

(No Model.)

G. PFANNKUCHE.
ELECTRIC CONVERTER.

No. 466,937.

Patented Jan. 12, 1892.

Fig. 1

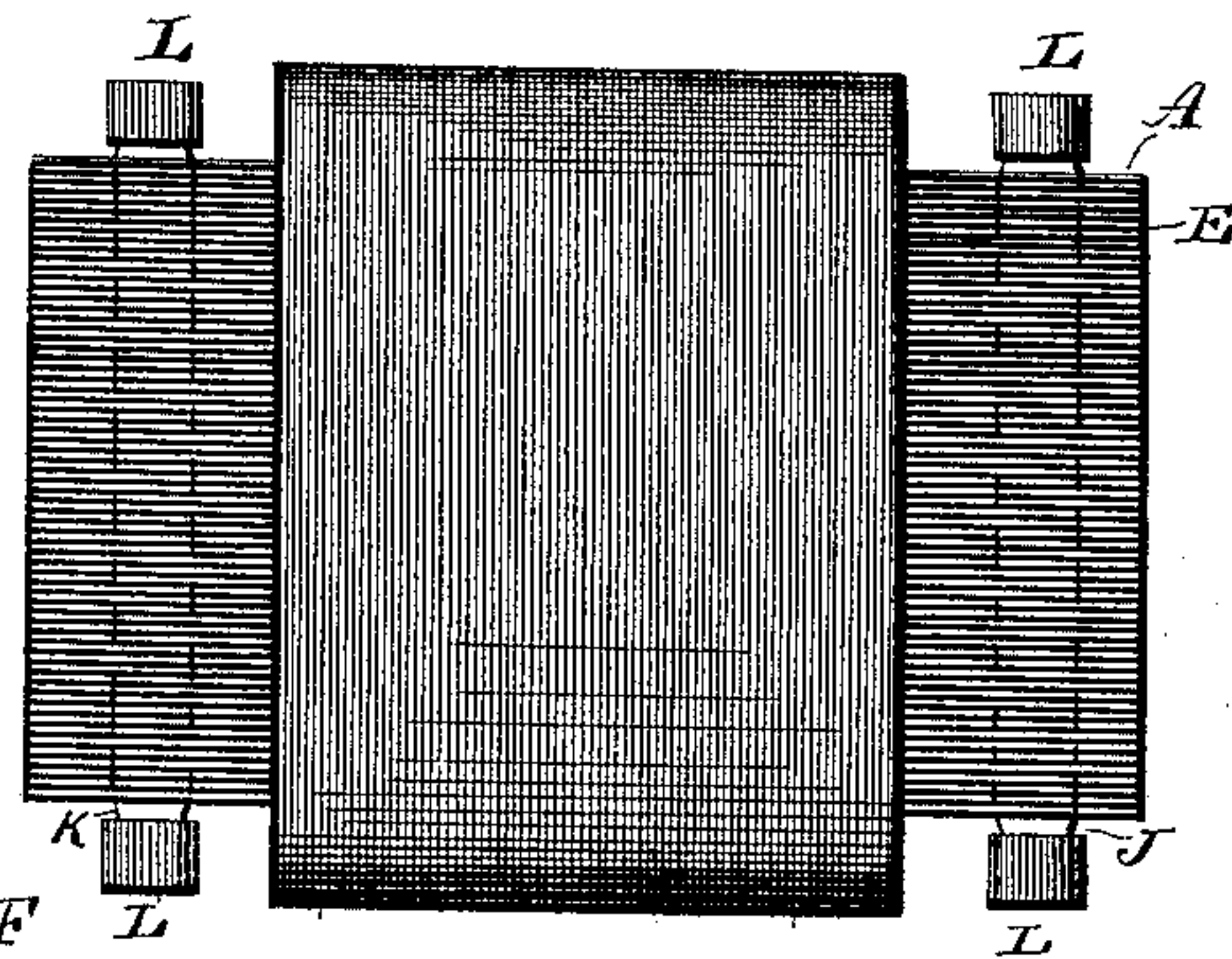
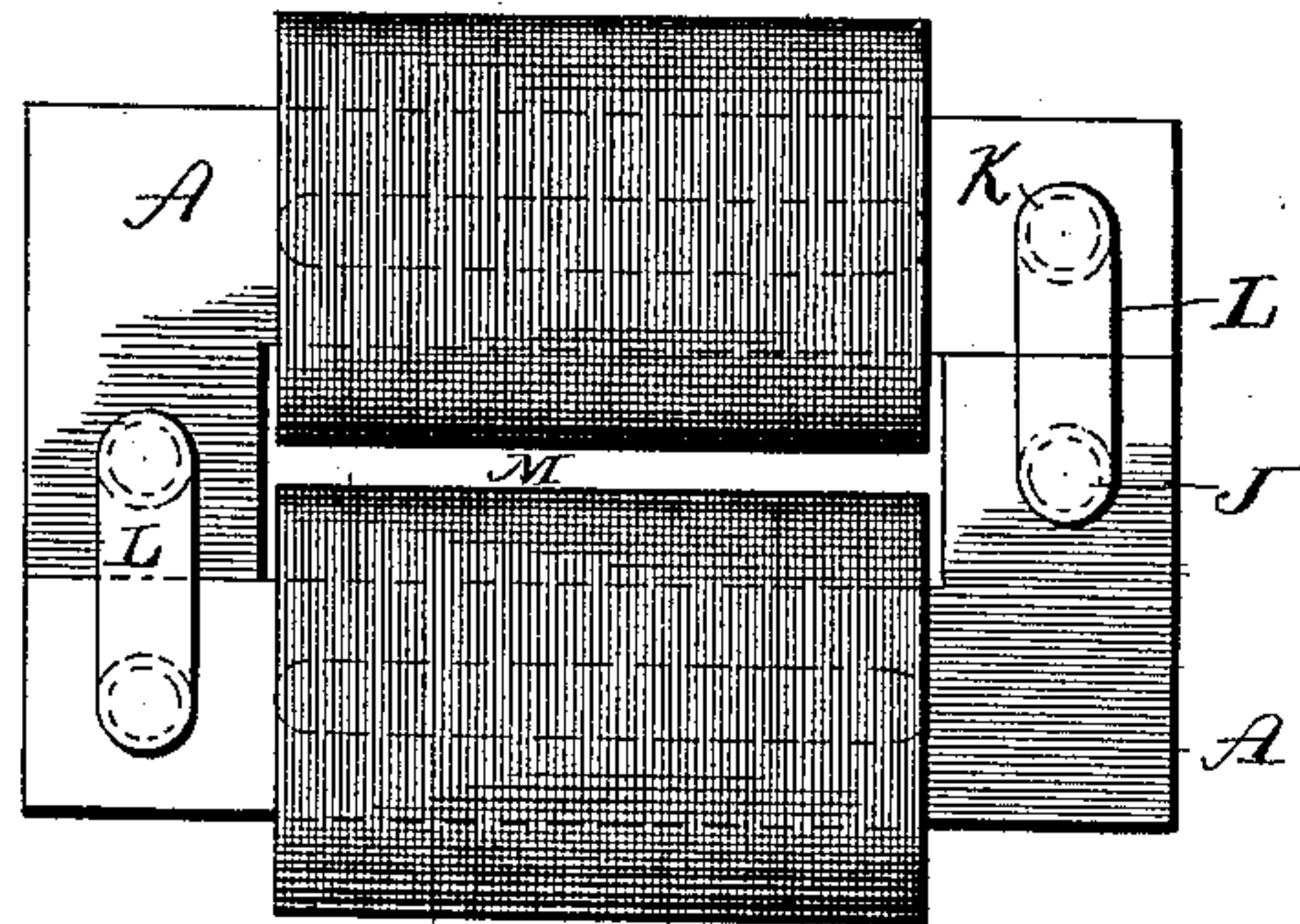


