

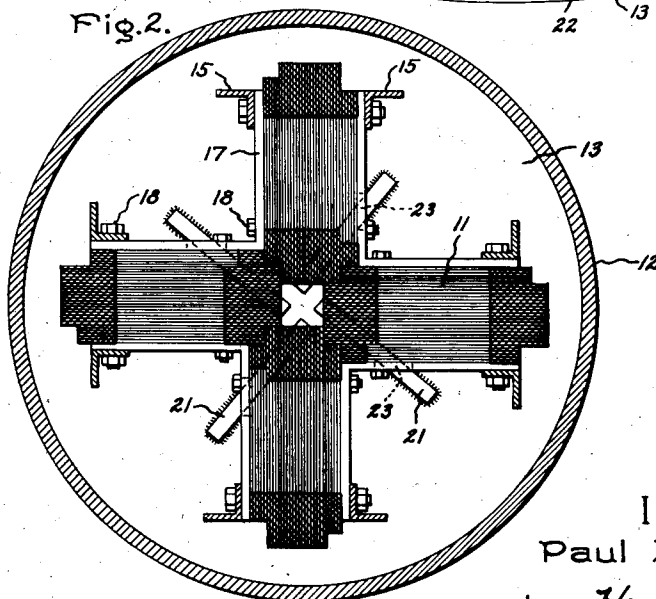
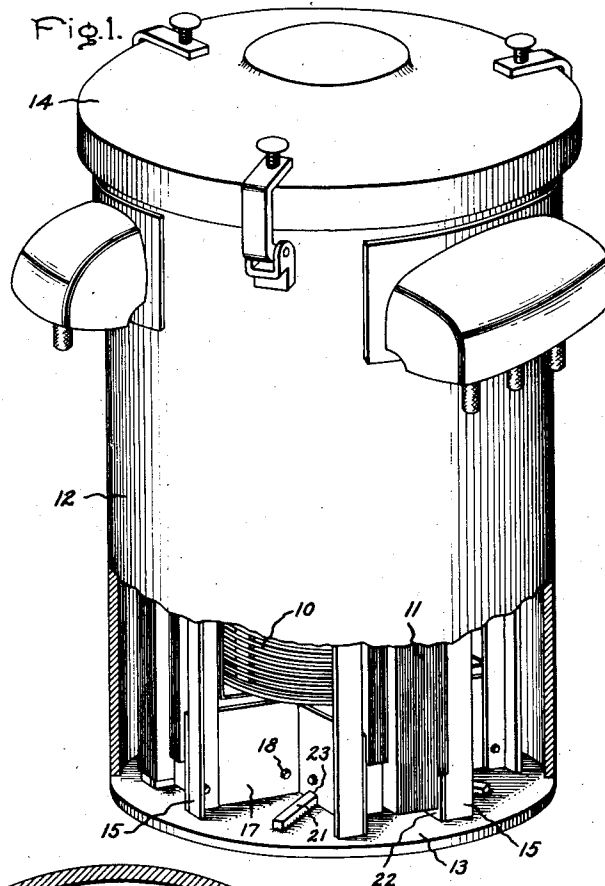
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APPARATUS MOUNTING ARRANGEMENT

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APPARATUS MOUNTING ARRANGEMENT

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4 Claims. (Cl. 175—361)

The present invention relates to apparatus mounting arrangements and more particularly to means for positioning apparatus upon the base of an enclosing housing.

In certain types of apparatus, such as enclosed electrical transformers having leads extending through the enclosure walls, it is desirable to provide means for maintaining the apparatus in a predetermined position relative to the enclosing housing. Dowel pins have been frequently used for this purpose, the pins being secured to the base plate of the housing and adapted to co-operatively fit into openings provided in the lower part of the apparatus as the latter is lowered into the housing. In the assembly of such apparatus in the factory there may be considerable unavoidable non-uniformity between different units which necessitates adjustment of the positioning means for each unit not in strict conformity with the standard dimensions. To shift the dowel pins or enlarge the cooperating openings in the base of the apparatus in such instances is a time consuming operation since the assembly must be removed from the regular production line and be worked upon specially. This is an inefficient and expensive procedure.

It is an object of this invention to provide a new and improved apparatus mounting arrangement which is simple in design and low in manufacturing cost.

It is a further object of this invention to provide a new and improved arrangement for positioning apparatus within an enclosing housing, the arrangement being so designed to readily accommodate apparatus of varying physical dimensions.

For a better understanding of the invention, attention is directed to the following description and the claims appended thereto taken in connection with the accompanying drawing in which Fig. 1 is a perspective view partly in section of an enclosed apparatus illustrating one form of the invention; and Fig. 2 is a cross sectional view thereof.

