

(No Model.)

A. M. LORYEA & C. H. PALMER.

DYNAMO ELECTRIC MACHINE.

No. 278,983.

Patented June 5, 1883.

Fig. 2

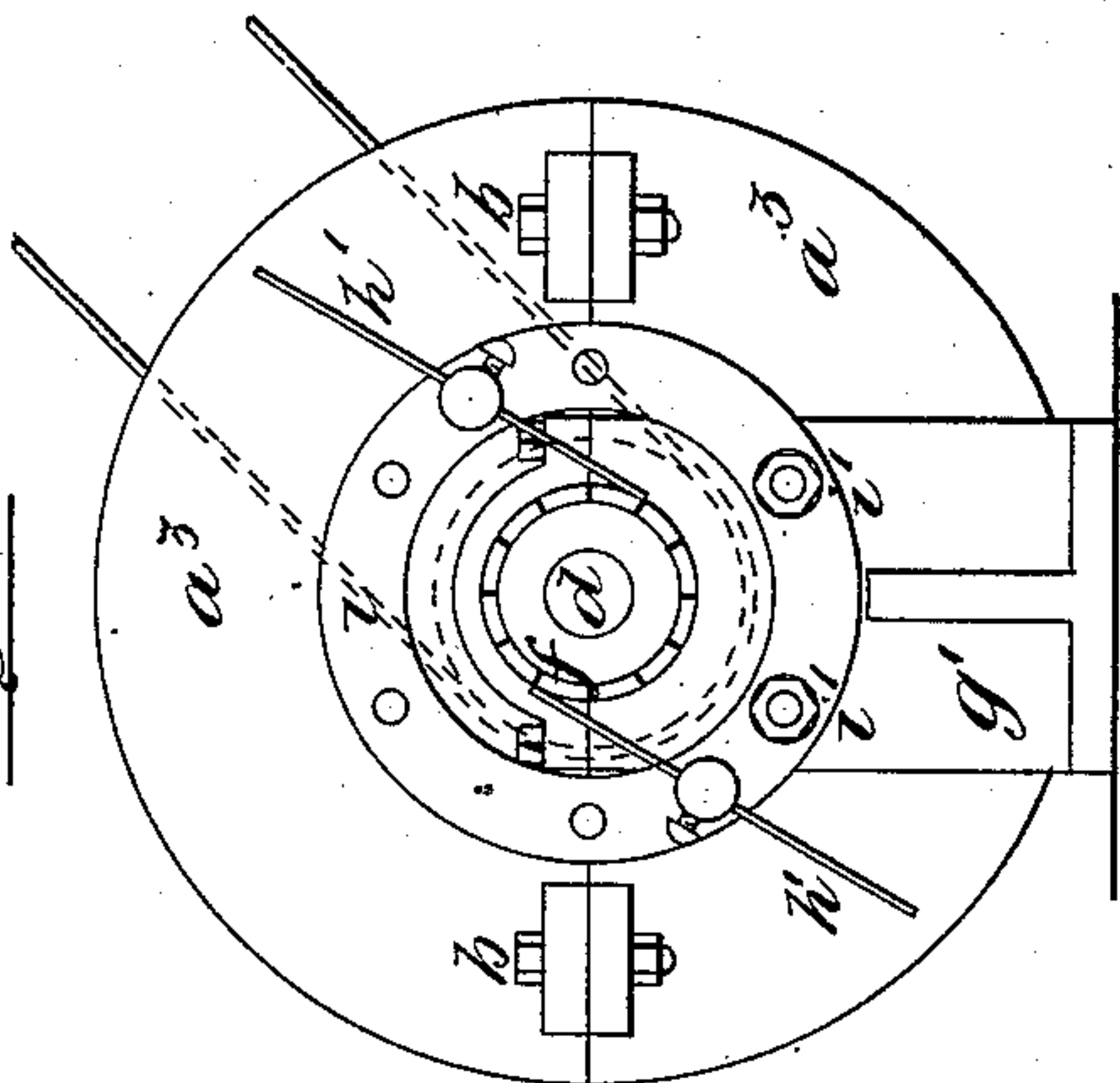


Fig. 4

