

June 18, 1935.

E. J. POOL

2,005,682

SEPARABLE ELECTRICAL CONTACT DEVICE

Filed Dec. 13, 1932

Fig.1.

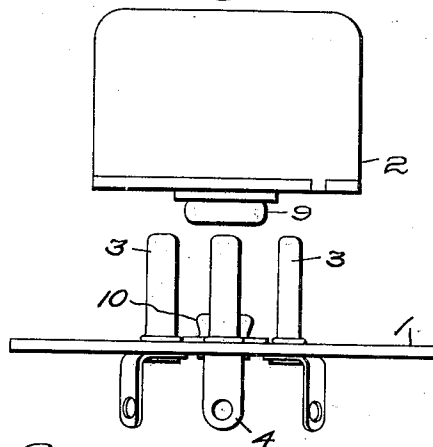


Fig. 2.

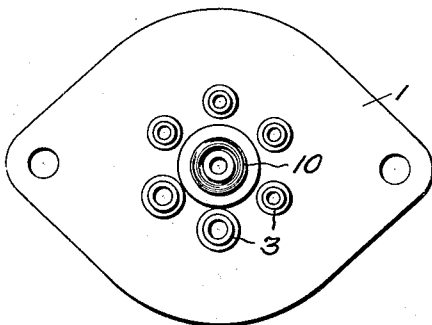


Fig. 3.

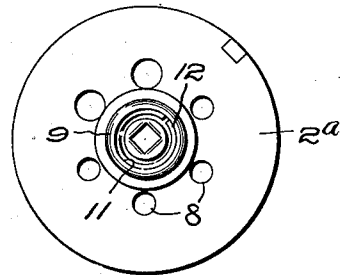
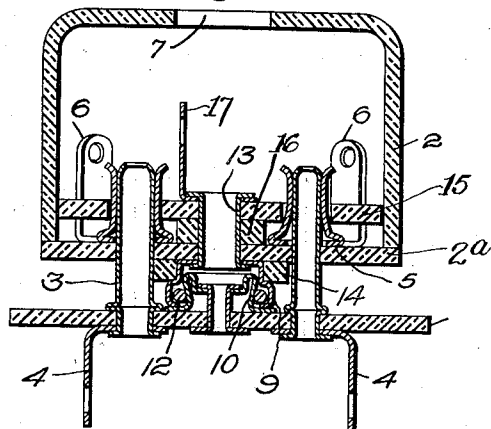


Fig. 4.



The Editor:
 Essex T. Pool,
 21, Emory, Booth, V. my & Townsend
 Apts

UNITED STATES PATENT OFFICE

2,005,682

SEPARABLE ELECTRICAL CONTACT DEVICE

Esson J. Pool, Chicago, Ill., assignor to Cinch Manufacturing Corporation, Chicago, Ill., a corporation of Illinois

Application December 13, 1932, Serial No. 646,991

4 Claims. (Cl. 173-332)

My invention aims to provide improvements in separable electrical contact devices.

In the drawing which illustrates a preferred embodiment of my invention:—

5 Figure 1 is a side elevation of the two parts of the device before the parts are engaged;

Fig. 2 is a plan view of the part carrying the male contact members;

10 Fig. 3 is a plan view of the part showing the female contact members; and

Fig. 4 is a section through the entire device showing complete attachment of the parts.

My invention, as illustrated by the drawing, relates particularly to the use of snap fastening means to assist in holding the parts of a separable electrical contact device against separation when the male and female contact members are in electrical contact with each other. The particular device illustrated is what is known as a cable plug for radio or like apparatus including a part 1 adapted to be rigidly secured to radio or like apparatus and a part 2 secured to one end of a multiple cable (not shown) and adapted to be connected to the part 1.

25 The member 1 is provided with a series of smooth, tubular male projections 3 arranged in the circle (Fig. 2) about the center of the part 1. Wiring terminals 4 (Figs. 1 and 4) are connected to the male contact members 3 and are adapted to be wired to various circuits of a radio apparatus or other electrical device.

30 The part 2 is made up in the form of a housing in which is enclosed a series of yieldable contact-receiving members 5 having wiring terminals 6 connected therewith for receiving the ends of the wire forming a cable which is adapted to be entered through the aperture 7 in the part 2. These female contact members 5 are arranged in a circle about the center of the part 2^a in alignment with apertures 8 (Fig. 3) through which the male members 3 are adapted to pass to engage the female members 5.

