

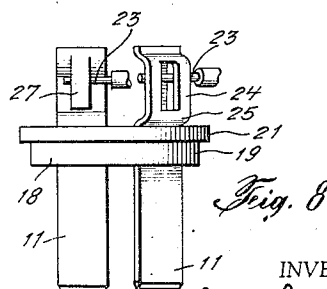
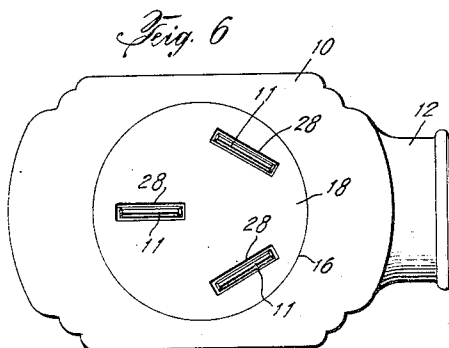
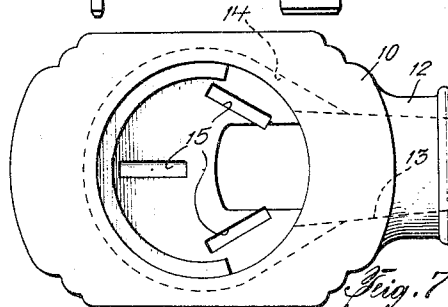
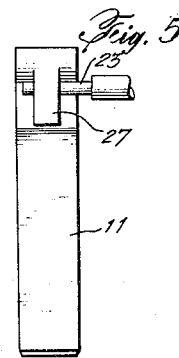
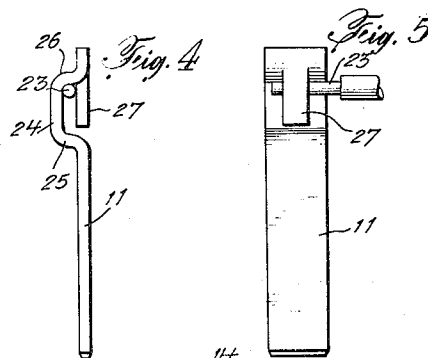
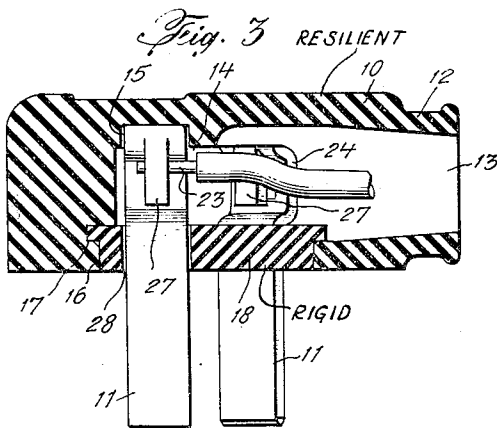
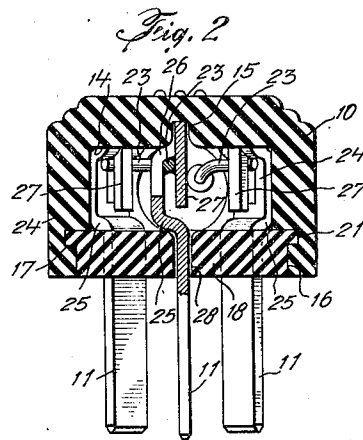
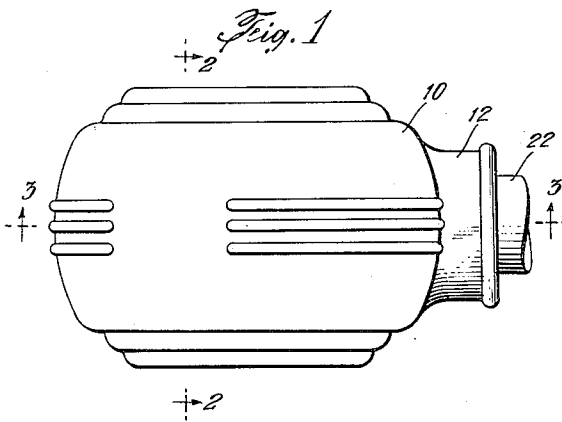
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2,224,547

RANGE CONNECTOR

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2,224,547

RANGE CONNECTOR

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4 Claims. (Cl. 173—361)

This invention relates to electrical range connectors mounted on the end of a cord usually enclosing three conducting wires. These connectors usually have three parallel metal prongs which fit into three slots, each of which encloses an electrical terminal with which the entering prong makes electrical contact. Such range connectors are known in the art in which the prongs are rigidly mounted in some moldable material formed around the inner ends of the prongs and the wire connections thereto.

