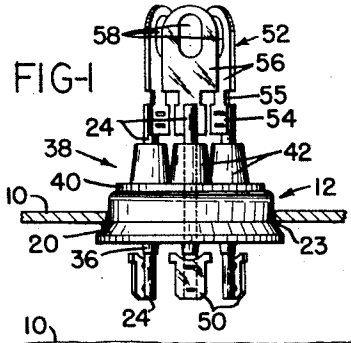
Dec. 8, 1964 A. WYZENBEEK 3,160,460

TERMINAL ASSEMBLY HAVING CONDUCTOR PINS AND CONNECTOR BLOCK

Filed Jan. 17, 1962

FIG-1



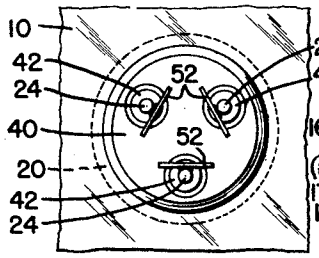


FIG-2

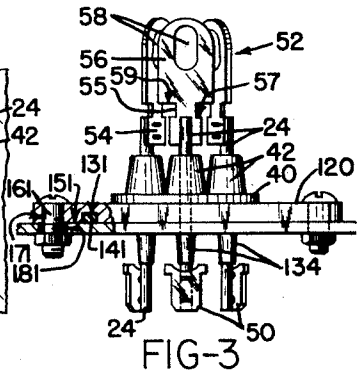


FIG-3

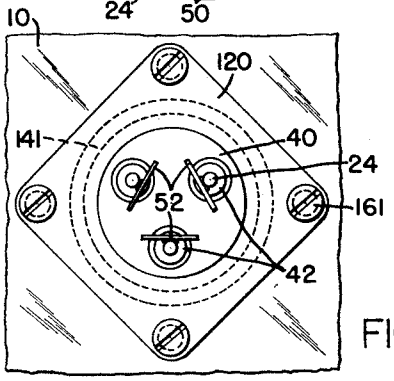


FIG-4

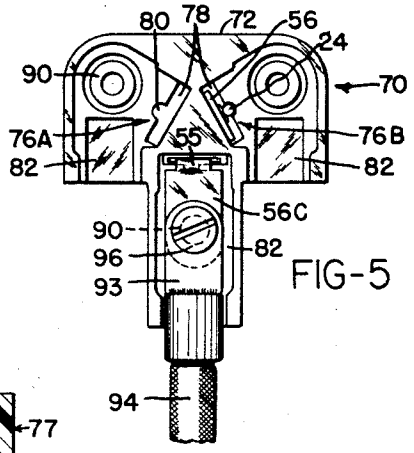


FIG-5

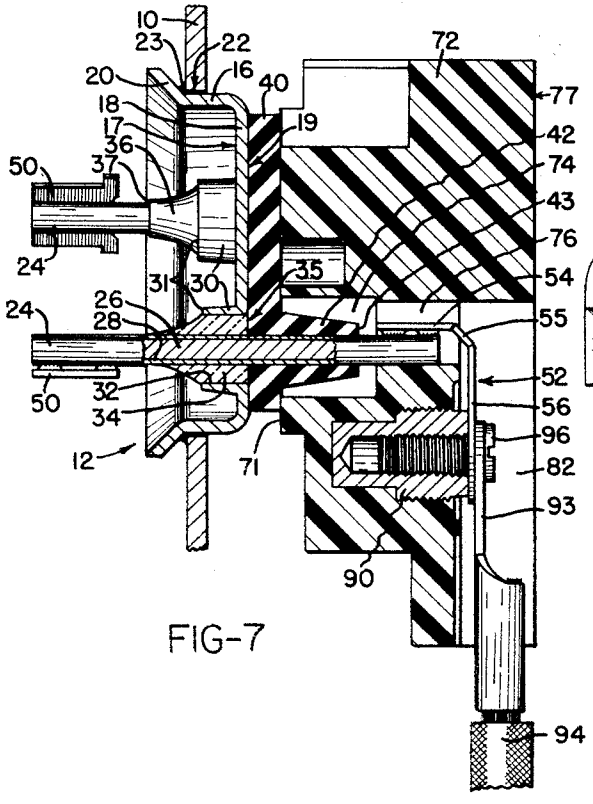
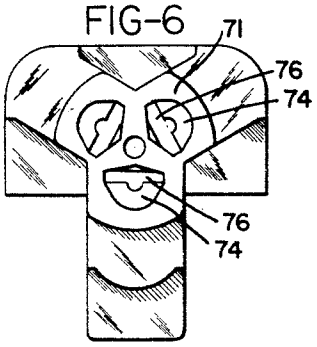


