Sept. 30, 1947. C. A. THOMAS 2,428,250

CURRENT COLLECTOR CONTACT MEMBER

Filed Dec. 11, 1945

Fig. 1.

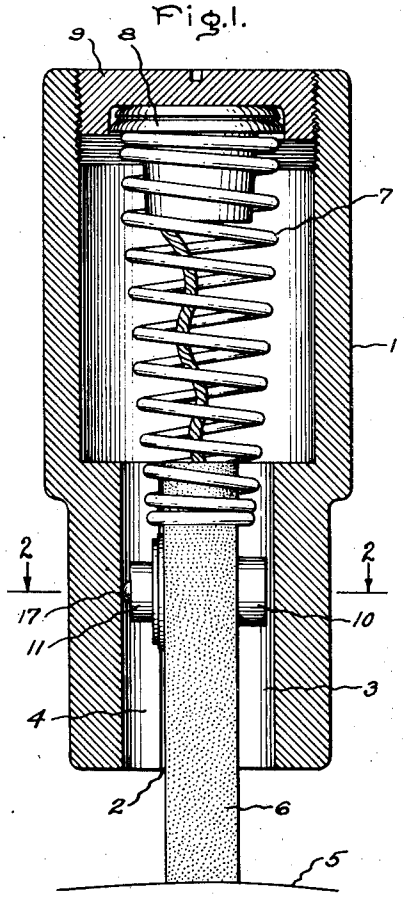
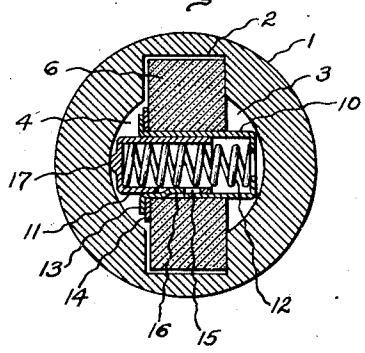


Fig. 2.



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Patented Sept. 30, 1947

2,428,250

UNITED STATES PATENT OFFICE

2,428,250

CURRENT COLLECTOR CONTACT MEMBER

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Application December 11, 1945, Serial No. 634,304

4 Claims. (Cl. 171—323)

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My invention relates to current collector contact members and particularly to cartridge type brush holders with longitudinally movable contact members therein.

An object of my invention is to provide an improved current collector contact member.

Further objects and advantages of my invention will become apparent and my invention will be better understood from the following description referring to the accompanying drawing, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

In the drawing, Fig. 1 is an elevational view, partly in section, illustrating one embodiment of my invention; and Fig. 2 is a sectional view taken along line 2—2 of Fig. 1.

Referring to the drawing, I have shown an embodiment of my current collector contact member adapted for use in a brush holder 1 of the cartridge type having a longitudinally extending contact member slot 2 therein formed with a longitudinally extending groove in both of the transverse sides of the slots 2. These grooves 3 and 4 are substantially arcuate in section and extend on the leading and trailing sides of the slot 2 considered with reference to a current collector 5 associated with the brush holder. A contact member 6 of any suitable material is arranged for longitudinal movement in the slot 2 and is adapted to be biased longitudinally of the brush holder towards one end thereof for contact with the current collector 5 by a resilient compression coil spring 7 arranged for engagement with the end of the contact member 6 away from the current collector 5. This spring 7 is held in compression by engagement with a spring seat 8 formed on the inner side of a cap member 9 which threadedly engages the upper end of the cartridge type brush holder 1. In order to minimize chattering of the contact brush member 6 and to prevent double seating of nonradial brushes when used on large reversible motors, a resilient biasing arrangement is provided adjacent the top of the brush which is away from the current collector 5. This resilient biasing arrangement includes a pair of telescopically arranged cup members 10 and 11 formed with opposite ends as spring seats. A resilient compression coil spring 12 is arranged within the brush members 10 and 11 for biasing apart these cup members with one of the cup members 10 extending through an opening substantially in the transverse center of the contact member 6 into the groove 3. This cup member 10

