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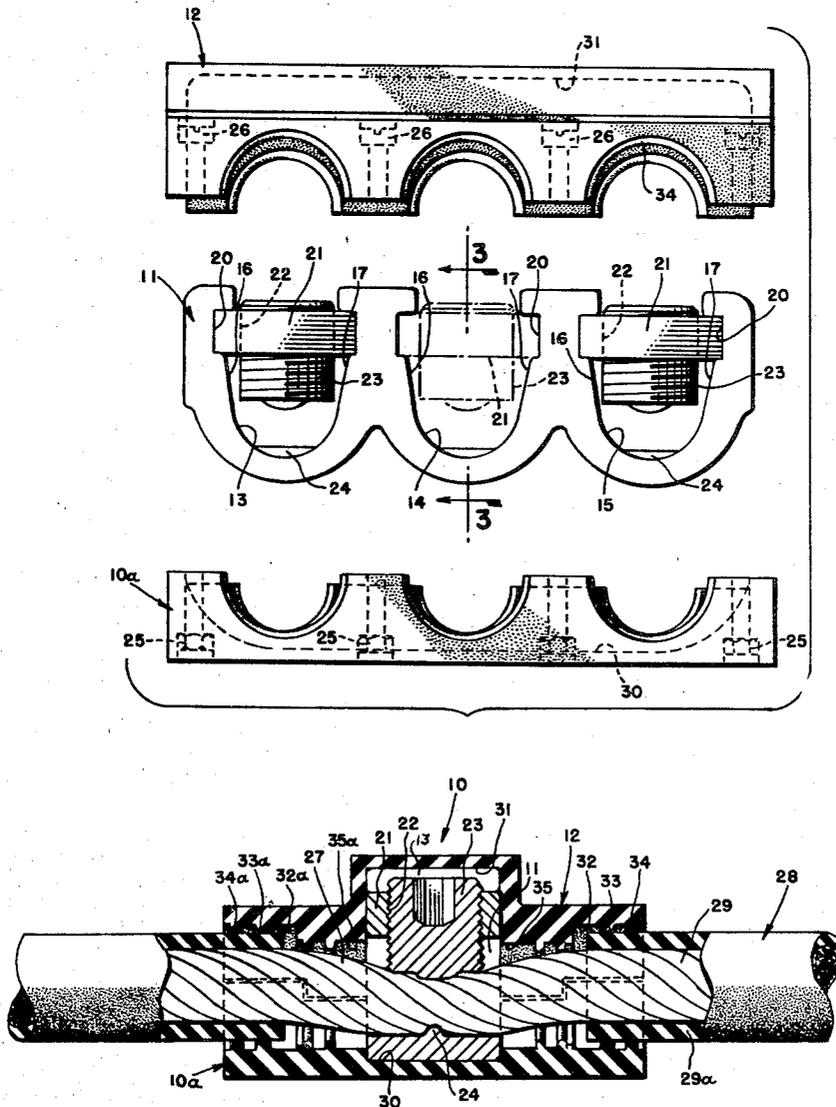
[54] **ELECTRICAL POWER DISTRIBUTOR**  
 6 Claims, 6 Drawing Figs.

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 339/207 R, 339/242, 339/272.1

[51] Int. Cl. .... H01r 13/60,  
 H01r 7/12

[50] Field of Search ..... 339/22, 23,  
 24, 60, 149, 206, 207, 208, 242, 272, 200, 217,  
 223, 221

**ABSTRACT:** An electrical power distributor for use with plural cables is provided consisting of a bus bar within a split housing. Electrical cables of different sizes may be accommodated in the distributor, and yet the unique construction of the housing permits close sealing of the distributor about the cables.



