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E. J. ATTERBURY

2,283,405

ELECTRIC SOCKET

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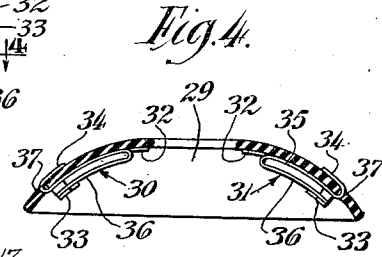
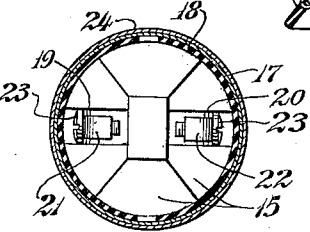
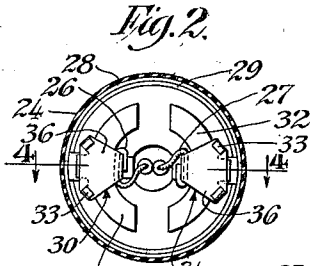
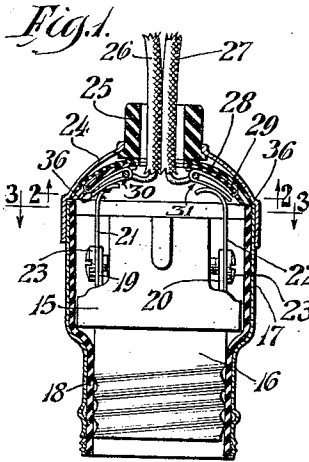


Fig. 5.

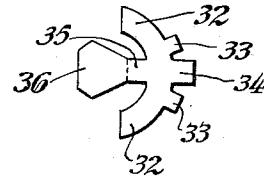


Fig. 11.

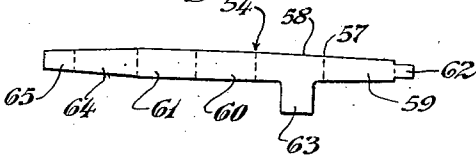


Fig. 10.

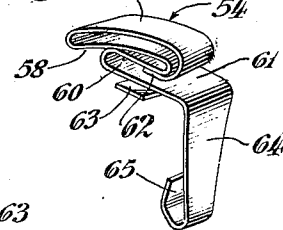


Fig. 6.

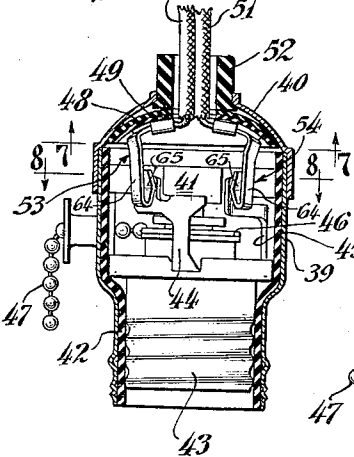


Fig. 7.

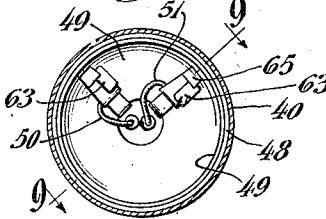


Fig. 8.

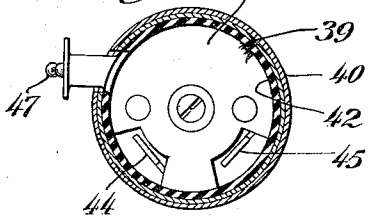
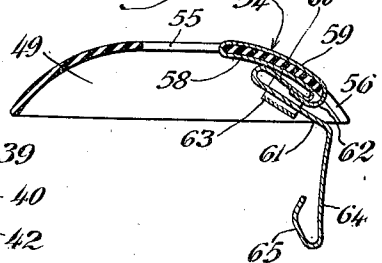


Fig. 9.



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ELECTRIC SOCKET

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Application January 17, 1940, Serial No. 314,197

1 Claim. (Cl. 173—362)

This invention relates to electric sockets and it has for its object the provision of a new and improved form and arrangement of parts by which the wires are detachably connected in operative position on one member of a two-part socket and by which the current is led from said one socket member to the other socket member so as to be fed to the lamp or other suitable work part or to the insert plug of an extension cord or the like.

