

917,535.

A. J. BROWN.
BRUSH HOLDER.
APPLICATION FILED JULY 30, 1906.

Patented Apr. 6, 1909.

Fig. 1

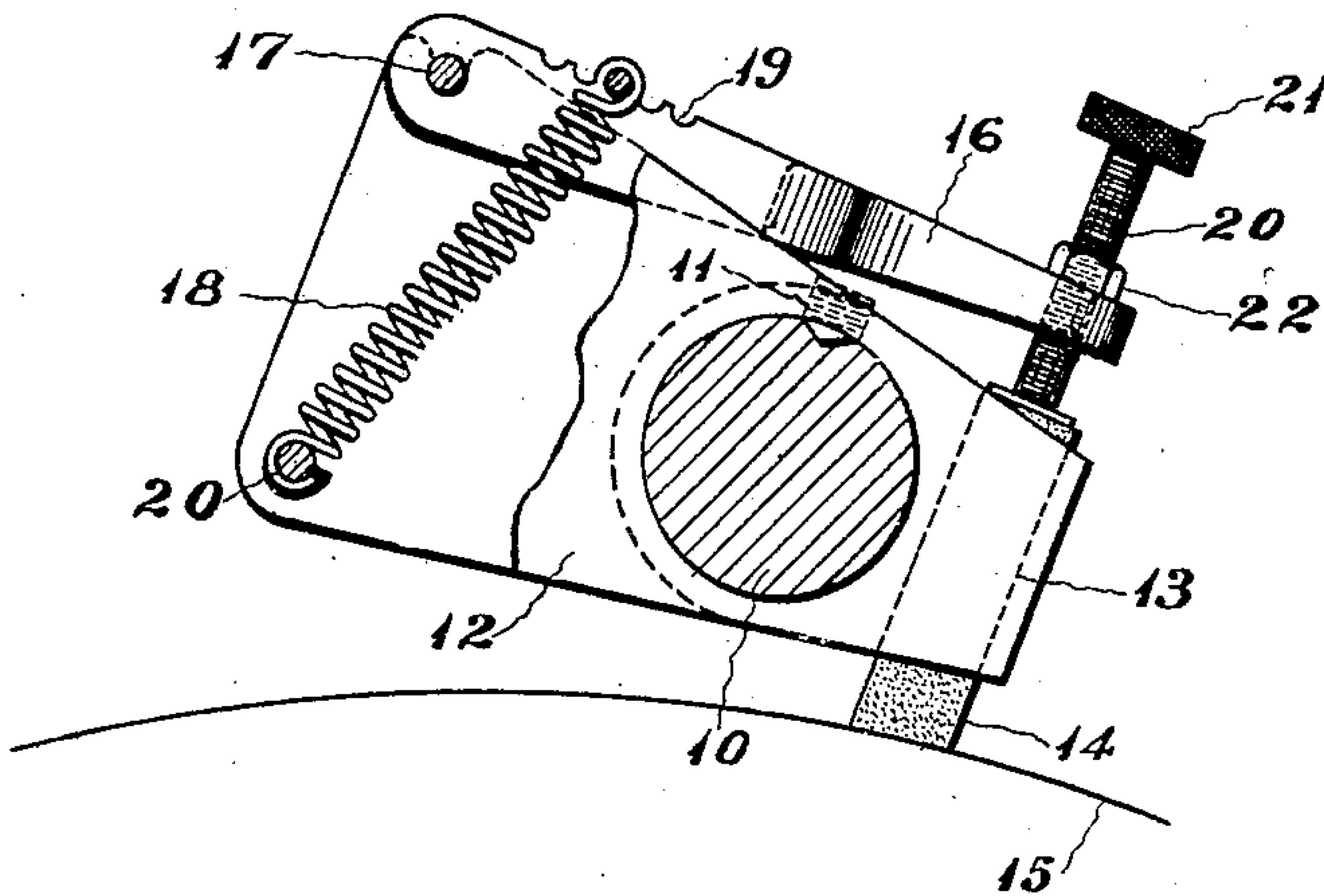


Fig. 2

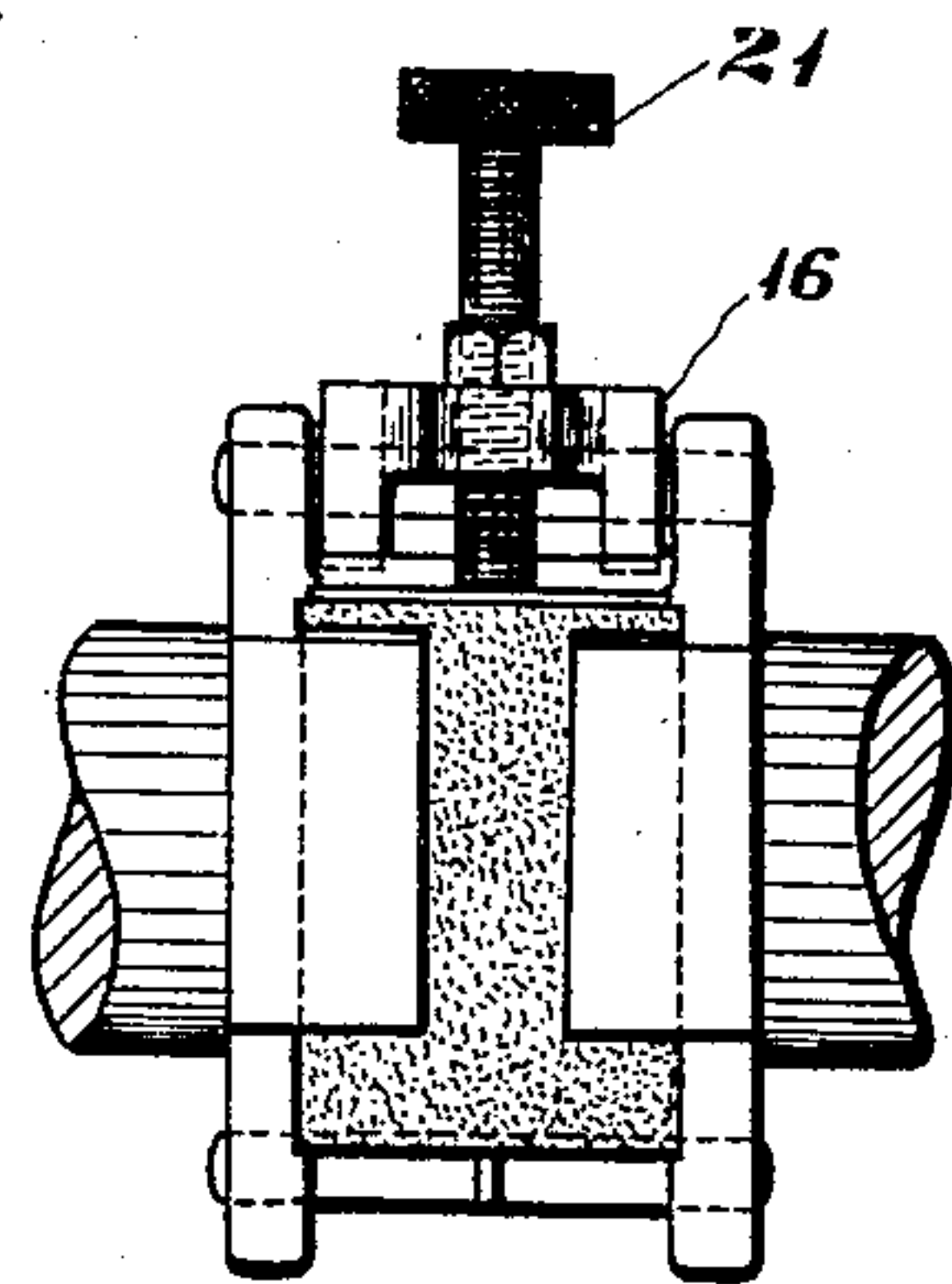


