(No Model.)

L. GUTMANN.

ELECTRIC CONVERTER.

No. 397,461. Patented Feb. 5, 1889.

Fig 1

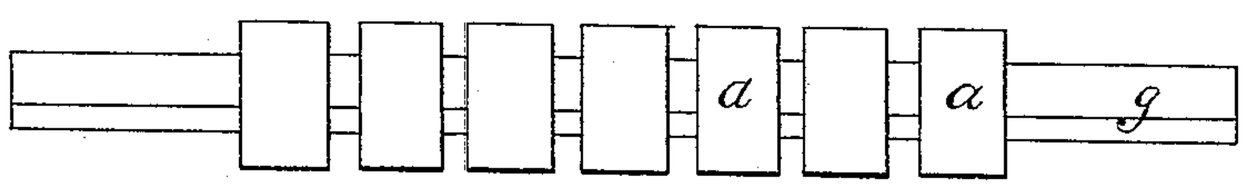


Fig 2

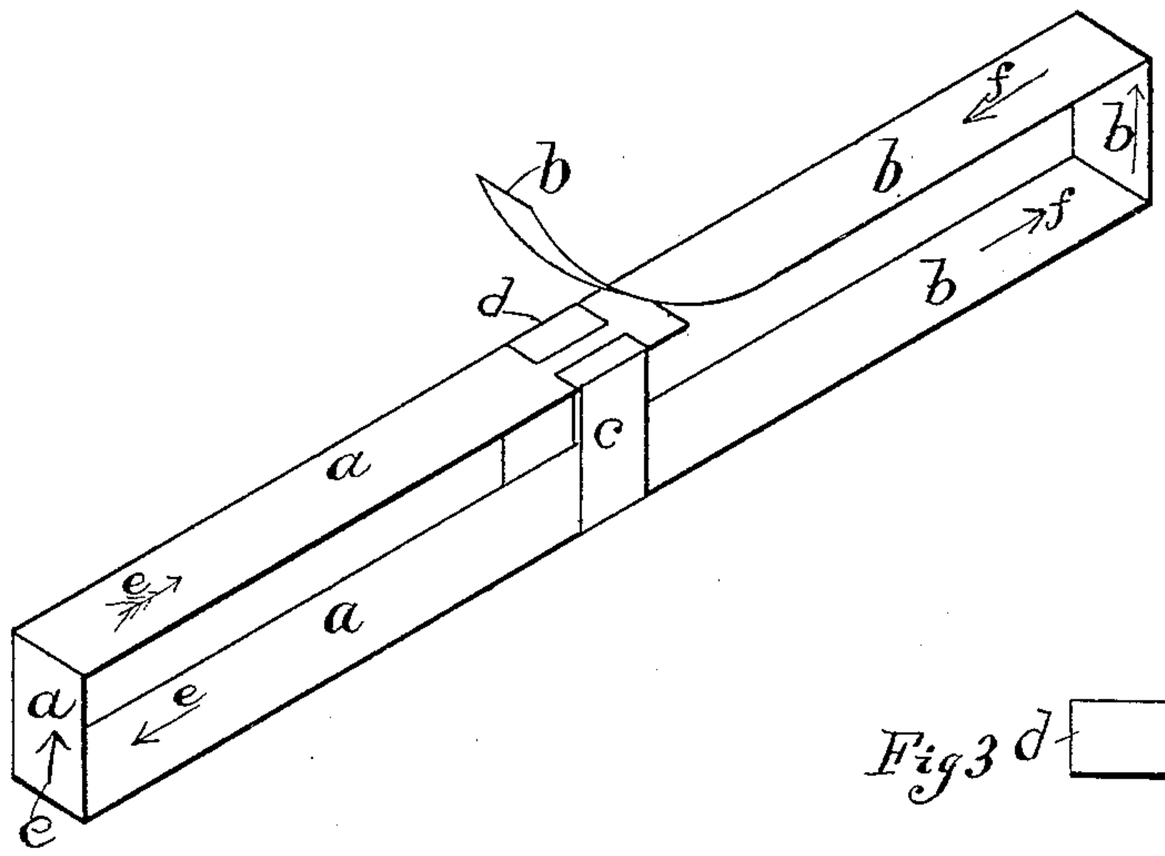


Fig 3

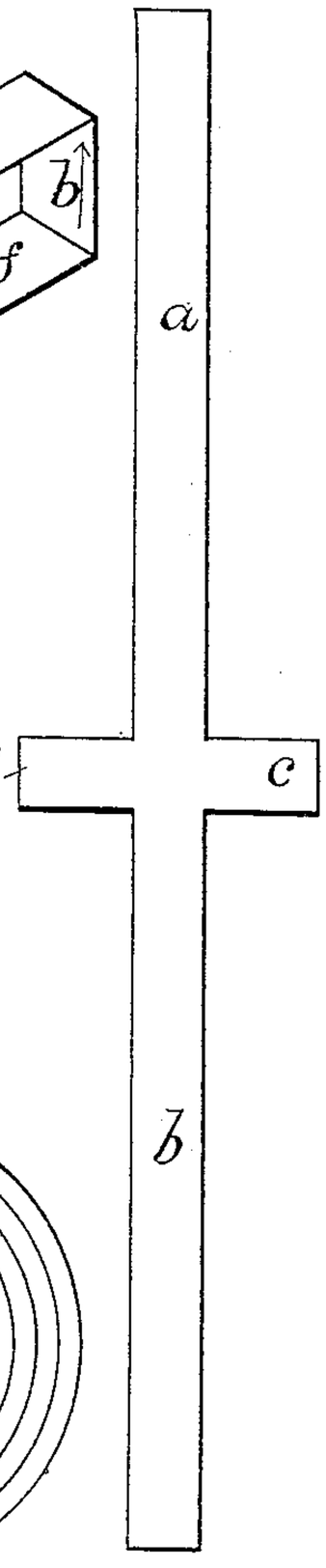
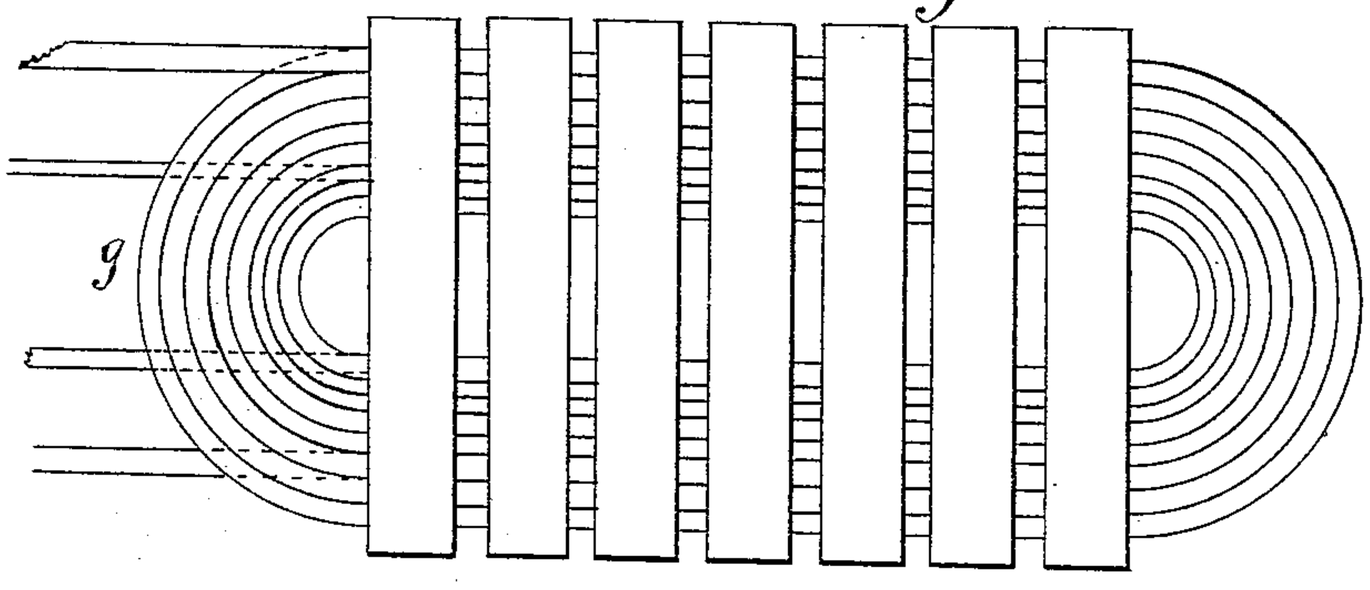