In one of the embodiments of the invention as shown, the downwardly concaved insulation lining member in the cap portion of the shell or casing of the socket is provided with two contact members thereon, each formed of sheet metal bent to embrace both the lining member and the end portion of one of the feed wires, said contact members being mounted in spaced relation to each other so as to engage resilient contact arms carried by the body member of the device held in position by the body portion of the shell. In the other embodiment illustrated, the construction is more or less similar but the resilient contact arms are carried by the contact members mounted on the insulation lining member rather than by the body member of the socket. In each of the constructions, the resilient arms carried by one member of the casing extend longitudinally of the device into operative engagement with the contact parts carried by the other portion of the casing, the arrangement in each instance being such that the two portions of the casing can be quickly and easily separated so as to afford convenient access to the contact members for effecting the required connection of the wires thereto.

It is another object of this invention to improve devices of this type in sundry details hereinafter pointed out. The preferred means by which these objects have been attained are illustrated in the accompanying drawing, in which—

Fig. 1 is a central vertical sectional view through a socket embodying one preferred form of arrangement;

Figs. 2 and 3 are horizontal sectional views taken substantially at the line 2—2 and the line 3—3, respectively, of Fig. 1;

Fig. 4 is a vertical sectional view taken on an enlarged scale at the line 4—4 of Fig. 2;

Fig. 5 is a face view of the blank from which the contact arrangement as shown in Figs. 2 and 4 is formed;

Fig. 6 is a central vertical sectional view through a modified form of socket comprising a pull-chain switch and embodying another preferred form of construction;

Figs. 7 and 8 are horizontal sectional views taken substantially at the line 7—7 and the line 8—8, respectively, of Fig. 6;

Fig. 9 is a vertical sectional view taken on an enlarged scale at the line 9—9 of Fig. 7;

Fig. 10 is a perspective view of the contact member shown in Fig. 9; and

Fig. 11 is a face view of the blank from which the contact member shown in Fig. 10 is formed.

Referring now to Figs. 1 to 5 inclusive, in which corresponding parts are indicated by the same reference characters, 15 indicates the body portion of my improved socket formed preferably of porcelain and having a metal sleeve 16 rigidly mounted thereon for the reception of an electric light bulb or a screw-threaded plug forming a part of an extension wire or the like. The body insulation member 15 is mounted in the body portion 17 of a two-part casing, with a sleeve 18 of fibre or other insulation material interposed between the casing and the insulation member 15. The insulation member 15 in the arrangement shown in Fig. 1 is provided with two contact members 19 and 20 secured in position in recesses at the sides of said body portion 15, one of said contact members being connected with the sleeve 16 and the other being connected with a central contact as is usual in electrical sockets. The contact members 19 and 20 in the arrangement shown are provided with resilient contact arms 21 and 22, respectively, held in position by means of screws 23.

The upper end of the casing member 17 is closed normally by a cap member 24 which is provided at its central portion with a sleeve 25 of insulation material through which insulated lead wires 26 and 27 are introduced into the casing. The cap member 24 is releasably mounted in position upon the casing member 17 in any suitable manner, as by the well-known means ordinarily employed for this purpose.

Immediately below the cap member 24, there are two insulation members 28 and 29 each of dished formation corresponding substantially to the shape of the cap 24 so as to seat itself firmly in position in the cap. At opposite sides of the insulation member 29, on its bottom or inner face, I have provided contact members 30 and 31 formed of sheet metal bent into shape so as to embrace the insulation member 29 and to grip tightly the wires 26 and 27, as is best shown in Fig. 2. Each of these contact members comprises in the arrangement shown an arc-shaped body portion 32 (see Fig. 5) having lugs 33 and 34 formed integrally therewith on the outside of the curvature and an arm 35 formed integrally therewith on the inside of the curve, the arm 35 being broadened at its free end into the form of a body plate 36. The two contact members are mounted upon the insulation member 29 by having the lugs 34 inserted through openings 37 at opposite sides of the insulation member, such lugs 34 being bent upwardly and inwardly about the

body portion of the insulation member into close gripping engagement therewith as shown in Fig. 4. The body plate 36 of each of said contact members is then bent outwardly and doubled back upon the arm 35 so as to grip a lead wire between the arm 35 and the plate 36. The lugs 33 are then bent inwardly about the body portion 36 as best shown in Fig. 2.

The arrangement is such that the insulation member 29 serves effectively for supporting the contact members 30 and 31 in operative position, being insulated from the cap 24 by the insulation member 28. The arrangement is very simple and is very easily manipulated for bringing the wires into gripped relation to the contact members, as is shown in Fig. 2. The position of the parts is such that when the cap 24 is attached in position upon the casing member 17 the resilient contact arms 21 and 22 are brought into pressure relationship with the body plates 36 of the contact members carried by the cap so as to provide effective electrical connection between the wires 26 and 27 and the contact members 19 and 20, respectively.

