

[54] ADAPTER ASSEMBLY FOR SEALING A CONNECTOR PART

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[58] Field of Search 174/65 SS, 76, 77 R, 174/151; 277/12, 35, 116.4; 339/60 R, 60 M, 94 R, 94 M, 102 R, 103 R, 218 R, 218 M

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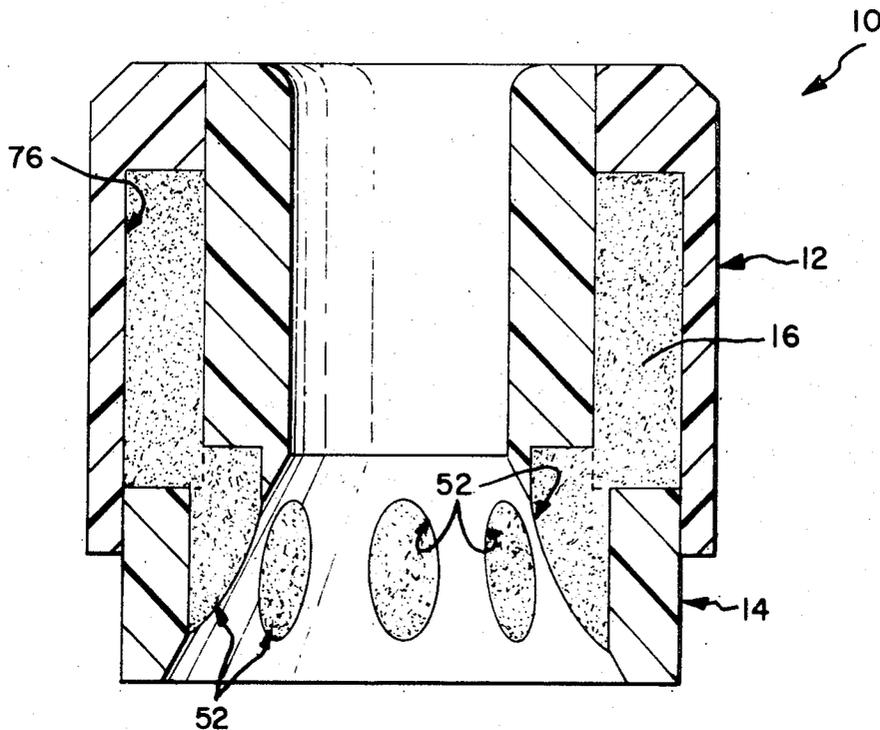
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[57] ABSTRACT

An adapter assembly is provided for sealing an end of an electrical connector part of the type having a body portion, a plurality of cavities extending through the body portion and opening at the end of the connector part, and a plurality of wires leading from the cavities outwardly from the end of the connector part. The

adapter assembly includes a post member seatable upon the end of the connector part, a central passageway defined axially through the post member through which may pass the plurality of wires emanating from the connector part end, and a hollow cover member fitted about the post member in slideable engagement with opposing ends of the post member and moveable between initial and final positions relative to the post member along the longitudinal axis of the post member. An interior surface of the cover member disposed radially outwardly from an exterior surface of the post member forms a reservoir therebetween when the cover member is in its initial position. A predetermined quantity of impervious material capable of flowing under pressure and retainable in any shape as may be impressed on it is contained within the reservoir. A plurality of apertures defined in the post member and spaced from one another radially about the longitudinal axis of the post member communicate the exterior surface of the post member with the end of the connector part via the central passageway of the post member. When the post member is seated upon the end of the connector part and the cover member is forcibly moved from its initial position to its final position at which a bottom portion of the cover member securedly engages the end of the connector part to fixedly secure the adapter assembly to the connector part, the impervious material is hydraulically forced to extrude through the plurality of apertures in the post member and fill the empty space about the plurality of wires in the end of the connector part and in the central passageway of the post member to thereby seal the end of the connector part.

