

Sept. 15, 1936.

H. A. DOHERTY

2,054,497

ATTACHMENT PLUG

Filed June 10, 1935

2 Sheets-Sheet 1

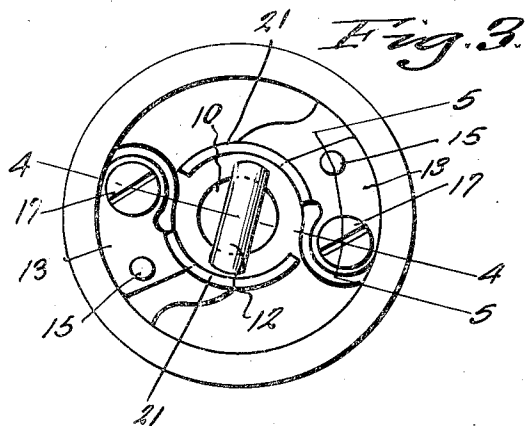
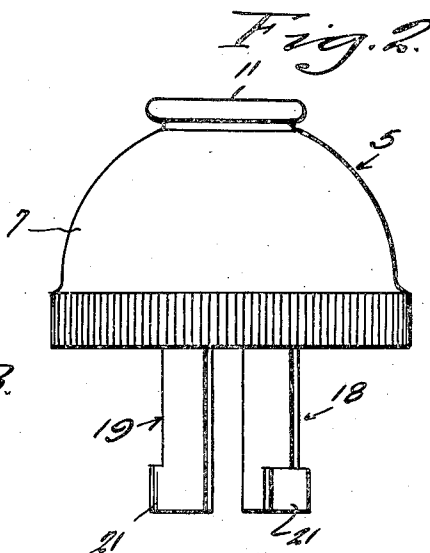
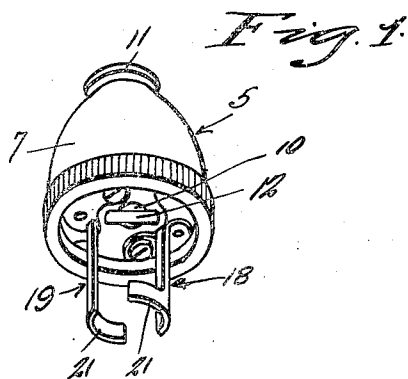


Fig. 5.

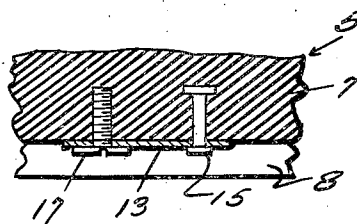
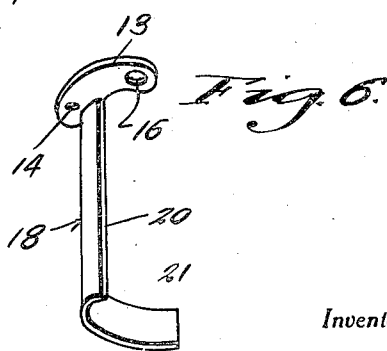
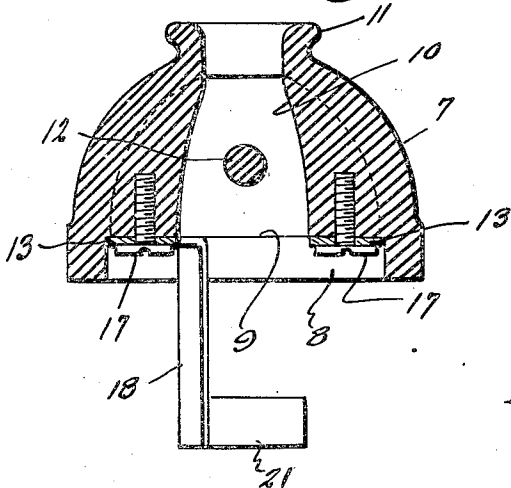


Fig. 4.



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2 Sheets-Sheet 2

Fig. 7.

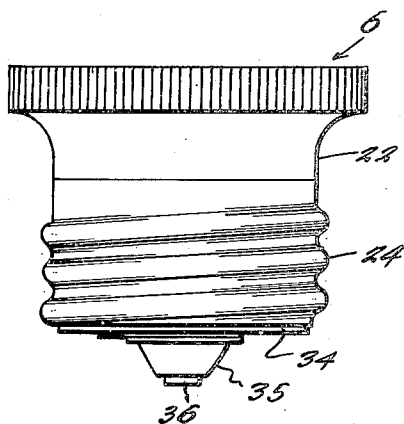


Fig. 10.

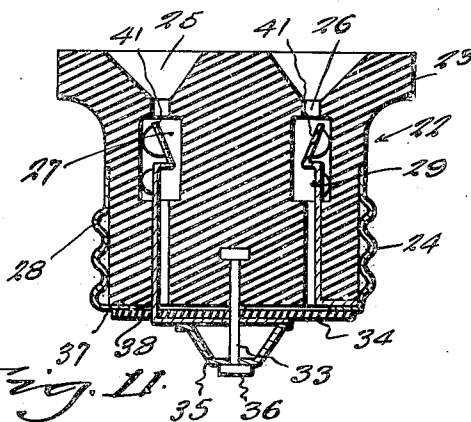


Fig. 11.



