I. H. SCLATER.

INCASED ELECTRICAL APPARATUS.

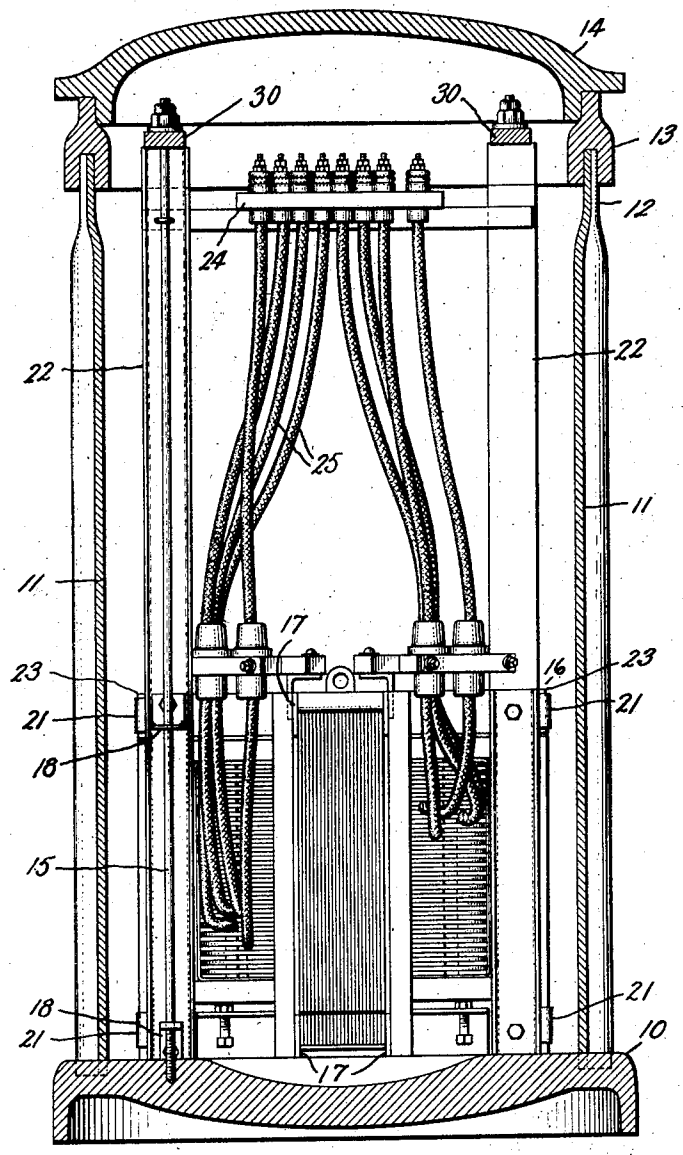
APPLICATION FILED JUNE 25, 1920.

1,379,481.

Patented May 24, 1921.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

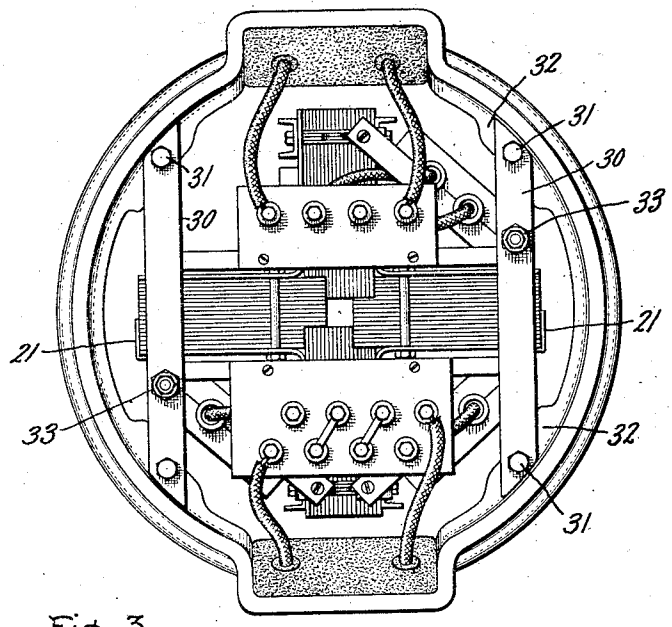
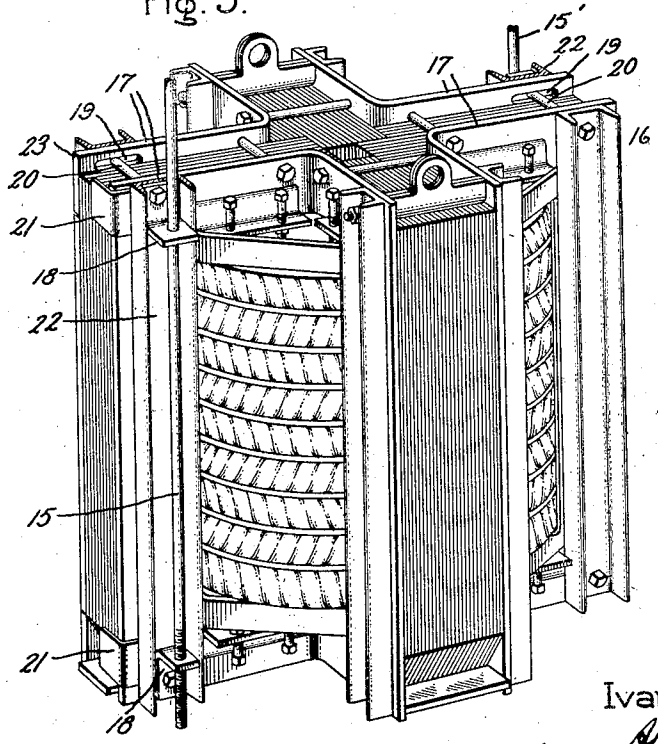