FIG-7

FIG-6



INVENTOR.
ANDREW WYZENBEEK

BY

ATTORNEY

United States Patent Office 3,160,460 Patented Dec. 8, 1964

3,160,460

TERMINAL ASSEMBLY HAVING CONDUCTOR PINS AND CONNECTOR BLOCK

Andrew Wyzenbeek, Cincinnati, Ohio, assignor to Fusite Corporation, Cincinnati, Ohio, a corporation of Ohio

Filed Jan. 17, 1962, Ser. No. 166,747
16 Claims. (Cl. 339—176)

This invention relates to electric terminals, and more particularly to terminals of the type which include one or more conductor pins having intermediate portions which project through and are secured to a metallic body portion by means of a glass-to-metal seal for disposing the terminal ends of the conductor pins on opposite sides of the body portion.

A prime requisite of the subject terminal is that the conductor pins be electrically insulated from and hermetically sealed to the body portion and that an optimum air path be established and thereafter maintained between adjacent portions of the pins and opposite sides of the body.

Heretofore the air path between the conductor pins and body portion of such terminals has been effected by frangible substances such as, by way of example, glass, or the like bonded to the body and extending outwardly therefrom along said pins. Such means have been highly effective and produce a highly efficient terminal as initially manufactured; however, such terminals have been subject to the inherent disadvantage that if roughly handled during installation, or if the pins thereof are bumped or bent after installation, the bond between the pins and body is likely to be broken accompanied by an impairment of the initial and highly essential moisture barrier between the sealed elements with the result that the "designed" air path of the terminal will be seriously impaired and shortened whereby to render the terminal ineffective and possibly dangerous for its intended use.

One of the primary objects of the present invention is to provide a terminal assembly wherein resilient means, characterized by their dielectric and moisture-barrier characteristics, are utilized for providing the desired air path between the pins and one side or face of the body portion.

Another object of the invention is to provide a terminal having the hereinabove described characteristics, wherein the conductor pins are rigidly secured to portions of the metallic body by means of a glass-to-metal seal which is limited in area in the sense that it does not project from or beyond that face of the body portion to which the resilient member is secured.

Still another object of the invention is the provision of a terminal having the hereinabove described characteristics wherein a resilient insulator is bonded to that face of the body beyond which the glass-to-metal seal does not project, said insulator including outwardly projecting protuberant portions bonded to the conductor pins for defining a predetermined air path between adjacent portions of said pins and body member.

Another object of the invention is to provide an airtight electrical terminal for use in conjunction with hermetically sealed devices wherein leakage into or from such devices, by way of the terminals, is effectively precluded.

Another object of the invention is to provide an improved glass-to-metal terminal for installation using modern mass production electric welding techniques.

Another object of the invention is to provide a connector block for co-operation with the conductor pins of a terminal wherein the connector block includes simplified means for securely though releasably effecting an electrical connection with the conductor pins of the terminal.

Still a further object of the invention is to provide a new and novel terminal body structure and process for producing same, in which the terminal body includes conductor pins which are initially secured to the terminal body in spaced insulated relationship therewith by fusion of a glass bead interposed between adjacent portions of the body and pin.

