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1,580,503

P. LAUTER

ELECTRICAL CONNECTING PLUG

Filed May 10, 1924

Fig. 1,

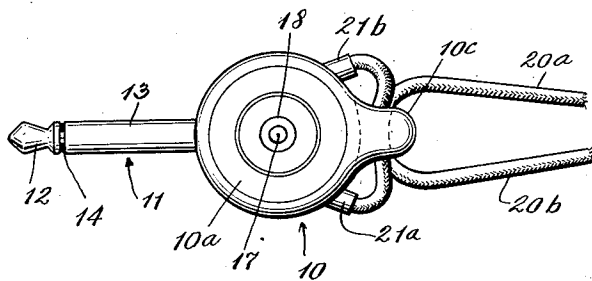


Fig. 2,

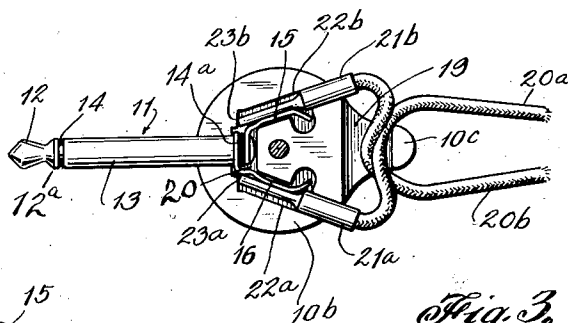
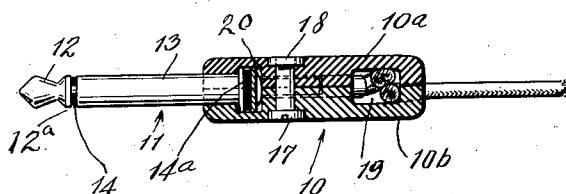


Fig. 3,

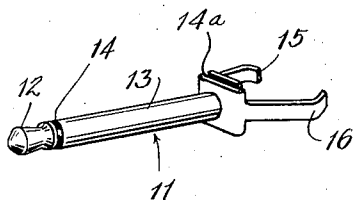


Fig. 4,

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By his Attorney
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UNITED STATES PATENT OFFICE.

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ELECTRICAL CONNECTING PLUG.

Application filed May 10, 1924. Serial No. 712,201.

To all whom it may concern:

Be it known that PHILIP LAUTER, citizen of the United States, residing at New York city, in the county of New York and State of New York, has invented certain new and useful Improvements in Electrical Connecting Plugs, of which the following is a specification.

This invention relates to electrical plug connectors.

An object of the invention is to provide a connector of the character described which shall form a terminal for telephone cords so as to co-operate with a telephone jack, and having practical and exceedingly simple and inexpensive means for positively preventing disconnection of the cord tips from the plug upon pulling the cord for disconnecting the plug.

A dominant feature of the invention resides in the construction of the plug body whereby simple means is provided for having the separate telephone cords to which the tips are secured enter the plug in crossed relation and at such an angle as to urge the tips into the plug upon an outward pull on the cords, the prevention of disconnection of the tips being thus accomplished without requiring special mechanism or additional mechanical parts.

Other objects of this invention will in part be obvious and in part hereinafter set forth.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown one of the various possible illustrative embodiments of this invention,

Fig. 1 is a view in front elevation showing the exterior of a plug embodying the invention;

Fig. 2 is a view in side elevation of the same, the body portion thereof being shown in section;

Fig. 3 is a view in front elevation of the plug with one-half of the plug body removed to show the interior structure; and

Fig. 4 is a perspective view of the stem of the plug.

Referring in detail to the drawing, the plug consists of a body portion 10 and a stem 11 projecting therefrom having a tip 12 and a sleeve 13 adapted to be inserted in a telephone jack in the well known manner. The tip 12 extends through and beyond the sleeve 13 as shown at 12^a and may be insulated therefrom by means of an insulating disc 14. A pair of outwardly diverging resilient contact members 15 and 16 extend from the inner end of stem 11 and are securely fastened respectively to the said extended end 12^a of tip 12 and sleeve 13 to make electrical connection therewith as shown in Figs. 3 and 4. The contact members may be insulated from each other as at 14^a.

