

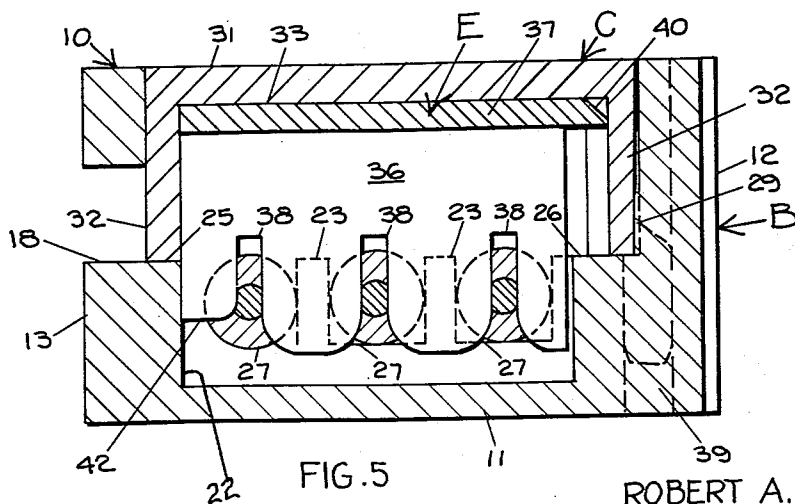
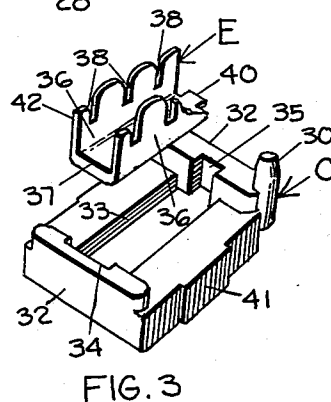
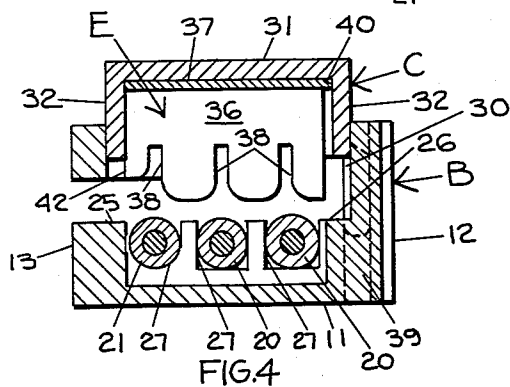
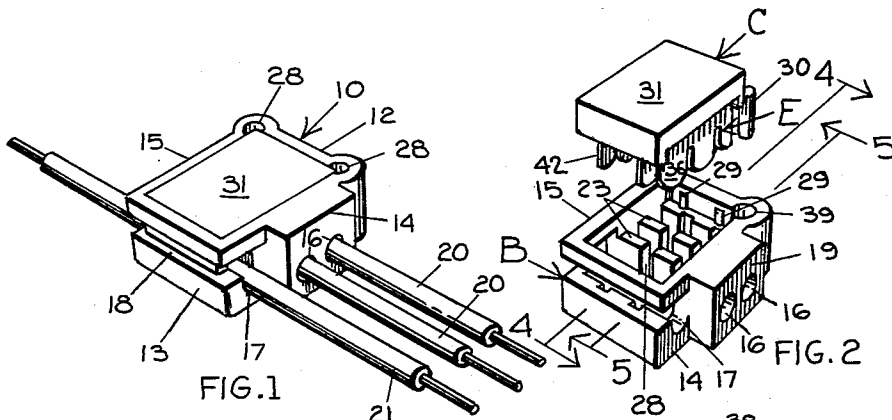
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R. A. POTRUCH

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CONNECTOR FOR BRIDGING INSULATED WIRES

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INVENTOR
ROBERT A. POTRUCH
BY
Salvatore G. Militano,
attorney

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CONNECTOR FOR BRIDGING INSULATED WIRES
Robert A. Potruch, Miami Beach, Fla., assignor to Lumidor Products Corporation, Hialeah, Fla., a corporation of Maryland

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This invention relates to connectors for insulated wires and is more particularly directed to a solderless connector for bridging insulated wires.

A principal object of the present invention is to provide a connector for bridging insulated wires rather than cutting the wire in order to connect same electrically together.

Another object of the present invention is to provide a connector for insulated wires which strips the insulation from the wire, making electrical contact therewith simultaneously with the sealing of the connector.

A further object of the present invention is to provide a connector which is ready to receive the insulated wires to be connected and which requires nothing more than forcing its cap downwardly on the main body to effect a proper electrical connection between the wires.

A still further object of the present invention is to provide a simple and inexpensive connector for insulated wires which is extremely simple to use for bridging a wire and connecting the latter to other wires requiring no special tools or skill on the part of the user thereof.

With these and other objects in view, the invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

FIGURE 1 is a perspective view of a connector for bridging insulated wires constructed in accordance with my invention and shown with wires positioned thereon.

FIGURE 2 is a similar view with its cap portion shown in an exploded position and the wires removed.

