Oct. 31, 1944. H. R. VAN DEVENTER 2,361,721

ELECTRIC CIRCUIT MOLDING

Filed Oct. 2, 1941

Fig. 1.

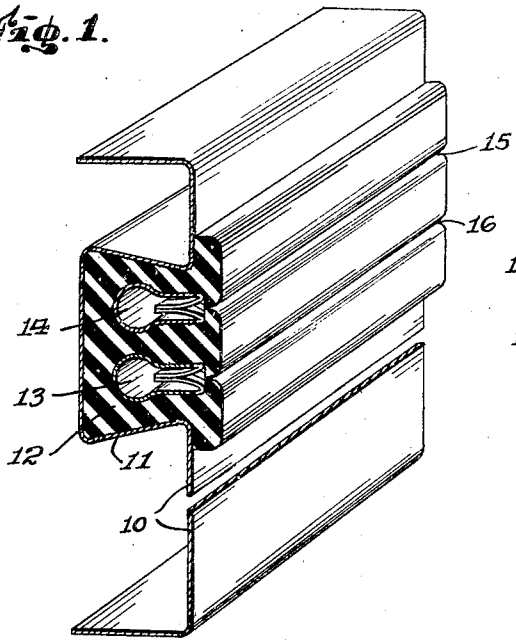


Fig. 2.

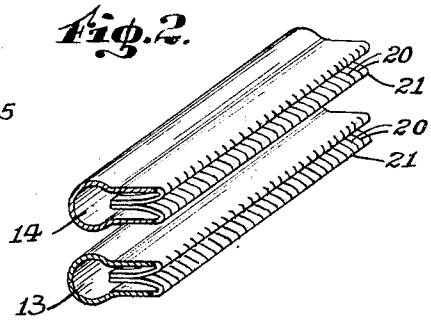


Fig. 3.

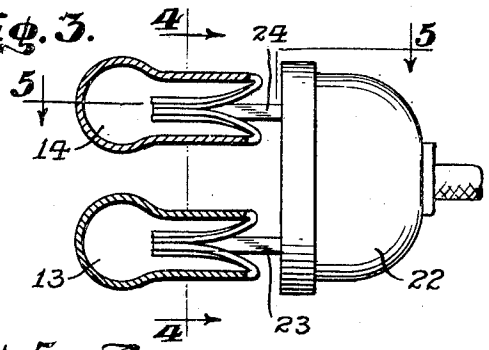


Fig. 4.

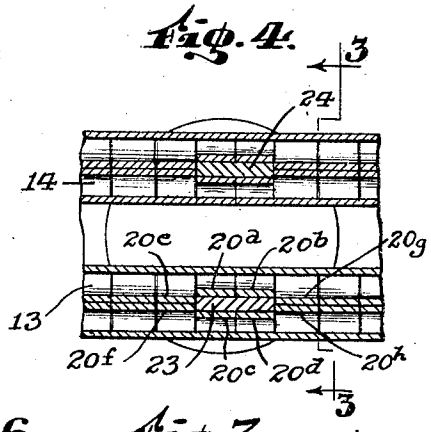


Fig. 5.

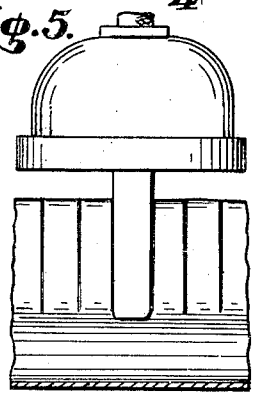


Fig. 6.

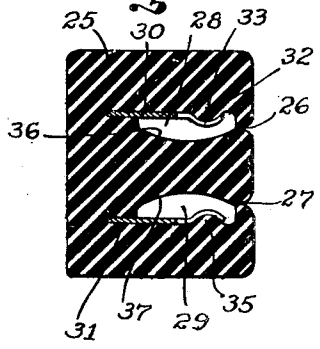
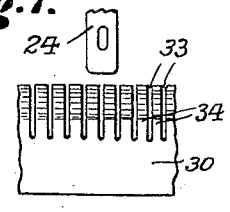


Fig. 7.



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UNITED STATES PATENT OFFICE

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ELECTRIC CIRCUIT MOLDING

Harry R. Van Deventer, New York, N. Y.

Application October 2, 1941, Serial No. 413,319

2 Claims. (Cl. 173—334.1)

This invention relates to improvements in electric circuit moldings which include continuous conductors whereby the circuit may be plugged into at any desired point or points throughout the length of the molding.