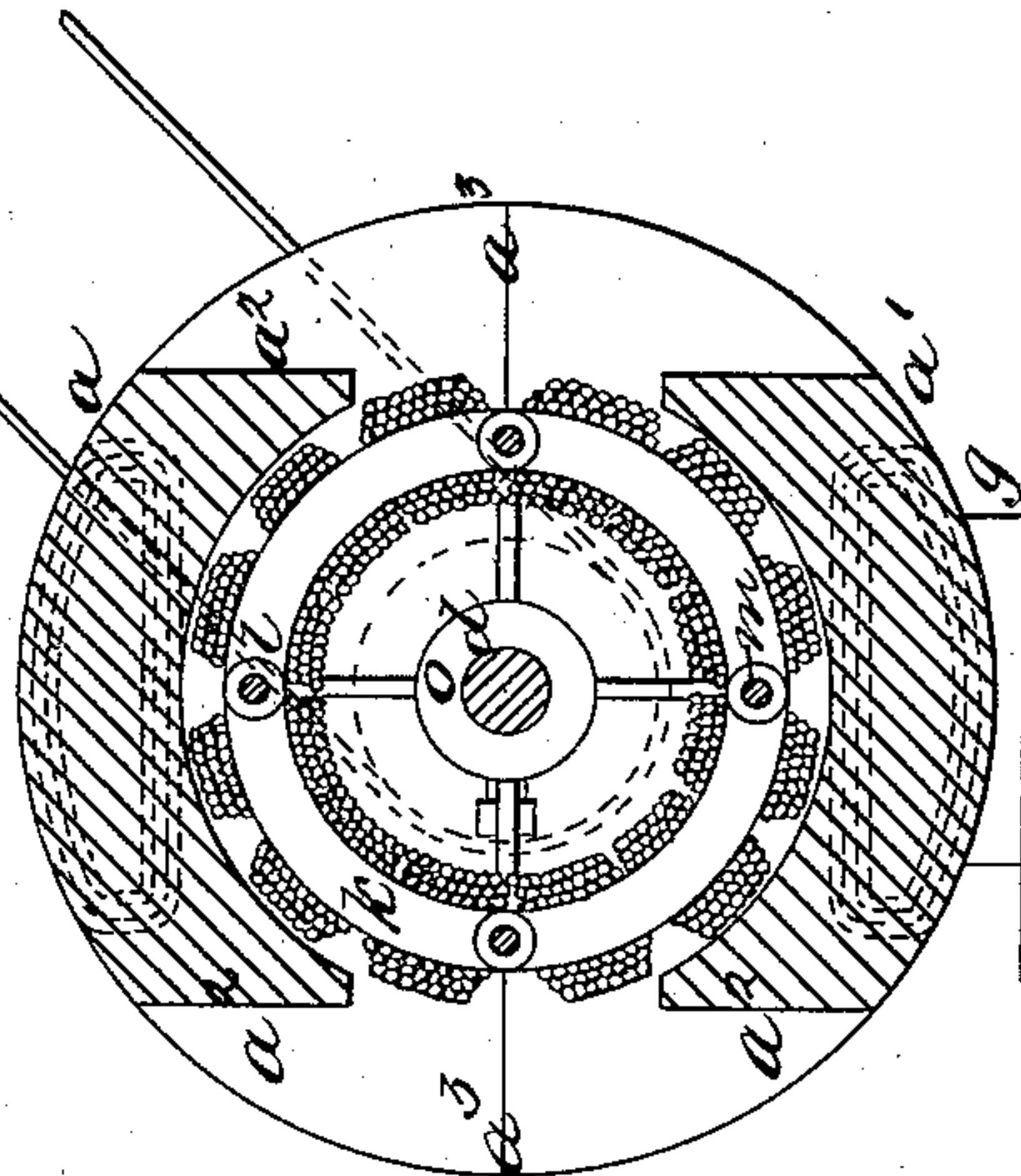


Fig. 1

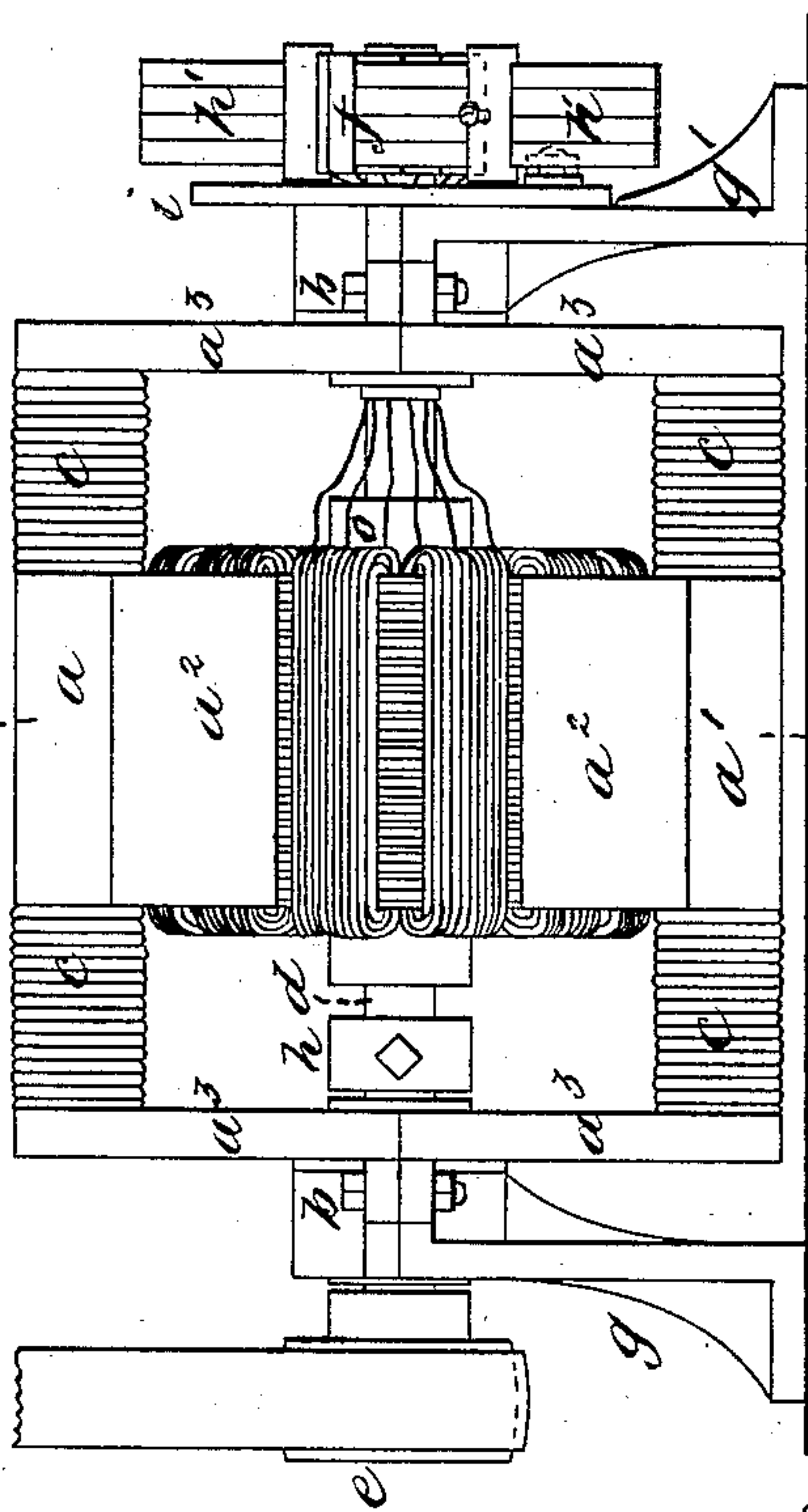


