

May 17, 1938.

A. A. STEINMETZ

2,117,773

OUTLET MOLDING

Filed Nov. 23, 1931

FIG. 1

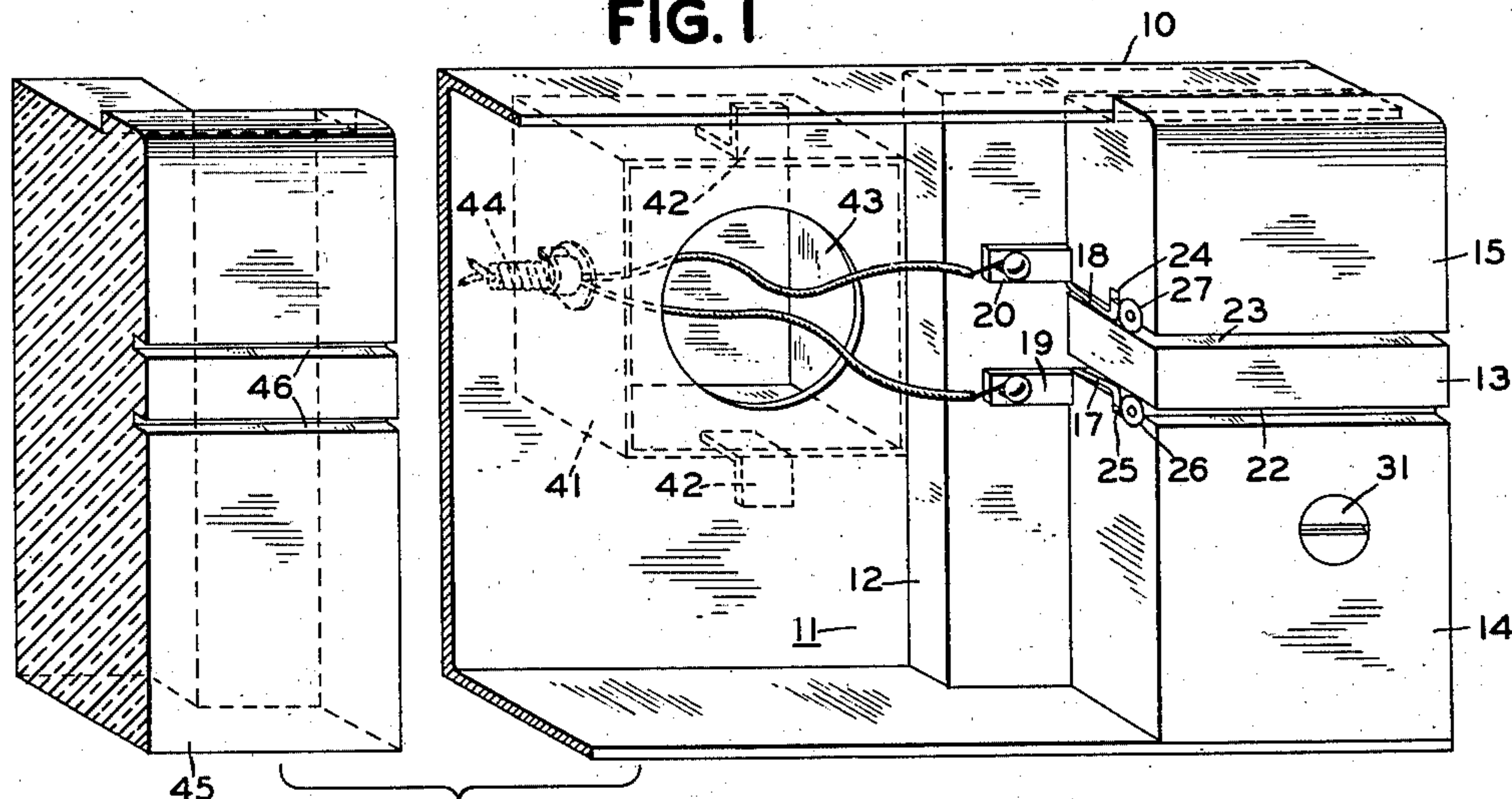


FIG. 4

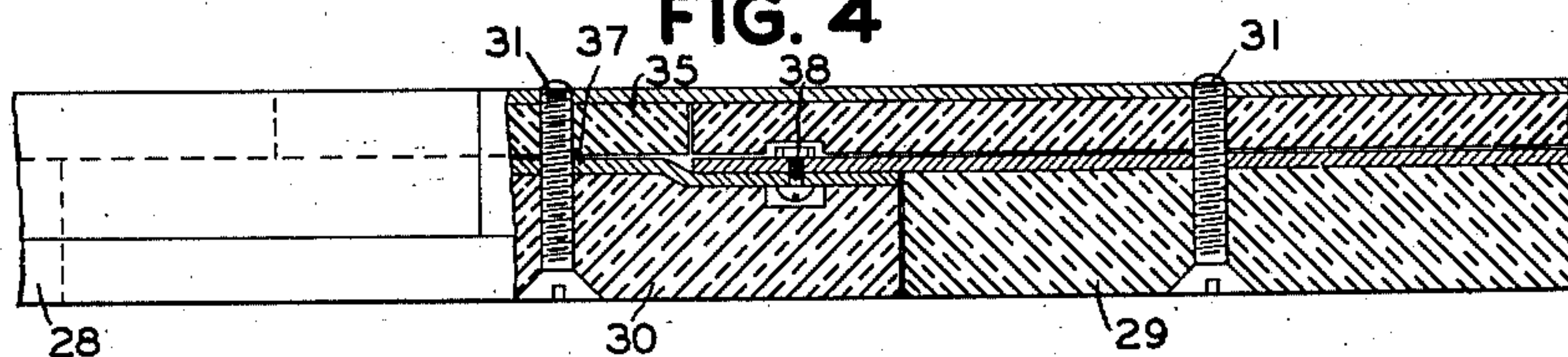


FIG. 2

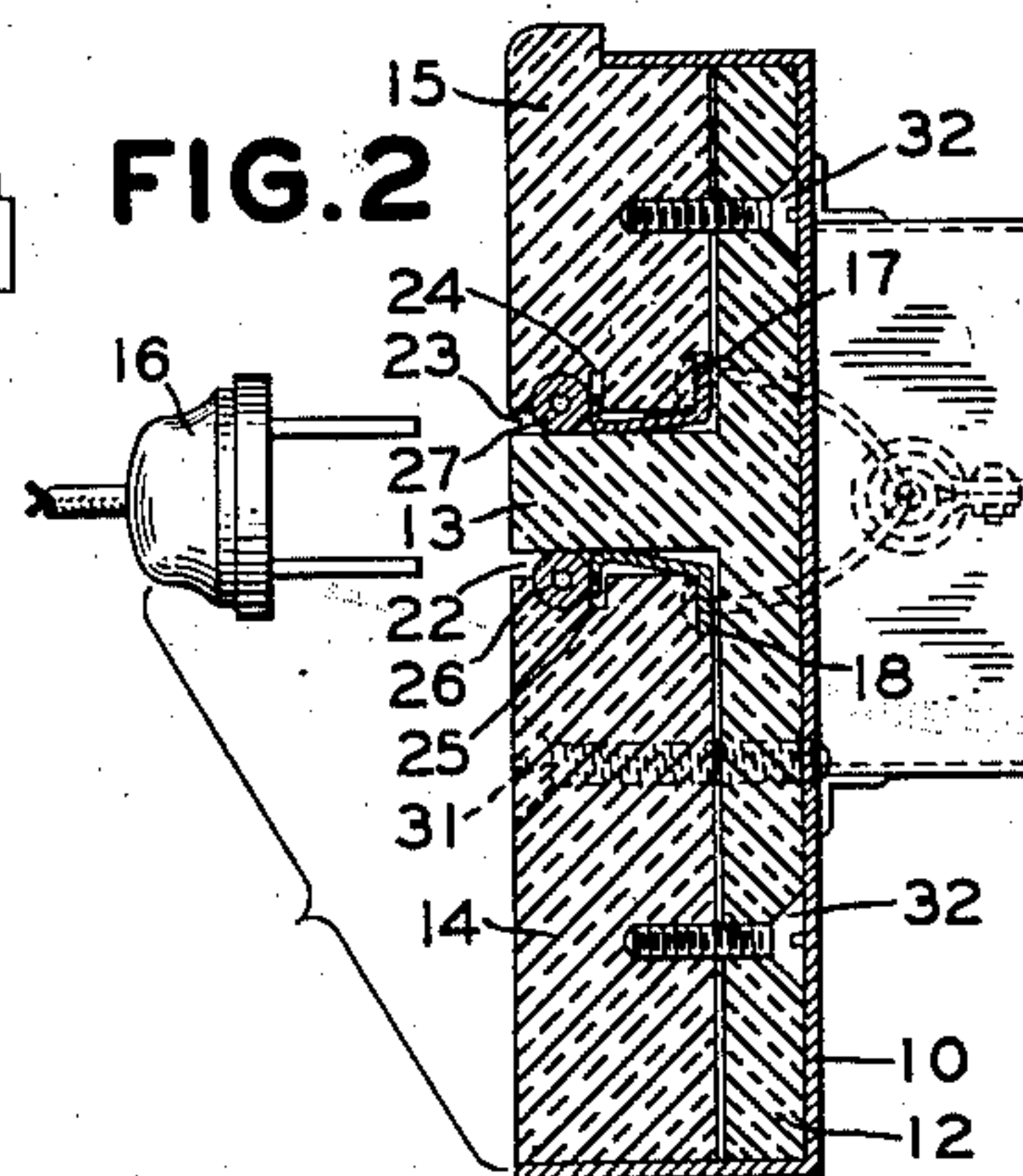


FIG. 3

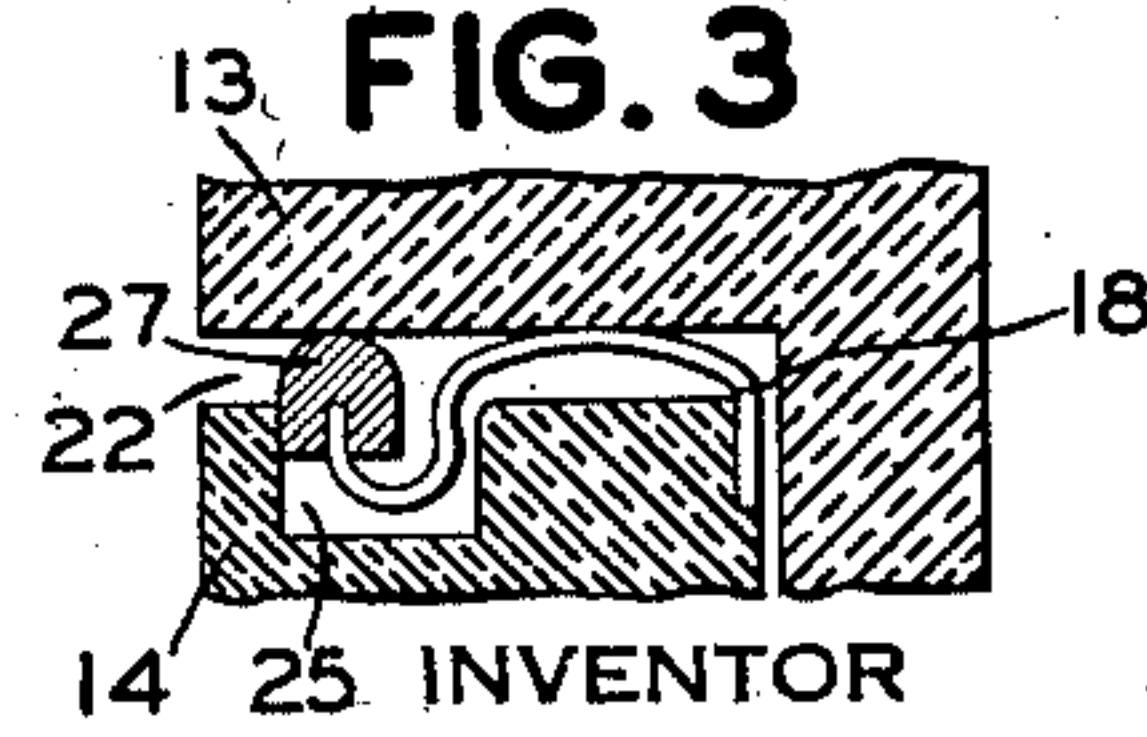
