

C. T. CROCKER.
BRUSH HOLDER SUPPORT.
APPLICATION FILED JUNE 5, 1905.

996,218.

Patented June 27, 1911.

Fig. 1.

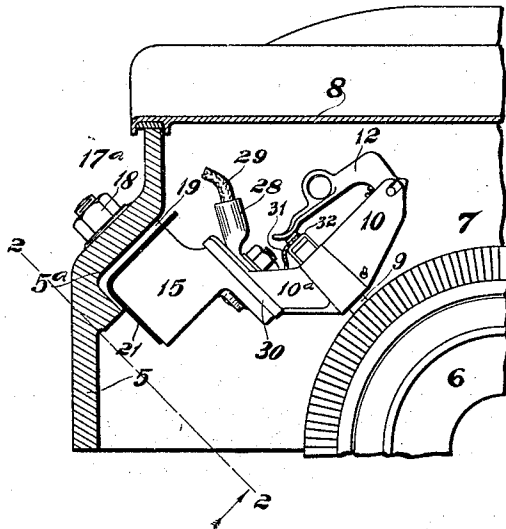


Fig. 2.

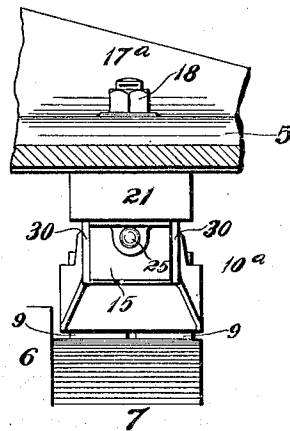


Fig. 3.

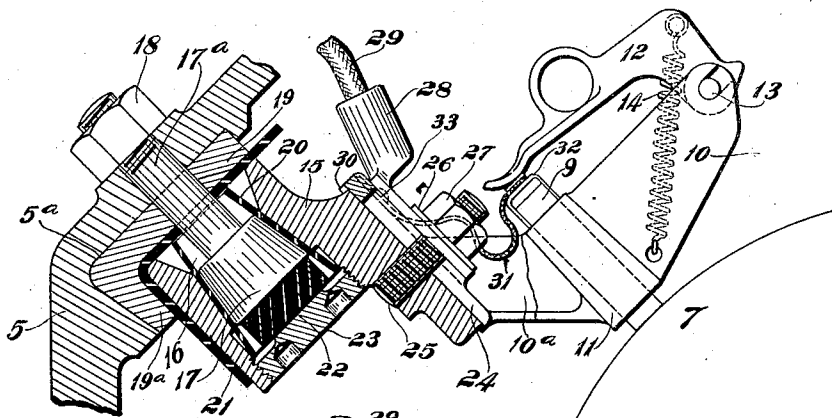
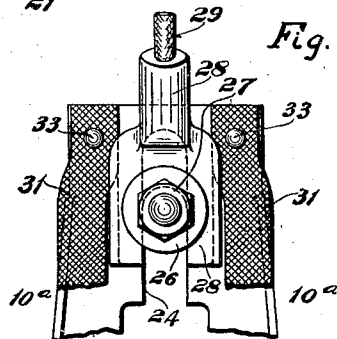


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

CLARENCE T. CROCKER, OF NORWOOD, OHIO, ASSIGNOR TO THE BULLOCK ELECTRIC MANUFACTURING COMPANY, A CORPORATION OF OHIO.

BRUSH-HOLDER SUPPORT.

996,218.

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To all whom it may concern:

Be it known that I, CLARENCE T. CROCKER, citizen of the United States, residing at Norwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Brush-Holder Supports, of which the following is a full, clear, and exact specification.

My present invention relates to supports for brush holders especially adapted for use in connection with railway motors and similar electrical machines.

The object of my invention is to simplify the construction and arrangement of brush holder supports as used on railway motors; to render same readily accessible and readily removable without introducing tools into the interior of the motor casing; and at the same time produce an efficient structure which will do away with the undesirable wooden blocks formerly employed and will support the brush holder rigidly within the motor casing and permit a radial adjustment of same when found desirable.

The invention therefore consists of a brush holder, a metal supporting bracket for same, and means for fastening said bracket to the interior surface of a motor casing, said fastening passing through said casing and readily accessible from the exterior of the motor.

More specifically considered, the invention consists of a brush holder support, provided with a conical recess, a conical member within said recess, means accessible from the exterior of the motor casing for fastening said conical member to said casing, and means for insulating said support from said casing.

The invention further comprises improvements in the detail of construction of the holder and its support which will be hereinafter described and more clearly pointed out in the appended claims.

In the accompanying drawings illustrating the preferred embodiment of my invention, Figure 1 is a sectional elevation of part of a railway motor equipped with my improved brush holder support; Fig. 2 is a section on the line 2—2 of Fig. 1, looking in the direction indicated by the arrow; Fig. 3 is a longitudinal section through the support, the brush holder being shown in side elevation; and Fig. 4 is a detail view illustrating

the means employed for obtaining a radial adjustment of the brush holder.

Referring now to the drawings, the casing and field-magnet frame of the railway motor is indicated at 5 and the armature and commutator are respectively shown in outline at 6 and 7. The cover which is ordinarily employed to permit ready access to the commutator and brush holders is indicated at 8. The holder for the carbon brushes 9 consists of the frame 10 provided with the box-shaped guide 11 in which said brushes are mounted and through which they slide freely. The brushes are maintained in contact with the commutator 7 by means of the pressure finger 12, pivoted to the frame 10 at 13 and having its outer end forced against the brushes 9 by the spring 14. The frame 10 is provided with a projection 10^a by means of which it is adjustably fastened to the supporting bracket 15 in a manner to be hereinafter described. The bracket is fastened to the interior surface of the motor casing so as to be readily accessible and so that it can be placed in position and readily removed without the necessity of bringing any tools whatever into play within said casing.

