

[54] HOUSING FOR ELECTRICAL EQUIPMENT

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[58] Field of Search .....220/31 R, 31 S, 55 D, 55 E, 220/55 F, 55 G; 174/50, 92; 292/256.71, 256.73, 256.75; 16/171

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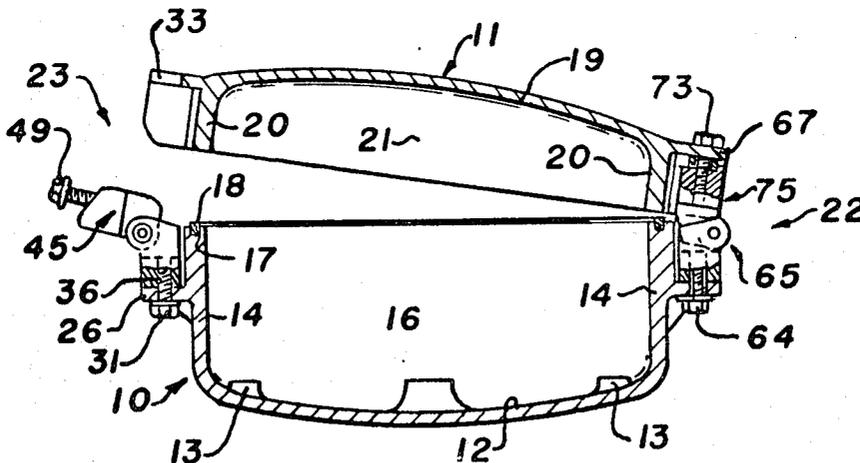
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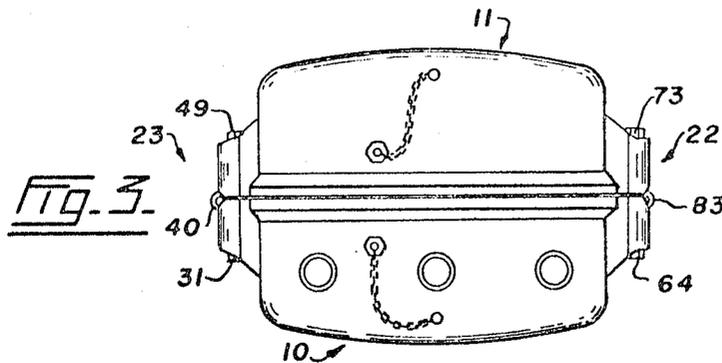
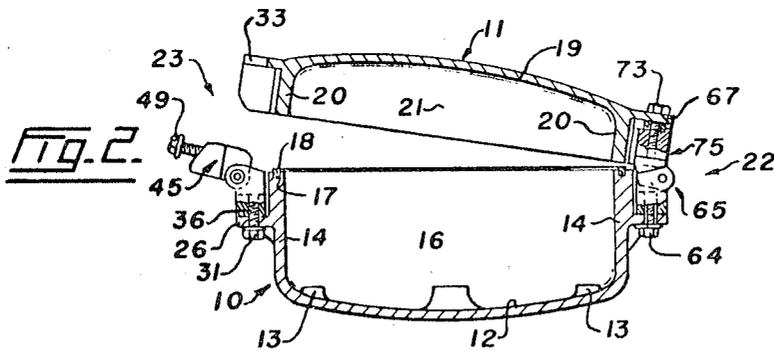
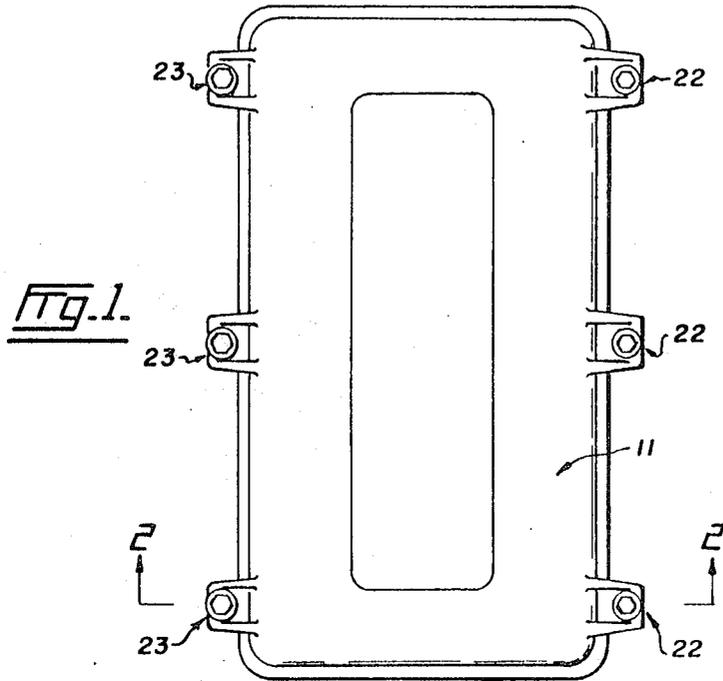
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[57] ABSTRACT