Among the features of the present invention are: A mounting for the prongs which permits slight movement of the ends of the prongs laterally to facilitate the entrance of the ends of the prongs into the appropriate slots; a rigid disk on one face of the connecting body and which is embedded at the rim in the resilient rubber of which the body is formed by stretching over the periphery of the disk an annular rim formed around an aperture in the side of the body and which has apertures therein of such size and form as to permit a slight rocking motion of the prongs in their slots or apertures; and slot-shaped recesses in the resilient rubber on the inside of the connector body and opening into the side of a chamber, the opposite side of which is closed by the disk, in which recesses the inner ends of the prongs are fitted, so that the prongs all project outwardly from the outer face of the disk perpendicularly and in parallel, but because of the resilient nature of the material of the connector body the ends of the prongs can move laterally in small degree, which in turn permits the engaging ends of the prongs to move enough laterally to permit their facile insertion in the terminal slots. The prongs are prevented from outward or inward movement by outer and inner shoulders of laterally bent portions therein, but strips may be cut out on three sides and left unbent to provide in each prong an opening formed transversely between the strip on one side and the bent portions spaced apart transversely on the other side, this opening being sufficient to receive a bare electrical wire. After inserting a wire end in each opening the prongs may be dipped in solder to lock each wire end on its appropriate prong in order to procure a good electrical contact as well as to secure the prong and the wire together. But the joints so formed are mounted in the chamber in the connector free from contact with the material of which the connector is formed, such as resilient rubber which may be similar to that used in automobile tires. The prongs are therefore so mounted that slight

movement is possible either edgewise or broadside and the outer ends of the prongs are chamfered on all four sides by swedging so that the resulting structure eases the manual operation of inserting the prongs. Other features of the invention will appear as the description proceeds.

Reference is made to the drawing which is made a part of this specification in which

Figure 1 is a rear view of the terminal.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a side view of a prong with the electrical wire in section.

Figure 5 is a front view of a prong.

Figure 6 is a front view of the terminal.

Figure 7 is a front view looking into the terminal body, with the side disk removed.

Figure 8 is a disk assembly viewed from the side.

A terminal body 10 is molded preferably of resilient insulating material such as the rubber used in the tread of automobile tires or the like, and is of such size that it can be readily grasped in the hand for the insertion of prongs 11 in the slots of a terminal socket or female member (not shown). This operation has heretofore been tedious and difficult because of the rigid mounting of the terminal prongs but in my present improvement the ends of the prongs 11 are sufficiently movable for their quick and facile insertion in the slots of the female member. At one end of the body 10 is a neck 12 which has an end opening 13 therein leading into a central chamber 14 within the body 10 (Fig. 3). The inner rear wall of the body 10 forms one side of the chamber 14 and is provided with three recesses 15 which are shaped to tightly admit the inner ends of the prongs 11 (Fig. 7), but to permit the inner ends of the prongs to move laterally slightly because of the resilient nature of the body 10. The chamber 14 has a circular opening in the side of the body 10 opposite the recesses 15 and surrounded by an annular rim 16 which forms the outer wall of a groove 17 extending around the opening. An insulating disk 18, which may be cold-molded and rigid, has flat front and rear surfaces, a front cylindrical side wall 19 (Fig. 8) of the same size as the inner wall of the rim 16, and a rear side wall extending laterally in an annular rim 21 which fits the groove 17. The disk 18 is placed in the side of the body 10 to close the side opening by bending the resilient rim 16 outwardly and inserting the rim 21 in the

