July 26, 1938. R. G. BENNETT 2,124,943

PENDANT RECEPTACLE

Filed Dec. 15, 1934

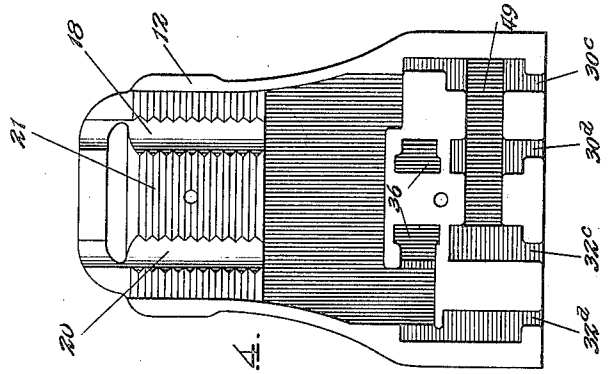


Fig. 4.

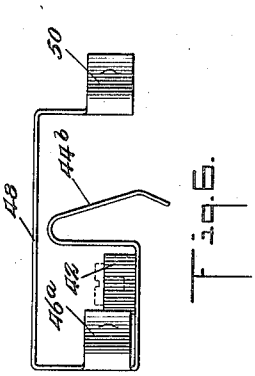


Fig. 6.

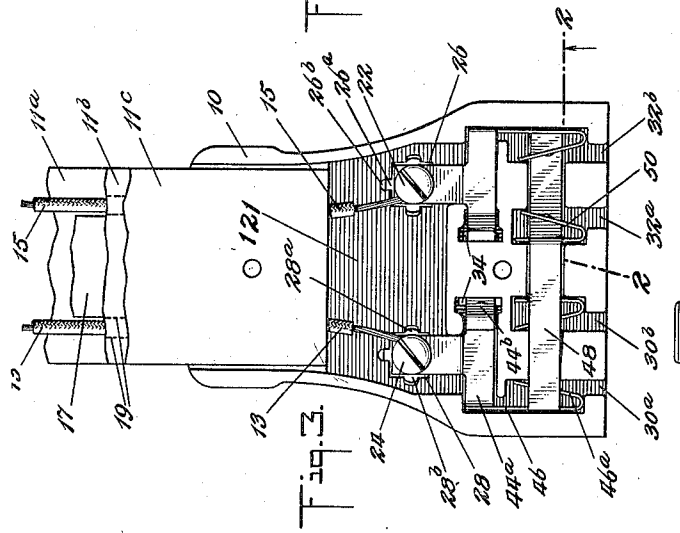


Fig. 3.

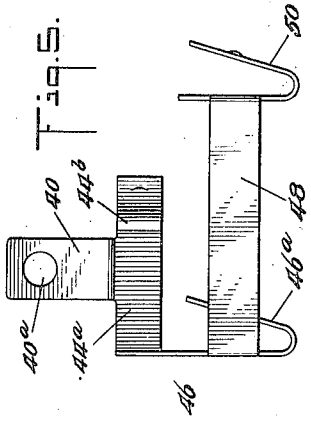


Fig. 5.

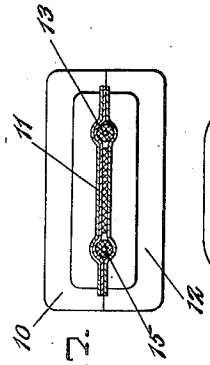


Fig. 2.

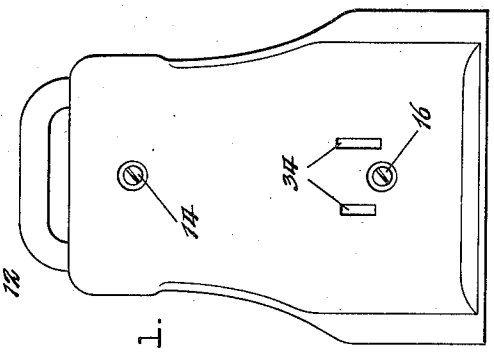


Fig. 1.

