

(No Model.)

H. P. WHITE.
COMMUTATOR.

No. 467,215.

Patented Jan. 19, 1892.

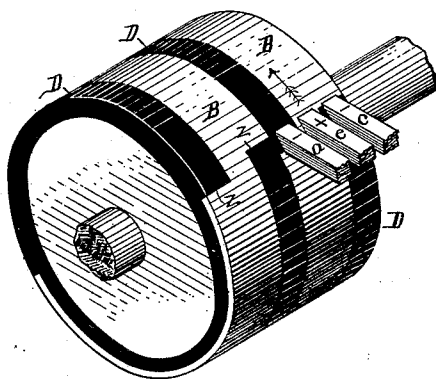


Fig. 1

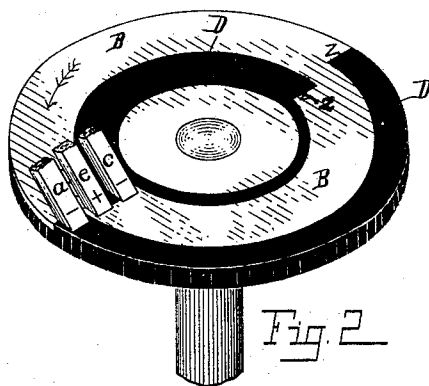


Fig. 2

Witnesses:

Walter S. Wood
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Att'y.

UNITED STATES PATENT OFFICE.

HENRY P. WHITE, OF KALAMAZOO, MICHIGAN.

COMMUTATOR.

SPECIFICATION forming part of Letters Patent No. 467,215, dated January 19, 1892.

Application filed February 13, 1891. Serial No. 381,387. (No model.)

To all whom it may concern:

Be it known that I, HENRY P. WHITE, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Commutator, of which the following is a specification.

This invention has for its object, below described and claimed, the construction of a commutator in which the path of the electric current is changed during the revolution or travel of the commutator, all as more particularly described and claimed below.

In the drawings forming part of this specification, Figure 1 is a perspective view, and Fig. 2 is a perspective view of an equivalent construction.

The commutator, as shown in Fig. 1, is cylindrical in form, the periphery thereof consisting of some non-conducting substance. (Shown in black.) Surrounding this non-conducting substance is a zone of some suitable conducting substance of sufficient width to form a path for three brushes, two negative *a c* and one positive *e*, (to which brushes, of course, in use, the circuit-wires are attached, said wires not being here shown,) said zone having first been cut away at opposite sides in an alternate plane to each other the width of a single path of one of the brushes, said cut-away portions jogging a little by each other at their termini, as at *z z*, thus permitting an alternate brush *a* to engage its conducting-path just before the other brush *c* is freed from its conducting-path, since said brushes are of the same length, thus preserving a continuous circuit and obviating danger of burning the commutator and brushes. A strip the width of one path of the conducting-zone is cut away from each side half-way around the circle and being alike on opposite halves of the zone, so that the positive brush *e* always traverses the conducting-path and one of the negative brushes traverses a conducting-path while the other negative brush is traversing a non-conducting path during one-half revolution of the commutator, and at the terminus of said half-revolution the order of the negative brushes is changed by the alternating of their paths which they trav-

erse during the other half-revolution of said commutator. To illustrate, in Fig. 1 the negative brush *c* is just about to leave its conducting-path B and the negative brush *a* is just engaging with its conducting-path, the positive brush *e* always preserves an engagement with its conducting-path. The commutator in Fig. 1 is supposed to be traveling in the direction of the arrow, and until it reaches the point shown in said figure a circuit is established through the brushes *e c*; but as soon as the commutator travels beyond the point shown in said figure the negative brush *c* will traverse the non-conducting path D and a circuit will be established through the brushes *a e*.

Paths for two sets of brushes are shown in the commutator in Fig. 1 for the purpose of illustrating that any desired number may be employed in one commutator, according to the number of sets of brushes employed in the given construction; but so far as the present invention is concerned the paths B D shown in connection with brushes *a e c* are sufficient. An equivalent is shown in Fig. 2, in which the conducting-paths B and the non-conducting paths D are shown on a flat rotating disk, with which the brushes *a e c* engage in like relation to that shown in Fig. 1. It will be observed that as the construction is here shown the circuit is changed during every half-revolution of the commutator; but of course the construction may be so arranged that the connection of the circuit will take place less or more frequently, as desired.

It should have been stated that the conducting and non-conducting paths of the commutators are flush with each other, thus making the exterior surface of the commutators smooth. In lieu of the two negative brushes and one positive brush and the conducting and non-conducting paths, as here shown, the order may be reversed, employing two positive brushes and one negative brush, with their respective paths arranged to coincide therewith, if desired.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

The commutator consisting of a revoluble circular head having on its surface alternating conducting and non-conducting paths on opposite halves and an unbroken conducting-
5 path, said alternating paths jogging by each other at their termini, substantially as set forth.

In testimony to the foregoing I have hereunto subscribed my name in the presence of two witnesses.

HENRY P. WHITE.

In presence of—

E. C. SOUTHARD,
CHAS. G. GRIFFIN.