G. BLUMBERG AND J. A. BUTKUS.

J. W. DARLEY, ADMINISTRATOR OF G. BLUMBERG, DEC'D, AND A. F. SCHOEN AND J. W. DARLEY, ADMINISTRATORS OF J. A. BUTKUS, DEC'D.

COMMUTATOR.

APPLICATION FILED DEC. 23, 1915. RENEWED APR. 8, 1919.

1,319,988. Patented Oct. 28, 1919.

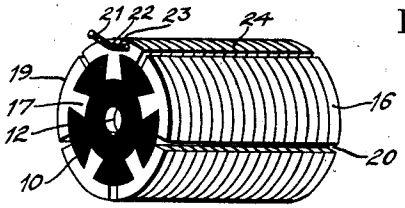


Fig. 1

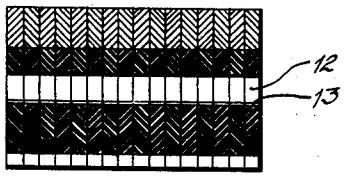


Fig. 2

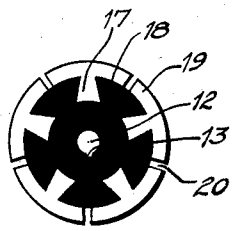


Fig. 3

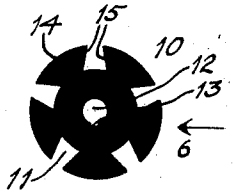


Fig. 4

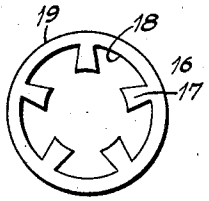


Fig. 7

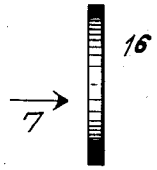


Fig. 5

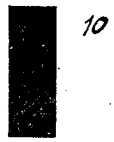


Fig. 6

Inventor

Gustav Blumberg and
John A. Butkus
by Wilkinson & Darley
Attorneys.

UNITED STATES PATENT OFFICE.

GUSTAV BLUMBERG AND JOHN A. BUTKUS, OF BALTIMORE, MARYLAND; JOHN W. DARLEY ADMINISTRATOR OF SAID BLUMBERG, DECEASED, AND ADOLPH F. SCHOEN AND JOHN W. DARLEY ADMINISTRATORS OF SAID BUTKUS, DECEASED.

COMMUTATOR.

1,319,988. Specification of Letters Patent. Patented Oct. 28, 1919.

Application filed December 23, 1915, Serial No. 68,414. Renewed April 8, 1919. Serial No. 288,660.

To all whom it may concern:

Be it known that we, GUSTAV BLUMBERG and JOHN A. BUTKUS, citizens of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Commutators; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to commutators for dynamo electrical machinery, such as motors and generators.

The object of our invention is to provide a simple, cheap and reliable commutator, which can be made as long as desired by simply adding members thereto.

In the drawings:—

Figure 1, is a perspective view of our improved commutator;

Fig. 2, is a central longitudinal section thereof;

Fig. 3, is an end view of our improved commutator;

Fig. 4, is an end view of one of the insulating sections of our improved commutator;

Fig. 5, is a side view of one of the metallic sections of which our improved commutator is composed before the same is cut;

Fig. 6, is a view of the part shown in Fig. 4, looking in the direction of the arrow 6; and

Fig. 7, is a view of the part shown in Fig. 5, looking in the direction of the arrow 7.

In the drawings:—

10 is one of the members of the insulating body upon which the metallic members of our improved commutator are mounted. The insulating members 10 are preferably formed from sheets of insulating material of any suitable thickness. We preferably punch said members from said sheets of insulating material, and afterward pass said members through trimming dies to bring them to the shape shown in Fig. 4. In said figure, it will be noted there are five slots such as 11. There may be any number of slots, either an even number or an odd number. The members 10 are provided with a central cylindrical hole 12 having a keyway 13. The keyway 13 may be omitted, if desired.

The outer cylindrical surface 14 of the members 10 may be of any suitable diameter. The slots 11 may be of any suitable radial depth, but it is essential that the faces 15—15 of said slots shall be closer together where they meet the cylindrical surface 14, than at their inner extremities.

Any suitable number of insulating members 10 are assembled together, and metallic members 16 shaped, as shown in Fig 7, are forced upon the insulating members 10.

The members 16 are provided with a plurality of inwardly extending dovetail portions 17, equal in number to the number of slots 11 and shaped to fit said slots snugly. The inner cylindrical surface 18 of the metallic members 16 is shaped to fit snugly against the cylindrical surface 14 of the insulating members 10 when the dovetail portions 17 are placed within the slots 11.

The outer cylindrical surface 19 of the metallic members 16 is of any suitable diameter. After a plurality of the metallic members 16 are assembled upon the insulating members 10, slots such as 20, equal in number to the number of slots 11, are cut through from the cylindrical surface 19 to the cylindrical surface 18, midway between the dovetail portions 17, thus separating the members 16 into a number of longitudinal sections equal in number to the number of slots 11.

When it is desired to connect an armature wire to the sections of our improved commutator, this is done as shown in Fig. 1, wherein the wire 21 is bent as at 22 and at 23 it is soldered to the commutator section 24. The other wires are similarly connected to the ends of the other sections.

We claim:—

1. An insulating support for commutator sections comprising a plurality of members formed of sheet insulating material and assembled together upon a shaft with their flat surfaces in contact, the outer surface of said plurality of members comprising a cylindrical portion provided with dovetail slots.

2. A commutator section comprising a plurality of members formed of sheet conducting material and assembled together

with their flat surfaces in contact, the outer surface of said plurality of members comprising a cylindrical portion and their inner surface comprising a cylindrical portion provided with dovetail projections.

3. The method of manufacturing commutators which consists in producing a plurality of flat circular insulating disks provided with a central circular hole and a cylindrical surface concentric with said hole, and having a plurality of dovetail slots, mounting said disks upon a shaft with their flat surfaces in contact and said slots in alinement; then producing a plurality of flat circular conducting disks provided with inner and outer concentric cylindrical surfaces, the inner surface being provided with a plurality of dovetail projections, then mounting said conducting disks upon said insulating disks with said projections in said slots, and finally, cutting through said conducting disks between said projections.

In testimony whereof, we affix our signatures.

GUSTAV BLUMBERG.
JOHN A. BUTKUS.