L. A. McCOUBRIE & C. F. RAYDURE.

ELECTRIC MOTOR.

APPLICATION FILED APR. 29, 1909.

943,155. Patented Dec. 14, 1909.

Fig. 1.

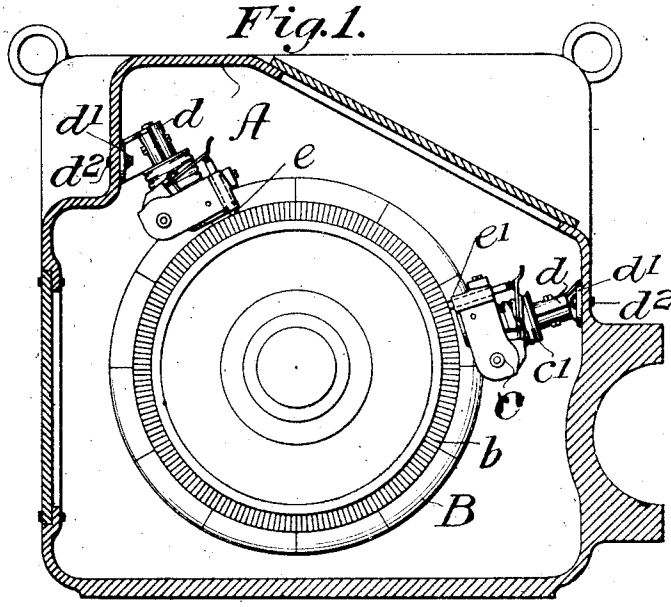


Fig. 5.

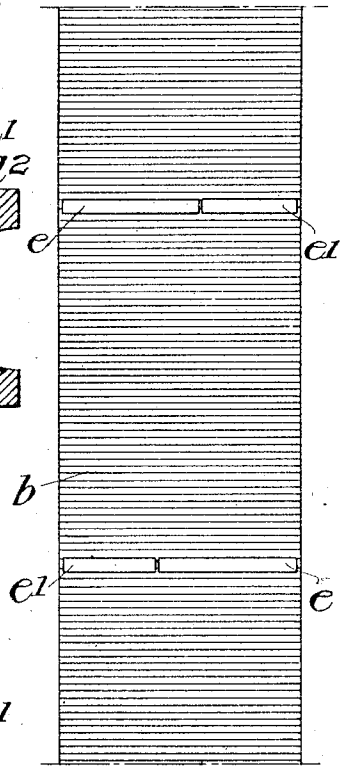


Fig. 2.

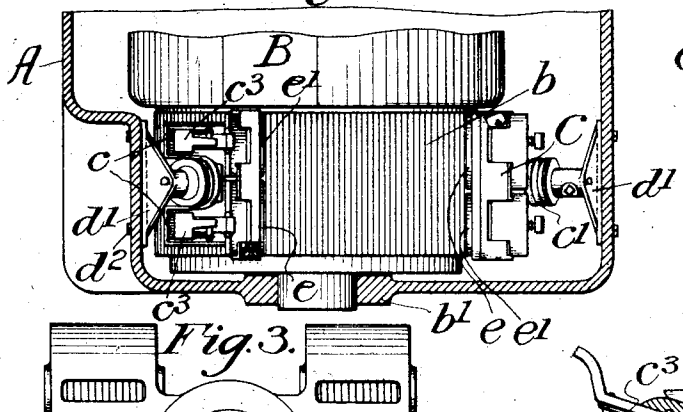


Fig. 3.

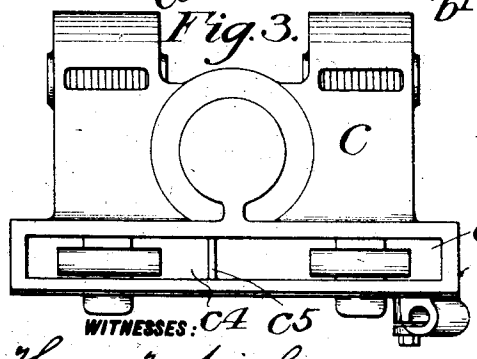
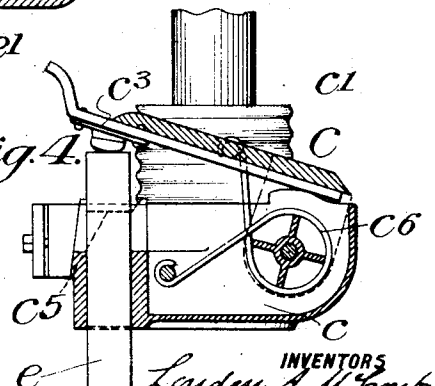


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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ELECTRIC MOTOR.