Fig. 2

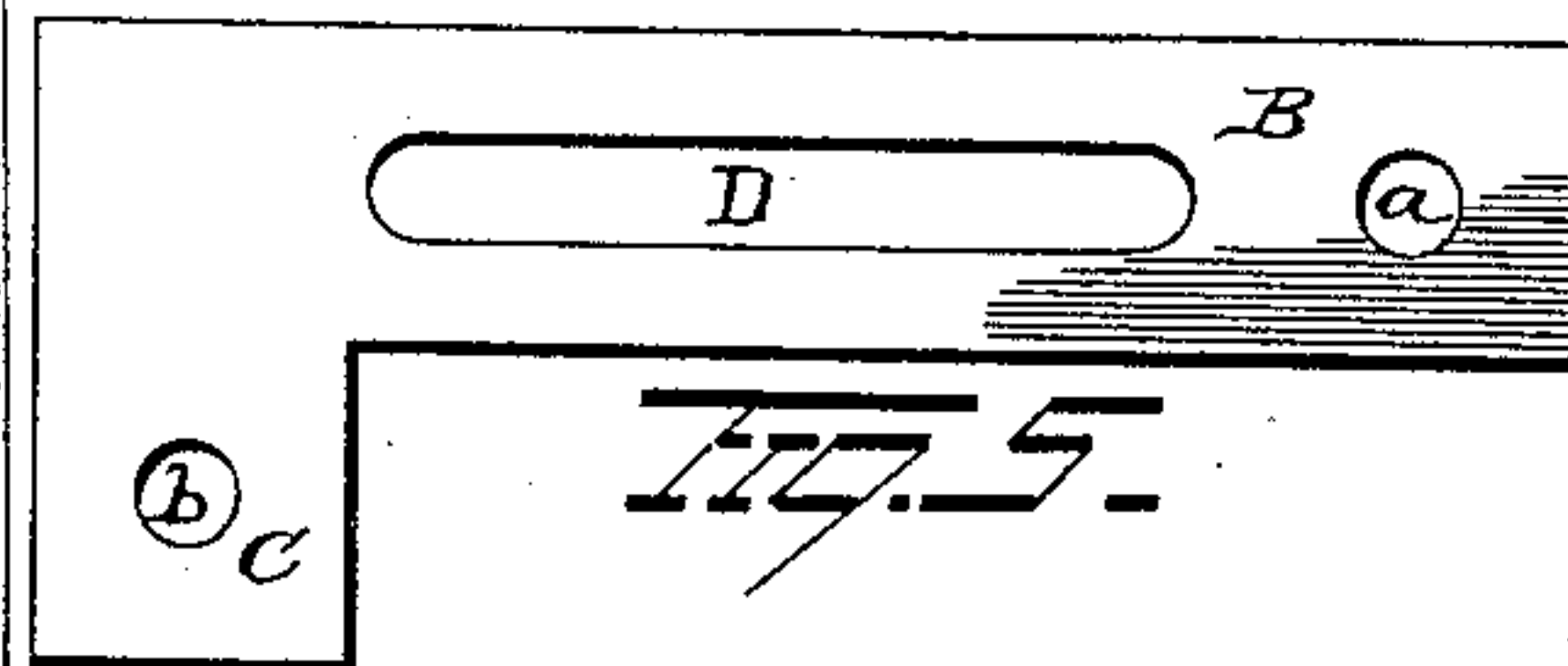
