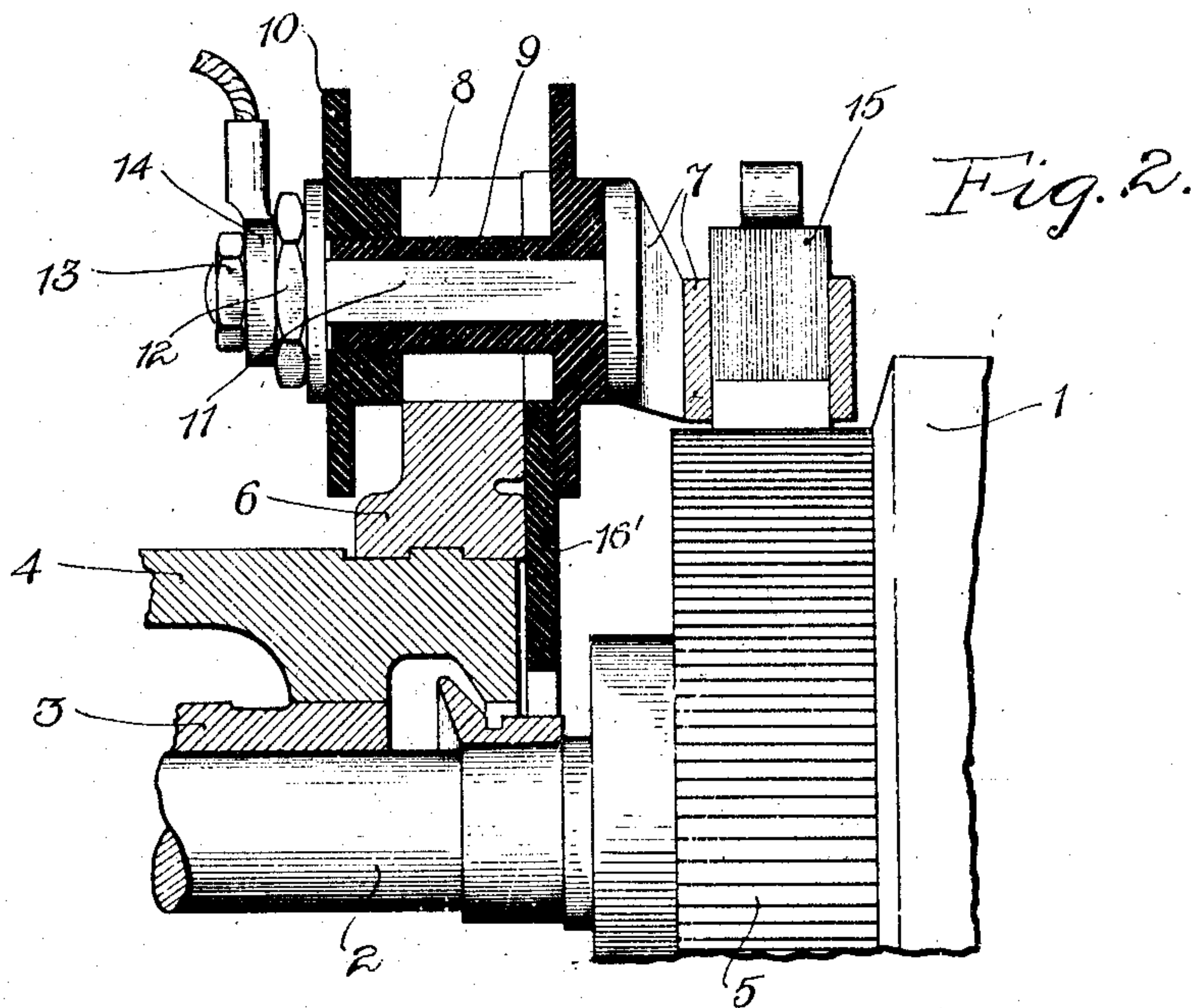
