their removal at any angle.

Normally the contacts 13 and 14 press against the opposite sides of the barrier 21 near the outer end, and intermediate por-

tions of the spring contacts press against the walls 24 and 24' of the body within the recesses 19 and 20, respectively.

The spring contact 13 is provided with a yoke-like foot portion 25, which fits partway around the extension 26 of the insulating body 10 and serves to hold the screw shell 11 in place. For this purpose the shell 11 is provided with a flange 27, upon which rest the two flanges 28 of the foot 25. The flange 27 has apertures or perforations 29 in line with recesses 30 in the insulating body 10, and the lugs 31 extend through these apertures 29 into the recesses 30, so as to prevent rotation of the threaded sleeve 11 with relation to the insulating body, and to hold the flanges 28 securely in place. The flanges 28 afford substantial mechanical and electrical engagement with the flange 27. In order to better hold the spring 13 in place, I may provide a spring tongue or lug 32, adapted to snap into a recess 33 formed in one side of the tip of the insulating body 10.

The insulating spacer 15 which fits between the end of the foot 25 of the spring contact 13 and the center contact 12 may be provided with an opening 34, to receive a corresponding projection 35 of the insulating body, so as to prevent relative displacement.

The spring contact 14 is provided with a part 37, which bears against a part of the tip of the insulating body 10 to steady it and assist in holding it in position. I also prefer to provide this contact member with a spring tongue or lug 38, adapted to snap into the recess 39 in one side of the tip of the insulating body, so as to enable the parts to be automatically snapped into engagement and remain there without the use of screws, rivets or the like.

To separate the parts it is simply necessary first to pry the tongue 38 from the recess 39, and withdraw the member having the center contact 12 and spring arm contact 14. The spacer 15 is then free to be removed whereupon the other spring contact 13 may be removed by disengaging the tongue 32 from the recess 33. This leaves the threaded sleeve 11 free to be removed. Obviously the parts may be readily assembled in the reverse order.

By reason of the shape and relative arrangement of the spring contacts 13 and 14 and the insulating body adjacent thereto, it is possible to very easily insert the blades 17 and 18 of the plug, even by a careless movement. The funnel shaped entrances and rounded end of the barrier 21 so to speak automatically guide the blades 17 and 18 to position. This construction also permits angular separation of the plug by a pull in any direction upon a detachable part of the plug or cord.

The construction and arrangements are such that the spring contacts 13 and 14 tend to actually force the blades 17 and 18 away as soon as they are ready to be disengaged. This affords what is similar to a quick-break opening of the circuit when the parts are separated by a pull on the cord, since the cap blades tend to jump away from the contacts 13 and 14 under the impulse of the springs.

I claim:

1. In an attachment plug, an insulating base, a screw shell on the base, a center contact, a spring contact having a forked foot embracing a portion of said base, lugs on said foot portion passing through a part of said screw shell into said base, and a second spring contact connected to said center contact.

2. A separable attachment plug comprising an insulating base, a center and side contacts mounted thereon, said base having recesses therein, and blade-engaging contacts in said recesses electrically connected with said side and center contacts respectively, said insulating base having an extension beyond said side contact, said extension having a recess in its side, one of said blade-engaging contacts being insertable into its recess from the entering end of said plug, and having a spring portion for snapping into the recess in said extension for holding the contact in place.

3. A separable attachment plug comprising an insulating base, center and side contacts mounted thereon, said base having recesses therein, and blade-engaging contacts in said recesses electrically connected with said side and center contacts respectively, one of said blade-engaging contacts and said center contact being formed as parts of an integral stamping, said insulating base having an extension beyond said side contact, said stamping being bent over the end of said extension to form the center contact, said extension having a recess in its side, and said stamping having a tongue struck up therefrom and extending into said recess to hold said blade-engaging contact and center contact in position on said insulating base.

4. A separable attachment plug comprising an insulating base, center and side contacts mounted thereon, said base having recesses therein and blade-engaging contacts in said recesses electrically connected with said side and center contacts respectively, one of said blade-engaging contacts being provided with means whereby it prevents the removal of the other from its recess.

5. A separable attachment plug comprising an insulating base, center and side contacts mounted thereon, said base having recesses therein and blade-engaging contacts in said recesses electrically connected with

said side and center contacts respectively, one of said blade-engaging contacts being provided with means whereby it prevents the removal of the other from its recess, said blade-engaging contacts being insertable in said recesses at the entering end of the plug.

6. A separable attachment plug comprising an insulating base, center and side contacts mounted thereon, said base having recesses therein and blade-engaging contacts in said recesses electrically connected with said side and center contacts respectively, one of said blade-engaging contacts being provided with means whereby it prevents the removal of the other blade engaging contact from its recess, and an insulating spacer member between said blade-engaging contacts for transmitting the holding force from one blade-engaging contact to the other.

7. A separable attachment plug comprising an insulating base, center and side contacts mounted thereon, said base having recesses and blade-engaging contacts in said recesses electrically connected with said side and center respectively, said insulating base having an extension extending beyond said side contact, one of said blade-engaging contacts having a pair of arms embracing said extension, the other of said blades being provided with means for opposing movement of said arms to prevent removal of said blade-engaging contact.

8. A separable attachment plug comprising an insulating base, center and side contacts mounted thereon, said base having recesses therein, and blade-engaging contacts in said recesses electrically connected with said side and center contacts respectively, said insulating base having an extension extending beyond said side contact, one of said blade-engaging contacts having arms embracing said extension, said center contact and the other blade-engaging contact being formed as parts of an integral metal stamping, said center contact overlying said extension, and means whereby said center contact opposes movement of said arms to prevent removal of said blade-engaging contact.

9. A separable attachment plug comprising an insulating base, center and side contacts mounted thereon, said base having recesses therein and blade-engaging contacts in said recesses electrically connected with said side and center contacts respectively, said insulating base having an extension extending beyond said side contact, one of said blade-engaging contacts having a pair of arms embracing said extension, said center contact and the other blade-engaging contact being formed as parts of an integral metal stamping, said center contact overlying said extension, and an insulating spacer between said center contact and said arms and serving to oppose movement of said arms to prevent removal of said blade-engaging contact.

STANLEY McCLATCHIE.