5 Claims, 5 Drawing Figures



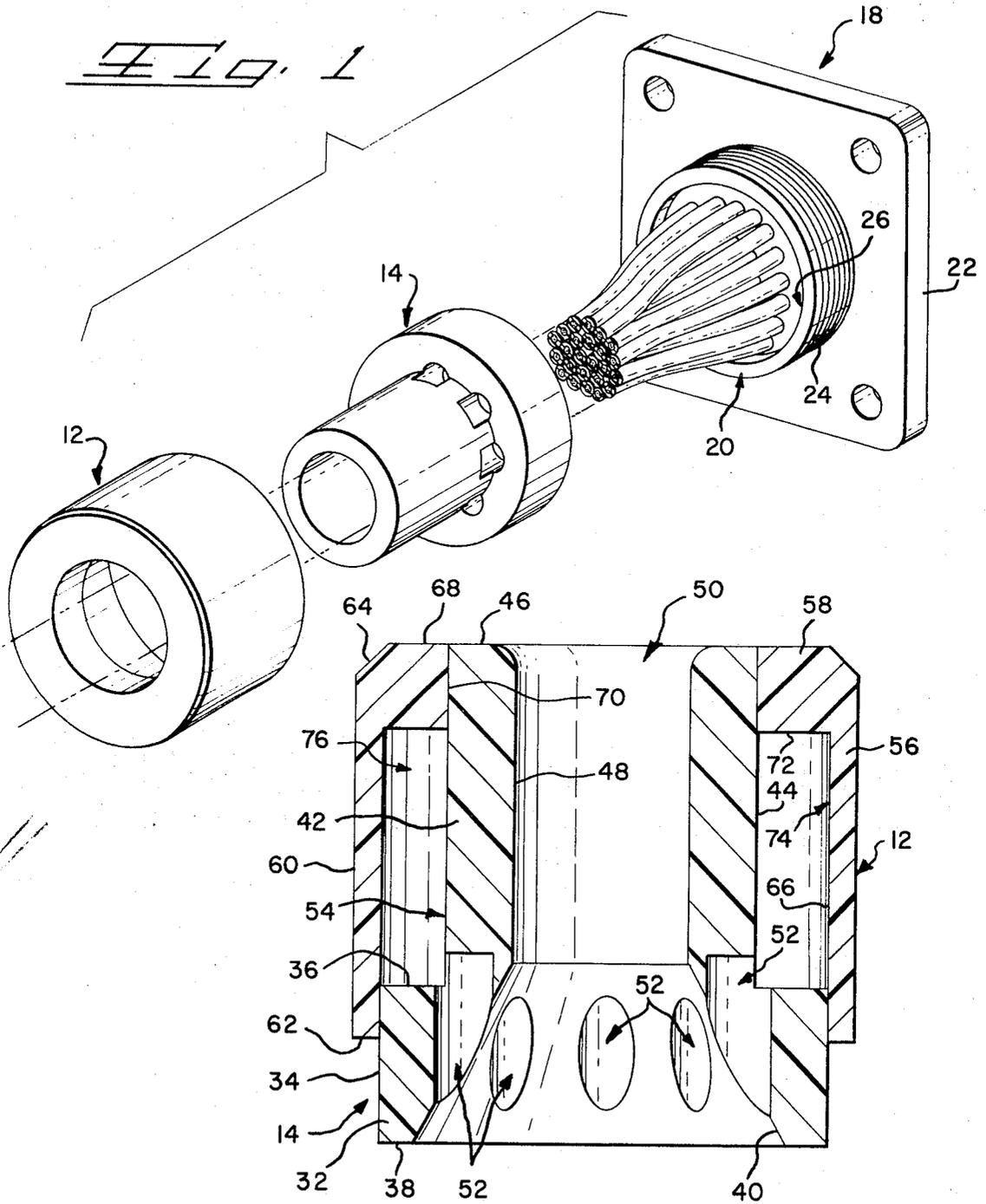
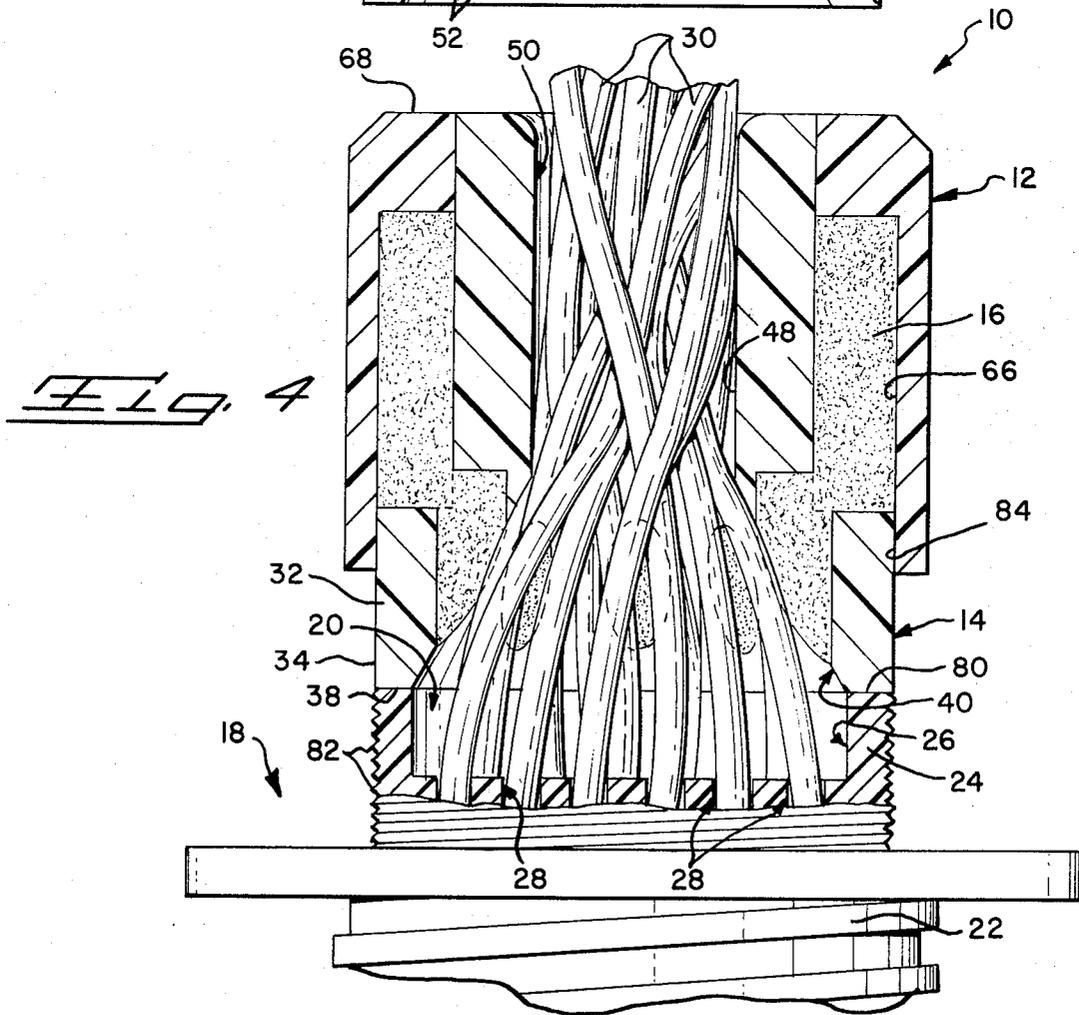
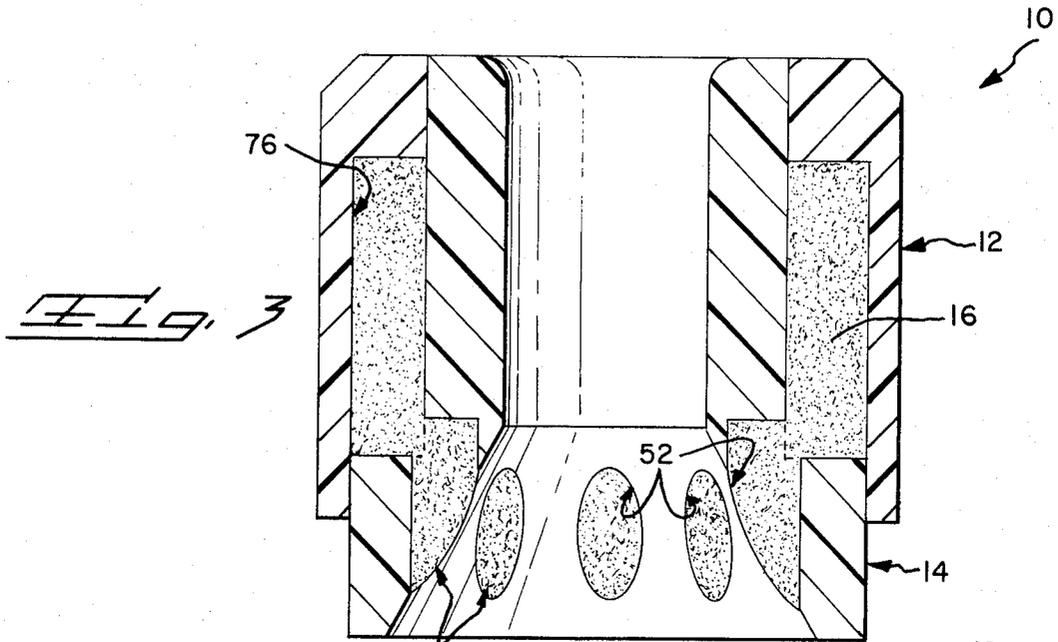


