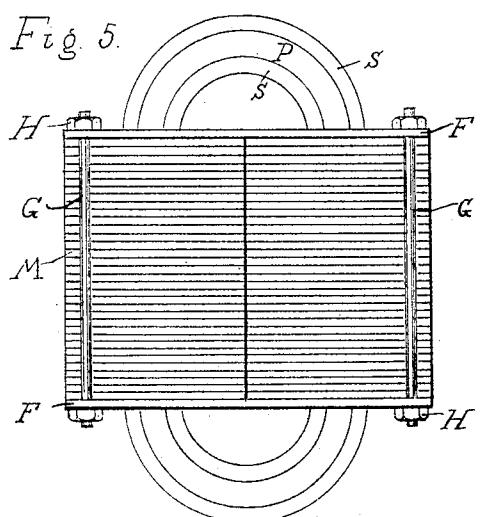
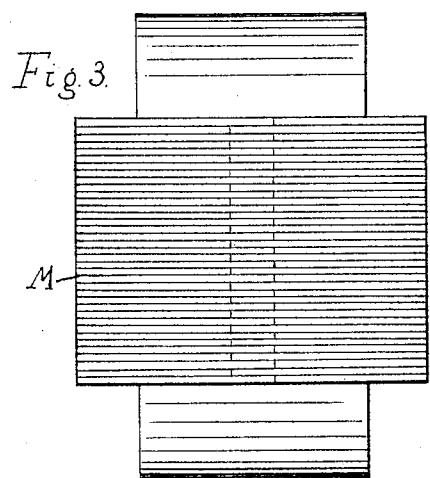
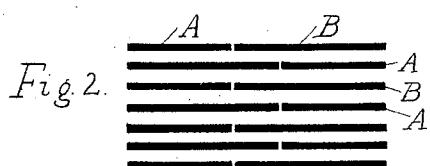
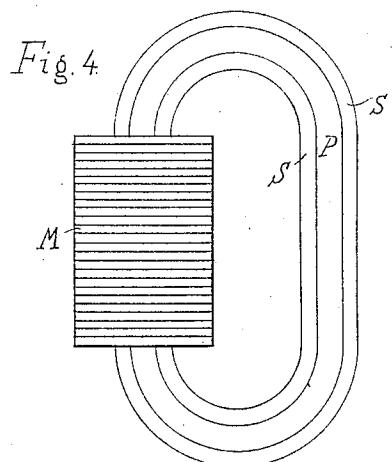
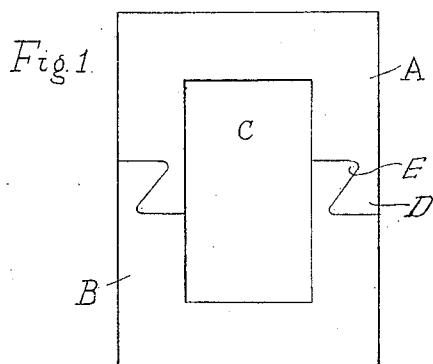


(No Model.)

L. GUTMANN.  
ELECTRIC TRANSFORMER.

No. 577,742.

Patented Feb. 23, 1897.



Witnesses:

G. G. Gutmann  
Godfrey Gutmann

Inventor:

Ludwig Gutmann

# UNITED STATES PATENT OFFICE.

LUDWIG GUTMANN, OF PEORIA, ILLINOIS.

## ELECTRIC TRANSFORMER.

SPECIFICATION forming part of Letters Patent No. 577,742, dated February 23, 1897.

Application filed April 25, 1896. Serial No. 589,046. (No model.)

*To all whom it may concern:*

Be it known that I, LUDWIG GUTMANN, a citizen of the United States, and a resident of the city of Peoria, county of Peoria, and State 5 of Illinois, have invented new and useful Improvements in Electric Transformers, (Case No. 86,) of which the following is a specification.

This electric transformer belongs to the 10 class of stationary apparatus adapted to operate translating devices by means of alternating, pulsating, or intermittent electric currents at the same pressure as the source to which it is connected, or at a higher or lower 15 pressure, as may be required.

The invention consists, in particular, in a subdivided elemental plate which is economical to build and operate.

The invention is explained with reference 20 to the accompanying drawings, in which—

Figure 1 shows one of the preferred elemental plates; Fig. 2, an exaggerated view of the breaking of joints of superposed layers; Fig. 3, a transformer in diagram, showing the 25 coil in position; Fig. 4, a transformer of the core type, and Fig. 5 one of the shell type.

Referring now in particular to Fig. 1, the elemental-plate consists of two **U**-shaped pieces A B, which form a closed magnetic circuit.

30 The inner space C is required for placing of the transformer-coils. To insure good metallic connection, the ends are not straight, but provided with a projection D and a recess E. This arrangement has the additional advantage of procuring mechanical firmness of 35 the structure, as neither axial nor lateral separation of the two plates is possible. To separate these plates, they have to be brought into different parallel planes to free the recesses from the projections. In this instance 40 the parts A B are shown of equal length, but it is evident that either the one or the other may be longer.

To insure proper construction of the core 45 and reduction in core losses, it is essential that each elemental-plate A B should be mechanically separate from the adjacent layers. For this purpose the interlocking has been so arranged that by simply reversing the plates 50 the projection of the upper layer breaks joint with the lower one. To obtain this result for parts A B of equal length, as shown in Fig. 1,

the outline of the projection D and recess E has been given the form of the letter **Z**.

It may be convenient to mention here that 55 the form of the projection and recess can be modified in a variety of ways without departing from the nature of the invention. For instance, if instead of straight lines curved ones were used the letter **Z** would be changed 60 into letter **S**.

Fig. 2 shows in an exaggerated state the overlapping of the projections D and the consequent breaking of joints of superimposed 65 layers.

Fig. 3 shows in an exaggerated state such a core construction in combination with the transformer-coil.

Fig. 4 shows in a diagram form the application of the iron plates in a core-transformer. 70 The core M is shown to surround the primary coil P and the secondary coils S.

Fig. 5 shows the same for the shell-transformer, provided with end plates F, bolts G, and nuts H for rigidly securing the laminae to 75 a compact mass M, which forms two separate cores around the winding or windings P S.

While in the claims the butt-joint of **Z** form is claimed, I do not wish it to be understood as a limitation, but to comprise the **S** 80 or similar form of joint.

Having now fully described my invention, what I claim, and wish to secure by Letters Patent, is—

1. In a magnetic core for electric transformers, the combination of two **U**-shaped plates adapted to interlock with one another, in such a manner, as to be inseparable in any direction other than vertical to the plane of the plates. 85

2. In an electric-transformer element, the combination of two **U**-shaped pieces of magnetic material, whose butting joints form the letter **Z**, as and for the purpose described. 90

3. In an electric-transformer element the combination of two plates each provided with a recess and two extending arms caused by said recess; and a projection and a recess upon the extremity of said arms, of such form that the projection of one plate may lodge in 100 the recess of the other plate, as and for the purpose described.

4. In a magnetic-core element for an electric transformer the combination of a plate

provided with a recess; two arms or extensions caused by said recess, and dovetail-shaped projections forming the extreme ends of said extensions, as and for the purpose described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 23d day of April, 1896.

LUDWIG GUTMANN.

Witnesses:

G. G. LUTHY,  
DAVID ROSS.