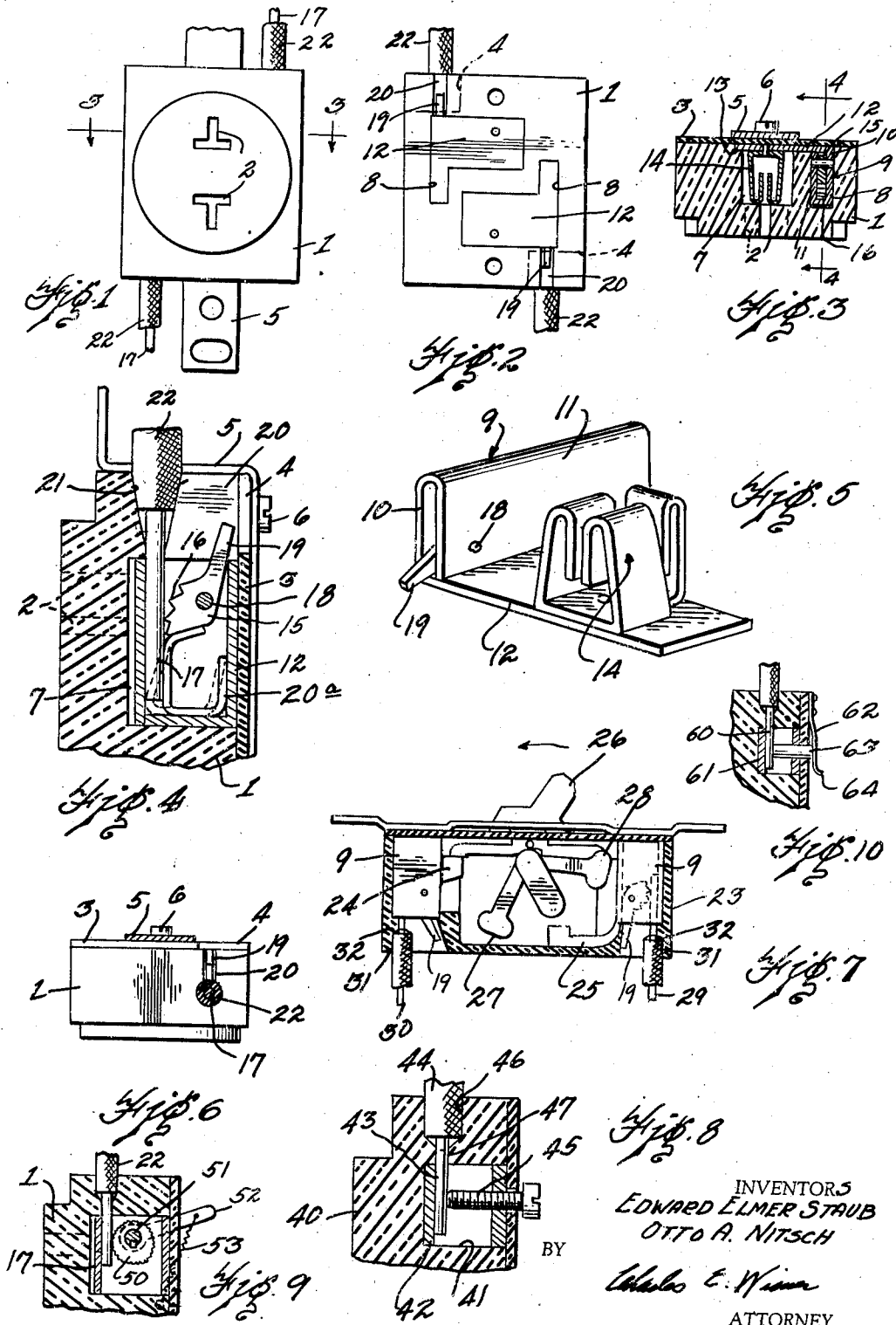


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ELECTRIC TERMINAL CONNECTER

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## ELECTRIC TERMINAL CONNECTER

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This invention relates to electric terminal connectors and an object of the invention is to provide a connector that may be used in combination with a plug-in socket, a toggle switch, an electric motor or any of the various types of electrical apparatus in which it is necessary to connect an electric wire thereto.

Another object of the invention is in the provision of a connector which may be manufactured very cheaply and which is so constructed as to permit an electric wire to be connected thereto without the use of solder.

