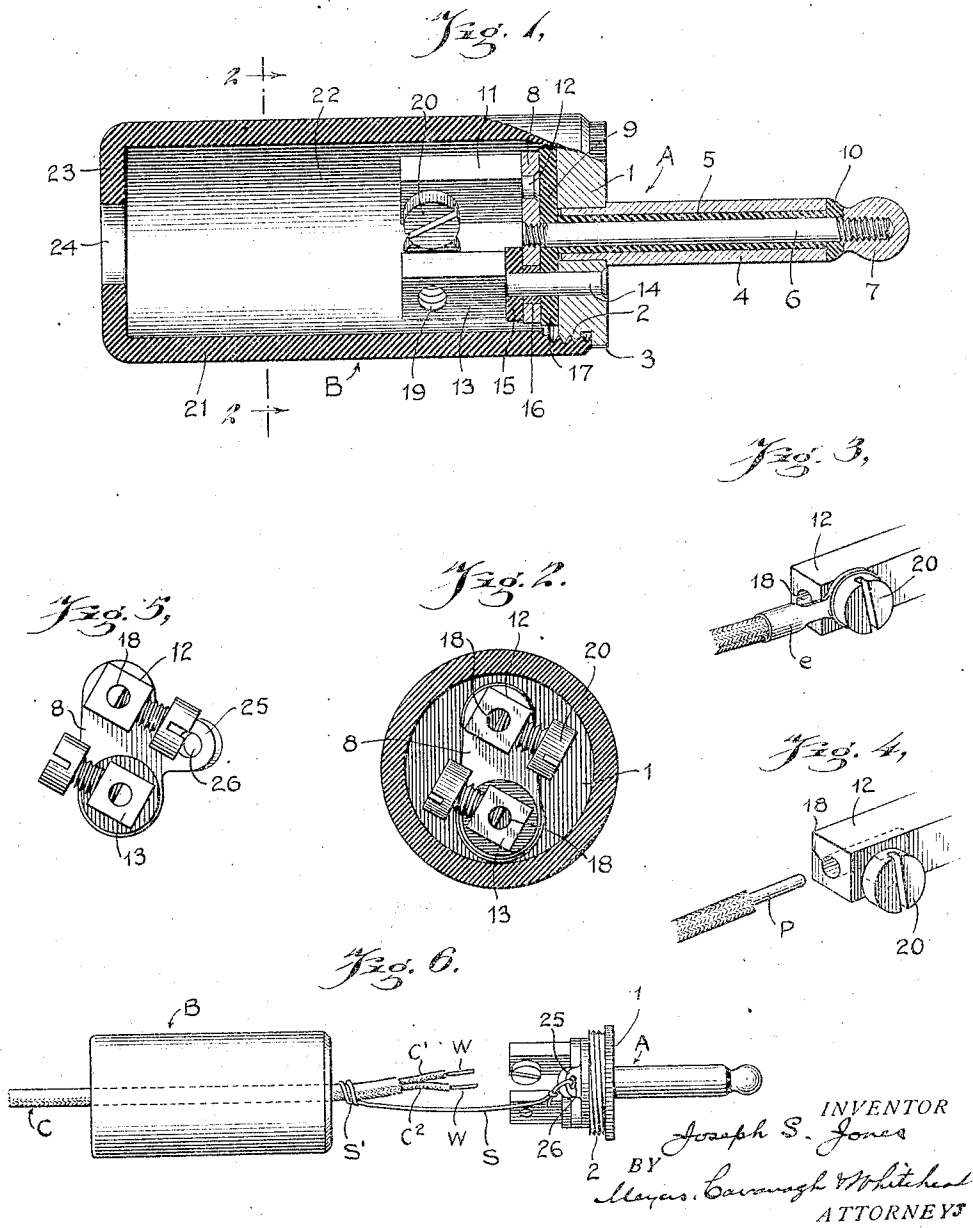


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J. S. JONES  
ELECTRICAL CONNECTER  
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# UNITED STATES PATENT OFFICE.

