

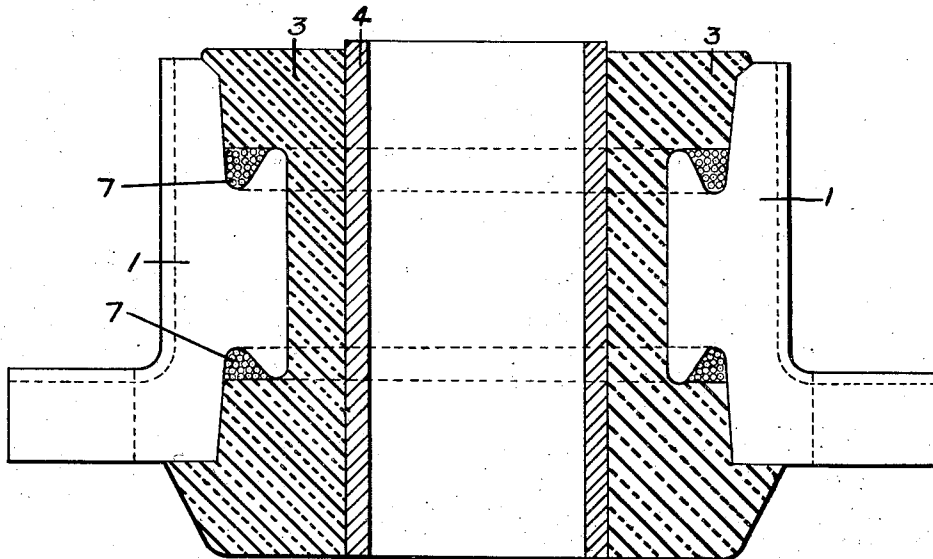
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MOLDED COMMUTATOR CYLINDER.

APPLICATION FILED OCT. 8, 1917. RENEWED OCT. 2, 1918.

1,284,524.

Patented Nov. 12, 1918.



WITNESSES:

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CHARLES E. WILSON AND WILLARD H. KEMPTON, OF WILKINSBURG, AND ARTHUR J. BASTIAN, OF EDGEWOOD PARK, PENNSYLVANIA, ASSIGNORS TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

MOLDED COMMUTATOR CYLINDER.

1,284,524.

Specification of Letters Patent. Patented Nov. 12, 1918.

Application filed October 8, 1917, Serial No. 195,232. Renewed October 2, 1913. Serial No. 256,630.

To all whom it may concern:

Be it known that we, CHARLES E. WILSON, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, WILLARD H. KEMPTON, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, and ARTHUR J. BASTIAN, a citizen of the United States, and a resident of Edgewood Park, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Molded Commutator-Cylinders, of which the following is a specification.

Our invention relates to commutator cylinders for dynamo-electric machines and to other structures in which the assembled conducting and other parts are held in position by molded insulating material.

The object of our invention is to provide a commutator cylinder or other structure of the character designated which shall embody means for materially increasing the mechanical strength of the section of molded insulating material.

In co-pending application of Willard H. Kempton, Serial No. 5899, filed February 3, 1915, and assigned to the Westinghouse Electric & Manufacturing Co., is shown a molded commutator cylinder that is provided with rigid strengthening rings, embedded in the molded insulating material in such a manner as to increase the strength of the molded section. Rigid insulating rings are difficult to position during the molding operation and are liable to become displaced. Moreover, they render it difficult to force the molded insulating material into the crevices. Metal rings have been employed in some cases in order to give the desired mechanical strength but it has been found that such rings are liable to come in contact with the conducting sections and short circuit them when embodied in commutator cylinders of small diameter.

By our invention, we provide a novel form of strengthening ring composed of non-conducting material which possesses the required mechanical strength and may be readily applied.

Referring to the accompanying drawing, the single figure is a cross sectional view of

a commutator constructed in accordance with our invention.

Referring more particularly to the drawing, alternate conducting and insulating sections 1 and 2, respectively, are arranged in annular form, with portions thereof embedded in molded insulating material 3, that is supported upon a hollow cylindrical sleeve 4, by means of which the commutator cylinder is attached to the shaft (not shown). The conducting and insulating sections 1 and 2 are respectively provided with end notches that register with each other to form annular grooves 5. Rings 6, that are composed of strong cord impregnated with bakelite or some other suitable insulating material and molded to form a substantially unitary body are located in the grooves 5. The rings 6 serve to materially increase the tensile strength of the section of insulating material 3 and are well adapted to withstand stresses tending to distort them without breaking or cracking because, being composed of fibrous stranded material, they are capable of yielding slightly under pressure.

On account of the strengthening rings in our invention being formed of cord or fabric impregnated with insulating material, it will be impossible for the conducting sections to be short circuited thereby. Furthermore, such commutator cylinders may be readily molded, as no great care need be exercised in positioning the rings.

While we have shown our invention as applied to a commutator cylinder, it will be obvious to those skilled in the art that it is not so limited in its application but in its broadest aspect is susceptible of use in other structures and of various modifications without departing from the spirit thereof, and we desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or are specifically set forth in the appended claims.

We claim as our invention:

1. A composite article comprising bodies of conducting material having notches, a body of molded insulating material for holding said bodies in place, and a reinforcing member comprising strands of fibrous material disposed in said notches and embedded in the molded insulating material.

2. A commutator structure comprising a

- plurality of alternating conducting and insulating sections arranged to form a hollow cylinder, the said sections being provided with notches alined to form an annular
- 5 groove, a body of molded insulating material located within said cylinder, and a ring composed of stranded fibrous material embedded in said molded insulating material and extending into said groove.
- 10 3. A commutator structure comprising a plurality of alternating conducting and insulating sections arranged to form a hollow cylinder, the said sections being provided with notches alined to form an annular
- 15 groove, a body of molded insulating material located within said cylinder, and a strengthening ring composed of flexible corded material embedded in said molded insulating material and extending into said
- 20 groove.
4. A commutator structure comprising a plurality of alternating conducting and insulating sections arranged to form a hollow cylinder, the said sections being provided
- 25 with notches alined to form an annular groove, a body of molded insulating material located within said cylinder, and a strengthening ring composed of stranded fibrous material held together by an insulating
- 30 binder and embedded in said molded insulating material and extending into said groove.
5. A commutator structure comprising a plurality of alternating conducting and insulating sections arranged to form a hollow cylinder, the said sections being provided with notches alined to form an annular
- 35 groove, a body of molded insulating material located within said cylinder, and a strengthening ring composed of cord impregnated with a phenolic condensation product and embedded in said molded insulating material and extending into said groove.
6. A commutator structure comprising a plurality of alternating conducting and insulating sections arranged to form a hollow cylinder, the said sections being provided with notches alined to form an annular
- 45 groove, a body of molded insulating material located within said cylinder, and a strengthening ring composed of stranded fibrous material impregnated with an insulating compound and molded so as to conform to the shape of said groove and embedded in said molded insulating material.
7. A composite article comprising bodies of conducting material, a body of molded insulating material for holding said bodies in place, and a reinforcing member comprising
- 50 stranded fibrous material embedded in said molded insulating material.
8. A composite article comprising bodies of conducting material, a body of molded insulating material for holding said bodies
- 55 in place, and a reinforcing member comprising stranded fibrous material impregnated with an insulating compound and embedded in said molded insulating material.
- In testimony whereof, we have hereunto
- 60 subscribed our names this 29th day of September 1917.
- CHARLES E. WILSON.
WILLARD H. KEMPTON.
ARTHUR J. BASTIAN.