Aug. 18, 1936. I. D. DE LA HUNT 2,051,549

SEPARABLE ATTACHMENT PLUG

Filed March 22, 1934

Fig. 1.

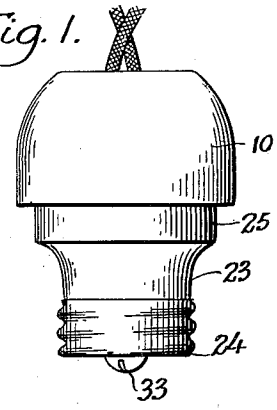


Fig. 2.

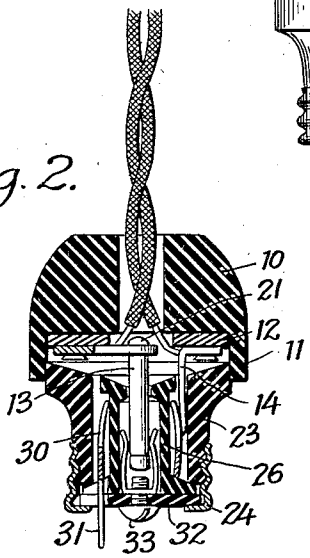


Fig. 3.

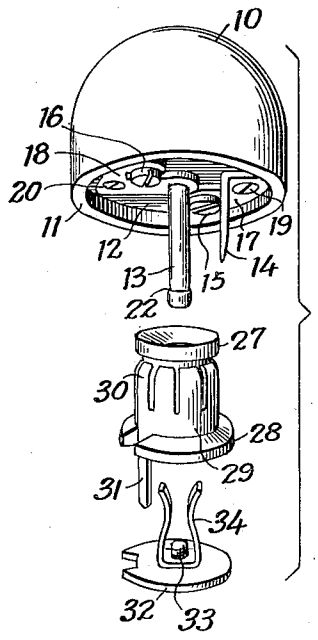


Fig. 4.

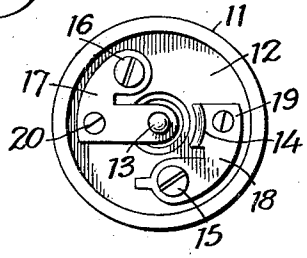
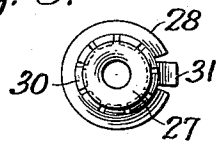


Fig. 5.



Inventor,

Ira D. De La Hunt,

By John W. Farley

Attorney

Patented Aug. 18, 1936 2,051,549

UNITED STATES PATENT OFFICE

2,051,549

SEPARABLE ATTACHMENT PLUG

Ira D. De La Hunt, Memphis, Tenn.

Application March 22, 1934, Serial No. 716,760

2 Claims. (Cl. 173—343)

My invention relates to a separable attachment plug of the kind comprising two parts which can be separated readily, one of these parts being adapted to be screwed into an ordinary socket, such as those found in floor outlets and the like and the other part being adapted to be connected to a vacuum cleaner or other appliance whereby the appliance can be quickly connected to or separated from any convenient outlet.

It is an object of my invention to provide a swiveled device of this character which shall be of simple construction and therefore inexpensive and not liable to get out of order.

Another object of the invention is to provide a separable attachment plug with automatic guiding means whereby the parts can readily be connected even though the threaded member is located in a dark or relatively inaccessible place.

Referring to the drawing, which is made a part of this application and in which similar reference characters indicate similar parts:

Fig. 1 is an elevation of the device of my invention,

Fig. 2, a vertical section,

Fig. 3, an elevation of certain of the parts in disconnected relation,

Fig. 4, a bottom plan of the upper member in Fig. 2, and

Fig. 5, a top plan of the intermediate member in Fig. 3.

In the drawing, reference character 10 indicates the binding-terminal carrying portion of the plug said portion having an annular flange 11 defining a recess to receive a binding-terminal carrying ring 12. Terminals 13 and 14 are fixed to this ring by screws 15 and 16 extending through the flat arcuate bases 17 and 18 of the terminals and through the ring and into the member 10, these screws serving for attachment of conductors in usual manner. Screws 19 and 20 serve as means for permanently attaching the bases 17 and 18 to the member 10.

The terminal 13 is in the form of a long rigid stud preferably secured to its base by an axially extending screw 21 and having its free end formed with an annular groove at 22 (Fig. 3) and rounded to approach a spherical shape to facilitate insertion between and removal from coacting parts hereinafter described. The terminal 14 is a blade which is thin at its end and arcuate in cross-section.