An electrical housing particularly but not exclusively for cable television amplifier units. The housing has a base and a lid which are hinged together by one or usually more pairs of hinge elements. One of each pair being releasably received in a socket on the lid and the other being releasably secured in a socket on the base, the two elements being joined by a hinge pin. The lid can be removed and replaced by releasing it from its associated hinge element and securing a new lid (which may be substantially similar to the base) to that element.

3 Claims, 5 Drawing Figures





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FIG. 4.

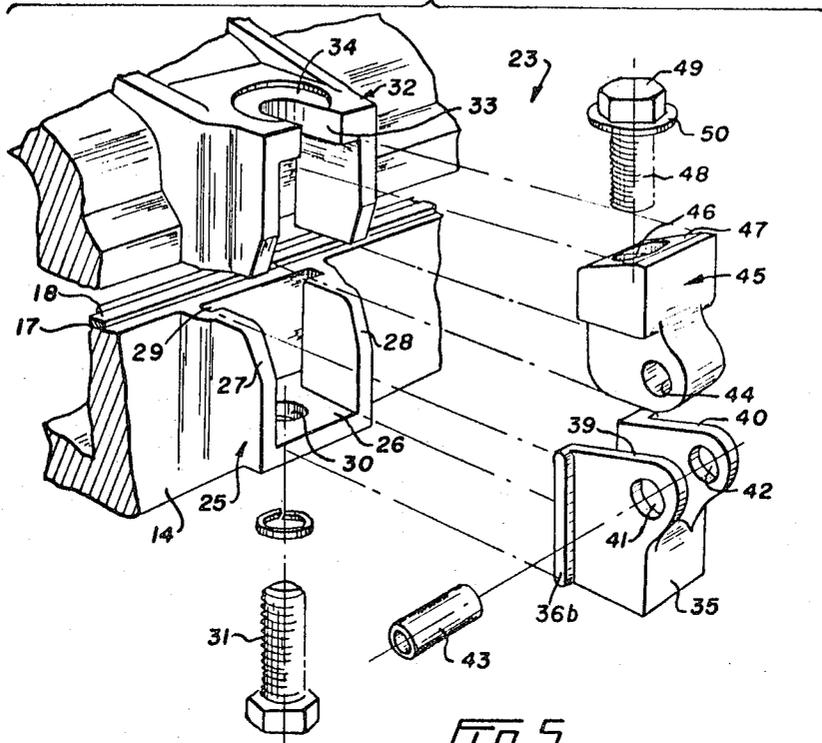
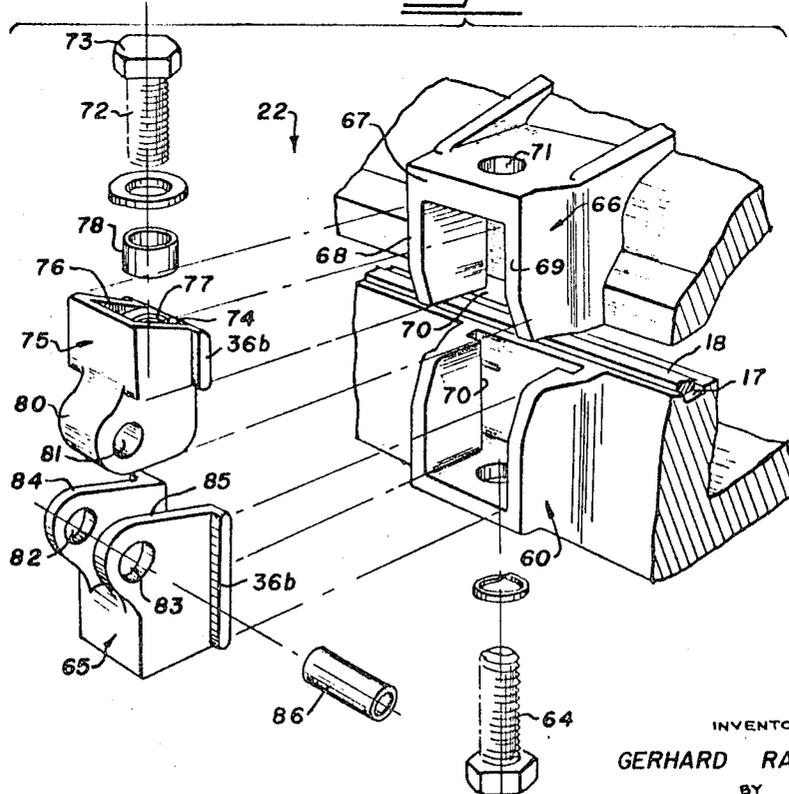