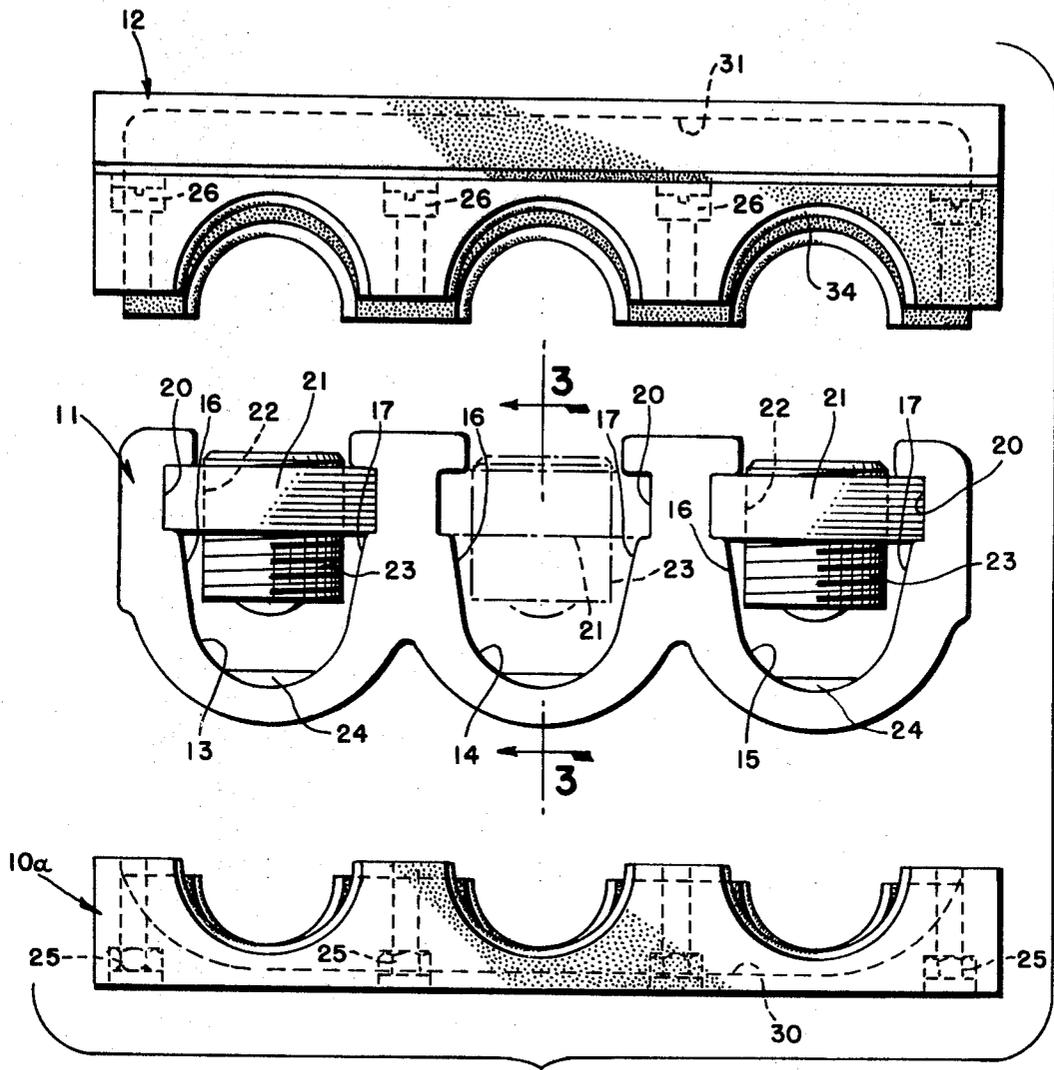


FIG. 1

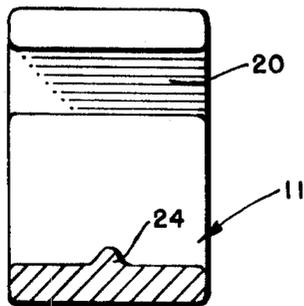


FIG. 3

