W. A. BONNELL.

METAL CONDUIT MOLDING.

APPLICATION FILED DEC. 5, 1912.

1,217,398. Patented Feb. 27, 1917.

FIG. 1

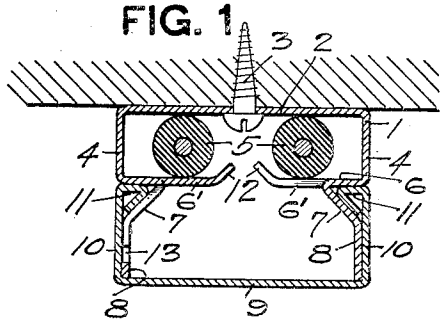


FIG. 2

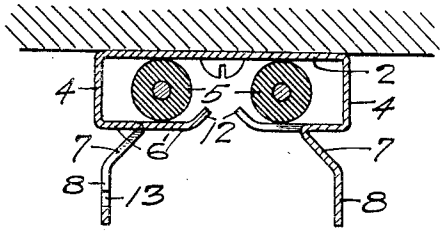


FIG. 4

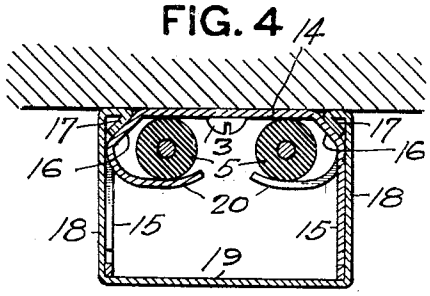


FIG. 3

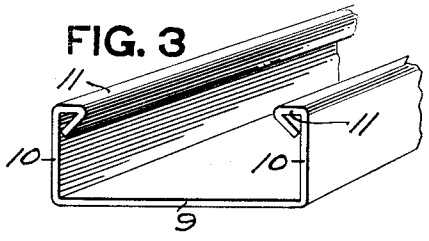


FIG. 5

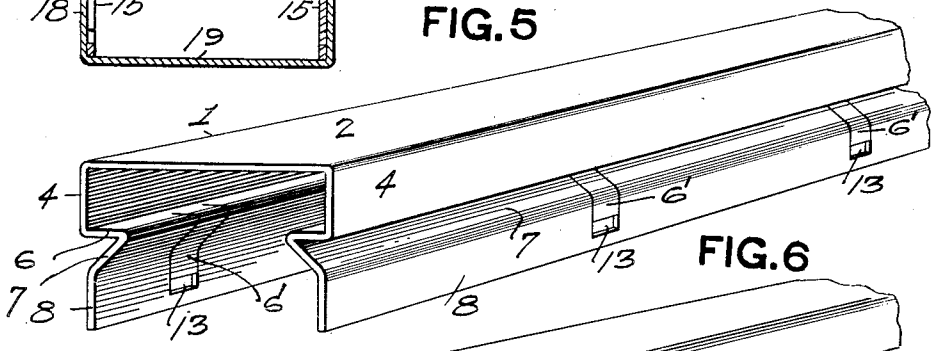


FIG. 6

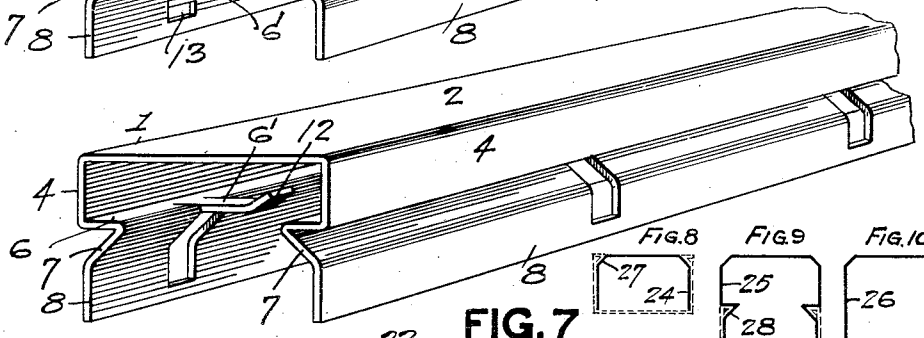


FIG. 7

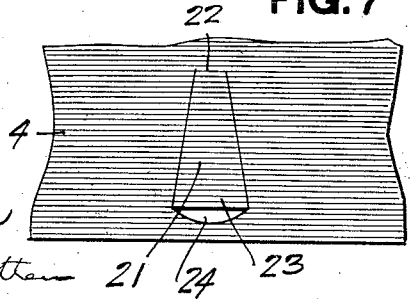


FIG. 8

FIG. 9

FIG. 10

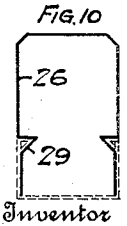
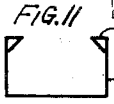