Fig. 8.

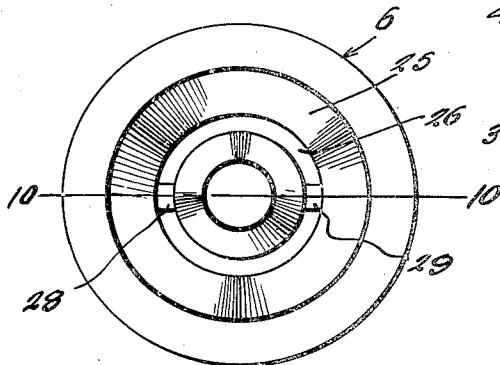


Fig. 12.

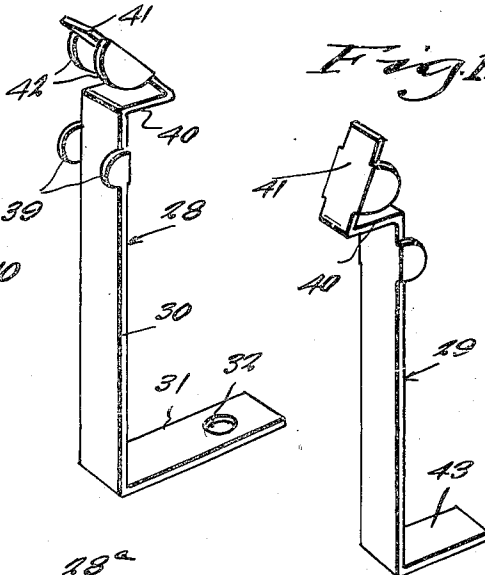


Fig. 9.

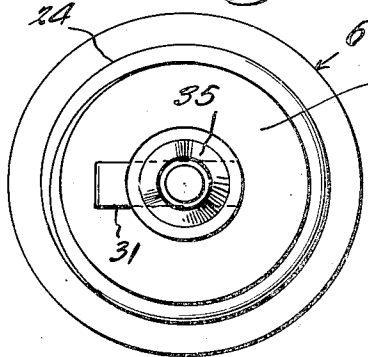
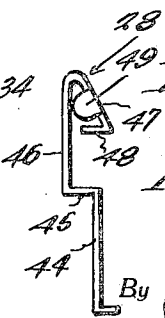


Fig. 13.



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ATTACHMENT PLUG

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Application June 10, 1935, Serial No. 25,892

1 Claim. (Cl. 173—343)

My invention relates generally to an attachment plug, and particularly to an attachment plug wherein the means for connecting the sections thereof may be engaged at different angles and make an early connection to establish the circuit therethrough before completely connected or seated, and an important object of my invention is to provide an arrangement of the character indicated which is simple and efficient and relatively inexpensive.

Another important object of my invention is to provide an attachment plug of the character indicated above in which the sections thereof are rotated relative to each other in establishing the final seating or connecting of the sections.

Another important object of my invention is to provide an arrangement of the character indicated above wherein the sections are firmly connected together so as to preserve a perfect electrical engagement after seating or connection thereof.

Other important objects of my invention will be apparent from a reading of the following description in connection with the drawings, wherein for purposes of illustration I have shown a preferred embodiment of my invention.

In the drawings:—

Figure 1 is a perspective view of the removable or male section.

Figure 2 is a side elevational view of Figure 1.

Figure 3 is a bottom plan view of Figure 2.

Figure 4 is a transverse vertical sectional view taken through Figure 3 approximately on the line 4—4.

Figure 5 is a transverse vertical sectional view taken through Figure 3 approximately on the line 5—5.

Figure 6 is a perspective view of one of the hook terminals.

Figure 7 is a side elevational view of the relatively stationary section.

Figure 8 is a top plan view of Figure 7.

Figure 9 is a bottom plan view of Figure 7.

Figure 10 is a transverse vertical sectional view taken through Figure 8 approximately on the line 10—10.

Figures 11 and 12 are perspective views of the spring anchor terminals.

Figure 13 is an alternative form of spring anchor terminal.

Referring in detail to the drawings, the numeral 5 generally designates the removable section or male section of the plug connector and the numeral 6 the relatively stationary section or

female section of the plug, the latter section being engageable with the outlet.

The male section 5 is composed of the generally hemispherical dielectric body 7 which is formed in its underside with a circular recess 8 whose center portion opens as indicated by the numeral 9 into the lower part of the irregularly shaped axial opening 10 which extends through the top of the body 7 and has its upper end surrounded by a rounded beading 11. Across the opening 10 is a wire anchoring bar 12 which prevents the wires from exerting too great a strain upon their connections with the male section when a pull is put upon the wires leading through the opening 10.

Lying flat on diametrically opposite side portions of the bottom of the recess 8 are the ovulated base portions 13 which have at one end a small opening 14 receiving the rivet 15 which is anchored in the material of the body 7; and the larger opening 16 which receives the binding post screw 17 which threads into a correspondingly formed opening in the body 7 as indicated in Figure 5.

