(No Model.)

C. BATCHELOR.

DYNAMO ELECTRIC MACHINE.

No. 338,383. Patented Mar. 23, 1886.

Fig. 1.

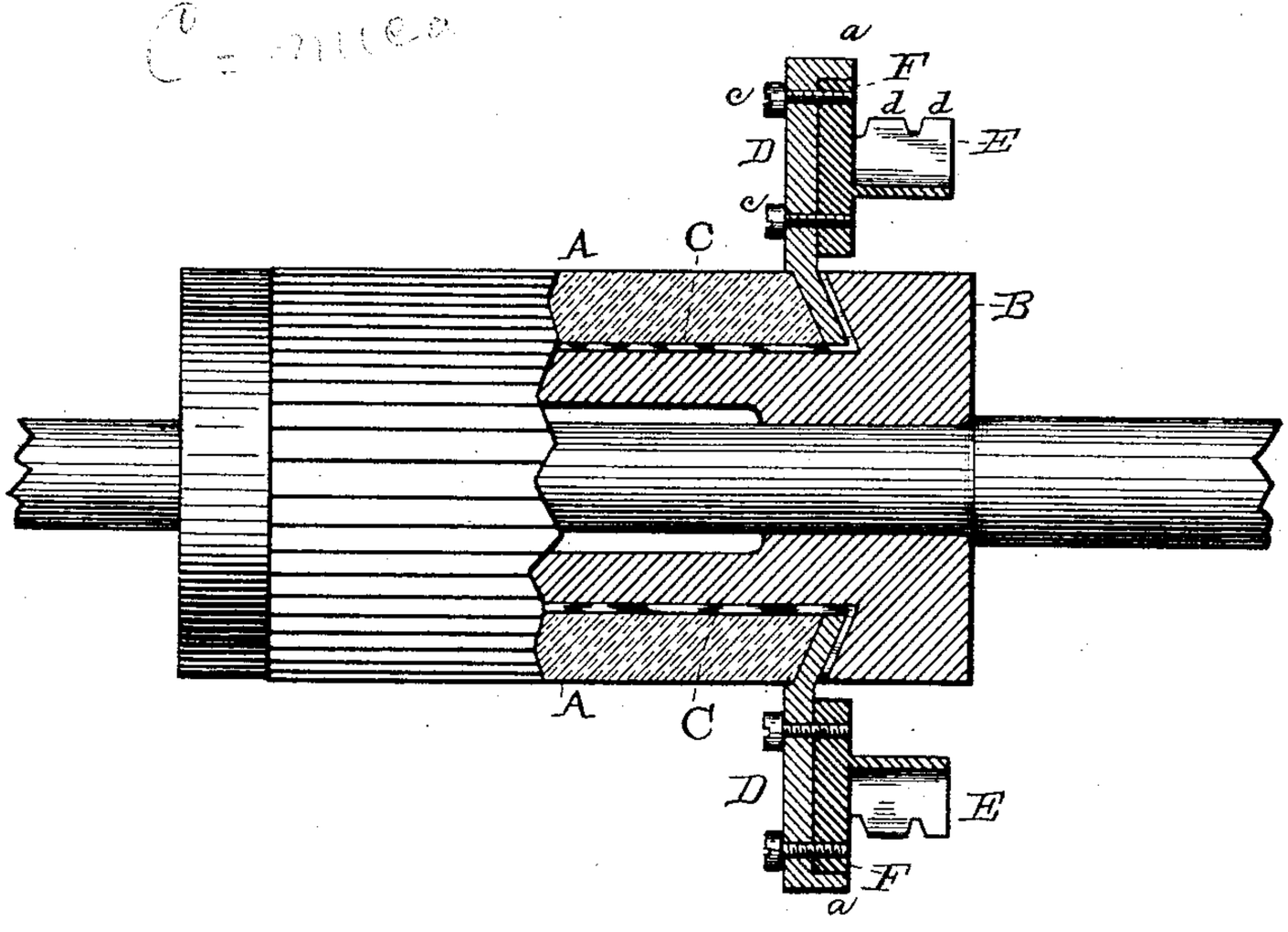
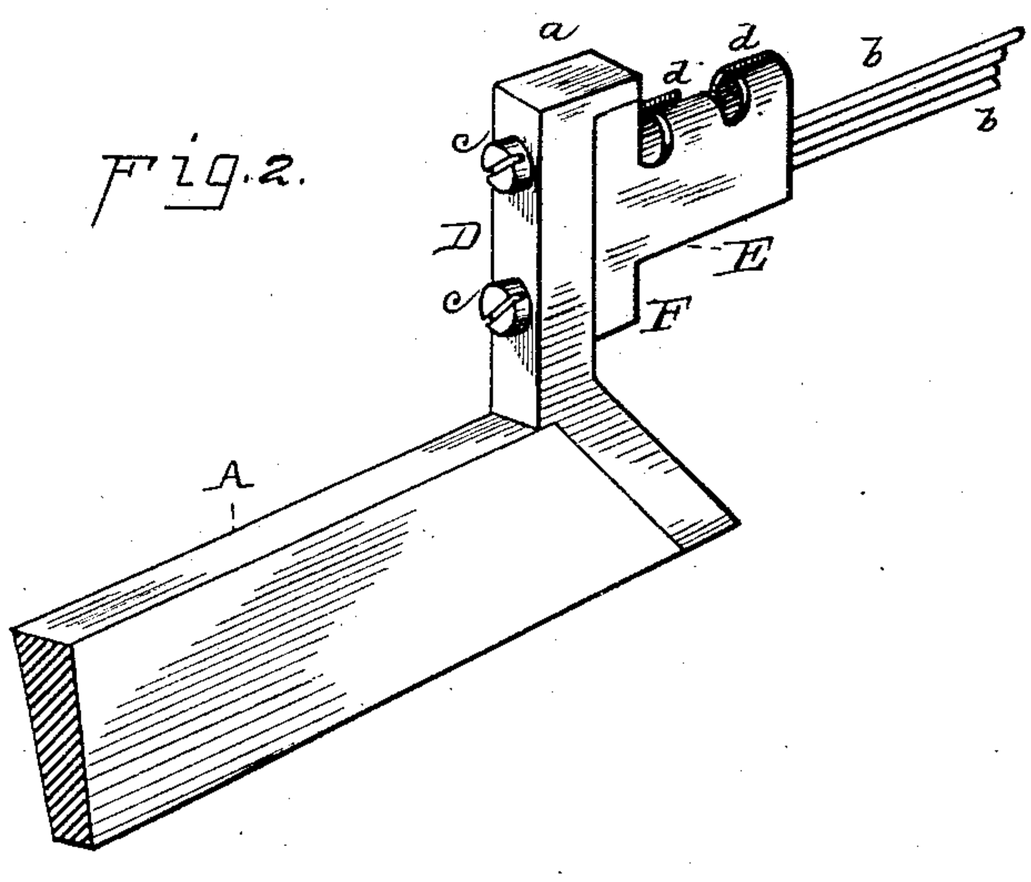