Fig. 2



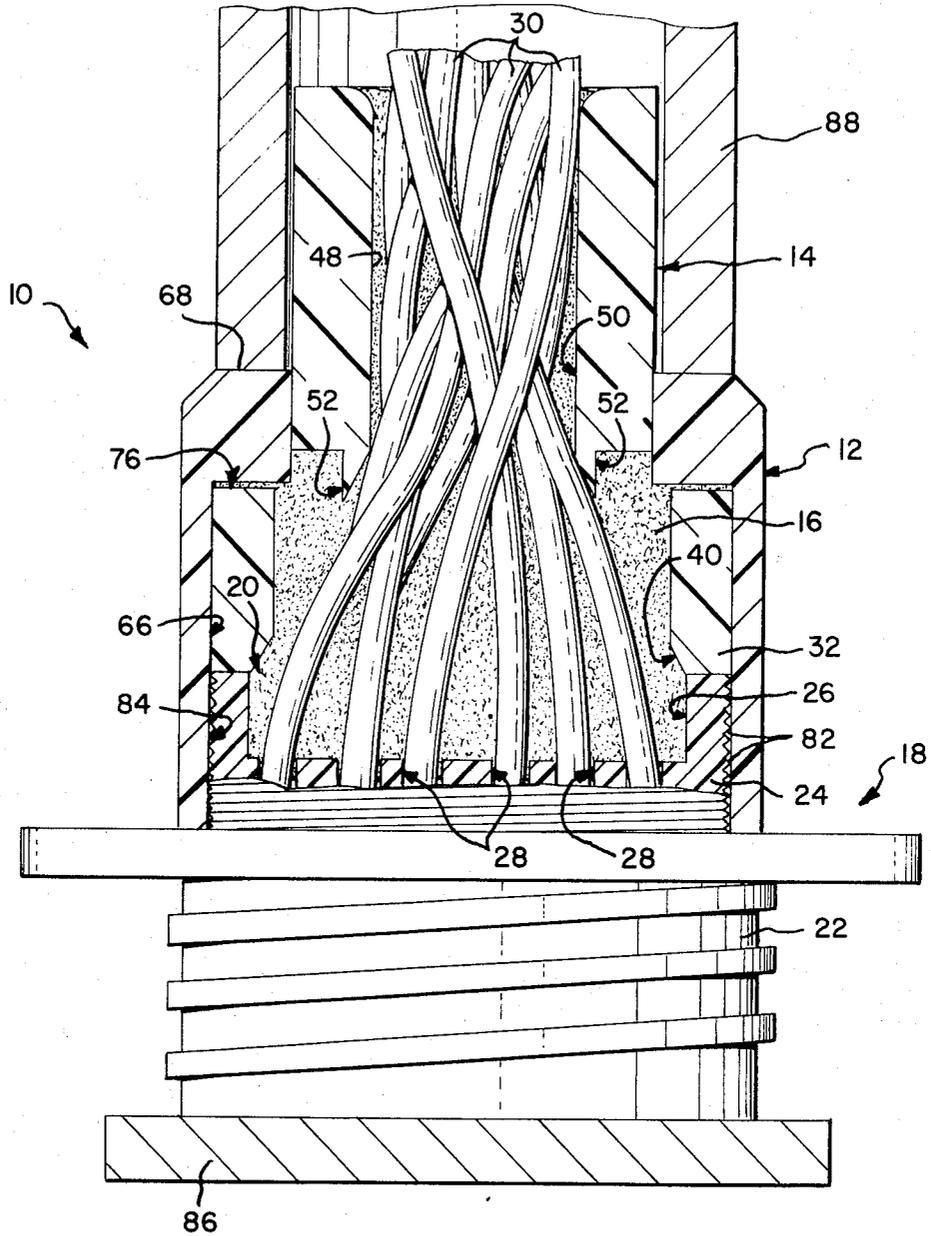


Fig. 5

ADAPTER ASSEMBLY FOR SEALING A CONNECTOR PART

BACKGROUND OF THE INVENTION

1. Field Of The Invention

The present invention relates broadly to electrical connectors and more particularly is concerned with sealing or weatherproofing the rearward end of an electrical connector part from which one or more lead wires emanate.

2. Description Of The Prior Art

An electrical connector part generally has a plurality of contact receiving cavities extending from its rearward end axially therethrough to its mating face, these cavities being adapted to receive contact terminals which are crimped or otherwise secured to conductor wires which extend from the rearward end of the connector part. The connector part is usually adapted to be engaged with another connector part at their respective mating faces with the rearward end of the connector part left exposed and thus requiring some form of independent sealing.

