

(No Model.)

W. S. PATTERSON.

BRUSH HOLDER FOR ELECTRIC MOTORS OR DYNAMOS.

No. 441,695.

Patented Dec. 2, 1890.

Fig. 1.

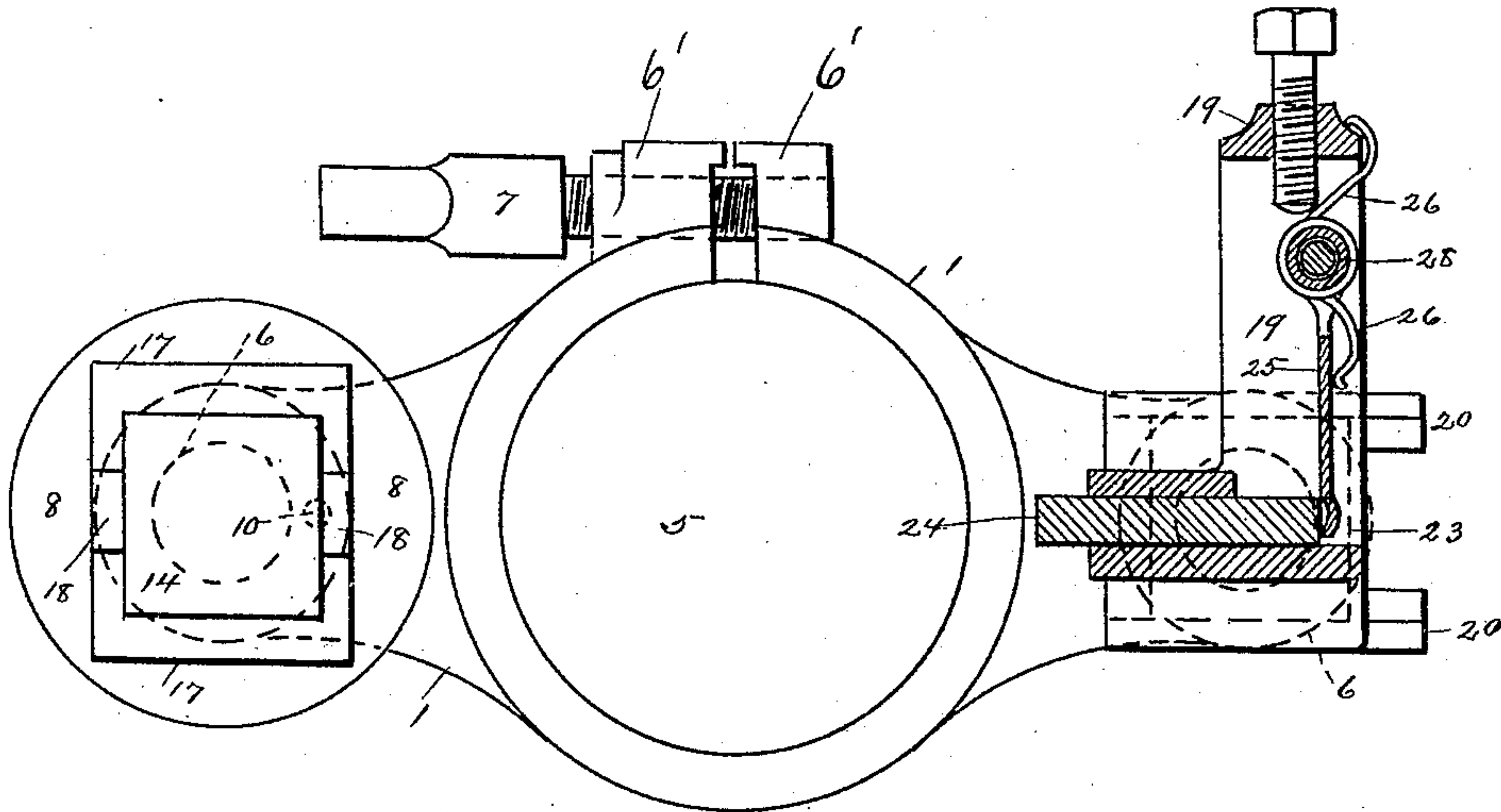


Fig. 2.

