E. A. WAGNER.

STATIONARY INDUCTION APPARATUS.

APPLICATION FILED SEPT. 23, 1919.

1,382,873. Patented June 28, 1921.

Fig. 1.

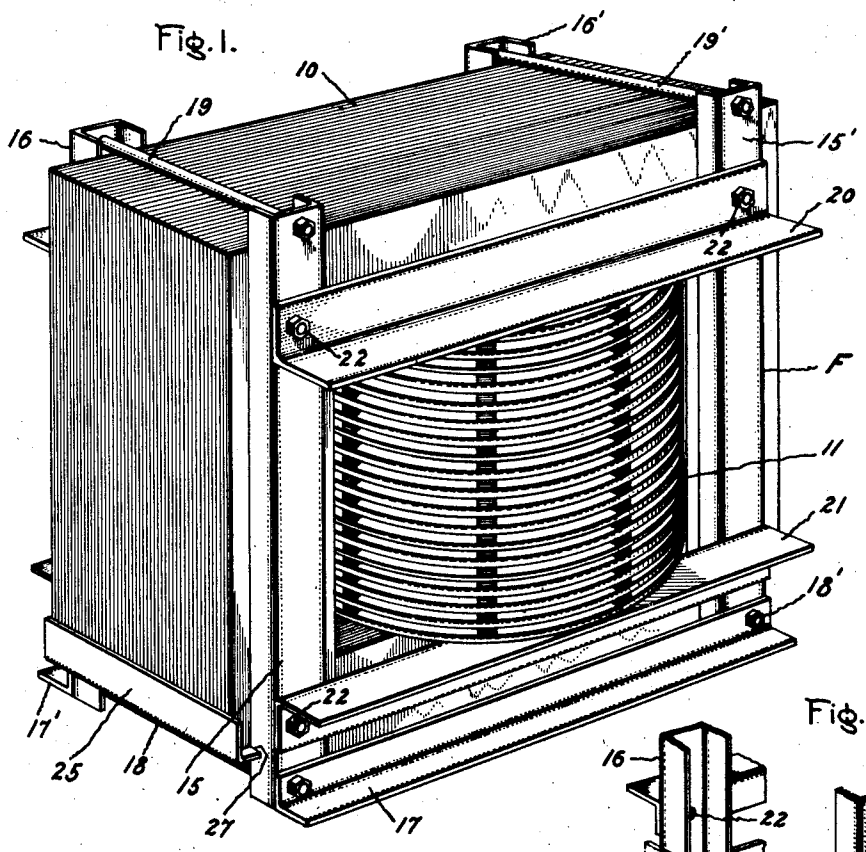


Fig. 2.

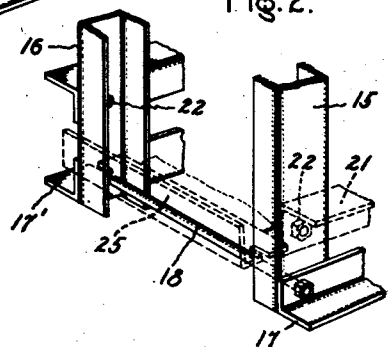
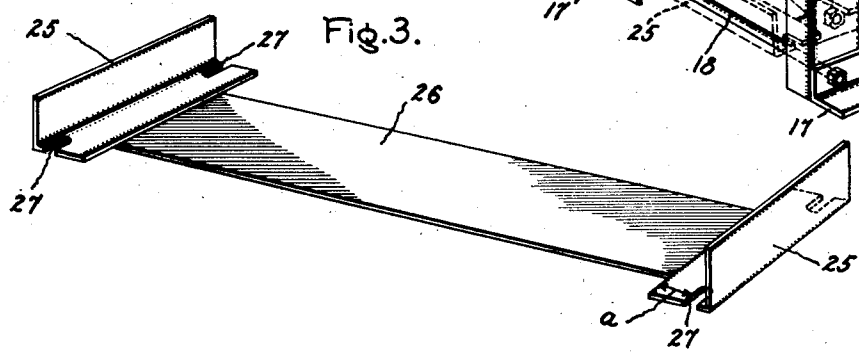


Fig. 3.



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UNITED STATES PATENT OFFICE.

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STATIONARY INDUCTION APPARATUS.

1,382,873. Specification of Letters Patent. Patented June 28, 1921.

Application filed September 23, 1919. Serial No. 325,808.

To all whom it may concern:

Be it known that I, EDWARD A. WAGNER, a citizen of the United States, residing at Fort Wayne, in the county of Allen, State of Indiana, have invented certain new and useful Improvements in Stationary Induction Apparatus, of which the following is a specification.