FIG. 5.



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## HOUSING FOR ELECTRICAL EQUIPMENT

This invention is concerned with housings for electrical equipment, particularly but not necessarily exclusively, it is concerned with housings which are mounted out-of-doors and which contain, for example, cable television amplifier units.

Such equipment requires maintenance from time to time and for this reason it is necessary that the housings have lids by which access may be had to the equipment within the housings. Because the housings are commonly mounted upon cables suspended from poles, where working conditions are not ideal it is usual, at least on larger housings, to have the lid hinged to the base so that the workman need not occupy his hands by having to hold the lid as he would do if it were detachable from the base.

One of the currently available housings has sets of ears which project from both the base and lid and which are interconnected by aligned pivot pins so that the lid is pivotable about the pins. On the side of the lid opposite to that about which it is pivotable there are captive screws which, to close the housings are screw-threaded into threaded bores in the adjacent marginal edges of the housing. Such a system is costly and, because it is required to prevent the ingress of dirt or moisture into the housing, it is necessary that considerable precision be exercised in their manufacture.

For this reason the majority of manufacturers have adopted a housing in which the hinge comprises a pin rotatably mounted between two flanges on the base with a headed bolt passed through a bore of a flange on the lid and screwed into a threaded hole in that pin. The opposite side of the housing to the hinges is substantially similar. The only difference is that the flange of the lid has a slot, so that the shank of the bolt may be pivoted to a position within the slot of the flange and a position removed from the slot in the flange so that when the bolt is tightened down and it is within the slot, the lid is secured.

This is a generally cheaper arrangement to produce but its operation leaves much to be desired because of the difficulty in properly abutting the adjacent marginal edges of the lid and base and then tightening down the bolts on the hinge and on the fastening side of the housing. Of course this situation is aggravated when the housings are located out-of-doors especially in cold weather when the man handling the housing is not as dextrous as he might otherwise be.

This invention seeks to provide a housing which is relatively inexpensive to produce and one which has a positive hinging and locking action. It is also an object of this invention to provide a housing in which the lid may be replaced by a base which is substantially similar to the existing base so that if it is required, as is often the case, to extend the system it is not necessary to secure another housing comprising a base and a lid onto the cable but only necessary to remove the lid of an existing unit and replace it with a base which contains the additional components necessary.

