

No. 607,737.

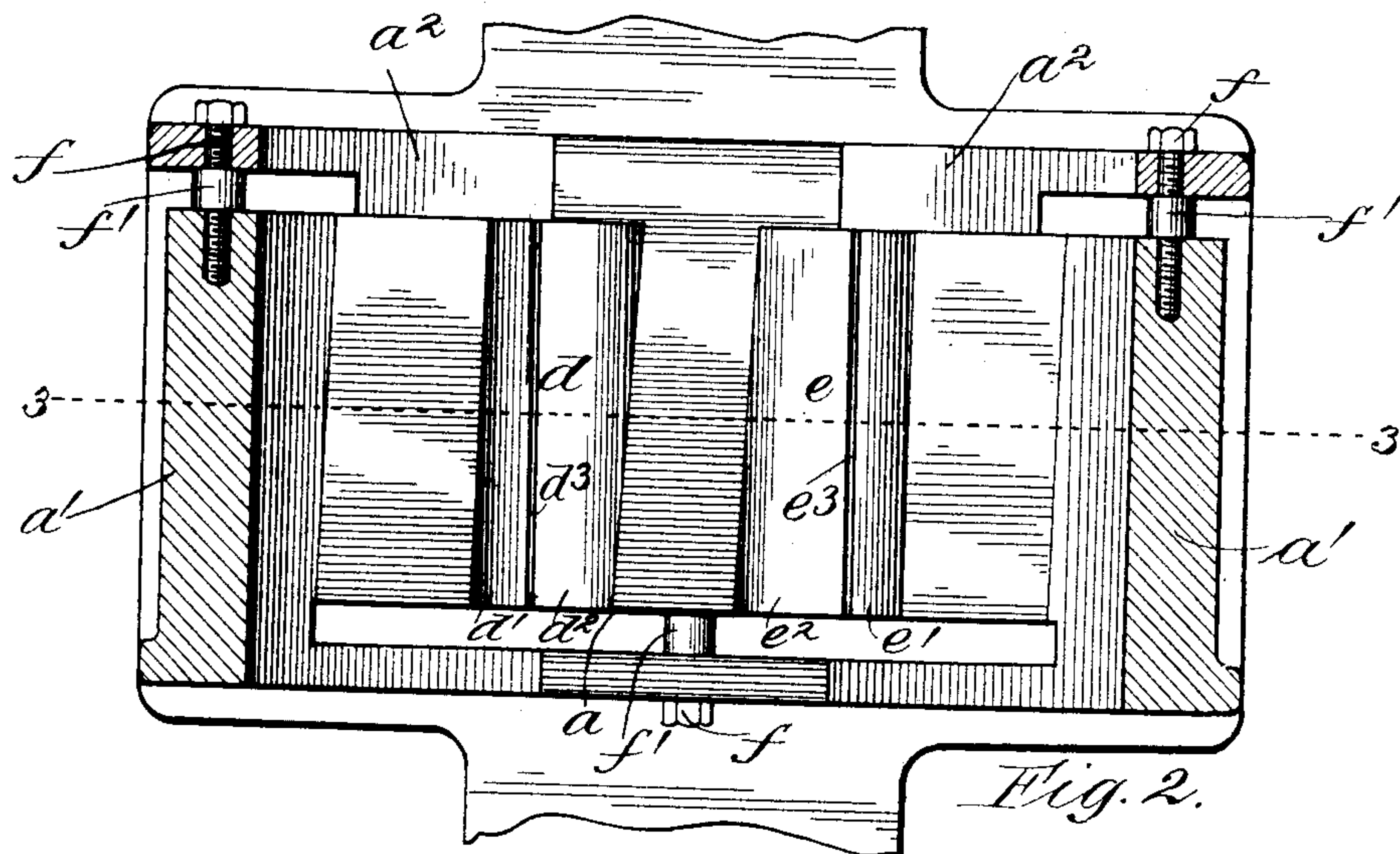
