(No Model.) 2 Sheets—Sheet 1.

C. D. JENNEY.

COMMUTATOR FOR DYNAMO ELECTRIC MACHINES.

No. 332,399. Patented Dec. 15, 1885.

Fig. 1.

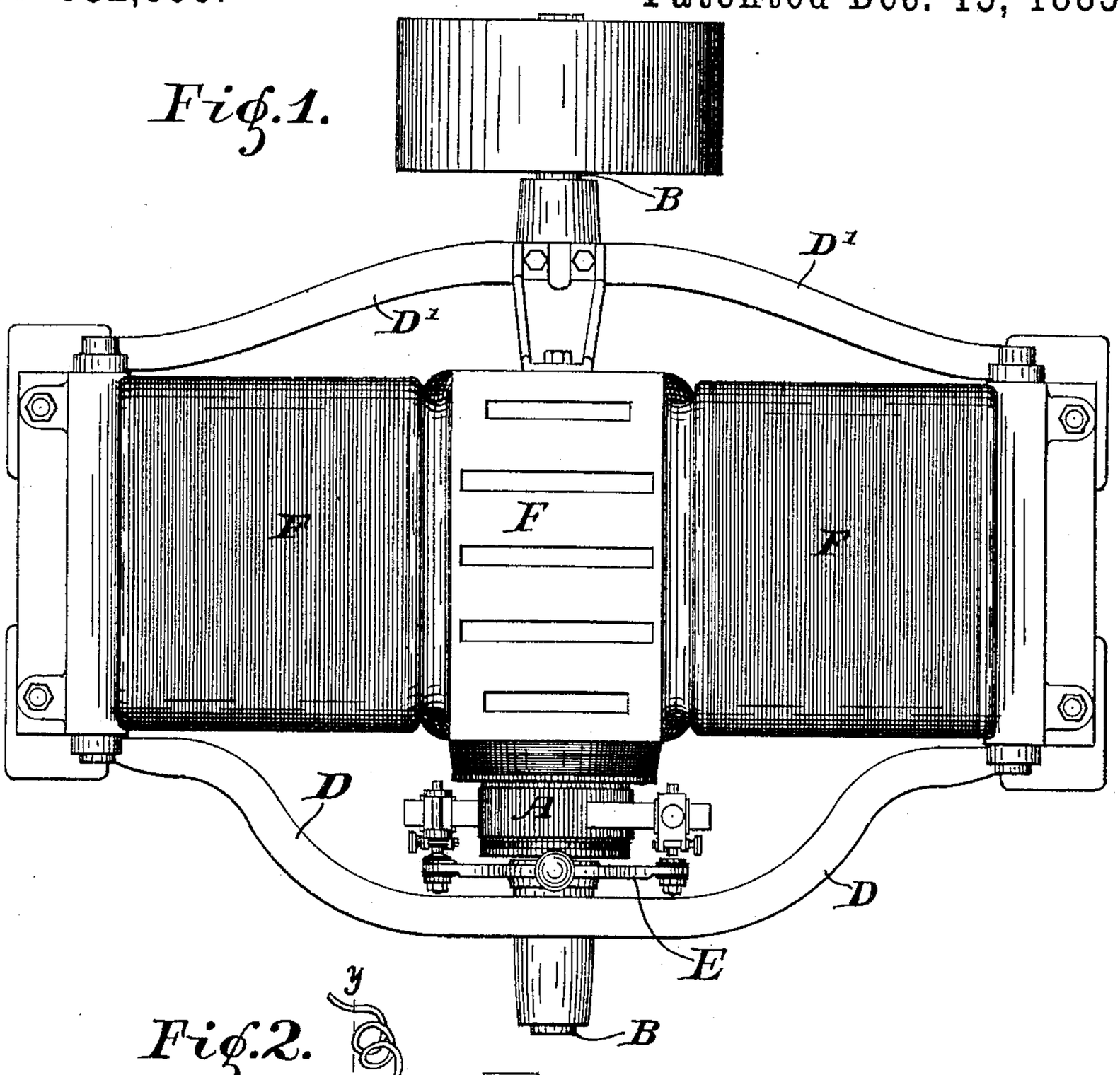
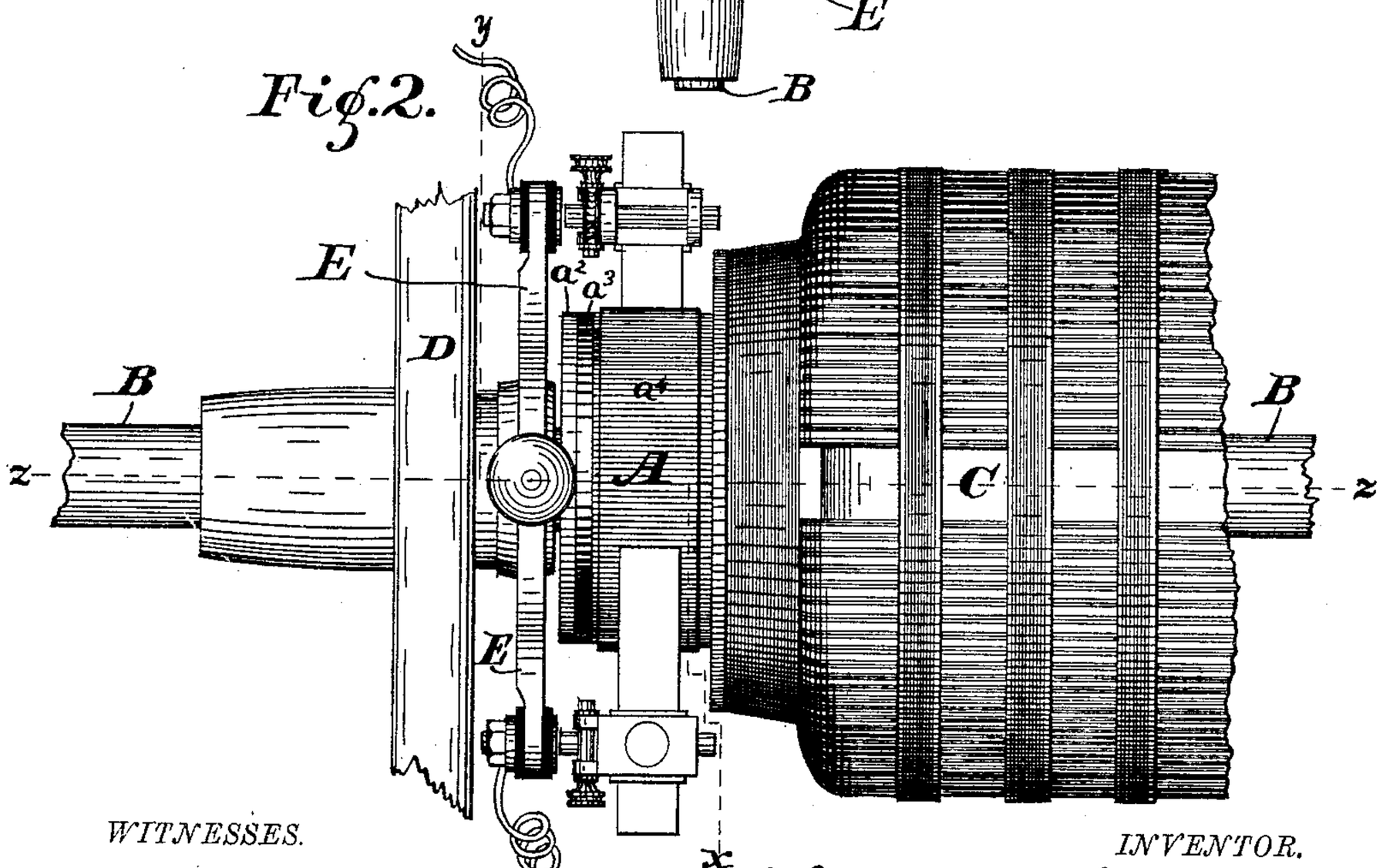


