May 12, 1925. 1,537,692

P. W. PROUTY

DISK COMMUTATOR

Filed Aug. 14, 1924

Fig. 1.

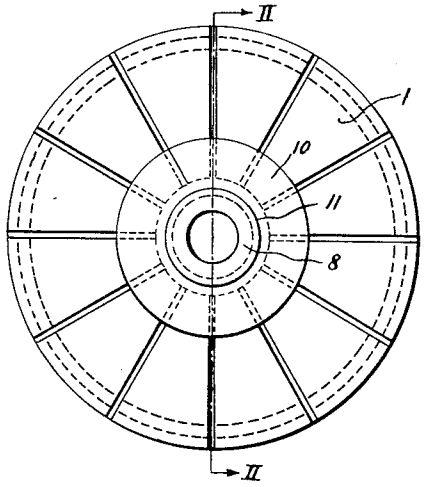


Fig. 2.

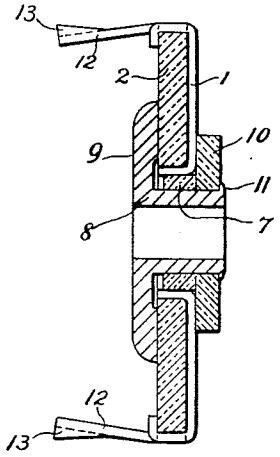
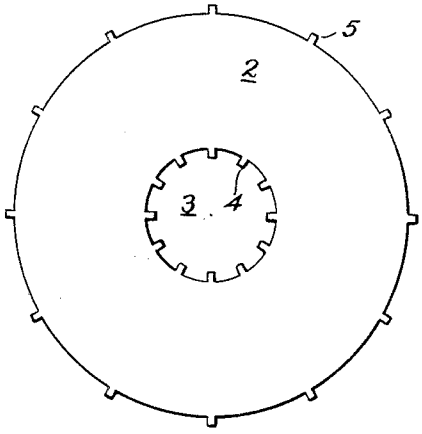


Fig. 3.



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UNITED STATES PATENT OFFICE.

PHILIP W. PROUTY, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

DISK COMMUTATOR.

Application filed August 14, 1924. Serial No. 731,951.

To all whom it may concern:

Be it known that I, PHILIP W. PROUTY, a citizen of the United States, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Disk Commutators, of which the following is a specification.

My invention relates to commutators and has particular relation to commutators of the disk type for use in small motors.

One object of my invention is to provide a small commutator that is inexpensive in construction and has all the qualities of good electrical and mechanical performance met in the more expensive commutators of large machines.

The foregoing and other objects of my invention will be best understood by reference to the accompanying drawings, wherein—

Figure 1 is an end view of a commutator made according to my invention,

Fig. 2 is a view in section along the line II—II of Fig. 1, and

Fig. 3 is a plan view showing the disk supporting the segments of the commutator shown in Figs. 1 and 2.

Referring to the drawing, a plurality of sheet metal segments 1 are disposed upon the face of a supporting plate 2 of insulating material such as micarta board, for instance. The supporting plate 2 has a circular central opening 3 and is provided with projections 4 and 5 extending inwardly and outwardly, respectively, from the inner and outer peripheries for spacing the individual segments from each other. The segments 1 are placed between consecutive projecting portions 4 and 5 and have an inner edge portion that is bent over the inner edge of the supporting member 2. The outer edge of each commutator segment 1 is bent over the outer edge of the supporting member 2 and has a portion overlapping the opposite side of the supporting member. The bent-over inner and outer portions of the segments constitute lugs that space the segments upon the supporting plate and hold the segments flat upon the same.

After the segments are secured upon the supporting plate, the assembled structure is mounted on a micarta bushing 7 and pressed on a brass bushing 8 having a flange 9 which holds the micarta plate true and perpendicular to the axis. A flat micarta washer 10 is thereupon assembled upon the brass bushing 8 and the central portion of the segments is held in place by riveting the end of the brass bushing over the micarta washer as shown at 11.

The spaces between the working edges of adjacent segments are free, giving the effect of an undercut commutator of the disk type. Each segment 1 is provided with an integral sheet-metal lug 12 having lateral extensions 13 which are bent over to form a clip of U-shape to provide a means for connecting the armature leads to the commutator.

I claim as my invention:

1. A commutator comprising a supporting disk of insulating material, a plurality of conducting segments disposed upon the face of said supporting disk, one end of each of said segments having a portion overlapping said supporting disk to hold the segment in place and an additional insulating member secured over the other end of each of said segments to hold the same against said supporting member.

2. A commutator comprising an insulating disk, a plurality of conducting segments disposed upon the face of said disk and spaced from each other, one end of each said segments having a portion extending over the opposite face of the disk, and an additional insulating member securing the other ends of said segments to said disk.

3. A commutator comprising an insulating disk, a plurality of sheet metal segments circumferentially disposed upon said disk and spaced from each other, the outer periphery of each of said segments having a portion bent over the periphery of the disk and the opposite face of the same, and an additional insulating member securing the other ends of said segments to said disk.

4. A commutator comprising a disk having a central circular opening, a plurality of sheet metal segments disposed upon the face of said disk, the outer ends of said segments having portions bent over the opposite face of said disk, the inner ends of said segments having portions extending into the central opening of said disk, and an insulating member pressing the central portions of said segments toward said disk.

5. A commutator comprising a disk having a central, circular opening, the outer and

inner peripheries of said disk having a plurality of slots and a plurality of sheet metal segments disposed upon the face of said disk, each of said segments having laterally projecting outer and inner lugs fitting into said slots.

6. A commutator comprising a disk having a central, circular opening, the outer and inner peripheries of said disk having a plurality of slots, a plurality of sheet metal segments disposed upon the face of said disk, each of said segments having laterally projecting outer and inner lugs fitting into said slots, the outer lugs being bent over the opposite face of said disk, an insulating washer pressing the central portions of said segments to said disk and a central bushing securing said washer to said disk.

7. A commutator comprising a disk having a central, circular opening, the outer and inner peripheries of said disk having a plurality of slots, a plurality of sheet metal segments disposed upon the face of said disk, each of said segments having laterally projecting outer and inner lugs fitting into said slots, the outer lugs being bent over the opposite face of said disk, an insulating washer pressing the central portions of said segments to said disk and a central bushing securing said washer to said disk and having an integral flange for holding the disk true and perpendicular to the axis.

8. A commutator comprising a disk having a central, circular opening, a plurality of sheet metal segments disposed upon the face of said disk, the outer ends of said segments having portions bent over the opposite face of said disk, the inner ends of said segments having portions extending into the central opening of said disk, an insulating member pressing the central portions of said segments toward said disk, and a central bushing securing said member to said disk.

In testimony whereof, I have hereunto subscribed my name this seventh day of August, 1924.

PHILIP W. PROUTY.