Sept. 26, 1939. G. E. ANDRE 2,173,820

ELECTRIC TERMINAL

Filed April 2, 1936

Fig. 1.

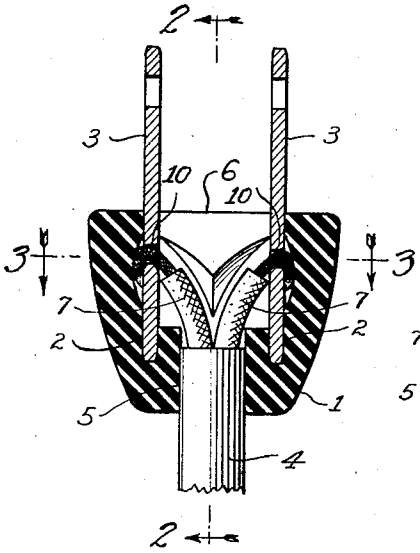


Fig. 2.

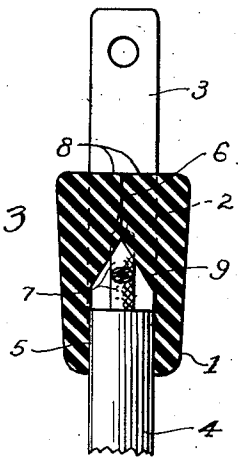


Fig. 4.

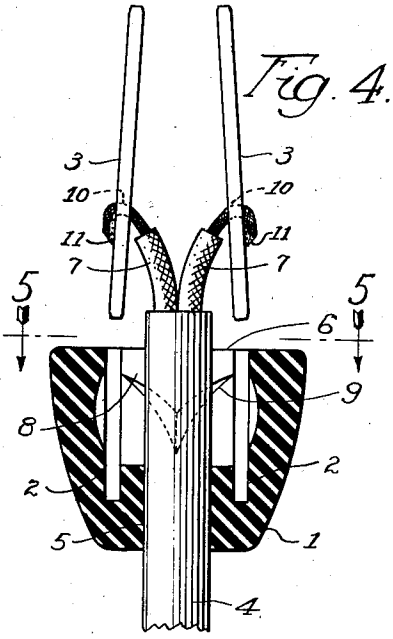


Fig. 3.

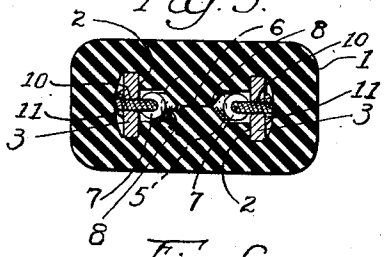


Fig. 5.

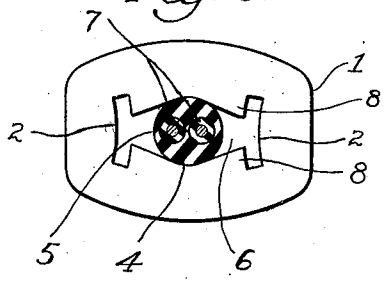
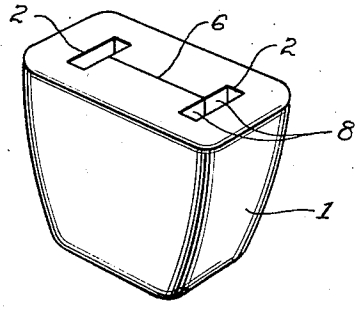


Fig. 6.



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UNITED STATES PATENT OFFICE

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ELECTRIC TERMINAL

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Application April 2, 1936, Serial No. 72,242

2 Claims. (Cl. 173—361)

This invention relates generally to electrical connectors and more particularly to electric appliance cord or like terminals for connecting an electric device to an electric outlet. Such terminals are commonly referred to as connector plugs and under the present practice the plugs are of such design that they are described as of the prong or male type.

Terminals of the type referred to are made with a main body part of resilient, more or less soft, rubber or similar material, so as to be substantially unbreakable under ordinary conditions of use. The present invention pertains to a form of such unbreakable terminal or plug comprising a one-piece, pre-molded, main body which is adapted to be assembled with a conductor and the required contact prongs, the body being so formed that its inherent resiliency serves to hold the assembled parts in their assembled operative relation.

The principal objects of the present invention are to provide a terminal of the one-piece body type referred to, wherein the component parts of the terminal may be easily assembled either in a factory or on the job without elaborate, expensive special tools or apparatus; to provide a terminal wherein the assembled parts are effectively held in assembled relation as an incident to the inherent resiliency of the terminal body, but wherein the parts may be disassembled and reassembled from time to time if desired; to provide a terminal wherein the electrical connections between the conductor wires and the contact prongs are adequately housed and protected; and to provide a terminal which is neat in appearance and durable, but which may be manufactured and assembled at a very low cost.

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

In the drawing:

Fig. 1 is a sectional view, partially in elevation, of a terminal constructed in accordance with the principles of my invention;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view on the line 3—3 of Fig. 3;

Fig. 4 is a sectional view similar to Fig. 1, showing the elements of my improved terminal and a portion of cord at an intermediate stage in the assembling operation;

Fig. 5 is a sectional view on the line 5—5 of Fig. 4; and

Fig. 6 is a perspective view of the body portion of the terminal illustrated in other figures of the drawing.