Various means for weatherproofing or sealing the rearward end of connector parts are known in the prior art.

One commonly used technique is to fit a resilient grommet, generally made from neoprene or silicone rubber, over the rearward end of the connector part and bond it thereto. The grommet contains a plurality of openings to accommodate the emanating lead wires. The grommet is first slipped over the rearward end of the connector part and bonded thereto. The terminal contacts and attached lead wires are then pushed through the openings in the grommet and into the contact receiving cavities in the connector part. A disadvantage of the above technique is the necessity of inserting the terminal contacts and attached wires individually through the tight-fitting openings in the grommet. Also, the openings in the grommet must be designed to receive only one size of wire or, at the most, a very narrow range of wire sizes.

Another commonly used technique for sealing the rearward end of connector parts is known as "potting." A flowable material, such as an epoxy resin, is poured into a recess in the rearward end of the connector part wherein the contact terminals with conductor wires attached thereto have already been inserted. The material sets, either by applying heat or other commonly known setting means, forming a rigid impervious seal. While the potting technique produces a satisfactory seal, it is time consuming, complex to apply and messy.

OBJECTS AND SUMMARY OF THE INVENTION

The adapter assembly of the present invention greatly simplifies the effectuation of a seal at the rearward end of a connector part by providing a device which self-contains the sealing material out of contact with the fingers of the user and which is easily secured to the end of the connector part by the utilization of a suitable pressure-applying tool after the terminal contacts and their attached wires have been inserted in the connector part.

An object of the invention, therefore, is to provide an adapter assembly which can be conveniently secured to the rearward end of the connector part after all of the contact terminals on the ends of conductor wires have been mounted within the cavities in the conductor part

which avoids the necessity of threading the contact terminals and their associated wires individually through the sealing assembly.

Another object of the invention is to provide a highly reliable weatherproof seal of the rearward end of the connector part including sealing of the empty space about the portions of the wires within the contact receiving cavities formed in the connector part.

A further object of the invention is to provide an adapter assembly which can accommodate different sizes of wires emanating from the conductor part.

Still another object of the invention is to provide an adapter assembly which additionally imposes a strain relief on the plurality of wires emanating from the connector part.

These and other objects of the invention are achieved in a preferred embodiment thereof wherein an adapter assembly is provided for sealing the end of an electrical connector part of the type having a body portion, a plurality of cavities extending through the body portion and opening at the end of the connector part, and a plurality of wires leading from the cavities and outwardly from the end of the connector part. The adapter assembly comprises a post member seatable upon the end of the connector part, a central passageway defined axially through the post member through which may pass the plurality of wires emanating from the connector part end, and a hollow cover member fitted about the post member in slideable engagement with opposing ends of the post member and moveable between initial and final positions relative to the post member along the longitudinal axis of the post member. An interior surface of the cover member disposed radially outwardly from an exterior surface of the post member forms a reservoir therebetween when the cover member is in its initial position. A predetermined quantity of impervious material capable of flowing under pressure and retainable in any shape as may be impressed on it is contained within the reservoir. A plurality of apertures defined in the post member and spaced from one another radially about the longitudinal axis of the post member communicates the exterior surface of the post member with the end of the connector part via the central passageway of the post member. When the post member is seated upon the end of the connector part and the cover member is forceably moved from its initial position to its final position at which a bottom portion of the cover member securely engages the end of the connector part to fixedly secure the adapter assembly to the connector part, the impervious material is hydraulically forced to extrude through the plurality of apertures in the post member and fill the empty space about the plurality of wires in the end of the connector part and in the central passageway of the post member to thereby seal the end of the connector part.

Other objects and attainments of the present invention will become apparent to those skilled in the art upon a reading of the following detailed description when taken in conjunction with the drawings in which there is shown and described an illustrative embodiment of the invention; it is to be understood, however, that this embodiment is not intended to be exhaustive nor limiting of the invention but is given for purpose of illustration in order that others skilled in the art may fully understand the invention and the principles thereof and the manner of applying it in particular use so that they may modify it in various forms, each as

may be best suited to the conditions of a particular use.

BRIEF DESCRIPTION OF THE DRAWINGS

In the course of the following detailed description reference will be frequently made to the attached drawings in which:

FIG. 1 is a perspective view of the post and cover members of the adapter assembly in an unassembled condition without the quantity of impervious material which would ordinarily be self-contained by the assembly, and showing the post and cover members of the adapter assembly in alignment with, but separated from, the connector part;

FIG. 2 is an enlarged cross-sectional view taken along a longitudinal axial plane of the adapter assembly with the post and cover members assembled together, the cover member being in its initial position relative to the post member, but without the quantity of impervious material which would ordinarily be self-contained by the assembly;

FIG. 3 is an enlarged cross-sectional view taken along a longitudinal axial plane of the adapter assembly showing the assembly in its assembled condition ready for application to a connector part wherein the cover member is in its initial position relative to the post member with the quantity of impervious material being contained in the reservoir formed by the members;

FIG. 4 is a view of the adapter assembly as shown in FIG. 3 and, in addition, showing the post member seated upon the end of the connector part which is fragmentarily illustrated in a partial cross-sectional view; and

FIG. 5 is a view of the adapter assembly and the connector part similar to that of FIG. 4, but further showing the cover member moved to its final position relative to the post member with the quantity of impervious material having extruded through the apertures formed in the post member and filled and sealed the empty space about the wires between the adapter assembly and the connector part.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now in greater detail to the various figures of the drawings wherein like reference characters refer to like parts, there is shown at 10 in FIG. 3 an adapter assembly forming the preferred embodiment of the present invention comprised by a hollow cover member 12 fitted about a post member 14 with a quantity of impervious material 16 which is flowable under pressure contained between the members 12,14.

The adapter assembly 10 is intended to be fixedly secured to an electrical connector part 18 on its rearward end 20 (see FIGS. 1, 4 and 5) and to provide a weather-proof seal for the end 20 of the connector part 18.