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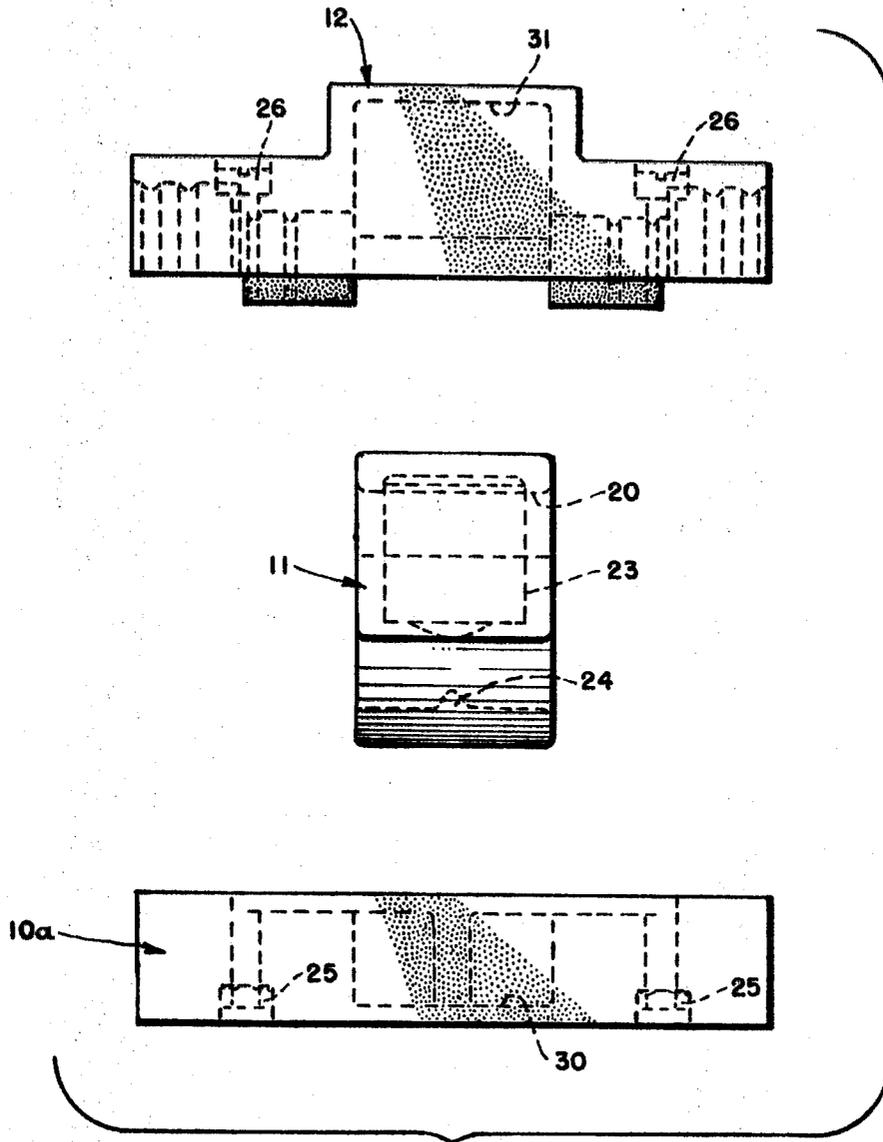


