

W. G. VIALL.
COMMUTATOR.

APPLICATION FILED APR. 28, 1910.

1,018,141.

Patented Feb. 20, 1912.

Fig. 1.

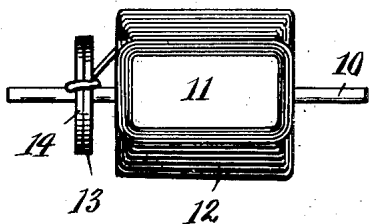


Fig. 2.

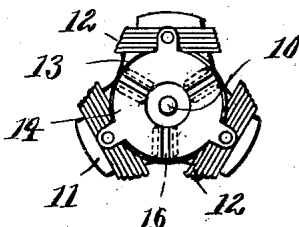


Fig. 3.

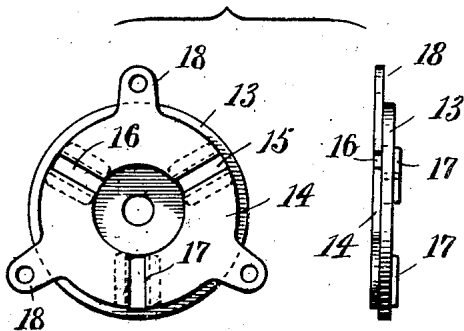


Fig. 4.

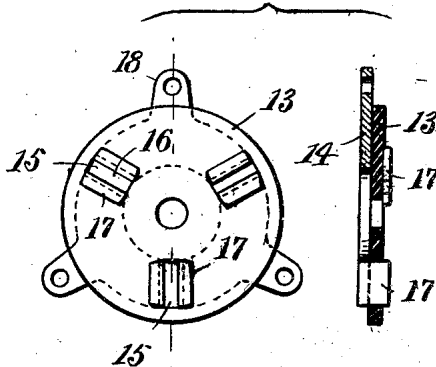
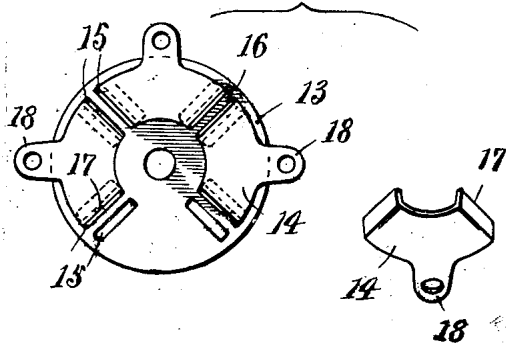


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM G. VIALI, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE IVES MANUFACTURING CORPORATION, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

COMMUTATOR.

1,018,141.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed April 28, 1910. Serial No. 558,109.

To all whom it may concern:

Be it known that I, WILLIAM G. VIALI, a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Commutators, of which the following is a specification.

This invention relates to commutators such as are employed upon rotary armatures for electric motors or generators.

It is the purpose of my invention to produce a commutator that will be particularly desirable for small motors, as for instance those used in toys and especially electrically operated cars, locomotives and like devices, wherein but a limited space is available to inclose the motor; to provide a commutator which is comparatively narrow thus reducing the length of the motor upon which it is employed; further to design the commutator so that the brushes will operate upon the side, rather than upon the periphery; and finally to construct a commutator that will be exceedingly simple and inexpensive to manufacture and yet take the place and do the work of other more expensive constructions.

Similar characters of reference denote like or corresponding parts throughout the several figures of the accompanying drawings, and of which,

Figure 1, shows a side view of an armature including motor shaft, core, windings and my improved form of commutator attached. Fig. 2, is an end view of Fig. 1. Fig. 3, shows a side and edge view of my improved form of commutator detached from its shaft. Fig. 4, shows an opposite side and central vertical sectional view of the construction shown in the preceding figures, and Fig. 5, is a side view of a commutator constructed in accord with my invention, but having one of its segments shown detached.

My novel commutator is formed solely of stampings, so-called, which may be produced upon any suitable form of press adapted to cut and blank up sheet material as for instance, wood-fibre, hard rubber and the like and also sheet metal sections for attachment to the said insulator.

Referring in detail to the characters of reference marked upon the drawings 10 indicates an armature shaft that is provided

with any suitable form of armature core 11 and windings 12. The core may contain any preferred number of these windings to agree with the number of segments employed upon the commutator. In practice the above armature is journaled to operate in suitable bearings of a frame and adapted to be connected with the usual brushes, to constitute a complete motor which is not shown in the drawings.

The commutator referred to is to be mounted upon the shaft 10 and is connected with the said windings and for the engagement of the said brushes (not shown). The commutators are formed of a single disk that is stamped up from suitable insulating materials, as for instance, fiber, hard rubber and the like, and sheet metal segments that are suitably secured to the sides of the disk. The disks may in some cases be formed of porcelain, but for small motors I prefer to make them from a material that is adapted to be cut and blanked up by a press all complete with holes formed therein ready for its attachment to the shaft and for the attachment of the segments to the disks.

The segments are formed of a suitable shape, according to number employed upon each commutator and to substantially cover the one side of the disk less the desired spaces formed therebetween. They further include suitably located integral ends that are inserted through the respective pairs of holes of the series and then bent over upon the opposite side of the disk for the attachment of the segments to the said disks. I further provide upon each segment an outwardly disposed end with hole therein for the connection of wires from the respective windings 12 of the core.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. A commutator wheel, comprising a disk formed of insulating material and having a series of holes therein, a series of sheet metal segments with integral ends that are projected through the holes in the disk and bent over for the attachment of the segments to the disk.

2. A commutator wheel, comprising a fibrous disk having a series of holes there-through, and a series of metal segments upon the side of the disk and having ends

formed integral therewith which are projected through the said holes and bent down upon the opposite face of the disk for the attachment of the segments to the disk.

5 3. A commutator wheel, comprising a fibrous disk having a series of holes therein, a series of metal segments upon the side of said disk and each having a pair of extended ends formed integral therewith and projected through the said holes and bent down

upon the opposite face of the disk for the attachment of the segments to the disk.

Signed at Bridgeport, in the county of Fairfield, and State of Connecticut, this 27th day of April A. D., 1910.

WILLIAM G. VIALL.

Witnesses:

C. M. NEWMAN,
H. C. IVES.