No. 714,232. Patented Nov. 25, 1902.

F. PICHLER.

TRANSFORMER, INDUCTOR, &c.

(Application filed Oct. 23, 1901.)

(No Model.)

Fig. 1.

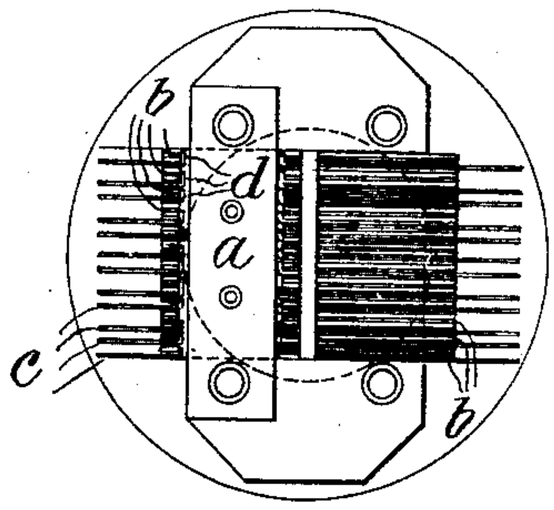


Fig. 2.

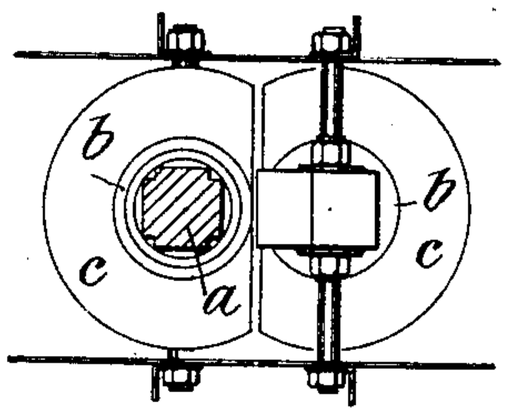


Fig. 3.

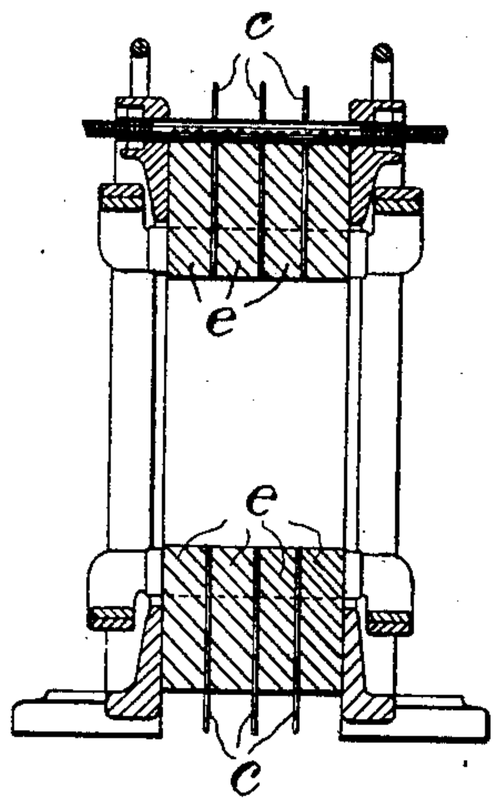


Fig. 4.

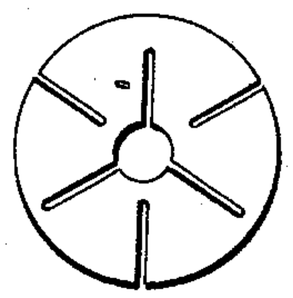
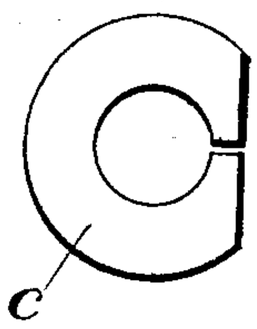


Fig. 5.



Witnesses.
Hans Brenner
Willi Kasper.

