Aug. 27, 1940. J. A. BREWER 2,213,133

GUIDED AND PROTECTED ELECTRICAL CONNECTION

Filed Sept. 7, 1939

Fig. 1.

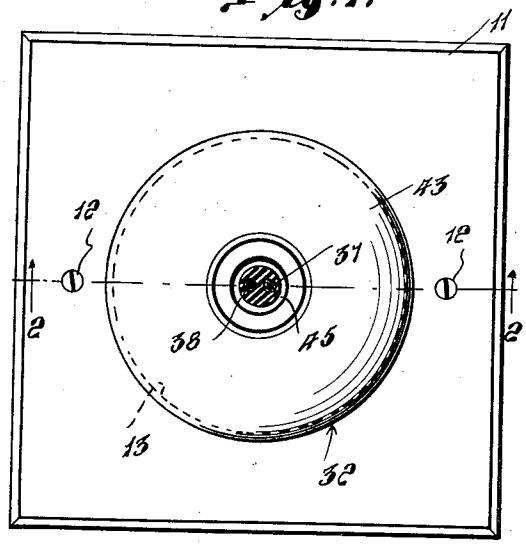


Fig. 4.

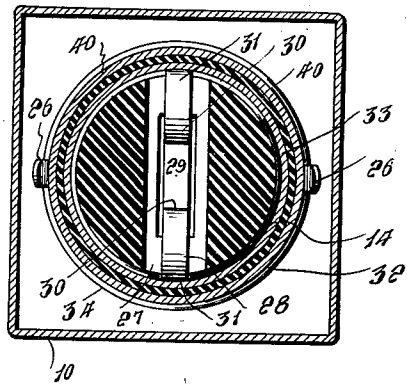


Fig. 3.

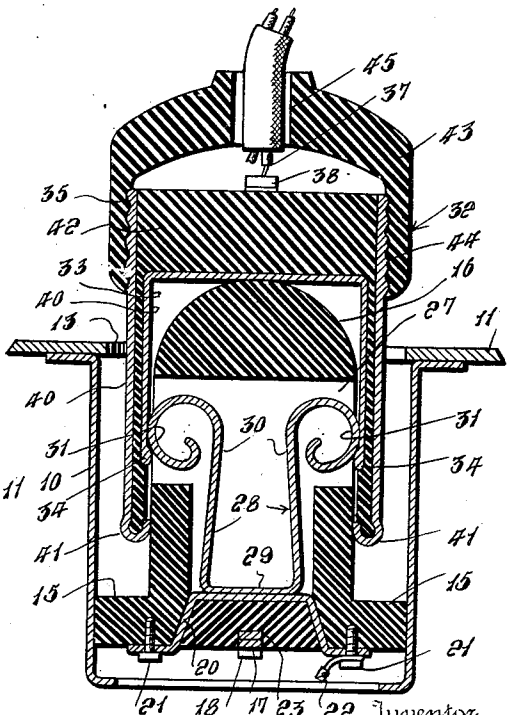
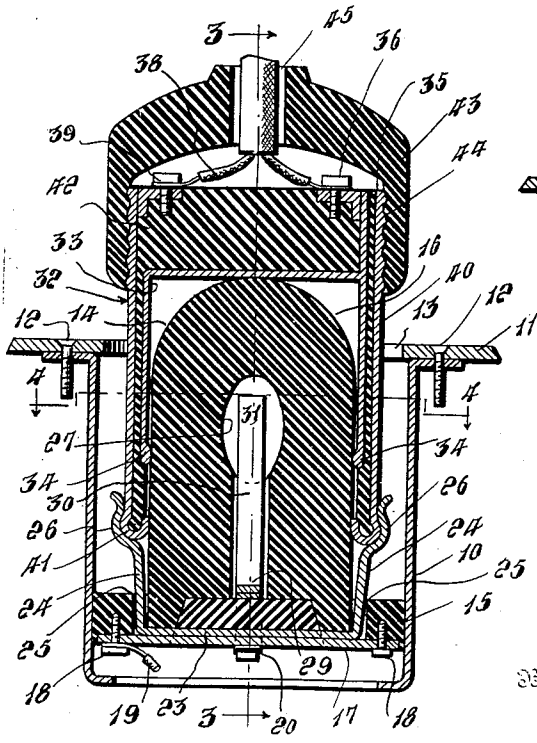


Fig. 2.



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GUIDED AND PROTECTED ELECTRICAL CONNECTION

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Application September 7, 1939, Serial No. 293,802

1 Claim. (Cl. 173—330)

This invention relates to an electrical plug and socket connection.

It is especially aimed to provide a novel construction wherein the socket or receptacle has an extended element substantially filling the opening thereof and being terminally spherical or similarly shaped in order to guide a cap type of plug onto the same, and in which the cap plug has a single opening or chamber in which both electrical terminals are disposed. The plug is primarily a permanent polarity plug.