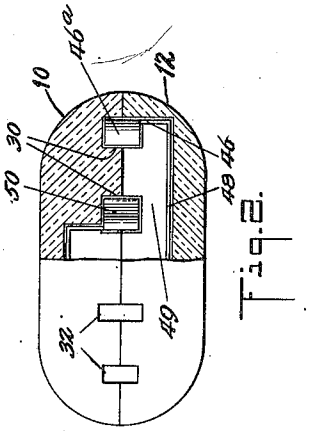


Fig. 2.

INVENTOR
ROSS G BENNETT
BY HIS ATTORNEYS

Howson and Howson

Patented July 26, 1938

2,124,943

UNITED STATES PATENT OFFICE

2,124,943

PENDANT RECEPTACLE

Ross G. Bennett, Fairfield, Conn., assignor, by mesne assignments, to Charles W. Abbott, Larchmont, N. Y.

Application December 15, 1934, Serial No. 757,728

8 Claims. (Cl. 173—334)

This invention relates to attachment plug receptacles. More particularly it relates to an attachment plug receptacle which is adapted to be attached to the end of a hanging conductor of the type illustrated in the copending application of C. W. Abbott, Serial No. 580,111, filed December 10th, 1931, patented December 18th, 1934, Patent No. 1,984,356.

It is an object of my invention to provide a receptacle for attachment plug caps which receptacle may be attached to the end of a hanging conductor in such manner as to relieve the conducting wires themselves of strain by transmitting the strain to the fabric adjacent to or overlying the conductor wires.

Another object of my invention is to provide a pendant receptacle of the above type which may be easily and inexpensively manufactured from an insulating composition.

Another object of my invention is to provide a receptacle of the above type with contacts which are identically formed and interchangeable.

Another object of my invention is to provide a pendant receptacle of the above type with a pair of contacts stamped from sheet metal in identical form so as to be interchangeable and to provide resilient contact fingers for engagement by the prongs of an attachment plug cap when inserted in any of three pairs of passages provided in the receptacle for that purpose.

Other objects of my invention will appear as it is described in connection with the accompanying drawing.

In the drawing:—

Figure 1 is a view in elevation of the back face of a pendant receptacle which is formed according to the principles of my invention.

Figure 2 is an end view partly in section of the lower end of the receptacle shown in Figure 1. The section is along line 2—2 of Figure 3.

Figure 3 is a view of the inside of one half of the receptacle casing shown in Figure 1 with the contacts in position and connected with the conducting wires of a fabric-covered pendant conductor.

Figure 4 is an inside view of the other half of the casing of the receptacle shown in Figure 1.

Figure 5 is a detailed plan view of one of the two identical contact members used in my new pendant receptacle.

Figure 6 is an end view looking from the lower end into the contact member shown in Figure 5.

Figure 7 is an end view of the upper end of the receptacle shown in Figure 1.

Referring to the drawing, the pendant receptacle comprises a casing made of insulating material and preferably divided longitudinally to form two complementary halves 10 and 12 of similar shape. The cross section of the upper end of the casing when assembled has the outline of preferably a rectangle with rounded corners. The casing enlarges towards its lower end to provide adequate room for the contact members, the cross section of the lower end of the casing having the outline of preferably a flattened oval. Each half of the casing is hollowed out by a number of recesses for the accommodation of the various parts of the contact members (hereinafter described), the wire terminals and the entrance of the pendant conductor.

My pendant receptacle is adapted for use with a fabric pendant conductor of the type shown in the copending application of C. W. Abbott, Serial No. 580,111. This type of conductor consists of one or more thicknesses of fabric 11*a*, *b*, *c*, in strip form laid upon one another with a pair of parallel insulated conducting wires 13, 15 lying between said thicknesses. If desired an additional strong strip of fabric 17 may lie between the conducting wires. These fabric strips are sewn together by parallel stitches 19 running longitudinally alongside the conducting wires in such a fashion as to leave the conducting wires loose and free for movement longitudinally within the fabric. As is better shown in Figure 7, the regions of the two conducting wires preferably appear as two longitudinally extending bulges in the composite conductor structure. The fabric is cut back from the ends of the conducting wires to make possible the connection of the ends of said wires to the contact members of the receptacle by any suitable means, illustratively in the form of terminal screws of conventional fashion. The end of the conductor is inserted between the upper ends of the receptacle halves as shown in Figures 3 and 7 and secured therein by the clamping action of certain prepared structural features later described, effected preferably by spaced screws 14 and 16 passing transversely through the receptacle to secure the two halves together.

