

Dec. 3, 1946.

B. J. BIR

2,411,846

ELECTRICAL ATTACHMENT PLUG

Filed Jan. 14, 1944

2 Sheets-Sheet 1

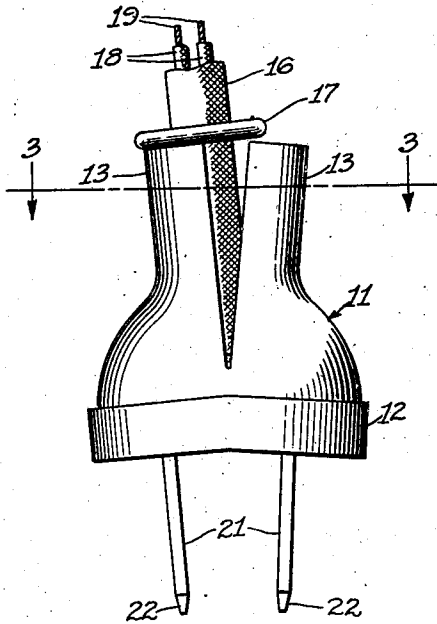


Fig. 1

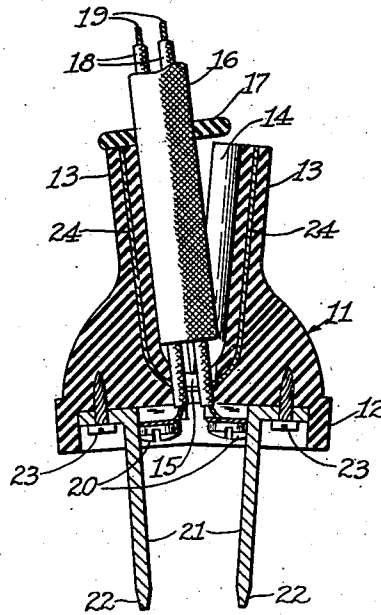


Fig. 2

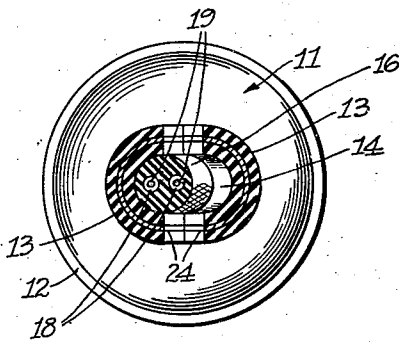


Fig. 3

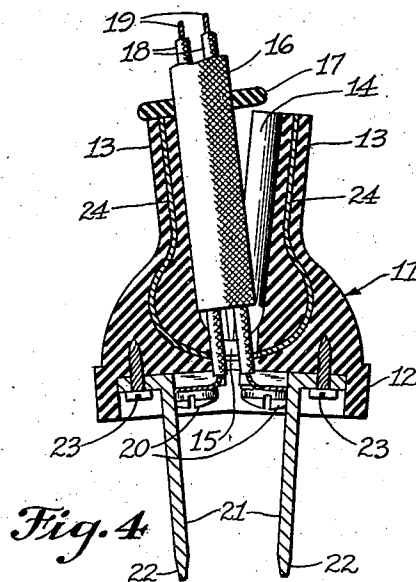


Fig. 4

INVENTOR.
B. J. Bir
BY
A. C. Fisher
Att'y

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2 Sheets-Sheet 2

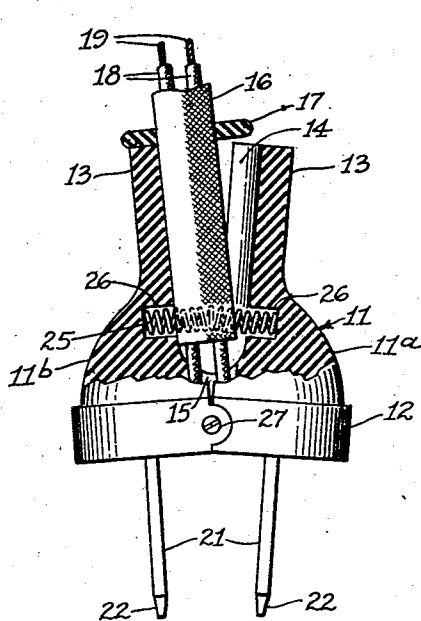


Fig. 5

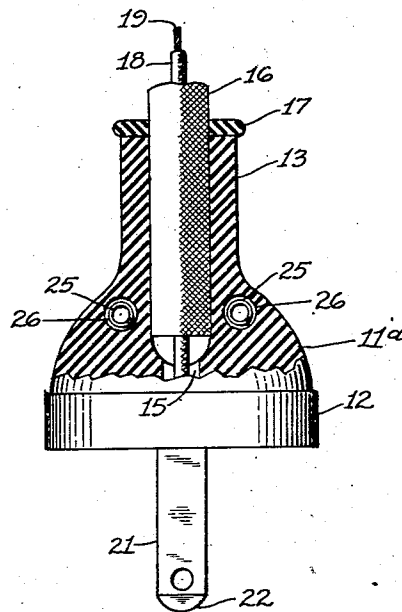


Fig. 6

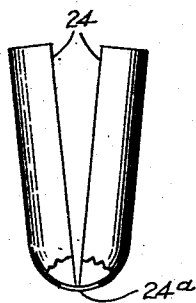


Fig. 7

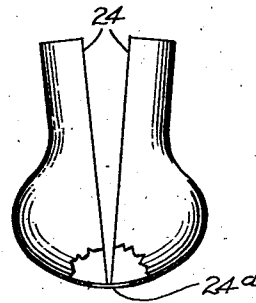


Fig. 8

INVENTOR.
B. J. Bir
BY *Atty*
Fisher

UNITED STATES PATENT OFFICE

2,411,846

ELECTRICAL ATTACHMENT PLUG

Bernard Joseph Bir, Belleville, Ill.

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2 Claims. (Cl. 173—361)

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This invention relates to electrical attachment plugs, and the principal object of the invention is to provide an improved form of such plug having the conventional contact prongs for insertion into the conventional form of slotted outlet or receptacle, the said prongs being movably mounted for varying their lateral spacing, whereby they may be readily and quickly inserted into the slots of the outlet, without any fumbling or wasted effort.

Another object of the invention is to provide an electrical plug having a pair of contact prongs that are movable mounted within the body of the plug in such manner that their lateral spacing may be quickly adjusted or varied so as to register with the slots of the outlet, the said contact prongs being spring-set for normally urging them towards one another, or if preferred for urging them asunder, whereby when these prongs are inserted into the contact clips of the outlet they will be held firmly in place to their contactual relation with the outlet contacts, thereby ensuring at all times a continuous and perfect flow of the electric current.

With the foregoing and such other objects and advantages in view as may appear from the specification, attention is directed to the accompanying drawings as exemplifying certain preferred embodiments of the invention, and wherein,

Figure 1 is a side elevational view of one preferred embodiment of the plug, as formed in accordance with this invention, showing the body of the plug as constructed of resilient material such as rubber.

Figure 2 is a longitudinal vertical section through the plug.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a view similar to that of Figure 2, showing however a modified form of spring for urging the contact prongs inwardly.

Figure 5 illustrates a modified form of the invention wherein the body of the plug is made of rigid or unyielding material and in two parts hingedly connected, the upper portion of the plug being shown in section.

Figure 6 is a view of the plug as shown in Figure 5, taken at an angle of ninety degrees.

Figure 7 is a detail view of the bifurcate form of spring used, as shown in the embodiment of Figure 2.

Figure 8 is a detail of the modified form of bifurcate spring used, as shown in the embodiment of Figure 4.

