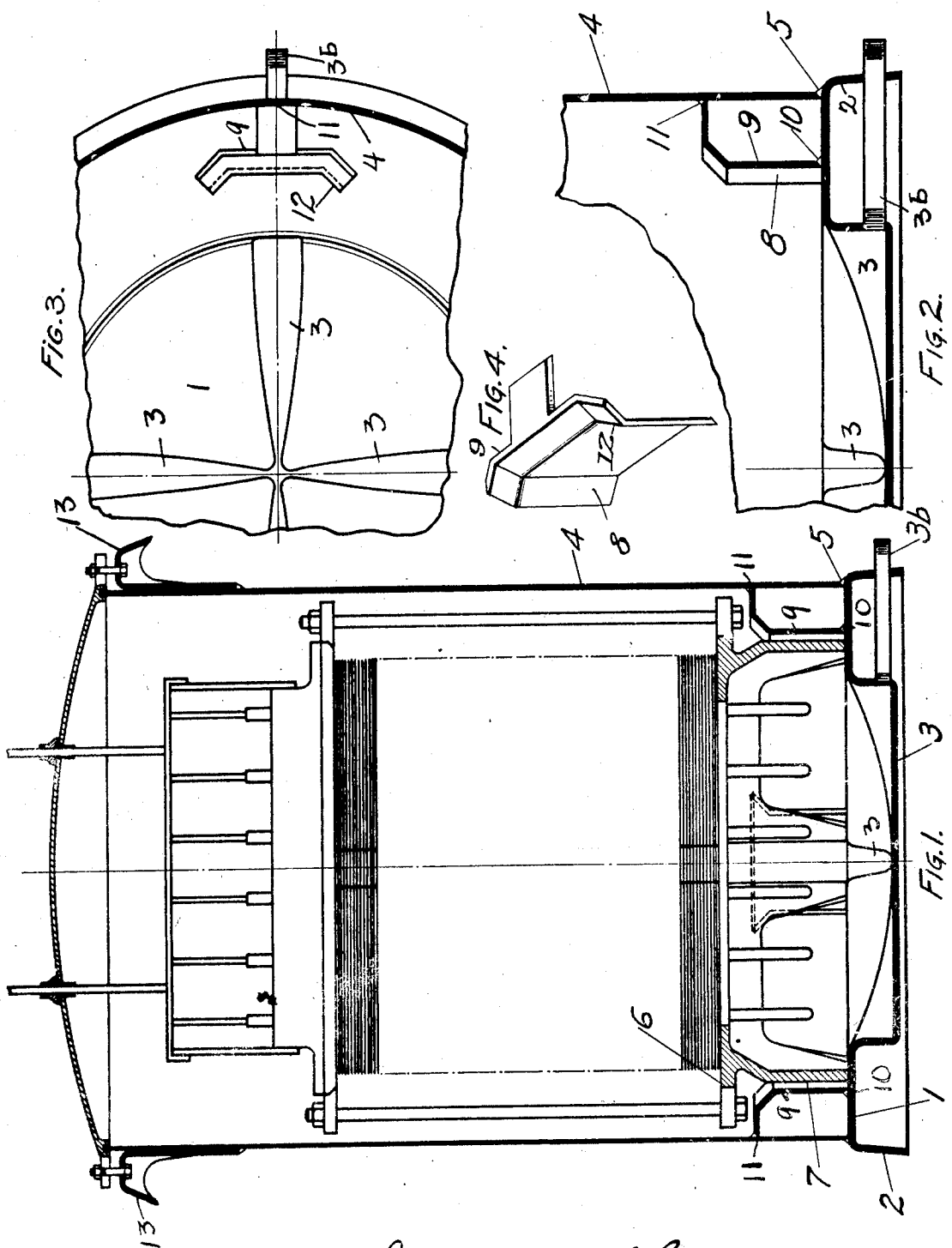


L. H. BURKHART.
 TRANSFORMER CASE.
 APPLICATION FILED SEPT. 18, 1911.

1,025,679.

Patented May 7, 1912.



Witnesses

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TRANSFORMER-CASE.

1,025,679.

Specification of Letters Patent.

Patented May 7, 1912.

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To all whom it may concern:

Be it known that I, LOUIS H. BURKHART, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented new and useful Improvements in Transformer-Cases, of which the following is a specification.

This invention relates to transformer cases, and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claims.

In the use of certain types of transformers, the transformer itself is immersed in liquid and this liquid is carried in what is known as a transformer case. The liquid used is ordinarily a thin oil so that it is necessary to have the joint formed in the case entirely closed thus preventing any spreading of oil on the outside of the case. This is particularly true because these transformers are usually mounted and exteriorly finished so as to make any leakage of oil very objectionable. These transformers are very heavy and, of course, are supported by the bottom of the case. It is desirable to raise the bottom of the case above the support carrying the transformer and it is, therefore, necessary to make the bottom of sufficient rigidity to carry the load. It is also desirable to make the construction capable of sustaining internal and external pressure. Steel plate transformer cases as heretofore constructed have required that the bottom plate be supported by a separate cast iron base.