Another object of the invention is in the provision of a connector of this type which may be installed in any of the various forms of electric apparatus, the connector being so installed as to prevent any of the exposed wire from extending outside of the apparatus, thereby minimizing fire hazard due to short circuiting of the exposed portion of the electric wire.

Another object of the invention is in the provision of a connector which may be installed as a unit in any of the various forms of electrical apparatus such as plug-in sockets or toggle switches.

Another object of the invention is in the provision of a connector of this character which is so designed as to prevent the use of any wire but that of the correct size thereby preventing overloading of the apparatus in which the connector is installed.

These objects and the several novel features of the invention are hereinafter more fully described and claimed and the preferred form of construction by which these objects are attained is shown in the accompanying drawing in which—

Fig. 1 is an elevational view of a plug-in socket embodying our invention.

Fig. 2 is a rear elevational view thereof, the cover plate being removed.

Fig. 3 is a sectional view taken on line 3-3 of Fig. 1.

Fig. 4 is a sectional view taken substantially on line 4-4 of Fig. 3.

Fig. 5 is a detail perspective view of our connector as used in a plug-in socket.

Fig. 6 is an end view of Fig. 1.

Fig. 7 is a sectional elevational view of our improved connector, as used in connection with a toggle switch.

Figs. 8, 9 and 10 are modified forms of construction showing a different means for holding the electric wire.

Referring to the drawing, it will be seen that the block 1 of insulating material, such as hard rubber or the like, is provided with the usual apertures 2 of a size and shape to receive the usual terminals of a plug, not shown. A cover plate 3 of insulating material, lies flush against

the rear face of the block 1 and is provided with the notched portions 4 for a purpose to be later described.

A strap 5 of usual construction is secured by means of the screws 6 to the block 1 and holds the block in place in a wall or floor in which it is installed. The block 1 is provided with the recesses 7 positioned substantially on the center line of the block and each recess connects with one of the apertures 2 formed in the block 1. The recesses 8 are provided in the block 1, each being adjacent one of the recesses 7. Although the block 1 is provided with a pair of wire connector members 9 only one will be described as both are identical in construction. The wire connector member 9 includes the spaced side walls 10 and 11 and the extension 12 formed integral with the side wall 10 and it will be seen that the rear face of the block 1 is provided with a recess 13 to permit the extension 12 to lie flush therewith while the element 9 extends into the recess 8. A spring metal contact member 14 is secured to the extension 12 in any suitable manner and extends into one of the recesses 7 formed in the block 1, and aligns with one of the apertures 2 formed in the said block and is so designed as to engage one of the prongs of a plug, not shown. A pawl 15, which may be formed of insulating material, is provided on one edge with the serrations 16 for gripping the wire 17 and is pivoted at 18 between the side walls 10 and 11 of the member 9.

The pawl 15 is provided with the extension 19 extending outside of the confines of the side walls 10 and 11 and it will be seen that by pressing the extension 19 which extends into the slot 20 formed in the block 1, the serrations 16 will be disengaged from the wire 17 allowing the same to be withdrawn. As heretofore described, the plate 3 is notched at 4 to permit a suitable tool (not shown) to be inserted in the slot 20 to press the extension 19. By referring to Fig. 4, it will be seen that the wire 17 will be held against the member 9 by means of the pawl 15 and will provide a good electric contact therewith. It will further be seen that any attempt to pull the wire 17 out of the member 9 without first disengaging the pawl 15 therefrom will be frustrated as the serrations 16 will simply bite deeper into the wire 17. A spring 20 normally lies in the position shown by dotted lines in Fig. 4 and one end of the spring abuts the extension 12 while the other end abuts the pawl 15 and tends to keep the extension 19 against the extension 12. It will be seen that when the wire 17 is inserted in the member 9 that the spring 20 will assume the position shown by full lines in Fig. 4, and it will therefore be seen that in the event the pawl 15 becomes disarranged or the pivot pin 18 breaks a good electric contact will still be maintained

between the wire 17 and the member 9 by means of the spring 20.