Fig. 2.



WITNESSES.

Chas. L. Leonard.

E. W. Bradford,

INVENTOR.

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C. Bradford,

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

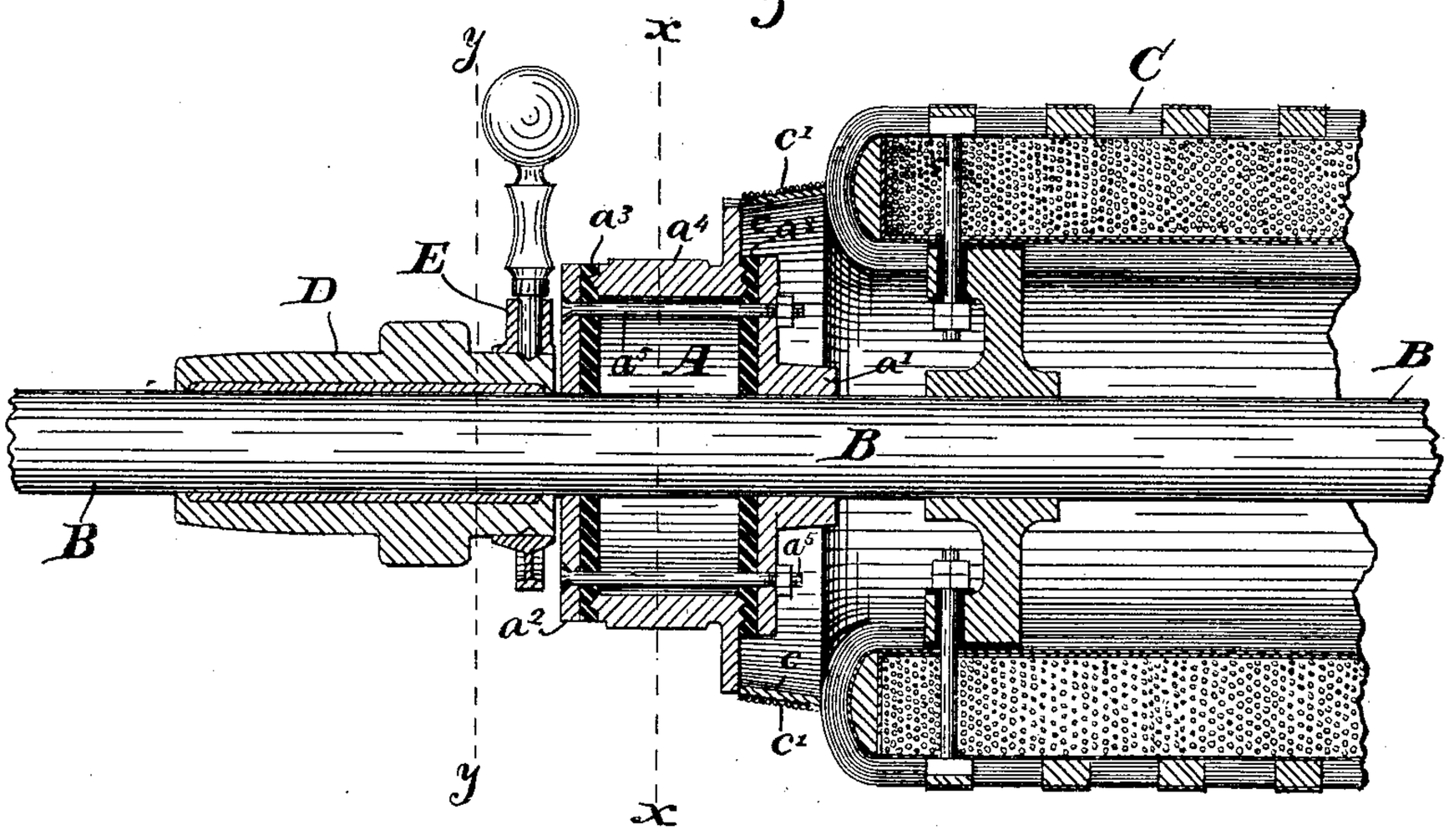


Fig. 4.