These and other objects are attained by the means described herein and as disclosed in the accompanying drawings, in which:

FIG. 1 is a side elevational view, partly in section, of a terminal embodying the teachings of the present invention associated with the wall of a compressor housing or the like.

FIG. 2 is a top view of hte assembly of FIG. 1.

FIG. 3 is a view similar to FIG. 1, illustrating a modification of the terminal assembly.

FIG. 4 is a top view of the assembly of FIG. 3.

FIG. 5 is a view in elevation of the outer face of a connector block embodying the teachings of the present invention for association with the terminal of FIGS. 1 and 3.

FIG. 6 is a view in elevation of the inner face of the connector block of FIG. 5.

FIG. 7 is a vertical section of the terminal of FIG. 1 operatively associated with the connector block of FIGS. 5 and 6.

With particular reference now to FIGS. 1, 2 and 7, the numeral 10 denotes generally the supporting wall or housing of a chamber, compressor shell or other device with which the subject terminal is associated.

As best illustrated in FIG. 7, the numeral 12 denotes generally the metallic shell or terminal body which includes a side wall 16 and an end wall 18 having inner and outer axial faces 17 and 19, respectively. The inner end of the side wall has been illustrated as terminating in an outturned peripheral mounting flange 20. Conductor pins denoted by the numeral 24 are disposed in concentric alignment with a collar or socket 30 struck inwardly from end wall 18 of the terminal body. Preferably the conductor pins comprise a copper core 26 suitably sheathed as at 28.

The conductor pins 24 may be permanently secured relative to the terminal body by means of a glass seal 34 which is fired whereby to effect a glass-to-metal seal with the inner face 32 of sockets 30 and with adjacent portions of the outer surface of the intermediate portions of the pins.

In the preferred embodiment of the invention, the glass sealing element 34 extends along the pins beyond peripheral edge 31 of sockets 30, as at 36, tapering from a maximum diameter at 32 to a minimum diameter at 37. This provides an efficient glass-to-metal seal which defines an adequate air path between said pins and adjacent portions of the metallic body.

It should be noted that the forward face or end 35 of the fused glass member 34 is substantially flush with the plane of the forward, or outer face 19 of the body member; that is, the fused glass member does not project any substantial distance forwardly of face 19, whereby the rigid glass-to-metal seal is located rearwardly of the forward front or outer face 19 of the body member.

After the conductor pins 24 have been rigidly affixed to the body member by reason of the glass-to-metal seal, a resilient insulator denoted generally by the numeral 38 is applied to the forward or outer face 19 of end wall, and to portions of the connector pins adjacent thereto.

The resilient insulator includes a base or disk portion 40 and integral protuberant bushings 42.

Uniformly satisfactory results have been obtained in those instances in which insulator 38 has been fabricated from silicon rubber of the type which is capable of being

vulcanized at room temperatures such as, by way of example, the product manufactured by General Electric Company and merchandised under the trademark or symbol "R.T.V."

Production on a commercial scale has been attained by utilizing suitable molds, each having a cavity defining base 40 and the protuberant bushings 42 of an insulator 38. After such a mold has been suitably associated with face 19 of base 18 of the terminal body, and to pins 24 thereof, the cavity of the mold may then be filled such as, by way of example, by injection with a semi-liquid catalized silicon rubber compound, and subjected to low temperature baking, in the neighborhood of 150° F., to accelerate the vulcanizing process and reduce the in-mold-time. After the mold has been stripped from the now-formed insulator 38, the terminal assembly may be air-cured for a suitable period of time for providing a resilient insulator which is tenaciously bonded directly to outer face 19 of the body member, outer face 35 of the fused glass seal 34, and the adjacent areas of the intermediate portions of the conductor pins 24. The protuberances 42 establish and define an adequate air path between pins 24 and adjacent portions of the body.