groove 17 to position the outer face of the disk 18 in the same plane as the outside of the body 10. A usual three-wire cord 22 is introduced into the opening 13 and the bare electrical wires 23 exposed out thru the circular opening in the side of the chamber 14. Each prong 11 is formed with a laterally projecting bend 24 which provides outer shoulders 25 and inner shoulders 26 (Figs. 4 and 5). A strip 27 formed centrally of each prong 11 by cuts on three sides which separate the bend 24 lengthwise into two equal parts extends lengthwise in the same straight line as the body of the prong 11, providing an end or transverse opening for the insertion therein of a bare electrical wire 23 which may be suitably fastened to the prong 11 by solder. Three slots 28 are formed in the disk 18 and are disposed to lie exactly opposite the three recesses 15 when the disk 18 is in position in the side of the body 10, but each slot 28 is slightly larger in cross-section than the prong 11, which is preferably formed of rigid metal, to permit a slight rocking motion of the prong 11 in the corresponding slot 28. After each wire 23 is fastened on the appropriate prong 11 between the bend 24 and the strip 27 by dipping in solder or otherwise, the outer end of each prong 11 is pushed thru the corresponding slot 28 from the inside of the disk 18 to form the disk assembly shown in Figure 8, the outer shoulders 25 exactly determining the position of the prongs 11. Thereupon the resilient rim 16 is drawn back, the inner ends of the prongs 11 positioned in the recesses 15 and the disk rim 21 positioned in the groove 17, the perimeter of which is greater than a semicircle but less than a circle and opposite the end opening 13. The inner shoulders 26 of the prongs 11 form stops for checking inward flexing of the side wall of the body 11 in which the recesses 15 are formed. It is now obvious that when the terminal body 10 is grasped in the hand and brought up to the female member the outer ends of the prongs 11, which may be chamfered by swedging on four sides, quickly and faciliely enter the corresponding slots because of the yieldable mounting of the prongs 11 in the body 10.

Having shown and described a preferred form of my invention and realizing that, in view of my disclosure, many changes in material or parts, substitutions or omissions of parts, can be readily made by those skilled in the art, I do not limit myself to the exact form or material disclosed herein.

I claim:

1. An electrical connector for a range cord set comprising in combination, a resilient insulating body oblate in form, a chamber in said body, an end opening into said chamber for the end of a cord set, a rigid disk in one side of the body forming a closure for one side of said chamber, an annular groove in the body in which the rim of the disk engages, the outer wall of the groove being an annular rim stretchable over the periphery of the disk to secure the disk in the body, apertures in said disk, grooves in the opposite side wall of the chamber aligned with the apertures, and a plurality of metal prongs mounted in and smaller in cross-section than said apertures to

permit slight rocking motion of said prongs therein and having their inner ends mounted in said grooves.

2. An electrical connector for a range cord set comprising in combination, a resilient insulating body oblate in form, a chamber in said body, an end opening into said chamber for the end of a cord set, a rigid disk in one side of the body forming a closure for one side of said chamber, an annular groove in the body in which the rim of the disk engages, the outer wall of the groove being an annular rim stretchable over the periphery of the disk to secure the disk in the body, apertures in said disk, grooves in the opposite wall of the chamber aligned with said apertures, and a plurality of metal prongs mounted in and smaller in cross-section than said apertures to permit slight rocking motion of said prongs therein and having their inner ends mounted in said grooves, the parts of the prongs within the chamber having lateral bends forming outer and inner shoulders.

3. An electrical connector for a range cord set comprising in combination, a resilient insulating body oblate in form, a chamber in said body, an end opening into said chamber for the end of a cord set, a rigid disk in one side of said body forming a closure for one side of said chamber, an annular groove in the body in which the rim of the disk engages, the outer wall of the groove being an annular rim stretchable over the periphery of the disk to secure the disk in the body, apertures in said disk, grooves in the opposite inner wall of the chamber aligned with said apertures, and a plurality of metal prongs mounted in and smaller in cross-section than said apertures to permit slight rocking motion of said prongs therein and having their inner ends mounted in said grooves, the parts of the prongs within the chamber having lateral bends forming outer and inner shoulders, and also having strips opposite the bends in each prong to form a transverse opening to receive the bare end of an electrical wire.

4. An electrical connector for a range cord set comprising in combination, a resilient insulating body, oblate in form, a chamber in said body, an end opening in said body and connecting with said chamber adapted to receive the end of a cord set, a rigid disk in one side of the body forming a closure for one side of the chamber, said disk having an inner peripheral flange, an annular groove in the body in which the flange of the disk engages, said groove lying opposite the body end aperture and having a perimeter greater than a half circle but less than a full circle so that the disk is faciliely insertable in the groove, the outer wall of the groove being an annular rim stretchable over the flange of the disk to secure the disk in the body, apertures in said disk, grooves in the opposite side wall of the chamber aligned with the disk apertures, and a plurality of metal prongs mounted in and smaller in cross-section than said apertures to permit slight rocking motion of said prongs therein and having their inner ends mounted in said grooves.

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