According to one aspect of this invention there is provided a housing for electrical equipment comprising a base and a lid hingedly interconnected at adjacent marginal edges, in which the hinging is effected by at least one pair of substantially similar and aligned sockets one in the base and one in the lid and two cooperating hinge elements each releasably secured in a corresponding one of the sockets and a hinge-pin connecting the two hinge elements so that by releasing one of the hinge element from the socket of the lid the lid may be replaced by a base substantially similar to the first base.

Preferably the hinge elements are secured in the sockets by bolts which pass through the base of the socket and into the hinge elements so that the hinging elements are adjustable relatively to each other and therefore the components need not be manufactured to the tolerances normally associated with housings in which the lid and base are interconnected by a single pivot pin passing through hinge leaves of the lid and base. It is to be appreciated that once the lid is located on the base and an adjustment of the screw-threads holding the hinge elements into the sockets is made, to open and close the lid requires no adjustment of the hinge bolts.

Preferably on the opposite side of the housing to that about which the base and lid are hinged there is a headed bolt pivoted to the base for movement into and out of a slot in a flange on the lid to fasten down the lid.

An embodiment of this invention is illustrated schematically in the accompanying drawings in which,

FIG. 1 is a plan view of a housing according to this invention,

FIG. 2 is a section on the line 2-2 of the housing of FIG. 1,

FIG. 3 is an end view of the housing of FIGS. 1 and 2 in which the lid is replaced by a base,

FIG. 4 is an exploded view of a detail of the housing of FIG. 1 and

FIG. 5 is an exploded view of another detail of the housing of FIG. 1.

In FIGS. 1 and 2 and in FIGS. 4 and 5 there is illustrated a basic housing with a base 10 and a lid 11 for containing amplifiers and associated equipment for cablevision systems. The base 10 has a bottom wall 12 with appropriate mounts 13 for the components to be secured within it, sidewalls 14 and endwalls 16 interconnecting the sidewalls and upstanding from the bottom wall. Around the upper marginal edges of the walls 14 and 16 is formed a groove 17 (which can be seen more clearly in FIG. 5) within which a resilient gasket member 18 is located.

The lid 11 has a top wall 19, downwardly depending sidewalls 20 and downwardly depending endwalls 21 interconnecting the sidewalls. The lower marginal edges of the walls 20 and 21 cooperate with the gasket 18 to seal the housing when it is closed against the ingress of dirt and moisture. Additionally the housing may be pressurized in a manner known in the art and therefore not described in detail herein and the gasket element prevents the leakage of air from the housing to atmosphere.

On one side of the housing, hereinafter referred to as the hinge side, there are three spaced hinging arrangements indicated generally at 22 and on the opposite side of the housing to the hinge side, hereinafter called the fastening side, there are fastener arrangements generally indicated at 23. In FIG. 4, one of the fastener arrangements is illustrated. It comprises a socket 25 secured to the exterior of the sidewall of the lid and close to the upper marginal edge of that sidewall. The socket comprises an end wall 26 which extends outwardly and in a horizontal plane (as viewed in the drawings) from the sidewall 14 and two upstanding sidewalls 27 and 28 each of which is rebated as at 29 so that as viewed from above the socket is of T section. The wall 26 has a hole 30 formed through it to allow the shank of bolt 31 to pass therethrough.

On the lid and vertically aligned with socket 25 there is formed a substantially similar socket 32. The socket 32 differs from the socket 25 only in that the end wall is slotted as at 33 and is recessed as at 34.

A T-sectioned block 35 located in socket 25 and having lugs 36b which are adapted to engage in the rebates of the sidewalls 27 and 28 of the socket. The bottom of block 35 i.e. that surface parallel to and immediately adjacent to the wall 26 of the socket 25, is provided with a screw-threaded bore 36 (see FIG. 2) into which bolt 31 is threaded to secure the block within the socket 25. At the top of the block 35 a pair of opposed flanges 39 and 40 project upwardly and outwardly and have aligned holes 41 and 42 respectively.