One of the important and essential characteristics of insulator 38 is that the bond made with the pins, glass seal, and body member will remain intact, secure and unbroken even though subjected to flexing or distortion from external sources; or deflection incident to bending of those portions of the pins which projects outwardly from face 19 of the body members. By thus providing a tenacious seal between the insulator member 38 and the other portions of the terminal, an ideal moisture barrier is provided of such a character as to resist rupture or failure incident to relative movement of the insulator with respect to the body member.

The inner ends of the conductor pins may be provided with spade conductors 50 for facilitating the making of an electrical connection with a prime mover, or the like, disposed within or interiorly of a housing of which wall 10 forms a part. Connector elements 52 are secured to and carried by the terminal portions of the conductor pins which project outwardly beyond the forward end 43 of bushings 42.

As best illustrated in FIGS. 1 and 3, each of the connector elements 52 includes a lower end 54, a notched intermediate portion 55, and an outer end 56 having a slot 58 therein. The lower end 54 of each connector element is fixedly mounted to a conductor pin such as by means of spot welding, or the like, with lower edge 57 of the notched intermediate portion 55 disposed in substantial alignment with the outer end of its respective pin, and with the upper edge 59 of the notched portion spaced outwardly thereof.

The terminal body 12 may be fixedly and rigidly installed by inserting the forward portion thereof through a round aperture 22 pierced through wall 10 for disposing the periphery of the inner side of the aperture in sealing engagement with mounting flange 20 of the terminal body, after which the parts may be permanently secured together by means of a weld 23.

When thus mounted, the interior of the terminal body and those ends of the conductor pins to which connectors 50 are secured will be disposed interiorly of the housing or chamber of which wall 10 forms a part. The lower portions of the pins which project outwardly from end wall 18 are encased within resilient insulator 38.

The primary distinction between the terminal of FIGS. 1 and 3 resides in the construction of the body member; in FIG. 3 the conductor pins 24 are secured to a substantially flat, thick mounting plate 120 by glass sealing means 134.

The body member 120 includes an inner face 117 having an annular recess 131 for the reception of an O-ring 141 which is sealed against the outer face 151 of wall 10 to which the terminal is securely though releasably anchored by means of fasteners, such as bolts 161, which project through axially aligned openings 171 and 181 in plate 120 and wall 10, respectively.

With reference now to FIGS. 5 and 6, the numeral 70 denotes generally a connector block fabricated from a suitable phenolic material to provide a substantially solid central body portion 72 having an inner face 71 provided with a plurality of sockets 74 corresponding in location and number to the conductor pins 24 of the terminals of FIGS. 1 and 3. In the preferred embodiment of the invention, each of sockets 74 is larger both in transverse dimension and in depth than protruberant bushings 42, whereby each of said bushings will be loosely received within a socket 74 with a surrounding air gap, as illustrated in FIG. 7.

Body portion 72 is also provided with through apertures 76 which are formed therein and comprise a partial continuation of the sockets 74. The configuration of apertures 76 is irregular in outline to provide an elongate slotted portion 78 for the reception of lower end 54 of a connector strip 52, and a communicating groove 80 in a side of the slot to loosely receive the outer end of its associated terminal pin 24.

The outer face 77 of block 70 is provided with conductor receiving channels 82 formed therein and extending outwardly with reference to the central portion of the block.

The conductor receiving channels 82 intersect the outer ends of the sockets 76, whereby on assembly of the terminal body and connector block the free outer ends 56 of the connector strips may be bent at substantial right angles with their respective conductor pins about notched portions 55 for disposing the slotted portions 58 of outer ends 56 each in overlying relationship with the outer end of an internally threaded brass bushing 90 secured to and carried by body portion 72 of the plug.

A ring-tongue connector clip 93 of a conductor wire 94 may be secured in electrical contact-making-relationship with connector strips 52 by means of a screw or other fastening means 96 as illustrated in FIG. 7.