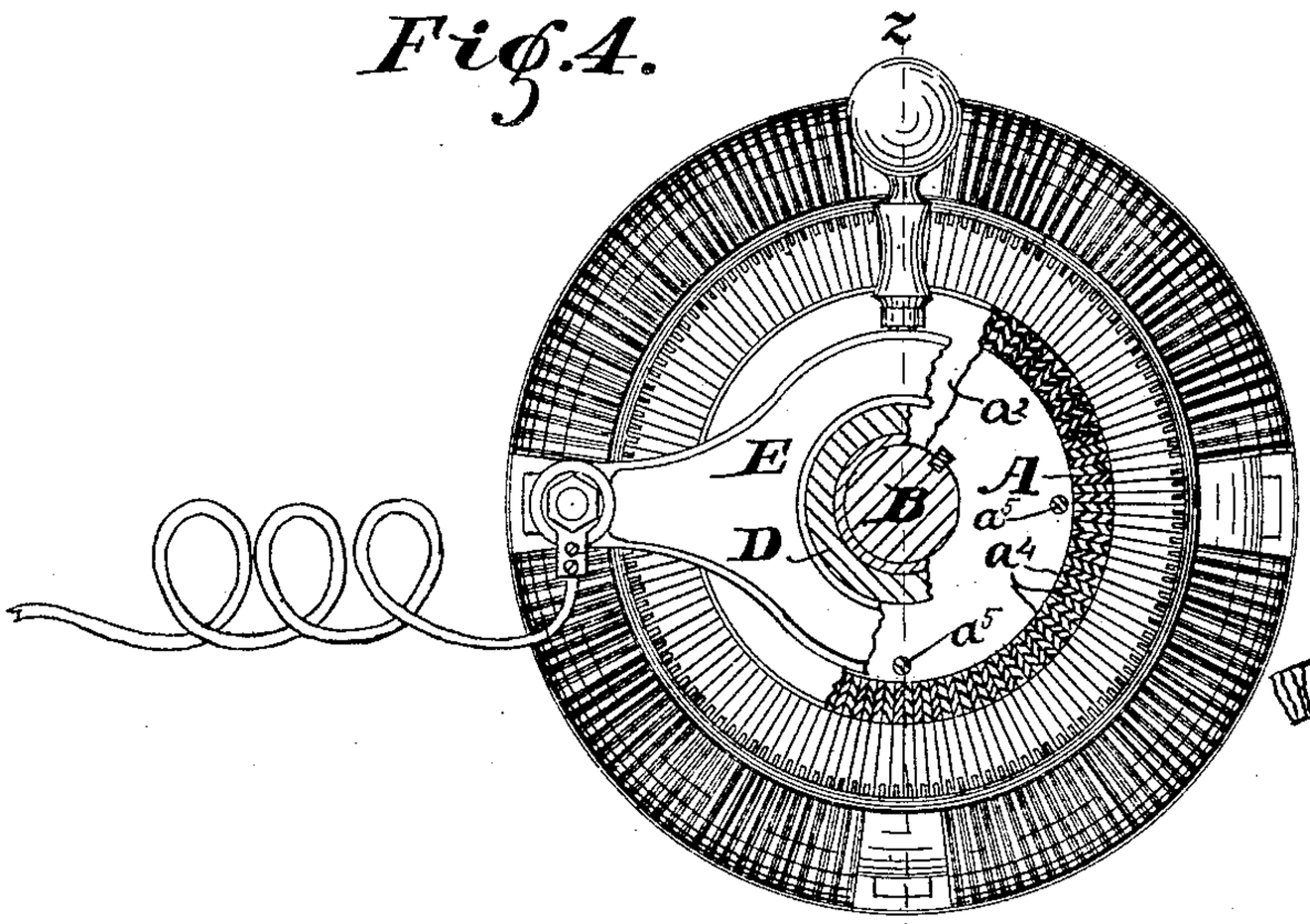
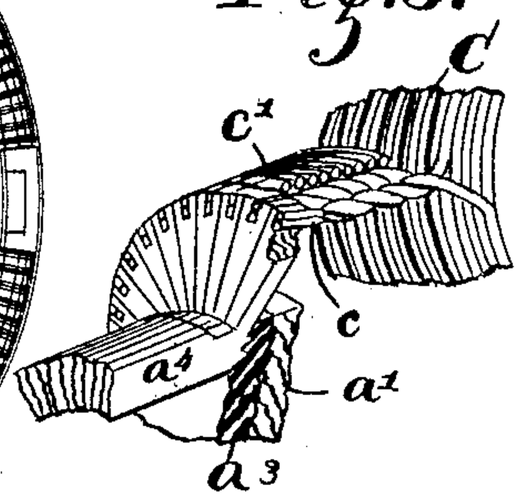


Fig. 5.



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WITNESSES.

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UNITED STATES PATENT OFFICE.

CHARLES D. JENNEY, OF INDIANAPOLIS, INDIANA.