The insertable member of the plug comprises a threaded outer body member or sleeve 23 of insulating material and concentric parts shown in Fig. 3 in separated relation, sleeve 23 being merely a cylinder threaded externally over a substantial part of its length to engage with a threaded cap 24 adapted to be screwed into an outlet. Sleeve 23 at its lower end has a knurled flange 25 fitting within flange 11 of the binding-terminal carrying member.

An inner body member or sleeve 26 of insulating material has outwardly extending flanges 27 and 28 at its ends to hold in place a contact strip 29 of conducting material such as spring brass, which strip has resilient fingers 30 coacting with rigid terminal 14 to make a good contact, the strip being bent around the body member 26 in the preferred form to provide an annular series of fingers 30. A long finger 31 projects axially from strip 29, said finger extending through a slot in flange 28 and providing a connection for engagement with the cap 24. The finger 31 can be bent over or cut off to proper length and soldered to cap 24, after which the outer body member 23 can still be detached from the other parts to permit inspection.

A plate 32 is adapted to rest on inner body member 26, said plate lying on the flange 28. This plate has a notch corresponding to that in flange 28, through which long finger 31 may extend. At the center of the plate is a contact screw 33 which holds a U-shaped contact member 34 whose legs are spaced apart and bent to receive and retain the ball-shaped end of stud 13.

As best shown in Fig. 2 the upper ends of sleeves 23 and 26 are so formed as to provide a concave bowl-shaped surface over the entire top of the insertable member. As the slot between the upper part of sleeve 23 and the flange 28 of sleeve 26 is too narrow to admit the end of stud 13 or even to check its movement seriously it follows that the stud will be guided toward the central hole in sleeve 26 regardless of where the stud strikes the concave surface or at what angle it is held relatively to said surface. This makes it very easy to connect the parts even in the dark or even though the receiving member should be in a rather inaccessible place.

No matter what part of the surface of the socket the center stud of the binding-terminal carrying member touches, slight pressure causes it to slide toward the center hole of the socket. When the center stud finds the center hole of the socket, it goes in and engages the central contact of the socket. As the center stud goes into the center hole of the socket, the outer longitudinal curved blade in turn, goes into the circular slot where it makes contact with the central circular connection inside the in-

sertable member, thereby completing the electrical circuit.

The construction of the binding-terminal member in relation to the insertable member makes possible the insertion of contacts into the said insertable member by the sense of touch alone.

The center stud of the binding-terminal carrying member is so rigidly constructed that danger of springing or bending of either the stud or the arcuate blade is greatly reduced. The center stud being longer than the outer longitudinal curved blade, causes it to act as a protector or guard for the said arcuate blade.

Because of the swivel properties of the parts of the device, the usual twist given a plug when withdrawing it from a socket, will not throw either the central stud or the outer longitudinal curved blade of the plug out of line and the binding-terminal carrying member and insertable member can be relatively rotated through an arc of 360° without breaking the electric circuit.

It will be obvious to those skilled in the art that various modifications may be made in my device without departing from the spirit of my invention, therefore I do not limit myself to what is shown in the drawing and described in the specification but only as indicated in the appended claims.

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

1. In a quick-detachable connector comprising a plug and socket connector, a hollow insulation shell, an insulation spool extending within the shell and having one of its flanges abutting one end of the shell, an insulation disk having a centrally located contact therein extending into the bore of the spool, an annular contact located in the annular space between the shell and the spool, a metal contact shell mounted on the insulation shell and clamping the disk and spool flange to the insulation shell, said annular contact being in conducting relation to said metal contact shell, said plug having a central contact for cooperation with the central contact of the socket and a radially spaced contact for cooperation with the annular contact of said socket when the plug and socket are in connected relation.

2. In a quick-detachable connector of the type in which a plug is swivel connected to a socket, the improvement comprising a hollow insulation shell, an insulation spool extending within the shell and having one of its flanges abutting one end of the shell, an insulation disk having a centrally located contact therein extending into the bore of the spool, an annular contact located in the annular space between the shell and the spool, a metal contact shell mounted on the insulation shell and clamping the disk and spool flange to the insulation shell, said annular contact being in conducting relation to said metal contact shell.

IRA D. DE LA HUNT.