My invention relates to stationary induction apparatus, such as transformers, some reactances and the like which have magnetic cores. More particularly my invention relates to the means for clamping together and securing in place the core structure for such apparatus.

My invention has for its object an improved arrangement of parts whereby the clamping and securing in place of the core parts may be securely accomplished in an easy, efficient and very economical manner without in any way impairing or infringing upon the magnetic material employed in such core.

In accomplishing this object I use straight sheared laminations to build up the core, which are not perforated or notched in any manner, consequently I get full use of all the magnetic material employed. Such a core is preferably assembled with broken joints, that is the abutting edges of two sections in one layer of the laminations occur at a different point in the magnetic circuit from that in the adjacent or succeeding layer of laminations. The core thus assembled is held together between upright clamping members which have suspended between their adjacent lower ends a species of cradle structure in which the core is carried and from which it cannot be displaced, when once the clamping devices have been secured.

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 perspective view showing a transformer in which the core is assembled and secured in place in accordance with my invention. Fig. 2 is a fragmentary perspective view showing details, parts being shown in phantom in the interests of clearness; and Fig. 3 is a perspective view of the cradle structure employed in Fig. 1.

Referring now to the drawings, 10 represents a shell type core, having electrical windings 11 surrounding its vertical central leg. This core, as heretofore remarked, is made by assembling rectangular lamination sections to form the desired magnetic circuit or circuits; the different layers of the laminations being preferably arranged to break joints.

The core 10, thus assembled, is held together and in place by means of the clamping frame, generally indicated at F. This frame comprises a pair of upright channel members 15′, 16′ and 15, 16 engaging with the right and left legs of the core respectively. These channel members are held in definite spaced relation by means of the angle bars 17 and 17′, placed at the lower ends of channel members, fore and back respectively; the channel bars being held in place by the lower transverse bolts 18 and 18′. The upper ends of the channel members are drawn together to clamp the core in place by means of the top bolts 19 and 19′.

The frame F is also shown as provided with upper and lower angle bars 20 and 21 which are secured on the channel members by means of studs or bolts 22 which penetrate the channel members only. These last angle bars are so disposed that they provide supporting ledges for the projecting edges of the windings 11 of the transformer.

To insure that the core 10 held in the clamping frame F just described, shall not be displaced by a jar or other disturbing force, I employ the cradle structure shown in Fig. 3. This structure comprises side retaining members 25 and 25′ which are held a predetermined distance apart by means of the binding member 26. This binding member may be secured to the members 25 and 25′ in any convenient manner, such as by brazing or welding.

The side retaining members 25 and 25′ are shown as made from sections of angle iron, whose lengths are somewhat greater than the width of the core to be clamped in place, and whose bottom portions have notches, shown at 27, cut therein so as to engage with and embrace the upstanding side edges of the channel members 15, 16, etc. The width of the bottom portions of the members 25 from the notches 27 to the inner edges thereof (such as indicated at *a* in Fig. 3) is preferably not greater than the width of the channel in the upright

members; otherwise a plurality of notches would need to be made in the bottom portions thereof, since the cradle structure formed by these members is slipped down over the edges of the channel members and rests on the bolts 18 and 18'. The upstanding sides of the members 25 thus prevent the core 10 from being displaced edgewise out of the frame F, since the lower corners of the core fit snugly into the corners of the members 25 when in place.

Having now described what is at present the best means known to me for carrying out an embodiment of my invention, I would have it understood that such means are merely illustrative and that I do not mean to be limited thereby to the exact details shown nor in the choice of recognized equivalents except as defined in my claims hereunto appended.

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

1. In electrical apparatus, the combination with a core provided with windings, of a clamping frame therefor comprising upright members for gripping the side legs of said core, and a cradle structure suspended between and supported by said upright members in which said core is seated.

2. In electrical apparatus, the combination with a core provided with windings, of a clamping frame therefor comprising upright members for gripping the side legs of said core, and side retaining members engaging with said upright members arranged to prevent edgewise displacement of said core.

3. In electrical apparatus, the combination with a core provided with windings, of a clamping frame therefor comprising upright members for gripping the side legs of said core, and side retaining members suspended between, engaging with, and supported by said upright members; said retaining members having upstanding edges adapted for seating said core and preventing endwise displacement thereof.

4. In electrical apparatus, the combination with a core provided with windings, of a clamping frame therefor comprising upright members for gripping the side legs of said core, side retaining members suspending between, engaging with, and supported by said upright members, and means for uniting said side retaining members in a predetermining spaced relation thereby forming a cradle structure for holding said core in place.

In witness whereof I have hereunto set my hand this 15th day of September 1919.

EDWARD A. WAGNER.