FIG. 11



Witnesses

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METAL CONDUIT-MOLDING.

1,217,398. Specification of Letters Patent. Patented Feb. 27, 1917.

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To all whom it may concern:

Be it known that I, WILLIAM A. BONNELL, a citizen of the United States, and resident of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Metal Conduit-Molding; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to conduits for electrical conductors which are primarily intended to be secured to the wall or ceiling of a room to carry, conceal and protect the conductors and also to protect the building in which they are mounted from danger of fire due to short circuiting. The conduit, however, may obviously be employed in other relations. The object of the invention is to provide a form of conduit which may be cheaply manufactured and which is extremely simple in construction and one in which the cover member may be quickly and securely placed in position upon and interlocked with a body portion or member and in such manner as to effectually exclude moisture from the interior of the conduit. A further object is to provide an improved locking means between the body and cover whereby the cover may not readily be disengaged from the body portion and may never become accidentally disengaged therefrom.

A further object is to provide one of the members, preferably the body portion, with means for retaining the conductors therein, particularly as the conductor is being laid therein so that the portion of the conductor already positioned may be held in place while the additional portions of the connector are being laid in position. The conductor holding means also serve to retain the conductors in the conduit when the cover member is removed. A further object of the invention is to provide conductor retaining members which may be readily manipulated and brought to retaining position over the conductors either by means of a tool or the fingers of the operator.

With these objects in view, the invention consists of the constructions and arrangements of parts, preferred embodiments of which are illustrated in the accompanying drawings.

Figure 1 is a cross section of one form of the complete conduit showing the conductors therein. Fig. 2 is a similar section of the body portion of the conductor with the cover plate removed. Fig. 3 is a perspective view of the cover plate. Fig. 4 is a view similar to Fig. 1 in a modified form of conduit. Fig. 5 is a perspective view of a conduit of the form shown in Fig. 1 illustrating the manner of punching out the retaining members from the body portion of the conduit. Fig. 6 is a view similar to Fig. 5, showing the retaining members bent to retaining position; and Fig. 7 is a fragmentary view of the body portion showing a particular shape of retaining member which may be easily manipulated either by a tool or by hand. Figs. 8 to 10, inclusive, are diagrammatic views of different forms of molding; and Fig. 11 is a similar view of a cover which may be used with any of these forms.

Referring to the embodiment of the invention illustrated in Figs. 1, 2 and 3, 1 is the body portion of the conduit having the base 2 adapted to be secured to the wall or ceiling by means of a screw or other fastening 3. From the base extend at right angles, the side walls 4 forming a channel-like conduit or chamber for the reception of the conductors 5. The side walls of the body portion are extended inwardly at 6 for a short distance and then slanted outwardly at 7 and finally terminate in portions or flanges 8 extending in substantially the same planes as the side walls 4 but as shown in Figs. 1 and 2, the portions or flanges 8 may be wholly within the planes of the side walls of the body portion 1 for purposes hereinafter described. The longitudinal inturned portions 6 and slanted portion 7 form grooves preferably of triangular form along each side of the body portion within which may be received the locking members of the cover portion. The cover member comprises the closing plate 9 having the side walls or flanges 10. The side walls terminate in inturned portions 11 forming ribs of similar shape to, and adapted to be received within the grooves in the side walls of the body portion. All parts of the device are preferably made of sheet steel or any suitable resilient sheet metal.

It will be noted that the inner edges of the inturned portions 11 of the cover member extend into the inturned portions of the side walls of the body portion and, there-

fore, said edges extend and lie within the planes of the widest portions of said side walls. This results in the shedding of any moisture running down said side walls of the body portion, thus excluding it effectually from the interior of the conduit when the conduit is fastened, for example, to the ceiling. Also, since in some instances the flanges 8 may be inset from the side walls of the body portion (see Figs. 1 and 2), this causes the moisture to flow away more readily. Again, if the parts were in reverse position as when the conduit is fastened along a floor, the same complete shedding of moisture without egress to the interior of the conduit is secured.

