

No. 883,311.

PATENTED MAR. 31, 1908.

K. A. F. HIORTH.
ELECTRICAL SMELTING FURNACE.
APPLICATION FILED NOV. 20, 1906.

Fig. 1.

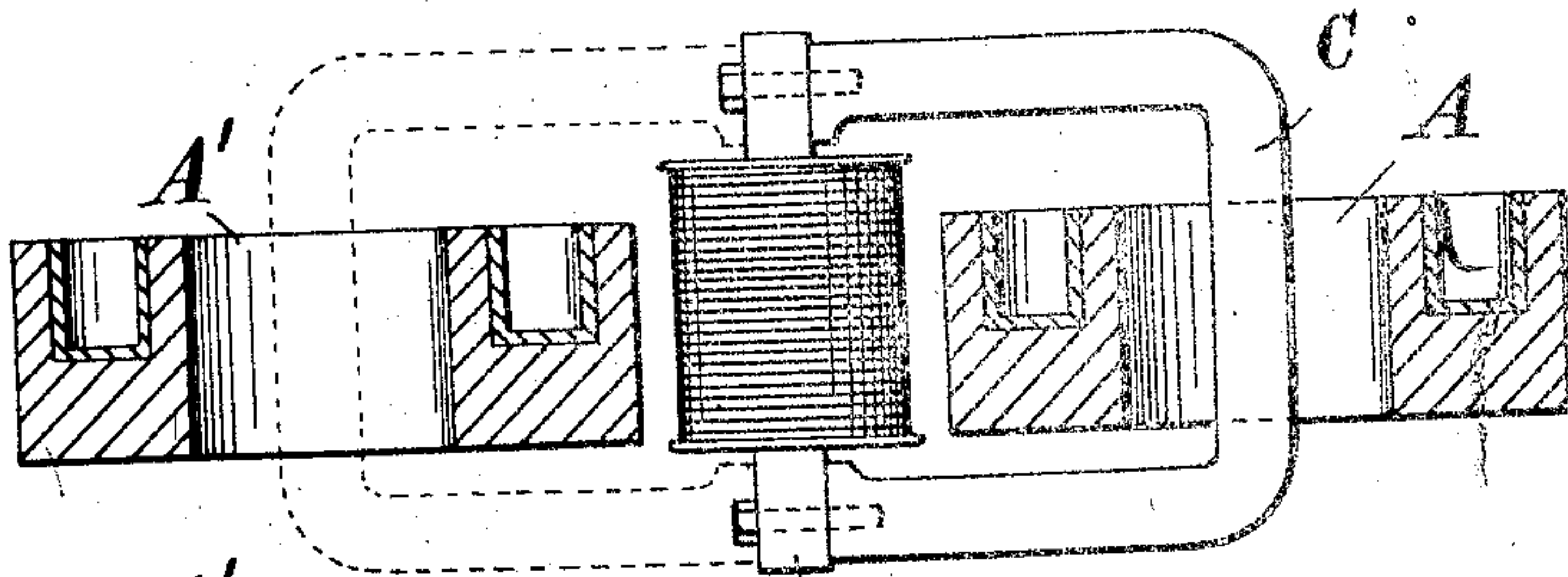


Fig. 2.