Fig. 3

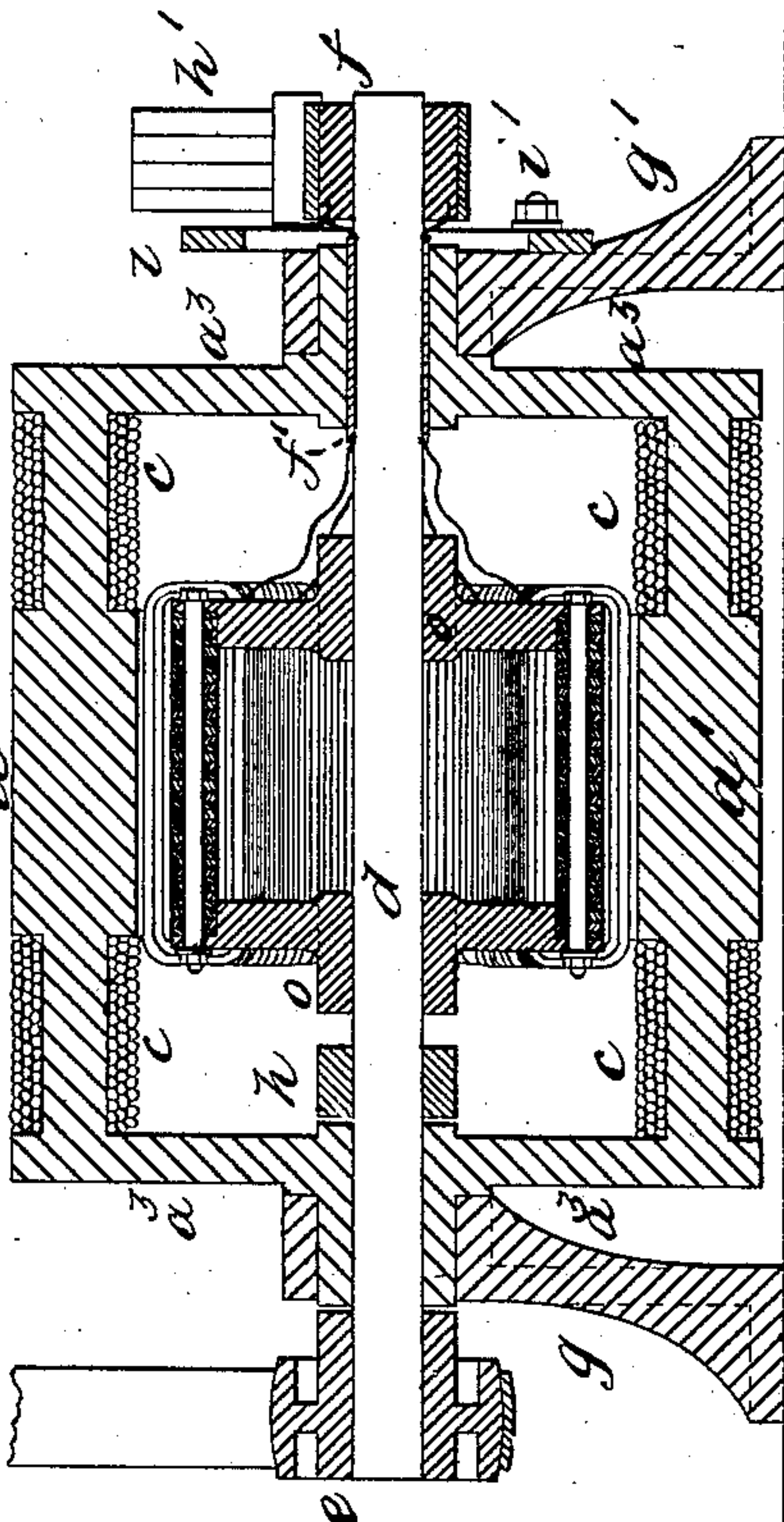
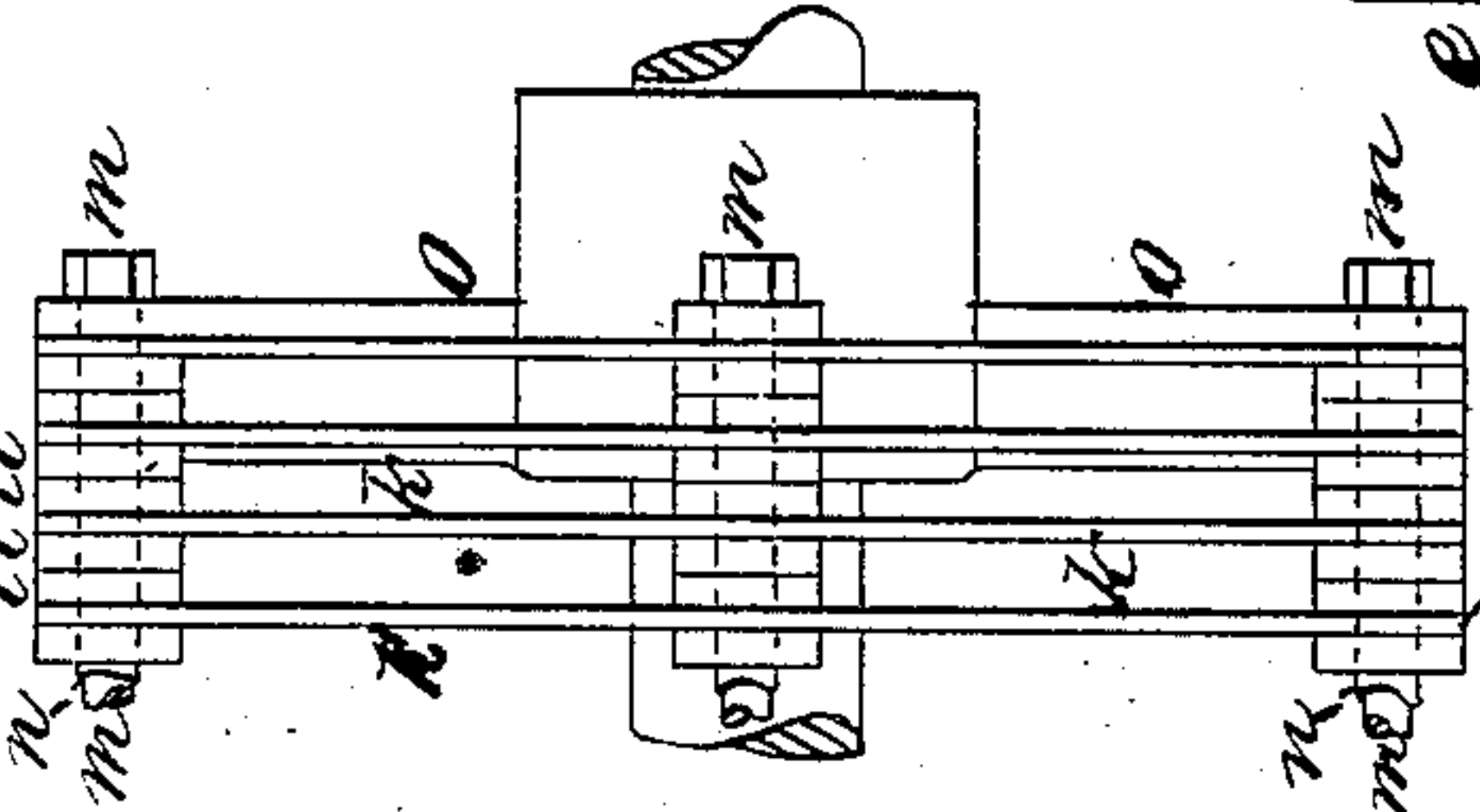