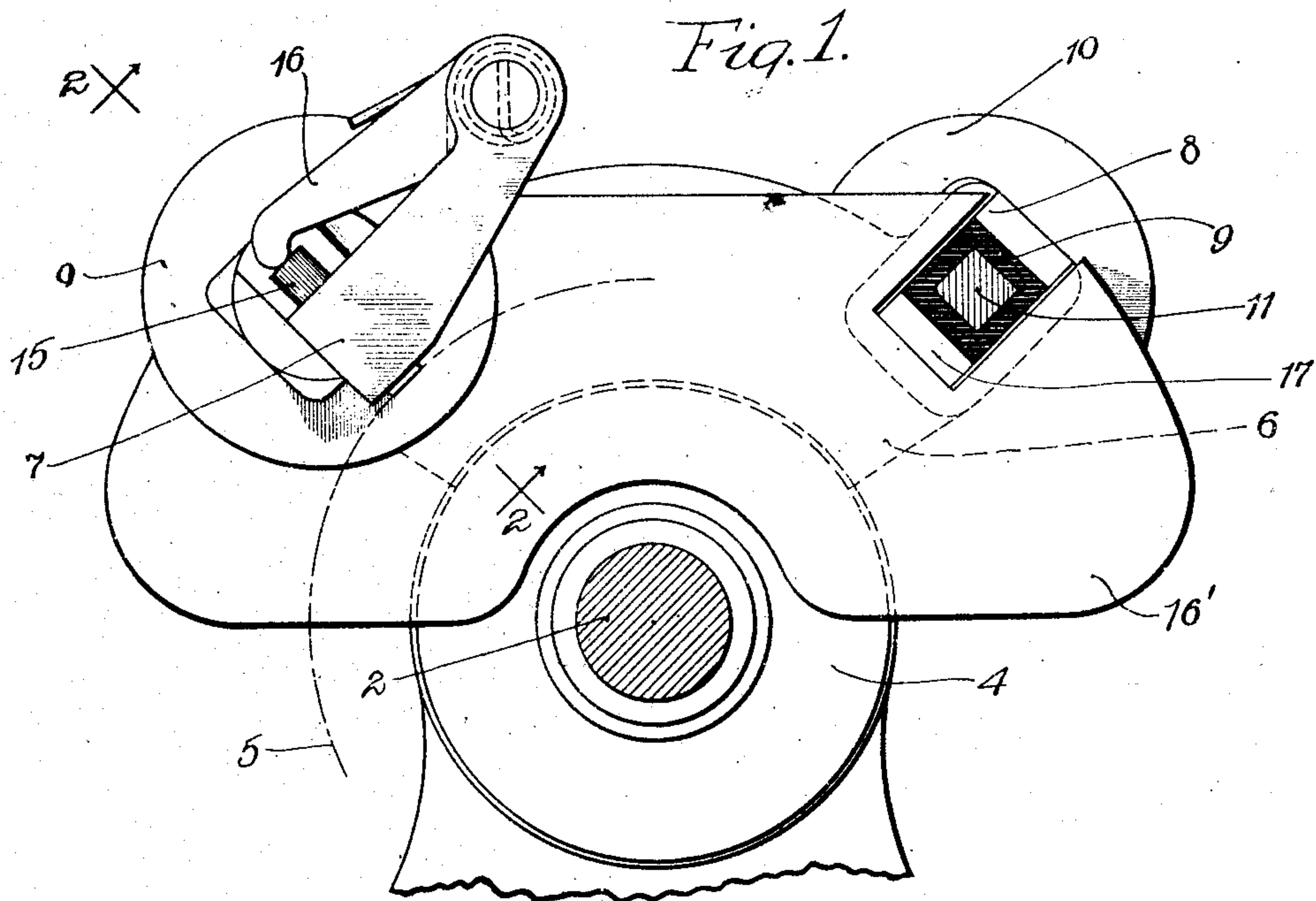


