

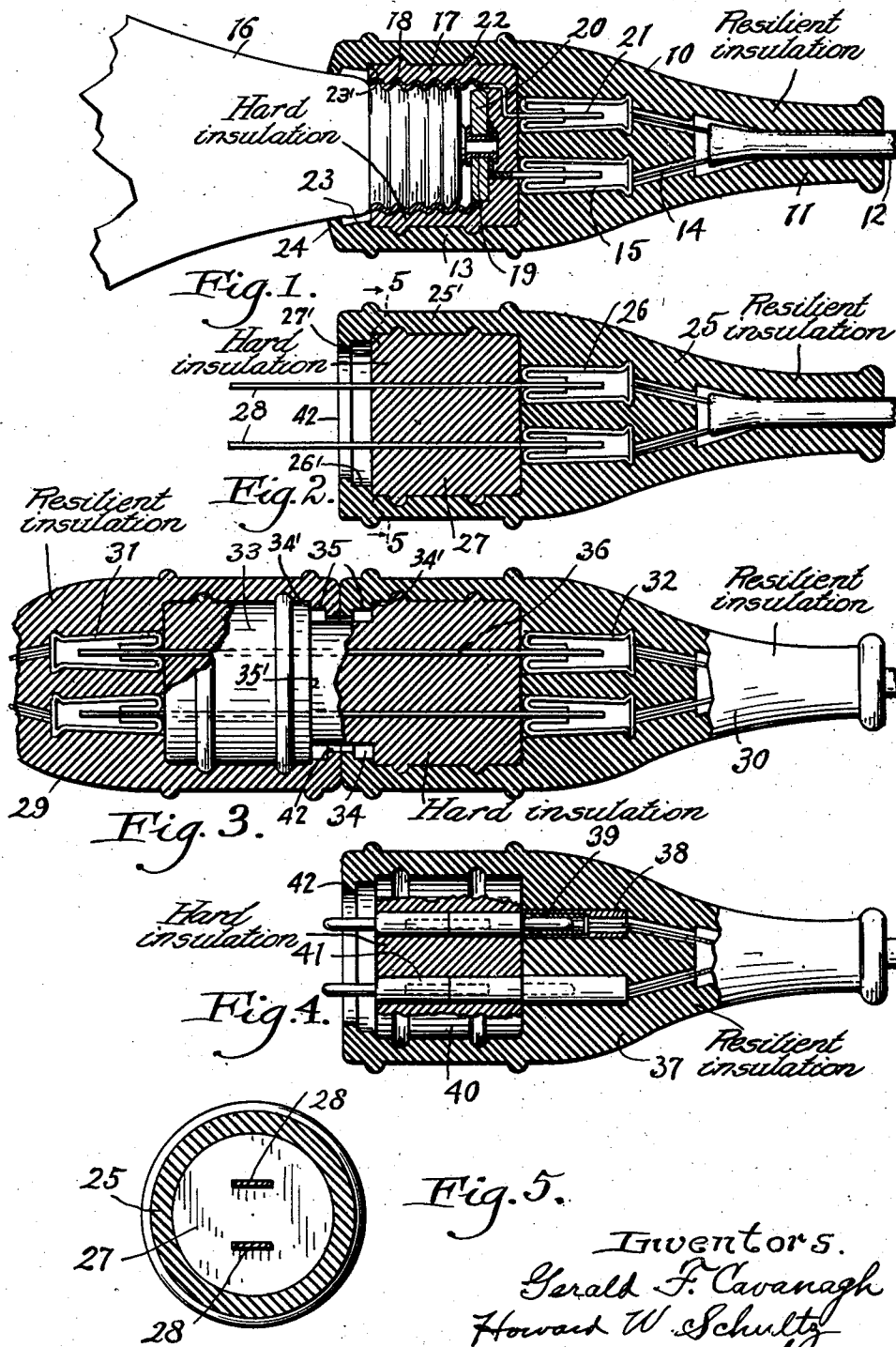
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G. F. CAVANAGH ET AL

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Inventors.
Gerald F. Cavanagh
Howard W. Schultz
Kirie Hudson & Kent
attys.