Both the terminal 18 and the terminal 19 have depending from the inner edge of the base portion 13 the straight flat arm 20 which is slightly curved in cross section and has on its lower end leading curvedly and laterally therefrom the right angularly related hook part 21 the function of which will be described. It will be noted that the hook portions 21 extend in opposite circumferential directions with respect to each other as is clear from Figures 1 and 2. The members 18 and 19 have their portions 21 arranged also concentrically with respect to the axis of the body 7. The necessary conductor wires are passed through the opening 10 around the anchor 12 and under the binding post screws 17 where the ends thereof are clamped to make electrical connection with the members 18 and 19.

The stationary or female section which has been generally designated 6 comprises a generally cylindrical dielectric body 22 which has on its upper end the flange 23 and around its lower end the threaded ferrule 24 which adapts it for connection to an outlet.

The top of the flanged part 23 is provided with a concentric V-shaped groove 25 which is of such cross section and disposition that when in the act of attempting to connect the movable section 5 with the stationary section 6, the portions 21 of the terminals 18 and 19 are brought against the top of the stationary or female section, at different angles to the axis of the stationary sec-

tion, the terminals 18 and 19 will slide down the angulated sides of the circular groove 25 and eventually drop through the relatively small continuous circular opening 26 into which the bottom of the groove 25 opens, so that the terminals 18 and 19 will enter the annular chamber 27, where, at diametrically opposite points, the spring terminals 28 and 29 are located.

The terminal 28 comprises the spring-like standard portion 30 which has the elongated foot 31 provided with the opening 32 which is traversed by the securing element 33 which has one end anchored in the axial center of the body 22 and extends through the insulating plate 34, through the opening 32 in the foot 31 and through the insulating cone 35 and has a head 36 functioning as the center contact of the stationary section. It will be observed that as indicated by the numeral 37 portions of the threaded ferrule 24 are seated between the insulator plate 34 and the bottom of the body 22 so as to be thereby anchored. The standard portion 30 of the terminal 28 passes into the annular chamber 27 through a passage 38 against the radially outward side of which the standard portion 30 normally lies. The upper part of the standard portion has radially outwardly directed ears 39 extending from opposite sides thereof which engage the radially outward side of the annular opening 27. Above the ears 39 is an inwardly directed right angular portion 40 which has on its radially inward end a radially outwardly and upwardly inclined part 41 which has depending ears 42 on its opposite sides which are arranged to bear against the radially outward side of the annular opening 27, so that the top of the angulated part 41 is disposed just below the small circular opening 26 and in a position to be first engaged by the foot portion 21 of the terminals 18 and 19 as the same enter the annular opening 27.

The terminal 29 is the same in construction as the terminal 28 except that the small foot portion 43 thereof is radially outwardly instead of inwardly directed and is disposed between the bottom of the body 22 and the flange 37 on the ferrule 24 as clearly shown in Figure 10, whereby to make electrical connection with the ferrule 24.

As the terminals 18 and 19 pass through the circular opening 26 into the annular chamber 27 and the sections are rotated relative to each other, the hook portions 21 engage under the right angular portions 40 of the terminals 28 and 29, so as to lock the sections securely together.

It is desirable that the upper edges of the hook portions 21 be arranged so as to have a cam effect when in engagement with the right angular parts 40 of the anchor terminals 28 and 29, so as to increase the electrical efficiency and mechanical strength of the engagement of the terminals and the sections. It will be observed that the ears 39 and 42, bearing against the radially outward side of the annular chamber 27 adequately support the anchor terminals in the required position for maintaining the connections described. An alternative form of anchor terminal which is generally designated 28a is shown in Figure 13 to be composed of a standard portion 44 which has a right angular part 45 which rests on the shoulder defined by the chamber 27 and the opening 38, the vertical portion 46 which rests against the radially outward side of the chamber 27 and the radially inwardly and downwardly angulated part 47 which corresponds in function to the part 41 of the already described anchors. The part 47 has the right angular part 48 which corresponds to the part 40 already described, and the ears 49 keep the part 47 in the properly angulated position.

Although I have shown and described herein preferred embodiments of my invention, it is to be definitely understood that I do not desire to limit the application of the invention thereto, and any change or changes may be made in the materials, and in the structure and arrangement of the parts, within the spirit of the invention and the scope of the subjoined claim.

What is claimed is:—

In combination, an electrical receptacle comprising a body of dielectric material, said body being provided with a V-shaped annular groove-way in one end thereof, an internal annular pocket in the receptacle, a narrow annular slot-way providing communication between the groove and the pocket, the pocket being substantially wider than the slot, contact members in the pocket immediately below said slot, each of said contacts being in the form of a post provided with a substantially right angularly disposed head portions bent backwardly to provide an inclined face immediately below the slot, and a plug cooperating with the receptacle and having a pair of prongs insertable through the slot, said prongs having angular extensions to engage under the said right angularly disposed portion of the post and said post having laterally disposed ears on the inclined faces thereof.

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