To accommodate the above-mentioned longitudinally extending bulges of the fabric conductor, the upper ends of the halves of the receptacle casing are provided with a pair of parallel longitudinally extending channels 18 and 20 spaced apart the same distance as the conducting wires 13 and 15 of the fabric conductor. The inner surfaces of each half of the casing at the upper

end are corrugated, as at 21 adjacent the channels 18 and 20 with the tips of the corrugations in a plane below the dividing plane or surface plane of the abutting faces of the casing halves so that when the halves of the casing are assembled the tips of the corrugations of one half of the casing are spaced a slight distance apart from the tips of the other half of the casing, the spacing depending upon the thickness of the fabric conductor with which it is intended to use the receptacle. Preferably the spacing is less than the thickness of the fabric conductor in order that the corrugations may grip and hold the fabric firmly. In this way the strain which may be put upon the fabric conductor due to pulling the receptacle, is carried by the fabric thus relieving the conductors of strain. In forming the channels 18 and 20 consideration is had for the thickness of the fabric and conducting wires and the channels are made deep enough so that the conducting wires are not gripped by the surfaces of the channels but remain free for slight longitudinal movement within the fabric.

The midportion of the casing half 10 is hollowed out as at 121 to provide room for the conducting wires to be connected to suitable wire terminals, illustratively comprised of binding screws 22 and 24 which have screw threaded engagement with terminal plates 26 and 28. The latter may be constructed as follows: The terminal plates may be substantially rectangular and have fingers such as 26*a* projecting outwardly therefrom on opposite sides and bent down into small apertures such as 26*b* in the floor of the central portion of the casing in order to hold the plates in position. These terminal plates also may have other fingers 28*a*, 28*b* projecting from the other two sides and bent upwardly so as to lie adjacent the periphery of the terminal screw to prevent the movement of the conducting wires out from under the heads of the terminal screws as the screws are turned down upon the conducting wires during binding of the wires in position.

In the lower end of each casing part, pairs of parallel recesses 30*a*, *b*, *c*, and *d* and 32*a*, *b*, *c*, and *d*, are provided in position so that the recess 30*a* will lie directly opposite the recess 30*c* and recess 30*b* will lie directly opposite recess 30*d* and recess 32*a* will lie directly opposite recess 32*c* and recess 32*b* will lie directly opposite recess 32*d* when the casing parts are laid against one another in the center position. These pairs of recesses thus provide two pairs of parallel passages 30, 32 (Figure 2) of sufficient width and thickness to permit the insertion therein of the prongs of a conventional attachment plug cap (not shown). These passages enlarge within the casing to accommodate the resilient contact fingers hereinafter described. In the central part of the lower half of the casing part 10 (Figure 3) is a pair of parallel passages 34, passing through that casing part from the front to the rear and dimensioned (Figure 1) for the insertion of the prongs of a conventional attachment plug cap. These passages also enlarge within the casing to accommodate resilient contact fingers.

In order to connect the prongs of an attachment plug cap which may be inserted in any one of the pairs of passages 30, 32 or 34 to the terminal plates 26 and 28, a pair of preferably identically formed contact members (shown in detail in Figures 5 and 6) stamped from thin sheet metal are provided, each having three resilient contact fingers 44*b*, 46*a* and 50. A different finger is adapted to extend into one of each of the pairs of passages so that in each pair of passages the contact finger in one side will be connected to one conducting wire and the contact finger on the other side will be connected to the other conducting wire.