No. 886,562.

PATENTED MAY 5, 1908.

W. L. WATERS.
DYNAMO ELECTRIC MACHINE.
APPLICATION FILED DEC. 13, 1906.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM L. WATERS, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO NATIONAL BRAKE & ELECTRIC COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

DYNAMO-ELECTRIC MACHINE.

No. 886,562.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed December 13, 1906. Serial No. 347,612.

To all whom it may concern:

Be it known that I, WILLIAM L. WATERS, citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Improvement in Dynamo-Electric Machines, 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.

My invention relates to dynamo electric machines, particularly to brush holder mechanism, the main feature residing in means for preventing sparking between the commutator and the machine frame.

When machines are used as motors on circuits in which there is sudden variation in voltage, as, for instance, in street railway work, there is a tendency for the commutator to flash over to the frame of the machine, particularly to the bearing frames which are usually quite near the commutator, and my invention contemplates the introduction of a shield of insulating material between the commutator and bearing frame, this preventing such stray current flow.

My invention will be readily understood by reference to the accompanying drawings in which

Figure 1 is an end view of the brush holder mechanism and of a bearing frame on which the brush holder is mounted; Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

I have shown part of an armature 1 mounted on the armature shaft 2 whose one end is shown journaled in a bushing 3 which lines the bearing frame 4. Between the bearing frame and the armature the commutator 5 is mounted on the armature shaft. The brush holder frame 6 is mounted in any suitable manner at the edge of the bearing frame adjacent to the commutator, and the brush frames 7 are supported from this brush holder frame or yoke. In the construction shown the yoke 6 has the slots 8 on which may be clamped the insulating spool sections 9 and 10, the arms 11 extending from the brush frames 7 extending through the spools to be engaged at their other ends by the locking nuts 12 and 13 which also clamp between them the terminal lug 14. The brush frames are arranged over the commutator so that the brushes 15 there-

in bear in suitable position on the commutator, spring actuated arms 16 being here shown to hold the brushes in engagement with the commutator.

Unless provision is made, there will be at times sparking between the commutator segments and the bearing frame 4, particularly when the voltage changes very suddenly which would be the case when the motor ran on a street railway circuit. To prevent such sparking, I interpose a shield 16' of insulating material having the shape as shown in Fig. 1, this shield having the slots 17 registering with the slots 8 of the brush yoke and which slots also receive the spool section 9. Thus when the brush frames are clamped to the yoke, the shield 16' will also be clamped and held in position, and the lower end sections thereof being interposed will be held in position to extend downwardly to interpose between the commutator and the brush yoke and bearing frame end. Thus sparking between the commutator and other frame parts is prevented.

I do not wish to be limited to the precise construction and arrangement herein shown, as my invention may be applied to brush holder mechanisms of any construction, the main feature being interposition of an insulating shield between the commutator segments near the engaging brushes and the machine frame or other parts desired to be kept insulated from the commutator or brushes.

I claim as new and desire to secure by Letters Patent:

In a dynamo electric machine, the combination of an armature and commutator mounted on a shaft, a bearing frame supporting the commutator end of the shaft and disposed adjacent to the commutator, a brush yoke mounted on said bearing frame adjacent to the commutator, said brush yoke being provided with slots, brush frames supported in said slots in said brush yoke, brushes in said brush frames engaging the commutator, and a shield of insulating material having slots registering with the slots in the brush yoke, clamping studs securing the brush frames to the brush yoke and causing said shield to be simultaneously clamped thereto, said shield of insulating material being interposed between the brush frames and

brush yokes to electrically separate the section of the commutator engaged by the brushes from the brush yoke and bearing frame, thus preventing sparking between the
5 commutator and brush yoke and bearing frame.

In witness whereof, I hereunto subscribe

my name this 7th day of December A. D., 1906.

WILLIAM L. WATERS.

Witnesses:

EDNA B. BURDICK,
S. W. GLOVER.