May 19, 1942. H. R. VAN DEVENTER 2,283,398

ELECTRIC CIRCUIT MOLDING

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Fig:1.

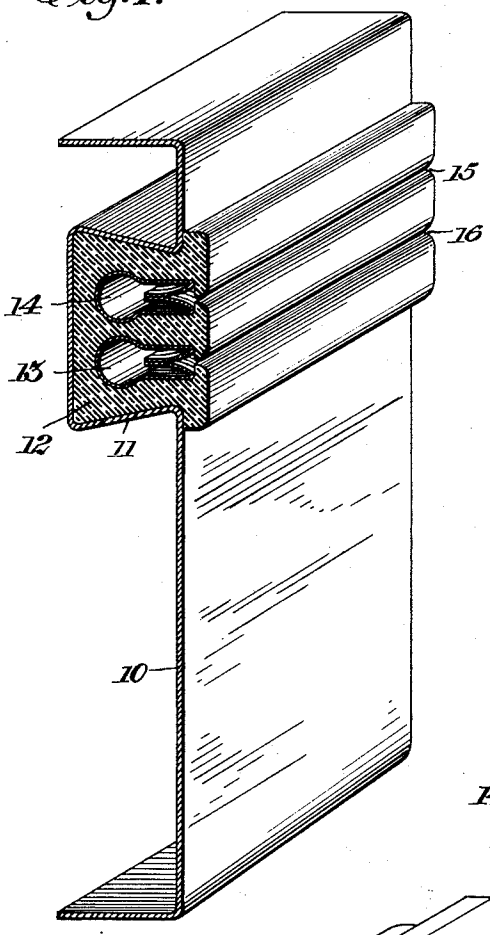


Fig:2.

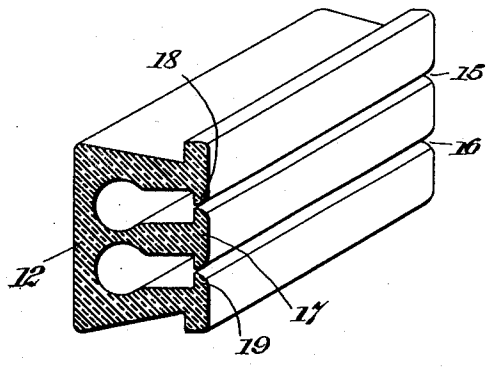
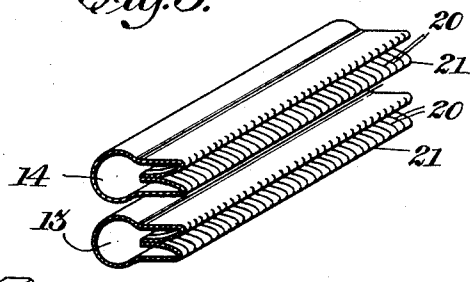


Fig:3.



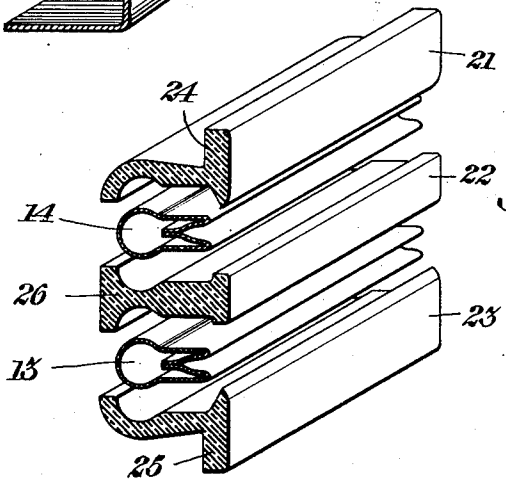


Fig:4.

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Fig. 1.