Reference may be had to Figures 3, 5, and 6, for a detailed understanding of the form of the contact members. Referring in particular to the contact member shown in Figures 5 and 6 and to the contact member shown in the left hand side of Figure 3, a tongue 40 is provided with an aperture 40*a* through which the binding screw 24 may pass to secure the tongue 40 on top of the terminal plate 28. Bent down at right angles from the lower end of the tongue 40 is an offset 42, and bent at right angles from the lower end of this offset 42 into a plane parallel with the plane of the tongue is a pair of laterally extending arms 44*a* and 44*b*, the arm 44*b* being bent upwardly and again reversely bent downwardly to enter into the passage 34 (Figure 3) and thus providing a resilient contact finger within the passage for engagement by the prong of an attachment plug cap. The arm 44*a* extends toward the left side of the casing part 10 as shown in Figure 3 and has an extension 46 bent up at right angles thereto and extending in an opposite direction from the tongue 40. The end of this extension is reversely bent as at 46*a* providing a resilient contact finger for engagement by the prong of an attachment plug cap. This finger lies with its lower half (as viewed in Figure 2) within the passage 30*a* of casing part 10 and with its upper half within the passage 30*c* of casing part 12. Extending upwardly from the midportion of the extension 46 is an over-reaching bridge 48 at the opposite end of which is a resilient contact finger 50 which, in like form and fashion to contact finger 46*a*, lies with its lower and upper halves in the passages 32*a* and 32*c* respectively when the casing parts are in assembled position.

The contact member in the right portion of the structure of Figure 3 is identical with that on the left but it is inverted, and suitable recesses and passages for its three contact fingers, offset portion, tongue and bridge are provided in the casing parts, so that when the parts are assembled all parts of the contact members will be received in appropriate recesses in one or the other of said casing members. Specifically, in addition to the recesses and passages already described, there is provided in the lower left hand portion of each half as viewed in Figures 3 and 4 a deep channel 49 for the bridge 48 of the contact members, which channel extends from the outer edge of the inner enlarged portion of recess 30*c* (or 32*b*) to the nearest edge of the inner enlarged portion of recess 32*c* (or 30*b*). The channel 49 is deeper than any of the recesses 30 or 32, (see Fig. 2) so that the bridge 48 can extend along its floor a sufficient distance away from the contact finger 50 of opposite polarity positioned above it to provide an adequate air gap as insulation.

From the foregoing it will be understood that I have provided a pendant receptacle of simple construction and few parts, and which is adapted to be secured upon the end of a hanging conductor of the fabric type in such a way as to cause the fabric to take any stress that may be applied by pulling on the receptacle. My receptacle also is advantageous in requiring a minimum of machinery and material in the manufacture of its identical and interchangeable current carrying parts.

Many modifications within the scope of my in-

vention will occur to those skilled in the art. Therefore I do not limit myself to the exact form of the device as illustrated.

I claim:—

1. In a pendant receptacle, a recessed insulating casing divided longitudinally to form a pair of complementary casing members having cooperating recesses, a pair of one piece contact members stamped from sheet metal and seated in said recesses, certain of said recesses forming two pairs of passages in one end of the receptacle for the reception of the prongs of an attachment plug cap and certain other recesses forming a pair of passages in a side face perpendicular to the dividing plane of the casing, said contact members each having three contact fingers, each of said fingers extending laterally from the remaining body of its contact member into a passage of a different pair, said contact members being identical and interchangeable.