In my construction, the bottom is pressed from sheet metal, the bottom being raised above the plane of the bottoms of the supports and the edge of the shell is secured to the bottom within the line of the supports by a continuous autogenous joint formed preferably by welding.

The invention is illustrated in the accompanying drawings as follows:

Figure 1 shows a central section through a transformer case, with a transformer in outline in place therein. Fig. 2 a fragment of an enlarged view of the bottom showing the guides for the transformer feet, the section being the same as in Fig. 1. Fig. 3 a plan view of the parts shown in Fig. 2. Fig. 4 is a perspective view of one of the guides for the transformer feet.

1 marks the bottom. The flange 2 is struck up around the edge of the bottom and this

flange forms a support for the bottom. The bottom has the arched or dished center 3. Pockets 3^a extend radially from the arched portion 3 on a line with the lowest point in the arch. The pockets connect with the drainage pipes 3^b.

A shell 4 has its bottom edge resting on the top surface of the bottom 1 and is secured thereto by an autogenous joint 5, preferably a welded joint, the outer surface of said shell being within and out of alinement with the inner surface of the supporting flange 2.

The transformer frame 6 has the feet 7 which extend into the guides 8. Each guide 8 has the upwardly extending plate 9, the bottom edge of which is secured to the top surface of the bottom by a continuous joint at 10. The top of the guide is bent over laterally so as to bring the top edge into contact with the case shell, and is secured to the shell by a welded joint 11. Side flanges 12 are arranged on the upright 9 so as to form the sides of the guide pocket.

It will be noted that the weight of the transformer is carried by the bottom 1. The guides 8 by reason of the joint with the bottom immediately adjacent to the transformer feet strengthens the bottom at this position. By securing the shell 4 out of alinement with the flange 2, the bottom is braced, the shell practically forming a web. This is particularly true by reason of the fact that the shell is connected with the bottom by a continuous autogenous joint. At the same time, the joint 5 is not apt to be loosened because while these welded joints have great tensile strength they are not so strong with relation to lateral bending.

It will be noted that the combination bottom and base is so shaped with its supporting flange as to form an arched support and with the center arch has a double web effect in bracing the bottom against deflection. The continuous autogenous joint between the shell and bottom in connection with the offsetting of the shell from the line of the flange of the base gives in effect a third web, and at the same time the direction of strains on the joint are such as to be readily sustained. This is important when the case bottom is resting on a support and also when the case is lifted with the transformer in place. Lugs 13 are provided so that lifting devices may be readily attached. The bottom of the arched center

is above the plane of the support as defined by the bottom of the flanged edge. If there is objectionable unevenness in the surface on which the case rests, this can readily be observed and remedied, as the entire weight is supported along the edge. It will be observed also that the base as formed is capable of withstanding within itself the internal and external pressures sometimes encountered without deflection and without subjecting the joint 5 to injurious strains.

Any of the well known processes may be used in forming the joint 5 so long as it forms a continuous autogenous joint, that is to say, a joint having a continuous union such as formed by any of the well known welding or brazing processes.

While the term transformer case is used, it will be understood that the invention applies to all cases subjected to similar conditions.

What I claim as new is:—

1. In a transformer case, the combination of a case bottom having a flanged edge forming a support for the bottom; and a case shell having its bottom edge resting on the top surface of the bottom with the outer surface of the shell within and out of alinement with the inner surface of the flanged edge, said shell being secured to the bottom by a continuous autogenous joint along the edge of the shell.

2. In a transformer case, the combination of a case bottom arched at the center and adapted to form a support for a transformer at the edge of the arched portion; means on the bottom at the periphery thereof forming the sole support for the bottom; and a shell having its bottom edge resting on the top surface of the bottom with the outer surface of the shell offset within the inner surface of the support and secured to the bottom by a continuous autogenous joint along the edge of the shell.

3. In a transformer case, the combination

of a bottom; a shell secured to and carried by the bottom; and guides for the transformer feet secured to the bottom and forming webs for strengthening the bottom, the tops of said guides being secured to the shell, said guides being spaced from the shell to permit the circulation of liquid between the guides and shell.

4. In a transformer case, the combination of a bottom having a flanged edge forming a sole support for the bottom, a supporting platform within the flanged edge, and an arched center within the platform; a case shell having its bottom edge resting on the top surface of the platform with the outer surface of the shell within and out of alinement with the inner surface of the flanged edge, said shell being secured to the bottom by a continuous autogenous joint along the edge of the shell; and guides for the feet of the transformer secured to the bottom and forming webs for strengthening the bottom.

5. In a transformer case, the combination of a case bottom having a flanged edge forming a support for the bottom, said bottom being arched at the center and adapted to form a support for the transformer at the edge of the arched portion; and a case shell having its bottom edge resting on the bottom between the flanged edge and the arched center, the outer surface of the shell being within and out of alinement with the inner surface of the flanged edge and secured to the bottom by a continuous autogenous joint along the edge of the shell, whereby there is formed a three web supporting structure.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

LOUIS H. BURKHART.

Witnesses:

K. M. ANDREWS,
R. S. HALL.