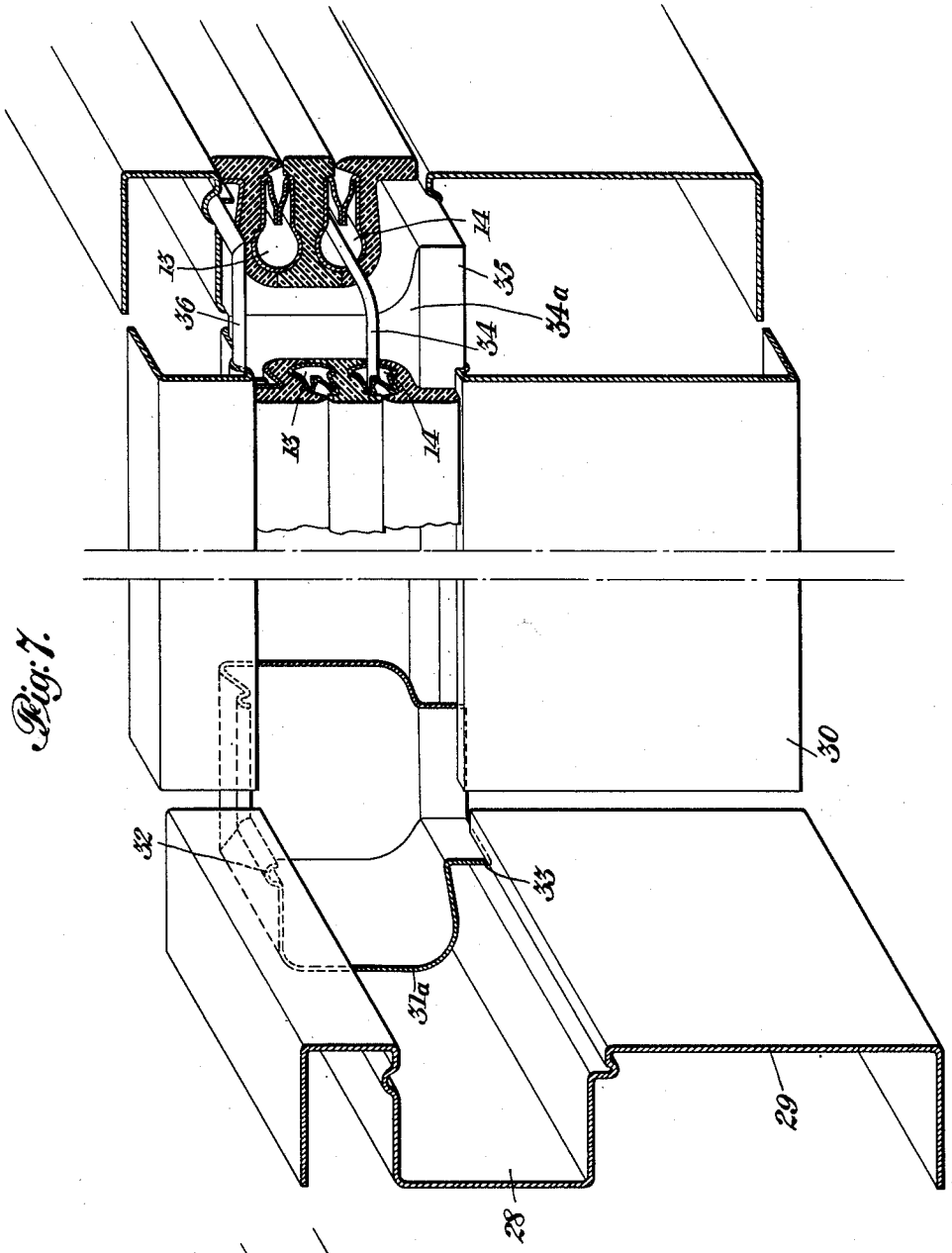
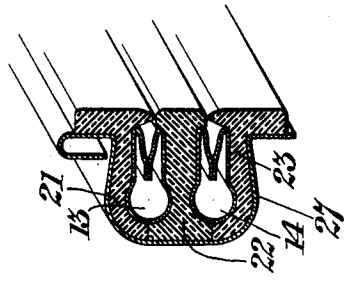


Fig. 5.



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Fig. 8.

