

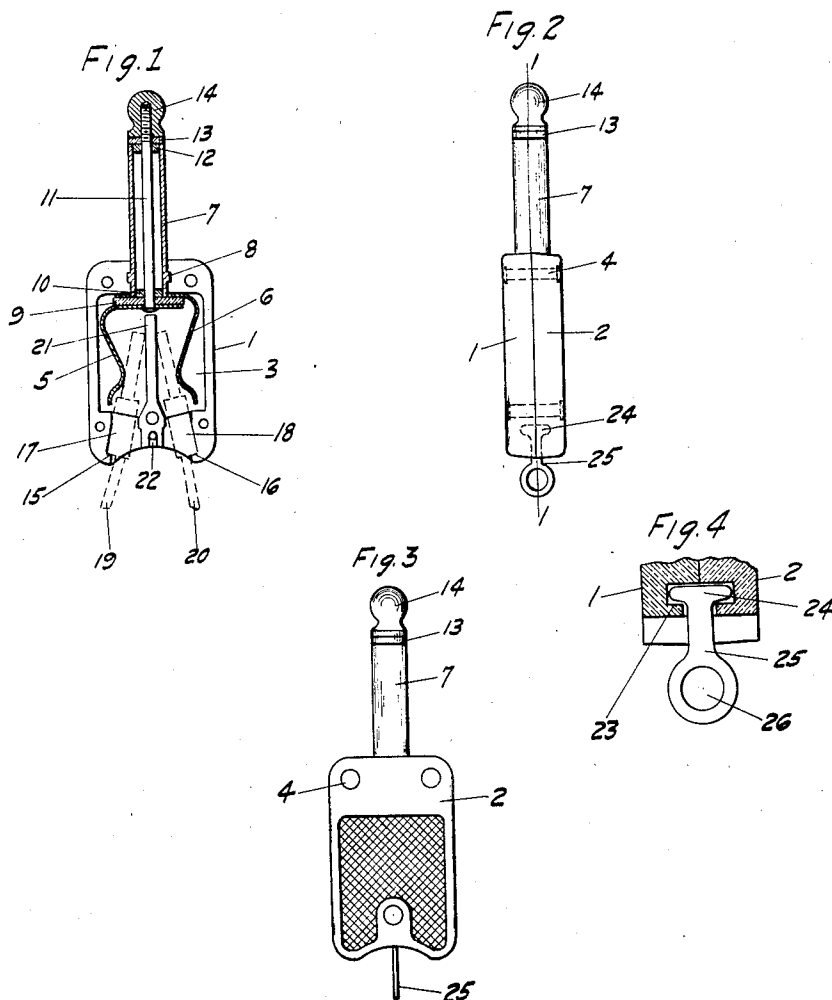
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CONNECTION PLUG

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CONNECTION PLUG.

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This invention relates to a connection plug and as illustrated in the annexed drawing is particularly adapted for use in connection with a telephone receiver, one application for its use being for making a connection between a telephone receiver and a spring jack used in a radio system, although it will be understood that the plug is adapted for other purposes.

It is the object of my invention to provide a plug to which the receiver or electrical circuit terminals can be quickly attached, and after the terminals are in place, they are prevented from being accidentally withdrawn by strains or jerks on the conductors connected to the terminals.

Another object of my invention is to provide a plug which will make good contact with the receiver or conductor terminals, all of these cooperating parts being completely protected in a chamber of the plug.

It is another object of my invention to provide a plug which contains the previously mentioned features and in addition one that is easy to manufacture and a plug that is strong and durable.

Other objects will be further apparent after a study of the specification and drawing annexed hereto in which:

Figure 1 is a sectional view on the line 1/1 of Fig. 2 with the conductor strain clip removed.

Figure 2 is a side view of the assembled plug, while

Figure 3 is a plan view; and

Figure 4 is an enlarged view showing the manner of attaching the conductor strain clip to the plug.

In the drawing, 1 and 2 are duplicate parts, preferably of a moulded insulating material, depressions 3 being moulded in each piece and the two pieces fastened together in any suitable manner as by rivets 4, three being shown for this purpose. The two depressions 3 in each part 1 and 2 form a chamber within which the springs 5 and 6 are mounted, the spring 6 being fastened to the end of the cylindrical member 7 by spinning the end of the member 7 over and soldering the spring 6 thereto. The member 7 has an annular flange 8 fitting in an annular space that communicates with a semicircular opening for the member 7 that is moulded in each of the parts 1 and 2, so

that it will be seen that the annular flange 7 assists in locking the cylindrical member 7, which constitutes one of the conductors of the plug, securely to the handle. The spring 5 is insulated from the spring 6 by an insulator 9 having preferably an integral collar 10 which extends into the end of the cylindrical member 7. Spring 5 has a conductor pin 11 riveted and soldered thereto and extends through the tubular member 7, being insulated at the outer end by the insulators 12 and 13 and a tip ball shaped member 14 is screwed onto the threaded end of the member 11, drawing the parts securely into position. The handle is provided with orifices leading into the chamber at the opposite end from the plug portion and each of these orifices is formed with shoulders 15 and 16. The orifices are of a size to easily permit the passage therethrough of the terminals 17 and 18 that are connected to the insulated conductors 19 and 20. As the ends of the terminals, which are shown in dotted position Fig. 1, engage the spring members 5 and 6, they are caused to tilt toward each other thereby moving the ends of the terminals over the shoulders 15 and 16, forming a locking means which prevents strains and jerks on the conductors 19 and 20 from accidentally withdrawing the terminals from contact with the springs 5 and 6. These springs are formed so as to give considerable area of contact with the terminals.