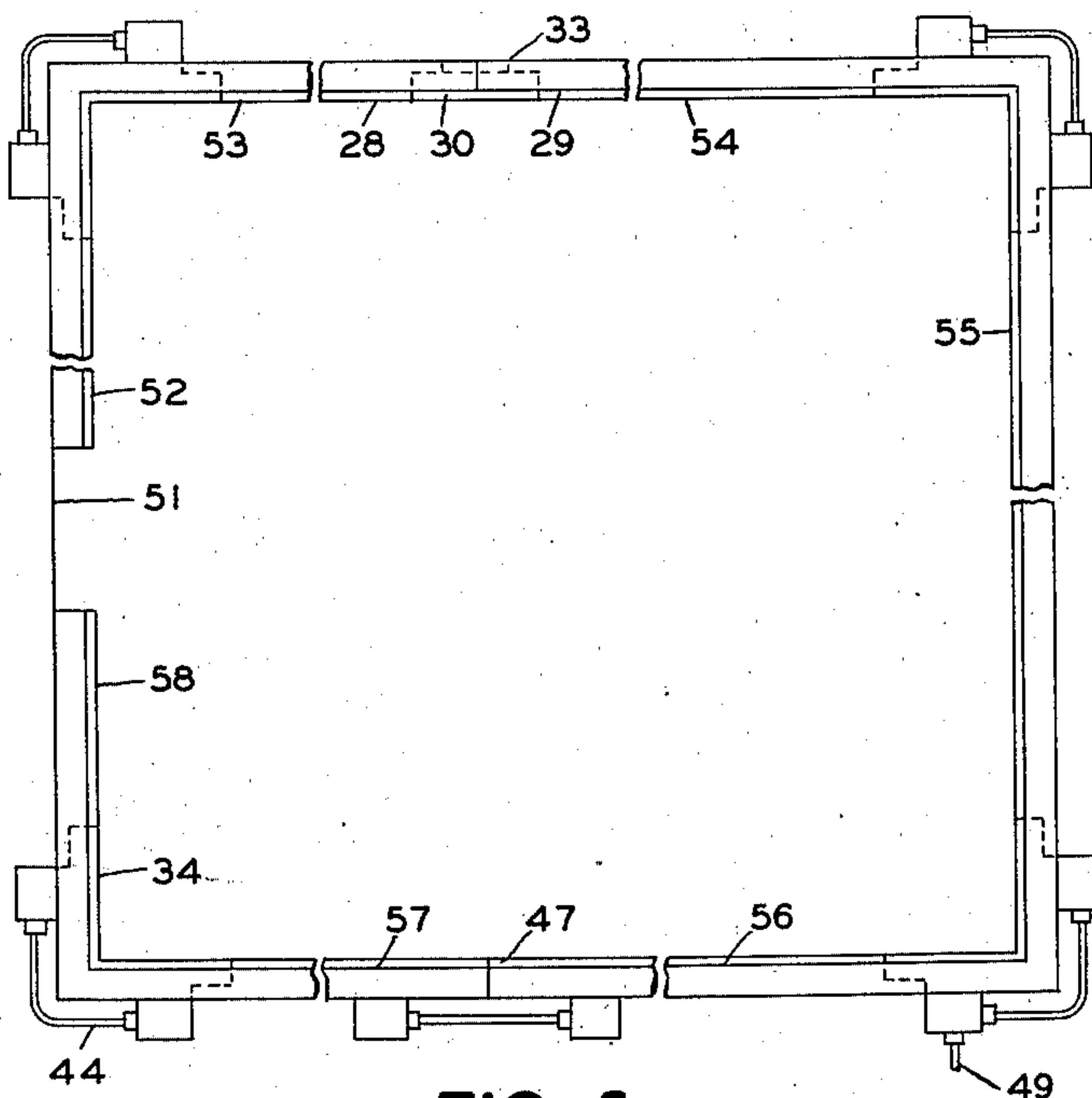


FIG. 5



25 INVENTOR
A. A. STEINMETZ
BY
Eugene C. Brans
ATTORNEY

UNITED STATES PATENT OFFICE

2,117,773

OUTLET MOLDING

Alfred A. Steinmetz, Locust Valley, N. Y., assignor to The Western Union Telegraph Company, New York, N. Y., a corporation of New York

Application November 23, 1931, Serial No. 576,902

4 Claims. (Cl. 247—3)

The present invention relates to electrical distribution systems, and particularly to electrical outlets for a distribution system which may be made up in the form of molding or trim suitable for applying to the walls of a room to supply a substantially continuous outlet connection along said walls.

It is an object of this invention to provide an improved type of such molding embodying means to protect the current conductors from exposure and at the same time permitting collectors such as an ordinary plug to be connected to the conductors.