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## ELECTRIC CONNECTER.

Application filed October 8, 1922. Serial No. 593,272.

*To all whom it may concern:*

Be it known that I, JOSEPH S. JONES, a citizen of the United States, and resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electrical Connecters, of which the following is a specification.

My invention relates to electrical connectors of the class generally known as "plugs", and more particularly to plugs which are especially well adapted to use in telephone switchboard circuits, wireless telephone and telegraph apparatus and for various other purposes.

The general object of the invention is to provide a plug of strong, compact, simple and economical construction.

A more particular object is to arrange the parts so that bared circuit-wires may be easily connected to the plug terminals without the necessity for looping the wire ends, or "spade" or "pin" wire terminals may be just as readily connected without modification of the plug.

A further object is to improve the mechanical structure of such plugs in certain details as sufficiently explained hereafter.

The accompanying drawings show certain exemplifying structures embodying the invention. After considering these, persons skilled in the art will understand that modifications may be made without departing from the principles of the invention, and I do not limit myself to details except as claimed.

In the drawings:

Figure 1 is a longitudinal section of a plug embodying the invention in one form, about twice the usual size in order to show small parts clearly.

Figure 2 is a transverse section at 2-2, Fig. 1.

Figures 3 and 4 are detail views showing adaptability of the device to different styles of conductor-terminals.

Figure 5 is a detail view of a modification providing a cord anchor.

Figure 6 shows the general mode of manipulating the plug in attaching it to circuit wires.

The plug in a preferred form, as illustrated, consists of two principal portions; a composite part A, built upon a metal plate or base 1, and comprising the metallic conducting and contact members of the plug with their necessary insulating elements, and the wire-terminal sockets or connectors, and a housing, insulating and handle part B.

The base-plate 1 has a screw-thread 2 engaging an internal thread in one end of housing B, and a knurled flange 3 which engages the end of the housing wall and forms a grasping-element of substantial diameter for inserting and removing part A as a unit.

A contact sleeve 4 is inserted in a central aperture in the base 1 and secured in any suitable way, as by screwing or riveting. An insulating sleeve 5 is located in contact sleeve 4, and a metal conducting and connecting stem 6 passes through the insulating sleeve and at its outer end is screwed into a contact knob 7, and at its inner end is screwed into a metal terminal bushing 8, which is a flat piece of generally oblong form with rounded ends. An insulator 9, which may be substantially the same shape as the bushing 8, is placed between the bushing and the base 1, and an insulating washer 10 is located between the contact knob 7 and the ends of the sleeves 4 and 5. One terminal post 11 is secured to bushing 8, desirably in the present case by providing the post with a small stem 12 passing through a hole in the bushing and secured by upsetting the end. Another terminal post 13 has a longer stem 14 passing through a hole in base 1 and secured by upsetting. Post 13 is insulated by washers 15, 16 and 17. A hole 18 is bored axially in each of the terminal posts, and another hole 19 is bored transversely through each post intersecting the hole 18, and each hole 19 is screw-threaded at one side of the longitudinal hole to receive a terminal screw 20. The posts are set so that the axes of the screws are substantially parallel, as best shown in Fig. 2, and in this way the screws may be made of suitable size and length, and are easily accommodated in a casing B of moderate diameter.

The casing B desirably has a longitudinal

wall 21 of substantially cylindrical form, and is of such length that it provides a space or chamber 22 of ample length to receive a conveniently long portion of the conductor cable or of the separated conductors, and the posts 11 and 13, and the other main portions A of the plug are so compact in the lengthwise direction that a chamber 22 of ample size may be provided without making the casing of undue length, or in fact, any longer than is desirable for convenient handling. At the end remote from the terminal posts the casing has an end wall 23 with an aperture 24 of suitable size to accommodate the conductor cable.

In some cases the bushing 8 is provided, as best shown in Fig. 5, with a lateral enlargement 25 having a perforation 26 to serve as a conductor cord anchor.