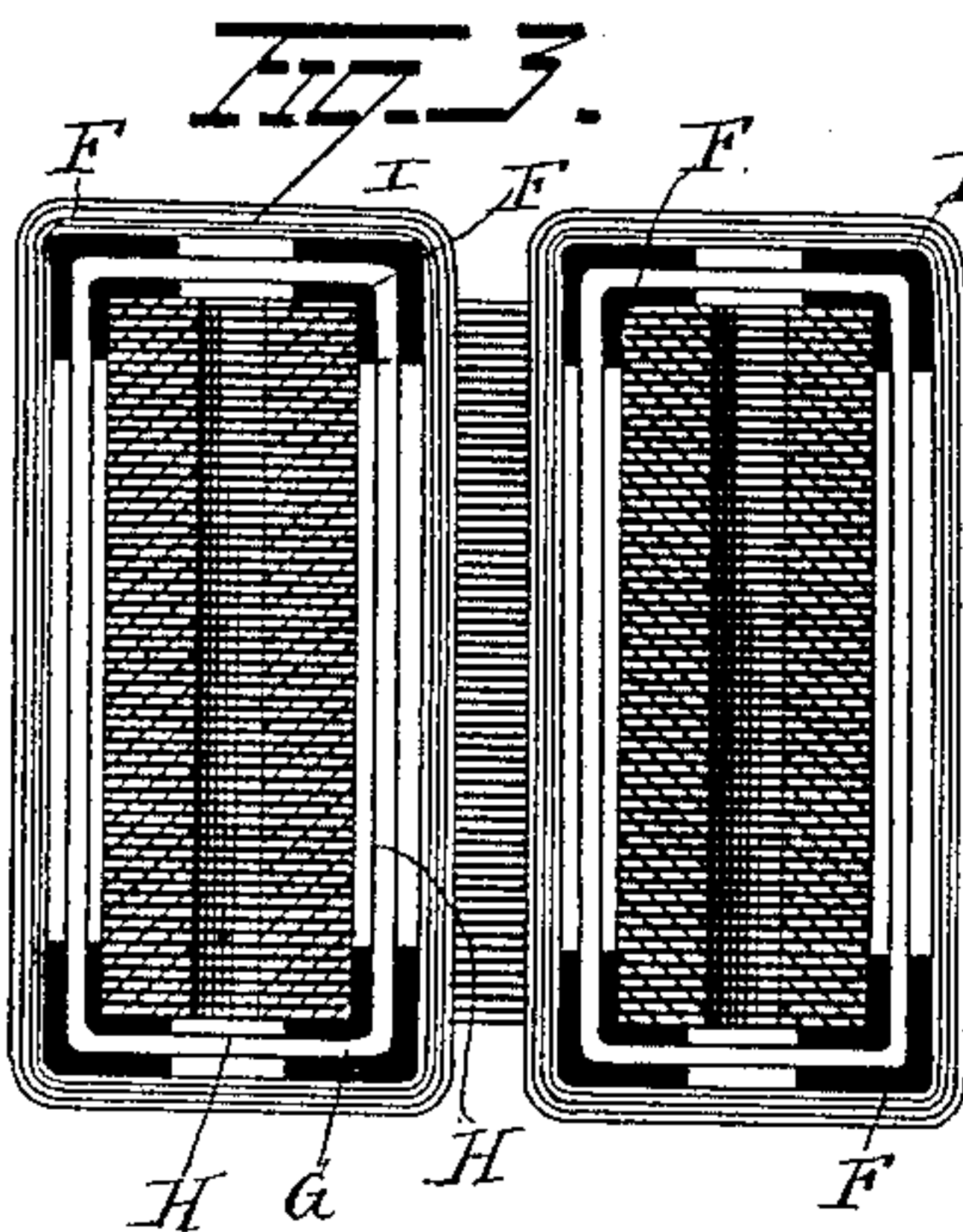