FIG. 2

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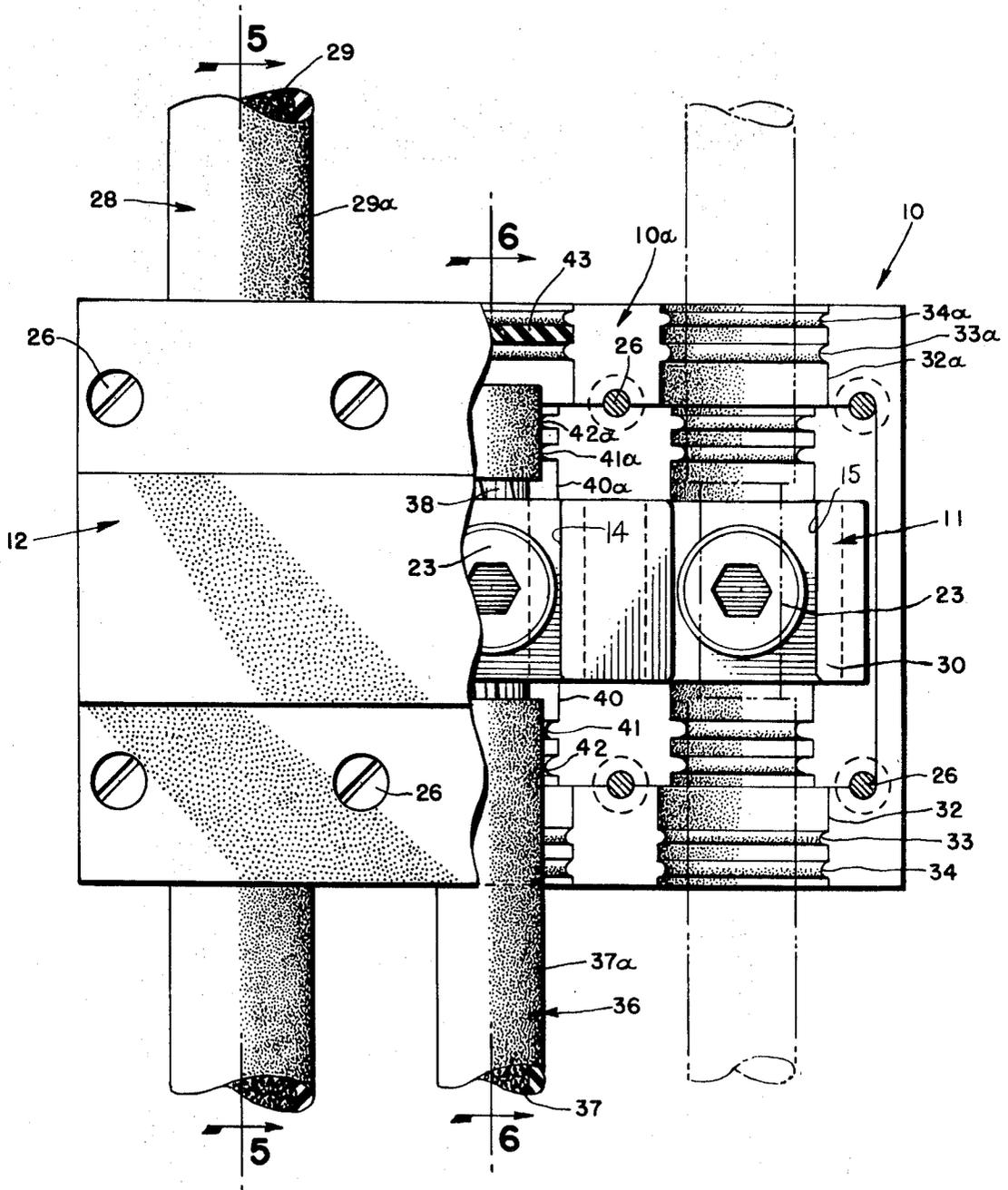