Inventor.
Franz Pichler.
per Gerson & Sachse
his Attorneys.

UNITED STATES PATENT OFFICE.

FRANZ PICHLER, OF WEIZ, NEAR GRAZ, AUSTRIA-HUNGARY.

TRANSFORMER, INDUCTOR, &c.

SPECIFICATION forming part of Letters Patent No. 714,232, dated November 25, 1902.

Application filed October 23, 1901. Serial No. 79,743. (No model.)

To all whom it may concern:

Be it known that I, FRANZ PICHLER, a subject of the Emperor of Austria-Hungary, and a resident of Weiz, near Graz, Austria-Hungary, have invented certain new and useful Improvements in Transformers, Inductors, and the Like, of which the following is a specification.

It is well known that the expense of material for alternating and rotatory current transformers for the armatures and inductors of dynamos and electric motors and the like immediately depends on the allowable heating thereof. This expense may be diminished according to the degree of cooling obtained in the said apparatus. Mechanical ventilators as applied to large dynamo-armatures and alternating-current transformers for the purpose of saving material may not be used with advantage for small transformers and inductors, as such an arrangement would be too expensive. It is therefore with the object in view of making possible such a cooling in a simple and effective manner that I have invented certain improvements in the construction of transformers, inductors, and the like apparatus.

My improvements essentially consist in constructing the coils of the transformers, &c., of a plurality of parts, which are separated by plates of any heat-conducting material inserted therebetween and extending beyond the outer circumference of the metal sheet packets or coils. The said plates form a considerable enlargement of the outer cooling-surfaces and produce a similar effect as the ribs formed on heating apparatus.

The accompanying drawings illustrate my invention.

Figure 1 shows, half in elevation and half in section, a single-phase alternating-current transformer with my improvement. Fig. 2 is half a plan view and half a cross-section of Fig. 1. Fig. 3 shows a multiphase motor in vertical section, which is likewise provided with the said cooling arrangement. Figs. 4 and 5 are plan views of two different forms of the radiating-plates.

The core *a* is surrounded by the coil, which is constructed of a plurality of coil parts *b*, which are separated by plates *c*, of some heat-conducting material, inserted between said coil parts *b* and extending beyond the circumference of the said coil. For preventing whirl-currents the plates *c* may be radially slotted, as shown in Fig. 3, or may consist of two different parts, as shown in Figs. 2 and 4. For transformers in which heating will occur within the core the said cooling-plates *c* may be bent up with their inner edge, so as to form a flange *d* adjacent to the core *a*, which flanges will afford means for conducting the heat from the core to the cooling-surfaces of the said plates. By this manner of construction the heat needs not to penetrate the coil.

In Fig. 3 the inductor is formed by a plurality of metal sheet packets *e*, between which packets the cooling-plates *c* are inserted.

Having now described my invention, I claim—

1. In a transformer or like apparatus, the combination of a core, a coil surrounding the same, and heat-radiating plates inserted between the turns of said coil, and surrounding the core, said plates being radially slotted whereby to prevent the circulation of eddy-currents.

2. In a transformer or like apparatus, the combination of a core, a coil surrounding the same, heat-radiating plates inserted between the turns of said coil, and surrounding the core, said plates being radially slotted whereby to prevent the circulation of eddy-currents, and flanges formed on the inner edges of said plates and lying between said core and coil.

3. In an improvement in transformers and inductors generally, the combination of a core, a plurality of coil parts surrounding said core, plates inserted between said coil parts and extending beyond the coil and flanges on the inner edge of said plates adjacent to said core, substantially as described.

4. A transformer comprising a closed magnetic core of oblong rectangular form, wire induction-coils wound on the opposite limbs thereof, and a series of circular radiating-plates inserted between the turns of said coils and extending beyond the latter, there being a segment cut from each plate on the inner side opposite the opposing plate and the plates being each radially slotted, substantially as described.

FRANZ PICHLER.

Witnesses:
JEAN GILBERT,
PAUL BLOY.