The body 10 of the plug may preferably be formed of molded insulating material such as hard rubber or composition material and may consist of two indential halves 10^a and 10^b fitted together to form a chamber for holding therein the end of stem 11 and the resilient members 15 and 16.

Extending from the end of the body member opposite the stem is an ear 10^c having a longitudinal opening 19 for the purpose hereinafter described. A central groove 20 is formed in each of the inner faces of the halves 10^a and 10^b for receiving the end of stem 11, and symmetrically disposed with reference to the longitudinal axis of the stem is a pair of grooves 22^a and 22^b at an acute angle to said axis for receiving the pin cord tips 21^a and 21^b at the ends of the telephone cords 20^a and 20^b. The two faces of the body may be secured together in any suitable manner, as for example by a central screw 17, and an imbedded nut 18.

In connecting the telephone cords to the plug, cords 20^a and 20^b are drawn through the opening 19 in crossed relation and the respective cord pin tips inserted into the corresponding grooves 22^a and 22^b, thus making contact respectively with the resilient contact members 15 and 16. Stops 23^a and 23^b at the bottom of each groove 22^a and 22^b may be provided as limiting means for the ends of pin tips 21^a and 21^b, and to avoid possible short circuit of members 15 and 16

by tip 21^b. By reason of the angular relation of the grooves 22^a and 22^b to the axis of the stem 11, and by reason further of the crossed arrangement of the telephone
5 cords 20^a and 20^b in the recess 19, it will be clear that an outward pull on the cord will have a component urging the pins 21^a and 21^b against the walls of their corresponding
10 grooves 22^a and 22^b, thus preventing accidental disconnection of the cord tips without requiring any additional parts or construction for positive interlocking between the cord tips and the contact members.

It will thus be seen that there is provided a
15 device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be
20 made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted
25 as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a connecting plug a two part insulating body having a recessed extension portion on each part the recesses in said portions forming a through opening and adapted to receive cord conductors, the adjacent faces on each part having spaced grooves adapted
30 to receive a portion of a stem with contact members of a plug, and to form, when said parts are assembled, free passages and inlets, said passages and inlets adapted to have inserted therein cord tips for holding same
35 to the contact members, said passages being spaced on each side of the axis through the stem and extending convergingly inward from their inlet ends toward the axis for preventing accidental withdrawal of the
40 cord tips therefrom on pulling the cord when the cord tips are in their effective position with their respective conductor cords crossed through the recessed extension.

2. In a connecting plug, a two part insulating body having a recessed extension portion on each part the recesses in said portions forming a through opening and adapted to receive cord conductors, the adjacent faces on each part having spaced grooves adapted
50 to receive a portion of a stem with contact members of a plug and to form, when said parts are assembled, free passages and inlets, said passages and inlets adapted to have inserted therein cord tips for holding same
55 to the contact members, said passages being spaced on each side of the axis through the stem and extending convergingly inward from their inlet ends toward the axis for preventing accidental withdrawal of the
60 cords tips therefrom on pulling the cord

when the cord tips are in their effective position with their respective conductor cords crossed through the recessed extension, and stops at the ends of the passages opposite said inlets thereof adapted to serve as
70 limiting abutments for the cord tips and to avoid possible short circuit of the contact members.

