Aug. 18, 1925. 1,550,154

G. FACCIOLI

TRANSFORMER TANK

Filed Sept. 23, 1921

Fig. 1.

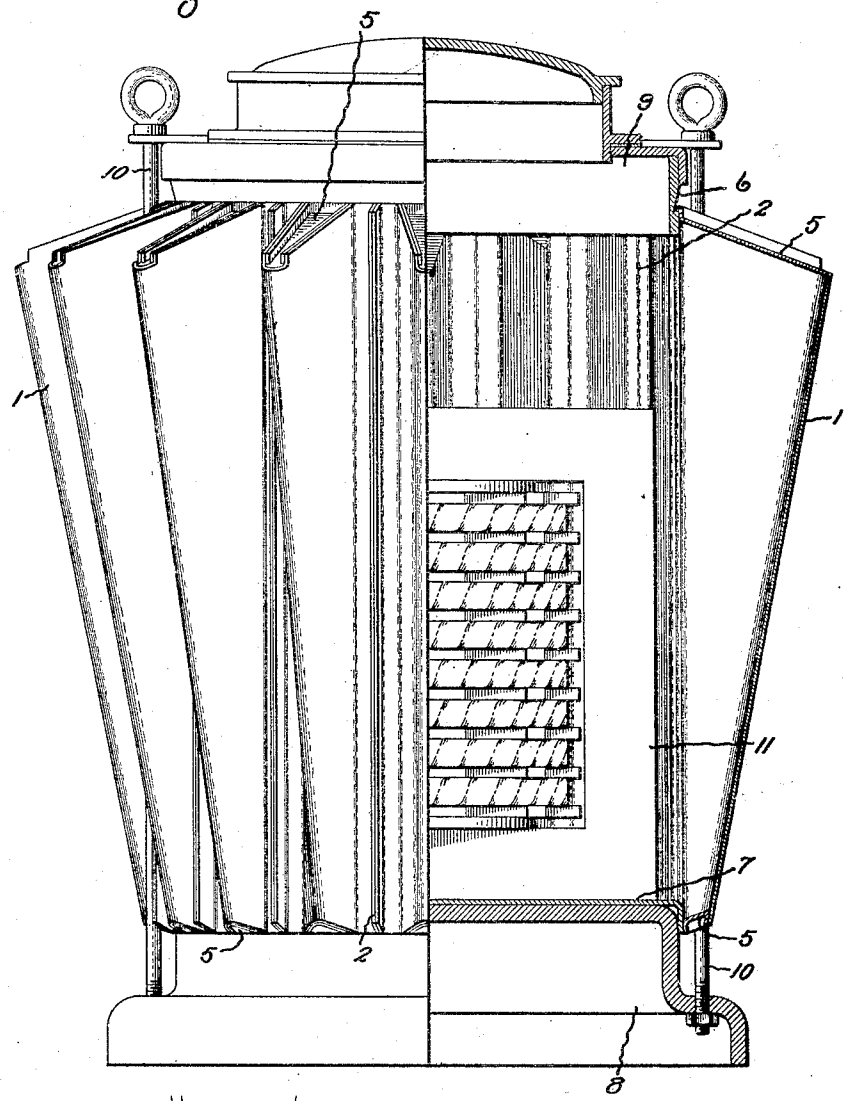
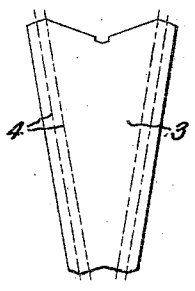


Fig. 2.



Inventor:
Giuseppi Faccioli,
by Albert G. Davis
His Attorney.

Patented Aug. 18, 1925. 1,550,154

UNITED STATES PATENT OFFICE.

GIUSEPPE FACCIOLI, OF PITTSFIELD, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

TRANSFORMER TANK.

Application filed September 23, 1921. Serial No. 502,652.

To all whom it may concern:

Be it known that I, GIUSEPPE FACCIOLI, a citizen of the United States, residing at Pittsfield, in the county of Berkshire, State of Massachusetts, have invented certain new and useful Improvements in Transformer Tanks, of which the following is a specification.

My invention relates to tanks or containers and more particularly to tanks adapted to contain oil in which are submerged electrical apparatus such as transformers, reactors and the like, the oil being provided to maintain the temperature of the submerged apparatus within safe operating limits.

An object of the invention is to provide a tank of this nature with a wall so formed and arranged as to present an efficient surface to the surrounding atmosphere for radiating heat absorbed from the oil contained in the tank. Another object of the invention is to construct such a tank wall with an economical use of material and at the same time adapted to conveniently house the apparatus and oil contained therein.

One form of my invention is illustrated in the accompanying drawing in which Fig. 1 is a view of a tank constructed in accordance with the invention, a portion of the wall of the tank being broken away to show the interior, and Fig. 2 is a view of a blank before being bent to form one of the radiating elements of the wall.

In the specific form of invention shown in the drawing, the wall of the tank includes a plurality of radiating elements in the form of corrugations or channels 1 arranged parallel to the vertical axis of the tank and each having its edges turned outwardly to meet the adjoining edges of the adjacent corrugations. These edges are welded together where they meet to form oil tight joints 2 and a sufficient number of the channels are thus connected together to form the complete tank wall. Each channel is formed from a blank 3 by bending this blank along its longitudinal axis to give it a V-shaped cross-section and by further bending each edge outwardly along the two lines 4—4. The adjacent edge portions of adjoining channels are placed together as shown to form a joint which may be easily welded. The upper and lower ends of each channel are closed by small V-shaped members 5, these joints also being welded to make them oil and air tight. This structure now presents a corrugated wall having a circular upper edge to which a top rim 6 is welded and a circular lower edge to which the tank bottom 7 is welded. A supporting base 8 and a cover 9 are secured to the tank wall by bolts 10. A piece of electrical apparatus such as the transformer 11 may be placed in the tank which is then filled with oil for cooling purposes. The oil near the transformer becomes heated and rises toward the top of the tank, afterward descending in the spaces within the channels which absorb heat from the oil and radiate this heat to the surrounding atmosphere.

The blank 3 from which the channels are formed is wider at the upper end than at the lower end so that the channel is deeper at the top than at the bottom in the finished tank. This results in a tank wall having corrugations with the greater part of their radiating surfaces near the upper portion of the tank where it is most effective, the oil being at a higher temperature here than in the lower portion of the tank. A further result of this form of corrugation is that each portion extends further into the surrounding atmosphere than those portions below it. During operation of the electrical apparatus within the tank, the air touching the surface of the tank wall becomes warmed and tends to rise in vertical currents along this surface. By extending the upper portions of the corrugations horizontally beyond the lower portions, these upper portions present portions of their radiating surfaces to air which has not already been more or less warmed by radiating surfaces of portions of the corrugations nearer the bottom of the tank, increased efficiency being thus obtained. A further advantage of this construction is that the radiating surface is largest near the upper portion of the tank where the oil is warmest, and at the same time the space within the tank for holding the electrical apparatus may be substantially cylindrical and of uniform cross-section, so that the quantity of oil necessary and also the size of the cover are not greatly increased.

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

In a container for cooling purposes, a corrugated wall, the inner contour of said wall surrounding a cooling space of substantially uniform cross section, the upper portions of the corrugations of said wall being deeper than the lower portions thereof, whereby said upper portions extend outwardly beyond and present a greater radiating surface than said lower portions.

In witness whereof, I have hereunto set my hand this 17th day of Sept., 1921.

GIUSEPPE FACCIOLI.