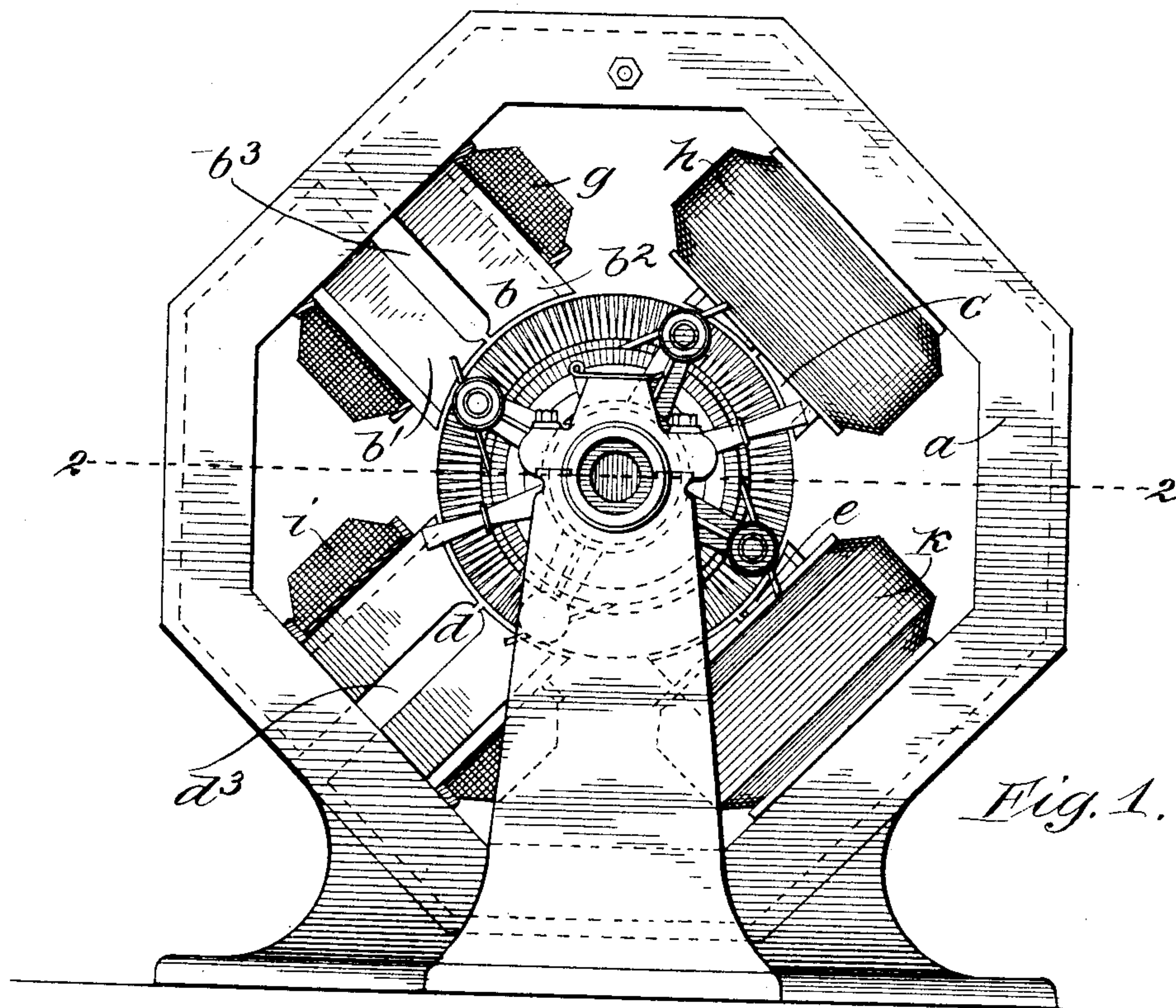
Patented July 19, 1898.