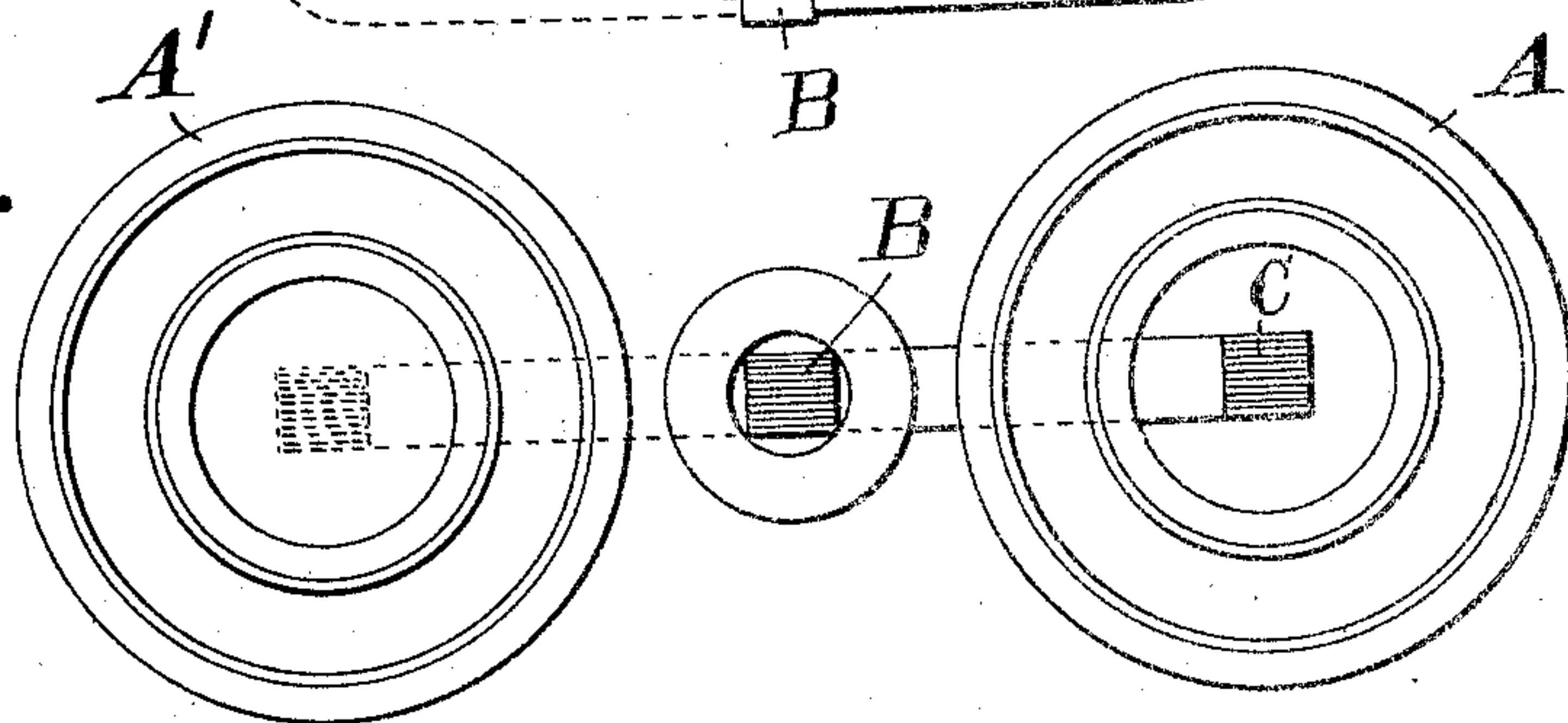


Fig. 3.