FIGURE 3 is an exploded view of the cap portion.

FIGURE 4 is a cross sectional view taken along the line 4-4 of FIGURE 2 with the cap portion shown in position on the body member prior to and ready for use.

FIGURE 5 is a cross sectional view taken along the line 5-5 of FIGURE 2 shown with the wires in position and the connections effected by the connector.

Referring to the drawing wherein like numerals are used to designate similar parts throughout the several views, the numeral 10 refers to a connector embodying my invention and consisting of a body member B, a cap C and an electrical connector E. The body member B and cap C are fabricated preferably of a plastic material which is a non conductor of electricity while the connector E is made of brass, copper and the like which will conduct electricity.

The body member B which is substantially rectangular in shape having an open top, consists of a bottom wall 11, side walls 12 and 13, front wall 14 and a rear wall 15, a portion of the front wall 14 extends outwardly as at 19 as shown best by FIGURE 1 and is provided with a plurality of bores 16, 17 for receiving insulated wires 20, 21 therein in order to contain the wires in the body member B as explained in detail hereinafter. The bore 17 extends the full width of the body member B through the rear wall 15 and is joined by a horizontally disposed slot 18 which lies along the full length of the side wall 13. There are no other openings in the rear wall 15.

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A chamber 22 formed in the body member B is provided with a plurality of longitudinally extending walls 23 positioned between the bores 16, 17 to form longitudinally disposed grooves 27 within the chamber 21 in alignment with the bores 16, 17 and along which the wires 20, 21 lie. The lower portion of the side walls 12 and 13 are thicker on their inside surfaces than their respective upper portions to form ledges 25 and 26. A pair of slots 28 extend transversely of the chamber 21 cutting across the wall members 23 and the inside surfaces of the side walls 12 and 13 at the ledges 25 and 26. At each of the corners of the side wall 12 there is a bore 39 extending to adjacent the bottom wall 11 for receiving leg portions 30 which are attached to the cap member C. A pair of cap engaging abutments 29 are mounted on the inside wall 12 and extend upwardly from the ledge 26.

The cap member C is rectangular in shape with an abutment 41 on the edge of the cap member C to cause the cap to fit snugly in the opening of the body member B and is provided with a top wall 31 and a pair of depending side walls 32. A slot 33 extends across the inner surface of the top wall member 31 extending into the inner surface of the side wall members 32 as shown at 34 and 35, the slot 35 being smaller than the slots 33 and 34. The pair of legs 30 depends from the side wall 32 at the corners thereof.

A connector E having a U-shaped cross section and consisting of a pair of leg portions 36 are joined at their upper portion by a web portion 37. The leg portions 36 are slotted as at 38 in alignment with the bores 16, 17 when the connector E has been positioned within the chamber 21. The slots are enlarged at their lower ends and are slightly narrower in width than the diameter of the metallic portion of the insulated wires 20, 21 so that when the wires 20, 21 are received by the slots 38, the side walls of the leg portions 36 at the slots 38 will cut through the insulation on the wires 20, 21 and imbed itself into a portion of the metallic conductor thereof to effect an electrical contact between the wires 20, 21 and the connector E as best shown by FIGURE 5. The connector E is provided with a tab 40 which is received by the slot 35 when the connector E is fitted into the slot 33 in the cap member C in order that the connector E be fitted properly in the cap C. The connector E fits tightly within the cover or cap member C and remains therein by frictional engagement.

When it is found necessary to connect the wire 21 to a plurality of wires 20 without severing or cutting the wire 21 or its insulation, the connector 10 becomes extremely useful and the connection effected is quickly made without special tools or having to cut wires or their insulation. After the various components of my connector have been manufactured, the body member B, cap C and connector E are assembled as shown by FIGURE 4. The connector E is inserted into the cap member C with the web portion 37 and tab 40 being received by the slots 33 and 35 respectively. The cap member C with the connector E in position are placed in position over the open top body member B. The leg portions 30 are inserted into the bores 39 and the cap member C is forced downwardly into the chamber 22 until the lower edges of the depending side walls 32 of the cap member C engages the side walls 12 and 13 of the body member B as shown by FIGURE 4. In this position, the connector E will assume the position shown by FIGURE 4 with the lower edge thereof slightly above the top edge of the slot 18 whereby the slot 18 is free to receive a wire 21. This is the condition of my connector 10 when delivered to the users.

When it is desired to use my connector 10 to connect the wires 20 with the wire 21, the wire 21 is slid sideways through the slot 18 until it abuts against the end of the