Referring to the drawing, the invention will be described as applied to an electrical transformer comprising a winding 10, a shell type magnetic core structure 11 of a cruciform configuration, and arranged within an enclosing housing consisting of a cylindrical side wall 12, a base plate 13 and a cover 14. Such apparatus is generally relatively bulky and heavy and consequently is frequently subjected to rough handling and jolts during the shipment and installation thereof. Shifting of the transformer within the housing

during such usage may cause breakage of the lead insulation and other injury. To safeguard against such shifting movements of the transformer relative to the housing, it is a common practice to provide interfitting parts between the base of the housing and the adjacent portions of the transformer structure, usually the lower core clamps. As illustrated, the lamination stacks of the core are clamped at the sides between vertical angle bars 15 and at the bottom between horizontal right angle members 17 by means of suitably arranged bolts 18. In the assembly of the core structure the spacing between the clamping members will vary from one unit to the next depending upon the degree to which the laminations are compressed. For this reason it is desirable to provide an arrangement for positioning the transformer structure within the housing which will readily accommodate the structures of varying dimensions.

In accordance with the instant invention a plurality of longitudinal bars 21, preferably of rectangular cross section, are secured as by welding to the base plate 13 of the housing extending substantially radially and at right angles with respect to other bars from the center of the base plate. Thus, in the illustrated construction two pairs of bars are provided and the bars of one pair are arranged at right angles with respect to the bars of the other pair. The base of the transformer structure is provided with suitable grooves cooperatively straddling the bars 21. In the illustrated embodiment it will be noted that the lower edges of the angle members 17 extend somewhat beyond the lower extremity of the laminations as indicated at 22 so that the lamination stacks are supported in a spaced relation from the housing base. The grooves for cooperatively straddling the centering bars 21 consist of notches 23 provided in the lower edges of the angle members 17. It is to be understood that the height of the centering bars 21 is somewhat less than the spacing 22 of the laminations above the housing base plate 13 so that the lower edges of the laminations are not short circuited by contact with the centering bars.

In the specific embodiment illustrated the centering bars 21 are somewhat offset and symmetrically arranged with respect to the true radii from the center of the base plate 13 in order that the cooperating notches 23 need not be formed at the exact corners of the angle plates 17. In other words, two pairs of bars are provided, the bars of each pair being parallel to and symmetrically offset from opposite sides of a diameter of

the base plate 13. With the offset arrangement of the centering bars as illustrated, the notches 23 may be provided in the angle plate to one side of the corners thereof, which arrangement facilitates the manufacturing procedure.

It will be obvious that the spacing between the clamping plates need not be exactly uniform for all legs of the core structure in order that the notches provided in the lower edges thereof will straddle the bars 21. Considerable variation in the spacing between the notches 23 may exist but by shifting the housing slightly relative to the transformer as the latter is lowered in position, the notches can be aligned with the positioning bars. Furthermore, this positioning arrangement facilitates the interchangeability of housings and transformer structures of different styles and types.

While I have described the invention as being applied specifically to an electrical transformer, it will be obvious that the invention is not necessarily so limited and the transformer merely represents one form of apparatus which it is desired to maintain in a predetermined position relative to a supporting base.

Having described the principle of operation of my invention and what I consider to represent a preferred embodiment thereof, I desire to have it understood that the specific arrangement shown is merely illustrative and that the invention may be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In combination, an enclosing housing having a base, apparatus enclosed in said housing and resting on said base, means for positioning said apparatus on said base comprising two pairs of bars secured to said base, said bars of each pair being parallel to and symmetrically offset from opposite sides of a diameter of said base, the lower portion of said apparatus being provided with grooves for permitting the lower portion to straddle said bars.

2. An arrangement for mounting relatively heavy apparatus upon a base, said arrangement comprising a plurality of longitudinal and substantially rectangular bars secured upon the upper surface of said base, said bars being arranged in pairs and the bars of one pair being arranged substantially at right angles with respect to the bars of another pair and offset with respect to radii passing through the center of said base, and the lower portion of the apparatus being provided with a plurality of substantially equally spaced notches for permitting the lower portion to straddle each of said bars.

3. In combination, a transformer having a laminated core, an enclosing housing for said transformer, a plurality of substantially radially extending bars secured to the upper surface of the bottom of said housing, said bars being arranged in pairs and the bars of one pair being arranged substantially at right angles with respect to the bars of another pair, a plurality of clamping plates, means for securing said plates to sides of said laminated core, and the edges of said clamping plates being provided with grooves for permitting said clamping plates to straddle each of said bars.

4. In combination, a transformer, an enclosing housing for said transformer including a bottom plate, said transformer including a plurality of pairs of spaced apart clamping plates for supporting the core structure of said transformer a predetermined distance above the bottom plate of said housing, a plurality of bars secured to the bottom plate of said housing, said bars being arranged in pairs and having ends adjacent a common point and arranged symmetrically and the bars of one pair being arranged substantially at right angles with respect to the bars of another pair, and the lower edges of said clamping plates being provided with notches for permitting said clamping plates to straddle said bars.

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