It has been proposed heretofore to provide a continuous outlet molding or the like which may be applied to the walls of a room or other desired position. Such a molding may comprise sections of longitudinally extending insulating strips having a pair of spaced conductor elements embodied in the strips and a pair of spaced slots providing openings over the conductor elements for inserting the prongs of a connector plug to make engagement with said elements through the slots. Heretofore the slots over the conductor strips have been left open resulting in more or less exposure of the strips which is conducive to accidental short circuits and also to the accumulation of dust and other foreign material about the conductors. However, according to this invention means is provided for closing the entrance to such slots which eliminates the undesirable exposure of the conductor elements. The closure elements may be made of any type of resilient or yieldable material which will extend across the slots and maintain the same closed but which will yield when the prongs of the connector plug are inserted into the slots to permit the prongs to pass the closure elements and make contact with the conductors.

A further object of this invention is to provide an outlet embodying longitudinally extending conductor elements and openings for the admission of collector elements and resilient means to maintain the openings normally closed.

From the standpoint of manufacture it is desirable that the molding be made up and assembled in standard lengths that are easily handled and which can be joined together as they are installed to form the lengths of outlet suitable or desirable for the particular conditions. A further object of this invention is, therefore, to provide an outlet molding in strips of suitable lengths which may be assembled in suitable protective casings and also to provide improved means for joining together lengths of the strips

to form a substantially continuous outlet along the wall of a room or other structure.

These and other objects will be apparent from the following description taken in connection with the drawing, forming a part of this application, in which:

Fig. 1 is a perspective view of the molding showing the retaining casing and a junction box attached to the casing;

Fig. 2 is a cross sectional view of the arrangement shown in Fig. 1;

Fig. 3 is a cross sectional view of a modification of the arrangement shown in Fig. 2;

Fig. 4 is a view partly in longitudinal section of a joint between adjacent ends of two molding strips; and

Fig. 5 is a diagrammatic view of a series of strips applied to a room supplying a distribution system therefor.

Referring to the drawing, the molding comprises a casing 10 which in its preferred form is a channel member of metal or other suitable material, and an insulating strip 11 secured in the casing. The insulating strip is preferably made in three parts; a base member 12 embodying a tongue portion 13 and side members 14 and 15 fitted on opposite sides of the tongue portion. The tongue portion 13 is of a suitable width to be straddled by the prongs of an outlet plug 16 shown in Fig. 2.

Similar conductor elements 17 and 18 embodying a rigid base portion and a resilient upstanding tongue portion are secured to the insulating base member 12 on opposite sides of the tongue 13. The conductor elements extend longitudinally of the insulating strip and terminate at the opposite ends thereof in tips 19 and 20 formed by a projection of the base portion of the strips. The upstanding resilient portion of the strip is disposed in slots 22 and 23 formed by spacing the side members 14 and 15 from the tongue portion.

In the preferred form of the invention grooves 24 and 25 are formed in the side strips 14 and 15 substantially at the entrance of the slots. The conductor elements 17 and 18 are bent away from the central portion 13 along their outer edges and project into recesses formed in the grooves 24 and 25. These recesses are enlarged to provide clearance for the movement of the conductor elements when they are forced out by the insertion of the prongs of a connector plug. The remaining portions of the grooves 24 and 25 are formed substantially cylindrical to admit the resilient members 26 and 27, which may be formed

of rubber tubing or other suitable yielding material. The rubber tubing is preferably fitted relatively firmly between the grooves and the member 13, forming the opposite side of the slots so as to effectively close the slots to the admission of dust or other foreign material which might clog the entrance or set up short circuits between the conductors. However, when the prongs of the connector plug are inserted in the slots and pressed inward to make connection with the conductor elements, the resilient tubing is of such a nature that it will readily yield to permit the prongs of the plug to pass between it and the central tongue portion 13 and engage the conductor elements.

Referring to Fig. 3 a modified form of the yieldable closure arrangement is shown. In this form the groove 25 is deepened and enlarged to provide for free movement of the conductor and yieldably supported insulating member. The conductor element 18 is formed to have a hook-like outer edge with the tip extending toward the member 13. The insulating closure member 27 is formed with a U shape and mounted along the outer edge of the hook portion of the conductor element. The conductor element is biased toward the member 13 and in this manner holds the insulating member 27 against the member 13. When the prong of a plug is inserted in the slot 22, it will engage the member 27, which, due to the spring action of the conducting element upon which it is mounted, will move downward into the slot 25 to permit the prong to pass beyond the same into engagement with the conductor element 18. This arrangement permits the use of a type of closure element differing from that shown in Fig. 2, such as hard rubber, bakelite or similar hard insulating materials.

