No. 750,525. PATENTED JAN. 26, 1904.

A. R. EVEREST.

TRANSFORMER.

APPLICATION FILED AUG. 11, 1902.

NO MODEL.

Fig. 1.

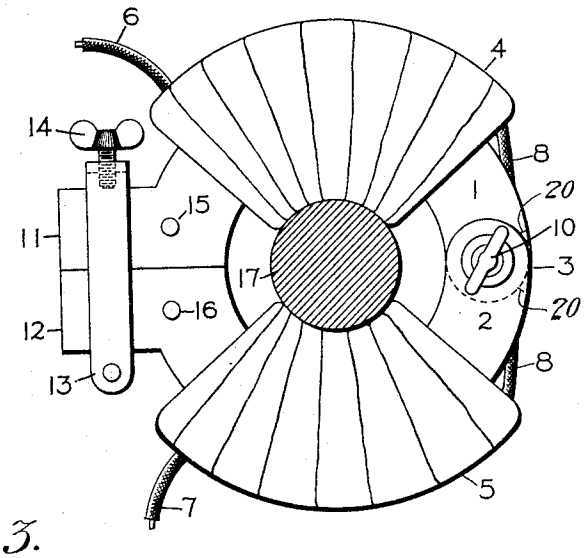


Fig. 3.

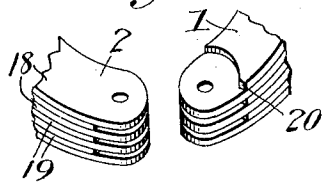
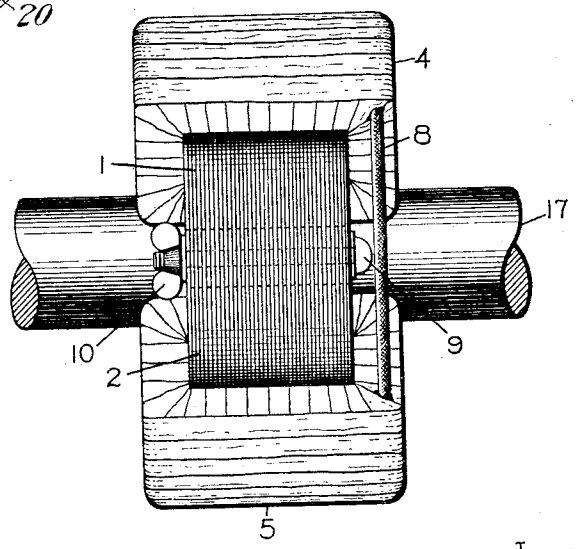


Fig. 2.



Witnesses.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 750,525. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

AUGUSTINE R. EVEREST, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

TRANSFORMER.

SPECIFICATION forming part of Letters Patent No. 750,525, dated January 26, 1904.

Application filed August 11, 1902. Serial No. 119,178. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTINE R. EVEREST, a subject of the King of Great Britain, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Transformers, of which the following is a specification.

My invention relates especially to that type of transformers called "current-transformers," designed to be used in connection with meters to reduce the current which is to be measured to an amount adapted to the meter used. Transformers of this character have been made with a magnetic circuit permanently closed around the bus-bar or cable carrying the current to be measured; but this construction is undesirable, of course, where a portable meter is desired.

The object of my invention is the production of a transformer having its core so constructed that it may be removably placed around the conductors carrying the current which it is desired to measure.

In the drawings, Figure 1 shows a front elevation of one embodiment of my invention; Fig. 2, a side elevation, and Fig. 3 is a perspective detail view showing the construction of the hinged ends of the core-sections.

The transformer is provided with a core made in two parts 1 and 2, which are hinged together at 3. Each half of the core carries its appropriate secondary winding 4 and 5. The secondary windings are properly insulated from the core and are provided with terminals 6 and 7. The coils are connected to each other by the conductor 8.

The core-sections of the transformer are made out of laminated iron in the usual manner and are throughout the greater part of their length substantially in the form of a semicircular arc, though other forms may be used, the hinge 3 being located at one end of the arc. This hinge is formed by making successive laminations or groups of laminations in each core-piece of different lengths, the alternate laminations or groups of laminations being of the same length, as indicated by the dotted lines in Figs. 1 and 2. The longer laminations or groups of laminations 18 of each section are interleaved with each other to form the knuckles of the hinge. The ends of the knuckles are semicircular, and the ends of the shorter laminations or groups of laminations 19 are curved accordingly to embrace the knuckles. The outer edges of the curved ends of the laminations or groups of laminations 19 are cut away, as indicated at 20, to allow the section 1 and 2 to be separated the desired amount. A screw 9, passing through the laminations, forms the pivot of the hinge. A thumb-nut 10 is provided at one end of the threaded bolt, by means of which the laminations can be forced together and the reluctance of the magnetic circuit thus decreased. The other ends of the arc-shaped core-pieces are provided with extensions or enlargements 11 and 12, which extend outward from the circular portion of the core in directions parallel to each other and parallel with the diameter passing through the ends of the circular portions of the core-sections. The extensions 11 and 12 are adapted to bear against one another. The contacting surfaces are considerably greater in area than the cross-section of the core proper, so that the magnetic reluctance due to the separation of the metal at that point is reduced very considerably.

A clamp 13 is hinged to the lower section 2 of the transformer-core and carries at its upper end a thumb-screw 14, by means of which the ends 11 and 12 can be forced together with any desired amount of pressure.

15 and 16 represent rivets, a plurality of which may be used, if desired, to fasten the laminations together.

The primary winding of this transformer consists of a straight length of conductor carrying the current which is to be measured. In the present instance it is shown as the cylindrical rod 17.

In the use of this transformer the thumb-nut 10 and the thumb-screw 14 are both loosened and clamp 13 swung to one side. The core members 1 and 2 are then separated to such a distance that they may be passed about the conductor carrying the current which is to be measured. The core parts 1 and 2 are then brought together and clamped down by means

of the threaded bolts, and the meter may then be attached to the terminals 6 and 7.

In the construction shown if one of the secondary windings 4 or 5 is injured or for any other reason its replacement is desirable it may readily be removed from the core by withdrawing the bolt 9 and separating the core at that point.

While I have described my transformer as especially useful in connection with meters, it will be readily understood that a transformer having a hinged core may be useful in other relations in which it is desirable that coils or windings of the transformer be changed.

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

1. A transformer having its core made of two bowed members hinged together at one end and provided with engaging extensions at the other end, said engaging extensions having engaging surfaces greater than the cross-sectional area of the main portion of the core.

2. A transformer having a laminated core made in sections and hinged together, alternate groups of laminations in each section being of a different length from the intervening group of laminations, the longer groups of one section being interleaved with the longer groups of the other section to form the hinge.

3. A transformer having a laminated core made in sections and hinged together, alternate groups of laminations in each section being of a different length from the intervening group of laminations, the longer groups of one section being interleaved with the longer groups of the other section to form a hinge, a bolt forming the hinge of said hinge, and means for clamping said interleaving portions together.

4. A transformer having laminated core-sections hinged together, the knuckles of the hinge being formed of elongated groups of laminations.

5. A transformer having a core in two sections, the sections having a hinged joint at one end and a butt-joint at the other, and means for clamping the sections together at the joints.

6. A magnetic core comprising sections of laminated material hinged together, the knuckles of the hinge connection being formed of elongated groups of laminations.

In witness whereof I have hereunto set my hand this 8th day of August, 1902.

AUGUSTINE R. EVEREST.

Witnesses:
DUGALD MCK. MCKILLOP,
JOHN A. MCMANUS.