June 4, 1940.

A. J. ANDERSON

2,203,122

CONTACT ATTACHMENT FOR ELECTRICAL CONNECTIONS

Filed Dec. 24, 1935

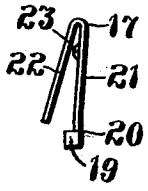


FIG 1

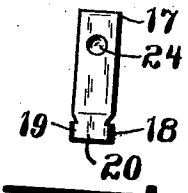


FIG 2

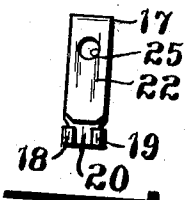


FIG 3

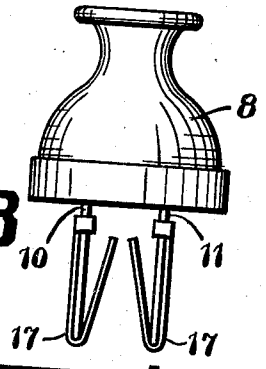


FIG 4

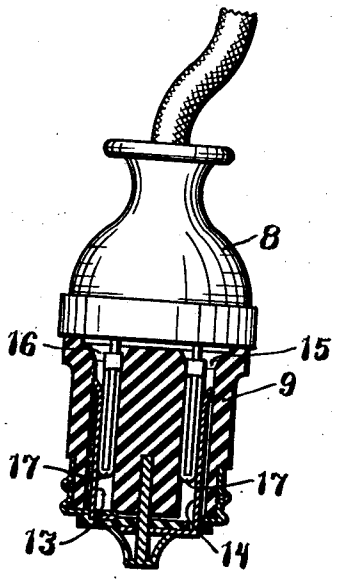


FIG 5

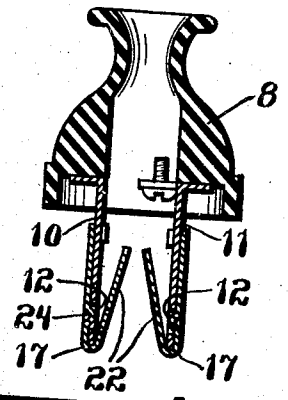


FIG 6

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CONTACT ATTACHMENT FOR ELECTRICAL CONNECTIONS

Alfred J. Anderson, Akron, Ohio

Application December 24, 1935, Serial No. 56,001

8 Claims. (Cl. 173—361)

This invention relates to plug-in connections for electrical circuits and has particular relation to a contact attachment interposable between the co-operating contact members of such plug-in connections.

This application is a continuation in part of an application filed by this applicant, February 26, 1935, Serial Number 8,394.

It is well known that it is difficult to secure a perfect contact between the co-operating contact members of a plug-in connection. In some connections a fairly good contact is provided while the connection is comparatively new, but even in plugs of the most improved construction the contacting members soon become loosened, bent or worn to an extent which will cause a loose or arcing contact which is very objectionable to radio reception and which is very inefficient and unreliable.

Objects of the invention are to provide simple, inexpensive means which can be quickly and conveniently interposed between the contacting members of a plug-in connection to provide a perfect contact therebetween.

A further object is to provide a member of the character above indicated which will frictionally engage the cooperating parts to more firmly hold the same in operative relation against unintentional detachment.

An additional object is to provide a contact spring of the character above indicated having means for detachably securing it in an operative position on a prong of a plug connection whereby the same will be retained on a prong and will not become dislodged when the operating parts are separated.

The above objects are accomplished and additional ends are attained by the novel construction, combination and arrangement of parts hereinafter described with reference to the accompanying drawing in which there is shown an illustrative embodiment of the invention, it being understood that changes and modifications may be made or resort had to substitutions which come within the spirit of the invention as set forth in the claims hereunto appended.

In the drawing:

Figure 1 is a side elevational view of a contact spring constructed in accordance with this invention,

Figure 2 is an elevational view of the outwardly presented side of same,

Figure 3 is a similar, elevational view showing the inner side of same,

Figure 4 is an elevational view of one of the members of a plug-in connection having contact springs constructed in accordance with this invention operatively positioned thereon.

Figure 5 is a similar view of a plug-in connection showing the same operatively positioned in the socket member of the connection and illustrating my improved contact spring operatively interposed therebetween, the socket member being shown to central longitudinal section.

Figure 6 is a view in central, longitudinal section of the plug-in member shown in Figure 4, the same being shown with contact springs of slightly modified form operatively positioned thereon.

Proceeding now to a detailed description of the invention with reference to the particular adaptation thereof disclosed in the drawing, the numeral 8 denotes the plug member of an electrical connection and the numeral 9 denotes the socket member of such connection. The parts 8 and 9 as shown in the drawing are of ordinary construction, it being understood that the invention is applicable to any form of connection to which it may be advantageously applied.

The plug portion 8 of the connection is provided with the usual prongs 10 and 11 and each prong is provided with the usual opening or indentation 12 which is formed therein adjacent the free end thereof. The socket member 9 is provided with the usual contact members 13 and 14 which are operatively positioned within the sockets 15 and 16 which are formed therein to receive the prongs 10 and 11. A contacting member 17 constructed in accordance with this invention is composed of a relatively thin strip of electrically conductive material preferably phosphor bronze. The strip is provided at the base end thereof with laterally projecting tabs 18 and 19 which are bent forwardly then inwardly with the free ends thereof positioned in the same plane to provide means for securing the strip 17 to one of the prongs 10 or 11. The strip 17 is bent upon itself to form an open sided loop with the portion 21 of the loop disposed at a slight angle to the base portion 20 and with the free end 22 of the strip terminating in close, spaced relation to the portion 21. The portions 21 and 22 are of approximately the same length, the base portion 20 extending beyond these portions whereby the portion 22 may be forced inwardly against the portion 21 without contacting with the tabs 18 or 19.