With particular reference now to FIG. 5, it will be noted that at 76A the forward end of the socket as defined by areas 78 and 80 is shown empty, whereas at 76B conductor strip 56 and pin 24 are illustrated as they would appear before the outer end of said strip is folded downwardly over bushing 90 as at 56C.

From the foregoing, it will be noted that those portions of the terminal ends of conductor pins 24 which project from the outer face 19 of end wall 18 of the terminal body are housed within the resilient insulator 38 whereby damage to the glass-to-metal seal by reason of the transmission of shock and/or vibration to the seal via the free outer ends of the terminal pins is materially reduced, if not completely eliminated.

It will likewise be noted that the outer ends of the terminal pins are received within their respective grooves 80 in the terminal block 70 in such a manner that no bending force is transmitted to said pins incident to the bending of the connector strips 56 relative to their respective conductor pins, incident to establishing an electrical connection as illustrated in FIG. 7. It will likewise be noted that the relationship of the resilient insulator serves to effectively minimize the transmission of any shock loads to the terminal per se.

When the outer portions of the conductor strips are bent outwardly and over into channels 82 of the connector block, no bending force will be transmitted to the conductor pin with which the particular strips are associated, since the zone or locus of bend is disposed outwardly beyond the end of the pins.

Bending of the conductor strips as aforesaid will impart an outward axial force to the pins which will effectively and automatically draw forward face 71 of the connector block into abutting relationship with corresponding portions of the outer surface of base 40 of the

resilient insulator bushing 37, as illustrated in FIG. 7.

The relationship between the connector block and the conductor pins of the terminal are such as to establish an efficient electrical connection between the outer terminal ends of said pins and associated portions of the connector block; and to provide a highly efficient screw type connection by which conductors may be securely though releasably associated with said terminal via said block.

It should be understood that various changes and modifications may be made in the structural details of the device, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed is:

1. In an electric terminal, the combination of a metallic body portion having a conductor pin projecting through and extending beyond inner and outer sides thereof and insulated from and secured to the body portion by a glass-to-metal seal disposed on one side of the said outer side, and a resilient insulator bonded directly to the aforesaid outer side of said body portion and to adjacent portions of said seal and pin and jacketing the pin for a substantial portion of its length, and the jacketing terminating short of the outer end of the pin.

2. An electric terminal comprising a metallic body portion having an apertured collar projecting from one side thereof providing a conductor receiving socket, a conductor pin having an intermediate portion positioned in said socket with its terminal portions projecting on opposite sides of said body portion, a fused-glass-to-metal seal rigidly securing the said intermediate portion of said pin to and in electrically insulated relationship with and mounting the pin in said socket, and a resilient insulator bonded directly to that side of said body portion remote from said socket and to adjacent portions of said seal and conductor pin, said resilient insulator encasing a substantial length of the pin and terminating short of the adjacent end of the pin.

3. An electric terminal comprising a metallic body portion having spaced, parallel inner and outer faces provided with an aperture encircling collar projecting outwardly from the inner face thereof providing a conductor receiving socket extending away from the outer face of the body portion, a conductor pin having an intermediate portion positioned in said socket with its terminal portions projecting on opposite sides of said body portion, a fused-glass-to-metal seal rigidly securing the said intermediate portion of said pin to and in electrically insulated relationship with and mounting the pin in said socket, said seal including an outer face disposed substantially in the plane of the outer face of the adjacent body portion, and a resilient insulator bonded directly to the outer faces of said body portion and said glass seal and to said conductor pin, said resilient insulator encasing a substantial length of the pin and terminating short of the adjacent end of the pin.

4. An electric terminal assembly comprising a metallic body portion having an aperture therethrough providing a conductor receiving socket, a conductor pin having an intermediate portion positioned in said socket and having its terminal portions projecting at opposite sides of the body portion, a fused, glass-to-metal seal in said socket surrounding the said intermediate portion of the conductor pin and mounting the conductor pin therein and integrally uniting the body and pin in electrically insulated, hermetically sealed, moisture resistant relationship, and a molded-in-place resilient insulator bonded directly to and overlying one side of the body adjacent said socket, said insulator including an integral protuberant bushing inclosing and sealing an area of said pin adjacent the body portion and said bushing terminating short of the adjacent end of the pin.