In the arrangement shown in Figs. 6 to 11, the construction is similar in many respects, the outstanding difference being that in Fig. 6 the longitudinally extending contact arms are carried by the cap rather than by the body portion of the shell. In the arrangement of Figs. 6 to 11, a shell 39 is provided closed at its upper end by a removable cap 40. A body member 41 of porcelain or the like is provided in the casing member 39 being separated therefrom by an insulation sleeve 42, such body portion 41 being provided with a screw-threaded sleeve 43 for the reception of a lamp. The body portion 41 in the arrangement shown in Fig. 6 is provided with contact members 44 and 45 which are connected with the sleeve 43 and the central contact of the socket by means of a switching mechanism of any approved type forming in and of itself no part of the present invention. The switch in the arrangement shown comprises a rotatably mounted member 46 upon which an operating chain 47 is wound for operating the switch in a manner well understood in the art.

As is best shown in Fig. 6, the cap 40 is provided with downwardly concaved insulation members 48 and 49 therein provided with registering openings therethrough at their central points for the insertion of wires 50 and 51 into the interior of the socket member through an insulation sleeve 52 of any approved type.

The means for connecting the wires 50 and 51 with the contacts 44 and 45, respectively, comprises contacts 53 and 54 formed of sheet metal and bent into position to grip both the inside insulation member 49 and the wires 50 and 51. As is clearly shown in Fig. 9, the insulation member 49 is provided with a central opening 55 and with a notch 56 in its periphery at the point where the contact 54 is to be applied, two of such notches being provided for said contact members 53 and 54. For applying the contact member 54, it is doubled over upon itself at 57 to provide arms 58 and 59 which embrace the insulation member 49 (see Fig. 9), the blank being then reversely doubled twice more to provide arms 60 and 61, the end portion 62 being bent downwardly through the notch 56 and about the outer ends of the arms 58 and 60 for holding the contact member in position upon the insu-

lation member. The wires 50 and 51 are inserted between the arms 60 and 61 of the contact members, after which a lug 63 formed on the side of the arm 58 is bent over about the arm 61 so as to hold the wire gripped tightly in position. At the outer end of the arm 61, the metal strip from which the contact member is formed is bent downwardly to provide an arm 64, the lower end portion 65 of which is bent upwardly to provide a loop portion (see Fig. 9).

As is clearly shown in Fig. 6, the loop portions 65 are held normally in such position that when the cap 40 and its connected parts are pushed down into operative relation to the body casing member 39 said loops are brought into wiping engagement with the contacts 44 and 45 carried by the body portion of the casing so as to form an effective releasable connection between the lead wires and the contacts 44 and 45.

By the use of my improved construction, the user is enabled very quickly and easily to attach the lead wires in the desired circuit relation with respect to the socket parts. By separating the cap member from the body portion of the casing, access is afforded directly to the contacts carried by the cap portion, and it is an easy matter to bend the contact members into operative relation for gripping the ends of the wires so as to hold them in effective contact relation. This can be effected readily without removing the light bulb or other work device from the sleeve 16, since it is not necessary to remove the body member 15 from the casing member 17 for obtaining access to the connecting means for the lead-in wires. It is desirable to have an ordinary acceptance plug or light bulb in the socket before putting the cap 24 back on the body portion because this holds the socket and casing firmly together. In cases where desirable the proper positive and negative markings may be provided in the cap to indicate where to connect the positive and negative leads.

While the form and arrangement of parts as shown in the drawing and as above described are preferred, my invention is not to be limited to such construction except so far as the claims may be so limited, since it is evident that changes might well be made in the form and arrangement of parts without departing from my invention.

I claim:

In a socket, the combination of a two-part casing, comprising a body portion and a cap member releasably connected with said body portion, a body member mounted in said body portion of the casing with two contact members mounted thereon and insulated from said casing, an insulation member in the cap member, two other contact members mounted on said insulation member and insulated from each other and from the casing and each formed of sheet metal folded tightly about the insulation member, means for connecting lead wires to said second-named contact members, and resilient arms mounted on one of said sets of two contact members and extending longitudinally of the socket into position for operative wiping engagement with the other of said sets of two contact members when the casing members are moved longitudinally into operative position with respect to each other independently of rotary movement.

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