The connector part 18 may be of the type having a body portion 22 and a hollow shell portion 24 defining a recess 26 at the rearward end 20. The body portion 22 of the connector part 18 has a plurality of cavities 28 extending therethrough from the rearward end 20 to a front mating face (not shown) of the connector part 18. These cavities 28 are adapted to receive a plurality of contact terminals (not shown) which are crimped or otherwise secured to conductor lead wires 30 which extend out of these cavities 28 from the rearward end 20 of the connector part 18. The connector part 18 may be of the type adapted to be engaged with another elec-

trical connector part at their respective mating faces with the rearward ends of the connector parts left exposed and thus requiring some form of independent sealing. While the electrical connector part 18 illustrated has a plurality of cavities 28 and wires 30, the adapter assembly 10 of the present invention is equally capable of sealing a connector part having only a single cavity and wire extending therefrom. Further, while the connector part 18 illustrated has a shell portion 24 defining a recess 26 at the rearward end 20, the adapter assembly 10 of the present invention is equally capable of sealing a connector part which does not have the shell portion 24.

FIG. 1 shows the cover and post members 12,14 of the adapter assembly 10 in alignment along a common longitudinal axis with the shell portion 24 of the electrical connector part 18. The cover and post members 12,14 may be molded from a suitable rigid material such as a glass-filled nylon by any suitable molding process. While the cover and post members 12,14 are shown in the drawings as having a cylindrical configuration, the members need not be limited to that configuration. The particular configuration of the shell portion 24 of the connector part 18 will determine the configuration of the members 12,14.

As more clearly shown in FIG. 2, the post member 14 includes an annular base portion 32 exteriorly defined by an outside cylindrical surface 34 which intersects at its top edge with a top flat annular surface 36 and which intersects at its bottom edge with a bottom flat annular surface 38, and interiorly defined by an inside conical surface 40 which intersects the bottom flat annular surface 38 and which slopes upwardly and radially inwardly toward the longitudinal axis of the post member 14.

The post member 14 further includes an annular body portion 42 exteriorly defined by an outer cylindrical surface 44 which intersects at its lower edge with the top flat annular surface 36 of the base portion 32 and which intersects at its upper edge with an upper flat annular surface 46, and interiorly defined by an inner cylindrical surface 48 which at its upper edge is rounded off and intersects with the upper flat annular surface 46 and which intersects at its lower edge with the inside conical surface 40 of the base portion 32.

The outer cylindrical surface 44 of the body portion 42 has a uniform circumference that is substantially less than the uniform circumference of the outside cylindrical surface 34 of the base portion 32.

The inner cylindrical surface 48 of the body portion 42 and the inside conical surface 40 of the base portion 32 together define a central passageway 50 through the post member 14 through which the wires 30 may pass. The circumference of the central passageway 50 is somewhat greater than that of the wires 30 when they are closely bundled together in order that the bundle of wires 30 may readily pass therethrough. Actually, the circumference of the inner cylindrical surface 48 is predetermined according to the size (circumference) of the wire bundle 30 of the connector part 18 in order to preset the volume of empty space between the wire bundle 30 and the body portion 42 of the post member 14. As will be explained later, it is desirable to leave some clearance between the post member and the wire bundle in order to facilitate sealing of the connector part 18. Also, the inside conical surface 40, by having its maximum circumference at its lower edge thereof,

allows the plurality of wires 30 to encompass a greater area as the wires 30 lead from the cavities 28 in the connector part 18 than that area encompassed by the wires 30 as they pass through the portion of the passageway 50 defined by the inner cylindrical surface 48 of the body portion 42 of the post member 14.

The base and body portions 32,42 merge together between the line of intersection of the inner cylindrical surface 48 and the inside conical surface 40 and the line of intersection of the outer cylindrical surface 44 and the top flat annular surface 36. At this location of merger or juncture between the base and body portions 32,42 a plurality of apertures 52 are provided through the post member 14 in a spaced apart radial arrangement about the longitudinal axis of the post member 14. The apertures 52 open on the interior of the post member 14 at the inside conical surface 40 of the base portion 32. The apertures 52 open on the exterior of the post member 14 at the intersection between the top flat annular surface 36 of the base portion 32 and the outer cylindrical surface 44 of the body portion 42. In such arrangement, the apertures 52 communicate the central passageway 50 of the post member 14 with an exterior surface portion 54 of the post member 14 which is formed by the top flat annular surface 36 of the base portion 32 and the outer cylindrical surface 44 of the body portion 42.

While the post member 14 as illustrated in the drawings has a plurality of apertures 52, the adapter assembly 10 of the present invention is capable of sealing the connector part 18 by the utilization of only one of the apertures 52 in the post member 14. Also, one or all of the apertures 52 do not necessarily need to be located at the juncture between the base and body portions 32,42, but instead could be located wholly through the base portion 32 or the body portion 42.

Also as clearly shown in FIG. 2, the hollow cover member 12 includes a cylindrical sleeve portion 56 which merges at its upper end portion into an annular shoulder portion 58.

The sleeve portion 56 is exteriorly defined by an outer cylindrical surface 60 which intersects at its lower edge with a lower flat annular surface 62 and which intersects at its upper edge with a bevelled annular surface 64. The sleeve portion 56 is interiorly defined by an inner cylindrical surface 66 which intersects at its lower edge with the lower flat annular surface 62.

The shoulder portion 58 is exteriorly defined by an upper flat annular surface 68 which intersects at its outer edge with the bevelled annular surface 64 of the sleeve portion 56. The shoulder portion 58 is interiorly defined by an inner cylindrical surface 70 which intersects at its upper edge with the upper flat annular surface 68 and which intersects at its lower edge with a lower flat annular surface 72, which surface 72, in turn, intersects at its outer edge with the upper edge of the inner cylindrical surface 66 of the sleeve portion 56.

The sleeve and shoulder portions 56,58 merge together between the line of intersection of the bevelled annular surface 64 and the upper flat annular surface 68 and the line of intersection of the inner cylindrical surface 66 and the lower flat annular surface 72.

