Dec. 19, 1933. J. S. LENNOX 1,940,311

TRANSFORMER CASING

Filed Dec. 24, 1931

Fig. 1.

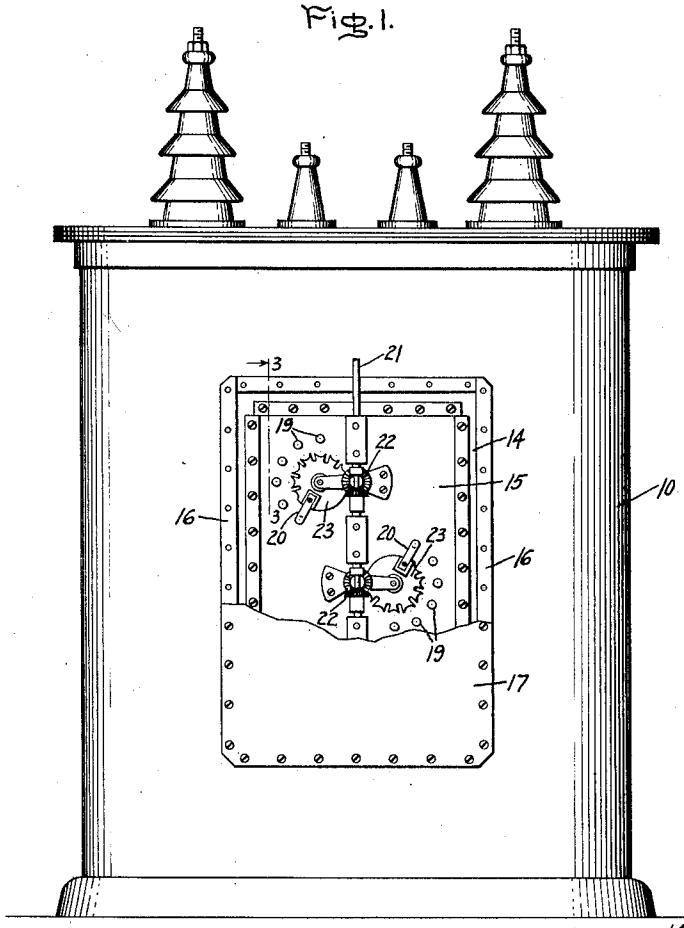


Fig. 2.

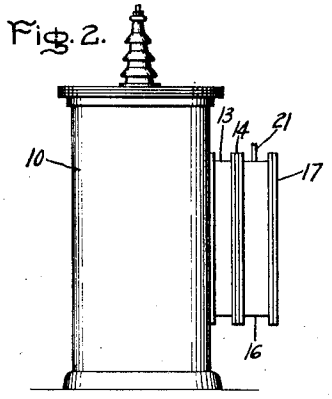
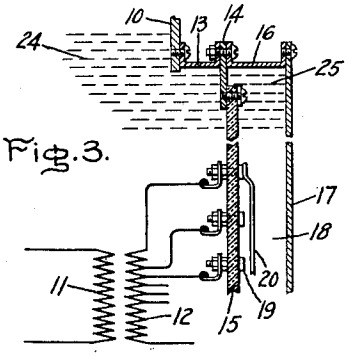


Fig. 3.



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Patented Dec. 19, 1933 1,940,311

UNITED STATES PATENT OFFICE

1,940,311

TRANSFORMER CASING

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Application December 24, 1931
Serial No. 582,978

1 Claim. (Cl. 171—119)

My invention relates to transformer casings. Transformers are often used under conditions which make some provision desirable for regulating the voltage ratio of the transformer. A switch connected to taps from a winding of the transformer is commonly used for this purpose and it has been found convenient in many cases to arrange the switch in a compartment mounted on the transformer casing. The general object of the present invention is to provide an improved construction and arrangement of transformer and switch with their casings or compartments which shall be compact, economical and otherwise desirable.

The invention and its objects and advantages will be explained in the following description taken in connection with the accompanying drawing in which Fig. 1 shows a transformer and switch with their casings constructed and arranged in accordance with the invention, a portion of the switch casing being broken away to show details; Fig. 2 is a side view of the transformer and switch casings; and Fig. 3 is an explanatory sectional detail view on the line 3—3 of Fig. 1.

Like reference characters indicate similar parts in the different figures of the drawing.

The transformer casing 10 contains a transformer with windings 11 and 12 as indicated in Fig. 3. The casing 10 has an opening in one side surrounded by an external flange 13 with a metal plate 14 bolted to the outer edge of this flange. The metal plate 14 has an opening which is covered by a plate 15 of insulating material. Another outwardly extending flange 16 is secured around the edge of the plate 14 and an outer cover or plate 17 is secured to the outer edge of this flange 16 to form a switch compartment 18.

The plates 14 and 15 form a partition between the transformer compartment in the casing 10 and the compartment 18 between this partition and the outer cover 17. The compartment 18 contains a switch including fixed contacts 19 and a movable contact 20. In some cases, as with a three phase transformer, more than one switch may be used in the compartment 18 as indicated in Fig. 1.

The fixed switch contacts 19 are mounted directly on the insulating partition plate 15 and extend through this plate into the transformer compartment inside the casing 10, each of the contacts being spaced sufficiently from the edge of the insulating plate 15 to prevent arcing from the contacts. The taps from the transformer winding 12 are connected to the inner ends of the switch contacts 19. The movable switch contact 20 moves over the fixed contacts in the switch compartment 18, the movable contact 20 being controlled by an operating shaft 21 acting through bevel gears 22 and Geneva gears 23.

The transformer with its windings 11 and 12 is immersed in a body of insulating liquid 24 in the casing 10 and the switch compartment may also contain insulating liquid 25 in which the switch contacts are immersed. The partition including the insulating plate 15 is preferably liquid tight to prevent contamination of the liquid 24 around the transformer by leakage of the liquid 25 through the partition from the switch compartment 18 or to prevent leakage of liquid from the transformer compartment in case no liquid is provided in the switch compartment. The insulating plate 15 serves not only as a partition between the transformer and switch compartments but also as a part of the switch structure itself and avoids the necessity for a separate contact supporting structure in the switch compartment. By making the partition plate 15 of insulating material and extending the fixed contacts through this plate into the transformer compartment, the transformer taps are connected to the switch without the necessity of insulating bushings through the partition.

The invention has been explained by describing and illustrating a particular embodiment thereof but it will be obvious that changes may be made without departing from the spirit of the invention and the scope of the appended claim.

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

The combination with a metal casing containing insulating liquid and a transformer immersed in said liquid, of a metal switch compartment mounted on the side of said transformer casing, a partition including at least a section of insulating material between said transformer casing and said switch compartment, and a switch in said switch compartment, said switch including fixed contacts mounted on and extending through said insulating section of the partition, each of said contacts being spaced sufficiently from the edge of said insulating section of the partition to prevent arcking from the contacts, said transformer having a winding with taps, and connections between said taps and the inner ends of said contacts.

JOHN S. LENNOX.