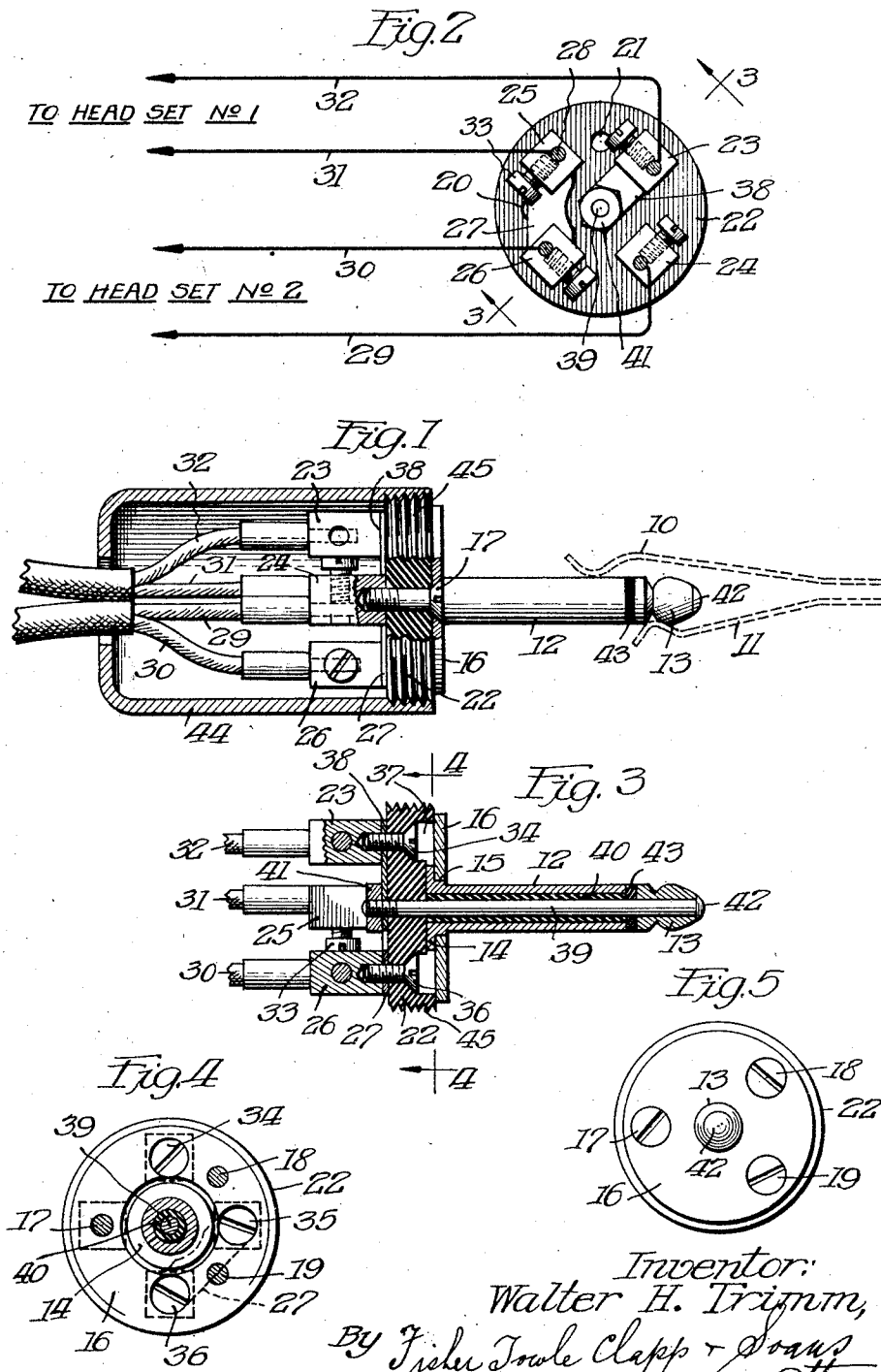


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ELECTRIC PLUG CONNECTER

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ELECTRIC PLUG CONNECTER.

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My invention relates to improvements in electric plug connector, and, although capable of many uses, is particularly well fitted for use in connection with portable electric current-responsive devices of the two-wire or two-conductor type, for instance telephone receivers or head sets.

So far as I am aware, prior to my invention, in serially connecting a pair of head sets as used in radio communication, it had been the custom to use an ordinary two-conductor plug to which two terminals of different head sets were connected, the other two terminals of the head sets being coupled or connected together by some sort of a separate connector. In many cases, such separate connector, or essential parts of same, such as screws, became lost, in addition to which the loose exposed connector was unsightly and in other ways troublesome.

The principle object of my invention is to provide in connection with a jack of a two-wire supply circuit and a pair of two-wire electric current-responsive devices, a single unitary plug insertable in the jack, to which plug the four conductors of the devices are connected in such a way as to place the devices in series with each other rather than in multiple.

Other objects and advantages of the invention are pointed out in the description and in the appended claims.

In the drawings, which illustrate a specific application of my invention as used in connection with radio head sets,

Fig. 1 is a side elevation of the plug, certain parts being shown in section for greater clearness.

Fig. 2 is an elevation of the back of the plug, the cover having been removed and showing diagrammatically the connections to the head sets.

Fig. 3 is an axial section taken on the line 3—3 of Fig. 2.

Fig. 4 is a section taken on the line 4—4 of Fig. 3, and

Fig. 5 is an end elevation of the tip end of the plug.

Referring to the drawings, 10 and 11 represent somewhat diagrammatically the jack springs which are connected to the supply circuit, and which are adapted to make resilient contact respectively with the sleeve 12 and tip 13 of the plug. As shown best in Fig. 3, the sleeve 12 is made with a circular flange 14 at its rear end, there also being a

slight enlargement 15 adjacent the flange which enlargement is pressed into a brass disc 16 forced up against flange 14. Preferably the circular seat or enlargement 15 is staked to the disc 16 to prevent the latter from turning on the sleeve 12.