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES BATCHELOR, OF NEW YORK, N. Y.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 338,383, dated March 23, 1886.

Application filed November 16, 1885. Serial No. 183,042. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BATCHELOR, of New York city, in the county and State of New York, have invented a certain new and useful Improvement in Dynamo-Electric Machines, of which the following is a specification.

In the patent of Thomas A. Edison, No. 328,572, dated October 20, 1885, is set forth a mode of making removable connections between the coils of the armature and the bars of the commutator of a dynamo-electric machine. In this arrangement radial strips are attached to the commutator-bars, each of which is bent to a right angle at its outer end, and to the bent portion a tongue, projecting from the cup in which the armature-wires are soldered, is secured by a single screw passing through both parts. In this case the centrifugal force due to the exceedingly rapid revolution of the armature tends to throw the wires away from the armature, and therefore to separate the cups from the radial strips and thus impair the connection between them. Further, the parts being very small, only a small screw can be used to unite them, and therefore to get sufficient strength a steel screw has to be used. When the parts expand by the heat of the current, the copper parts expand more than the steel screw, and the screw therefore cuts into the copper, and at each expansion and contraction becomes more and more loose, and finally will fail entirely to hold the parts together. For these reasons it has been found necessary to renew these parts at frequent intervals in the operation of machines employing this form of connection.

My invention relates to an improvement upon the form of connection just described, by which the disadvantages mentioned are done away with, and also to an improvement in the manner of securing the armature-wires in the cups; and it consists in the various novel devices and combinations of devices for these purposes hereinafter described and claimed.

My invention is illustrated in the annexed drawings, in which Figure 1 is a view, partly in section, of a commutator-cylinder with the connecting devices in section; and Fig. 2, a perspective view of a commutator-bar with its connecting devices.

A A are the commutator-bars, placed upon the cylinder B, and separated therefrom and from one another by mica, C. From each commutator-bar A extends one of the radial conducting-strips D. The ends of the commutator-bars are beveled and those of the radial strips bent as shown, so that said strips fit between the ends of the bars and that of the cylinder. The radial strips are brazed to the commutator-bars.

E E are the cups in which the terminals of the armature-coils are secured. Each cup E has formed in one piece with it a plate or flange, F. Each radial strip D has at its outer end a projecting lip, *a*. Each armature-coil terminal, composed of several wires, *b b*, is inserted in a cup, E, and soldered therein. The edges of the cups are provided with tongues *d d*, which, after the wires are soldered in the cups, are bent down upon the wires, as seen in Fig. 2, and assist in holding them in the cups. The cup E is then secured to radial strip D, plate F being placed against the back of said strip and under the lip *a*, and the parts being then secured together by screws *c c* inserted from the front of the strip. With this arrangement the centrifugal force, instead of tending to separate the connections, acts to press the plates F more closely against lips *a*, and so to improve instead of impairing the joint. The greater extent of contact-surface is another advantage, as it makes better electrical connections, and also permits two screws to be used instead of one, so as to form a better mechanical joint.

It is evident that my invention is equally applicable to electro-dynamic motors and dynamo-electric generators.

What I claim is—

1. In a dynamo-electric machine, the combination, with the commutator-bars, of the radial strips extending therefrom, and the cups for the armature-wires each having a flange or plate secured to the backs of said radial strips, substantially as set forth.

2. In a dynamo-electric machine, the combination, with the commutator-bars, of the radial strips extending therefrom provided with projecting lips at their outer ends, and the cups for the armature-wires secured to the backs of said radial strips under said lips, substantially as set forth.

3. In a dynamo-electric machine, the combi-

nation, with the commutator-bars, of the radial strips extending therefrom provided with projecting lips at their outer ends, the cups for the armature-wires having flanges or plates secured to the backs of said radial strips beneath said lips, substantially as set forth.

4. In a dynamo-electric machine, the cups in which the armature-wires are soldered having their edges provided with tongues bent down upon said wires, substantially as set forth.

This specification signed and witnessed this 13th day of November, 1885.

CHARLES BATCHELOR.

Witnesses:
A. W. KIDDLE,
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