

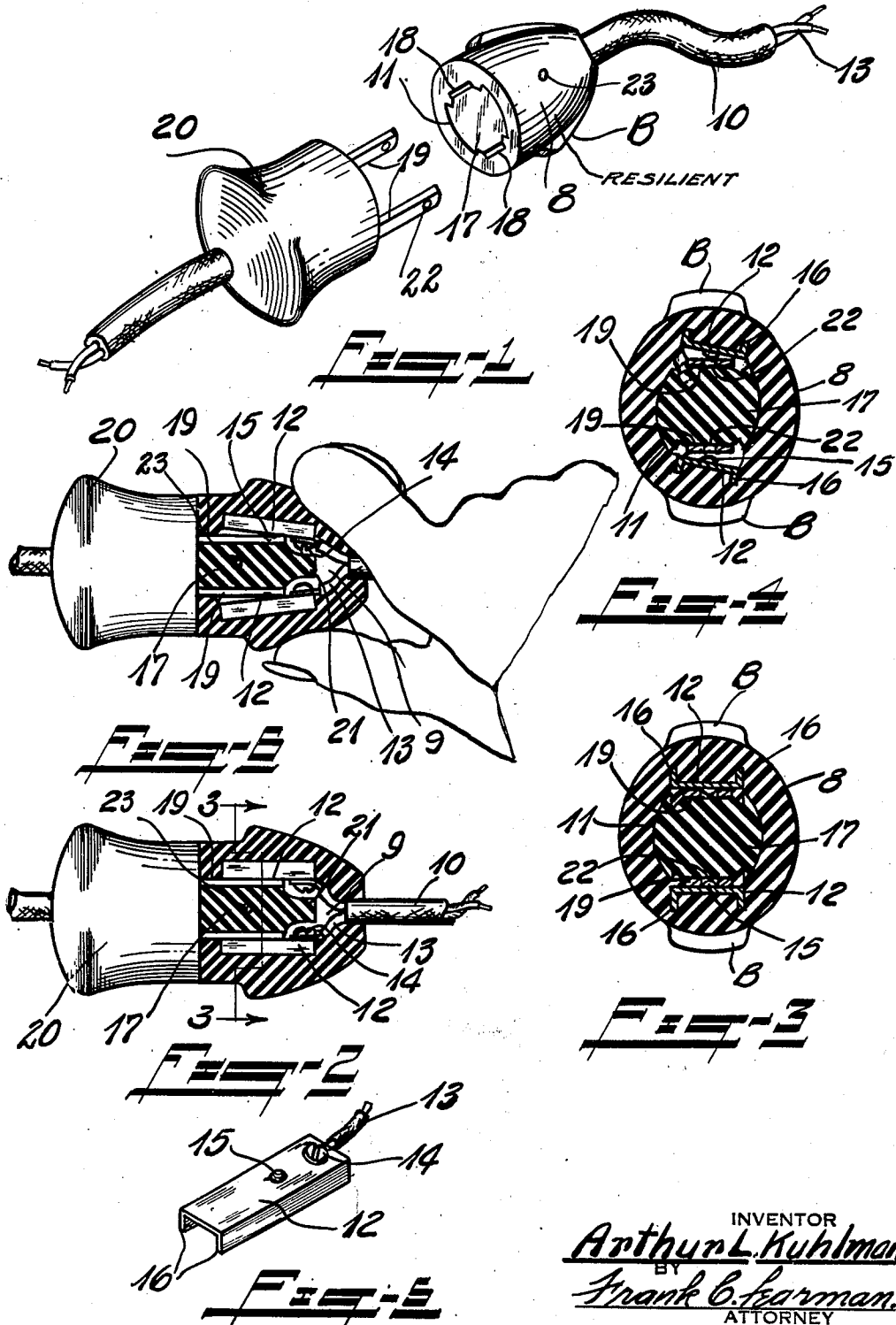
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ELECTRICAL LOCKING CONNECTOR

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ELECTRICAL LOCKING CONNECTOR

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4 Claims. (Cl. 173—328)

This invention relates generally to electrical connectors, and more particularly to connectors of the plug and socket type and which are used for connecting an electric device or appliance to an electric outlet.

One of the prime objects of the invention is to provide a self-locking socket connector adapted to receive and automatically lock the prongs of a connector plug in engagement with the contacts of said socket.

Another object is to provide a receptacle formed of yieldable, resilient material so that a twisting or rotative action of either the plug or the receptacle serves to distort the material and release the prongs from locking engagement with the contacts.

A further object is to provide a receptacle of the character described in which a better contacting action is provided by reason of the resilient material holding the contacts in close and tight interlocking engagement with the plug prongs.

A still further object is to provide a receptacle of the character described which is simple and inexpensive to manufacture; positive and reliable in operation, and which is not increased as to size in spite of the provision for locking etc.

A further object still is to provide a socket or terminal which is formed of soft rubber or similar material so as to be substantially unbreakable under ordinary conditions of use, the body of the receptacle being inherently resilient so as to hold the assembled parts and the plug prongs in assembled and operative relation.

