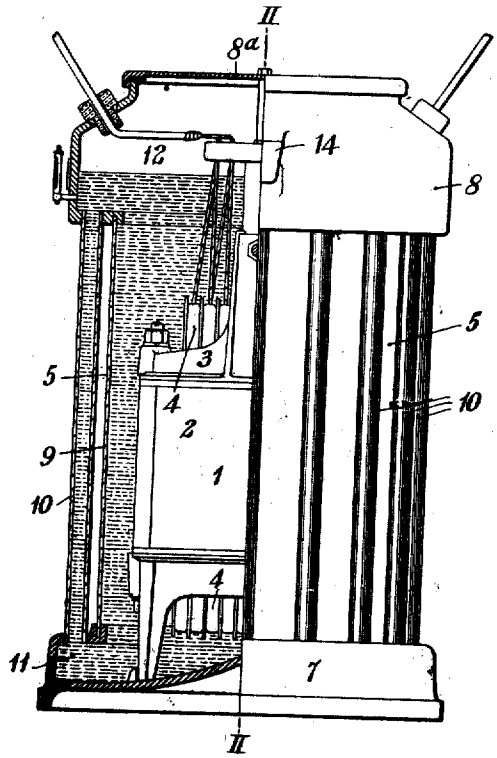
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ELECTRICAL APPARATUS.

APPLICATION FILED JUNE 8, 1907.

913,060.

Patented Feb. 23, 1909.



WITNESSES:

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ELECTRICAL APPARATUS.

No. 913,060. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed June 8, 1907. Serial No. 377,958.

To all whom it may concern:

Be it known that I, OTTO SCHAUMBERG, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Electrical Apparatus, of which the following is a specification.

My invention relates to inclosed electrical apparatus and it has special reference to cases or tanks in which alternating current transformers may be contained.

The object of my invention is to provide a simple and durable transformer casing, of such construction as to insure adequate heat radiation.

It is usual to immerse electrical apparatus of certain kinds in suitable insulating and cooling fluids, and containing tanks of various forms have been proposed and utilized for this service, among which boiler iron or steel tanks, cast iron boxes, and receptacles, constructed partially of cast iron and partially of sheet iron, may be mentioned. The sheet iron portions of the last named receptacles have usually been corrugated for the purpose of stiffening the structure and increasing the heat-radiating surface of the tanks. On account of the difficulties experienced in forming large quantities of corrugated parts of uniform size and shape, tanks of this type could not be assembled in suitable molds and their ends cast without a considerable expenditure of time and money.

According to my present invention, I provide an inclosing casing, mainly of sheet metal, which may be used with any suitable electrical apparatus but which is specially adapted for use with transformers, its structure being such that a very large heat-radiating surface is provided without involving the difficulties heretofore experienced in the use of sheet metal tanks.

In the accompanying drawing, the single figure is a view, mainly in elevation but partially in section, of a transformer and its inclosing tank constructed in accordance with my invention.

Referring to the drawings, a transformer 1, having a magnetizable core member 2, a supporting frame 3 therefor and a winding 4, is inclosed in a fluid-containing tank 5 to which it is secured by an adjustable clamping device 6. The tank 5 comprises a cast iron base 7 and a cast iron crown 8 having a removable cover 8^a, a sheet metal body portion 9 onto which the base and crown are cast and a plurality of tubes 10 which establish communication between the chambers 11 and 12, formed by the base 7 and the crown 8, respectively. The body member 9 may be of any suitable shape, but is preferably cylindrical, and the base and crown are materially larger in diameter than the body member so that they project beyond its walls. The tubes 10, are so assembled before the crown and base are cast, as to establish communication between the chambers 11 and 12, exclusive of the body of the tank.

The transformer may preferably be immersed in oil or other insulating fluid and the heat produced by the current traversing its windings will establish a circulation of insulating fluid through the body portion 9 in one direction and back through the tubes 10, since the large radiating surface of the tubes tends to keep the liquid at a lower temperature than that which exists within the transformer windings.

While the transformer illustrated is of the shell type, I desire that my invention shall not be restricted to any special class or variety of electrical apparatus and that only such limitations be imposed as are indicated in the appended claims.

I claim as my invention:

1. A fluid-containing casing for electrical apparatus having end enlargements and a plurality of tubes located outside the body portion of the casing and connecting the enlargements.

2. The combination with a transformer and a fluid-containing casing therefor having enlargements at the top and bottom, of a plurality of tubes located outside the body portion of the casing and connecting the enlargements.

3. The combination with a transformer having a magnetizable core member and current-conducting windings and a fluid-containing casing therefor, the ends of the casing constituting expanded chambers or heads, of means for establishing communication between the chambers independently of the body of the casing.

4. The combination with a transformer having a magnetizable core member and current-conducting windings and a fluid-containing casing therefor, the ends of the casing constituting expanded chambers, of a plu-

rality of tubes located outside the body portion of the casing and connecting the end chambers.

5. The combination with a transformer having a magnetizable core member, and current-conducting windings and a fluid-containing casing therefor, the ends of the casing constituting expanded chambers, of tubes equally disposed about the casing body and headed into the chambers for establishing communication between said chambers independently of the body of the casing.

6. The combination with a transformer, of a casing therefor comprising cast iron end chambers, a sheet metal body member and tubes disposed outside of the sheet metal member for establishing auxiliary communication between the cast iron end chambers.

7. A fluid-containing tank for electrical apparatus having a set of tubes located outside its body portion and connecting its end portions to provide a circulation of liquid therethrough.

In testimony whereof, I have hereunto subscribed my name this 25 day of May, 1907.

OTTO SCHAUMBERG.

Witnesses:
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