FIG. 4

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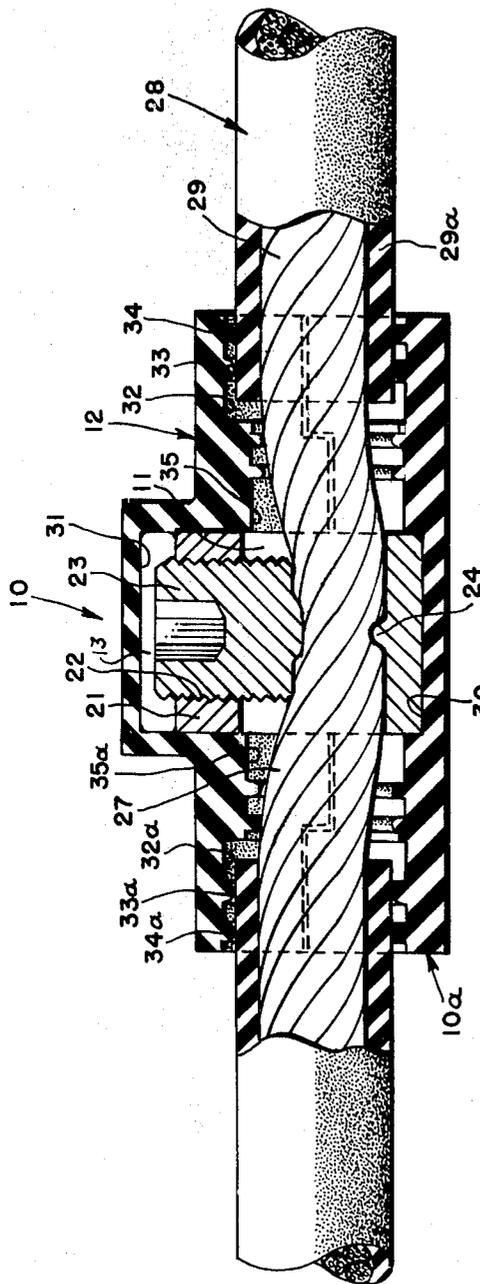


FIG. 5

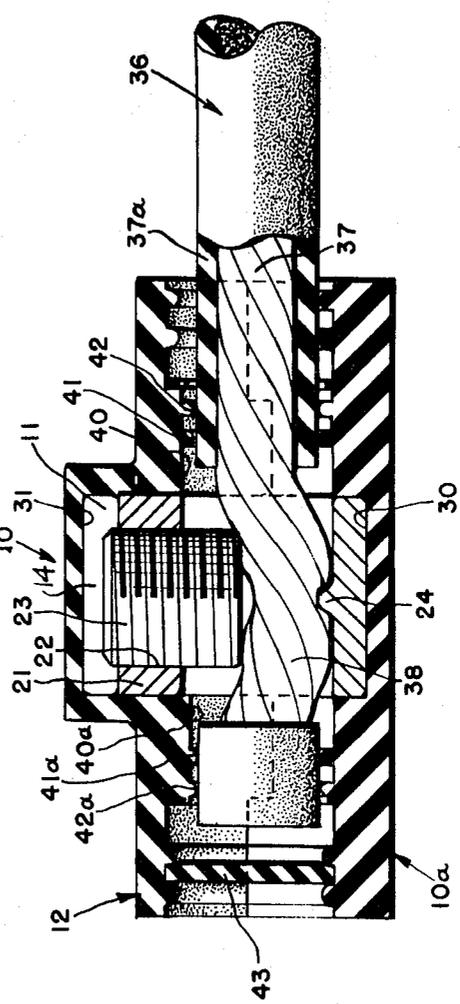


FIG. 6

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## ELECTRICAL POWER DISTRIBUTOR

This invention relates to an electrical power distributor and more particularly to such a distributor having multiple tap positions so that an input cable may be tapped and power taken off at one or more subordinate cables.

Devices of the nature described are used in applications where it is necessary to provide electrical power at a number of locations for short term operations, which locations are subject to frequent change. For example, in building construction where a steel framework is utilized or in other applications involving steel construction such as in the building of bridges or ships, welding is a technique which is employed. In such applications numerous sources of electric power to operate welding apparatus must be made available, and the places where this is needed will be constantly shifting and increasing or decreasing as the process of construction proceeds. Provision of the numerous sources of power could be done by having individual cables tracing back to a single central power supply. With devices such as that presently provided, however, a much more efficient approach is possible in that a single cable may be led from a remote power source to some convenient central point from which subsidiary cables may tap off power for a localized use, and such devices may be used to tap from a subsidiary cable as well. Thus, a major electrical distributor cable perhaps 500 MCM in size might be run up the side of a steel building framework under construction. At each floor level as it is added a tap off to a cable of 4/0 size could be made.