A. G. EIGNER.
DYNAMO ELECTRIC MACHINE.

(Application filed May 7, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

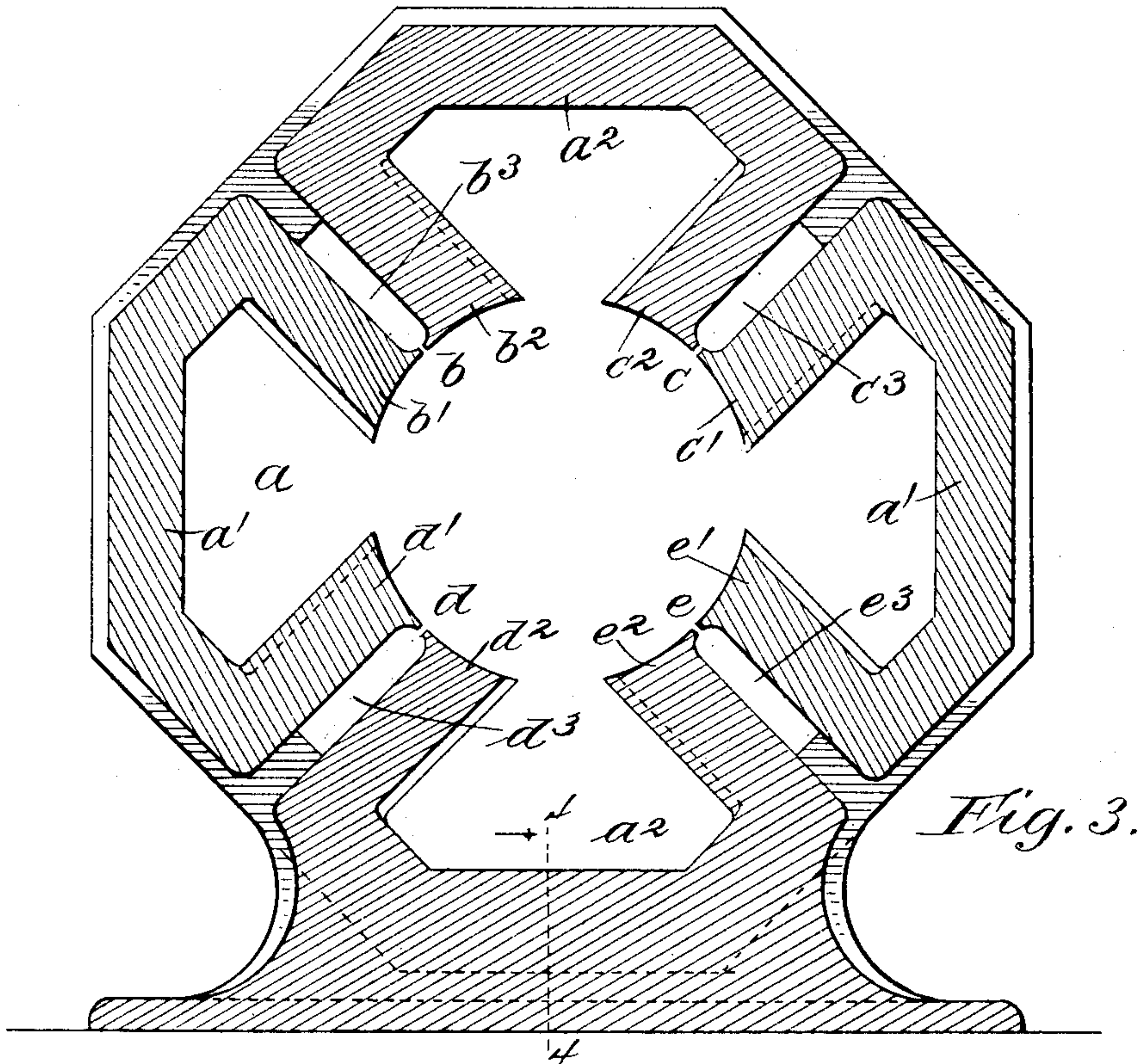


Fig. 3.