This application is a continuation in part of my prior application, Serial Number 665,519, for Electric circuit moldings, filed April 11, 1933, now U. S. Patent No. 2,283,398, of May 19, 1942; and is directed more particularly to conductors for use in such moldings.

An object of the invention is the provision of elongated conductors of generally channeled or U shaped cross-section, the legs of which are engaged by a prong of an attachment plug.

Another object of the invention is the provision of a conductor, for circuit moldings, of general U shaped cross-section in which the engageable edges are slotted transversely, the spacing of said transverse slots being in definite relation to the width of the prongs of the attachment plug so as to prevent the plug from "cocking" sidewise.

A further object of the invention is the provision of an elongated conductor for circuit moldings, said conductor including at least one face adapted to be engaged by a prong of an attachment plug, and having transverse slits formed therein and so spaced along the length of the conductor that a prong of an attachment plug displacing a tongue of the conductor (between two adjacent slits) is in substantially end-to-end relation with the tongues on each side of the one displaced and is thereby prevented from "cocking."

Yet another object of the invention is the provision of a channeled conductor having contact faces adapted to simultaneously engage opposite faces of an attachment plug prong, the portions bearing said contact faces being transversely slitted, thereby forming aligned tongues therebetween, so that the width of any tongue and the adjacent slits are substantially equal to the width of said prong. The prong is adapted to displace one or more tongues and lie within the space between the adjacent tongues on both sides of the one or ones displaced.

A further object of the invention is the provision of a conductor for circuit moldings comprised of an elongated metallic member supported in said molding and having a plurality of slits therein extending rearwardly from its front or engageable edge, thereby forming tongues therebetween, so spaced as to hold an attachment plug straight with the molding when a prong of said plug is placed in cooperative contact relation with said conductor.

Other objects and advantages of the invention will be apparent to those skilled in the art.

Referring to the drawing—

Figure 1 is a perspective view of a portion of a baseboard carrying a circuit molding;

Figure 2 is a perspective view of the conductors of said molding;

Figure 3 is a view, partly in section, showing an attachment plug with its prongs engaged by certain of the tongues of the conductors;

Figure 4 is a view, partly in section, taken along the lines 4—4 of Figure 3, and showing how some of the tongues of the conductors engage the prongs laterally and others engage the same endwise;

Figure 5 is a diagrammatic view taken approximately on the lines 5—5 of Figure 3, showing how the tongues of the conductors grip and hold the prongs of the plug and prevent the same from being moved sidewise or "cocked";

Figure 6 is a sectional view of a molding formed of resilient material particularly around the engageable edges of the conductors, and in which the conductors are formed of single strips of metal; and

Figure 7 is a fragmentary view of one of the conductors of the molding shown in Figure 6 wherein slits are formed therein in definite spaced relation to the width of the prong of the standard attachment plug.

In Figure 1, the numeral 10 denotes a support preferably of sheet metal having formed therein a channel 11 adapted to hold the elongated non-conducting casing 12 containing one or more conductors 13, 14. Two conductors will be shown in the figures which disclose an ordinary two-wire molding, although it is obvious that one or any number of conductors may be placed in the casing 12. For example, a single conductor would be employed if the molding were intended to be used as a radio antenna or two conductors could be employed for an electric circuit with a third conductor for use as a radio antenna. As the number of conductors employed and their arrangement in the casing 12 may be varied within wide limits, these various modifications being obvious, are not shown. The non-conducting casing 12 may be molded in a single piece of any suitable length and when so made will be substantially of the form shown. This casing may be made of rubber or some similar non-conducting material in one piece in order that the adjacent lips or edges of the slots 15, 16, will be normally

closed, thereby completely enclosing the conductors 13, 14.

The conductors, which are shown in Figure 2 as removed from Figure 1, are preferably made of a springy material which is at the same time a good electric conductor. Materials such as phosphor-bronze, hard or spring brass, or the like, are examples of such materials, and these conductors 13, 14, may each be formed in one piece, as shown, and may have integrally extended contact surfaces, shown at 20, which are slotted or slitted at right angles to the axis of the body portion of the conductor, as indicated at 21. This slotting makes the conductor as a whole more flexible for insertion within the casing 12, and also aids in establishing good contact with the prongs of a connecting plug when the same is inserted in the molding.