Accordingly, it is the primary object of the present invention to provide an electrical distributor of the nature described so that great flexibility is possible in supplying electrical power to where it is needed in a structure under construction. The present invention provides such an electrical distributor device distinguished by the fact that electrical cables may be added or removed as may be needed while leaving in place other cables already engaged by the device. Moreover, the present invention has for a coequal objective the achievement of the aforementioned primary object in such fashion that the electrical conductors within a cable will be insulated from contact by passers-by. Such insulation will obtain by use of the present invention even though more than one size of cable may be used with the given distributor device. Referring to the example above where a distributor cable of 500 MCM is tapped off to one or more 4/0 cables, by use of the present device, sealing about both cable sizes by the single device is possible.

How these and many other objects are to be implemented will become clear through a consideration of the accompanying drawings wherein:

FIG. 1 is a front exploded view of a device embodying the present invention showing upper housing portion, bus bar, and lower housing portion, electrical cables being omitted;

FIG. 2 is a side view of the same subject matter seen in FIG. 1;

FIG. 3 is a section at 5—5 in FIG. 1;

FIG. 4 is a top view of an assembled device as seen in FIGS. 1 and 2 with cables in place therein;

FIG. 5 is a section at 5—5 in FIG. 4; and

FIG. 6 is a section at 6—6 in FIG. 4.

In the drawings it may be seen that the electrical distributor device 10 there illustrated consists of a lower housing portion 10a, a bus bar 11 and an upper housing portion 12.

Bus bar 11 has three cable receiving positions 13, 14 and 15. It will be observed that at each position the bus bar has a substantially U-shape with sidewalls 16 and 17 present at each position. There is a channel 20 in each sidewall.

Pairs of opposing channels 20 at each position provided the means to support cooperating elements whereby cables may be securely held within the bus bar. Such cooperating elements consist of nut 21 having an internally threaded hole and setscrew 23 which may be advanced or retracted within said

threaded hole 22. Ridge 24 is present at the bottom of the "U" at each bus bar position to assist in strengthening the structure and making electrical contact with cable passing through such bus bar position. (Though reference may be to different receiving positions, since in each instance they are identical the same index numbers are used throughout for sidewalls, channels, nuts, setscrews and ridges.)

The device illustrated in the drawings has been there set up for illustrative purposes with cables of two different sizes in place in FIG. 4. At position 13 a cables of larger diameter is in place, while at positions 14 and 15 cables of smaller diameter are in place. It will be appreciated that regardless of the size of cable employed, the means of fastening a cable within device is the same. In all cases, the portion of the cable passing through the bus bar will be stripped of insulation and just the bare conductors will there be present. Following placement of the cable within a position, nut 21 may be slid into position between a pair of channels in a give position of the bus bar 11, and setscrew 23 threaded through such nut until it comes into contact with the conductors of the cable, the said screw then being tightened down to make the connection firm. Following assembly of the desired cables to the bus bar in the manner indicated, the upper and lower housing portions 10a and 12 respectively, are appropriately disposed as illustrated in FIGS. 4-6 about said bus bar and the two portions fastened together by means of nuts 25 and bolts 26.

The unique construction of the present device assures complete insulated shielding of any bare wire or conductor from contact with an operator even though different sizes of cable are accommodated within the device.

FIG. 5 illustrates how insulation and protection is secured when a larger cable is disposed within the distributor. In such case, insulation is stripped to provide a bare segment 27 in such larger cable 28. Cable 28 has conductive strands 29 and outer insulation 29a. The longitudinal extent of the bare segment 27 is of concern, and how this is determined will now be described.

The upper and lower housing portions are made of insulating material, which may preferably be flexible such as is the case with neoprene. Since the whole purpose of the housing is to protect the bus bar from contact, there is provided a cavity 30 in lower housing portion 10 where bus bar 11 can be placed, and a like cavity 31 in upper housing portion 12 to receive the upper portion of the bus bar.

On each side of assembly 10 there is an orifice having an outer portion and an inner portion. There is such an orifice communicating with the exterior of the assembly 10 corresponding to each position of the bus bar. The configuration of the walls of such orifices are uniquely designed to assure sealing though different sizes of cable may be accommodated. Outer orifice portion 32 has a larger diameter with ribs 33 and 34 present in its wall in order to assure a tight fit where appropriate despite changes or differences in outer diameter.