Fig. 3.



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UNITED STATES PATENT OFFICE.

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INCASED ELECTRICAL APPARATUS.

1,379,481. Specification of Letters Patent. Patented May 24, 1921.

Application filed June 25, 1920. Serial No. 391,769.

To all whom it may concern:

Be it known that I, IVANHOE H. SCLATER, a citizen of the United States, residing at Pittsfield, in the county of Berkshire, State of Massachusetts, have invented new and useful Improvements in Incased Electrical Apparatus, of which the following is a specification.

My invention relates to incased electrical apparatus and has for its object an improved arrangement of parts whereby the apparatus may be readily secured in and removed from its casing.

More particularly my invention relates to an improved arrangement for centering and retaining the electrical apparatus of various sizes within a given standard casing.

Prior to my invention the general practice followed in securing the apparatus in place involved a different spacing of the centering and securing means in the casing for each different sized or rated apparatus. As a consequence, a large series of different castings were required for a range of electrical apparatus not very different in physical dimensions but each having its different rating.

By my invention, however, a single standard casing is so arranged and has the centering and securing devices so disposed that it will accommodate any one of substantially the whole range of the electrical apparatus heretofore requiring a series of different casings.

In carrying my invention into effect I employ two vertical stay rods, conveniently disposed along some diameter of the casing and secured in the base thereof, on which the apparatus is swung from opposite sides. These rods serve to center the apparatus and are embraced by clamps on the apparatus capable of accommodating themselves to any apparatus within predetermined limits which it has been decided to house in the casing. The apparatus thus swung or pivoted on the pair of vertical rods has but one degree of freedom in movement remaining, *i. e.*, motion along the rods. The incased apparatus, according to my invention, however, is readily secured against movement in this direction by the use of clamping means slipped down about the rods and secured in the top of the casing. It is thus apparent that by removing such means from the top of the casing the electrical apparatus may be readily moved along the rods and withdrawn from the casing.

For a more complete understanding of the nature and objects of my invention, reference should be had to the following detailed description when taken in connection with the accompanying drawing in which:

Figure 1 is a vertical section of a casing containing a transformer secured in place according to my invention. Fig. 2 is a top plan view of the casing showing the clamping means secured in the top of casing, while Fig. 3 shows details in the arrangement whereby the rod-embracing clamps accommodate themselves to different sized apparatus.

Referring now to the drawings, 10 denotes a base, preferably made of cast metal such as iron, in which is secured the side wall 11 here indicated as corrugated but crushed at the upper end, as shown at 12, in order that a narrow top band 13, preferably also of cast metal, may be formed thereon. The casing thus formed is closed by the cover 14, and is fluid tight.

Conveniently disposed on some diameter of the base 10 is the pair of vertical rods, indicated by 15 and 15′ in the drawing. These rods are shown as secured in the base 10 by screwing into threaded sockets formed in the base, and are of such length as to reach substantially to the top of the casing.

The electrical apparatus, stayed in place by these rods, is here shown as a transformer 16 of the distributed core type. The yokes of the transformer's core are embraced by right-angular clamps 17 four of which, (two on oppositely disposed sides at the top, and two on corresponding sides at the bottom), have brackets 18 secured thereon for embracing the rods 15 and 15′. These brackets, for all the differently rated apparatus which it is contemplated to house in this standard casing, must be spaced apart precisely the same distance since the disposition of the rods in the base is to be in accordance with a single standard design. Accordingly the clamps 17 are made with an elongated opening 19 (clearly shown in Fig. 3) to receive the stud 20 holding the bracket 18 in place adjustably. The clamping devices on the core thus are enabled to accommodate themselves to embrace the rods 15 and 15′ without regard to the thickness or number of the laminations making up the

yokes and central leg of the transformer's core. Variations such as these resulting from the requirements, which it is necessary for the differently rated pieces of apparatus to meet, merely cause a slight orientation of the apparatus that is housed in the casing about a vertical axis as it accommodates itself to swing from the rods 15 and 15′ which are spaced apart the predetermined constant distance.

