

(No Model.)

C. L. COFFIN.

ELECTRICAL TRANSFORMER OR CONVERTER.

No. 512,603.

Patented Jan. 9, 1894.

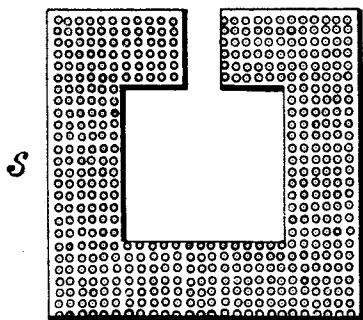


Fig. 1.

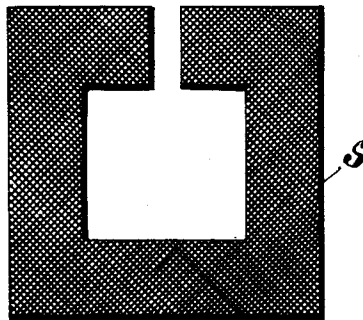


Fig. 2.

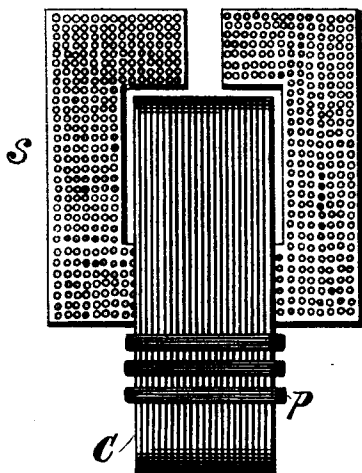


Fig. 3.

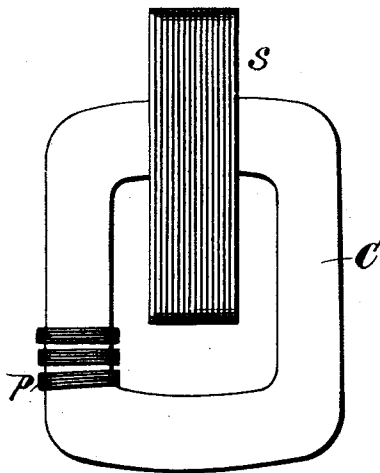


Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES L. COFFIN, OF DETROIT, MICHIGAN.

ELECTRICAL TRANSFORMER OR CONVERTER.

SPECIFICATION forming part of Letters Patent No. 512,603, dated January 9, 1894.

Application filed December 11, 1891. Serial No. 414,715. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. COFFIN, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful
5 Improvement in Transformers or Converters, of which the following is a specification.

My invention consists in an improvement in transformers or converters for electric currents, hereinafter fully described and claimed.

10 Figures 1 and 2 are side elevations of the secondary of a transformer. Fig. 3 is an elevation of the transformer showing the core and a portion of the primary. Fig. 4 is an elevation at right angles to Fig. 3.

15 Electrical machines for the purpose of converting a current of high voltage and low ampèreage into a current of low voltage and high ampèreage, or vice versa, are well known in the art, and are called transformers or converters.
20 I therefore deem a detailed description of the construction and operation of such machines unnecessary, as their general construction and operation will be readily understood by any electrician from the name.

25 In all the figures, S represents the secondary coil of a transformer, of which C is the core and P is the primary coil.

In using transformers to carry heavy currents, especially for electric welding, great dif-

ficulty is experienced in the heating of the 30 secondary coil. I obviate this heating, and keep the secondary cool in use by making it perforated. As shown in Fig. 1, the secondary consists of a metal blank, preferably copper, perforated with holes. The secondary may 35 either be a single large piece of metal, or may be made of a number of pieces of thin perforated metal placed together as shown in Fig. 4. Instead of using perforated metal, the secondary may be made of a number of blanks 40 of woven metal cloth as indicated in Fig. 2. The core may be of any known construction, and only a portion of the primary coil is indicated in the drawings, as this feature is well known. The effect of this ventilated second- 45 ary is not only to keep the secondary cool, but to keep down the temperature throughout the whole transformer, but it necessitates some increase in bulk in order to get the necessary cross-section in material. 50

What I claim as my invention, and desire to secure by Letters Patent, is—

In a transformer or converter a secondary formed of perforated metal.

CHARLES L. COFFIN.

Witnesses:

GERTRUDE H. ANDERSON,
GEO. H. LOTHROP.