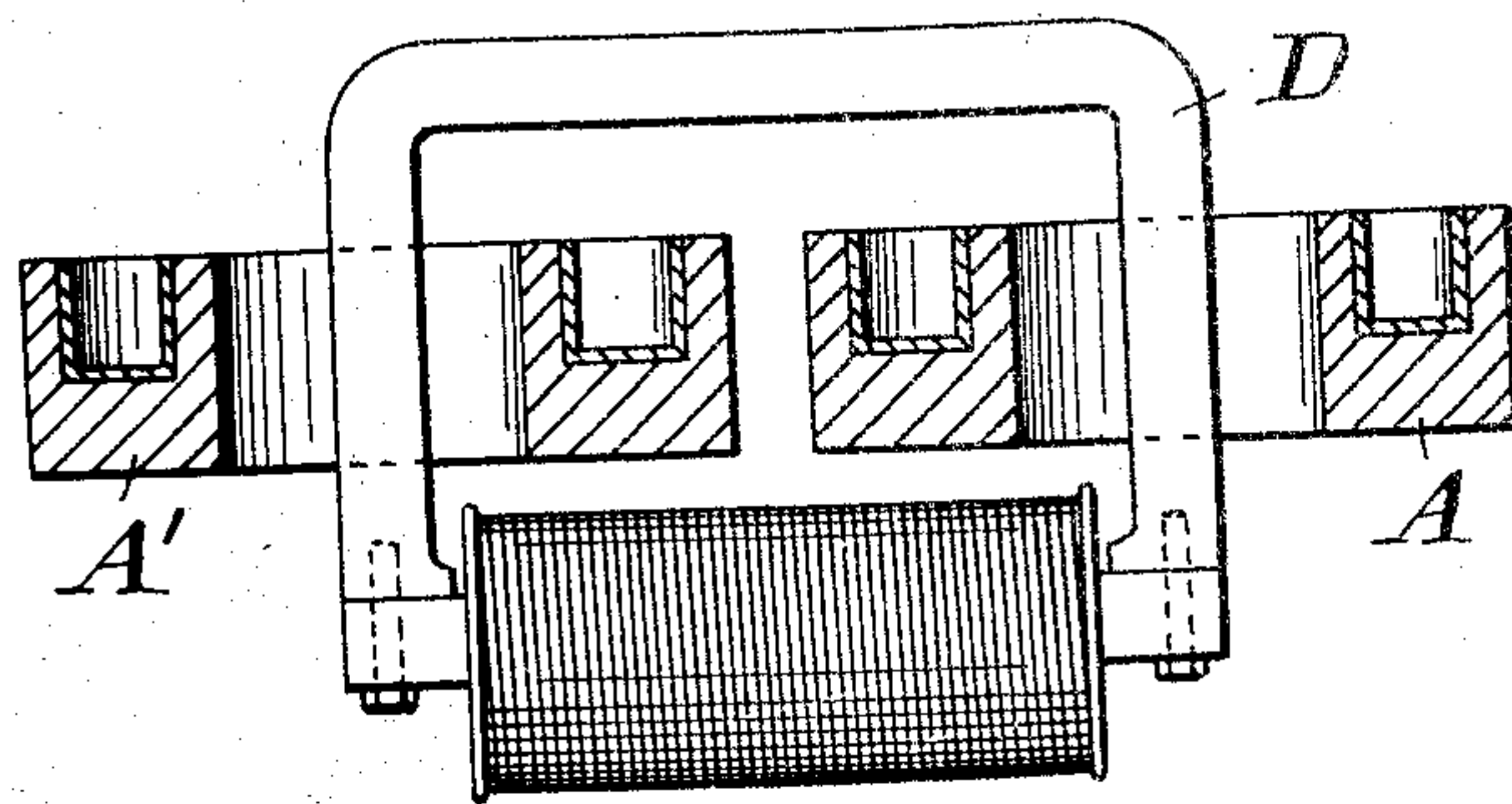
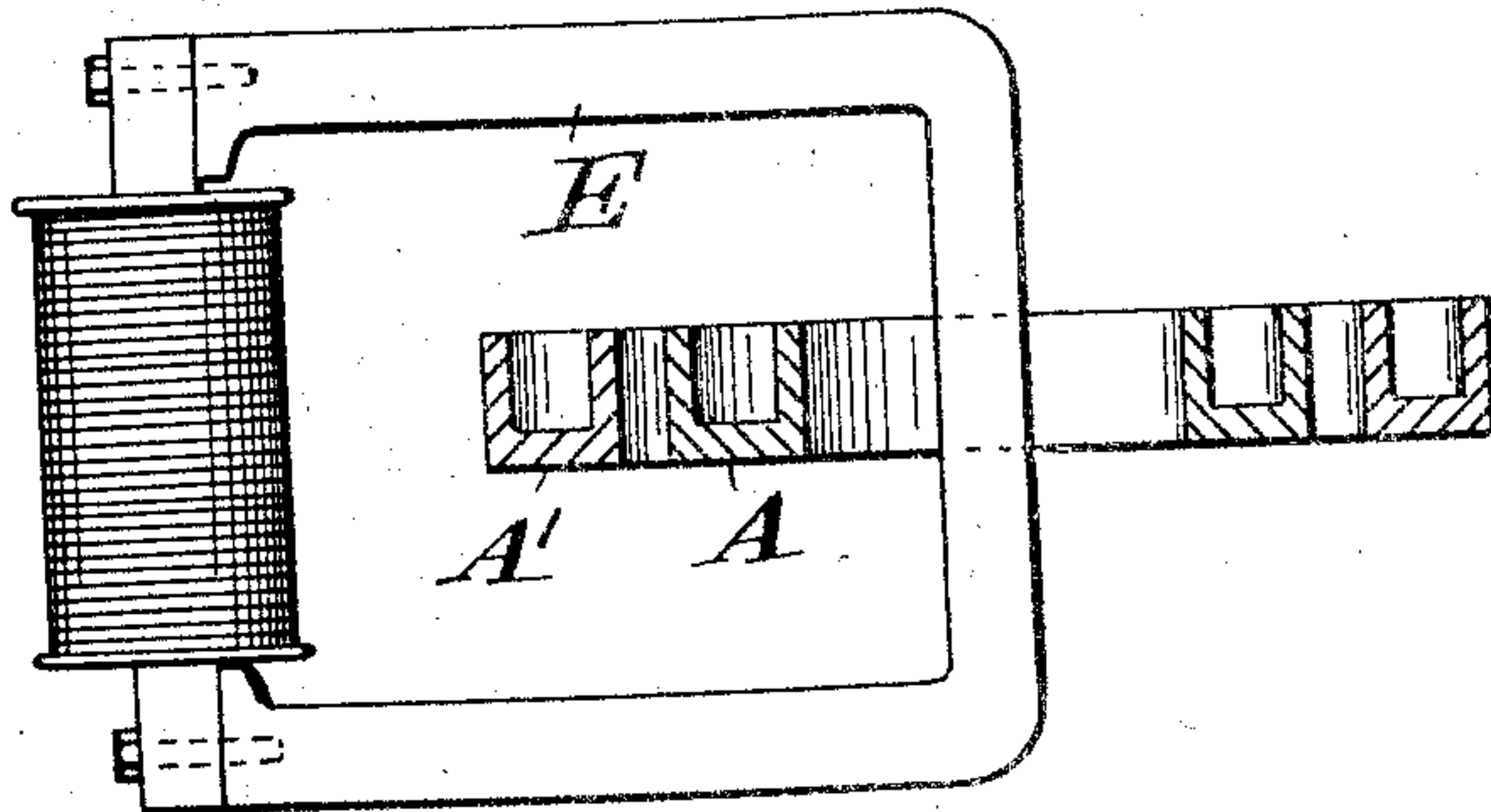