Still a further object is to provide a socket connector, the body of which is so formed that a squeezing action on a predetermined portion of said connector body tends to distort the body and force the contacts into angular relation with each other and thus assist in unlocking.

Other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawing, wherein there is illustrated electrical connectors embodying a selected form of the invention.

In the drawing:

Fig. 1 is a perspective view showing a connector plug and a receptacle.

Fig. 2 is an enlarged view of the plug and receptacle, the receptacle being shown in section.

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 3 and illustrating the movement of the contacts when the plug prongs are being withdrawn.

Fig. 5 is an isometric view of one of the terminals.

Fig. 6 is a view illustrating the manner of removing or disconnecting the plug from the receptacle.

Referring now more particularly to the drawing in which the premolded body is indicated by the numeral 8, this is preferably formed of rubber and the one end is centrally cored as at 9 to accommodate an electric cord 10 as usual, this cored passage opening into an enlarged cored chamber 11 in which the contacts 12 are molded or otherwise mounted.

The contacts 12 are preferably, but not necessarily, channel-shaped in cross section as shown in Fig. 5 of the drawing, the conductor wires 13 being connected thereto by means of screws 14 in the conventional manner, each terminal having a raised boss 15 provided on the face thereof and for a purpose to be presently described.

The contacts 12 can be mounted in any approved manner and when molded with the body, the face thereof is flush with the inner face of the chamber, the legs 16 being embedded in the material to form a secure mounting. This chamber can be of any desired shape and is adapted to accommodate a core member 17 which snugly fits therein when the parts are in assembled relation, prong passages 18 being provided as shown to admit the prongs 19 which form a part of the connector plug 20, so that said prongs may be inserted and form contact with the contacts 12 when it is desired to connect the plug and receptacle.

I also wish to direct attention to the fact that the upper end of the core is reduced as at 21 and raised bosses "B" are molded on the main body in predetermined location so that when the operator grasps the body, placing the fingers on the bosses "B" and exerting a squeezing action, the contacts will assume position as clearly shown in Fig. 6 and permit easy removal of the plug prongs.

All standard plugs are provided with prongs 19, each prong having an opening 22 adjacent the lower end thereof, and these contacts are so positioned in the socket, that when the prongs are inserted, the openings 22 will be in alignment with and will accommodate the bosses 15 provided on the contacts 12, thus firmly locking the prongs in the socket.

When it is desired to disconnect or remove the prongs, the body is first squeezed and then twisted or given a slight rotative movement; this distorts the material around the prongs and forces the edges of the prongs against the

face of the contacts, thus releasing the bosses from the openings 22 as indicated in Fig. 4 of the drawing, and then by pulling outwardly, the prongs can be readily removed. The inherent resiliency of the material causes it to spring back to original position as soon as the pressure is released so that the contacts again assume their original position.

A transversely disposed pin 23 can be inserted in suitable openings (not shown) provided in the body and core so that the core cannot be accidentally displaced.

From the foregoing description, it will be seen that I have disclosed a receptacle which utilizes a minimum number of parts, which is readily assembled and disassembled, and when in use provides a substantially completely enclosed device which firmly locks the prongs in position, and which is foolproof and relatively inexpensive to manufacture and assemble.

Various modifications of the invention may be apparent to those skilled in the art, and it is my intention that the accompanying claims shall be construed as broadly as is consistent with the state of the art.

What I claim is:

1. In a terminal for an electric cord comprising a molded body of resilient yieldable material formed with a cored chamber, oppositely disposed contacts mounted in said chamber, a core snugly fitting and forming a closure for said chamber, prong passages open to said contacts, a boss on each contact for interlocking engagement with the plug prongs of a plug when the prongs are inserted in position in the body, and a recess adjacent the inner ends of the contacts to permit the contacts to be rocked to release the bosses from the prong openings when pressure is exerted on the body at points in alignment with the inner ends of the con- 40 tacts.

2. In a terminal for an electric cord comprising a premolded body member formed of resilient, yieldable material having a centrally disposed chamber therein, oppositely disposed contacts mounted in said chamber, a conductor wire extending into the said chamber and connected to said contacts, a core body mounted in and forming a closure for said chamber, prong passages open to said contacts, a boss on each contact and engageable with the opening in the plug prongs of a standard plug member, said body and core material being capable of being distorted for permitting disengagement of the bosses from the openings in the plug prongs when one of the members is rotated.

3. The combination as set forth in claim 2 in which the inner end of the core body is reduced at a point adjacent the inner end of the contact to permit the contacts to be longitudinally tilted when the body is squeezed at a predetermined point.

4. In a terminal for an electric cord comprising a premolded body formed of resilient, yieldable material having a centrally disposed chamber and oppositely disposed contacts molded therein and flexibly connected to a source of electrical energy, a core mounted in and forming a closure for said chamber, prong passages open to and in alignment with said contacts, a boss on each contact and engageable with the openings in the prongs of a standard plug, a recess in said body adjacent the inner ends of the contacts, raised thumb and finger rests molded on the body and at a point in alignment with said recess, said body material being capable of being distorted when squeezed, to tilt the contacts with relation to the prongs for disengaging the bosses from the prong openings.

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