

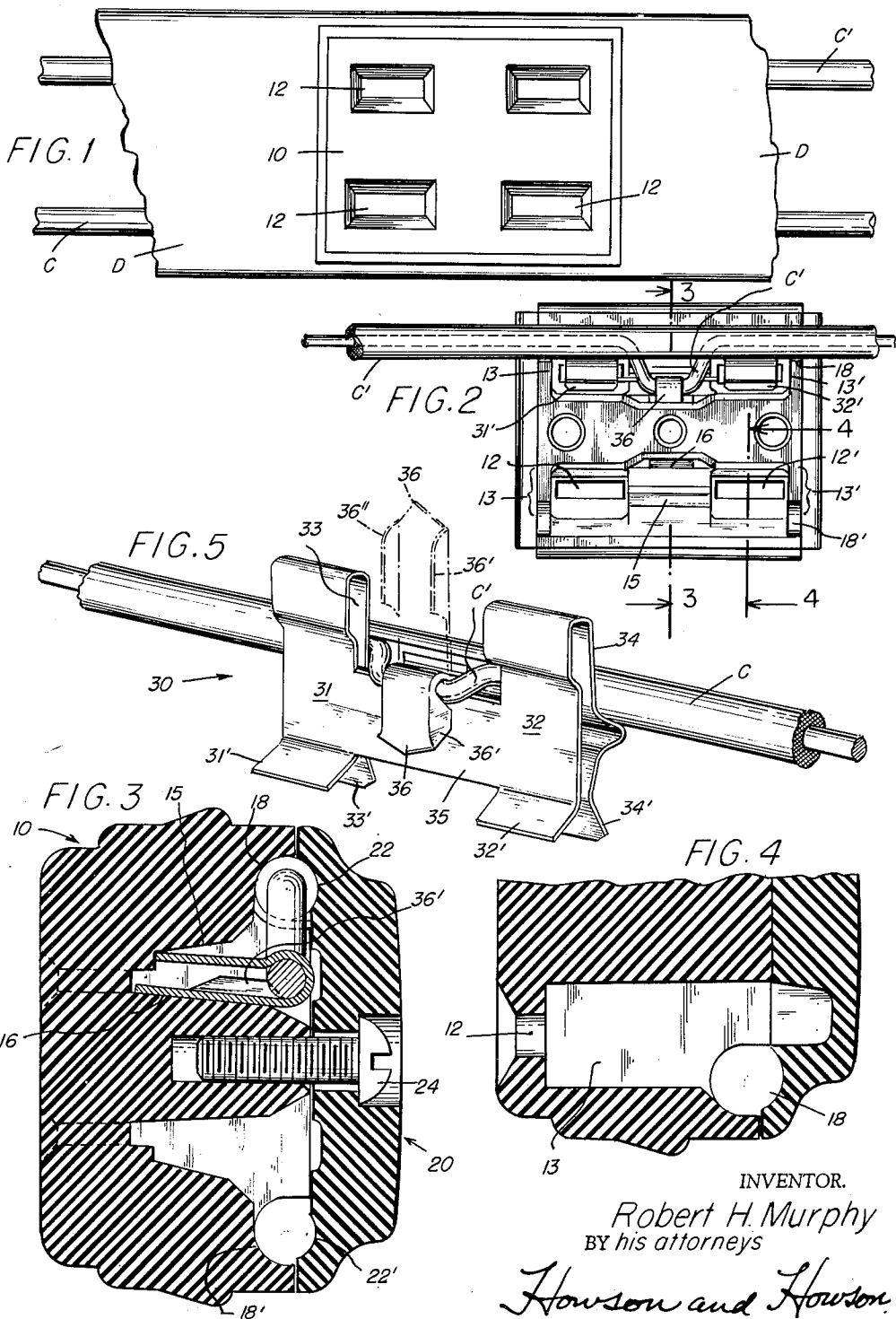
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R. H. MURPHY

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CONTACT AND TERMINAL MEMBER FOR WIRING DEVICES

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INVENTOR.  
Robert H. Murphy  
BY his attorneys

*Howson and Howson*

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## CONTACT AND TERMINAL MEMBER FOR WIRING DEVICES

Robert H. Murphy, West Hartford, Conn., assignor to The Wiremold Company, West Hartford, Conn., a corporation of Connecticut

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This invention relates to electric wiring device and more particularly to a one-piece contact and terminal structure having means for attaching thereto a conductor wire lying in the duct and passing through the wiring device.