In using the form of conduit thus far described, the conductors 5 are laid within the body portion 1 and as a portion of the conductor is put in place the retaining fingers or arms 6′ are bent up into the position shown in Figs. 1, 2 and 7, to hold the conductor in place while more is being laid within the conduit. It will be seen that the shape of the outer portion of the body of the conduit imparts to the arms the bent up portions 12 which serve more effectually to hold the conductors in place. As seen in Figs. 1, 2 and 5, the outer end of each retaining finger is sheared off leaving an opening 13 to permit a more ready insertion of a tool by which the retaining arms may be turned up into retaining position. The cover 7 is slipped over the outer edges of the side walls of the body portion and forced to place within the triangular grooves of the body portion, so that these ribs of the cover form in effect latches or locking means by which the cover and body portion are held together. The grooves and the ribs may be of any desired depth sufficient to firmly lock and hold the parts together. In practice, when the section of conduit body has been secured in position on the wall or ceiling and the conductors laid therein, the ends of the ribs of a cover section may be slipped into the ends of the grooves of a body section and the cover slid longitudinally to place along the body. This will be the more practical method of assembling the parts where the material of the conduit is so stiff as to resist the slipping of the ribs over the edges of the side walls of the body. It will be seen from an inspection of Fig. 1 that the side walls and ribs of the cover effectually and entirely cover and close up the openings left in the side walls of the body by the cutting out of the retaining fingers 6′. This is an important feature of the construction since it prevents the entrance of dust and dirt into the conduit, the igniting of which by a short circuit between the conductors might result in a dangerous conflagration. This is the more guarded against since the retaining fingers are not cut back fully to the side walls 4 of the body portion, so that the outer edges of the cover completely close up these openings.

In the embodiment of the invention illustrated in Fig. 4 the conduit body consists of the base plate 14 and side walls 15. At the junction with the base plate the side walls are beveled or inturned at 16 to meet the base plate, thus forming latching shoulders to be engaged by the ribs 17 formed on the side walls 18 of the box-like cover member 19. Retaining fingers 20 similar to those shown in Fig. 1 are sheared out of the side walls of the body member, and these retaining fingers may be bent by hand or by a tool around the conductors after the same are laid in place. In this case also the retaining fingers are not cut back completely to the base plate, but only to the beveled portions 16 of the body member, so that when the cover member is in place the side walls and ribs thereof completely close up these openings. In this form of the device also the members may be assembled either by slipping the ribs 17 over the outer edges of the side walls of the body member, or the ends of the body and cover may be engaged and the latter slid longitudinally over the former after the conductors are in place. In this form of the device the conduit is reduced to its simplest structure and consists merely in a plain channel or box-like body member having the beveled corners at the base and the box-like cover member having the locking ribs at the edges of the side walls. In both forms of the device the body and cover may readily be formed from a plain strip of sheet metal, and the shearing out of the retaining fingers may be accomplished either before or after the strip is turned up to shape.

In Fig. 7 is shown a modification of the shape of the retaining finger which has several advantages. This finger 21 is made narrow at its line of junction 22 with the side wall of the body portion and is flared to provide the broad end 23 and a portion at the outer end of the finger is removed to leave an opening 24 for the insertion of the tool. The broadened outer extremity of this retaining finger provides an ample bearing surface to receive the bending tool without danger of the tools slipping off when bending the finger. Furthermore this broadened outer end makes it possible to insert the finger in the opening to bend down the retaining arm. The narrowness of this finger at its junction with the side wall makes it easier to bend into retaining position, than if it were as wide at this point as at its outer end.

Figs. 8, 9 and 10 show diagrammatically different forms of molding, 24, 25 and 26, respectively, the first having the beveled inturned part 27, the second having the in-

turned part 28, and the third the inturned part 29, for the reception of the latching shoulder 30 of the cover member 31. It will be noticed that the latch receiving portions 27, 28 and 29 on these several forms of molding are located either at the base or at varying distances from the base according to the depth of the particular form of molding referred to. It is to be understood that the retaining fingers such as described in connection with the former figures of the drawing, may be struck up from these moldings in the same manner. Thus a single construction or depth of cover member may be employed for all of these different forms of molding.