Fig. 4

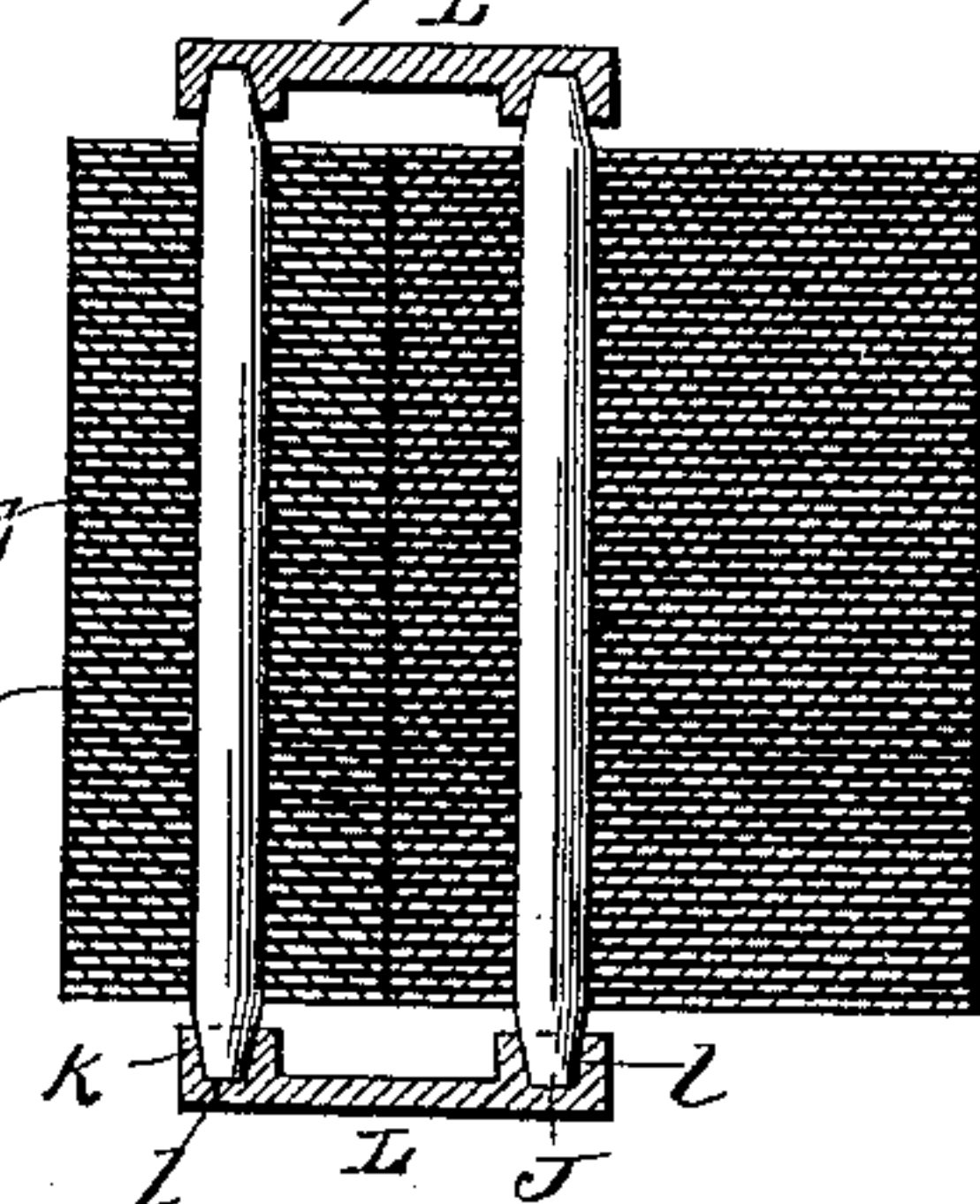