2. A plug receptacle comprising two casing parts of insulating material and adapted to be laid one against the other, said casing parts having such a conformation of their contiguous faces as to form recess means at one portion of the assembled casing parts for the reception therein of a plurality of contact members and to form passages to receive the prongs of an attachment plug, sheet metal contact members bent and conformed for seating in said recess means and to be held therein upon the assembly of said two casing parts and to present contact portions for engagement with said plug prongs, said contact members having also connecting means for mechanically anchoring thereto electrical conductors, a composite insulated conductor structure comprising band-like fabric carrying a plurality of electrical conductors extending parallel to each other and longitudinally of said band fabric, the latter presenting longitudinally extending bulges along the regions of said conductors, the contiguous faces of said two casing parts having at another portion thereof a configuration for receiving said composite conductor and comprising channel-like means for loosely receiving said bulges and opposed gripping surfaces adjacent said channels, said conductors being anchored to said connecting means, and means for securing said casing parts together to close over the recess means in which said contact members are seated and to cause said opposed gripping surfaces to grip and mechanically anchor the band fabric of said composite conductor structure, said band fabric thereby assuming tensional strain and preventing the latter from being transmitted through said conductors to said sheet metal contact members and preventing distortion or displacement thereof relative to their recess means and said prong passages.

3. In a receptacle, a pair of complementary casing members of insulation having recesses forming three pairs of passages adapted to receive the prongs of an attachment plug cap, a pair of identically formed one piece, interchangeable contact members stamped from sheet metal, said contact members each having two resilient contact fingers extending in one direction and a third contact finger extending in a second direction at right angles to said first direction forming three sets of contacts for engagement by the prongs of an attachment plug cap, said unidirectional fingers of one member being connected by a conducting bridge of uniform cross sectional area, said bridge of said one member over-reaching one of the fingers of the other member.

4. In a receptacle, a pair of complementary casing members of insulation having recesses forming three pairs of passages adapted to receive the prongs of an attachment plug cap, a pair of identically formed one piece, interchangeable contact members stamped from sheet metal, said contact members each having two resilient contact fingers extending in one direction and a third contact finger extending in a second direction at right angles to said first direction forming three sets of contacts for engagement by the prongs of an attachment plug cap, said unidirectional fingers of each member being connected by a conducting bridge, said bridge of said each member over-reaching one of the fingers of the other member, said bridges being parallel.

5. In a receptacle, a pair of complementary casing members of insulation having recesses forming three pairs of passages adapted to receive the prongs of an attachment plug cap, a pair of identically formed one piece, interchangeable contact members stamped from sheet metal, said contact members each having two resilient contact fingers extending in one direction and a third contact finger extending in a second direction at right angles to said first direction forming three sets of contacts for engagement by the prongs of an attachment plug cap, said unidirectional fingers of one member being connected by a conducting bridge, said bridge of said each member over-reaching one of the fingers of the other member.

6. In a receptacle, a pair of complementary casing members of insulation having recesses forming three pairs of passages adapted to receive the prongs of an attachment plug cap, a pair of identically formed one piece, interchangeable contact members stamped from sheet metal, said contact members each having two resilient contact fingers extending in one direction and a third contact finger extending in a second direction at right angles to said first direction forming three sets of contacts for engagement by the prongs of an attachment plug cap, said unidirectional fingers of each member being connected by a conducting bridge, said bridge of said each member over-reaching one of the unidirectional fingers of the other member, said bridges being disposed in parallel spaced relation.

7. In a receptacle, a pair of complementary casing members of insulation having recesses forming three pairs of passages adapted to receive the prongs of an attachment plug cap, a pair of identically formed one piece, interchangeable contact members stamped from sheet metal, said contact members each having two resilient contact fingers extending in one direction and a third contact finger extending in a second direction at right angles to said first direction forming three sets of contacts for engagement by the prongs of an attachment plug cap, said unidirectional fingers of each member being connected by a conducting bridge, said bridge of said each member over-reaching one of the fingers of the other member without intersecting the bridge thereof.

8. In a receptacle, a pair of complementary casing members of insulation having recesses forming three pairs of passages adapted to receive the prongs of an attachment plug cap, a pair of identically formed one piece, interchangeable contact members stamped from sheet metal, said contact members each having two resilient

contact fingers extending in one direction and a third contact finger extending in a second direction at right angles to said first direction forming three sets of contacts for engagement by the prongs of an attachment plug cap, said unidirectional fingers of each member being connected by a conducting bridge, said bridge of said each member over-reaching one of the unidirectional fingers of the other member, said bridges lying on opposite sides of said unidirectional fingers.

ROSS G. BENNETT.