The insulating portion of the outlet strips or molding may be made of any suitable material such as hard rubber, bakelite, fibre, wood or the like. The conductor elements may be of hard rolled copper or other suitable material.

The molding strips are assembled in standard lengths. Fastening means in the form of screws 31 or other suitable members pass through the side members 14 and 15 and the base member 12 and secure the same to the casing 10. The side members may be held in place with respect to the base before it is assembled in the casing by means of screws 32.

When lengths of the outlet molding are joined together to form a suitable outlet system for a room such as illustrated in Fig. 5, according to this invention, two types of joint, shown diagrammatically in Fig. 5 may be employed; one type being that shown at 33 and another type that shown at 34. The outlet molding would ordinarily be made up in standard lengths separate from the casing. In fitting up a room the casing may be cut in proper lengths and fitted in place and lengths of the outlet molding are assembled and fitted in the casing. The lengths of molding may be suitably joined electrically by means of one of the types of joints referred to so that the molding strips form a complete outlet system extending substantially around the whole perimeter of the room.

Where the electrical connections are made through the joint itself, the arrangement corresponds substantially to that shown in Fig. 4 where lengths 28 and 29 are joined by a bridge section 30. All of the ends of the sections of molding are preferably made alike. The side members 14 and 15 and a portion of the tongue

13 of the insulating elements is cut back or cut short so that the base portion 12 extends out beyond the side members. The tips 19 and 20 of the conductor elements extend out beyond the side members and rest on the base portion. The tips are either pierced or tapped for suitably securing the joined conductor elements thereto.

When a joint of the type shown at 33 Fig. 5 and in detail in Fig. 4 is to be made, the lengths of outlet molding are assembled in the casing with a substantial space between their ends. The casing may be joined at the central part of this space or it may continue across this space and be joined at some other position spaced longitudinally therefrom. A special short section or strip of molding is made up to provide a bridge for the space between the molding strips after they are in place in the casing. This strip may be provided with the outlet slots and conductor elements to form a continuation of the outlet across the bridge, or it may be a blind section embodying merely false slots with no openings to the conductor elements. The bridge assembly is made up by fitting a block 35 between the base members 12 of the oppositely disposed strips. If the bridge is to embody a continuation of the outlet, the block 35 may be provided with a tongue member 13 similar to that shown in cross section in Fig. 2, suitably fitted between the ends of the strips. Bridge conductor strips 37 are next fitted in place and joined to the tips 19 and 20 of the conductor elements. These bridge strips may be either sections of conductor elements with suitably formed tip portions or merely strips, according to whether the bridging member is a blind section or a continuation of the outlet. The bridging strips having been fitted in place, they are suitably secured to the tips by means of bolts or rivets 38 and sections of insulating strip corresponding to the side members 14 and 15 fitted over them. The whole assembly is then secured to the casing by passing screws 31 through the side members and base portion. However, it is not necessary to employ a bridging section for joining two adjacent lengths of strip. One of the strips may be suitably provided with what might be termed a reverse terminal joint and arranged to connect directly to the normal terminal joint of the adjacent strip. In such a case the joint would appear substantially as shown in the cross sectioned portion of Fig. 4 in which the molding strip 28 would incorporate the bridge section 30 and form the same type of joint with strip 29 as the bridge strip.

Another type of joint which may be employed is illustrated diagrammatically at 34, Fig. 5. This type of joint is made between the ends of outlet strips where a continuation of the outlet is not required. The outlet strips have substantially the same type of terminus as already described in connection with the foregoing type of joint. However, instead of the conductor elements being connected through a bridge member extending between the ends of the reception outlet strips, the connection is made through cable connected terminal boxes secured to the back of the molding strips. The type of box referred to is shown in detail in Fig. 1 and comprises a terminal box structure 41, disposed at the back of the casing 10 and secured thereto by means of bracket members 42, or other suitable means. An opening 43 is provided in the casing 10 under the terminal box to provide for extending the cable conductors to make contact with the molding conductor element tips 19 and 20 in the outlet

strip. An outer box of substantially the same type is provided at the terminus of the other molding strip and the two boxes are connected together through any suitable type of cable 44 as illustrated. After the strips have been connected with the distribution circuit, the remaining portion of the casing between the two strips is filled by a suitable length of insulating strip 45, provided with blind grooves 46. The ends of the filling strip are suitably recessed to join to the ends of the outlet strip.