A further and important advantage in having the exchangeable surfaces of the conductors slotted or slitted is the fact that by spacing the slots or slits apart from each other in definite relation to the width of the prong of the standard attachment plug; the tongues, fingers or webs between the slits establish good contact with the prong of the plug and also prevent the plug from being "cocked" sidewise, as will presently be described.

Figure 4 shows an attachment plug 22 with its prong 23 engaging the conductor 13, and its prong 24 engaging the conductor 14. Normally the contact surfaces of the conductors, which due to the slitting are in fact tongues, contact each other.

It will be noted that in Figure 4 the prongs 23, 24, of the plug displace the tongues with which they are engaged so that they are no longer in alignment with the other tongues. This may be better seen in Figure 4 wherein the tongues 20^a and 20^b, engage one lateral face of the prong 23; the tongues 20^c and 20^d, engage the opposite lateral face of the prong 23. In addition to this, one edge of the prong 23 has in alignment therewith the tongues 20^e and 20^f; and likewise the other edge has in alignment therewith the tongues 20^g and 20^h. Slight clearances are provided between the edges of the prong and the adjacent tongues just described.

The prong 24 is engaged in the same manner by tongues of the conductor 14; therefore, it can be readily appreciated that the plug 22 cannot be moved or cocked sidewise when engaged by the tongues in the manner above described.

While I have shown two tongues engaging each side of each connector plug prong, it must be distinctly understood that I may use any desired number of tongues provided their width and the widths of the slits therebetween are in definite relation to the width of the standard plug prong.

In Figure 6, I have shown a modification of the invention wherein the resilient body 25, has longitudinal slots 26 and 27 formed therein. These slots have their adjacent lips or edges normally closed through which the prongs of the attachment plug may enter the cavities 28 and 29. Embedded within the body 25 are continuous conductors 30 and 31. The conductor 30 projects into the cavity 28 and spans a longitudinal bead 32 therein. The conductor 30 has a plurality of slits 33 formed therein which define tongues 34.

The fragmentary view of the conductor 30, shown in Figure 7, includes a fragmentary view of the plug prong 24 to show the relation between the spacing of the slots and the tongues therebetween with respect to the width of the prong.

When the prong enters the slot 26 and engages the tongues 34 on the conductor 30, the bead 32 permits the two tongues engaged by the prong to be deformed upwardly, as viewed in Figure 6, and aids in maintaining good contact therebetween.

The conductor 31 is mounted oppositely in the body 25 and projects into the cavity 29 where a bead 35 engages its tongues in the same manner as described for the bead 32, thereby causing the tongues of the conductor 31, when deformed, to react in the opposite direction, and thereby the two prongs of the attachment plug are firmly gripped between the tongues of the conductor 30 and the tongues of the conductor 31. The surface 36 of the cavity 28 forms an inclined plane which the end of the prong engages when the plug is inserted. The cavity 29 likewise has an inclined surface 37.

Although the invention has been disclosed in connection with the specific details of preferred embodiments thereof, it must be understood that such details are not intended to be limitative of the invention except in so far as set forth in the accompanying claims.

What is claimed is:

1. In combination, an attachment plug having a pair of spaced prongs, the contact surfaces of which are substantially equal and parallel, and an electric circuit molding comprising an elongated channeled body formed of non-ferrous metal, the sides of said channel being deformed to normally contact each other, a plurality of slots in said sides at right angles to the longitudinal axis of said channel and in substantially perpendicular alignment so as to form therebetween a plurality of pairs of aligned tongues normally in contact with each other, said slots being so spaced that several of said tongues and the slots thereabout are substantially equal to the width of either of said contact faces, whereby each prong when said plug is inserted, is interposed between not less than said several pairs of tongues and the slots thereabout, the adjacent tongues serving to prevent said prongs from being cocked sidewise.

2. In combination, an attachment plug having a pair of spaced prongs, the contact surfaces of which are substantially equal and parallel, and an electric circuit molding including a resilient support, a non-ferrous conductor carried in said support, and having at least one face thereof lying in contact with said support, a curvilinear bead or rim adjacent one edge of said conductor and extending longitudinally therealong to facilitate its engagement by one of said prongs, a plurality of slots extending inwardly from said last mentioned edge at right angles to the axis thereof, the webs therebetween forming tongues, said slots being so spaced that several of said tongues and the slots thereabout are substantially equal to the width of either of said contact faces whereby each prong, when said plug is inserted, displaces and interposes itself between not less than said several pairs of tongues and the slots thereabout, the tongues adjacent to said prongs serving to prevent the latter from being cocked sidewise.

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