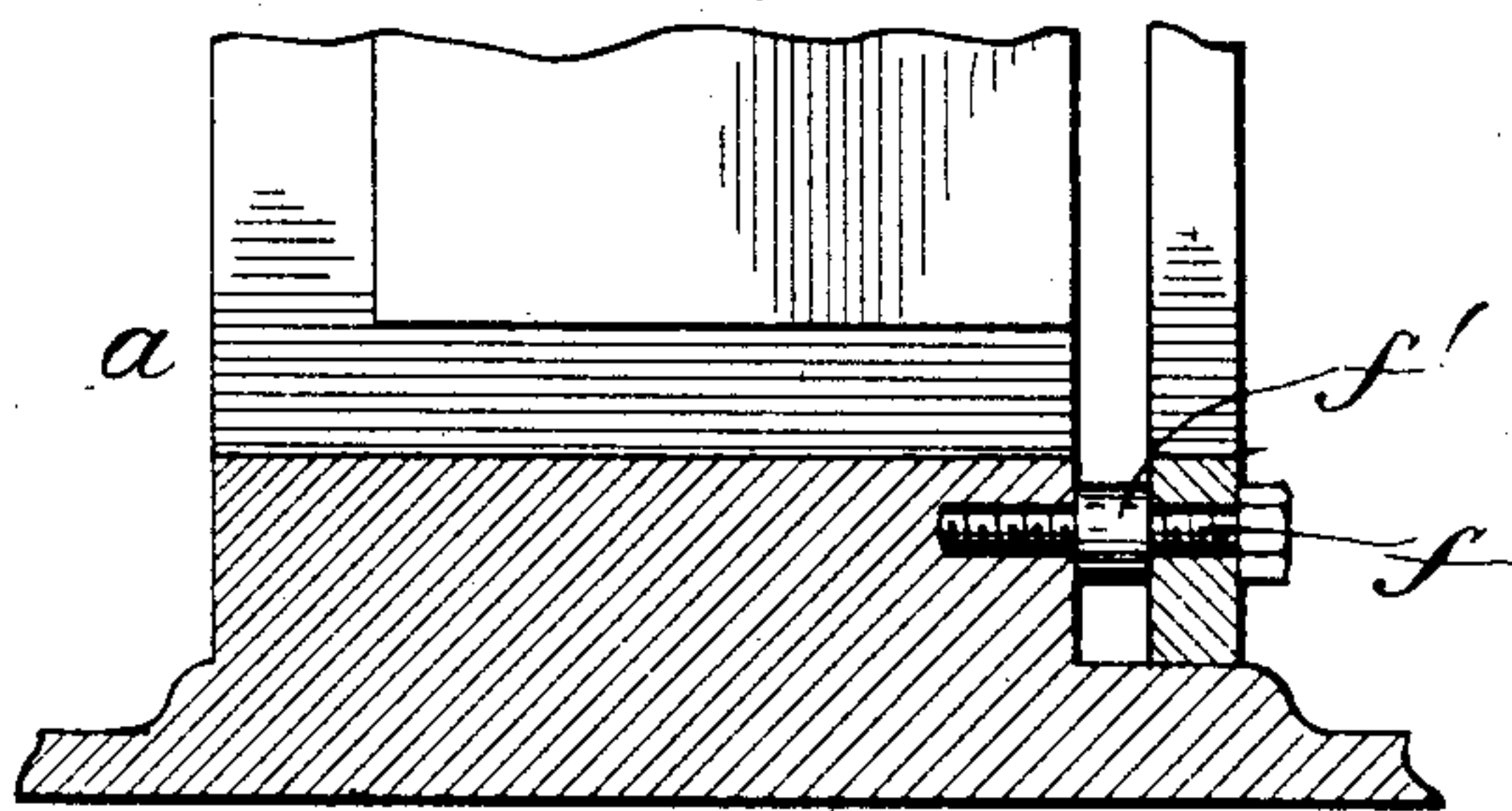


Fig. 4.