5. An electric terminal assembly comprising a metallic body portion having an aperture therethrough providing a conductor receiving socket, a conductor pin having an intermediate portion positioned in said socket and having its terminal portions projecting at opposite sides of the body portion, a fused, glass-to-metal seal in said socket surrounding the said intermediate portion of the conductor pin and mounting the connector pin therein and rigidly and integrally uniting the body and pin in electrically insulated relationship, a molded-in-place resilient insulator bonded directly to and overlying one side of the body adjacent the socket, said insulator including an integral protuberant bushing inclosing and sealing an area of said pin adjacent the body portion, said bushing terminating short of the adjacent end of the pin and a conductor element secured to, carried by and projecting from the terminal portion of said pin beyond said bushing, said element including means defining a transverse bend zone beyond the end of the pin.

6. A connector terminal assembly for a hermetically sealed electrical unit, comprising in combination, a body portion having a plurality of collars projecting from one side thereof providing conductor receiving sockets, conductor pins having intermediate portions mounted in the sockets and having their terminal portions projecting at opposite sides of the body portion, retaining glass members in the sockets surrounding intermediate portions of the conductor pins and fused to integrally unite the body and pins in insulated relation, a molded-in-place insulating disk overlying the opposite side of the body from the collars and having integral protuberant bushing portions inclosing and sealing an area of the pins adjacent the body portion, the terminal portions of the pins beyond the bushings having pliable conductor strips secured thereto, a connector block of dielectric material having sockets formed in one face thereof equal in number and spacing to the number and spacing of the conductor pins and their circumscribing bushings, said block having apertures formed therethrough in partial continuation of the sockets, said apertures being of irregular outline to provide an inner slot, the opposite face of the conductor block having conductor receiving channels formed therein and radiating outwardly as respects the central portion of the block, said apertures at the slotted portions thereof intersecting said channels, said sockets having the conductor pins and bushings extending therein and said pliable conductor strips extending through said inner slots into said channels, said conductor strips being bent and having the outer terminal portions thereof lying in said channels and thereby securing the said body portion and connector block in assembled relation.

7. A connector terminal assembly as specified in claim 6, in which the connector block has threaded sockets formed therein in the bottom of the conductor receiving channels, the ends of the conductor strips have fastener receiving apertures formed therein and overlying said sockets, and fasteners having heads overlying and engaging the apertured portion of the conductor strips and having threaded portions extending into the sockets by way of said apertures and securing the conductor strips in locking relationship with said connector block.

8. A connector terminal assembly for a hermetically sealed electrical unit, comprising in combination, a body portion having a plurality of conductor receiving sockets, conductor pins having intermediate portions positioned in the sockets and having their terminal portions projecting at opposite sides of the body portion, fused-glass-to-metal seals rigidly securing the said intermediate portions of the conductor pins to and in electrically insulated relationship with said sockets and mounting the pins in the sockets, a resilient insulator bonded directly to one side of said body portion and having integral protuberant bushings inclosing and sealing an area of the pins adjacent the glass seals and the body portion, elongate conductor elements secured to and carried by and projecting from the terminal ends of said conductor pins beyond said bushings, a connector block of dielectric material, said connector block having sockets formed in one face thereof equal in number and

spacing to the number and spacing of the conductor pins and their respective protuberant bushings, said block having apertures formed therethrough in partial continuation of said sockets, said apertures being of irregular outline to provide an inner slot and a communicating groove in a side of the slot, the opposite face of the connector block having conductor receiving channels formed therein at substantially right angles with and intersecting the apertures, said resilient insulator block being positioned against said one face of the connector block and said conductor pins and bushings extending into said block apertures with the conductor elements extending into and through said inner slots into said receiving channels, said pins lying in said communicating grooves, the said conductor elements having outer end portions extending at right angles to the pins and lying in said channels and thereby coupling the body portion and connector block together, and means securing said outer end portions of the conductor elements in their respective channels.

