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2,443,449

INSULATING SUPPORT STRUCTURE

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FIG. 1.

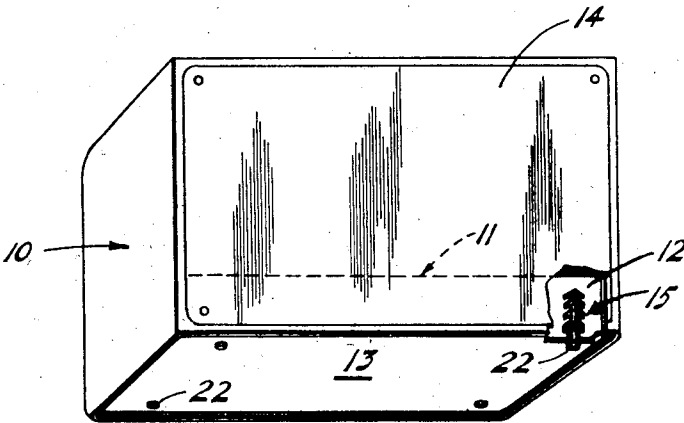


FIG. 4.

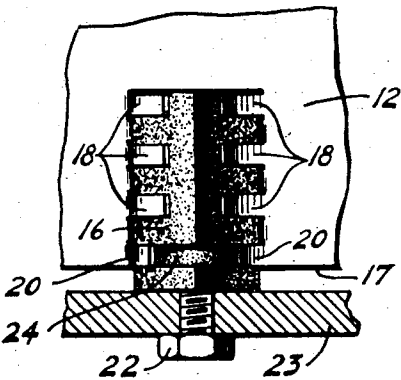


FIG. 3.

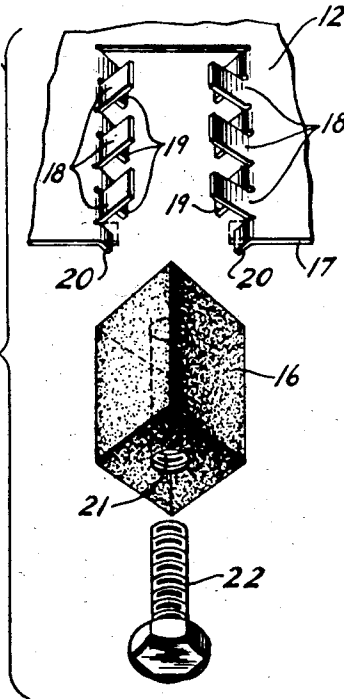
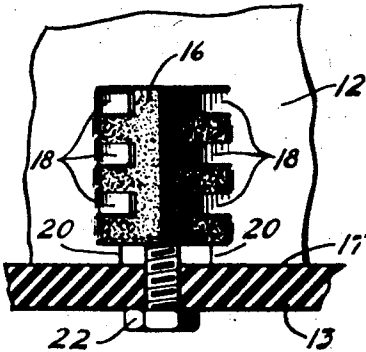


FIG. 2.

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INSULATING SUPPORT STRUCTURE

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9 Claims. (Cl. 174—158)

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My invention has to do with mounting or support structure, and has as a principal object the provision of a novel support structure which serves also as an electrical insulator.

While the utility of the invention is not limited thereto, the present invention is particularly adapted for use with electrical apparatus and, more especially, radio apparatus. In such apparatus, for example in radio receivers of the A.-C./D.-C. type, it is frequently advantageous to utilize circuit arrangements which maintain the chassis of the receiver at a substantial potential difference, with respect to ground. This practice, however, results in a shock hazard, and necessitates so mounting the chassis within the cabinet or housing as to eliminate all possibility of having any exteriorly accessible portion of the structure at an elevated potential.

It is, therefore, an additional object of the invention to provide a combined supporting and insulating structure through the use of which it is possible to mount a chassis within a cabinet without transmitting dangerous potentials to points accessible from outside the cabinet.

A further object resides in the provision of an insulating mounting structure of such character as to eliminate intermediate insulating parts, formerly employed, and decrease the number of fastening operations necessary in order to obtain a properly insulated chassis and cabinet assembly.

