

(No Model.)

A. J. OEHRING & H. H. WAIT.
COMMUTATOR FOR HIGH VOLTAGE DYNAMOS.

No. 557,218.

Patented Mar. 31, 1896.

Fig. 1.

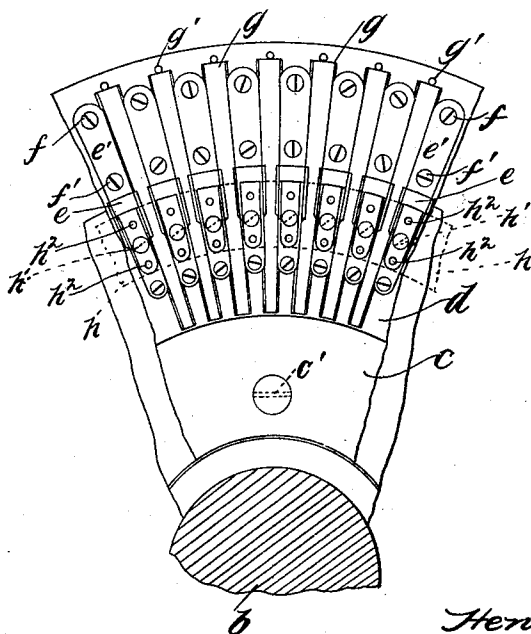
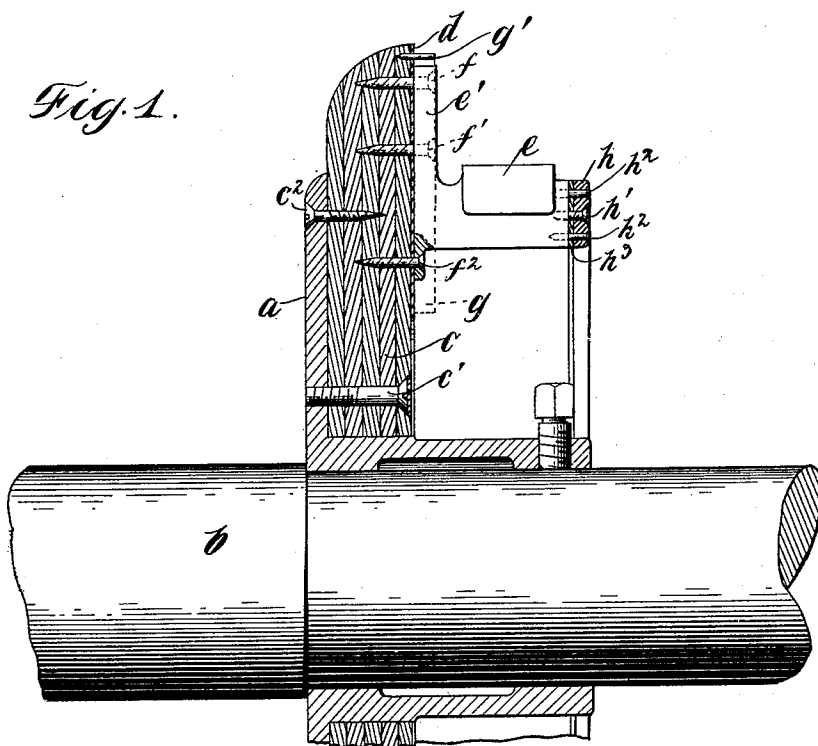


Fig. 2.

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UNITED STATES PATENT OFFICE.

AUGUST J. OEHRING AND HENRY H. WAIT, OF CHICAGO, ILLINOIS, ASSIGN-
ORS TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

COMMUTATOR FOR HIGH-VOLTAGE DYNAMOS.

SPECIFICATION forming part of Letters Patent No. 557,218, dated March 31, 1896.

Application filed August 20, 1895. Serial No. 559,947. (No model.)

To all whom it may concern:

Be it known that we, AUGUST J. OEHRING and HENRY H. WAIT, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Commutators for High-Voltage Dynamos, (Case No. 4,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to a commutator for dynamo-electric machines, our object being to provide a commutator of substantial and rigid mechanical construction adapted for high-pressure dynamos and which can be readily inspected and cleaned, all places where dirt might collect being readily accessible.