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Gerald F. Cavanagh, Cleveland, and Howard W. Schultz, Lakewood, Ohio, assignors to The Ohio Rubber Company, Cleveland, Ohio, a corporation of Ohio

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This invention relates generally to electric terminals, and more particularly to a conductor cord terminal of improved form which is so constructed as to be adapted to fulfill the requirements of various forms of electrical connections.

An object of this invention is to provide an improved soft rubber terminal which is adaptable for universal electrical connection with other terminals.

Another object of this invention is to provide a soft rubber terminal having an adapter fitting removably seated therein and detachably engaging the contacts of the terminal.

The invention may be further briefly summarized as consisting in certain novel combinations and arrangements of parts hereinafter described and particularly set out in the appended claims.

In the accompanying sheet of drawings,

Fig. 1 is a longitudinal sectional view showing a conductor cord terminal embodying our invention;

Fig. 2 is a longitudinal sectional view showing another conductor cord terminal embodying our invention;

Fig. 3 is a longitudinal sectional view of an electrical connection embodying our invention;

Fig. 4 is a sectional elevational view showing still another terminal constructed according to our invention; and

Fig. 5 is a transverse sectional view, taken on line 5-5 of Fig. 2, and showing the general cross sectional shape of the terminals of our invention.

In the drawing illustrating our invention, we have shown conductor cord terminals having soft rubber bodies provided with contact members and adapter fittings so constructed and arranged as to make the terminals adaptable for universal electric connection with contact devices of various shapes.

As shown in Fig. 1, the terminal body 10 is a socket body which is constructed of soft rubber of a tough and yielding character. This body is shaped to provide a tapering extension 11 at one end thereof in which the end of the conductor cord 12 is received, and to provide at its opposite end a resilient skirt portion 13 which surrounds the socket of the body. The wires 14 of the conductor cord extend into the terminal body and are electrically connected to spring contact members 15 which are mounted in the body in recesses communicating with the socket and formed in the bottom wall thereof. These contacts are disposed in the recesses with their ex-

posed ends substantially flush with the surface of the bottom wall of the socket so that the contacts lie wholly below the bottom wall of the socket. The contact members and the end of the conductor cord may be assembled in place in preformed openings provided in the body or, if desired, may be molded into the material at the time the body is formed.

To adapt this terminal for use with the contact members of an incandescent lamp 16, or with a terminal device having similarly shaped contact members, we provide an adapter fitting or hollow plug 17 which removably engages in and substantially fills the socket of the body. This adapter fitting is formed of relatively hard insulating material, such as hard rubber, and is provided with a contact member 18 which is constructed in the form of a threaded socket and is embedded in the insulating material.

At the bottom of the recess of the adapter fitting, we provide a contact member 19 which is spaced from the contact member 18 by means of the disk 20, of insulating material, to which the former contact member is secured. The contact members 18 and 19 are provided with flat extensions 21 which project from the end of the adapter fitting and form tongues for detachable engagement with the spring contact members 15 of the body. This adapter fitting is retained in place within the socket of the body by the gripping engagement of the resilient skirt 13 therewith. To increase the gripping engagement between the resilient skirt and the adapter fitting, we provide annular beads 22 around the outer surface of the adapter fitting which engage in similarly shaped annular recesses formed on the inner surface of the skirt. Removal of the adapter fitting from the socket of the body is also resisted by the projection or bead 23 provided at the outer end of the resilient skirt. This projection or bead extends substantially radially inwardly forming an abutment surface or shoulder 23' which engages the outer end of the adapter fitting.