The invention further contemplates certain novel constructional features hereinafter described, and illustrated in the accompanying drawing, in which:

Figure 1 is a view, in perspective, illustrating, by way of example, a radio receiver incorporating the mounting structure of the present invention;

Figure 2 is a fragmentary elevational view, on an enlarged scale, showing in greater detail the mounting assembly illustrated in Figure 1;

Figure 3 is an exploded perspective illustration of the elements comprising the assembly illustrated in Figure 2; and,

Figure 4 is a view similar to Figure 2 and illustrating a modified embodiment of the invention.

Now making more detailed reference to the drawing, and particularly to Figure 1 thereof, there is illustrated a cabinet 10 having therein a chassis 11 which may, for example, comprise the sub-base assembly of an A.-C./D.-C. radio receiver, said chassis including downwardly extending metallic wall portions 12, the lower edges of which rest upon the cabinet floor 13. The floor, in this embodiment, is of non-conductive material. The cabinet is provided with a back

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wall 14 which has been broken away to illustrate the mounting apparatus of the present invention, designated generally by the reference character 15, and it will be understood that a plurality of such assemblies would be employed in practice, preferably one being located in each corner portion of the sub-base or chassis. Since the several assemblies may be identical in nature, illustration and description of one thereof will provide a complete understanding of the present invention and, as indicated above, it should be borne in mind that the concepts of the invention are applicable to the mounting of other types of apparatus. When the invention is employed with radio receivers of the above-indicated type, the chassis walls 12 may be at an elevated potential, for example at 110 volts above ground.

In particular accordance with my invention, and as best appears in Figures 2 and 3, the novel mounting structure comprises a member or block 16 of suitable material having low electrical conductivity, which block is received within a cage-like structure provided in the metallic wall 12.

It is a feature of the invention that this cage-like structure may be provided in an extremely simple manner by subjecting the wall 12 to a single stamping operation adapted to provide a slit, extending vertically from the free edge 17 of the wall 12, and a plurality of generally parallel slits extending laterally from the central cut a predetermined distance into the metal of the wall 12. Following this stamping operation, and as clearly appears from Figure 3, the resultant tabs of metal are bent out of the plane of the wall 12 in any desired manner, for example through the agency of a suitable die. This bending of the tabs is done in such manner that there is provided a set of tabs, along each edge of the slotted portion of the wall 12, which tabs (identified by the reference numeral 18) are turned outwardly at an angle of approximately 45 degrees with respect to the plane of the wall 12. Another set of alternate tabs, shown at 19, is turned rearwardly, the result being that an aperture is provided, leading inwardly from the lower edge 17 of the wall 12 and providing generally V-shaped retaining surfaces—along opposite edges of the aperture—adapted to receive the insulating block 16.

As will be understood from a comparison of Figures 2 and 3, the lowermost pair of tabs 20—20 are first bent, in the forming operation, in conformity with the bending of the tabs lying thereabove, thus providing for ready insertion of the block 16. After the block has been inserted with-

in the cage-like structure, the tabs 20—20 are bent back to the position shown in dotted lines (Figure 3), thereby, securely maintaining the block in proper assembled relation with respect to the wall 12, as is illustrated in Figure 2.

The block 16 may conveniently be made of plastic material in stock size and cross-sectional shape, not requiring any special molding tools. By virtue of its rectangular cross-sectional configuration, the block fits and is held tightly within the cage defined by the tabs 18, 19 and 20. The construction is such as positively to prevent rotation of the block 16 within the retaining tabs and, as appears at 21 in Figure 3, an internally threaded aperture is preferably provided within the block to accommodate a mounting element, or screw, shown at 22. Assembly of the chassis within the cabinet is completed by passing the screw 22 through an aperture provided in the cabinet floor 13, after which tightening of the screw within the block 16 serves to draw the chassis downwardly until the lower edge 17 of the wall 12 is in firm engagement with the non-conductive floor 13. Other types of retaining means may, of course, be employed in place of the screw shown, within the purview of this invention.

In the embodiment thus far described, the floor 13 is formed of insulating material and the screw 22—which is the only portion of the assembly accessible from the exterior of the cabinet—is completely insulated from the relatively elevated chassis potential.

