H. H. RALSTON.

COLLECTING DEVICE FOR DYNAMO ELECTRIC MACHINES.

APPLICATION FILED MAY 24, 1907.

1,016,774. Patented Feb. 6, 1912.

Fig. 1

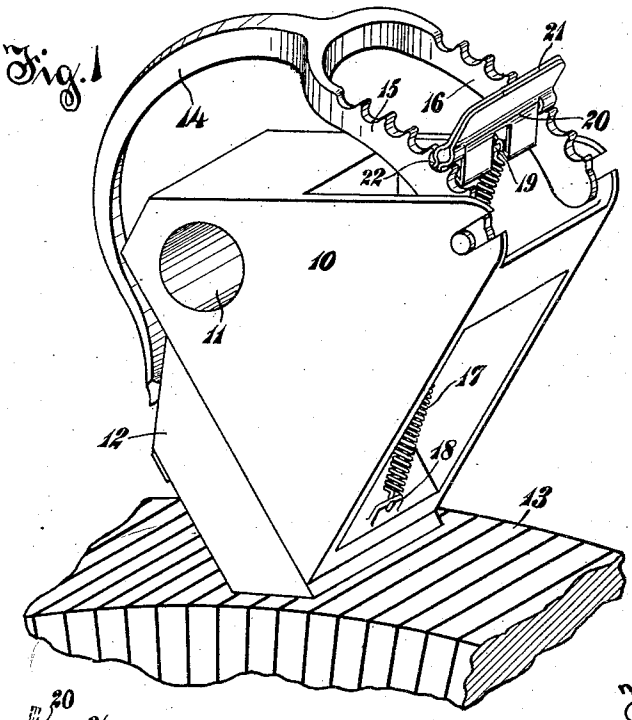


Fig. 2

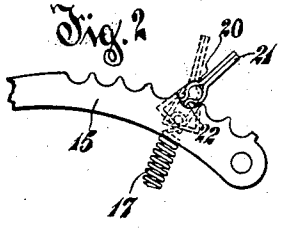


Fig. 3

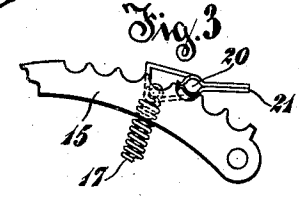


Fig. 6.

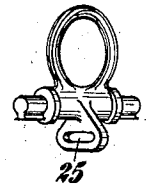


Fig. 4

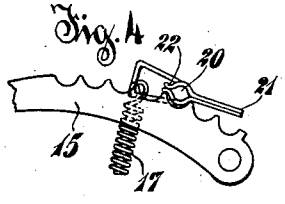
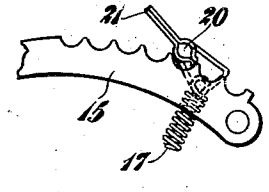


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

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COLLECTING DEVICE FOR DYNAMO-ELECTRIC MACHINES.

1,016,774. Specification of Letters Patent. Patented Feb. 6, 1912.

Application filed May 24, 1907. Serial No. 375,391.

To all whom it may concern:

Be it known that I, HOWARD H. RALSTON, a 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 Collecting Devices for Dynamo-Electric Machines, of which the following is a full, clear, and exact specification.

My invention relates to collecting devices for dynamo-electric machines, and the object is to provide means whereby the pressure of the brush on the commutator or collector ring may be readily adjusted.

With this object in view my invention comprises certain novel features which will appear from the description and drawings and will be particularly pointed out in the claims.

Figure 1 is an isometric view of a brush holder and a fragment of a commutator, showing one embodiment of my invention. Figs. 2, 3, 4 and 5 are fragmentary views showing the spring-adjusting device in different positions; and Fig. 6 is an isometric view of a modified form of spring-adjusting device.

The main body 10 of the brush holder is provided with a hole 11, whereby it may be fastened upon a brush stud of any desired or usual character. The brush 12 is held in engagement with the commutator or collecting ring 13 by a spring-pressed lever 14, the fulcrum end of which is forked to form two notched arms 15 and 16. One end of a spring 17 is attached to the body of the brush holder at 18, while the other end fits over a rod 19 carried by a spring-adjusting device 20, which in turn rests in corresponding notches in the arms 15 and 16. This spring-adjusting device in its preferred form is made of a single punching of sheet metal, which is bent into the shape shown in the drawings.

In Fig. 2 the spring-adjusting device 20 is shown in full and dotted lines respectively in the two normal positions which it may have in one pair of notches on the arms 15 and 16. By pressing the upper end 21 of the spring-adjusting device 20 to the right through the position shown in Fig. 3 to that shown in Fig. 4, the hooks 22 on the supporting parts of said device are caused to extend over the teeth formed between the notches in which the device at first rested and the notches adjacent thereto on the left. By now releasing the end 21 the spring 16 draws the device 20 back into a position corresponding to that shown in Fig. 2, but resting in the next pair of notches to the left. Thus the spring is so moved that it exerts a greater pressure on the brush 12 than before. By repeating this operation as many times as desired, the spring-adjusting device 20 may be moved to the left to any desired pair of notches. By pressing the upper end 21 to the left, as shown in Fig. 5, the spring-adjusting device may be similarly moved from any pair of notches to the next pair on the right to decrease the pressure of the spring on the brush. By repeating this latter operation as many times as necessary the spring-adjusting device may be moved to the right to any desired pair of notches. The rod 19 is arranged to slide from one corner to the other of the spring-adjusting device so that the spring will not require to be stretched so much when adjusting it as would be the case if the rod could not so slide.