The lower flat annular surface 72 of the shoulder portion 58 and the inner cylindrical surface 66 of the sleeve portion 56 together form an interior surface portion 74 of the hollow cover member 12.

The circumference of the inner cylindrical surface 70 of the shoulder portion 58 of the cover member 12 is slightly larger than the circumference of the outer cylindrical surface 44 of the body portion 42 of the post member 14 so that slideable engagement may be established between the shoulder portion 58 of the cover member 12 and the body portion 42 of the post member 14 when the cover member 12 is fitted about the post member 14 as depicted in FIG. 2. Also, the circumference of the inner cylindrical surface 66 of the sleeve portion 56 of the cover member 12 is slightly larger than the circumference of the outside cylindrical surface 34 of the base portion 32 of the post member 14 so that slideable engagement may be established between the sleeve portion 56 of the cover member 12 and the base portion 32 of the post member 14 when the cover member 12 is fitted about the post member 14 as depicted in FIG. 2.

Further, it is readily apparent in FIG. 2 that the outer cylindrical surface 44 of the body portion 42 of the post member 14 has a substantially greater height than that of the inner cylindrical surface 70 of the shoulder portion 58 of the cover member 12, and that the inner cylindrical surface 66 of the sleeve portion 56 of the cover member 12 has a substantially greater height than that of the outside cylindrical surface 34 of the base portion 32 of the post member 14, so that the cover member 12 may be moved through a substantial displacement along the longitudinal axis of the adapter assembly 10 and relative to the post member 14, while the sleeve and shoulder portions 56,58 of the cover member 12 still maintain their sliding engagement respectively with the base and body portions 32,42 of the post member 14.

FIG. 2 illustrates the desired initial position of the cover member 12 in relation to the post member 14. In such initial position, the shoulder portion 58 of the cover member 12 is located remote from the base portion 32 of the post member 12 with the interior surface portion 74 of the cover member 12 and the exterior surface portion 54 of the post member 14 defining an empty space or void about the body portion 42 of the post member 14. This void formed by interior surface portion 74 and exterior surface portion 54 may be characterized as a reservoir 76. The volumetric capacity of the reservoir 76 decreases as the cover member 12 is moved from its initial position to its desired final position relative to the post member 14 (see FIG. 5) in which latter position the shoulder portion 58 of the cover member 12 is located adjacent to the base portion 32 of the post member.

As clearly shown in FIG. 2, the plurality of apertures 52 establish communication between the reservoir 76 and the central passageway 50.

FIG. 3 depicts the adapter assembly 10 in its fully assembled condition ready for application to the rearward end 20 of the connector part 10. In order to assemble the adapter assembly 10, the cover member 12 and the post member 14 are retained in their desired initial position relative to each other by any suitable means (not shown), such as an appropriate clamping tool. Then a predetermined quantity of a sticky, deformable material 16, such as butyl rubber, is injected through one or more of the apertures 52 into the reservoir 76 from the nozzle of any suitable conventional dispensing means (not shown). The material 16 which will perform the sealing function of the adapter assem-

bly 10 must be reasonably impervious to fluids, be able to flow under modest pressure and be able to hold the shape impressed upon it after pressure is released therefrom. Because of its sticky or adhesive properties and also because it will only flow under pressure, the butyl rubber material 16 which fills the reservoir 76 and apertures 52 will now retain the cover and post members 12,14 in their desired initial position without help from any external clamping force being applied to the members 12,14.

Referring now to FIG. 4, the adapter assembly 10 is shown in seated position on the rearward end 20 of the connector part 18 prior to securement of the assembly 10 thereto. In such seated position of the assembly 10, the bottom flat annular surface 38 of the base portion 32 of post member 14 rests on a top flat annular surface 80 of the shell portion 24 of the connector part 18. Also, the bundled wires 30 pass through the central passageway 50 of the post member 14.

The circumference of the outside cylindrical surface 34 of the base portion 32 is slightly less than the circumference of the outer edges of the threads 82 formed on the outside surface of the shell portion 24 of the connector part 18 so that when the cover member 12 is moved from its initial position as shown in FIG. 4 to its final position as shown in FIG. 5, a lower margin 84 of the inner cylindrical surface 66 of the cover member 12 which ultimately extends beyond the bottom edge of the base portion 32 of the post member 14 will frictionally engage the outer edges of the threads 82 (as shown in FIG. 5) and, as a result, the adapter assembly 10 will be fixedly secured to the connector part 18.

One embodiment of a tool suitable for applying pressure to the cover member 12 of the adapter assembly 10 in order to move it from its initial position as shown in FIG. 4 to its final position as shown in FIG. 5 is illustrated and described in our copending U. S. Patent Application Ser. No. 226,689 filed Feb. 16, 1972, the disclosure of which is incorporated herein by reference thereto. A lower plate member 86 and an upper cylinder member 88 of the above-referred to tool are shown in section in FIG. 5. Prior to the application of the adapter assembly 10 to the connector part 18, the connector part 18 with the assembly 10 seated thereon was placed on the lower plate member 86 of the pressure-applying tool. The upper cylinder member 88 of the tool was brought into contact with the flat annular surface 68 of the cover member 12 of the adapter assembly 10. Actuation of the tool causes the upper cylinder member 88 to bear down on the cover member 12 and forceably move the cover member to its final position shown in FIG. 5.