When it is desired insulatingly to secure a chassis to a metal or other electrically conductive floor or base member, the embodiment illustrated in Figure 4 may be utilized. As there illustrated, the non-conductive block 16 extends outwardly beyond the lower edge 17 of the metallic wall, thereby maintaining said edge 17 in spaced relation with respect to the conductive base 23. Preferably, and as illustrated, this embodiment contemplates modification of the block 16 in such manner that a peripheral groove 24 is formed thereabout within which is received the lowermost retaining tabs 20. Alternatively, an insulating block identical to that described with reference to the preferred embodiment may be employed, in conjunction with a non-conductive washer inserted between the wall edge portions 17 and the conductive base 23.

As will be evident from the foregoing description, the invention provides an exceedingly simple and inexpensive supporting structure adapted to serve very effectively as an electrical insulator. The concept is particularly characterized by realization of these objectives in apparatus employing a small number of readily assemblable parts.

I claim:

1. In mounting apparatus, wall structure recessed from an edge portion thereof and having opposed edges defining the recessed area, and means comprising at least one pair of retaining members extending from each of said opposed edges toward the recessed area, the retaining members of each pair extending outwardly from the adjacent edge in opposite directions with respect to the general plane of the wall structure and overlying the recessed area, whereby to provide a retaining structure adapted to support a mounting element introduced from the said edge portion of the wall structure.

2. In mounting apparatus, wall structure recessed from an edge portion thereof and having

opposed edges defining the recessed area, and means comprising at least one pair of retaining flanges extending outwardly from each of said recess-defining edges in opposite directions with respect to the general plane of the wall and terminating in free edges overlying the recessed area, whereby to provide a cage-like structure within which may be supported a mounting element introduced from the said edge portion of the wall structure.

3. Apparatus in accordance with claim 2, and further characterized by the inclusion of means providing for retention of a mounting element within the cage-like structure and preventing inadvertent withdrawal of such element from the cage-like structure, said last means being displaceable to accommodate entry and withdrawal movements of the mounting element.

4. In mounting apparatus, wall structure having a recess in the general plane of the wall extending inwardly from one edge thereof, said recess being defined by opposed edges, each of the said opposed edges defining the recess being provided with at least one pair of retaining flanges, the flanges comprising each pair extending outwardly in opposite directions with respect to the general plane of the wall and overlying the aperture, whereby to provide a cage-like structure, and a mounting element secured within said cage-like structure and having means providing for releasable securement of said element to adjacent structure.

5. In mounting apparatus, metallic wall structure having a recess in the general plane of the wall extending inwardly from one edge thereof, said recess being defined by opposed edges, each of the said opposed edges defining the recess being provided with at least one pair of retaining flanges, the flanges comprising each pair extending outwardly in opposite directions with respect to the general plane of the wall and overlying the aperture, whereby to provide a cage-like structure, and an electrically non-conductive mounting block disposed within said cage-like structure and having means providing for securement of said block to adjacent structure.

6. Apparatus in accordance with claim 5, and further including displaceable tabs located near the open end of the recess and providing for releasable retention of the block within said cage-like structure.

7. In apparatus for securing separable elements comprising a metallic chassis and an electrically non-conductive base therefor, a chassis wall portion having a supporting edge bearing against said base and being recessed from said edge portion thereof, the recess being defined by opposed edges, means comprising at least one pair of retaining flanges extending outwardly from each of said recess-defining edges in opposite directions with respect to the general plane of the wall and overlying the recessed area, an electrically non-conductive mounting block supported within said recessed area by said flanges, and electrically conductive fastening means exposed beneath said base and passing through the same into engagement with said non-conductive mounting block.

8. In apparatus for securing separable elements comprising a metallic chassis and a subjacent base member, a chassis wall portion having an edge portion overlying and spaced from said base member and being recessed from said edge portion thereof, the recess being defined by opposed edges, means comprising finger-like members ex-

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tending from said opposed edges toward the recessed area, an electrically non-conductive block supported within the recessed area by said finger-like members and extending beyond the said overlying edge portion and supporting said chassis upon said base member, and fastening means securing said base member to said block.

9. In mounting apparatus, metallic wall structure recessed from an edge portion thereof and having opposed edges defining the recessed area, and means comprising a plurality of tabs extending from each of said opposed edges toward said recessed area, said tabs being struck from the

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metal forming said wall structure and extending outwardly to either side of the wall structure and overlying the recessed area.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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