

(No Model.)

H. M. STEVENS.

COMMUTATOR FOR ELECTRIC GENERATORS.

No. 295,206.

Patented Mar. 18, 1884.

Fig:1.

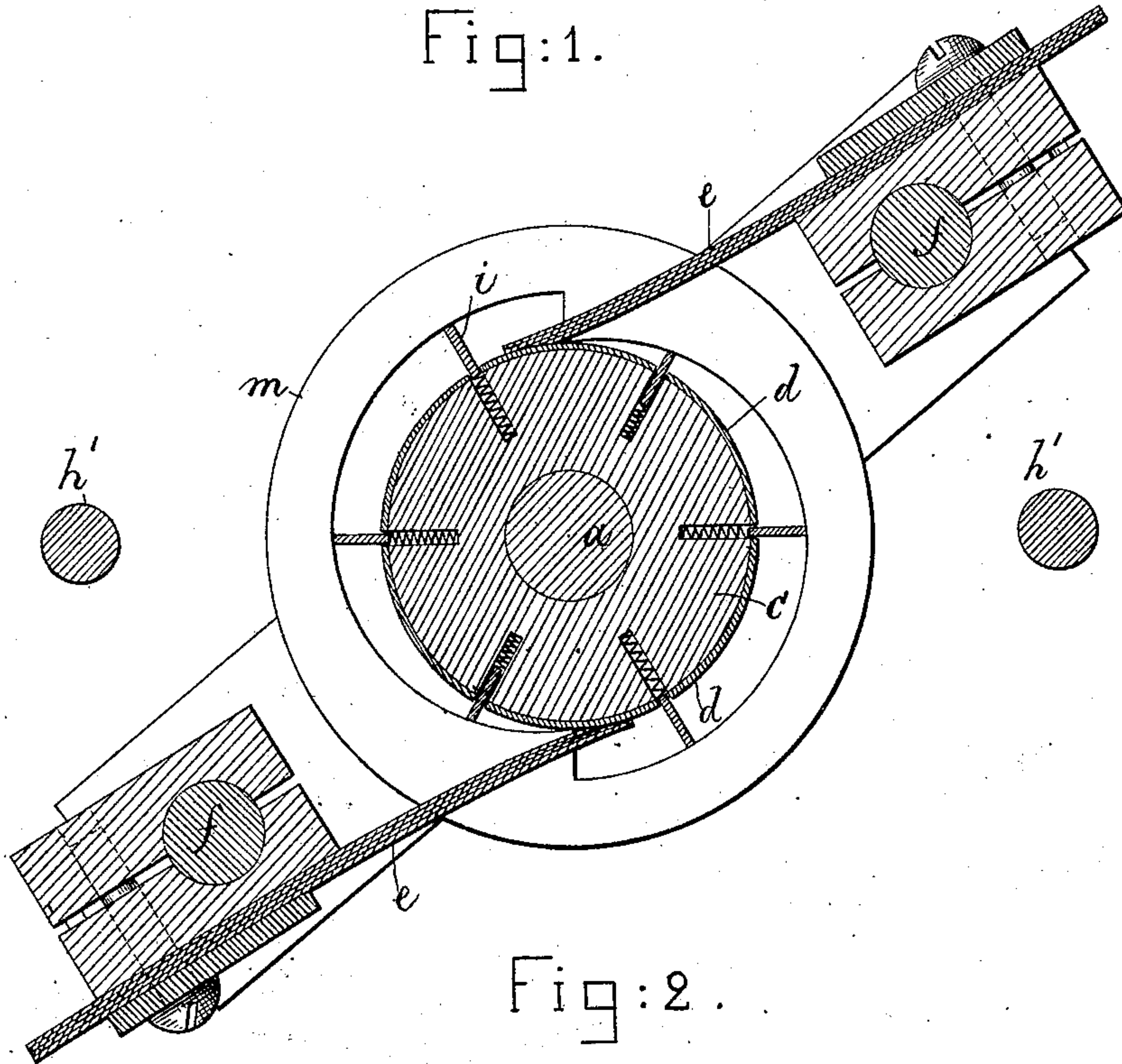
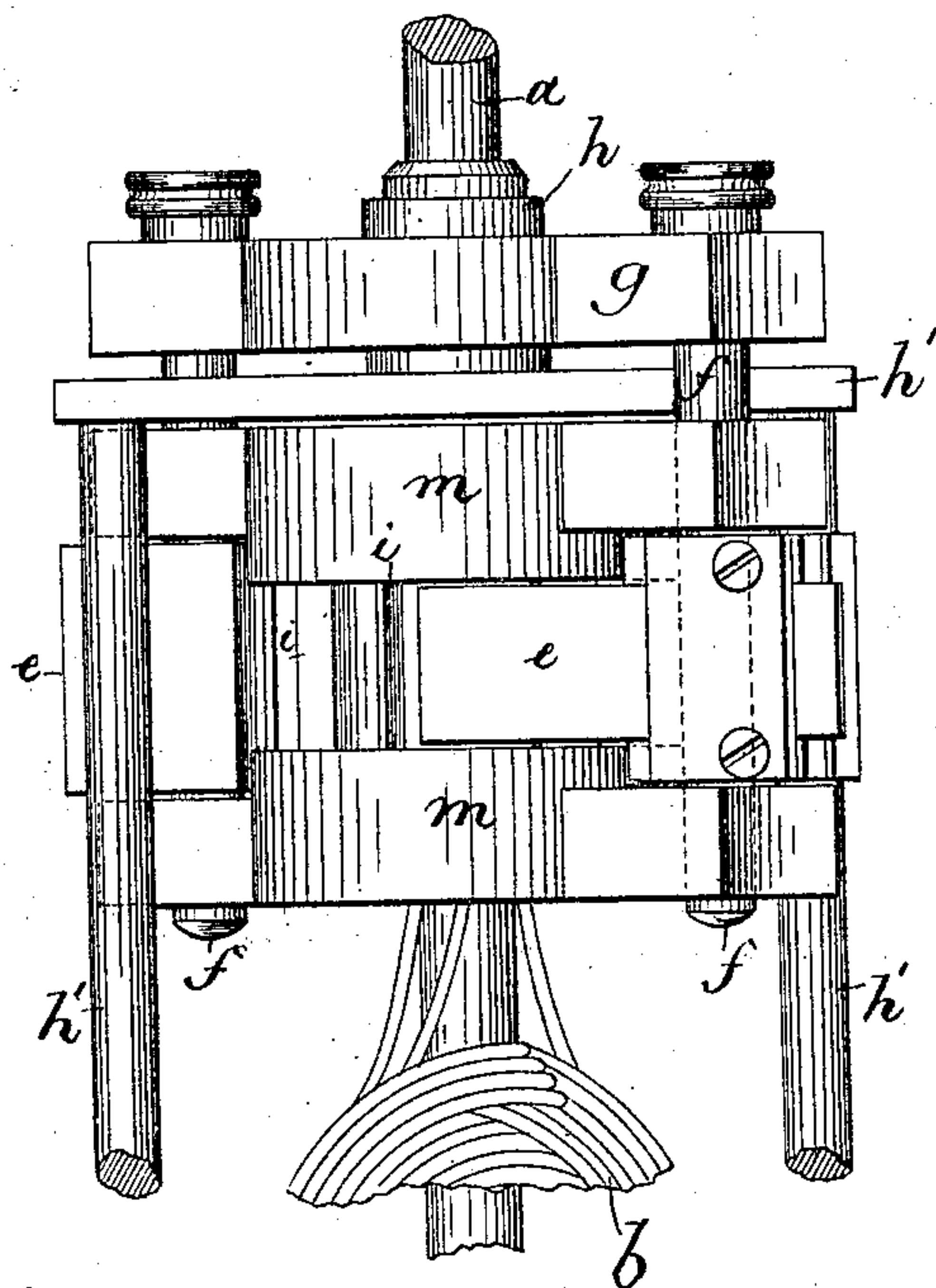