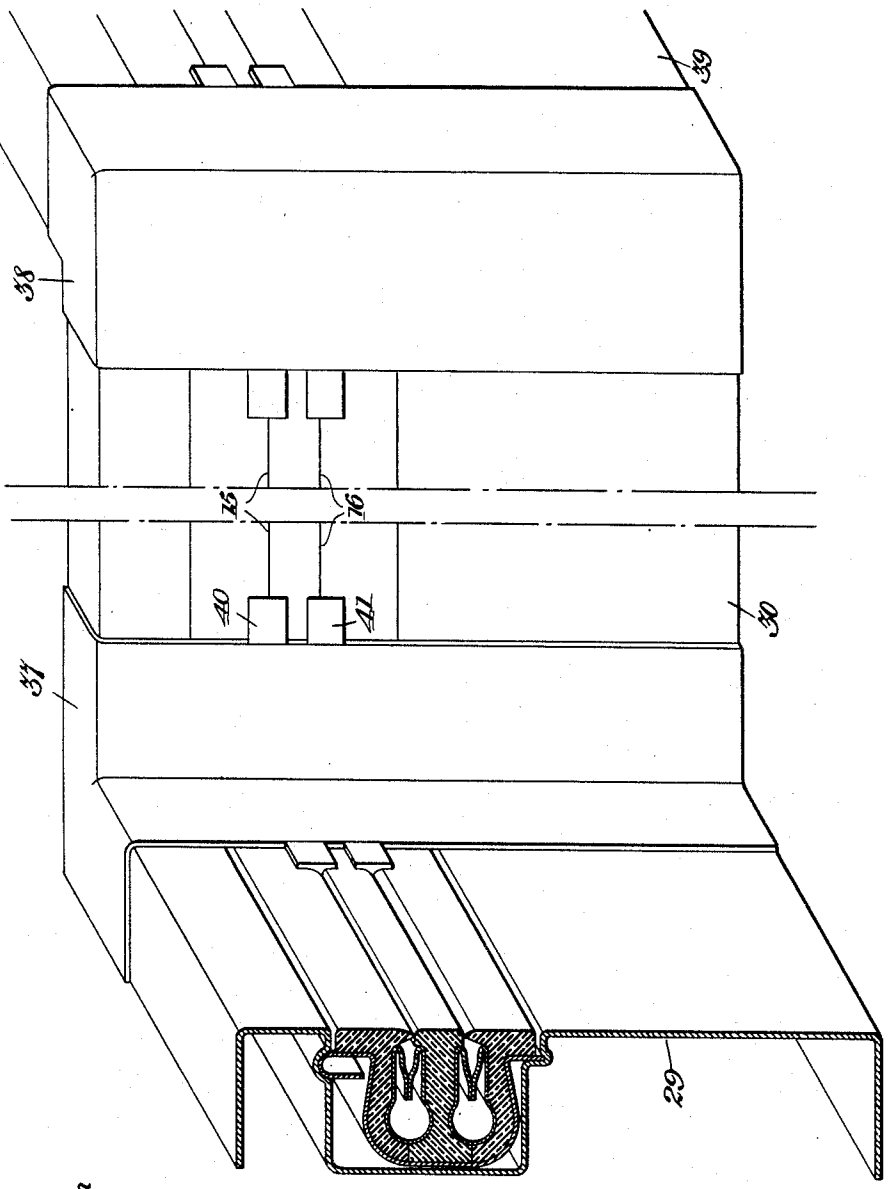
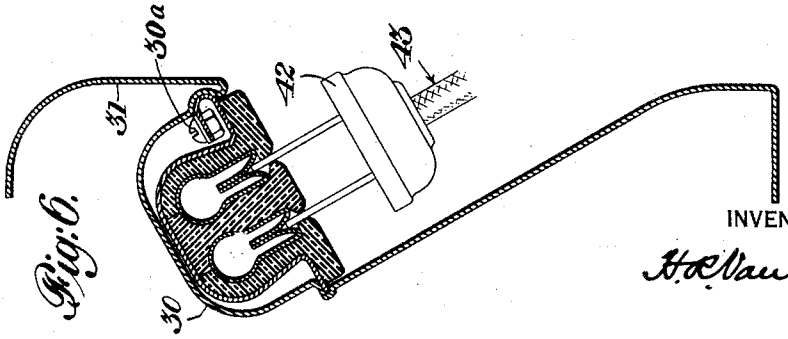


Fig. 6.



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2,283,398

ELECTRIC CIRCUIT MOLDING

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Application April 11, 1933, Serial No. 665,519

14 Claims. (Cl. 173—334.1)

This invention relates to improvements in electric circuit molding of the type in which the circuit may be tapped at any point in the molding.

An object of the invention is to simplify and cheapen the construction of such molding.

A further object is to provide a molding comprising a non-conducting casing having longitudinal slots therein with deformable edges whereby said slots are normally closed except at the point where a tap or plug is inserted to make connection with the electric circuit.

Another object of the invention is to provide an electric circuit molding which may be easily and cheaply installed, utilizing a channeled support for holding the molding per se.

Electric circuit moldings of known types will be briefly referred to in order to more clearly point out the objects attained by this invention.