The downward movement of the cover member 12 relative to the post member 14 decreases the volume of the reservoir 76 and thereby hydraulically forces the butyl rubber material 16 to extrude or flow through the apertures 52 in the post member 14 and initially fill the empty space about the wires 30 in the recess 26 and cavities 28 of the connector part 18 and in the lower portion of the central passageway 50 defined by the inside conical surface 40 of the post member 14 and, when that space is filled, then fill the empty space about the bundled wires 30 in the upper portion of the central passageway 50 defined by the inner cylindrical surface 48 of the post member 14. Simultaneously therewith, the lower margin 84 of the inner cylindrical surface 66 of the cover member 12 frictionally engages

the threads 82 of the shell portion 24 and moves in relation thereto until the desired final position of the cover member 12 has been reached as shown in FIG. 5. It is apparent that some other suitable cooperating means could be provided respectively on the lower margin 84 of the cover member 12 and the end 20 of the connector part 18 for frictionally or mechanically securing the adapter assembly to the connector part 18. One such means would be a series of cooperating detents provided respectively on the surface 66 of the cover and the end 20 of the connector part 18 (instead of threads 82). The cover member 12 now firmly secures the assembly 10 to the rearward end 20 of the connector part 18, and the rearward end 20 of the connector part 18 is thereby sealed against water, dust and other contaminants. Furthermore, the slightly larger circumference of upper portion of the central passageway 50 than that of the bundled wires 30 which pass therethrough in combination with the material 16 filling the empty space about the bundled wires 30 in the upper portion of the passageway 50 imposes a strain relieving effect on the bundled wires 30.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description and it will be apparent that various changes may be made in the form, construction and arrangement of the parts and that changes may be made in the form, construction and arrangement of the adapter assembly described without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

What is claimed is:

1. An adapter assembly for sealing an end of an electrical connector part of the type having a body portion, at least one cavity extending through said body portion and opening at said end of said connector part, and a wire leading from said cavity and outwardly from said end of said connector part, said adapter assembly comprising:

a post member, said post member having one end portion seatable upon said end of said connector part, another end portion of said post member disposed remote from said end of said connector part when said one end portion of said post member is seated thereon, said another end portion having a cross-sectional area less than that of said one end portion, a central passageway defined in said post member through which said wire may pass, said passageway opening at one of its ends through said one end portion into said end of said connector part and at the other of its ends through said another end portion, and at least one aperture defined in said post member between said end portions of said post member, an exterior surface portion of said post member which bridges said end portions of said post member communicating via said aperture and said one end of said passageway with said end of said connector part;

a hollow cover member fitted about said post member in slideable engagement with said end portions of said post member and moveable from an initial position to a final position relative to said post member along a longitudinal axis of said post member, said cover member remaining in sliding engagement with said end portions of said post member during said cover member movement along

said longitudinal axis of said post member, wherein in said initial position said cover member is remotely disposed from said end of said connector part such that an interior surface portion of said cover member disposed radially outwardly from said exterior surface portion of said post member forms a reservoir therebetween and wherein in said final position said cover member is disposed adjacent to said end of said connector part with a bottom portion of said cover member disposed in secure engagement with said end of said connector part, said reservoir initially formed by said respective surface portions of said members decreasing in volume as said cover member is moved from said initial position toward said final position; and

a predetermined quantity of an impervious material contained within said reservoir formed by said members when said cover member is disposed in its initial position relative to said post member, said material having an adhesive nature whereby said cover member is retained in said initial position in the absence of any external force being applied against said cover member to move it relative to said post member, said material being flowable under pressure and retainable in any shape as may be impressed thereon, whereby upon movement of said cover member from its initial position to its final position when said post member is seated upon said end of said connector part, said impervious material will extrude through said aperture in said post member and fill the empty space about said wire in said end of said connector part and in said central passageway of said post member to thereby seal said end of said connector part simultaneously as said bottom portion of said cover member securedly engages said end of said connector part to thereby fixedly secure said adapter assembly to said end of said connector part.

2. An adapter assembly for sealing an end of an electrical connector part of the type having a body portion, at least one cavity extending through said body portion and opening at said end of said connector part, and a wire leading from said cavity and outwardly from said end of said connector part, said adapter assembly comprising:

- a post member, said post member having
 - a base portion seatable upon said end of said connector part,
 - a body portion connected with, and extending axially from, said base portion and disposed remote from said end of said connector part when said base portion is seated thereon, the cross-sectional area of said body portion being substantially less than that of said base portion,
 - a central passageway defined in said post member through which said wire may pass, said passageway opening at one of its ends through said body portion and at the other of its ends through said base portion into said end of said connector part,
 - an exterior surface portion which bridges said body and base portions, and
 - at least one aperture defined in said post member near the juncture of said body and base portions, said aperture communicating said exterior surface portion with said end of said connector part via said other end of said central passageway;

a hollow cover member fitted about said post member in slideable engagement with said base and body portions of said post member, said cover member moveable in relation to said post member along the longitudinal axis of said post member between an initial position in which said cover member is remotely disposed from said end of said connector part and a final position in which an end portion of said cover member is disposed in secure engagement with said end of said connector part, said cover member remaining in sliding engagement with said base and body portions of said post member during said cover member movement along said longitudinal axis of said post member;

a reservoir defined between said exterior surface portion of said post member and an interior surface portion of said cover member which is disposed radially outwardly from said post member exterior surface portion when said cover member is disposed in said initial position from said end of said connector part along said longitudinal axis of said post member, said reservoir decreaseable in volume by the movement of said cover member from said initial position toward said final position; and

a predetermined quantity of an impervious material contained within said reservoir formed by said members when said cover member is disposed in its initial position relative to said post member, said material having an adhesive nature whereby said cover member is retained in said initial position in the absence of any external force being applied against said cover member to move it relative to said post member, said material being flowable under pressure and retainable in any shape as may be impressed thereon,

whereby movement of said cover member from its initial position to its final position when said post member is seated upon said end of said connector part will hydraulically force said impervious material to extrude through said aperture in said post member and fill the empty space about said wire in said end of said connector part and in said central passageway of said post member to thereby seal said end of said connector part simultaneously as said bottom portion of said cover member securedly engages said end of said connector part to thereby fixedly secure said adapter assembly to said end of said connector part.

