

A. E. BERDON.
ELECTRIC CURRENT BRUSH STRUCTURE.
APPLICATION FILED JULY 8, 1912.

1,070,102.

Patented Aug. 12, 1913.

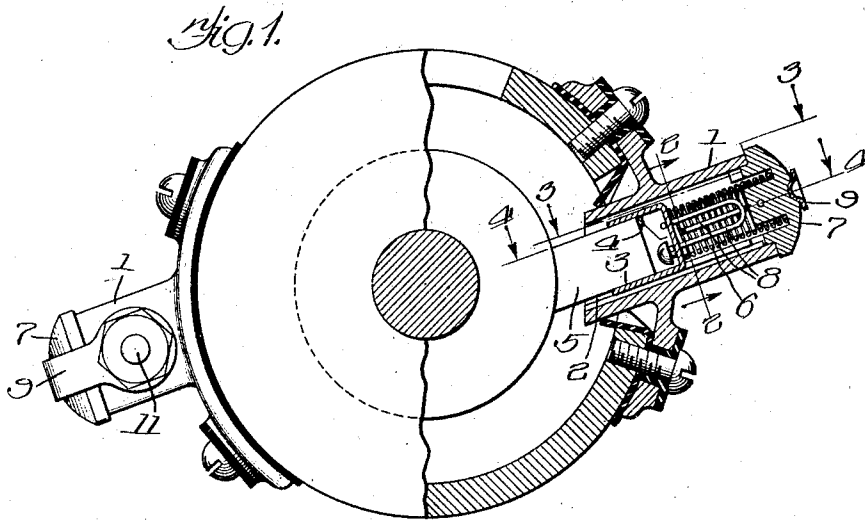
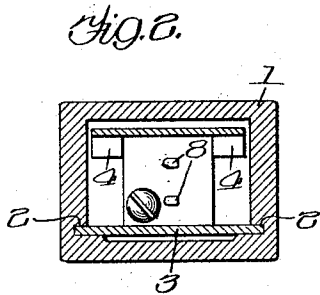
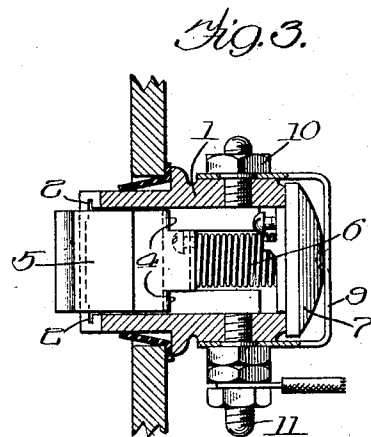
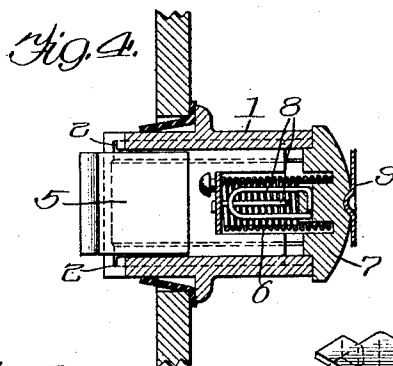
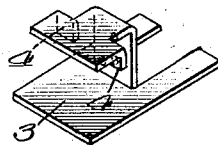


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALBERT E. BERDON, OF LA FAYETTE, INDIANA.

ELECTRIC-CURRENT BRUSH STRUCTURE.

1,070,102.

Specification of Letters Patent.

Patented Aug. 12, 1913.

Application filed July 8, 1912. Serial No. 708,332.

To all whom it may concern:

Be it known that I, ALBERT E. BERDON, citizen of the United States, residing at La Fayette, in the county of Tippecanoe and State of Indiana, have invented a certain new and useful Improvement in Electric-Current Brush Structures, 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 brushes for conveying current to and from rotating elements, such as the armatures of dynamo-electric machines, and has for one of its objects the provision of means whereby the contacting element of the brush structure may be removed and replaced very readily.

The invention has for another object the provision of means for limiting the extent to which the contacting element, such as carbon, may be fed toward the rotating member it engages whereby the holder for the contacting element is prevented from engaging and injuring the rotating element.

The invention has further features and will be more fully explained by reference to the accompanying drawing showing its preferred embodiment and in which—

Figure 1 is an elevation partially in section, of a direct current magneto equipped with two brush structures of my invention; Fig. 2 is a sectional view on line 2 2 of Fig. 1; Fig. 3 is a view on line 3 3 of Fig. 1; Fig. 4 is a view on line 4 4 of Fig. 1; and Fig. 5 is a perspective view of the holder for the contacting element.