Fig. 5



Witnesses.

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Inventors.

per Alfred Theobald
att'y

UNITED STATES PATENT OFFICE.

ABRAM M. LORYEA AND CHARLES H. PALMER, OF NEW YORK, N. Y., ASSIGN-
ORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE STAR ELECTRIC LIGHT
AND POWER COMPANY OF THE UNITED STATES.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 278,983, dated June 5, 1883.

Application filed October 4, 1882. (No model.)

To all whom it may concern:

Be it known that we, ABRAM M. LORYEA and CHARLES H. PALMER, both of New York, county and State of New York, have invented
5 certain new and useful Improvements in Dy-
namo-Electric Machines, of which the follow-
ing is a specification.

This invention relates to improvements in
the construction of the inducing or field mag-
10 nets and the armatures of dynamo-electric ma-
chines; and it has for its object to simplify
and cheapen the construction as well as to in-
crease the efficiency of such machines. The
inducing or field magnets we make of two simi-
15 lar cast pieces of iron, bolted together at the
neutral parts of the system, and form at these
junctions the bearings for the journals of the
armature-shaft, one-half of each bearing being
in each of the similar cast-iron pieces. The ar-
20 mature, secured on its shaft, is placed between
the two castings before they are bolted together.
Polar projections on the central parts of the
castings surround the armature. This con-
struction and arrangement, which virtually
25 constitutes the principal working parts of the
machine, insures perfect rigidity to the bear-
ings of the armature-shaft, which is driven by
means of a pulley secured to one of its ends
projecting beyond the bearing. To further
30 compensate for the side wear of the bearings,
due to the tension of the driving-belt on the
pulley, we provide means by which different
parts of the bearings may from time to time
be brought opposite such strain, so that all the
35 surface of the bearings shall be equally worn.
To this end journals are formed, projecting from
the joined ends of the two field-magnet castings,
concentric with the bearing of the armature-
shaft. These journals are fitted in fixed stand-
40 ard-bearings to support the machine and allow
the field-magnets to be rotated on said journals
to be set in any desired position. This move-
ment of rotation applied to the field-magnet
system of a dynamo-electric machine also per-
45 mits of the proper adjustment of the magnets
and collecting-brushes of the commutator rela-
tively to each other, the brushes in this case
being secured stationary to one of the stand-
ard-bearings.