The bracket 15 is formed with a conical recess 16 in which is located the conical member 17 which is formed integral with or otherwise fastened to the bolt 17^a passing completely through the motor casing 5 and fastened in position by the nut 18 outside said motor casing. The motor casing at the points where the brush-holder supports are to be placed is formed with recesses 5^a preferably filled with Babbitt metal 19, so as to form a good seating surface for the brackets 15. The babbitt seat 19 is provided with the shoulder 19^a which prevents a rotary movement of the bracket 15 on the bolt 17^a. To thoroughly insulate the metal bracket 15 from the motor frame and bolt 17^a, I employ the conical sleeve 20 of insulating material between the bracket and the conical member 17, and also the insulating strip 21 between the bracket 15 and the babbitted seat 19. A block 22 of insulating material is placed between the conical member 17 and the fastening plug 23. It will be readily seen that by this arrangement the supporting bracket carrying the brush holder and the fastening bolt 17^a can be re-

moved readily and expeditiously from the motor casing by merely removing the nut 18 from bolt 17^a on the exterior of said motor casing.

- 5 To provide for an adjustment of the brush holder radially relative to the axis of the armature, the projection 10^a is slotted at 24 to receive the stud 25 rigidly mounted in bracket 15. Said stud is provided with the washer 26 and fastening nut 27. This fastening means is so arranged that by loosening up on said nut 27 without removing same from the stud 25, the brush holder may be removed from the supporting bracket by merely sliding same along the face of said bracket. This nut and stud also serve as the fastening means for the slotted terminal plate 28 of the cable lead 29. Furthermore to prevent a rotary movement of the brush holder on the bracket 15 the flanges 30 on projection 10^a overhang the face of said bracket so as to form a groove into which said bracket projects.

A flexible shunt or pig-tail 31 is provided for each brush in the holder. This shunt is fastened at one end to a spring clip 32 on the upper end of the brush, and the other end of said shunt is riveted to the extension 10^a as clearly shown at 33, Fig. 4.

30 In the appended claims I aim to cover all modifications of my invention which do not depart from its spirit and scope.

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

35 1. In combination, a motor casing, a brush-holder, a metal supporting bracket for said holder, means comprising a single bolt for fastening said bracket to the interior surface of said casing, said fastening means passing through the casing and readily accessible from the exterior thereof, and means for adjusting said holder radially on said bracket.

45 2. In combination, a motor casing, a brush-holder, a metal supporting bracket for said holder, means for fastening said bracket to the interior surface of said casing, said fastening means comprising a single bolt passing through the casing and readily accessible from the exterior thereof, and means independent of said casing for fastening the bolt rigidly to said bracket.

50 3. In combination, a motor casing, a brush-holder, a metal supporting bracket on which said holder is adjustably mounted, means for fastening said bracket to the interior surface of said casing, said fastening means comprising a single bolt passing through the casing and readily accessible from the exterior thereof, means for fastening said bolt rigidly to said bracket, and means for completely insulating said bolt from said bracket.

65 4. In combination, a motor casing, a brush

holder, a metal supporting bracket for said holder, and means for fastening said bracket to the interior surface of said casing, said fastening means comprising a single bolt having an enlarged head located in said bracket said bolt passing through the casing and readily accessible from the exterior thereof, means for fastening said bolt rigidly to said bracket, and means for preventing a rotary movement of said bracket about said bolt.

5. In combination, a motor casing, a brush holder support provided with a recess having an inclined side or wall, means comprising a member fitting said recess and passing through said motor casing for fastening said support to the interior of the casing, and means for rigidly fastening said member in said recess.

6. In combination, a motor casing, a brush holder support provided with a conical recess, and means comprising a member having a conical portion fitting said recess for fastening said support to the interior of the casing, said member passing through the casing.

7. In combination, a motor casing, a brush-holder support provided with a conical recess, a conical member fitting said recess, means for fastening said conical member in said recess, and means accessible from the exterior of the motor casing for fastening said conical member to said casing.

8. In combination, a motor casing, a brush-holder support provided with a conical recess, a conical member fitting said recess, means for fastening said conical member in said recess, means accessible from the exterior of the motor casing for fastening said conical member to said casing, and means for preventing a rotary movement of said support relative to the conical member and its fastening means.

9. In combination, a motor casing, a brush-holder support provided with a conical recess, a conical member fitting said recess, means for fastening said conical member in said recess, means accessible from the exterior of the motor casing for fastening said conical member to said casing, and means for insulating said support from said conical member and said casing.

10. In combination, a brush holder having a box-shaped brush guide provided on one side with an integral extension carrying a pressure finger and on its opposite side with an integral projection formed with an open slot, a support for said holder, a stud and nut on said support for fastening said holder to said support, said stud cooperating with said slotted projection in such a manner that the holder can be removed from said support without removing the nut from said stud.

11. In combination, a motor casing, a

brush-holder support provided with a frustum-shaped recess, a member having a correspondingly frustum-shaped head which fits into said recess, and two independent
5 means for fastening said member to said motor casing and to said support respectively.

In testimony whereof I affix my signature, in the presence of two witnesses.

CLARENCE T. CROCKER.

Witnesses:

LILLIAN J. BRITTON,
ELIZABETH C. BRITTON.