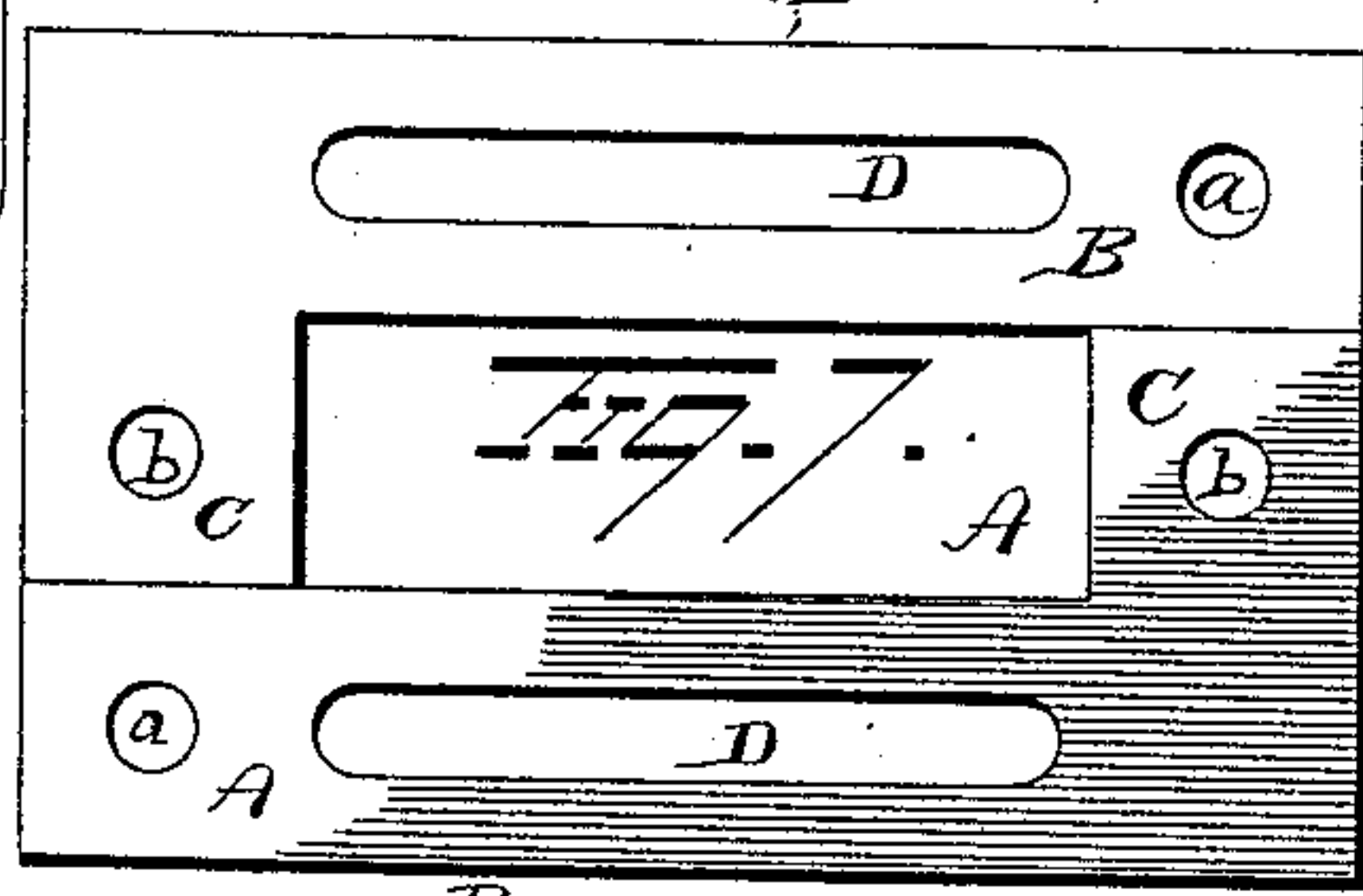


