

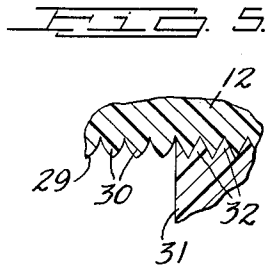
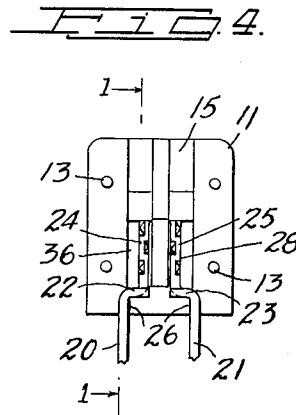
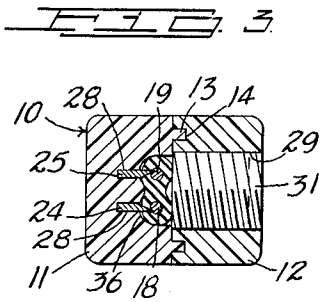
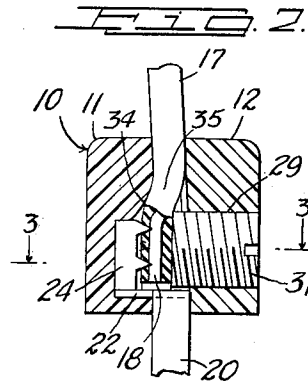
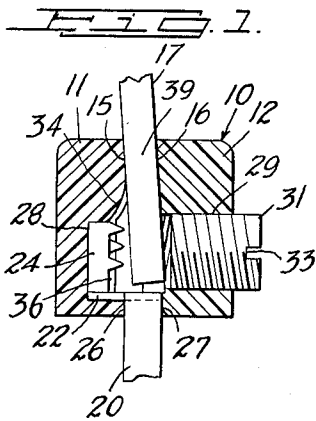
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ELECTRIC PLUG

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ELECTRIC PLUG

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This invention relates to devices for completing electric circuits and, in illustrating one adaptation and use of my invention, I have shown in the accompanying drawing an electric plug, in which is arranged two pronged conductor members, the body of the plug having an angular passage for free admission of circuit wires into a position adjacent and in front of the prongs of said conductor members, the plug body including a pressure element for forcible movement of the circuit wires into engagement with the prongs of said conductor members in establishing electrical contact between said wires and said conductor members.

More particularly, the invention deals with a device of the character described, wherein the pressure element is in the form of a threaded member and the threads of said element and the body in which the element operates have a cooperative thread arrangement, insuring retention of the element in the plug body in its final operative position.

The novel features of the invention will be best understood from the following description, when taken together with the accompanying drawing, in which certain embodiments of the invention are disclosed and, in which, the separate parts are designated by suitable reference characters in each of the views and, in which:

FIG. 1 is a sectional view through a plug made according to my invention, diagrammatically illustrating the parts in their normal position, preparatory to movement of the circuit wires into contact engagement with the pronged portion of the conductor members of the plug, the section being generally on the broken line 1—1 of FIG. 4 and the pressure element being shown in elevation.

FIG. 2 is a view, similar to FIG. 1, showing the plug in operative position and diagrammatically illustrating engagement of one of the pronged portions with one circuit wire.

FIG. 3 is a section on the broken line 3—3 of FIG. 2 showing the pressure element in elevation.

FIG. 4 is a face view of one part of the plug body, illustrating the arrangement of the conductor members therein; and

FIG. 5 is an enlarged small sectional view, diagrammatically illustrating the thread structure of the pressure element and plug body.

In FIGS. 1 to 4, inclusive, I have shown at 10 a plug body of insulating material and, in practice, this plug body is formed of two molded parts of insulating material, preferably plastic, as shown at 11 and 12, note FIG. 3. For purposes of locating and aligning the parts, the part 11 has projecting pins 13 entering corresponding recesses 14 in the part 12. The parts of the complete device are cemented or otherwise secured together in forming the unitary plug body 10.

The parts 11 and 12 have on adjacent surfaces thereof registering and angularly disposed recesses 15 and 16, respectively, note FIG. 1, for reception of the circuit wires and these circuit wires are in a unitary or dual wire strand 17 of more or less standard construction, the strand being composed of insulating material and having the circuit wires 18 and 19 thereof insulated from each other, as will clearly appear from a consideration of FIG. 3 of the drawing.

At 20 and 21, note FIG. 4, I have shown the two conductor members of the plug, these members having in-

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wardly and laterally offset portions 22 and 23 which terminate at their ends in projecting pronged portions 24 and 25, respectively, each having staggered prongs, as diagrammatically illustrated in FIG. 4 of the drawing, for engagement with the circuit wires 18 and 19, respectively, as clearly illustrated in FIG. 3, and also diagrammatically shown in FIG. 2 of the drawing.

The parts 11 and 12 are recessed, as at 26 and 27, for reception of what may be called the terminal portions of the members 20, 21 in assemblage of the plug parts 11 and 12 and the part 11 has other recesses 28 for reception of the offsets 22, 23 and the pronged portions 24 and 25.