Referring particularly to the drawing, the improved terminal of my invention includes a pre-molded, body portion 1 of a suitable resilient insulating material, such as vulcanized rubber. This body portion 1 is provided with a pair of opposed recesses 2, having the general form of right rectangular prisms, molded therein for the reception of the two prong type contacts 3. The body portion is generally rectangular in cross section, this shape having particular advantages as will be pointed out in a subsequent paragraph. In order to receive the cord 4 with which the terminal is used, the body portion 1 is provided with a generally cylindrical passageway 5 formed in the lower, central portion thereof. This passageway 5 is normally substantially closed at its upper end by a barrier wall molded integrally with the body portion itself. A slot or cut 6, which is provided for permitting passage of the cord conductors 7 through the body portion during the assembling operation, serves to divide the barrier wall into two cooperating half sections 8. This slot 6 extends into the body portion 1 of the terminal for about one-half of the length thereof, as is shown particularly in Figs. 1, 2, and 4. If desired, the width of the slot 6 may be increased at the interior of the body as at 9 to prevent distortion of the barrier wall by the conductors. The cooperating barrier sections 8 are generally triangular in outline, in order that they shall serve to separate and position the ends of the cord conductors 7 normally disposed within the body portion 1.

During the assembling operation, the chord 4 with which the terminal is used is pushed entirely through the central passageway 5 formed within the body portion 1, as is shown in Figs. 4 and 5. The bared ends of the two conductors 7 are then inserted within suitable holes 10 formed in the contacts 3. If desired, these conductors may be soldered thereto, as is shown at 11. The body portion 1 of the terminal is then slid along the cord until the lower ends of the contacts 3 have engaged the recesses 2 provided therefor. When this occurs, the cord 4 and the several elements of the terminal are in the position shown in Figs. 1 and 2. As soon as the outer end of the cord 4 is moved beneath the cooperating sections 8 forming the barrier in the upper end of the body portion of the terminal,

those sections move to the position shown in Figs. 1 and 2, and thus substantially close the upper end of the cord-receiving passageway 5 without necessitating the use of any additional member or other means. In addition, these barrier portions 8 provide, in effect, an enclosed V-shaped passageway within the body portion 1 for receiving and positioning the ends of the cord conductors, thereby rendering the plug much safer during use. The operation of the cooperating barrier portions 8 is entirely automatic, and moreover, the barrier portions do not interfere in the slightest with the assembling operation, due to the inherent flexibility thereof.

The rectangular shape of the body portion 1 is an important factor in facilitating the assembling of the plug, for the reason that a body portion of this shape has relatively flexible side walls and can be readily deformed to permit the cord to be pushed entirely therethrough. Further, the rectangular shape of the body portion permits this desirable lateral flexibility without loss of sufficient inherent rigidity to properly support the prong contacts. Also, a plug body of this type is extremely convenient to grasp and use, the opposed flat sides providing a convenient indicator for aligning the plug prongs with the contacts of the cooperating receptacle.

From the foregoing, it will be seen that I have disclosed the features of a novel form of terminal which has numerous advantages of the structures known to the prior art. My improved terminal utilizes a minimum of structural elements, it is readily assembled and disassembled, and when in use provides a substantially completely enclosed device without necessitating the use of a sealing plug, sealing compound, or additional molding operation. Moreover, the device is quite fool-proof and is relatively inexpensive to manufacture.

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 possible consistent with the state of the art.

I claim:

1. In a terminal for an electric cord, a pair of prong contacts, and a one-piece molded body portion of resilient insulating material having a suitable recess formed in one end thereof for receiving and supporting said contacts in spaced relationship, said body portion also having a centrally disposed, open-ended passageway of generally uniform cross sectional area extending thereinto from the other end of said body portion for receiving the cord with which said terminal is used, said passageway being substantially closed adjacent the contact end of said body portion by a barrier which comprises a pair of generally triangularly shaped cooperating sections molded integrally with said body portion, the resilience of the material of said body portion permitting distortion of said sections whereby the cord may be drawn entirely through said passageway during the assembling operation, said barrier sections cooperating in the assembled terminal to form a generally V-shaped passageway the apex of which connects with said centrally disposed passageway, the ends of the cord conductors which are connected to the terminal contacts being normally disposed in said V-shaped passageway with said triangularly shaped sections positioned between the conductor ends whereby the latter are held in spaced relationship the apex of each barrier being positioned at the inner end of the open-ended passageway.

2. In a terminal for an electric cord, a plurality of contacts, and a one-piece molded body of resilient insulating material having suitable recesses formed in one end thereof for receiving and supporting said contacts, said body portion also having a centrally disposed, open-ended passageway of generally uniform cross sectional area extending thereinto from the other end of said body portion for receiving the cord with which said terminal is used, there being an end closure for said passageway at the contact end of said body, said closure comprising a plurality of cooperating wall portions extending inwardly across the end of said passageway and being disconnected from each other by a centrally arranged slot for permitting the cord with which the terminal is used to be passed through said end closure during the attachment of the terminal to the cord, said wall portions tapering in thickness and each being shaped generally to form a triangular lug with the apex thereof directed towards said passageway so as to increase the flexibility thereof adjacent said centrally arranged slot, whereby displacement of said wall portions is facilitated during the attachment of the terminal to the cord the adjacent opposed faces of said triangular lugs being flared away from each other towards the apex thereof on both sides of the center line of the body whereby to provide sloping surfaces over which the cord may slide in passing between said lugs.

GUSTAF E. ANDRE.