The portion 21 is provided on the inwardly presented side thereof with a protuberance 23 which is preferably formed therein by making the indentation 24 on the outwardly presented side thereof but which may be formed thereon in any suitable manner. The portion 22 is provided directly opposite the protuberance 23 with an opening 25 the purpose of which will be hereinafter described.

In the particular adaptation of the invention illustrated in Figure 6, each contact spring 17 is shown with the opening 25 omitted from the free end portion 22. The opening 25 is necessary

only when the protuberance projects through the usual opening 12 in the prongs 11 and 12 to an extent which will interfere with the spring action of the end portion 22.

In use, the contact spring 17 is positioned on one of the prongs 10 or 11 by entering the free end of the prong between the tabs 18 and 19 and the base portion 20, and the spring 17 is forced downwardly on the prong. As the base portion 20 is positioned at an angle to the portion 21 the free end of the prong 10 or 11 will first contact with the portion 22 of the loop from which position it may be forced on the prong with the prong received in the extreme end of the loop as disclosed in the drawing. In this position the protuberance 23 is seated in the opening 12 to retain the contact member 17 in position on the prong. While the contact spring 17 is positioned on one of the prongs 10 and 11 as shown in the drawing the portion 22 will be forced by the wall of one of the sockets 15 or 16 against the inner side of the prong 10 or 11 on which it is thus secured. This distortion of the portion 22 causes a slight outward bulge in the portion 21, thus forming a spring pressure contact between the co-operating members of the plug-in connection.

If desired the contacting member herein disclosed may be oppositely positioned on the prongs 10 and 11 with the portions 22 presented outwardly in which case the opening 25 will serve the ordinary function of the indentation 24 or the openings 12.

While I have illustrated and described a contact spring 17 provided with tabs 18 and 19, the protuberances 23 and the opening 25, it will be understood that any equivalent means may be employed and that one or more of the features may be omitted and the open sided loop used without these features to considerable advantage.

It will also be understood that while I have shown a contact spring 17 applied to the prongs 10 or 11 of the member 8 that the open sided loop 17 may be inserted in one of the sockets 15 or 16 of the member 9.

It will be seen that I have provided a contacting member of simple, inexpensive construction which may be quickly and conveniently placed in an operative position on a prong and which will be held thereon by the tabs 18 or 19 and by the protuberance 24 against unintentional displacement.

Having thus illustrated my invention and described the same in detail, what I claim as new and desire to secure by Letters Patent is:

1. A spring contact attachment interposable between a prong and the co-operating contacting member of a plug-in connecting for an electrical circuit, comprising a flat strip bent upon itself to form an open sided loop for receiving said prong when positioned longitudinally thereon and a protuberance on said strip, said protuberance positioned to be entered in the usual aperture in the extremity of said prong to detachably hold the same in an operative position thereon.

2. A spring contact attachment interposable between a prong and the co-operating contacting member of a plug-in connection for an electrical circuit; comprising a flat strip bent upon itself to form an open sided loop for receiving said prong when positioned longitudinally thereon; tabs projecting laterally from one end of said strip, said tabs foldable around the prong to detachably hold the attachment in an operative position thereon.

3. A spring contact attachment interposable between a prong and co-operating contacting member of a plug-in connection for an electrical circuit, comprising a flat strip of metal bent upon itself to form a flat, open-sided loop for receiving a prong; means on one end of said strip for engaging the base portion of said prong and means on said strip for engaging the prong adjacent the end thereof; both of said means co-operating to detachably secure said attachment in a longitudinal position on said prong substantially as and for the purpose herein set forth.

4. In an attachment of the character decribed, a flat strip of electrically conductive material having a base portion, a body portion disposed at a slight angle to said base portion, a free end portion bent forwardly at an acute angle to said body portion; tabs projecting forwardly, then inwardly from each lateral side of said base portion to form prong embracing means, said body portion being indented to form a forwardly projecting protuberance adapted to enter in the usual aperture in the extremity of a prong.

5. A spring contact attachment for a prong of a plug-in connection comprising a strip of metal approximately equal in width to the prong, one end portion of said strip forming a body having means at one end whereby it may be engaged with the prong; the opposite end of the strip being bent upon itself to provide a returned end for embracing the extremity of the prong, this returned end being resilient and free from attachment to the body of the strip, said strip having an indentation on one side thereof forming a protuberance on the other side thereof for entering the usual aperture in the extremity of the prong.

6. A spring contact attachment for a prong of a plug-in connection comprising a strip of metal approximately equal in width to the prong and having means at one end whereby it may be engaged with the prong; the opposite end of the strip being bent upon itself to embrace the extremity of the prong; this returned end being resilient and free from attachment to the body of the strip; the body of the strip having a protuberance adapted to enter the usual aperture in the extremity of the prong, the free end of the strip provided with an opening which coincides with said protuberance.

7. A spring contact attachment interposable between a prong and a co-operating contacting member of a plug-in connection for an electric circuit; said attachment comprising a strip of substantially the same width as the prong, bent upon itself to form an open sided loop adapted to receive the prong and means on one end of said strip for holding the loop in a longitudinal position on said prong.

8. A spring contact attachment interposable between a prong and a co-operating, contacting member of a plug-in connection for an electric circuit; said attachment comprising a strip of substantially the same width as the prong; said strip bent upon itself to form an open sided, flat loop adapted to receive the prong; and means for detachably securing said strip in a longitudinal position on said prong.

ALFRED J. ANDERSON.