The part 12 of the plug in alinement with the pronged portions 24 and 25 has a threaded bore 29, the threads of which are preferably slightly rounded, as seen at 30 in FIG. 5 of the drawing. At 31 I have shown a pressure element in the form of a cylindrical member having sharp threads 32 for engagement with the threads 30 in a manner to re-form the threads 30 and establish a positive retention of the element 31 in the body 10 when the parts are in the position shown in FIG. 2 of the drawing. The element 31 has on its outer surface a transverse recess 33 for reception of a tool, coin or the like, facilitating rotation of the element. The element 31, in the initial assemblage of the plug parts, assumes the position shown in FIG. 1 of the drawing and, in this position, provides a clear admission of the dual wire strand 17 into the passages 15, 16 to assume a position substantially as shown in FIG. 1 of the drawing.

In this position, the dual wire strand 17 clears the prongs of the pronged portions 24, 25. With the dual wire strand 17 in this position, the element 31 is then rotated to forcibly move the dual wire strand 17 into engagement with the pronged portions 24, 25 and, in this operation, the prongs pierce the insulation of the dual wire strand 17 and make positive contact with the wires 18 and 19, as will be apparent.

It will be noted from a consideration of FIGS. 1 and 2 of the drawing that the part 11 is molded to form a rounded recessed portion 34 where the recess 15 registers with the pronged portions 24 and 25. This enables the dual wire strand 17 to be flexed in the manner illustrated at 35 in FIG. 2 of the drawing.

By providing a plurality of staggered prongs on each of the pronged portions 24, 25, a positive assurance of contact with the wires 18 and 19 is made possible. It will be noted, from a consideration of FIG. 3 of the drawing, that the part 11 is recessed, as indicated at 36 for reception of the dual wire strand 17 when placed under pressure by the element 31 and the recess 36 generally conforms to the cross-sectional contour of the strand 17.

By angularly arranging the recesses 15 and 16 in the plug parts 11 and 12, these parts can closely conform to the contour of the strand 17 at the portion 39 of the strand, as noted in FIG. 1 of the drawing, while, at the same time, providing a definite guide for positioning of the strands 17, in the manner diagrammatically illustrated in FIG. 1 of the drawing.

In order to accomplish the retention of the element 31 in the plug body when it is in its finally set position, as noted in FIG. 2, the body or the part 12 thereof will be composed of a plastic material of a softer characteristic than the characteristic of the plastic material in the element 31, so that the teeth 32 of 31 can compress the rounded teeth 30 of the part 12 in establishing this holding action. In this connection, the illustration in FIG. 5 of the drawing is purely diagrammatic. Adding to this, it will be understood that the pressure of the strand 17 upon the inner surface of 31 also aids in retaining 31 in

operative position. The insulation of the strand 17 or the rounded side portions thereof will be compressed to some extent, as partially illustrated in FIG. 3, in forcing the strand onto the pronged portions 24 and 25 in completing the circuit to the wires 18 and 19.

From the foregoing, it will be apparent that the basic principle of my device resides in providing a body of insulating material, in which are arranged two electric conductor members having spaced pronged portions. The body is also fashioned to provide free positioning of a pair of insulated wires in registering position with the spaced pronged portions of said conductors and between said pronged portions and a pressure element movably supported in the body. Said element is employed to force the insulated wires in the direction of said pronged portions in establishing electric contact with each of the wires and retaining the same in this position during the use of the device. In the accompanying drawings, the illustration of the contour of the body 10 is purely diagrammatic and any cross-sectional or longitudinal sectional contour can be employed.

For purposes of description, the split dividing the two halves of the plug may be said to extend from end to end. In other words, the wire strand enters the plug through one end; whereas, the two conductor members 20, 21 project from the other end of the plug. It will, thus, be apparent that the prongs of the pronged end portions extend transversely of the body of the plug. Further, the element 31 is mounted solely in the solid body of one side of the plug and is in alinement with the prongs in facilitating movement of the wires of the strand 17 into engagement with the projecting prongs.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

A device of the character described comprising a body of insulating material, a pair of conductor members

mounted in said body and having terminal portions projecting from one end of said body, said members including pronged portions spaced and insulated one from the other in said body, prongs on said pronged portions extending transversely in said body, a pressure element movably supported in one side of the body in alinement with said prongs, said element being normally spaced from said prongs, the body having a passage opening through the other end of said body for guidance of a pair of insulated wires into the body for positioning in the space between said prongs and element, movement of said element in said body serving to force the insulated wires in the direction of said prongs to establish electric connection of the wires with said prongs, said element comprising a threaded cylinder operating in a threaded bore in said body, said threaded cylinder being mounted in and operating in a solid wall structure of the body completely enveloping said cylinder, the body and element being both composed of insulating materials, the threads of one being harder and of different form than the threads of the other in establishing frictional engagement between the body and element to retain said element against accidental displacement from the body, said body being split from end to end, the passage in said body being angular to the split in said body, and said passage adjacent the prongs being enlarged and of a contour substantially conforming to the insulated wires when pressed against said prongs by pressure of said element.

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