In accordance with our invention we provide a disk, upon the face of which the commutator-segments are mounted, the disk being preferably formed of thin layers of wood mounted upon a metallic support. The radial extensions or arms of the commutator-segments are secured to the front of the disk of insulating material thus formed by means of screws, which do not pass entirely through the disk, so that there are no points upon the rear of the disk which are in electrical connection with the circuit of the machine. Between the radial arms of the commutator-segments are provided blocks of slate, which prevent such flashing as may occur from doing any injury to the insulating material on which the bars are supported. The spaces between the commutator-segments are unfilled, and, due to the rotation of the armature, blasts of air are forced through the spaces between the segments, which serve to blow out the sparks at the brushes and to prevent dirt from collecting between the segments. An annulus or ring is secured to the ends of the commutator-segments, thus maintaining the segments against lateral displacement. The screws which secure the segments to the support or disk being thus provided upon the front of the disk, they are readily accessible from the front and may be tightened at any time, while the segments may be removed individually for repair. Furthermore, there are no hidden surfaces where dirt can collect or

where the insulation can deteriorate unobserved.

We will describe our invention by reference to the accompanying drawings, in which—

Figure 1 is a view in cross-section of the commutator of our invention. Fig. 2 is a partial view thereof in elevation.

The support or spider *a* is mounted upon the shaft *b* of the armature of the dynamo, and against its face is secured the disk *c*, formed from a number of thin disks of wood secured together. The disk *c* is secured to the plate *a* preferably by means of a number of machine-screws *c'* adapted to pass through the disk and engage tapped holes provided in the plate *a* and by a number of wood-screws *c''* passing through a hole provided in the plate screwing into the wooden disk. Upon the front of the disk *c* is preferably provided a thin layer of mica *d*, and upon this rest the radial arms *e'* of the commutator-segments *e*, the arms being secured to the face of the disk by means of screws *f f' f''*. The screws are thus accessible from the front and may be readily removed at any time to remove a particular segment. The screws *f f' f''* do not extend completely through the disk, so that there are no metallic portions upon the rear of the supporting-disk electrically connected with the circuit of the machine. Between the radial arms *e'*, as shown in Fig. 2, are provided blocks of slate *g g*, which are driven into the tapering spaces between the radial arms, pins *g' g'* preferably being employed for preventing the withdrawal of the blocks due to centrifugal force as the commutator rotates. The free ends of the commutator-segments are secured to a ring or annulus *h* by means of screws *h'*, a number of dowel-pins *h'' h''* being also provided for maintaining the segments accurately in alinement. Between the annulus *h*, which may be made of wood, and the ends of the commutator-segments we preferably interpose a layer *h''* of mica.

We are aware that it has been proposed heretofore to provide a disk of insulating material, upon the face of which the commutator-segments are mounted, but the disk has usually been made of slate or other brittle substance

in order that the insulating material may be non-inflammable; but such construction, in which a disk of brittle material is employed, is objectionable, since the disk becomes
5 broken by centrifugal force and jarring.

The object of our invention is to form the disk of non-brittle insulating substance, such as wood, and to render the support inflammable when arcing occurs by interposing
10 between the radial arms of the segments wedges of slate or similar non-inflammable material.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

15 1. In a commutator, the combination with a disk of wood, of segments secured to the face of said disk by screws passing through the segments and into the disk, but not passing completely through the disk, whereby
20 there are no metallic portions upon the rear of the disk electrically connected with the circuit of the machine; substantially as described.

2. In a commutator, the combination with a disk of insulating material, of commutator-segments individually secured to and supported upon the face of said disk, and an annulus or ring secured to the ends of said segments to maintain the same against lateral displacement; substantially as described. 30

3. In a commutator, the combination with a disk of wood or other non-brittle insulating material, of commutator-segments the radial arms of which are secured to the face of said disk, and wedges of slate or other non-inflammable insulating material filling the spaces
35 between said radial arms and protecting the disk from the effects of sparking; substantially as described.

In witness whereof we hereunto subscribe our names this 29th day of July, A. D. 1895. 40

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