In order to prevent the terminals from touching each other as they are tilted by the springs, a partition 21 of insulating material is preferably moulded in each of the members 1 and 2. A hole for a rivet 4 being also provided at the junction of the partition with the end of the material of the handle members 1 and 2. A recess 22 is moulded at the base of the partition and this recess is provided with shoulders 23, and in this shouldered recess the anchor end 24 of a strain clip 25 is placed before the parts 1 and 2 are fastened together. Clip 25 has a hole 26 which is used for attaching the strain cord that carries the conductors 19 and 20.

It is seen that there are no screws or tapped holes required in the construction of this plug except that in the ball or tip and that all that is necessary to make connection is to slip the terminals 19 and 20 into the orifices provided and they are automatically

moved to locking position. If it is desired to disconnect the terminals from the plug, the conductors 19 and 20 are drawn toward each other, which causes the ends of the terminals to pass from off the shoulders, 15 and 16 and allowing the terminals to be withdrawn. In other words, to make connection with this plug no tools are required and the plug in operation does not have to be opened up to make any connections, thereby allowing the plug to be transferred to another set of conductors or another receiver very quickly.

While I have shown one form of carrying out these advantageous features, it will be readily perceived that the details of the construction may be varied without departing from the spirit of my invention and the scope of the appended claims.

Having thus described my invention what I claim is:

1. In a device of the class described, a handle composed of two parts fastened together forming a chamber, a pair of conductors, one insulated from the other, forming a plug passing through the handle into said chamber, springs within the chamber connected to each of said conductors, and adapted to engage circuit terminals entering the chamber at its opposite end, causing them to tilt, and means associated with the handle part for engaging the outer ends of said terminals when in said tilted position.

2. In a device of the class described, a handle composed of two parts of insulation material fastened together forming a chamber, a pair of conductors, one insulated from the other, forming a plug passing through one end of the handle into said chamber, said handle having in its opposite end openings for circuit terminal shoulders formed in the handle adjacent said openings, springs within the chamber connected to each of said conductors and adapted to extend into engagement with said circuit terminals so as to cause them to tilt and move a part thereof over said shoulders for the purpose described.

3. In a device of the class described, a handle composed of two similar parts of insulating material fastened together forming a chamber, a pair of conductors one insulated from the other forming a plug passing through one end of the handle into said chamber, a partition in said chamber, a spring connected to each of said plug conductors and extending toward the opposite end of the chamber, one on each side of the partition, said chamber having an opening in said opposite end on both sides of said partition, shoulders formed near one end of said openings, said openings adapted to receive terminals for engagement with said springs, said terminals being tilted by the springs whereby the ends of said terminals

engage said shoulders for the purpose described.

4. In a plug of the telephone type, comprising contact portions insulated from each other and adapted to be inserted in a spring jack, a hollow insulating handle for said contact portions and a pair of jack springs arranged on opposite sides and within the hollow part of the handle and adapted to engage pin cord tips, said springs being electrically connected to said contact portions and acting to move the inner ends of said cord tips toward each other and the outer ends of said tips away from each other, and means comprising the cord tips and portion of the wall of the handle for locking said tips in operative position.

5. A plug comprising; a hollow handle of insulating material, a tubular conductor passing into the hollow part of the handle and anchored to the wall thereof, a spring attached to said conductor, a second conductor lying within the first but insulated therefrom, a spring fastened to said second conductor, said handle having openings at its opposite end into the hollow part and adapted to receive circuit terminals for contacting with said springs, said springs causing said terminals to tilt, said handle having integral means adapted to hold them in locked position to cooperate with said terminals after they are tilted by said springs.

6. In a device of the class described, a hollow handle having a conductor plug fastened thereto, springs mounted on the conductors of said plug within the hollow handle, said handle adapted to have terminals enter therein and engage said springs, and means for preventing the terminals from being accidentally pulled from the handle, comprising shouldered portions against which said terminals are tilted by said springs, whereby the ends of the terminals engage said shoulders.

7. In a plug of the telephone type, comprising contact portions insulated from each other and adapted to be inserted in a spring jack, a hollow insulating handle for said contact portions and a pair of jack springs arranged on opposite sides and within the hollow part of the handle and adapted to engage pin cord tips, said springs being electrically connected to said contact portions and acting to tilt the cord tips, and means brought into action by the tilting of the cord tips for locking them in operative position.