9. An electric connector terminal comprising a metallic body portion having conductor receiving apertures formed therethrough, conductor pins extending through said apertures, glass-to-metal sealing means surrounding the pins in said apertures and fused to and hermetically sealing said pins to the body portion in insulated relation thereto, a molded-in-place vulcanized rubber sealing and insulating member integrated with and overlying one face of said body portion and having integral individual bushing portions extending therefrom and molded to and around the individual pins to additively seal and insulate said pins, and said bushings being spaced apart one from the other in the portions thereof which extend from said rubber sealing member and terminating short of the adjacent ends of the pins.

10. An electric connector terminal comprising a metallic body portion having conductor receiving apertures formed therethrough, conductor pins extending through said apertures, glass-to-metal sealing means surrounding the pins in said apertures and fused to hermetically seal said pins to the body portion in insulated relation thereto, a molded-in-place resilient sealing and insulating member of silicone rubber integrated with and overlying one face of said body portion and having integrally formed, individual bushing portions extending therefrom and molded to and around the individual pins to additively seal and insulate said pins, and individual, elongated pliable connector strips welded at one end to the bushing surrounding portions of said conductor pins in substantial continuation of the pins and extending beyond and free of said bushings, and the said strips having fastener receiving apertures in the free terminal portions thereof.

11. A connector terminal as specified in claim 10, including in combination therewith, a connector block of insulating material having an inner face, sockets formed in the inner face of said block, said sockets having a diameter materially larger than the maximum diameter of said bushings, said block having slots formed therethrough in continuation of said sockets and dimensioned to receive the connector strips, said metallic body being positioned with the said sealing and insulating member against said inner face of the connector block, said bushings being positioned in said sockets and having a substantial spacing from the surrounding surface of the sockets providing free air circulation around the bushings, said connector strips lying in part in said slots, and having a length greater than the length of the slots to extend entirely through the slots and beyond the outer face of the block when the bushings are positioned in said sockets in the assembling of the body portion and the block, and said connector strips being bent and each having a portion of the outer end thereof secured against the outer face of said block and securing said block with its inner face circumscribing the sockets sealed against the resilient sealing member of said body portion.

12. A connector terminal as set forth in claim 10, including in combination therewith, a connector block of insulating material having an inner face formed with a seat engaging the outer face of said resilient sealing member of the body portion, sockets formed in said block receiving said resilient bushings on the conductor pins and slots forming continuations of said sockets, said connector strips extending in part through said slots and having a length greater than the length of the slots to extend through the slots and beyond the outer face of the connector block when said bushings are received in the sockets in assembling the body portion and the block, said outer face of the block having channels therein individual to the slots and said connector strips being bent and having outer end portions each lying in a channel, the channels being adapted to receive lead wires for attachment to the said terminal portions of the connector strips, a threaded fastening-means receiving member in the bottom of each of said channels and having the fastener-receiving aperture of a connector strip lying thereover, and fastening means extending through said fastener-receiving-aperture of each connector strip and secured in the adjacent threaded receiving member and locking the body and block in an operative, assembled relation.