Fig. 3

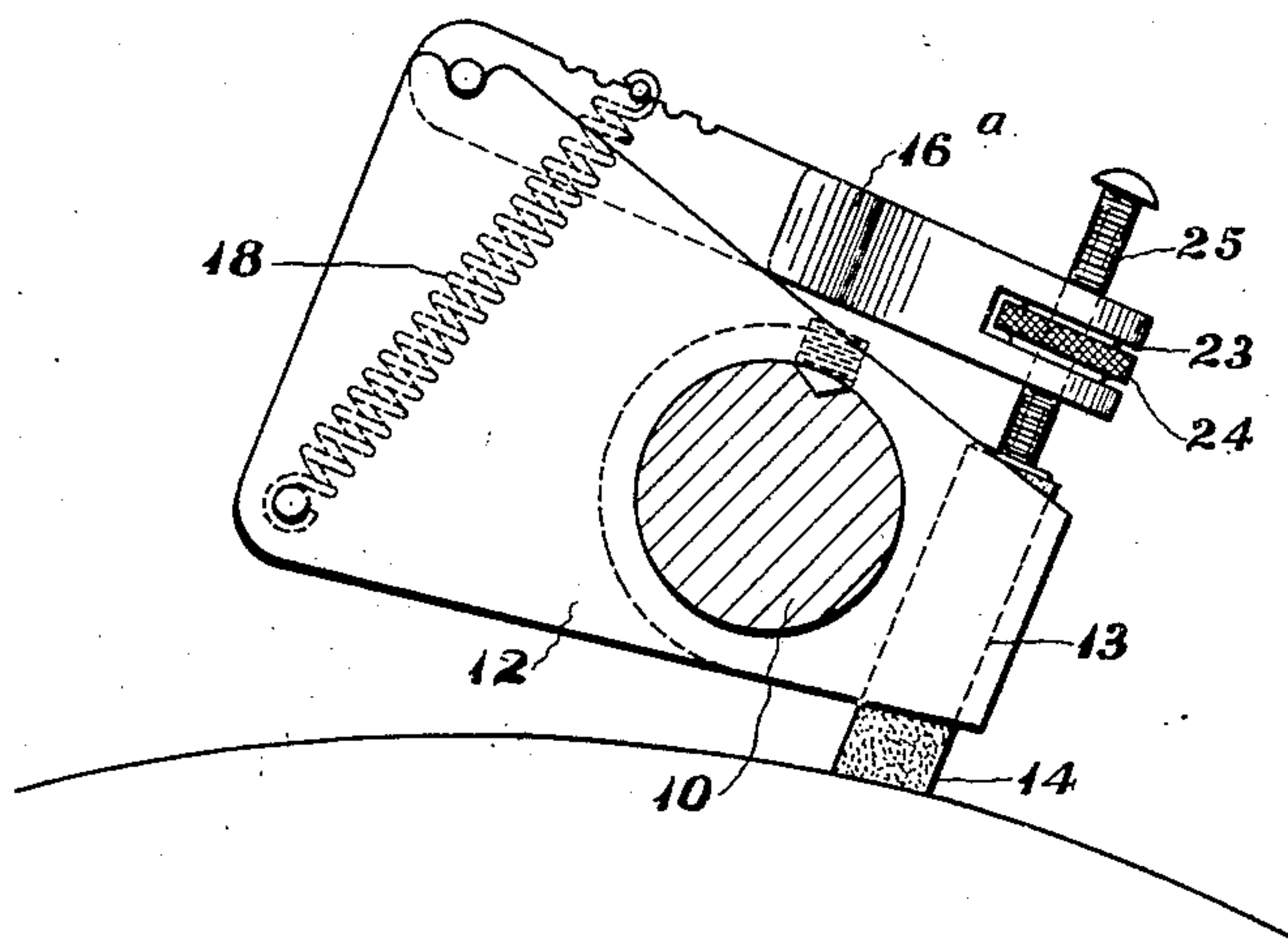
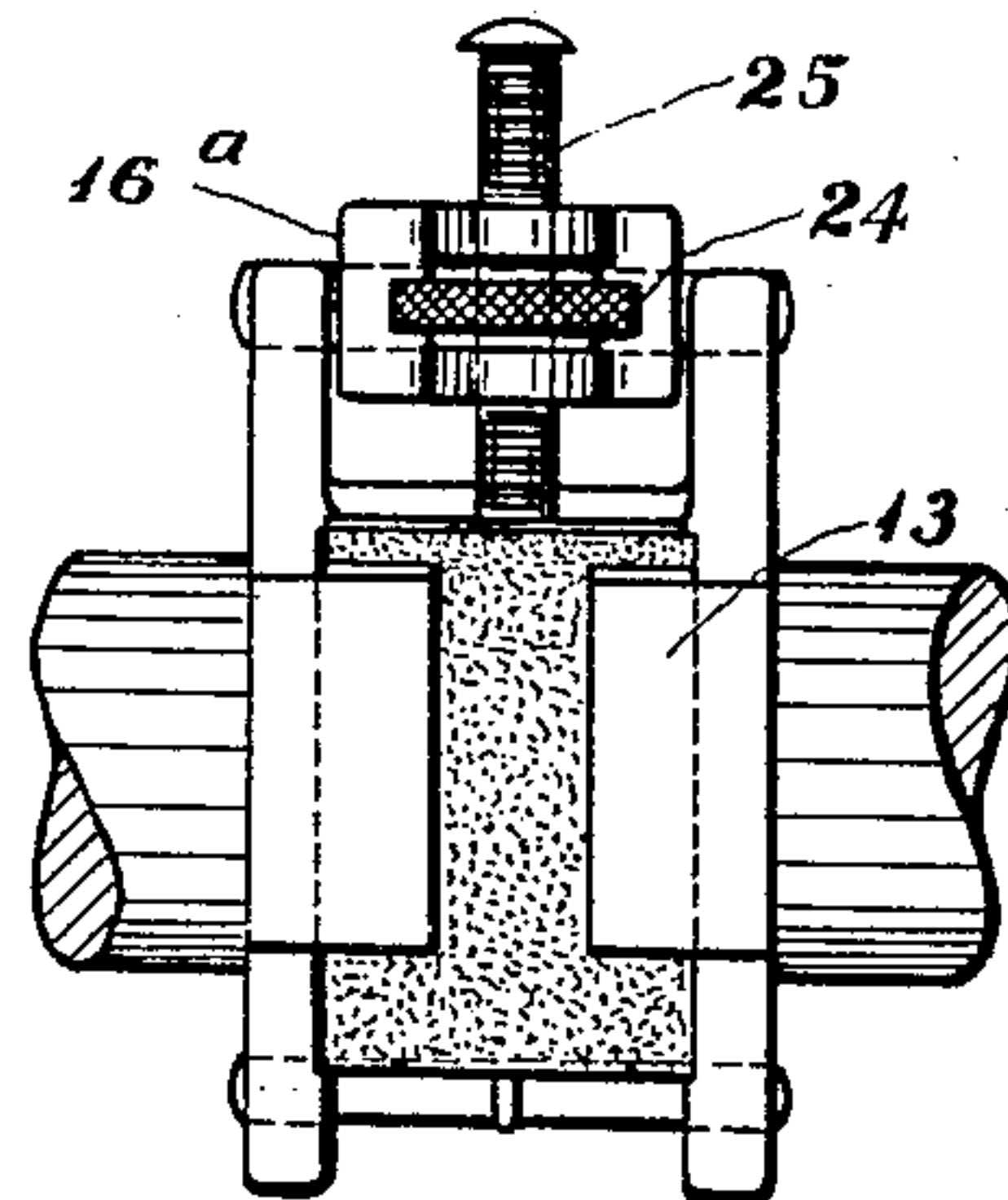