A pivot pin 43 is passed through the aligned holes 41 and 42 and through a registering hole 44 formed in a fastening block 45 so that the fastening block is pivotable about the pin 43. A screw-threaded bore 46 is formed in the upper surface 47 of the block 45 and a bolt 48 is threaded into that bore. The shank of the bolt 48 is adapted to pass into the slot 33 of the socket on the lid and the bolt has a head 49 with a circular collar 50 of slightly lesser diameter than the recess 34 in the top of the socket 32 so that the bolt may be turned down so that the collar engages in that recess and secures the lid to the base.

It will be appreciated that only a small movement of the bolt 48 will cause the collar 50 to clear the recess 34 and allow the block 45 to be pivoted about pin 43 to free the lid.

Referring now particularly to FIGS. 2 and 5 of which FIG. 5 is a detail of a hinge, it will be seen that the hinge comprises a socket 60 on the base which is substantially similar to the socket 25 on the fastening side of the base and for this reason it is not described in detail. Additionally the hinging block 65 located within the socket 60 is similar to the fastening block 35 within the socket 25 of the fastener side of the base and this too is not described in detail. The block 65 is secured within socket 60 by means of the bolt 64.

On the hinge side of the lid and in vertical alignment with the socket 60 is a socket 66 which has an end wall 67 and sidewalls 68 and 69 which are rebated as at 70 so that the socket is T-sectioned in horizontal cross-section.

The end wall 67 has a vertical hole 71 through it through which the shank 72 of a bolt 73 may be passed.

The upper surface 74 of block 75 i.e. that surface adjacent to the underside of the end wall 67 of the socket, is recessed as at 76 and has a threaded bore 77 into which the shank of the bolt 72 is threaded. Between the end wall 67 and the upper surface of the block 75 there is located a resilient collar 78, compression of which between the underside of the top wall 67 and the block 75 accommodates any manufacturing tolerances of the device to give a smooth action of the hinge.

The block 75 has a central, downwardly extending portion 80 through which is formed a bore 81 registering with the holes 82 and 83 in the ears 84 and 85 respectively of the block 65 through which a pivot-pin 86 may be passed so that the hinged connection is made.

It will be appreciated that the lid may be hinged relatively to the base simply by rotating the bolt 48 through a few turns so that it clears the recess 34 of the socket 32 and pivoting block 45 about the pin 43.

To remove the lid completely from the base the fastening means are opened and the bolt 73 is removed completely from block 75. The lid may then be replaced by a base substantially similar to the base 10 which may accommodate additional components for use in the system in which the housing is used. The only differences between the base which replaces the lid

and the existing base is that there is no gasket or groove for a gasket, for these are unnecessary, and additionally the base of the socket on the fastening side of that replacement base is slotted to allow the bolt of the fastening block 45 to move into and out of that slot. It will be appreciated that when casting the bases the same mold parts only slightly modified, can be used for both the standard bases and the replacement bases. Clearly it would be conceivable to form all the hinge and fastening sockets of the bases with a slot rather than is described herein a simple hole through the base of the socket because the hinging and fastening blocks would be maintained in the sockets by the T-section engagement of those blocks in the sockets. It would also be conceivable to have in both, the standard base and the replacement base, a groove with a gasket.

I claim:

1. A housing for electrical equipment comprising a base and a lid hingedly connected at adjacent marginal edges thereof, a socket on the base and a substantially similar socket on the lid aligned with said base socket, said sockets each having side walls and a connecting end wall in which a hole is formed, a hinge element lodged within each socket, a hinge pin interconnecting the hinge elements, a screw-threaded bolt passing through each hole and into a threaded bore in each hinge element, said side walls of each socket having opposing rebates, and said hinge elements each having lugs entered into opposing rebates of adjacent socket side walls.

2. A housing as claimed in claim 1, and including fastening means adapted to interlock the marginal edges and clamp the lid to the base.

3. A housing as claimed in claim 2, in which said fastening means comprises a substantially similar third socket on the base and an aligned fourth socket on the lid, a first fastening element secured in the third socket, a second fastening element pivoted to the first fastening element and having a bolt threaded therein, said fourth socket having an end wall provided with a hole and a slot to admit the bolt into said hole, said bolt having a head engaging the end wall when the bolt is entered into the hole through the slot, and said end wall having a recess around the hole to receive the bolt head.

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