Electric moldings of the trolley type in which the circuit plug is slidable along a pair of conducting rails which may be located in the baseboard of a room or the like are open to the objection that a slot must be provided in the baseboard for the neck of the connecting plug which slot readily admits dust and moisture. Children are liable to insert metallic objects in this slot thereby interfering with the operation of the device and causing short circuits. Such arrangements are also difficult to install and relatively expensive to manufacture and the necessity for such arrangements are obviated by the present invention.

Another type of molding is that in which the nonconducting casing containing the conductors is secured together by a plurality of screws or the like and the expense incident to such construction is obviated by the present invention.

This type of molding is also open to the objection that it has open slots extending its entire length for the insertion of the connecting plug.

A third type of molding which may be mentioned as illustrative of the prior art is that in which the conductors are imbedded in a cast or molded non-conducting casing. This type also has the objectionable open slots, requires expensive tools for its production and must be secured to its support by screws or the like, all of which objections are obviated by the invention herein disclosed.

The invention consists substantially in the construction, combination, location and relative arrangement of parts, all as will be more fully hereinafter set forth as shown by the accompanying drawings and finally pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a view, partly in section, of one form of the molding constituting this invention including the channeled support therefor;

Figure 2 is a perspective view of the non-conducting casing shown in Figure 1;

Figure 3 is a perspective view of a pair of conductors suitable for use with the casing, Figure 2;

Figure 4 is a perspective view of an alternate form of non-conductive casing comprised of several pieces and employing an alternate form of conductor from that shown in Figure 3;

Figure 5 is a perspective view of a sub-support in which the casings, Figure 2 or 4, may be used;

Figure 6 is an end view of a form of channeled support for use with the sub-support, Figure 5;

Figure 7 is a perspective view of three sections of channeled supports showing how the sections are joined and how the conductors, Figure 3 or 4, are connected; and

Figure 8 is a view of the sections, Figure 7, showing how the exterior finish plates are applied thereto.

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 in Figure 2. 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 as shown in Figure 1.

If necessary, the main body portion of the casing 12 may be of solid material and only the

central lip portion 17 thereof made of rubber for if the central lip portion is of resilient material the upper and lower edges 18 and 19 need not be resilient, the portion 17 being displaceable in order to permit the contact blades of the connecting plug hereinafter mentioned to enter the slots and make contact with the conductors herein.

It will be observed that when the blades of the connecting plug are pushed into the slots these will only be opened substantially the width of the blade and that the slots on each side of these blades will remain closed.

The conductors shown in Figure 3 are preferably made of some resilient material such as phosphor-bronze or the like and may be formed in one piece as shown and have integrally extended contact surfaces shown at 20 which are slotted at right angles to the body portion of the conductor as indicated at 21, Figure 3. This slotting is desirable as it makes the conductor as a whole more flexible for insertion within the casing 12 and also aids in making good contacts with the blades of the connecting plug when the same is inserted in the molding.

The contact surfaces, two of which are provided for each conductor, are normally in contact with each other which prevents the lodgment of dust on the contact surfaces proper when the molding is not in use.

In Figure 4 is shown an alternate form of nonconducting casing composed of a plurality of members 21, 22 and 23. In this construction it is preferable to make the side members 21 and 23 of solid insulating material such as wood, Bakelite or any suitable insulating material, so that the outwardly extending flanges 24, 25 will form rigid protecting edges for the casing and firmly grip the conductors 13, 14 therebetween.

The center member 22 may have its rear portion 26 of solid material and its outer face 22 of yielding material such as soft rubber or the entire member 22 may be of soft rubber, the purpose of having at least the outer edge of this member resilient being in order that it will seal the slots and thereby protect the conductors enclosed therein. In Figure 4 the conductors 13 and 14 are shown having a flat form of contact edge as distinguished from the serrated or slotted edges of the conductors shown in Figure 3.

The electric molding is assembled by placing one or more of the conductors 13, 14 in the nonconducting casing 12, or the casings 21, 22, 23 of Figure 4 and then sliding the elements so assembled into the channel 11, in the support 10, which support may form the baseboard of a room.

Figure 5 shows the form of construction in Figure 4 with the conductors and their casing in place in the channeled support 27 and shows how the assembly, Figure 4, is secured together without use of screws or other fastenings.

In some installations it is desirable to regard the support 27, Figure 5, as an auxiliary or subcasing which is adapted to fit within the channel 28 on a main support 29, Figure 7, but of course it will be understood that the arrangements shown in Figure 1 and Figure 7 may be interchanged.