Plate washers 21 may be conveniently placed over the clamps 17 and upset at their ends as shown, to prevent the transformer from readily being displaced laterally from its clamping structure.

The transformer thus equipped with rod engaging clamps is put in place by being slid down into the tank over the rods as shown in Fig. 1, and has an upwardly projecting superstructure, here shown as comprising channel irons 22 secured to the core clamps at 23, to which structure is secured the terminal board 24 on which are arranged the leads 25 of the transformer windings. These channel irons are so proportioned in height as to stop short of the upper ends of rods 15 and 15′. Hence the top bars 30 are formed to fit down over the ends of rods 15 and 15′, and abut against the upper ends of the channel irons 22. These bars 30, when in place, are secured to the top band 13, as shown in Fig. 2 by means of studs or bolts 31 which engage with suitable ledges 32 formed on the top band. The tops of the rods 15 and 15′ which protrude above the bars 30 are preferably engaged by nuts 33 which, when drawn into place, insure the snug engagement of the bars 30 against the ends of channel irons 22.

When it is desired to remove the transformer 16 from the casing, the studs 31 and nuts 33 are first removed together with the bars 30. The contained apparatus may then be withdrawn. The rods 15 are equally efficacious properly to center the transformer when it is desired to put it back in its casing. By sliding the transformer down on the rods 15, it readily goes back to its proper place without having had first to draw off the oil or other insulating medium from the casing.

Having now described my invention and the best means at present known to me for carrying the same into effect, I would have it understood that this is merely illustrative and that I do not mean to be limited thereby to the precise details shown, nor restricted in the choice of recognized equivalent except as defined in my claims hereunto annexed.

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

1. In incased electrical apparatus, the combination with a casing comprising a base, side wall and cover, of a plurality of rods disposed vertically in the base of said casing and spaced a predetermined distance apart, and an apparatus provided with a clamping structure having adjustable means for engaging said rods and adapted to accommodate themselves to the distance between said rods throughout a predetermined range in size and rating of said apparatus.

2. In incased electrical apparatus, the combination with a casing comprising a base, side wall and cover, of a plurality of rods disposed vertically in the base of said casing and spaced a predetermined distance apart, and an apparatus provided with a clamping structure having on opposite sides adjustable brackets for engaging said rods throughout a predetermined range in size and rating of said apparatus.

3. In incased electrical apparatus, the combination with a casing comprising a base, side wall and cover, of two rods disposed vertically along a diameter of said base and spaced a predetermined distance apart, and an apparatus provided with a clamping structure having adjustable means for engaging with and sliding upon said rods, thereby accommodating apparatus of varying dimensions to said casing.

4. In incased electrical apparatus the combination with a casing comprising a base, side wall and cover, of two rods disposed vertically along a diameter of said base and spaced a predetermined distance apart, and an apparatus provided with a clamping structure having adjustable brackets on obliquely opposite corners thereof arranged to engage with said rods and slide thereon, thereby accommodating apparatus of varying dimensions to said casing.

5. In incased electrical apparatus, the combination with a casing comprising a base, side wall and cover, of two rods disposed vertically along a diameter of said base and spaced a predetermined distance apart, and an apparatus provided with a clamping structure having adjustable means for engaging with said rods and a superstructure extending upwardly adjacent the ends of said rods; said casing being provided with top-clamps engaging with said superstructure whereby said apparatus is restrained from movement along said rods.

6. In incased electrical apparatus, the combination with a casing comprising a base, side wall and covers, of two rods disposed vertically along a diameter of said base and spaced a predetermined distance apart, and an apparatus provided with a clamping structure having adjustable means for engaging with said rods and a superstructure extending upwardly adjacent the ends of said rods; said casing being provided with top-clamps secured to the ends of said rods and engaging with said superstructure.

7. In incased electrical apparatus, the combination with a casing comprising a base,

side wall and cover, of two rods disposed vertically along a diameter of said base and spaced a predetermined distance apart, and an apparatus provided with a clamping structure having adjustable brackets adapted to slide on said rods and a superstructure extending upwardly adjacent the ends of said rods; said casing being provided with top clamps adapted to fit over and be secured to the ends of said rods and to engage with said superstructure.

In witness whereof, I have hereunto set my hand this twenty-third day of June, 1920.

IVANHOE H. SCLATER.