In Fig. 6 is shown a modification of a spring-adjusting device in which it is made of cast metal instead of a punching of sheet metal. Here the spring 17 passes through a slot 25 in the device itself instead of fitting over a rod 19 as in the other modification. The operation of this modification is substantially the same as that above described for the sheet metal structure.

Many modifications in the precise arrangements shown and described may be made without departing from the spirit and scope of my invention, and all such I aim to cover in the following claims.

What I claim as new is:—

1. In a collecting device for dynamo-electric machines, the combination of a brush, a notched lever engaging said brush, a spring, a tiltable device through which the force of the spring is transmitted to the lever, said device having a fulcrum which engages a notch of said lever, and said fulcrum having a projection which projects into the next notch in one direction when the tiltable device is tilted in the other direction and throws the fulcrum into said next notch when the tiltable device is released.

2. In a collecting device for dynamo-electric machines, the combination of a brush, a notched lever engaging said brush, a spring,

a tiltable device through which the force of the spring is transmitted to the lever, said device having a fulcrum which engages a notch of said lever, and said fulcrum having a projection which projects into the next notch in either direction when the tiltable device is tilted in the other direction and throws the fulcrum into said next notch when the tiltable device is released.

3. In a collecting device for dynamo-electric machines, the combination of a brush, a notched lever engaging said brush, a spring, a tiltable device through which the force of the spring is transmitted to the lever, said device having a fulcrum which engages a notch of said lever, and said fulcrum having a projection which projects into the next notch when the tiltable device is tilted and throws the fulcrum into said next notch when the tiltable device is released.

4. In a collecting device for dynamo-electric machines, the combination of a brush, a notched member, a tiltable device having a fulcrum which engages a notch in said member, and a spring engaging said tiltable device and acting on said brush, said spring tending to keep said tiltable device substantially upright relatively to said notched member, and the fulcrum of said tiltable device having a projection which projects into the next notch in one direction when the tiltable device is tilted in the other direction and acts as a pivot for the spring to throw said fulcrum into said next notch when the tiltable device is released.

5. In a collecting device for dynamo-electric machines, the combination of a brush, a notched member, a tiltable device having a fulcrum which engages a notch in said member, and a spring engaging said tiltable device and acting on said brush, said spring tending to keep said tiltable device substantially upright relatively to said notched member, and the fulcrum of said tiltable device having a projection which projects into the next notch in either direction when the tiltable device is tilted in the other direction and acts as a pivot for the spring to throw said fulcrum into said next notch when the tiltable device is released.

6. In a collecting device for dynamo-electric machines, the combination of a brush, a notched member, a tiltable device having a fulcrum which engages a notch in said member, and a spring engaging said tiltable device and acting on said brush, said spring tending to keep said tiltable device substantially upright relatively to said notched member, and the fulcrum of said tiltable device having a projection which projects into the next notch when the tiltable device is tilted and acts as a pivot for the spring to throw said fulcrum into said next notch when the tiltable device is released.

7. In a collecting device for dynamo-electric machines, the combination of a brush, a notched member, a tiltable device having a fulcrum which engages a notch in said member, and a spring engaging said tiltable device and acting on said brush, said spring tending to keep said tiltable device substantially upright relatively to said notched member and acting on said notched member with a force which has a negligible component lengthwise of the notched member, and the fulcrum of said tiltable device having a projection which projects into the next notch in one direction when the tiltable device is tilted in the other direction and acts as a pivot for the spring to throw said fulcrum into said next notch when the tiltable device is released.

8. In a collecting device for dynamo-electric machines, the combination of a brush, a notched member, a tiltable device having a fulcrum which engages a notch in said member, and a spring engaging said tiltable device and acting on said brush, said spring tending to keep said tiltable device substantially upright relatively to said notched member and acting on said notched member with a force which has a negligible component lengthwise of the notched member, and the fulcrum of said tiltable device having a projection which projects into the next notch in either direction when the tiltable device is tilted in the other direction and acts as a pivot for the spring to throw said fulcrum into said next notch when the tiltable device is released.

9. In a collecting device for dynamo-electric machines, the combination of a brush, a notched member, a tiltable device having a fulcrum which engages a notch in said member, and a spring engaging said tiltable device and acting on said brush, said spring tending to keep said tiltable device substantially upright relatively to said notched member and acting on said notched member with a force which has a negligible component lengthwise of the notched member, and the fulcrum of said tiltable device having a projection which projects into the next notch when the tiltable device is tilted and acts as a pivot for the spring to throw said fulcrum into said next notch when the tiltable device is released.

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

HOWARD H. RALSTON.

Witnesses:
GEO. B. SCHLEY,
FRED J. KINSEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."