If desired, the channel in the support 10 or 29 may be placed at an angle as shown at 30, Figure 6, and the entire assembly, Figure 5, inserted therein. This naturally conserves space for when the connecting plug is inserted in the molding it will not stick out beyond the face 31 of the support.

In case it is necessary to connect adjacent lengths of the support 27 by bonding jumpers, these may be attached by screws such as 30a, Figure 6.

In order to comply with the underwriters' requirements for the installation of moldings of this general type it is necessary that the metal support for the molding be electrically continuous and accordingly where sections of the molding are to run at angles to each other they may be arranged as shown in Figure 7. The inner connecting member 31a which may be a metallic punching is provided with a lip 32 and an edge 33 adapted to engage the corresponding lip and edge portions of the channel 28 as shown. This will form a continuous metallic connection between the support 29 and the support 30.

It is also necessary to metallically connect the conductors 13 and 14 where the supports join each other at an angle and these are joined together by means of suitable conductors, one of which is shown at 34, Figure 7, which are provided with tabs (not shown) adapted to engage the contact surfaces of the conductors 14.

In order to stiffen the outer edges of the supports at the open corners thereof and to insure electrical continuity, there is provided the angle member 34a, having lower and upper fitting edges 35 and 36, which are inserted in the edges of the supports as shown in Figure 7.

In order to provide a finish for the exterior of the molding after it is installed the arrangement shown in Figure 8 may be used, the corners of the molding being covered by corner plates 37 and 38 which are secured to the supports 29, 30 and 39 in any suitable manner. In order to prevent the contact blades of the connecting plugs from short circuiting on these corner plates they are provided with buffers 40, 41 at each side so that it is impossible to insert the connecting plug in the slots 15 and 16 and make the blades contact on the metal corner plates. The connecting plug 42 may be of any suitable type having the usual cord 43 adapted to contact to any suitable apparatus to be operated from the electrical circuit formed by the conductors 13, 14.

It will be seen that when installed as shown in Figures 7 and 8, the connecting plug 42 may be inserted anywhere along the slots 15 and 16, thereby making contact with the conductors in said slots, but because of the resilient character of the material forming the outer edges of said slots the slots will remain closed except where the contact blades of the plug pass through them, at which points the resilient edges of the slots will be displaced only enough to permit the contact blades of the plug to enter.

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 an electric circuit molding, a plurality of members having grooves and adapted when assembled to form an elongated casing wherein the grooves of said members cooperate to form slots adapted to enclose conductors, said slots forming an entrance to said conductors, some of said members having portions of yieldable material forming engaging means, a sheet metal support

having sloping side walls adapted to grip said means and hold said members in assembled position in said support, and conductors held in position in said casing.

2. In combination with a wall forming a support, an electric circuit molding comprising a housing adapted to be secured to the wall, said housing having a channeled portion therein, a non-conducting casing having conductors therein and mounted in the channeled portion of said housing, said casing having its outer face at an angle to the front face of the wall upon which said housing is mounted, whereby an outlet plug engaging the conductors in said casing shall not project beyond the plane of the front face of the wall.

3. A continuous electrical outlet adapted to receive throughout its length one or more outlet plugs in operative electrical contact, comprising a strip of yieldable insulating material having a pair of slots extending longitudinally thereof and adapted to receive the contact arms of an outlet plug, resilient electrical conductors in said slots having their outer surfaces in close engagement throughout with said insulating strip and yieldably supported by said strip, whereby said strip and said resilient conductors are yieldable transversely of the outlet at plug inserting pressures and cooperate to urge the resilient conductors toward the arms of the plug.

4. A continuous electrical outlet adapted to receive throughout its length one or more outlet plugs in operative electrical contact, comprising a strip of yieldable insulating material having a pair of slots extending longitudinally thereof and adapted to receive the contact arms of an outlet plug, resilient electrical conductors in said slots having their outer surfaces in close engagement with said insulating strip adjacent the contact arms of an outlet plug when the same is inserted in the slots, said resilient electrical conductors being yieldably supported by said strip, whereby said strip and said resilient conductors are yieldable transversely of the outlet at plug inserting pressures and cooperate to urge the resilient conductors toward the arms of the plug.