The improvements in the armature consist 50
in building up the same of a number of thin
flat rings thoroughly insulated from one an-
other by means of duplex washers formed of
paper-board and felt, through which passes
the rod for holding the rings together, said rods 55
being surrounded by a tube of non-conducting
material; but to describe our invention more
particularly we will now refer to the accom-
panying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is an 60
end elevation. Fig. 3 is a longitudinal section.
Fig. 4 is a transverse section cut on the line
 $x x$, and Fig. 5 is an enlarged detached view
of a portion of the armature.

a and a' are two pieces of cast metal, similar 65
in size and shape, each having polar projec-
tions $a^2 a^2$ at their central parts and semicircu-
lar disks a^3 at their ends, provided with ears at
their diameters, through which are passed the
bolts $b b$, for securing the two pieces, $a a'$, to- 70
gether, and insulated conductors $c c$ are placed
on them between the polar projections and the
end disks.

The armature-shaft d is fitted to rotate in
bearings formed at the junction of the two 75
similar castings a and a' . One of its project-
ing ends is provided with the driving-pulley e ,
and the other one with the commutator f , the
plates of which are connected to the armature
by means of wires passing under the sleeve f' 80
of the bearing in the ordinary manner. The
projecting bosses forming the armature-shaft
bearings are turned on the outside true and
concentric with the shaft, thereby permitting
the whole field-magnet system to be rotated on 85
said bosses as they are supported in the stand-
ard-bearings g and g' . These standard-bear-
ings may be secured on any foundation in any
desired manner, as they merely support the
machine and do not govern or control any of 90
the working parts. By this arrangement it
will be seen that the bearings of the armature
are very rigid, so that the armature is main-
tained in constant position in the magnetic
field, and that said bearings may be turned 95
round to present any surface to the side of the
shaft under most pressure, due to the tension
of the driving-belt on the pulley e .

The collecting-brushes $h' h'$ are carried by the ring i , secured to the standard-bearing g' by the bolts $i' i'$. The relative position of the brushes and that of the magnetic poles may be regulated by turning the magnets $a a'$ on their supporting-bearings, the brushes being permanently held in position during such regulation. A series of holes are provided in the ring i , by any adjoining two of which it may be held by the bolts $i' i'$ to the standard. h represents a collar for preventing end-play of the shaft d in its bearing. The shaft may be shouldered at its journals for this purpose, if desired.

The construction of the armature is more clearly shown at Fig. 5, in which and the other views the thin flat iron rings $k k$ are shown separated by means of washers composed of paper-board or similar material, l , and felt l' . We apply the felt in this manner to prevent conduction of heat from one plate to another, it being particularly well adapted for this purpose, and the paper-board part of the washers give stability to the same. At the same time they insure perfect electrical insulation between the rings.

The binding-rods m , which clamp and hold the rings and washers together, are placed inside of a tube, n , of paper or other insulating material, so that they in no wise interfere with the perfect insulation of the rings $k k$. The cylindrical armature composed of the rings and washers is secured to the shaft d by means of the spider-arms $o o$. It may be wound with wire, as shown, on the Gramme principle, or on any other known principle.

The end disks or plates, a^b , may be made any shape desired, provided they have means for securing the two similar cast pieces together to form halved bearings for the journals of the armature-shaft.

If it is desired to construct a dynamo-electric machine according to our invention, leaving out the feature of rotating the whole magnetic system, then one of the pieces described

as being similar may be provided with feet or base-pieces for the purpose of securing the machine in place, and the other piece be secured thereto, as before described, having the armature-shaft bearings between them.

We do not claim, broadly, in this application a field-magnet composed of two pieces of metal secured together at the neutral parts, in connection with an armature-shaft journaled in bearings at said neutral parts, but reserve the right to make such broad claim, as well as claim to other patentable features not herein claimed, in a separate application, which we desire to be considered as a continuation of this application.

What we claim, and desire to secure by Letters Patent, is—

1. In a dynamo-electric machine, field-magnets provided with journals at the neutral parts concentric with the bearings in which the armature-shaft rotates, in combination with fixed standard-bearings, substantially as and for the purpose set forth.

2. In a dynamo-electric machine, field-magnets provided with journals at the neutral parts concentric with the bearings in which the armature-shaft rotates, in combination with fixed standard-bearings and commutator-brushes secured to one of the standard-bearings, and adapted to bear on the commutator on the projecting end of the armature-shaft, substantially as and for the purpose set forth.

3. A ring-armature composed of thin iron rings, in combination with separating duplex washers, composed of paper-board and felt, substantially as set forth.

In witness whereof we have hereunto set our hands, at New York, county and State of New York, this 2d day of October, A. D. 1882.

ABRAM M. LORYEA.
CHARLES H. PALMER.

In presence of—

E. G. DELANEY,
E. E. VAN ORDEN.