In connecting the plug to a conductor cable the main portions of the plug are separated, as shown in Fig. 6, and the cable C is passed through aperture 24; the cable fabric or casing is cut away to expose the separate insulated conductors C<sup>1</sup>, C<sup>2</sup>, and the insulation of the individual conductors or wires *w* is removed, and the bare wire ends may then be inserted directly into the longitudinal post holes 18 without the necessity of looping the wire ends or providing them with any special form of terminal. The wire ends are then securely clamped by setting up the screws 20, and a very firm mechanical grip and electrical contact is obtained by the tendency of the screw ends to deform the wires and press them into outward portions of the transverse holes 19.

Otherwise, the individual wires may be provided with spade or eye terminals *e*, Fig. 3, which may be connected by inserting the screw shanks through the terminals and clamping them against sides of the posts, or the individual wires may have pin terminals *p* which may be inserted in the longitudinal holes 18 and clamped in an obvious way, as indicated in Fig. 4.

The cable may be provided with a cord *s* tied to the cable at *s'*, and this cord may be cut to a suitable length and inserted and tied in the anchor hole 26, as sufficiently shown in Fig. 6.

The casing or handle B is then slid down over the wire ends and screwed on to the base 1, whereupon the plug is ready for use.

By the described construction and arrangement of parts the cable connections may be very quickly and easily made or changed.

I claim:

1. A plug for electrical circuits comprising a substantially cylindrical handle and casing member having a wall at one end apertured to admit a cable, and an internal thread at the other end, a metal base member

a contact sleeve secured in a central aperture in the base, a contact knob at the end of the sleeve and insulated therefrom, a stem passing through the sleeve and insulated therefrom and secured to the contact knob, an insulator on the inner face of the base, a metal terminal bushing on said insulator and connected to the inward end of said stem, a metal terminal post secured to said bushing, another metal terminal post insulated from the bushing and provided with a stem passing through the bushing and secured to the base, the posts extending substantially parallel within the handle member, the posts having longitudinal holes extending inward from their free ends and terminal screws inserted in the posts and arranged substantially parallel with their heads in opposite directions and with the screw ends arranged to intersect the longitudinal holes to secure wire ends or pin terminals.

2. A plug for electrical circuits comprising a substantially cylindrical handle and casing member having a wall at one end apertured to admit a cable, and an internal thread at the other end, a metal base member screwed into the threaded end of the handle, a contact sleeve secured in a central aperture in the base, a contact knob at the end of the sleeve and insulated therefrom, a stem passing through the sleeve and insulated therefrom and secured to the contact knob, an insulator on the inner face of the base, a metal terminal bushing on said insulator and connected to the inward end of said stem, a metal terminal post secured to said bushing, another metal terminal post insulated from the bushing and provided with a stem passing through the bushing and secured to the base, posts extending substantially parallel within the handle member, the posts having axial holes extending inward from their free ends and also having transverse holes arranged substantially parallel, and terminal screws inserted in the transverse holes, the terminal post and screw arrangement permitting the connection of various forms of conductor terminals.

3. A two-conductor electrical plug connector, the parts constituting a main insulating handle and an assembled plug connection, said handle being a solid of revolution and being so formed as to accommodate the connecting wires in one end and the electrical plug assembly in the other, which electrical plug assembly is in part composed of a threaded sleeve contact engaging the said insulating handle, which contact sleeve is a solid of revolution, and drilled to accommodate an insulating cylindrical sleeve, which insulating sleeve is so constructed as to reach from the extreme outer end of the contact sleeve in front to a point a short distance behind the rear face of the contact sleeve, in the orifice of which insulating

sleeve is a metallic member constituting part of the tip connection, which consists of a flat disc-like member, a shaft fixed to said member, the member being drilled in one location to receive a binding post connection, and drilled in another to accommodate an insulating bushing, while the shaft is threaded to accommodate the metallic tip and an insulating washer.

5 Signed at New York in the county of New York and State of New York this 4th day of October A. D. 1922.

JOSEPH STANSBURY JONES.