5. A continuous electrical outlet adapted to receive throughout its length one or more outlet plugs in operative electrical contact, comprising a strip of yieldable insulating material having a pair of slots extending longitudinally thereof and adapted to receive the contact arms of an outlet plug, electrical conductors in said slots having their outer surfaces in close engagement substantially throughout with said insulating strip and yieldably supported by said strip, whereby said strip and said conductors are yieldable transversely of the outlet at plug inserting pressures and urge the conductors toward the arms of the plug.

6. A continuous electrical outlet adapted to receive throughout its length one or more outlet plugs in operative electrical contact, comprising a casing of insulating material having a pair of slots extending longitudinally thereof and adapted to receive the contact arms of an outlet plug, yieldable means in said casing, electrical conductors in said slots having their outer surfaces in close engagement with said yieldable means adjacent to the contact arms of an outlet plug when the same is inserted in the slots, said electrical conductors being yieldably supported by said yieldable means, whereby said yieldable means and said conductors are yieldable transversely of the outlet at plug inserting pressures and urge the conductors toward the arms of the plug.

7. A continuous electrical outlet adapted to receive throughout its length one or more outlet plugs in operative electrical contact, comprising a strip of flexible insulating material having a pair of slots extending longitudinally thereof and adapted to receive the contact arms of an outlet plug, flexible electrical conductors in said slots having their outer surfaces in close engagement with said insulating strip adjacent the contact arms of an outlet plug when the same is inserted in the slots, said flexible electrical conductors being yieldably supported by said strip, whereby said flexible conductors are yieldable transversely of the outlet at plug inserting pressures and urge the flexible conductors toward the arms of the plug.

8. In combination with a wall forming a support, an electric circuit molding comprising a support adapted to be secured to the wall, said support having a channeled portion formed therein, a non-conducting casing having conductors therein mounted in the channeled portion of said support, and means for retaining the casing in the opening of said channel and at an angle to the front face of the wall whereby an outlet plug engaging the conductors in said casing shall not project beyond the plane of the front face of the wall.

9. An electric circuit molding of the character described comprising in combination, an elongated insulation casing having a slotted opening therein, said casing including yieldable insulation material embracing a conductor located in said slot, yieldable means included in the face portion of said casing for closing the entrance to said slot, and a support coextensive with the elongated casing and yieldably embracing the casing and the slot closing means.

10. An electric circuit molding of the character described comprising in combination, an elongated casing including compressible insulation material having a slotted opening therein, a conductor located in said slot, yieldable means included in the face portion of said casing for closing the entrance to said slot, and a support coextensive with the elongated casing and yieldably embracing the casing and the slot closing means, said support including a substantially "dove-tail" shaped channel having its side walls relatively yieldable so as to facilitate the insertion of the insulation casing therein.

11. An elongated circuit molding of the character described in combination, an elongated sheet metal base member having integral top, front and bottom walls, an open substantially "dove-tail" shaped channel formed in said front wall and coextensive in length therewith, an elongated insulation casing including sections of yieldable material located in said channel, said casing having a pair of spaced channels formed therein, and a conductor located in each channel of said casing, the forward walls of said casing channels forming a slotted opening adjacent each conductor, the walls of said support channel walls embracing said insulation casing to yieldably hold the same and the related parts in assembled position.

12. An electric molding of the character described comprising, in combination, a core provided with grooves extending longitudinally thereof, an electric conducting member mounted within each of said grooves, a yieldable electric contact member connected to each conducting

member and adapted to be engaged by the prongs of an electric terminal plug, and a compressible material at the rear of said core adapted to yieldingly engage a surface to which the molding is attached.

13. An electric molding of the character described and comprising, in combination, a core provided with grooves extending longitudinally thereof, an electric conducting member mounted within each of said grooves, inwardly turned yieldable electric contact members forming fingers as an integral part of each conducting member and adapted to be engaged by the prong of an electric terminal plug, and a compressible yieldable material at the rear of said core adapted to yieldably engage a surface to which the molding is attached.

14. A continuous electrical outlet adapted to receive throughout its length one or more outlet plugs in operative electric contact, comprising a strip of yieldable insulation material having a pair of slots extending longitudinally thereof and adapted to receive the contact arms of an outlet plug, resilient electric conductors in said slots having their outer surfaces in close engagement throughout with said insulating strip and yieldably supported by said strip, the free edges of the resilient conductors being slotted, whereby said strip and said resilient conductors are yieldable transversely of the outlet at plug inserting pressures and cooperate to urge the resilient conductors toward the arms of the plug.

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