At the extreme outer end of the resilient skirt an inwardly extending annular lip 24 is preferably formed on the bead 23 as an extension thereof for engagement with the body of the incandescent lamp 16. When the lamp is screwed into the socket-shaped contact member 18, this lip is stretched and distorted so that it yieldingly engages the body of the lamp and produces a watertight seal. In addition, the engagement of the soft rubber with the glass lamp body resists rotation of the latter and thereby prevents accidental

loosening within the adapter socket. This lip also shields the contacts of the terminal against accidental touching which might result in a short circuit or in injury to persons handling the terminal.

In Fig. 2 of the drawing, we have shown another terminal embodying our invention. This terminal comprises a body 25 which is formed of soft rubber and has contact members 26 mounted therein. In shape and arrangement the body and contact members are substantially identical with those described in detail in connection with Fig. 1. To adapt this terminal for connection with an electrically operated machine or the like, which is provided with terminal contact members similar in form to the contact members 26, we provide an adapter fitting 27 which removably engages in and substantially fills the socket of the body. This adapter fitting comprises a substantially cylindrical block or plug of relatively hard insulating material, such as hard rubber, and elongated flat contact members 28 extending therethrough. When the adapter fitting is in place in the socket of the body, the contact members 28, extending from one end of the fitting, detachably engage the contact members 26 of the body, while at the opposite end of the adapter fitting, the exposed portions of the contact members 28 are available for detachable engagement with other contact members.

As seen in Fig. 2, the skirt 25' of the body 25 is provided at its outer end with an internal annular bead 26' similar to the internal annular bead 23 of the body 10 of Fig. 1. The annular bead 26' provides an abutment surface or shoulder 27' which engages the adapter fitting 27 to assist in retaining the latter in the socket.

In Fig. 3 of the drawing, we have shown an electrical connection comprising two of the terminals of our invention, detachably secured together in close contact. In this arrangement, we have shown conductor cord terminal bodies 29 and 30 provided, respectively, with contact members 31 and 32. These bodies and contact members, in shape and arrangement, are substantially identical with the shape and arrangement already described in detail in connection with Fig. 1. For securing the soft rubber terminals 29 and 30 together with their outer ends in close contact, we employ an adapter fitting 33 having plug end portions which removably engage in and substantially fill the sockets of the bodies. Between these plug end portions, the adapter fitting is of reduced diameter to provide the channel 34 into which the internal annular radial projections or beads 35, at the outer ends of the bodies, extend. These projections form abutments 34' which engage shoulders 35' formed by the side walls of the channel 34 of the adapter fitting and prevent separation of the bodies from each other and disengagement from the adapter fitting. For electrically connecting the contact members of the terminal 29 with the contact members of the terminal 30, we provide elongated contact members 36, which extend through the adapter fitting for detachable engagement with the contact members of the terminals. It will be seen that in this arrangement, the terminal bodies 29 and 30 are held in close contact forming a water-proof electrical connection.

In the terminal which we have illustrated in Fig. 4, we have provided the soft rubber body 37 with contact members 38 of somewhat different form than the contact members of the terminals shown in Figs. 1, 2 and 3. These contact mem-

bers are constructed in the form of round metallic sleeves in which are mounted hollow sleeves 39 of smaller diameter. The sleeves 39 are split longitudinally thereof for a portion of their length, thereby providing cooperating resilient arcuate fingers. For use with this terminal, we have provided an adapter fitting 40 which is similar in form to the adapter shown in Fig. 2 with the exception that the contact members 41 which extend through the fitting are round in shape for detachable cooperation with the resilient arcuate fingers of the contact members mounted in the terminal body.

If desired, the terminal bodies shown in Figs. 2, 3 and 4 may be constructed with an internal annular extension or lip 42 which is formed as a part of the internal annular bead at the outer end of the skirt similar to the lip 24 shown in Fig. 1. This lip 42 does not ordinarily cooperate with the adapter fittings 27, 33 and 40 which are shown respectively in Figs. 2, 3 and 4, but is available for cooperation with an incandescent lamp when such a device is to be applied to the terminal in the manner shown in Fig. 1.