The type of joint just described is especially suitable for connecting the outlet strips at the corners of a room or other points where the outlet molding might not practicably be joined end to end. As will be readily understood the terminal boxes and the connecting cable are imbedded in the wall structure of the room in any well known manner. The employment of a blank section of molding strip at the corners of the room detracts very little from the usefulness of the outlet, since the corners would ordinarily be more or less inaccessible. The same type of joint may be employed also at other points where the outlet molding may be joined. Such an arrangement is diagrammatically illustrated at the bottom of Fig. 5 where the molding is joined at 47.

Referring again to Fig. 5, a system of distribution employing continuation outlet strips as applied to a rectangular room or other enclosures is illustrated and the strips are joined together at their ends with any suitable one of the types of joints described and connected into an electrical circuit or source of current supply at one point in the system as at 49. The diagram illustrates a doorway 51 into the enclosure and a series of outlet molding strips 52 to 58 forming the distribution system about the room. If it is desired, especially where several doorways are provided into the room, the outlet box and cable connections may be employed to join the moldings together, the cable being extended into the building structure around the doorway, or each of the sections of the outlet molding system between doorways may be connected separately with a source of current supply. Various other arrangements may be employed to provide any length of outlet molding desired at any location, in a room, building, or other structure.

From the foregoing description it will be observed that I have provided a type of outlet molding which may be made up in a convenient form in suitable standard lengths and which may be readily applied to or incorporated in the walls of a room or other structure for providing a substantially continuous electrical outlet of any desired length and extending in any desired direction. It will be further observed that means have been provided for supplying maximum protection to the current carrying elements by providing the resilient slot closing means for excluding dust and other foreign materials, while at the same time admitting the prongs of the ordinary plug or other suitable connector.

It is to be understood that the invention is not limited to the illustrated form and outline of the strips, the manner of joining the strips together and the type of casing employed, and further that the casing itself may in suitable instances be entirely dispensed with.

Although I have shown my invention in but

one form, it will be apparent to those skilled in the art that it is not so limited and that various changes and modifications may be made without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereon as are imposed by the prior art or as specifically set forth in the appended claims.

What I claim is:

1. An outlet receptacle in the form of a strip and comprising a longitudinally extending casing, an insulating strip secured in said casing and embodying slots extending longitudinally thereof and spaced apart for receiving the prongs of an ordinary outlet plug at any point along the strip, a recess formed at the entrance of said slots, conductor elements disposed in said slots to be engaged by said prongs, and resilient means disposed in said recess and extending across said slots to provide a closure for the entrance of the slots to protect the conductors, said closure means being yieldable to permit the prongs of the outlet plug to be inserted into connecting position in the slot.

2. An electrical outlet comprising a longitudinally extending casing, an insulating strip secured in said casing and embodying a base portion and an upstanding tongue portion, said tongue portion being of a suitable width to be straddled by the prongs of an ordinary plug connector, conductor elements positioned on opposite sides of the tongue portion and secured to the base portion and side members on opposite sides of the tongue portion spaced therefrom to form slots including the conducting elements, a recess formed at the entrance of said slots, insulating means disposed in said recess and extending across said slots to provide a closure for the entrance of the slots, said closure means being mounted to yield for permitting the plug prongs to be forced by the same into connecting position with the conductor elements.

3. In a molding strip for use as a trim in a room, the combination of lengths of strips of insulating material joined together, said strips embodying a pair of longitudinally extending recesses suitably spaced for receiving the prongs of an ordinary plug connector, conductors embedded in said insulating material and extending into said recesses, and lengths of backing strips for mounting the insulating strips, said insulating strips and said backing strips being joined at points spaced longitudinally from each other, said insulating strips being joined by cutting away portions of the insulating material at the front and back of the joined strips to expose a section of the conductors and arranged to form an overlapping joint in which the conductors are held in overlapping engagement with each other.

4. A continuous outlet receptacle comprising an insulating body embodying slots spaced apart for receiving the prongs of an outlet plug, conductor elements disposed in said slots to engage the prongs of said plug when inserted in connecting position in the receptacle, and insulating means carried by said conductor elements and disposed to close the slots, said means being yieldable to permit the prongs of the outlet plug to be inserted in connecting position in the slots.

ALFRED A. STEINMETZ.