943,155. Specification of Letters Patent. Patented Dec. 14, 1909.

Application filed April 29, 1909. Serial No. 493,061.

To all whom it may concern:

Be it known that we, LOUDEN A. McCOUBRIE and CHARLES F. RAYDURE, both citizens of the United States, residing at the city of Philadelphi , in the county of Philadelphia and State of Pennsylvania, have jointly invented certain new and useful Improvements in Electric Motors, of which the following is a specification.

Heretofore difficulty has been experienced in maintaining the commutator faces of electric-motors free from rib formations or projections, which cause arc drawing and sparking, and it is highly desirable to prevent such formations, which is the principal object of our present invention.

Our present invention will be more fully understood from the following description in connection with the accompanying drawings forming part hereof, in which—

Figure 1, is a vertical sectional view through a casing or housing for an electric motor having carbon or other brushes adjustably suspended from brackets in such relation with respect to the commutator as to not only insure spring contact of the brushes therewith but to also prevent rib formations or projections being formed around the commutator faces, the same embodying main features of our said invention. Fig. 2, is a top or plan view, showing the arrangement of a plurality of carbon-brushes on each side of the commutator and preferably set at 90° apart, as is usual in car motors, and with means for maintaining each in contact with the said commutator. Fig. 3, is a rear elevational view of means for holding the carbon-brushes under spring tension from the brush-holders, for use in contact with the commutator. Fig. 4, is a vertical central sectional view through one of the brush-holders provided with a plurality of carbon-brushes, one being of a different size from the other in each set, and showing also in detail the arrangement of the spring tension device to maintain the said plurality brushes of each of said holders in direct surface contact with the commutator; and Fig. 5, is a diagrammatic plan view of a commutator laid out flat and the different size plurality brushes of each of said holders, the brushes of the respective holders being in such a position as to occupy staggered relationship in respect to one another in contact with the commutator, the said view disclosing as such, essentially, main features of our said invention.

Referring to the drawings A, is a metal casing of suitable form, for housing the electric-motor B, having a commutator b, journaled on both sides at b^1, in the casing A, as clearly illustrated in Fig. 2.

C, is a brush-holder recessed at c, on each side of a central rod or support c^1, and provided with journals c^2, for adjustably supporting the holder in the sleeve d, of a bracket d^1, which is bolted at d^2, on each side of the commutator to the casing A, as clearly illustrated in Figs. 1 and 2. In the recesses c, on both sides of the central rod or support c^1, of the holder are mounted pivoted tongues c^3, having coiled springs c^6, passing around the bearings of said tongues, with the ends respectively, suitably connected with the holder and tongue. In the front of the holder is provided an oblong slot c^4, with a partition c^5, so as to divide the holder into two openings of different size for receiving carbon or other brushes e and e^1. These brushes are held in the slots c^4, and therefrom in contact with the commutator b, by means of the spring controlled tongues c^3, as illustrated in Figs. 1 and 2. These holders with their different size carbon-brushes e and e^1 on both sides of the commutator b, set as shown at an angle of 90° thereto, occupy staggered relationship to one another in contact with the commutator as illustrated in Fig. 5, whereby in the operation of the commutator, with the brushes so arranged is prevented rib and other formations on the commutator and thus the usefulness of the commutator is prolonged beyond present day uses of such as well as arcing and sparking between the commutator and the brushes of the same avoided.

Having thus described the nature and objects of our invention, what we claim as new and desire to secure by Letters Patent is:—

In an electric-motor, a commutator, brush-holders, each consisting of a hollow casting provided with a transverse partition having long and short slots therein, the slots of successive holders in relative positions alternating, brushes fitting said slots, each of the holders provided with a support, tongues on both sides of said support and coiled springs mounted on bearings of said tongues and

having the ends respectively connected with said holders and tongues so as to maintain under spring tension said brushes in contact with the commutator to prevent rib and other formations as well as sparking or arc drawing between said commutator and brushes thereof.

In witness whereof, we have hereunto set our signatures in the presence of the two subscribing witnesses.

LOUDEN A. McCOUBRIE.
CHARLES F. RAYDURE.

Witnesses:
J. WALTER DOUGLASS,
THOMAS M. SMITH.