Inner orifice portion 35 in the assembly 10 is of smaller diameter. That outer orifice portion 32 and inner orifice portion 35 are not concentric must be observed. Rather do they have a common peripheral line, and such common line is at the lowest point in both orifice portion in lower housing portion 10a, as may be seen in FIGS. 1, 5, and 6.

Returning now to our discussion of how sealing against harmful contact is achieved with a larger diameter cable as is illustrated in FIG. 5, bare segment 27 of the cable 28 extends from outer orifice portion 32 on one side of position 13 in the bus bar 11 to outer orifice portion 32a on the other side of such bus bar position. Ribs 33 and 34 in outer orifice portion 32 and 33a and 34a in outer orifice portion 32a then seal closely about the insulation on cable of larger diameter 28. Such bare segment 27 passes freely through both inner orifice portions 35 and 35a on either side of position 13 in the bus bar.

FIG. 6 illustrates the disposition of elements where a cable of smaller diameter 36 having conductive strands 37 and outer insulation 37a is disposed within the inventive device here dis-

closed. Where this is the case, smaller cable 36 has a bare segment 38 which extends only between inner orifice portion 40 and 40a in FIG. 4, passing through bus bar position 14. Such bare segment 38 is firmly held within position 14 by means of a setscrew 23 threaded through a nut 21 held within a pair of channels 20 in sidewalls 16 and 17 of the bus bar. Ribs 41 and 42 in inner orifice portion 40 and 41a and 42a in inner orifice portion 40a then sealingly embrace the insulation of the cable of smaller diameter 36, such cable thereby being completely sealed from contact. It may be, that as in the case illustrated in FIG. 6, the smaller cable takeoff will not extend out of both sides of the assembly 10, but rather will terminate on one side within the assembly. Where this is the case an insulative disk 43 seals off the side of the housing assembly through which the cable does not extend.

While I have described a specific embodiment of my invention, it is apparent that changes and modifications may be made therein, and as so changed or modified, the resultant structure may still fall within the ambit of my invention.

I claim:

1. An electrical power distributor comprising bus bar means and a housing therefor, said housing having a bottom surface said bus being disposed within said housing,
  - a plurality of electrical cable accommodating positions with in said bus bar,
  - cable retaining means in said bus bar at each of said positions for retaining the conductive strands of an electrical cable in electrical contact with said bus bar,
  - a set of orifice mean in said housing adjacent each of said positions, each said set comprising larger and smaller orifice means adjacent to each other, said larger orifice means in each said set being spaced from said bus bar by said smaller orifice means, said larger and smaller orifice

means in each said set having a substantially common peripheral line, said line being situated in both said larger and said smaller orifice means "at the portion thereof closest to said bottom surface" said housing being split along a parting line extending through said sets, and means for securing said split housing together as a unit, whereby electrical cables of larger and smaller diameter are capable of being closely embraced within said larger and smaller orifice means respectively.

2. An electrical power distributor as claimed in claim 1 including a pair of substantially vertical walls in said bus bar at each of said positions, and opposed channels in said pair of walls, said cable retaining means being disposed within said channels and slidable therein for removal from said bus bar.

3. An electrical power distributor as claimed in claim 2 wherein said cable retaining means comprises a nut disposed within said channels, said nut having an internally threaded aperture therein, and a setscrew in threaded engagement with said aperture, whereby said setscrew is capable of being advanced or withdrawn when an electrical cable is disposed within said bus bar.

4. An electrical power distributor as claimed in claim 1 including at least one annular rib in an orifice means.

5. An electrical power distributor as claimed in claim 1 wherein said bus bar has two sides within said housing, and including a set of orifice means extending from each side of said bus bar at each of said positions.

6. An electrical power distributor as claimed in claim 4 wherein a pair of annular ribs is present in an orifice means and including insulative disk means disposed between said pair of ribs.

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