Like parts of both brush structures shown in Fig. 1 and like parts in the different figures are indicated by similar characters of reference.

The frame work of the dynamo-electric machine supports two tubular brush guides 1 which are shown as being substantially radially disposed. As shown in Fig. 2, the tubular guides are preferably rectangular in cross-section, opposite walls of each guide being provided with two grooves 2 that receive the longitudinal parallel edges of the wider wall of the contacting element holder, whereby the contacting element is guided in its movement. The holder 3 of each brush structure is preferably of the shape shown in Fig. 5. As illustrated, the holder is made from a single plate from which opposite parallel walls of the holder are formed,

the narrower of these walls being provided with inseting ears 4 that limit the extent to which the contacting carbon block 5 may be inserted within the holder, whereby the relative position of carbon and holder may readily be determined. The metal of which the carbon holder is formed is sufficiently resilient to enable the carbon to be held by spring pressure between the parallel walls of the holder.

A coiled feeding spring 6 is located within the guide and is interposed between an abutment 7 and the holder for the carbon contacting element 5 to press the carbon into contact. The extent to which the spring 6 may distend is limited by a tie member that connects the abutment 7 with the contacting element structure. This tie member is preferably in the form of two links 8, each passing through the other, one link being attached to the plate portion 3 of the contacting element structure, while the other link is secured to the abutment 7. By this construction the tie member is contractible and extensible to permit the spring 6 to be contracted and to expand, the links being of such length as to stop the expansion of the spring 6 before the carbon holder has reached the commutator or other rotating body into engagement with which the carbon is forced by the spring 6, whereby said holder is prevented from injuring the rotating member. In order to afford a good seat for the spring against the abutment 7, said abutment is provided with an annular, spring receiving, recess.

The abutment 7 desirably has sliding engagement, as distinguished from threaded engagement, with the outer end of the associate guide 1, but I do not wish to be limited to such sliding engagement. The abutment is held in its seat afforded by the guide 1 by means of a bail 9 pivoted upon the exterior of the guide and serving to engage the back of the abutment and hold it in place against the pressure of the spring 6, as illustrated in Figs. 1, 3, and 4. When the bail is deflected laterally of the guide, the abutment is dislodged by the spring and the abutment, the spring, the carbon block and block holder are withdrawn as a unit, the tie member 8 serving to prevent separation of the abutment and carbon holder, while at the same time keeping the spring in its interposition between the carbon holder and spring abutment. The bail is

held in pivoted connection with the guide by means of bolts 10, 11. The bolt 11 may serve as a suitable terminal connection as illustrated in Fig. 3.

5 While I have herein shown and particularly described the preferred embodiment of my invention, I do not wish to be limited to the details of construction shown and specifically described, as changes may
10 readily be made without departing from the spirit of the invention, but

Having thus described my invention I claim as new and desire to secure by Letters Patent the following:—

15 1. A brush structure including a contacting element; a holder for the contacting element; a guide for the holder; a spring within the guide for exerting pressure upon the contacting element; an abutment between which and the contacting element the
20 spring is interposed; and a tie member joining the holder and abutment for limiting the extent to which the contact element may be moved by the pressure of the spring to
25 prevent the holder from engaging the rotating part engaged by the contacting element, said tie member being in the form of two links passing through each other, one link being secured to the holder while the
30 other is secured to the abutment.

2. A brush structure including a contact-

ing element; a guide for directing its movement; a spring within the guide for exerting pressure upon the contacting element; an abutment between which and the contacting element the spring is interposed and which abutment has sliding engagement with the guide; and an abutment retaining member swingingly mounted upon the guide and adapted to engage the abutment to hold
35 the same in place against the force of the spring.

3. A brush structure including a contacting element; a guide for directing its movement; a spring within the guide for exerting pressure upon the contacting element; an abutment between which and the contacting element the spring is interposed and which abutment is in sliding relation with the guide; and an abutment retaining member mounted upon the guide and adapted
45 separably to engage an outer end portion of the abutment to hold the same in place against the force of the spring.

In witness whereof, I hereunto subscribe
55 my name this fifth day of December A. D., 1911.

ALBERT E. BERDON.

Witnesses:

THOMAS DUNCAN,
J. W. ESEENTME.