As shown in Figs. 4 and 5, there are inserted through countersunk apertures in the brass disc 16, a set of three flat head screws 17, 18 and 19. The screws 18 and 19 fit holes 20 and 21 tapped into a relatively thick base 22 of insulating material, such as hard rubber, thereby uniting said parts and disc 19 permanently and rigidly to the insulating base plate or disc 22. It will be observed by reference to Figs 3 and 4, that at its center, the side of the insulating disc 22 which goes up against the rear face of brass disc 16, is recessed in order to admit the circular flange portion 14 of sleeve 12.

On the back of the insulating base 22 there are carried a set of three terminal or connector members, two of which comprise short posts 23 and 24 of square brass rod, while the other connector member comprises two similar posts 25 and 26 united together by a connector link 27. As shown best in Fig. 2, each of said posts 23, 24, 25 and 26, is drilled out longitudinally to form an opening as at 28 for receiving the tip of one of the conductors 29, 30, 31 and 32, the tip in each case being rigidly held in said aperture by means of a set screw as at 33.

In order to secure the several posts 23, 24, 25 and 26, to the base 22, the posts at their ends which are adjacent to the base 22, are drilled longitudinally and tapped to receive flat head screws. As shown in Fig. 1, the flat head screw 17, previously referred to, besides holding in place the terminal post 24, serves also to connect the latter with the sleeve disc 16. The remaining three flat head screws 34, 35, 36, are seated in counter-bored recesses as shown at 37 in Fig. 3 and hence serve merely to hold the posts 23, 25 and 26 in position on the rear face of base 22. It will be observed that link 27, which comprises a thin plate of suitable metallic conducting material, for instance thin brass or German silver, is interposed between the posts 25 and 26, and the rear face of base 22, being also apertured to admit the screws 35 and 36, so that when said screws 35 and 36 are tightened, a satisfactory connection will be established between link 27 and posts 25 and 26.

Similarly, the tip connector link or plate 38 is apertured to admit screw 34 and is interposed between the post 23 and the rear face of base plate 22, so that when screw 34 is tightened, plate 38 will be electrically connected with post 23. The plate 38 is connected to the tip 13 of the plug, see Fig. 3, by means of a rod 39, extending through the sleeve 12 and insulated therefrom by a tube 40 of hard rubber or other suitable insulating material. The rear end of said rod 39 is threaded to receive a lock nut 41 engaging the outer face of connector plate 38 while the inner end of said connector rod 39 extends through a hole drilled through the tip 13 and is riveted over, as shown at 42, to hold the tip 13 on the end of said rod. In order to prevent current from passing between the end of the sleeve 12 and the rear end of the tip 13, a small insulating washer 43 is interposed therebetween.

By reference to Fig. 2, it will be observed that the single terminals of the different head sets are connected respectively to the tip and sleeve posts 23 and 24, while the other terminals 30 and 31 of the head sets are connected to the insulated posts 25 and 26, which are themselves connected to and by a plate 27. Hence, when the plug 12 is inserted in the jack, the head sets will be connected in series without the necessity of providing any external means for connecting together any of the terminals of the head set cords. In order to protect and conceal the terminal posts and connections of the plug, I prefer to apply a removable enclosure or cap member 44 large enough to enclose the same, and, in the present instance, removably secured on the disc 22 by threading the latter as indicated at 45, to fit corresponding threads on the interior of the end of the cap shaped closure 44.

The described details of construction and arrangement are merely illustrative of a preferred application of my invention, the scope of which should be determined by reference to the appended claims, said claims being construed as broadly as possible, consistent with the state of the art.

I claim as my invention:

1. A telephone type plug for serially feeding a pair of portable two-wire electric current-responsive devices comprising a disc of insulating material, a sleeve provided with a flange secured to one side of said disc, three connecting members carried by the other side

of said disc, one of said members being connected to said sleeve, a tip extending beyond the projecting end of said sleeve and insulated, therefrom, a rod, also insulated from said sleeve extending therethrough and connecting the tip with one of the other terminals, the remaining terminal being insulated from said tip and sleeve and serving solely as means for connecting together terminals of the different devices, the other terminals of the devices being respectively connected to the tip and sleeve members.

2. A telephone type plug for serially feeding a pair of portable two-wire electric-current-responsive devices comprising a disc of insulating material, a sleeve provided with a flange secured to one side of said disc, three connecting members carried by the other side of said disc, one of said members being connected to said sleeve, a tip extending beyond the projecting end of said sleeve and insulated therefrom, a rod, also insulated for said sleeve extending therethrough and connecting the tip with one of the other terminals, the remaining terminal being insulated from said tip and sleeve and serving solely as means for connecting together terminals of the different devices, the other terminals of the devices being respectively connected to the tip and sleeve members, and a cap on the side of the disc remote from the tip forming with said disc means for covering and concealing the said three terminals.

3. In a telephone type plug of the class described, the combination of an insulating material base member, a contact sleeve extending laterally from said base and having a laterally extending flange engaging said base, a washer on said sleeve against said flange and fastened to said base at a point spaced from said sleeve, a terminal secured to the opposite side of said base and electrically connected to said washer and by said washer to said sleeve, a tip on the end of said sleeve, insulated therefrom and having a conductor member extending through said sleeve; a second terminal secured to said opposite side of said base and electrically connected to said conductor member, a third terminal on said opposite side, insulated from the other terminals and provided with means for connecting together a pair of conductors, and a cover removably mounted on said base for concealing said terminals.

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