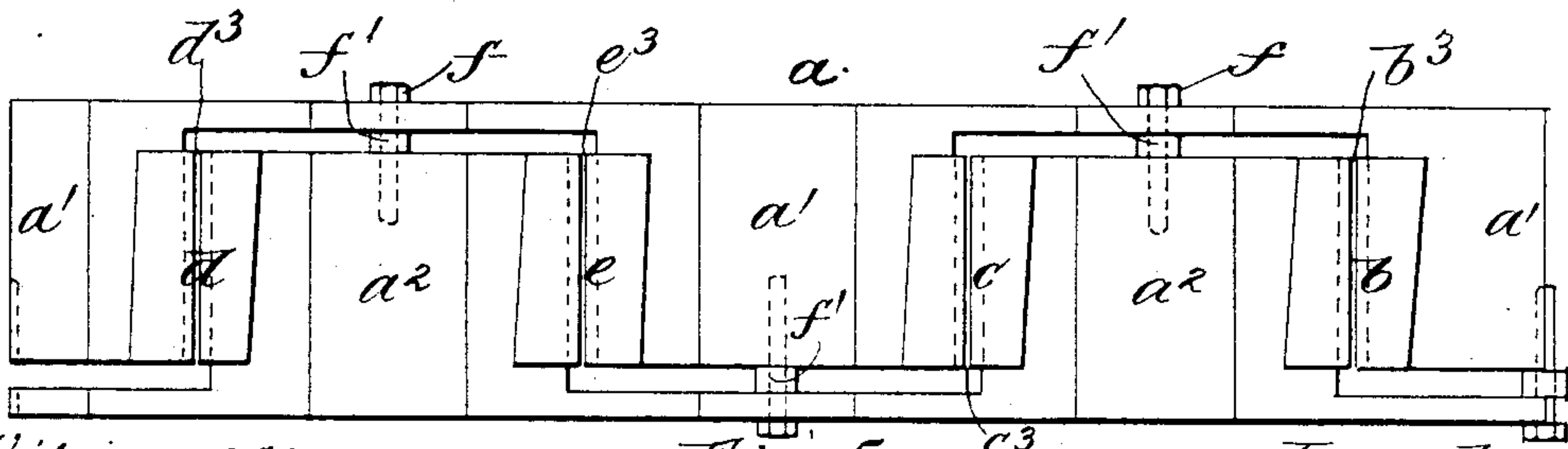


Fig. 5

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UNITED STATES PATENT OFFICE.

ADOLF GEORG EIGNER, OF ST. PETERSBURG, RUSSIA, ASSIGNOR TO THE
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DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 607,737, dated July 19, 1898.

Application filed May 7, 1898. Serial No. 679,994. (No model.)

To all whom it may concern:

Be it known that I, ADOLF GEORG EIGNER, a subject of the Emperor of Russia, residing at St. Petersburg, Russia, have invented a
5 certain new and useful Improvement in Dynamo-Electric Machines, (Case No. 148,) of which the following is a full, clear, concise, and exact description.

My invention relates to dynamo-electric
10 machines, and more particularly to an improved construction of the field-magnets for such machines.

In order to prevent cross-magnetization or reversal of polarity of the field-magnet poles
15 by the inductive effect of the armature-windings, there are two methods of constructing the field-magnet. The first is to leave a comparatively large air-gap between the surface of the magnet-pole and the surface of the ar-
20 mature, this air-gap serving to increase the resistance of the magnetic circuit traversed by the lines of force set up by the armature-windings. This of course correspondingly increases the resistance of the magnetic cir-
25 cuit traversed by the lines of force set up by the field-windings, so that in order to maintain the required density of the field more current must be supplied to the field-windings, the efficiency of the machine thereby
30 being decreased. The other expedient, and the more successful one, is to provide slots in the pole-pieces of the field-magnet, the slots running in such a direction as to increase the resistance of the external magnetic circuit
35 which must be traversed by the lines of force produced by the armature-windings, while the resistance of the magnetic circuit traversed by the lines of force produced by the field-windings is practically unchanged.