As shown in Figures 1 to 4 inclusive, the plug

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is represented generally at 11, and as here shown the body of the plug is made integrally of some rather resilient or elastic material, such as rubber. The plug is circular in cross section, reinforced peripherally at its bottom margin by the heavy bead 12, and tapered gradually upward as shown at 11, and merging into the two-part neck portion 13 which is formed by the longitudinally extended parting 14, the inwardly facing walls of which parting are concaved in cross section as shown to provide channels running to the basal lead-in aperture 15. The foregoing description defines the plug per se, and for the plug as thus formed a tubular sheath 16 is provided and is inserted down within and along one of the channels of the parting 14, where it is anchored in place by the apertured cap 17 through which this sheath is passed, this cap being in turn anchored to the outer end of one of the neck portions 13 at that side. Insulated service wires or conductors 18, 19 are passed through the cap 17 down through the sheath 16 and out through the base aperture 15, where by means of the screws 20 they are electrically connected at each side to the arcuate and angularly turned ends of the contact prongs 21, tapered at 22, and which elements are secured to the inner or base end of the plug by the screws 23, all in conventional manner.

A bifurcate spring 24 is provided, the forks thereof being preferably arcuate in cross section (see Figures 3 and 7) to correspond with the concaved channels of the parting 14 of the neck portions 13 of the plug. This spring is embedded or molded within the body of the plug as the plug is made, the said forks thereof being disposed at each side of the parting 14, one within each of the neck portions 13, and the base of the spring is apertured as indicated at 24a, to pass the conductors 18, 19, as shown in Figures 2, 4, 7, and 8. The spring 24 is so formed and the forks thereof are so set that they normally tend to spread apart, and thus the resulting action of the spring, as seated within the plug, is to urge the neck portions 13 asunder and the contact prongs 21 towards one another, as indicated in the drawings.

In use, the operator naturally grasps the neck portions 13 between the thumb and finger of one hand, and then by positioning the tapered ends 22 of the prongs against the face of the conventionally slotted outlet (not shown) and in proper alignment with the slots thereof, and pressing these neck portions slightly together, the points 22 of the prongs readily find and enter the

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said slots of the outlet, without any trouble or experimental fumbling and groping. When thus entered into the slots of the outlet, the tension of the spring holds the prongs 21 into firm contact with the clips of the outlet, thereby insuring at all times a continuous and unyielding electrical connection. Variant compression of the neck portions 13 is readily permitted because of the resilient quality of the material of the plug, when constructed of such material.

In the Figures 4 and 8 the bifurcate spring 24 is shown as bulbous at its inner end, for providing a more secure seating within the body of the plug, and to stiffen the spring itself.

In Figures 5 and 6 the plug is shown as made in two co-equal parts 11a, of rigid and unyielding material, these parts being pivotally joined together at their diametrically opposite sides by the rivets 27, and whereby the neck portions 13 and prongs 21 may be manipulated as in the manner pointed out in the previous structure. These figures additionally show a pair of coil springs 25 seated at their ends within sockets 26 formed in the opposite parts of the plug, one at each side of the sheath 16, and which coil springs serve the same function as the previously described forms of spring 24, for normally urging the neck portions 13 asunder. Otherwise the structure and operation of this modified form of plug is identical with the first described form and structure of plug.

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The forms of attachment plugs here shown provide very handy and convenient means for connecting household or other electrical utilities to electrical outlets, and whereby such connections may be easily and almost automatically made, without delay.

While I have here shown and described certain preferred embodiments and structural features of my invention, these forms and features may be changed or modified as desired, within the scope of the claims.

I claim:

1. In an electrical attachment plug, a body portion of insulation material, the same including a basal portion and a connected bifurcate neck portion, a bifurcate spring seated within the plug with the base of the spring in the basal portion thereof and apertured through the base to pass electrical conductors, the forks of the said spring being seated within the two sides of the bifurcate neck portion of the plug at each side of the parting thereof.

2. In a device according to claim 1, the said spring being of spring metal and the forks thereof as seated within the sides of the neck portion of the plug being arcuate in cross section conformably with the cross-sectional configuration of the plug itself.

BERNARD JOSEPH BIR.