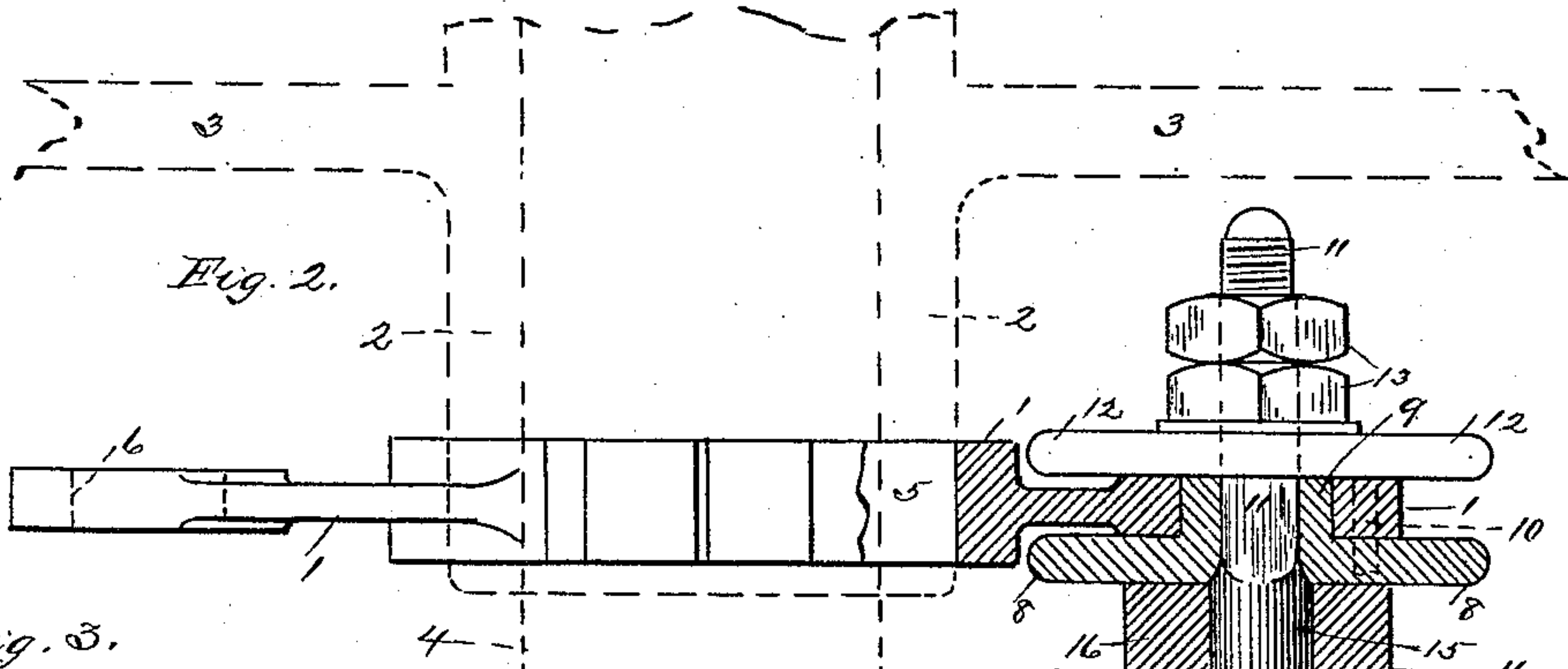
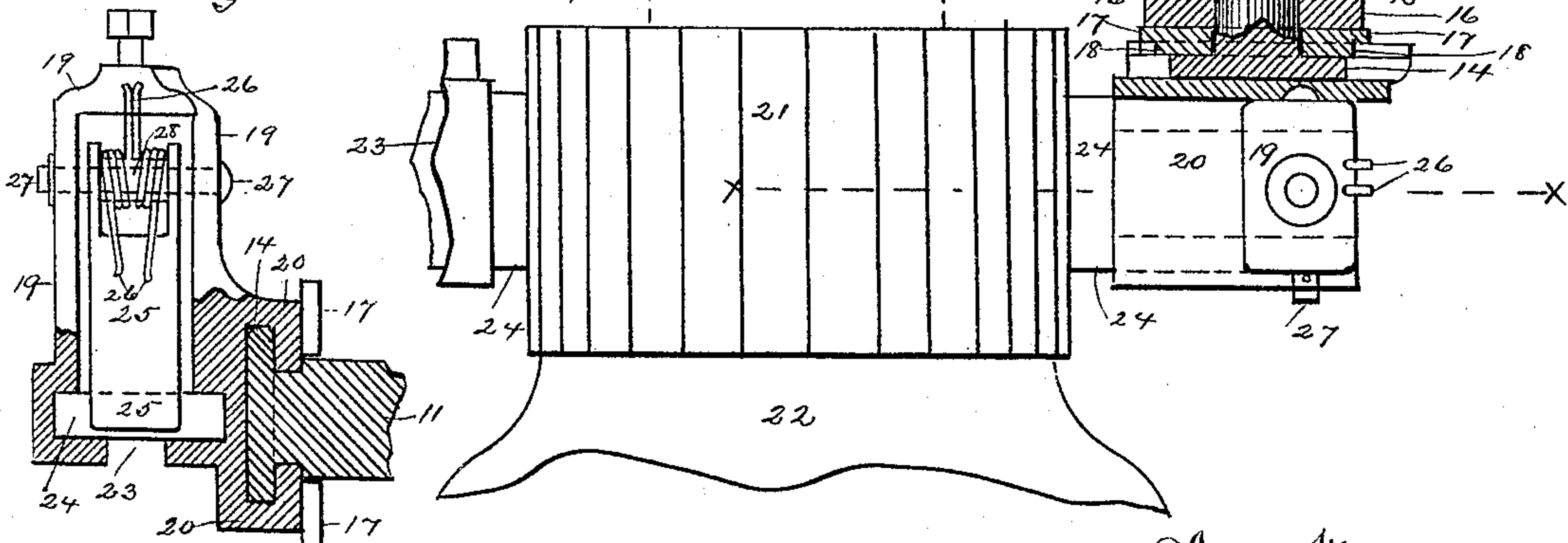