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slot 13 at the front and rear walls 14 and 15. The wire 21 is then dropped into the bores 17 and brought to rest in its groove 27. Then the ends of the two wires 20 are placed into the bores 16 and made to slide into their respective grooves 27 until they abut against the rear wall 15. With the wires 20, 21 in their proper grooves within the connector 10, a tool such as pliers is used to force the cap C downwardly into the chamber 22 of the body member B. As the cap C recedes into the chamber 22, the leg portions 36 of the connector E will be received by the transverse slots 28 with the wire engaging slots 38 in alignment with the wires 20, 21 and the slots 27. As the lower edges of the connector leg portions 36 engage the wires 20, 21, the side walls defining the slots 38 will engage the insulation of the wires 20, 21 and being inflexible and having square edges the connector E will strip the insulation from the wires 20, 21 and bite into the sides of the metallic portion of the wires 20, 21 as best shown by FIGURE 5. As the cap member C continues to slide inwardly of the chamber 22, one of the side walls 32 of the cap member C will engage the abutments 29 to become tightly ensconced within the chamber 21 and the side walls 32 come to rest on the ledges 25, 26. At this position, the top surface of the cap member C will be flush with the top of the body member B and the wires 20, 21 will be in electrical contact with each other through the medium of the conductor connector 36. The chamber 21 of the body member B will be completely and effectively sealed, as the wall 32 will block off any ingress to the chamber through the slot 18 to cause a short circuit.

Having disclosed my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A connector for bridging insulated wires comprising a body having a pair of side walls, a front wall and a rear wall forming an open top chamber and a slot extending the full length of one of said side walls through said front and rear walls for receiving an insulated wire, a plurality of wall members mounted in spaced relation in said chamber and extending between said front and rear walls forming a plurality of grooves, said front wall having a bore in alignment with each of said grooves for receiving ends of insulated wires, said chamber having a transversely positioned slot extending between said side walls and through said wall members, a cap member mounted in said body member and enclosing said chamber, a connector member secured to said cap member and extending into said transverse slot, said connector member having a plurality of slots in alignment with said grooves, said slots in said connector being slightly less in size than the diameter of said insulated wires whereby upon the forcing of said cap member on said body member said connector will simultaneously strip the insulation from said wires forming an electrical connection between the wires and seal said chamber in said body member.

2. A connector for bridging insulated wires comprising a body having a pair of side walls, a front wall and a rear wall forming an open top chamber and a slot extending the full length of one of said side walls through said front and rear walls for receiving an insulated wire, a plurality of wall members mounted in spaced relation in said chamber and extending between said front and rear walls forming a plurality of grooves, said front wall having a bore in alignment with each of said grooves for receiving ends of insulated wires, said chamber having a transversely positioned slot extending between said side walls and through said wall members, a cap member mounted in said body member and enclosing said chamber, said cap member comprising a depending side wall frictionally engaging said side wall of said body member at said slot on said one of said side walls, said cap member having a slotted portion on an inner surface, a connector member

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comprising a pair of leg portions and a web portion joining one end of said leg portions, said web portion being received and frictionally engaged by said slotted portion on said cap member, said connector member having a plurality of slots in alignment with said grooves, said slots being enlarged at the free ends of said leg portions for receiving a wire and having a width slightly less than the diameter of said wires whereby upon the forcing of said cap member on said body member said connector will simultaneously strip the insulation from said wires forming an electrical connection between the wires and seal said chamber in said body member, and said depending wall of said cap member sealing off said slot in said body member.

3. A connector for bridging insulated wires comprising a body having a pair of side walls, a front wall and a rear wall forming an open top chamber and a slot extending the full length of one of said side walls through said front and rear walls for receiving an insulated wire, a plurality of wall members mounted in spaced relation in said chamber and extending between said front and rear walls forming a plurality of grooves, said front wall having a bore in alignment with each of said grooves for receiving ends of insulated wires, said chamber having a transversely positioned slot extending between said side walls and through said wall members, a cap member mounted in said body member and enclosing said chamber, said body member having a pair of bores at the juncture of the other of said side wall and front and rear walls, said cap member comprising a pair of depending side walls frictionally engaging said side walls of said body member at said slot on said one of said side walls, a pair of leg portions mounted on one of said depending side walls and received by said bores, said cap member having a slotted portion on an inner surface, a connector member comprising a pair of leg portions and a web portion joining one end of said leg portions, said web portion being received and frictionally engaged by said slotted portion on said cap member, said connector member having a plurality of slots in alignment with said grooves, said slots being enlarged at the free ends of said leg portions for receiving a wire and having a width slightly less than the diameter of said wires whereby upon the forcing of said cap member on said body member said connector will simultaneously strip the insulation from said wires forming an electrical connection between the wires and seal said chamber in said body member.

4. A connector for bridging insulated wires comprising a body member having an open top chamber, a substantially horizontally disposed slot for receiving an insulated wire extending the full length of said body member communicating with said chamber, a cover member fitted over said open top chamber, said cover having a depending wall adjacent said slot, said body member having a plurality of openings for inserting the ends of insulated wires into said chamber, a connector member secured to said cap member and extending into said chamber, said connector member having a plurality of slots in alignment with said openings in said body member, said slots being slightly less in size than the diameter of said insulated wires whereby upon the forcing of said cap member on said body member said connector will simultaneously strip the insulation from said wires, forming an electrical connection between the wires and seal said chamber in said body member and said depending wall of said cap member sealing off said slot in said body member.

References Cited in the file of this patent

UNITED STATES PATENTS

2,587,239	Smith	Feb. 26, 1952
2,623,092	Miller	Dec. 23, 1952
3,012,219	Levin et al.	Dec. 5, 1961