3. An adapter assembly for sealing an end of an electrical connector part of the type having a body portion, at least one cavity extending through said body portion and opening at said end of said connector part, and a wire leading from said cavity and outwardly from said end of said connector part, said adapter assembly comprising:

- a post member, said post member having one end portion seatable upon said end of said connector part, another end portion of said post member disposed remote from said end of said connector part when said one end portion of said post member is seated thereon, said another end portion having a cross-sectional area less than that of said one end portion, a central passageway defined in said post member through which said wire may pass, said passageway opening at one of its ends through said one end portion into said end of said connector part and at the other of its ends through said an-

other end portion, and at least one aperture defined in said post member between said end portions of said post member, an exterior surface portion of said post member which bridges said end portions of said post member communicating via said aperture and said one end of said passageway with said end of said connector part;

- a hollow cover member, said cover member having a sleeve portion fitted about said one end portion of said post member in slideable engagement therewith, said sleeve portion being disposed in a position spaced radially outwardly from said another end portion of said post member, and a shoulder portion connected to said sleeve portion and fitted about said another end portion of said post member in slideable engagement therewith, said shoulder portion being disposed in a position spaced remotely from said one end portion of said post member when said cover member is in its initial position,
- said cover member moveable in relation to said post member along the longitudinal axis of said post member between said initial position and a final position in which said shoulder portion of said cover member is disposed adjacent to said another end portion of said post member and in which a bottom end portion of said sleeve portion is disposed in secure engagement with said end of said connector part, said sleeve and shoulder portions of said cover member remaining in sliding engagement with said end portions of said post member during said cover member movement along said longitudinal axis of said post member, wherein in said initial position an interior surface portion of said cover member which bridges said sleeve and shoulder portions and said exterior surface portion of said post member which bridges said end portions of said post member form a reservoir therebetween, said reservoir decreaseable in volume by the movement of said cover member from said initial position toward said final position; and
- a predetermined quantity of an impervious material contained within said reservoir formed by said members when said cover member is disposed in its initial position relative to said post member, said material having an adhesive nature whereby said cover member is retained in said initial position in the absence of any external force being applied against said cover member to move it relative to said post member, said material being flowable under pressure and retainable in any shape as may be impressed thereon,
- whereby movement of said cover member from its initial position to its final position when said post member is seated upon said end of said connector part will hydraulically force said impervious material to extrude through said aperture in said post member and fill the empty space about said wire in said end of said connector part and in said central passageway of said post member to thereby seal said end of said connector part simultaneously as said bottom portion of said sleeve portion of said cover member securedly engages said end of said connector part to thereby fixedly secure said adapter assembly to said end of said connector part.

4. An adapter assembly for sealing an end of an electrical connector part of the type having a body portion, a plurality of cavities extending through said body portion and opening at said end of said connector part, and a plurality of wires leading from said cavities and outwardly from said end of said connector part, said adapter assembly comprising:

- a post member, said post member having
- a base portion seatable upon said end of said connector part,
 - a body portion connected with, and extending axially from, said base portion and disposed remote from said end of said connector part when said base portion is seated thereon, the cross-sectional area of said body portion being substantially less than that of said base portion,
 - a central passageway defined in said post member through which said plurality of wires may pass, said passageway opening at one of its ends through said body portion and at the other of its ends through said base portion into said end of said connector part, a first portion of said passageway extending through said body portion having a generally uniform cylindrical configuration, the circumference of said first passageway portion being slightly greater than the circumference of the area encompassed by said plurality of wires as said wires pass through said passageway in a bundled condition, a second portion of said passageway extending through said base portion having a conical configuration, the circumference of said second passageway portion being at a maximum at said other of said passageway ends which opens into said end of said connector part, said conical configuration of said second passageway portion allowing said plurality of wires to encompass a greater area as said wires lead from said cavities in said connector part than that area encompassed by said bundled wires as they pass through said first passageway portion,
 - an exterior surface portion which bridges said body and base portions, and
 - a plurality of apertures defined in said post member at the location of juncture between said base and body portions of said post member, said apertures spaced from one another radially about the longitudinal axis of said post member, said apertures communicating said exterior surface portion of said post member with said end of said connector part via said second portion of said central passageway;
- a hollow cover member, said cover member having a sleeve portion fitted about said base portion of said post member in slideable engagement therewith, said sleeve portion being disposed in a position spaced radially outwardly from said body portion of said post member, and
- a shoulder portion connected to said sleeve portion and fitted about said body portion of said post member in slideable engagement therewith, said shoulder portion being disposed in a position spaced remotely from said base portion of said post member when said cover member is in its initial position,
- said cover member moveable in relation to said post member along the longitudinal axis of said post member between said initial position and a

13

final position in which said shoulder portion of said cover member is disposed adjacent to said base portion of said post member and in which a bottom end portion of said sleeve portion is disposed in secure engagement with said end of said connector part, said sleeve and shoulder portions of said cover member remaining in sliding engagement with said base and body portions of said post member during said cover member movement along said longitudinal axis of said post member, wherein in said initial position an interior surface portion of said cover member which bridges said sleeve and shoulder portions and said exterior surface portion of said post member which bridges said base and body portions form a reservoir therebetween, said reservoir decreaseable in volume by the movement of said cover member from said initial position toward said final position; and

a predetermined quantity of an impervious material contained within said reservoir formed by said members when said cover member is disposed in its initial position relative to said post member, said material having an adhesive nature whereby said cover member is retained in said initial position in the absence of any external force being applied against said cover member to move it relative to said post member, said material being flowable

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under pressure and retainable in any shape as may be impressed thereon, whereby movement of said cover member from its initial position to its final position when said post member is seated upon said end of said connector part will hydraulically force said impervious material to extrude through said plurality of apertures in said post member and initially fill the empty space about said plurality of wires in said second passageway portion in said post member and said end of said connector part and then fill the empty space about said plurality of bundled wires in said first passageway portion in said post member to thereby seal said end of said connector part simultaneously as said bottom portion of said sleeve portion of said cover member securedly engages said end of said connector part to thereby fixedly secure said adapter assembly to said end of said connector part, and whereby the combination of the slightly larger circumference of said first passageway portion than the circumference of said bundled wires and the presence of said impervious material about said bundled wires in said first passageway portion imposes a strain relieving effect on said bundled wires.

5. An adapter assembly as claimed in claim 4 wherein said impervious material is butyl rubber.

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