Fig. 3.



Witnesses:

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Per

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UNITED STATES PATENT OFFICE.

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BRUSH-HOLDER FOR ELECTRIC MOTORS OR DYNAMOS.

SPECIFICATION forming part of Letters Patent No. 441,695, dated December 2, 1890.

Application filed August 20, 1890. Serial No. 362,539. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. PATTERSON, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Brush-Holders for Electric Motors or Dynamos; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved brush-holder for electric motors; and it consists in certain details of construction and combination of parts, as will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a side elevation of my improved brush-holder, partly shown in section. Fig. 2 is a sectional plan view of the same. Fig. 3 is a rear elevation, partially in section, of one of the holders.

To put my invention into practice, I provide a metallic yoke 1, adapted to be secured to the hub 2 of the bearing 3, which forms a support for one end of the motor-shaft 4. This yoke 1 consists in a casting having three circular openings 5 6 formed therein. On the yoke 1, at one side of the central opening 5 therein, are formed projecting lugs 6', provided with suitable threaded openings, in which is fitted a clamping-screw 7, by rotating which clamping-screw the lugs 6' are drawn toward each other and the yoke 1 tightly clamped on the hub 2. The openings 6 in the yoke 1 on either side of the central opening 5 are used to receive the means which support my improved brush-holder. Secured in each of these outer openings 6 is a large washer 8, having a hub 9 extending through the said opening 6, and held in one position by means of a small pin 10 (see dotted lines) projecting from the side of the yoke 1 and entering the washer 8. This washer 8 is constructed of a suitable non-conducting material, and is formed with a square opening through its center, through which a suitable bolt 11 is passed and held rigid or prevented

from turning therein. At the rear of the yoke 1 is another washer 12, also of a non-conducting material, which arrangement of washers 8 12 insulates the bolt 11 from the yoke 1 and prevents any short circuit. This bolt 11 is provided at its forward end with a large square head 14, a cylindrical neck 15, and is held in position by means of nuts 13, operating on a threaded portion at the rear. Placed on the cylindrical portion 15 of this bolt 11 is a thick washer 16, which is used to keep the square head 14 of the same a short distance away from yoke 1. Between this last-described washer 16 and the head of the bolt 11 is a square plate 17, having a circular opening through its center and outwardly-extending portions 18, which fill the space between the slides of a frame 19, hereinafter described, and give the same a solid even bearing against the plate.