It will now be readily seen that the terminal which we have provided may be readily adapted for use with other terminals having contact members of various forms. In the form of construction which we have illustrated, the skirt of the soft rubber body firmly engages the adapter fitting so that accidental separation of these parts is prevented. Furthermore, terminals of this form of construction are substantially waterproof, and are not easily damaged by shocks or blows.

While we have shown and described the device of our invention in a detailed manner, it should be understood, however, that we do not intend to limit ourselves to the precise details shown and described, but regard our invention as including such changes and modifications as do not involve a departure from the spirit of the invention and the scope of the appended claims.

Having thus described our invention, what we claim is:

1. A terminal fitting for electrical conductors comprising a body member formed of soft rubber and having a socket therein, said body member being provided with a resilient skirt forming the side wall of the socket and with a recess communicating with and formed in the bottom wall of said socket, a contact element mounted in said recess and lying wholly below said bottom wall, a second body member formed of insulating material and shaped to substantially fill said socket, said second body member being gripped by said resilient skirt whereby the second body member is removably retained in said socket and contact means carried by said second body member including a part projecting from said second body member at one side thereof and extending into said recess and detachably engaging the first mentioned contact element and another part accessible at the other side of said second body member and electrically connected with said projecting part.

2. A terminal fitting for electrical conductors comprising a body member formed of soft rubber and having a socket therein, said body member being provided with a resilient skirt forming the side wall of the socket and with a recess communicating with and formed in the bottom wall of said socket, a contact element mounted in said recess, said skirt having an internal annular bead thereon providing a reduced opening into said socket

substantially at the outer end thereof and also providing an annular shoulder inwardly of such bead, and a second body member shaped to substantially fill said socket, said second body member
5 being gripped by said resilient skirt and engaged by the shoulder of said internal annular bead whereby the second body member is removably retained in said socket, and contact means carried by said second body member including a part projecting from said second body member at one side
10 thereof and extending into said recess and detachably engaging the first mentioned contact element and another part accessible at the other side of said second body member and electrically connected with said projecting part.

3. An electrical connection comprising a pair of terminal bodies formed of soft rubber and each having a socket therein, each of said bodies being provided with a resilient skirt forming the side wall of the socket and with a recess communicating with and formed in the bottom wall of such socket, a contact element mounted in the recess of each body, the skirt of each body having an internal annular bead thereon providing a reduced opening into the socket substantially at the outer end thereof, a connecting member having connected body portions each of which is shaped to substantially fill the socket of one of said terminal bodies and is resiliently gripped by the skirt
20 of such terminal body, said connecting member being provided with an annular groove intermediate the connected body portions into which the internal annular beads of said skirts extend, said annular beads being formed with shoulders thereon which engage the opposite walls of said annu-

lar groove, and contact means having a portion thereof embedded in said connecting member and outwardly projecting portions extending into the recesses of said terminal bodies and detachably engaging the contact elements therein.

4. A terminal fitting for electrical conductors comprising in combination a body member formed of soft rubber and having a socket therein, said body member being provided with a resilient skirt forming the side wall of the socket and with a recess communicating with and formed in the bottom wall of said socket, a contact element mounted in said recess, said skirt having an internal annular bead thereon providing a reduced opening into said socket adjacent the outer end thereof and also providing an annular shoulder inwardly of such bead, a second body member formed of insulating material and shaped to substantially fit said socket, said second body member being gripped by said resilient skirt and engaged
20 by the shoulder of said bead whereby the second body member is removably retained in said socket, and contact means carried by said second body member including a part projecting from the second body member at one side thereof and extending into said recess and detachably engaging the first mentioned contact therein and another part accessible at the other side of said second body member and electrically connected with said projecting part, the first mentioned body member
25 being also provided with an internal annular flange thereon outwardly of said internal bead.

GERALD F. CAVANAGH.
HOWARD W. SCHULTZ.