Fig:2.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY M. STEVENS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO WM. GREENE HOWE, OF SAME PLACE, AND CHARLES STORER.

COMMUTATOR FOR ELECTRIC GENERATORS.

SPECIFICATION forming part of Letters Patent No. 295,206, dated March 18, 1884.

Application filed June 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. STEVENS, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Commutators for Electric Generators, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention, relating to a commutator for electric generators, has for its object to prevent flashing or transmitting of the current from one portion of the commutator to another portion, as frequently takes place when currents of high intensity are used and the commutators are not adjusted to exactly the proper position.

The invention consists, essentially, in the combination, with a commutator consisting of a series of insulating metal plates adapted to be engaged by the brushes or collectors in the rotation of the said commutator, of a series of wings or blades of insulating material interposed between the adjacent plates of the commutator and normally extending a considerable distance beyond its periphery, to thus intercept metallic particles or other material which might afford a sufficient conductive power to cause the current to pass across from one plate to the other in the form of a spark, or, as it is technically called, "flashing." Means are also provided to depress the wings of insulating material to the level of the surface of the commutator just where they pass beneath the brushes, so that there will be no tendency to lift the brushes from the metallic surface of the commutator. As herein shown, cams are employed to thus depress the wings of insulating material as they approach the point of contact of the brushes, the said cams being mounted upon the arms that carry the brushes, so as to always occupy the same position with relation to the said brushes.

Figure 1 is a transverse vertical section of a commutator embodying this invention, and Fig. 2 a plan view thereof on a smaller scale.

The commutator, fixed in any usual manner on the revolving shaft *a* of the armature, a portion of the coils of which are shown at *b*, consists of a drum, *c*, of insulating material,

provided with the proper number of contact-plates *d*, insulated from one another and connected with proper portions of the coils *b* in any usual manner. The current generated in the coils of the armature and passing therefrom to the plates *d* is collected by the brushes or collectors *e*, shown in this instance as mounted on pins *f*, supported by a yoke, *g*, held in adjusted position on the boss or hub *h*, forming a portion of the frame-work *h'*, that supports and affords bearings for the armature-shaft *a*. The contact pieces or plates *d* of the commutator are usually insulated from one another by an air-space between them at the periphery of the drum *c*, and in some cases the electric currents pass across the said space in the form of sparks, seriously interfering with the proper operation of the generator. This escape or passage of the current from one plate to another is obviated in accordance with the present invention by movable wings or blades *i* of insulating material mounted in radial slots 2 in the commutator-drum *c*, so as to project out from the periphery thereof between the contact-plates *d*, and thus prevent the passage of metallic particles or other material which will serve as a conductor for the electric current between the adjacent edges of the said plates. When the machine is in operation, the said wings *i* will be thrown outward to project beyond the periphery of the commutator by centrifugal force, which may, for greater certainty, be aided by suitable springs, *k*. At the point where the commutator is touched by the brushes *e* the said wings *i* may be pressed in even with the periphery of the commutator, to permit them to pass beneath the brushes, by the pressure of the brushes themselves; but they are preferably operated by cams *m*, supported on the pins *f*, that hold the commutator-brushes, at either side of the said brushes, as shown in Fig. 2, the said cams being arranged, as shown, in relation to the point of contact of the brushes to force the said wings *i* inward just before they pass beneath the said brushes, which thus only have to retain them in their innermost position. The moment the wings *i* pass the end of the brushes they will fly outward until en-

gaged by the cams *m*, and will effectually prevent the passage of the current between the plates *d*.

5 It is obvious that the mechanical construction and operation of the wings may be varied without departing from this invention, and that they may be applied to any of the various kinds of generators in use, and it is not essential that they should move in an exactly radial path.

10 I claim—

1. In an electric generator, the combination, with the revolving commutator having a series of insulated contact-pieces, of a series of movable pieces of insulating material interposed between the said contact-pieces, and adapted to project beyond their contact-surface, substantially as and for the purpose described.

2. The commutator-drum having insulated electric contact-pieces at its periphery, and the contact-brushes or collectors, combined with 20 movable wings of insulating material between the said contact-pieces, normally projecting beyond the periphery of the commutator, and means to depress them to the level of the said periphery at the point where they pass beneath the brushes, substantially as described. 25

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

HENRY M. STEVENS.

Witnesses:

JOS. P. LIVERMORE,
W. H. SIGSTON.