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is formed with a flange 13 on the open end thereof which presses against a washer 14 on the side of the contact member 6 to provide an engagement between the cup member 10 and the contact member 6, and the other cup member 11 is biased towards the opposite side of the brush holder slot 2 by the spring 12 into engagement with the side of the groove 4. The telescopically arranged cup members are retained in a desired position by the provision of a slot 15 in the side of the cup member 11 and a resilient projection 16 on the side of the cup member 10 which extends into the slot 15, providing a slidable stop to limit the relative axial movement between the two cups. In order to minimize the frictional resistance of the cup member 11 on the surface of the slot 4, the engaging portion of the cup 11 is formed with a substantially spherical groove-engaging portion 17 which also provides a minimum of resistance against slight variations transversely of the contact member 6 as it moves longitudinally through the brush holder. In this manner, a resilient biasing force is exerted on one of the transverse sides of the contact brush member 6 for minimizing chattering of this contact member in the brush holder and for maintaining this contact member in engagement with only one side of the contact member slot 2 in the brush holder.

While I have illustrated and described a particular embodiment of my invention, modifications thereof will occur to those skilled in the art. I desire it to be understood, therefore, that my invention is not to be limited to the particular arrangement disclosed, and I intend in the appended claims to cover all modifications which do not depart from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A current collector contact member including a brush holder having a contact member slot therein, a groove in a transverse side of said slot in said brush holder, a contact member arranged for movement in said slot, means for biasing said contact member towards one end of said brush holder for contact with a current collector, and means including a cup member extending into an opening in said contact member and arranged in engagement with a side of said contact member with a movable member guided in said cup member, resilient means biasing said movable member into engagement with the side of said groove for biasing said contact member towards the opposite side of said brush holder slot, and

means for limiting the relative axial movement of said cup member and said movable member.

2. A current collector contact member including a brush holder having a contact member slot therein, a groove in the leading and trailing sides of said slot in said brush holder, a contact member arranged for longitudinal movement in said slot, means for biasing said contact member longitudinally of said brush holder towards one end thereof for contact with a current collector, means including a pair of telescopically arranged cup members and resilient means between said cup members for biasing apart said cup members with one of said cup members extending into an opening in said contact member and arranged in engagement with a side of said contact member with the other of said cup members arranged in engagement with the side of one of said grooves for biasing said contact member towards the opposite side of said brush holder slot, and means including a resilient projection on one of said cup members for limiting relative axial movement of said cups.

3. A current collector contact member including a brush holder having a contact member slot therein, a groove in the leading and trailing sides of said slot in said brush holder, a contact member arranged for longitudinal movement in said slot, means for biasing said contact member longitudinally of said brush holder towards one end thereof for contact with a current collector, means including a pair of telescopically arranged cup members and resilient means between said cup members for biasing apart said cup members with one of said cup members extending into an opening in said contact member and arranged in engagement with a side of said contact member with the other of said cup members arranged in engagement with the side of one of said grooves for biasing said contact member towards the opposite side of said brush holder slot, one of said cup members having a slot in the side thereof, and the other of said cup members having a resilient projection extending into said cup slot providing a slidable stop to limit the relative axial movement between said cups.

4. A current collector contact member including a brush holder having a longitudinally extending contact member slot therein, a longitudinally extending groove in each of the leading and trailing sides of said slot in said brush holder, a contact member arranged for longitudinal movement in said slot, means for biasing said contact member longitudinally of said brush holder towards one end thereof for contact with a current collector, means including a pair of telescopically arranged cup members adjacent the end of said contact member away from the current collector end thereof with opposite ends of said cup members forming spring seats, and a compression spring between said cup members for biasing apart said cup members, one of said cup members extending through an opening substantially in the transverse center of said contact member into one of said grooves and having a flange arranged in engagement with a side of said contact member and the other of said cup members being arranged in engagement with the side of the other of said grooves for biasing said contact member towards the opposite side of said brush holder slot, said groove engaging cup member being formed with a substantially spherical groove engaging portion, one of said cup members having a slot in the side thereof, and the other of said cup members having a resilient projection extending into said cup slot providing a slidable stop to limit the relative axial movement between said cups.

CHARLES A. THOMAS.

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The following references are of record in the file of this patent:

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