3. In a connecting plug, a stem having resilient contact members formed at one end thereof, a body embracing a portion of the stem with the contact members, and having passages and inlets therefor adapted for the insertion of cord tips for connection to said contact members, said body having an opening formed on the side opposite to the stem, said opening extending transversely of an axis through the stem, said inlets to said passages being positioned one at each side of the opening with the axis through the stem passing midway therebetween and said passages extending convergingly inward from the inlet ends toward the axis adapted to receive the cord tips on cord conductors crossed and drawn through said opening to prevent accidental withdrawal of the cord tips on pulling on said conductors to disconnect the plug.
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4. In a connecting plug, a stem having resilient contact members formed at one end thereof, a body embracing a portion of the stem with the contact members, and having passages and inlets therefor adapted for the insertion of cord tips for connection to said contact members, said body having an opening formed on the side opposite to the stem, said opening extending transversely of an axis through the stem, said inlets to said passages being positioned one at each side of said opening with the axis through the stem passing midway therebetween, and said passages extending convergingly inward from the inlet ends toward the axis adapted to receive the cord tips on cord conductors crossed and drawn through the opening to prevent accidental withdrawal of the cord tips on pulling on said conductors to disconnect the plug, and stops formed at the ends of the passages opposite said inlets adapted to serve as limiting abutments for the cord tips and to avoid possible short circuit of the contact members.
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5. In a connecting plug, a two part insulating body having a recessed extension portion on each part, the recesses in said portions forming a through opening adapted to receive cord conductors, the adjacent faces on each part having spaced grooves adapted to receive a portion of a stem with contact members of the plug, and to form, when said parts are assembled, free passages and inlets, said passages and inlets adapted to have inserted therein cord tips for holding same to the contact members, said passages being spaced on each side of the axis through the
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stem and extending inwardly from their inlet ends toward the axis to co-operate with said recessed extension for preventing accidental withdrawal of the cord tips therefrom on pulling the cord when the cord tips are in their effective position with their respective conductor cords crossed through the recessed extension.

6. In a connecting plug, a two part insulating body having a recessed extension portion on each part, the recesses in said portions forming a through opening adapted to receive cord conductors, the adjacent faces on each part having spaced grooves adapted to receive a portion of a stem with contact members of a plug and to form, when said parts are assembled, free passages and inlets, said passages and inlets adapted to have inserted therein cord tips for holding same to the contact members, said passages being spaced on each side of the axis through the stem and extending inwardly from their inlet ends toward the axis to co-operate with said recessed extension for preventing accidental withdrawal of the cord tips therefrom on pulling the cord when the cord tips are in their effective position with their respective conductor cords crossed through the recessed extension, and stops at the ends of the passages opposite said inlets thereof adapted to serve as limiting abutments for the cord tips and to avoid possible short circuit of the contact members.

7. In a connecting plug, a stem having resilient contact members formed at one end thereof, a body embracing a portion of the stem with the contact members, and having passages and inlets therefor adapted for the insertion of cord tips for connection to said

contact members, said body having an opening formed on the side opposite to the stem, said opening extending transversely of an axis through the stem, said inlets to said passages being positioned one at each side of the opening with the axis through the stem passing midway therebetween, and said passages extending inwardly from the inlet ends toward the axis adapted to receive the cord tips on cord conductors crossed and drawn through said opening to prevent accidental withdrawal of the cord tips on pulling on said conductors to disconnect the plug.

8. In a connecting plug, a stem having resilient contact members formed at one end thereof, a body embracing a portion of the stem with the contact members, and having passages and inlets therefor adapted for the insertion of cord tips for connection to said contact members, said body having an opening formed on the side opposite to the stem, said opening extending transversely of an axis through the stem, said inlets to said passages being positioned one at each side of said opening with the axis through the stem passing midway therebetween, and said passages extending inwardly from the inlet ends toward the axis adapted to receive the cord tips on cord conductors crossed and drawn through the opening to prevent accidental withdrawal of the cord tips on pulling on said conductors to disconnect the plug, and stops formed at the ends of the passages opposite said inlets adapted to serve as limiting abutments for the cord tips and to avoid possible short circuit of the contact members.

In testimony whereof I affix my signature.

PHILIP LAUTER.