45 The cable plug structure thus far described forms a separable electrical contact device which has heretofore been used to a large extent commercially. I have found, however, that such a structure has a tendency to come apart particularly when normal stresses are exerted upon the members 1 and 2 in opposite directions. Since the male and female members, aside from forming electrical connections between the wiring terminals 4 and 6, provide the only means for holding the members together they can be disengaged accidentally during the normal use of the device because they are engaged merely by friction. In

order to overcome the objection to the device thus far described, I have used in combination therewith a separable snap fastening means comprising a socket member 9 and a stud member 10.

The separable snap fastening means may be of any suitable construction. The particular means illustrated comprises a socket member 9 having a stud-receiving aperture 11 intersected by a ring-like spring 12. The socket 9 is secured to the part 2 by means of a rivet 13, as best illustrated in Fig. 4. The socket is so constructed that it engages and holds in place the usual finder ring 14 which acts as a guide for registering the male members 3 with the apertures 8 in the part 2^a.

15 The preferred embodiment of my invention, as is apparent from Fig. 4, is most simple and effective in construction. The female contact members 5 are retained in place in alignment with the apertures 8 of the housing plate 2^a by a retaining plate 15, which in the form shown is spaced from the housing plate 2^a by a spacer 16, enabling limited movement of the female members 5 in receiving the male members 3, and the entire structure may be held assembled by the single rivet 13, which secures the snap fastener member 9 and thereby the finder-ring 14, and which also, in the form shown, secures at its opposite end the lug member 17, which may be employed for the securement of a strain-relieving cord or other useful purpose.

My improved device is simple, durable and particularly desirable because the snap fastening members are located centrally of the parts 1 and 2^a within the circles of the male members 3 and female members 5. The separable snap fastening means effectively holds the male members 3 in electrically contacting engagement with the female members 5 so that when the separable plug is in use it cannot be separated by any ordinary stresses which might separate the members 1 and 2 without the use of my improved construction.

45 While I have illustrated and described a preferred embodiment of my invention, I do not wish to be limited thereby, because the scope of my invention is best defined by the following claims.

I claim:

1. In a separable electrical connector, in combination, a part having a plurality of male contact members substantially circularly arranged thereon, said part having a snap fastener member secured thereon within the circle of male contact members; and a second part comprising a pair of insulating discs apertured for passage of

said male contact members therethrough, a plurality of female contact members secured between said discs in alignment with said apertures to receive said male contact members, said second part having on its forward side a snap fastener member located to engage said first-named snap fastener member and having on its opposite side a lug member, and having fastening means securing in assembled relation said snap fastener, said insulating plates with the contacts secured therebetween and said lug, said snap fastening means connecting said parts between the points of support of said male contact members and the points of contact of the latter with said female contact members.

2. In a separable electrical connector, in combination, a part having a plurality of male contact members substantially circularly arranged thereon, said part having a snap fastener member secured thereon within the circle of male contact members; and a second part comprising a pair of insulating discs apertured for passage of said male contact members therethrough, a plurality of female contact members secured between said discs in alignment with said apertures to receive said male contact members, said second part having on its forward side a snap fastener member located to engage said first-named snap fastener member and having on its opposite side a lug member, and having a singular tubular rivet securing in assembled relation said snap fastener, said insulating plates with the contacts secured therebetween and said lug.

3. The combination defined in claim 2, said second part further having an insulating guide disc located to contact the inner walls of the male

contact members and guide them in engagement of the parts, said guide disc being larger in diameter than the snap fastener member carried by its part and being held in place by said snap fastening member and said rivet.

4. A separable electrical connector comprising, in combination, a part having a plurality of male contact members substantially circularly arranged thereon, a second part having a plurality of female contact members positioned to pair with said male members and constructed to frictionally receive said male contact members, respectively, one of said parts having terminal means for its respective contacts for connection of extension conductors thereto, and means comprising a snap fastening socket means carried by one part inside its circle of contact members and a cooperating stud means carried by the other part inside the circle of contact members carried thereby, acting to restrain said parts against accidental separation, said stud and socket means constituting the only means other than said contacts, restraining the parts against relative lateral movement apt to cause bending of said contacts, means securing said snap fastener means to their respective parts, and said part carrying the female contact members having an insulating guide disc located to contact the inner walls of the male contact members and guide them in engagement of the parts, said guide disc being larger in diameter than the snap fastener means carried by said part and being held in place by said snap fastening means, and the means securing the latter to said part.

ESSON J. POOL.