Fig 4



ATTEST,

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LUDWIG GUTMANN, OF FORT WAYNE, INDIANA.

ELECTRIC CONVERTER.

SPECIFICATION forming part of Letters Patent No. 397,461, dated February 5, 1889.

Application filed May 16, 1888. Serial No. 274,029. (No model.) Patented in England June 24, 1886, No. 8,338.

To all whom it may concern:

Be it known that I, LUDWIG GUTMANN, a subject of the Queen of Great Britain, and a resident of Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Electric Converters, (for which I have obtained a patent in England, June 24, 1886, No. 8,338,) of which the following is a specification.

My invention relates to the mechanical construction of an electric converter for converting an electric current of a given electro-motive force to that of another.

The object of the invention is to increase the rapidity with which the elements of the core may be manufactured.

The invention is described by reference to the accompanying drawings.

Figure 1 is a side view of the complete converter. Fig. 2 is a three-sided view of the element of the core, with a portion of the same turned upward, so as to better exhibit the construction. Fig. 3 is a view of the iron strip in the form of a cross, from which the element is built up by bending; and Fig. 4 is a top view of the converter, it being a view at right angles of Fig. 1.

Fig. 3 shows a strip of iron plate or sheet having two long arms, *a* and *b*, and two short arms, *c* and *d*, each pair being preferably of equal length as to its members. In Fig. 2 this strip is shown on a larger scale constructed into the element of a core. Before being so constructed several plates of iron, exactly as shown in Fig. 3, may be laid on top of each other and separated from each other by suitable insulation. The said element consists of a cross-shaped piece of sheet-iron having two pairs of arms, the arms of one pair being longer than those of the other pair. The longer pair of arms is bent so as to form a rectangular figure, the ends of the arms overlapping above the central portion of the cross-shaped piece of sheet-iron. The shorter arms are also bent into a rectangle in such a manner that they do not overlap each other, but so that their ends are bent over and upon one end of one of the longer arms, and so that the other longer arm lies upon the ends of the shorter arms. It is thus apparent that from one piece of sheet-iron two rectangular figures are obtained at right angles to each other, and that two paths are formed for the magnetic current—the one indicated by the arrows *e* and the other by the arrows *f*. Before the arms *c* and *d* are bent into their proper position the converter-coil *g* is inserted into the rectangular figure formed by the bent arms *a* and *b*. The shorter arms, *c* and *d*, are then bent into their proper position.

I claim as my invention—

1. An electric converter in which the iron core is made of superposed iron cross-shaped sheets whose arms are bent into two rectangular figures at right angles to each other, and the ends of whose arms all lie in the same or substantially same plane and in contact with one another.

2. An electric converter in which the iron core is made of superposed cross-shaped sheets of iron whose ends are brought into metallic contact with one another, the several sheets being insulated from one another.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 5th day of May, 1888.

LUDWIG GUTMANN.

Witnesses:
DANL. RYAN,
PHILLIP L. SKELLEY.