It is further aimed to provide a construction which enables the parts to be rapidly attached and detached, one which is shockproof, one in which the making and breaking of circuit is confined within the hollow plug, one which is dustproof, durable, avoids sputtering, and which will be attachable in various positions and must lock or latch to avoid loosening and falling out.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawing illustrating an operative embodiment.

In said drawing:

Figure 1 is a view in elevation showing the plug attached to a receptacle containing the socket means;

Figure 2 is a longitudinal section taken substantially on the line 2—2 of Figure 1;

Figure 3 is a longitudinal section taken on the line 3—3 of Figure 2, and

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 2.

Referring specifically to the drawing wherein like reference characters designate like or similar parts, 10 designates an outlet box or receptacle having a usual face plate 11 detachably connected thereto as by means of screws at 12. Such face plate 11 has a central round opening 13.

Located centrally of the receptacle 10 is a post or core 14 of suitable insulation which is round except at the base where it has a laterally extending flange 15, suitably fastened within the casing or receptacle 10. The outer end of the core or post 14, is spherical as at 16 and it but partly fills the opening 13 and extends outwardly beyond the face plate 11. Such a construction provides a relatively narrow opening 13 for insertion of a plug later to be described, and so that, in the absence of a plug, one's fingers or instruments cannot be passed into the plug to tamper with the electrical parts.

Across the inner end of the base 15, a conductor bar 17 is fastened by means of screws 18, one of which may serve as a terminal for a feed wire 19. Disposed at a right angle to the bar 17 and out of contact therewith, is an arched bar 20 secured in place by screws 21, one of which serves as a terminal for the other feed wire 22. Contacting the conductor bar 17 is a conductor clasp 23, having longitudinal fingers 24, extending into the space of the receptacle, through enlarged openings 25 in the base 15. Said fingers 24 have outward deflections or arcuate portions 26, to substantially provide sockets.

As best shown in Figure 3, the core or post 14 has a T-shaped recess 27 in which a generally U-shaped expansive contact member 28 is disposed with its bridge 29 secured in contact with the adjacent portion of the conductor bar 20. Contact device 28 has conductor fingers or arms 30, preferably curled as at 31 at their free ends, and urged through the expansion or resilience thereof slightly outwardly beyond the periphery of the post or core and at a location closer to the face plate 11 than the fingers 24.

The plug is generally indicated at 32, being shown in attached position in the drawing. This plug consists of an inner cup-shaped conductor or sleeve 33 having an inwardly extending bead 34 at its marginal edge and also having an extension 35 carrying a conventional binding post 36 for one of the outlet wires 37. The other outlet wire 38, is connected to a conventional binding post 39 on an outer conducting sleeve or cylinder 40 extending inwardly beyond the bead 34 and terminating in a curl 41 affording an outwardly extending bead. The sleeves 33 and 40 are joined by insulation 42, which extends between them and insulates one from the other.

A cap 43 of insulation is screwed detachably as at 44 to the adjacent portion of the conductor sleeve 40 and has a central opening 45 through which the outlet wires 37 and 38 pass, to the lamp or other device.

It will be realized that the plug is attached and removed by placing the hollow portion thereof in line with the spherical or similar surface 16 of the core, which latter centers and guides the same through the restricted ring shaped opening 13. Further insertion of the plug moves the bead 34 into contact with the curls 31 and thereafter moves the bead 41 into engagement with the socket portions 26. Particular attention is called to the fact that a snap action is necessary to pass the bead 34 over the curls 31 into the position shown in Figure 3 and a snap

action is also necessary to pass the bead 41 into the socket portions 26 in Figure 2. As a result, the socket and plug are in a manner locked or latched together against accidental separation. The plug may be inserted while in any position. When the plug is removed, the ring shaped opening 13 will be constricted by the core or post 14 to guard against insertion of the fingers or tampering.

Attention is called to the fact that the various contacts must latch or lock together at beads 34 and curls 31 and beads 41 and socket portions 26; otherwise the action of the fingers 25 on the beads 41, will "kick out" the plug.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

A device of the class described having a post of insulation having a hollow portion opening at opposite sides thereof, conductor means within the hollow portion having fingers exposed at said sides, second conductor means, said second conductor means having fingers outwardly of the post, a plug applicable over the post, said plug having an inner sleeve engageable with the first mentioned fingers, an outer sleeve concentric with said inner sleeve and insulated therefrom, said outer sleeve having its free end extending beyond the zone of engagement of the inner sleeve and first mentioned fingers and turned inwardly into contact with the post to form a bead, said bead being in snap engagement with the second mentioned fingers, the outer sleeve having screw threads, and a cap detachably engaging said screw threads, said post having a rounded free end.

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