Fig. 4.



Witnesses

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ELECTRICAL SMELTING-FURNACE.

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Specification of Letters Patent.

Patented March 31, 1908

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To all whom it may concern:

Be it known that I, KARL ALBERT FREDRIK HIORTH, a subject of the King of Norway, residing at Christiania, Norway, have
5 invented certain new and useful Improvements in Electrical Smelting-Furnaces; 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
10 art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

15 My invention relates to electrical smelting furnaces with induction heating and has for its object an arrangement of such furnaces, designed to considerably increase their efficiency.

20 Referring to the accompanying drawing Figure 1 is a vertical section, Fig. 2 plan of a furnace embodying the present invention, and Figs. 3 and 4 are cross sections of furnaces showing modified arrangements.

25 My invention consists in so arranging the electrical induction device as to permit of alternatively or simultaneously using the same for two or more furnaces. As furnaces of this kind need frequent repairs and such repairs take considerable time, because the
30 lining must dry slowly, the induction device in furnaces as at present used will frequently remain out of operation for a considerable time, and this implies an increase of the
35 working expenses relatively to the output. In my invention this inconvenience is avoided by grouping two or more furnaces A, A' (Figs. 1 and 2) beside or around one common induction coil with core B. The magnet
40 yoke C is passed through the central aperture and detachably secured to the core B. When repairs are to be effected on the furnace A, the magnet yoke C may be lifted out of the same and placed in the furnace A',
45 where it may be secured to the opposite side of the core B in the position indicated in dotted lines.

Of course the furnace may be provided with as many yokes C as there are furnace-
50 rings A and all of them be connected with the core B. If one of the furnace rings is out of operation, the yoke belonging to this furnace may be disconnected from the core.

Where four furnaces are grouped around a
55 common induction coil instead of two, three

of them might be operated at a time, while the fourth one is being repaired.

In Fig. 3 I have shown a modification, where one common magnet hoop D is used for two furnaces A, A', in which case the in-
60 duction coil may be suitably arranged on the branch of the magnet hoop extending on the underside of the furnace. Also in this case the core with the induction coil may be detachably secured to the magnet yoke D so as
65 to be available for other furnaces.

In Fig. 4 I have shown an arrangement, in which the furnaces A, A' are placed as concentric rings, one inside the other, and having a common induction apparatus E. 70

An inconvenience, which is connected with the induction furnaces now in use but avoided in the present invention consists in the necessity of completely discharging the furnace at each renewal of the lining and of
75 introducing into the newly lined furnace, previously to resuming the operation, a cast iron wheel rim fitting into the interior space of the furnace so as to permit of its melting down. In furnaces arranged in conformity with the
80 present invention no such arrangement will be required, as the charge may be taken over directly from the furnace, whose lining is to be renewed, into the furnace ready for use for
85 further treatment; in this way the consumption of energy will also be reduced.

I claim.

1. The combination with a plurality of furnaces, a magnetic circuit common to all of them and a single magnetizing coil for said
90 circuit.

2. The combination with a plurality of concentric furnaces, of a magnet, its core and means to complete the magnetic circuit between the ends of the core and through the
95 furnaces.

3. The combination with a plurality of annular furnaces, of a magnet, its core and means to complete the magnetic circuit between the ends of the core, said means passing
100 through the centers of the annular furnaces.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two-subscribing witnesses.

KARL ALBERT FREDRIK HIORTH.

Witnesses:

THOS. HERN,
J. W. VAALER.