8. In a device of the class described, a hollow handle made up of two similar moulded parts fastened together, a conductor plug fastened thereto, springs mounted on the conductors of said plug within the hollow handle, said handle adapted to have terminals enter therein and engage said springs and means for preventing the terminals from being accidentally pulled from the handle com-

prising shouldered portions against which said terminals are tilted by said springs whereby the ends of the terminals engage said shoulders, and insulating means constituting a partition for preventing said terminals from touching when in tilted position. 70

9. In a device of the class described, a handle composed of two similar parts of insulating material adapted to be fastened together forming a chamber, said two parts forming at one end a circular opening leading from said chamber and an annular space communicating with said opening, a cylindrical plug member positioned in said opening and having a flange fitting in said annular space, a spring fastened to said plug member and positioned within the chamber, a pin supported within the cylindrical member but insulated therefrom and having a spring attached to the end within the chamber and also having a conductor tip on its outer end for securing the pin and springs in operative position, said handle having orifices in the end opposite to the plug members, said openings being so formed as to have shoulders for engaging conductor terminals when they are passed through said orifices into engagement with said springs as and for the purpose described, and an insulating partition in the chamber to prevent said terminals from touching.

10. In a device of the class described, a hollow handle having plug conductors extending therefrom, said handle having shouldered orifices at the end of the handle opposite to said plug conductors, means for making locking contact with said conductors comprising springs attached thereto within the hollow handle and terminals adapted to pass through said orifices in said handle into contact with said springs, said springs acting to oscillate the terminals whereby the ends thereof move over the shoulders in said orifices, said locking contact being such that the lock may be released by applying force substantially at right angles to said terminals.

11. In a plug of the telephone type, comprising a contact portion adapted to be inserted in a spring jack, an insulating handle for said contact portion and a spring within the handle to releasably engage a pin-type cord tip, locking means including a part of the handle wall, said spring being electrically connected to said contact portion and acting to move said cord tip into locking engagement with said locking means.

12. In a plug of the telephone type, comprising contact portions insulated from each other and adapted to be inserted in a spring jack, a hollow insulating handle for said contact portions and a pair of jack springs arranged on opposite sides and within the hollow part of the handle and adapted to engage pin cord tips, locking means in the

handle, said springs being electrically connected to said contact portions and acting to move the inner ends of said cord tips toward each other and the outer ends of said tips into locking engagement with said locking means. 70

13. A telephone plug comprising a handle portion into which a pair of cord tips are adapted to be introduced, a pair of cord-tip-engaging lugs over which the cord tips are adapted to pass in entering said handle portion, and a pair of springs adapted to yieldably and slidably engage said cord tips as they move over said lugs and to thereafter urge the cord tips into position in front of said lugs to be locked thereby against withdrawal. 75

14. A telephone plug comprising a tip contact a sleeve contact, a contact spring cooperating with each of said contacts and extending in the same general direction as said tip and sleeve contacts but offset therefrom, and a handle portion adapted to house said spring contacts in cavities adapted to receive telephone cord tips in positions to be engaged by said contact springs, said cavities being provided with entrance openings having shoulders adapted to cooperate with the rear ends of said cord tips in the positions in which the latter are yieldingly held by said contact springs. 85

15. A telephone plug comprising a handle portion having recesses therein, each adapted to receive a telephone cord tip and each provided with a shoulder adapted to cooperate with the rear end of such a tip, a contact spring arranged within each of said recesses and adapted to engage a cord tip therein and yieldingly hold it against the wall of the recess with the rear end of the tip in engagement with said shoulder, and contact members electrically connected to said springs and projecting from said handle portion. 90

16. A telephone plug comprising a handle portion having recesses therein, each adapted to receive a telephone cord tip and each provided at the entrance to the recess with a shoulder adapted to cooperate with the rear end of such a cord tip, a contact spring arranged within each of the said recesses and adapted to engage a cord tip therein and yieldingly hold it against the wall of the recess with the rear end of said tip in engagement with the inside of said shoulder, and contact members electrically connected to said springs and projecting from said handle portion. 105

17. A telephone plug comprising a handle portion in two parts having complementary cavities therein forming recesses, each of said recesses being adapted to receive a telephone cord tip, and each of said handle portions being provided at the entrances to the recesses formed by them with a 120

shoulder adapted to cooperate with the rear end of such a cord tip, a contact spring arranged within each of said recesses and adapted to engage a cord tip therein and
8 yieldingly hold it against the wall of the recess with the rear end of the tip in engagement with the inside of said shoulder, and contact members electrically connected to said springs and projecting from said
10 handle portion.

18. An electrical connector comprising an insulating body having a recess for the reception of a cord tip, a stationary projection extending into the recess from one side thereof, to engage behind the rear end of the cord tip, and suitable provisions within the recess for making electrical contact with the tip and for yieldingly pressing the tip into locking engagement with the projection. 15

In testimony whereof, I affix my signature.

EDWARD B. NOWOSIELSKI.