The block 1 is further provided with the tapered aperture 21 of a size to receive the insulation 22 encircling the wire 17 and by referring to Fig. 6 it will be seen that the aperture 21 aligns with the slot 20. It will be understood that the insulation 22 will extend into the tapered aperture 21 so that no exposed part of the wire will extend outside of the block 1. Referring to Fig. 7 it will be seen that the insulating block 23 has the members 9 inserted therein, the same being similar to that shown in Fig. 5 with the exception that the extension 12 has been omitted. One of the members 9 is provided with an extension 24 while the other member 9 is provided with an extension 25 and when the operating handle 26 of the toggle switch is in the position shown in Fig. 7 the spring metal contact arm 27 will be disengaged from the extension 24 and the spring metal contact arm 28 will be disengaged from the extension 25 and the switch will be in the "off" position. When the operating arm 26 is moved in the direction shown by the arrow to its "on" position the arm 27 will contact the extension 24 while the arm 28 will contact the extension 25, thereby completing the circuit between the wires 29 and 30. In this form I have shown the apertures 31 as being tapered at their bottom end as indicated at 32 to guide the ends of the wires 29 and 30 into their respective holders 9.

Referring to Fig. 8 the insulating block 40 is provided with a recess 41 and a metal contact member 42 is inserted therein. A wire 43 provided with the insulation 44 is inserted in the contact member 42 and is held against one face thereof by means of the screw 45 threaded in a portion of the contact member 42. An aperture 46 is provided in the block 40 for receiving the insulation 44 and a reduced aperture 47 connected with the aperture 46 and the recess 41 and is of a size to permit the wire 43 to be inserted there-through.

Referring to Fig. 9 it will be seen that the serrated wheel 50 is eccentrically mounted upon the shaft 51 and the releasing handle 52 is also mounted upon the end of the shaft 51 extending through the side wall of the insulating block 1 so that the wheel 50 may be released from the wire 17 by moving the handle 52 in a counter-clockwise direction. A spring 53 has one end secured to the handle 52 and the other end secured at 54 to the block 1 so that the spring normally tends to keep the wheel 50 in engagement with the wire 17.

Referring to Fig. 10, the wire 60 is kept in surface contact with the connector 61 by means of the spring 62 bearing against the pin 63. It will be understood that the pin 63 is formed integral with the spring 62 so that by lifting up the end 64 of the spring the pin 63 will be disengaged from the wire 61.

From the foregoing description it becomes evident that we have provided an electric terminal connector which is so constructed as to permit a good electric contact to be made between the electric wire and the holder by simply shoving the wire therein but which will prevent disengagement of the wire from the holder unless the same is manually released, and further that the device is so constructed as to prevent any exposed por-

tion of the electric wire from extending outside of the insulating block in which the device is installed.

Having thus fully described our invention, its utility and mode of operation, what we claim and desire to secure by Letters Patent of the United States is—

1. An electric terminal connector comprising a block of insulating material formed with a recess opening through one face thereof and an aperture opening thereinto through another face of the block, said opening being in the form of a slot having an enlargement at the bottom to receive an insulated electric wire, a connector positioned in the recess comprising a metal member having a portion thereof shaped to provide a parallel wall opening in alignment with the said slot of the block and having a base portion, and an electric terminal secured to the base portion at a distance from the said parallel walled portion, a pawl pivotally supported in the said parallel walled portion and having an end portion projecting into the slot of the insulating body and operable from the exterior of the body, a spring tending to turn the pawl in one direction to engage a wire inserted through the enlargement of the slot in the body into the said parallel walled portion provided therefor in the body and normally preventing withdrawal of the wire, a plate of insulating material covering the said recess and maintaining the connector carrying the said terminals within the body, and means carried by the body for securing the connector to a desired surface.

2. An electric terminal connector comprising a block of insulating material formed with a pair of recesses opening through one face thereof and a pair of apertures one for each recess having the form of a slot opening through the said face and respective opposite side walls of the recess, the slots each terminating adjacent the bottom of the companion recess in a cylindrical portion to receive an insulated wire, a metal member in each recess insulated one from the other by the block of insulating material, an insulating cover plate for the recessed face of the block covering the said recesses and having a slot on opposite ends registering with the said slots of the body, each metal member having a slot like portion registering with the respective slot of the body, a pawl pivoted in the said slot like portion of each metal member and having a serrated face eccentric to the pivotal axis and having an operating end portion projecting into and lying within the respective slot of the body and operable in one direction by insertion of an instrument in the slot through the said cover plate, a spring tending to turn the pawl and thereby automatically engage the bare end of a wire inserted through the said cylindrical portion provided therefor at the bottom of each slot in the body, each of said metal members further having a terminal in electrical connection with the portion of the plate carrying the pawl and the said body of the insulating material having an aperture therein for each of the said last named terminals and adapted to receive a pair of terminals of a plug to be inserted through the said last named apertures, the said metal member, terminals and pawl member therefor lying wholly within the insulating body.

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