Fig. 6

Witnesses

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UNITED STATES PATENT OFFICE.

GUSTAV PFANNKUCHE, OF CLEVELAND, OHIO, ASSIGNOR TO THE BRUSH
ELECTRIC COMPANY, OF SAME PLACE.

ELECTRIC CONVERTER.

SPECIFICATION forming part of Letters Patent No. 466,937, dated January 12, 1892.

Application filed September 28, 1889. Serial No. 325,402. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV PFANNKUCHE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and
5 useful Improvements in Converters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 My invention relates to an improvement in converters; and it consists in certain features of construction and combinations of parts, as will be hereinafter explained, and pointed out in the claims.

15 In the accompanying drawings, Figure 1 is a plan view of my improvement. Fig. 2 is a view in side elevation. Fig. 3 is a vertical section. Fig. 4 is a vertical section taken through one end of the core, showing the
20 clamps for connecting together the two parts of the core. Fig. 5 is a plan of the blank from which the core-sections are punched. Fig. 6 is a plan view of one of the blanks, and Fig. 7 is a plan view of two blanks placed in
25 position to form the core.

In making a converter according to my invention I take a strip of thin plate-iron of the proper width and punch out two blanks A A, as illustrated in Figs. 5 and 6, each blank
30 consisting of a long arm B and short arm C. The ends of the long and short arms are each perforated at *a* and *b* for the passage of a wooden pin, while the long arms B are each provided with an elongated ventilating-slot
35 D. By forming the blanks from a strip, as shown in Fig. 6, there is no waste material produced in cutting or punching. The blanks are disposed in the manner shown in Fig. 7 and form a hollow rectangle.

40 The thin-iron plate-blanks may be varnished and any desired number formed into a pile, thin sheets of paper E being inserted between the blanks to insulate them from each other. After the two sections of the converter-core have been formed in the manner
45 described the primary and secondary coils are wound on each section in the following manner: A section of the core is placed in a lathe and corner-pads F, of vulcanized-fiber cotton

or other suitable material, are applied to the
50 corners of the core and the coarse wire G, forming the secondary coil, is wound upon the corner-pads, thereby forming ventilating-spaces H between the secondary coil and the
55 core. To the corners of the secondary coil are applied similar corner-pads F, upon which is wound the fine wire I, which constitutes the primary coil, and the ventilating-spaces
60 J, formed between the secondary and primary coils. The two sections of the core are then placed together in the manner illustrated in
Figs. 1 and 7 and are drawn into close and intimate contact with each other and secured
65 by means of the wooden pins K and J and German-silver draw-clamps L, the latter being constructed with conical sockets *l*, in which the conical ends of the wooden pins are wedged or otherwise secured.

The converter will be inserted into a suitable box, and in practice the pile of plates A
70 will be maintained in place by means of suitable rods passing over the ends of the plates at the top and bottom of the pile and secured at their ends to the sides of said box.

The central ventilating-space M of the core
75 and the ventilating-slots D formed in the arms of the core-sections insure a thorough ventilation of the core, while the ventilating-spaces formed between the secondary coil and core and between the primary and secondary
80 coils insure a thorough ventilation of all parts of the converter. By making the core in two sections, as described, I am enabled to wind the coils in a lathe instead of by hand, and as the primary coils are composed of very
85 fine wire a considerable saving in time and expense is effected by such construction. Again, in event one of the coils should burn out it may be readily removed and replaced
90 by a new one.

As many slight changes in the form of construction and arrangement of parts might be resorted to without departing from my invention, I would have it understood that I do not restrict myself to the particular form and
95 construction of parts shown and described; but

I claim—

1. In a converter, a core made of two piles of blanks, each blank consisting of a long and a short arm, and coils wound around the long arms of each set of blanks, substantially as set forth.

2. A converter-core made in two sections, each section consisting of a pile of insulated sheet-metal blanks formed with a long and a short arm, substantially as set forth.

3. A sectional core for converters, made of two piles of sheet-metal blanks, and pins and draw-clamps for securing the two sections together, substantially as set forth.

4. In a converter, the combination, with a core composed of sections, each formed of two arms disposed at right angles to each other, of primary and secondary coils disposed on

the longer and parallel arms of said sections, substantially as set forth.

5. In a converter, the combination, with a series of insulated sheet-metal sections, of coils wound on said core so as to have ventilating-spaces between them and the core and between each other, the plates comprising said core having slots therein to produce ventilating-spaces in the center of the coils, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GUSTAV PFANNKUCHE.

Witnesses:

JOHN C. DOLPH,
W. A. CALLANT.