40 Although it is a well-known fact that the construction of the pole-pieces just described is advantageous and will increase the efficiency of the machine, comparatively few machines are so built. The principal reason
45 for this is that heretofore such construction required casting the field-magnet in several small pieces, bolting the same together, and magnetically separating them from one another.

50 In accordance with the present invention

the field-magnet having any required number of poles is cast in two complementary parts, which may be bolted together and magnetically separated from one another. These two
parts or members are so formed that when
55 joined each pole-piece will be formed half of one part and half of the other part, and a slot will be provided in each pole-piece, produced by the distance between its members. Each half of the pole-piece will have a dis-
60 tinct magnetic circuit which is magnetically separated from the magnetic circuit of the other half of the pole-piece, and the slot, extending radially from the armature-shaft, will materially decrease the cross-magnetizing ef-
65 fect of the armature-windings in a manner well known.

My invention will be more easily understood upon an inspection of the accompanying drawings, in which—

70 Figure 1 is an elevation of a dynamo-electric machine having its field-magnet constructed in accordance with my invention. Fig. 2 is a sectional plan view thereof on line 2 2 of Fig. 1. Fig. 3 is a vertical section on
75 line 3 3 of Fig. 2. Fig. 4 is a detail sectional view on line 4 4 of Fig. 3. Fig. 5 is a diagram illustrating the field-magnet developed into a plane to afford an easier understanding of the details of its construction.

80 Similar letters of reference are used to designate the same parts wherever they are shown.

The machine illustrated in the drawings is of the multipolar type, having a field-magnet
85 a , provided with four polar projections $b\ c\ d\ e$. The field-magnet a is formed of two members a' and a'' , the member a' being provided with projections $b'\ c'\ d'\ e'$, forming the halves of the poles $b\ c\ d\ e$, respectively. The member a'' is
90 likewise provided with projections $b''\ c''\ d''\ e''$, forming the other halves of said poles $b\ c\ d\ e$, respectively. The two members a' and a'' are secured together by bronze bolts $f\ f'$, bronze washers $f''\ f'''$ being interposed between the
95 two members, so that they are magnetically separated from one another. When the two members are placed together, it will be seen that spaces $b^3\ c^3\ d^3\ e^3$ are left between the halves of the pole-pieces $b\ c\ d\ e$, respectively, these spaces serving to interrupt the magnetic
100

circuit, which will be traversed by the cross-magnetizing lines of force set up by the armature-windings. Each pole-piece, however, is constructed so as to afford a path of low resistance for the lines of force set up by the field-windings $g\ h\ i\ k$, disposed about said poles. Two distinct magnetic circuits are thus provided in the field-magnet, one path through the member a' , which carries the projections $b'c'd'e'$, and the other path, magnetically separate and distinct from the first, through the member a^2 , which carries the projections $b^2c^2d^2e^2$.

It will be appreciated that the construction above described is quite simple and produces a field-magnet whose advantages are apparent.

I do not wish to be understood as limiting myself to the precise construction shown in the drawings, for it is evident that various modifications may be made by those skilled in the art without departing from the spirit of my invention; but,

Having thus described one embodiment thereof, I claim as new, and desire to secure by Letters Patent, the following:

1. A field-magnet for dynamo-electric machines, said field-magnet being formed of separate complementary members joined together, each of said members having projections co-operating with the projections of another member to form complete polar projections,

said members being separated to form slots in said polar projections, substantially as described.

2. A multipolar field-magnet for dynamo-electric machines, said magnet being formed of two complementary members adapted to be joined together and magnetically separated from one another, each of said members having projections adapted to coöperate with the complementary projections of the other member thereby to produce complete polar projections, the magnetic circuit of each of the polar projections thus lying partly in one member and partly in the other, substantially as described.

3. A field-magnet for dynamo-electric machines, said field-magnet being formed of separate complementary members joined together, each of said members having projections adapted to coöperate with similar projections on another member to form complete polar projections, said complementary members being magnetically separated from one another, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ADOLF GEORG EIGNER.

Witnesses:

N. TSCHENALOFF,
A. SHKLARÉVICH.