COMMUTATOR FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 332,399, dated December 15, 1885.

Application filed July 20, 1885. Serial No. 172,055. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. JENNEY, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Commutators, of which the following is a specification.

My said invention relates to dynamo-electric machines, electric motors, and such like apparatus; and it consists in the construction of the commutators therefor, and the method of attaching the wires of the armature to such commutators, whereby a strong, durable, and efficient commutator is produced with reliable and permanent electrical connections.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of a dynamo-electric machine provided with a commutator embodying my said invention; Fig. 2, a top or plan view of said commutator and one end of the armature; Fig. 3, a longitudinal vertical sectional view on the dotted line *z z* in Fig. 2; Fig. 4, a transverse sectional view, looking toward the end of the armature, partly from each of the dotted lines *y y* and *x x;* and Fig. 5, a detail perspective view of that portion of the commutator where the wires from the armature connect therewith.

In said drawings the portions marked A represent the commutator; B, the shaft on which said commutator and the armature are mounted; C, said armature; D D′, the shaft-supports; E, the rocker-arm carrying the brush-holders and brushes, and F the field-magnets.

The commutator is composed of two outer metallic plates or disks, a' a^2, which are mounted securely on the shaft B, and disks a^3, formed of insulating material inside of each of said outer plates, numerous parts a^4, secured between said disks of insulating material and each separated from the others by thin sheets of insulating material, the whole being secured together by bolts a^5. It is preferred that these parts a^4 shall have tooth-like projections on their ends, as shown in Fig. 3, which enter corresponding cavities or depressions in the sheets of insulating material, and are thus held firmly therein. The parts a^4 and the sheets of insulating material between them extend up on the side next the armature and form a flange, and into the outer portion of each of said parts is cut a slot, into which the ends *c* of the wires from the body of the armature are forced, said slots being formed of slightly less diameter than the wires, so that said wires in being forced therein are flattened somewhat and brought into firm and permanent contact therewith. These ends *c* of these wires, one from the outer layer of one coil and the other from the inner layer of the adjacent coil, are twisted together for a distance between the coils of the armature and the commutator, as shown most plainly in Figs. 3 and 5, and the extreme ends are forced into the slots one on top of the other. After these wires are all in place a hemp cord or other suitable material, *c′*, is wound around the outside of these several wires, and they are thus held from any accidental loosening by the centrifugal force or otherwise, and are also protected from dirt, which might otherwise get between them, and if of a metallic character thus short-circuit some of the coils. The outside of this cord, after being put in place, is preferably covered with shellac or some such like substance, as well as the coils of the armature itself. Besides the advantages described resultant upon this construction of the commutator, and means of connecting the wires from the armature therewith, is the further advantage that when it is desired to disconnect said wires from said commutator it can easily be done by removing the cord *c′*, and by use of a suitable tool prying the ends of the wires out of the slots, which, as will be readily seen, does not bend or break them or injure them in any manner, and they can therefore be removed and returned to position as many times as desired without destruction or deterioration.

The other several parts of this machine are either of a well-known and understood construction or are the subject-matter of other applications for Letters Patent, and will not therefore be further described herein.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a commutator in which the conducting parts are slotted, an armature the ends of the wires of which lead

to and enter said slots, and a non-conducting covering wound over the outside of said ends of wires, substantially as set forth.

2. The combination, in a commutator, of numerous insulated parts, each of which has a projecting portion, the end of which is slotted, said slots being of slightly less diameter than the armature-wires, whereby said armature-wires when placed therein will be flattened and held into close and permanent contact therewith.

3. The combination, in a dynamo-electric machine, of the armature and the commutator, said commutator being constructed substantially as specified and provided with slots to receive the ends of the wires of the armature, and a wrapping or covering over the ends of said wires, whereby dirt is kept therefrom and from the interior of the armature.

4. The combination of the shaft B, metallic plates or disks a' and a^2, securely mounted on said shaft, insulating-disks a^3, numerous metallic parts, a^4, secured between said insulating-disks and separated by sheets of insulating material, each having a tooth-like projection which enters said insulating-disks, and the bolts a^5, passing through from one of said metallic plates to the other and securing the whole together.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 18th day of July, A. D. 1885.

CHARLES D. JENNEY. [L. S.]

Witnesses:
C. BRADFORD,
E. W. BRADFORD.