Loosely attached to the square head 14 of the bolt 11 by means of slides 20 is a frame 19, capable of being adjusted toward or away from the commutator 21 of the motor 22 and clamped or confined in the desired position by tightening the nuts 13 of the bolt 11. This frame 19 is provided with an open slot or groove 23, in which a rectangular piece of carbon 24 is placed in such a manner that the same may be free to move horizontally or in the direction of its length. Pivoted in a suitable position within this frame 19 above the rear extremity of the carbon 24 is a downwardly-projecting plate 25, the lower extremity of which is held firmly against the rear of the carbon 24 by means of one or more springs 26, coiled about the pivot 27 and separated therefrom by a piece of tubing 28. The one end of each of these springs 26 bears against the frame 19 and the others against the downwardly-extending plate 25.

In operation two holders are placed in position—one on either side of the commutator of the motor—the carbons fitted therein being on opposite sides of the commutator.

By means of the sliding frame 19 and the apparatus for clamping the same the carbon-holders may be adjusted and arranged toward or away from the commutator 21, and thereby take up any wear of the carbons 24, or the

said carbons may be removed and replaced by others by loosening the nuts 13 and removing the frame 19 from its slides.

Having thus described my invention, I claim—

1. In a brush-holder for electric motors or dynamos, the combination, with a commutator, of a yoke tightly clamped around the bearing of the commutator-shaft and provided at one end with an opening, a bolt 11, fitted in the opening at the end of the yoke and insulated therefrom, a sliding frame adjustably secured to one end of the bolt 11, a brush fitted in said frame, and means, substantially as described, for normally forcing the brush in contact with the commutator, substantially as shown and described, for the purpose specified.

2. The combination, with the commutator of an electric motor, of a yoke centrally fitted around the bearing of the commutator-shaft, a bolt fitted in either end of said yoke and suitably insulated therefrom, a sliding frame suitably connected to said bolt, and means, substantially as described, for holding the sliding frame in a fixed position on the bolt, substantially as shown and described, for the purpose specified.

3. In a brush-holder for electric motors or dynamos, the combination of a fixed yoke, a brush-supporting frame arranged laterally of the yoke, an adjustable brush fitted to slide in said frame, a spring supported within the frame and engaging with the brush to normally hold the same in contact with the commutator, and the supporting-bolt fitted in the fixed yoke and clamping the brush-holding frame laterally to said yoke, substantially as described.

4. The combination, with the shaft of an

electric motor and a commutator, of a fixed yoke clamped to the bearing of the shaft, the brush-holding frame arranged laterally of the yoke and adjustable toward or from the commutator, the insulated bolt supported in the yoke and engaging the frame to clamp the same laterally to the yoke, the adjustable brush fitted in said frame to slide toward the commutator, and the spring engaging the brush, substantially as described.

5. The combination, with the shaft of an electric motor and a commutator, of a fixed yoke clamped to the bearing of the shaft, the insulated bolt supported in said yoke and having the enlarged head, the upright frame provided with the slides in which the head of the bolt fits to adapt the frame to move at right angles to the length of the bolt, the adjusting-nuts fitted on the bolt to clamp the frame laterally to the yoke, the adjustable brush fitted in the frame, and the pressure-spring, substantially as described.

6. The combination, with the shaft of an electric motor and the commutator, of the fixed yoke, the vertical brush-holding frame arranged laterally of the yoke, the insulated bolt for clamping the frame laterally to the yoke, the horizontal brush fitted in suitable guides in said frame, the vertical plate pivoted in the frame and arranged in contact with the brush, and the spring bearing against said plate, substantially as described.

In testimony that I claim the foregoing I hereunto affix my signature this 19th day of July, A. D. 1890.

WILLIAM S. PATTERSON. [L. S.]

In presence of—

M. E. HARRISON,
C. C. LEE.