In wiring devices such as attachment plug receptacles and the like used in surface wiring ducts and conduits, there is a constant effort to find better, more efficient and less expensive ways to securely connect contacts and like elements to conductor wires which enter one side of the wiring device and are secured to the element within the device and then pass out the other side.

In furtherance of that objective, the present invention provides an economical, efficient, reliable and easily fabricated one-piece contact and terminal structure which can be stamped from sheet metal and inserted in an insulating body, such as an attachment plug body, there to engage with and to hold onto the conductor firmly and permanently when the two halves of the body are joined together.

Related objects and advantages of the invention will appear as it is described in connection with the accompanying drawing.

In the drawing:

FIG. 1 is a plan view of an attachment plug receptacle in a wiring duct to which the invention is applied.

FIG. 2 is a plan view of the base of the receptacle body.

FIG. 3 is a transverse section view of the invention with the section being taken along line 3-3 of FIG. 2.

FIG. 4 is a fragmentary section view, the section being taken along line 4-4 of FIG. 2.

FIG. 5 is a perspective view of the terminal and contact member applied to a conductor.

Referring to the drawing, the invention shown is applied to an attachment plug receptacle mounted in a conventional wiring duct D through which pass the insulated conductor wires C, C'.

The receptacle body is or may be of molded insulating material having a front part 10 hollowed out from the rear and a rear cover section 20 fitting over and covering the open rear of the front section.

The rear of the front part 10 is hollowed out symmetrically with respect to the longitudinal center line with cavities 13, 13' on each side for receptacle contacts hereinafter more fully described. In the front of the body 10 pairs of conventional parallel slots 12 for the prongs of an attachment plug are provided in communication with cavities. The cavities 13, 13' are connected longitudinally by a longitudinally extending passage. The outside wall 15 of the passage is inclined toward the front face of the receptacle. Offset into the wall of the passage that is opposite the wall 15 is a forwardly extending pocket 16 whose inner wall converges inwardly toward the front of the receptacle at a somewhat lesser inclination than wall 15.

Adapted to fit into the connected cavities 13, 13' is a combined contact and terminal member, designated generally by the numeral 30, stamped from thin resilient sheet metal providing parallel contact portions 31 and 32.

Parallel arms of the stamping are U-bent, providing a pair of spaced contacts 31, 33 and 32, 34 with out-turned ends 31', 33' and 32', 34' diverging to facilitate

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reception of the prongs of an attachment plug. The parts 31, 32 of adjacent contacts are connected by a bar portion 35 running longitudinally.

From the forward or front edge of the connecting portion 35, a tongue is formed to extend between the contact portions 31 and 32 when the member is first stamped from the sheet metal. Flanges 36' and 36'' are bent up from the side edges of the tongue 36 normal to the plane of the tongue.

The tongue 36 is bent around the bight of the conductor wire at a point C' along the wire from which the insulation is stripped or slit, the wire at that point being bent into U-shape. The U-bend is inserted between the contact portions 31, 32 in which position it may be embraced by the tongue 36 as the tongue is bent over and around the wire. The edges of the flanges 36', 36'' adjacent the wire thus bite into the U-bend and can form a firm and permanent engagement with the conductor wire in the following way. To facilitate and maintain the bite of the tongue on the conductor wire, the end of the tongue 36 is adapted to fit into the pocket 16 while the connecting portion 35 between contacts 31, 32 slides along the inclined wall 15 as the contact and terminal member is inserted into the receptacle body 10. The engagement of the connecting portion 35 with wall 15 (see FIG. 3) presses the tongue against the wall 16 and that pressure in conjunction with the resilience of the stamping maintains the grip or bite of the tongue flanges 36, 36' (see FIGS. 4 and 5) into the conductor wire while at the same time maintaining the embrace of the curved portion of the tongue 36 about the wire.