13. An electric connector terminal and conductor block assembly comprising the combination of a metallic body portion having a plurality of apertures therethrough providing conductor receiving sockets, conductor pins having an intermediate portion mounted in said sockets and having their respective terminal portions projecting at opposite sides of the body portion, fused, glass-to-metal seals in said sockets surrounding the intermediate portion of the conductor pins rigidly and integrally uniting the body and pins in electrically insulated relationship, a molded-in-place resilient insulator bonded directly to and overlying one side of the body adjacent said sockets, said insulator including integral protuberant bushings inclosing and sealing a longitudinal extent of each of said pins adjacent the body portion, conductor elements secured to, carried by and projecting one each from the terminal portion of each of said pins beyond the protuberant portions of said bushings, a connector block of dielectric material having a face positioned against the side of said terminal body portion having said protuberant bushings and conductors pins projecting therefrom, said connector block having sockets formed in the said face thereof equal in number and spacing to and having said protuberant bushings and conductor pins received therein, said sockets being deeper than the height of the protuberant bushings and of materially greater diameter than the maximum diameter of said bushings, said block having apertures formed therethrough in partial continuation of said sockets, said apertures being of irregular outline and receiving those end portions of the conductor pins which project beyond the ends of said protuberant bushings and also receiving the conductor elements of said pins, the opposite face of the connector block having channels formed at substantially right angles with and intersecting said apertures, said bushings being spaced at their free ends from the bottoms of the sockets and also being spaced a substantial distance from the surrounding sides of the sockets, the conductor elements having free end portions disposed substantially perpendicular to the attached conductor pins and having said free end portions disposed in said channels, the conductor elements functioning to maintain the first said face of the connector block and said resilient insulator overlying the said side of said metallic body portion in abutting relationship and locking the terminal body and connector block in assembled relationship.

14. As a new combination in an electric terminal assembly, a terminal body for mounting on a support, said body comprising a metal part having inner and outer faces, elongate current conductor elements extending through an electrically insulated intermediate their ends from and rigidly secured to said metal part, a body of insulation material bonded to and overlying the outer face of said metal part and encircling and bonded to a longi-

tudinal extent of each conductor element, said conductor elements having inner and outer ends, the inner end of each conductor element extending a substantial distance beyond said body of insulation material, a connector block having inner and outer faces and having passages extending therethrough from the inner face to the outer face thereof, said connector block further having channels in the outer face and each channel having a passage opening thereinto, said body of insulation material having the inner face of the connector block removably positioned thereagainst and said conductor elements each extending through a passage into the associated channel, said conductor elements each being transversely bendable and bent at a location inwardly of its outer end with the portion thereof located outwardly of the bend lying in the adjacent channel, and means forming an electric terminal securing means passing through the said outer portion of each conductor element into the connector block and securing the conductor element to the block and said conductor elements securely holding said connector block and said terminal body operatively coupled together.

15. An electric terminal comprising a metallic body portion having conductor element receiving apertures formed therethrough, elongate metal conductor elements each having a portion positioned in an aperture and extending at its ends beyond opposite sides of the metallic body, glass-to-metal sealing means surrounding the said portions of the conductor elements positioned in said apertures and fused to and hermetically sealing said elements to the body portion in insulated relation thereto, a one piece vulcanized rubber sealing and insulating member overlying and bonded to one face of said body portion and having individual spaced apart integral bushings extending therefrom and each bushing encasing a substantial length of a conductor element and terminating short of that end of the conductor element remote from the metallic body portion and additively sealing and insulating the conductor element from said metallic body portion.

16. A connector terminal assembly according to claim 6, wherein each of said slots has a longitudinal groove in the side thereof remote from the said central portion of the block, said grooves each having the outer end of the adjacent connector pin lying therein and said conductor strips each having the said bent terminal portion thereof disposed across the outer end of the attached conductor pin and thereby holding the pin in its groove and said conductor strips when bent to position the outer terminal portions in their channels effecting the drawing together of the said one face of the connector block and the said insulating disc.

References Cited in the file of this patent

UNITED STATES PATENTS

2,667,553	Moorhead et al.	Jan. 26, 1954
2,728,060	Doeg	Dec. 20, 1955
2,749,403	Horman et al.	June 5, 1956
2,875,426	Skony	Feb. 24, 1959
3,016,511	Unger	Jan. 9, 1962

OTHER REFERENCES

Publication: Wyzenbeek, "Hermetic Feed-Through Terminals," Electrical Manufacturing, January 1954, pages 129–131.