It is to be noted that the invention is not confined particularly to the embodiment herein illustrated and described, but it is limited only within the terms of the appended claims. And it is to be understood that the invention is not limited to the particular form and arrangement of inset, or inturned, or grooved side walls of the body portion, or to the particular form of the inturned side walls of the cover member, but the invention contemplates broadly such an arrangement of these parts that the edges of the cover member will so engage the body member as to effectually seal the conduit against access of moisture whether the body portion of the conduit be uppermost or the cover portion be uppermost.

I claim—

1. A conduit for electric conductors comprising a channeled body portion having longitudinal locking shoulders in its side walls and a channeled cover member having locking shoulders to engage said first mentioned shoulders, the side walls of one of said members having conductor retaining fingers fixed thereto and adapted to extend from the point of attachment to the side walls across the conduit and above the bottom thereof.

2. A conduit for electric conductors comprising a channeled body portion having longitudinal locking shoulders in its side walls and a channeled cover member having locking shoulders to engage said first mentioned shoulders one of said members having conductor retaining fingers sheared out of its side walls and adapted to extend from the point of attachment with the side walls across the conduit and above the bottom thereof.

3. A conduit for electric conductors comprising a channeled body portion having longitudinal locking shoulders in its side walls and a channeled cover member having locking shoulders to engage said first mentioned shoulders, one of said members having retaining fingers sheared out of its side walls and having openings at the outer extremities of said retaining fingers for the insertion of a tool to bend said fingers to retaining position.

4. A conduit for electric conductors comprising a channeled body portion having longitudinal locking shoulders in its side walls and a channeled cover member having locking shoulders to engage said first mentioned shoulders, said body portion having retaining fingers sheared out of its side walls and the side walls of the cover member being so formed as to completely cover the openings in the body portion left by said retaining fingers when bent to retaining position.

5. A conduit for electric conductors comprising a channeled body portion having longitudinal locking shoulders in its side walls and a channeled cover member having locking shoulders to engage said first mentioned shoulders, the side body portion having retaining fingers sheared out of its side walls, the lines of junction of said fingers with the said side walls lying adjacent the locking shoulders of the body portion.

6. A conduit for electric conductors comprising a channeled body portion having longitudinal locking shoulders in its side walls and a channeled cover member having locking shoulders to engage said first mentioned shoulders, said body portion having retaining fingers sheared out of its side walls, the lines of junction of said retaining fingers with said side walls being within the edges of the said walls of the cover member when the parts are assembled.

7. A conduit for electric conductors comprising a channel shaped body portion formed of sheet metal having locking shoulders extending longitudinally of its side walls, a channel shaped cover member having the edges of its side walls inturned upon themselves to form strengthening ribs and locking shoulders adapted to engage the locking shoulders of the body portion.

8. A conduit for electric conductors comprising a channel shaped body portion formed of resilient sheet metal having angular locking grooves extending longitudinally of its side walls, and a channel shaped cover member formed of sheet metal having angular shaped strengthening and locking ribs formed at the outer edges of its side walls adapted to be sprung over, and engage within the grooves of, the body portion.

9. A conduit for electric connectors comprising a channel shaped body portion formed of sheet metal having retaining fingers sheared out of its side walls, said fingers being flared from their lines of junction with said side walls to their outer extremities, whereby said fingers may be readily engaged by a tool or the finger of the operator to bend them to retaining position and whereby their narrow junctions with the body portion may facilitate such bending.

10. A conduit for electric conductors comprising a channeled body portion formed of resilient sheet metal and having locking shoulders on the outer sides of its side walls respectively, and a channeled cover member having locking shoulders formed on its side walls to engage the first mentioned shoulders to lock the body portion and cover together, the locking shoulders on the body portion and cover member respectively being so formed and arranged as to act also as stop shoulders to prevent crushing of the side walls of the body portion when the cover member is forced thereon.

In testimony whereof, I the said WILLIAM A. BONNELL have hereunto set my hand.

WILLIAM A. BONNELL.

Witnesses:

JOSEPHINE M. WARD,

RALPH C. POWELL.