The end walls of the two parts of the receptacle body are each provided at each end with a pair of spaced semi-circular recesses such as 18, 18' and 22, 22' in their abutting faces. The recesses 18, 18' in the front portion of the body cooperate and register with recesses 22, 22' in the back or cover portion of the body. The cooperation of these recesses provides a pair of circular openings for the passage of the conductor wires in each end of the body. Thus, the wires may enter the openings at one end and pass through and out the openings at the other end.

When the cover 20 is placed over the open back of the front part 10 of the receptacle, the wires and contacts are held in their passages. A screw 24 or rivet or other suitable circular means passing through the cover 20 into the front part 10 holds the two together. The securing of the cover against the front portion of the receptacle body prevents movement of the contacts rearwardly of the front portion of the body 10 when the prongs of an attachment plug are inserted in the slots 12 and engage the contacts within.

Although the contacts are resilient and thus afford spring pressure against the prongs of the attachment plug, movement of the two parts of the contact, such as 31 and 33 for example, does not affect the grip of the tongue upon the conductor wire. The grip of the tongue on the conductor wire is maintained due to the tongue being located in its own recess or pocket in the receptacle body and being held in embracing and biting engagement with the U-portions C, C' of the conductor wire in the manner previously described.

From the foregoing, it will be seen that the invention provides a novel one-piece duplex contact and terminal member combination which enables the combined contact and terminal to be secured to the conductor wire prior to the insertion of the contact into the receptacle body and to be held after assembly of the front and cover portions of the body. The novel contact and terminal assembly in cooperation with the insulating body may be fabricated and assembled with a minimum of labor and without the need for expensive and elaborate tools. Moreover, the attachment of the terminal and contact

member to the conductor could be accomplished on an assembly line basis in the factory when the location of the receptacles along the wires of the duct is predetermined and known.

Modifications within the scope of the invention will appear to those skilled in the art. Therefore, the invention is not limited to the exact form and configuration as illustrated and described in the drawing.

What is claimed is:

1. In an electric wiring device comprising an insulating body having cooperating front and back parts, means to hold said parts together when assembled, the front part having recessed portions in its rear face for reception of conductor wires and for combined contact-and-terminal members, a combined contact-and-terminal member having a contact portion and a terminal portion spaced from one another along a conductor wire, an extension on said terminal portion reversely bendable to embrace the conductor wire, said terminal extension when inserted in one recessed portion of said insulating body and when bent into embracement with the conductor engaging a side wall of that recessed portion while the body of the terminal portion engages the opposite wall of that recessed portion, said side walls converging to increase the embracing engagement of said extension and said connecting portion with the conductor wire as said combined contact-and-terminal member is inserted into said front part.

2. In an electric wiring device comprising an insulating body having cooperating front and back parts, means to hold said parts together when assembled, the front part having prong-receiving slots through its front face and having recessed portions in its rear face for reception of conductor wires and for combined contact-and-terminal members, a combined contact-and-terminal member having contact portions joined by a connecting portion, an extension on said connecting portion reversely bendable to embrace a conductor wire, said terminal extension when inserted in one recessed portion of said insulating body and when bent into embracement with the conductor engaging a side wall of that recessed portion while said connecting portion engages the opposite wall of that recessed portion, said side walls converging to increase the

embracing engagement of said extension and said connecting portion with the conductor wire as said combined contact-and-terminal member is inserted into said front part.

3. An electric wiring device as claimed in claim 2 wherein the terminal extension has a portion bent out of the plane thereof in position substantially perpendicular to the conductor wire to cause the edge of said bent-out portion to bite into the conductor wire when said extension is bent around the wire.

4. In an electric wiring device comprising an insulating body having cooperating front and back parts, means to hold said parts together when assembled, the front part having recessed portions in its rear face for reception of conductor wires and for combined contact-and-terminal members, a combined contact-and-terminal member having a contact portion and a terminal portion spaced along a conductor wire, an extension from said terminal portion bendable to engage and embrace the conductor wire, said terminal extension having a portion bent out of the plane thereof in position substantially perpendicular to the conductor wire to cause the edge of said bent-out portion to bite into the conductor wire when said extension is bent around the wire, said terminal extension when inserted in one recessed portion of said insulating body and when bent into embracement with the conductor engaging a side wall of that recessed portion while the body of the terminal portion engages the opposite wall of that recessed portion, the extension being held thereby in embracing engagement with said conductor wire in assembled condition of the device.

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