Fig. 4



WITNESSES

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BRUSH-HOLDER.

No. 917,535.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR J. BROWN, 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 Brush-Holders, of which the following is a full, clear, and exact specification.

My invention relates to brush-holders for dynamo-electric machines.

In a well known type of brush-holder the brush slides toward or away from the commutator in a guide or socket, and is pressed toward the commutator, generally, by a pressure finger, one end of which bears on the brush, and the other end of which is pivoted to the brush-holder. Usually a long spiral spring, connected at one end to the finger and at the other end to the stationary frame or casting, is employed to press the finger yieldingly onto the top of the brush. With this construction, the spring is much more distended when the brush is long than when the brush has been shortened by wear. The result is that unless the effective lever arm for the spring is increased as the brush wears away, the pressure of the brush on the commutator is not uniform during the life of the brush, being greater when the brush is long than when it is short. Furthermore the direction in which the pressure is applied to the brush depends on the position of the arm and hence on the length of the brush. If the pressure is applied in the direction of movement of the brush, the brush slides easily and uniformly in the socket. If, however, as is usually the case, the pressure is applied in some other direction so that only a component of the pressure is in line with the movement of the brush, the latter is pressed against the sides of the socket causing it to stick or move unevenly.

One of the objects of my invention is to provide means whereby the pressure on the brush can be maintained substantially uniform for all lengths of the brush.

A further object is to provide means whereby the pressure is applied to the brush at all times substantially in the line of movement of the latter, so that the brush moves in the brush socket easily and without sticking.

In carrying out my invention I provide at the end of the pressure device an adjustable member which engages the brush, the position of which member can be adjusted as the

brush wears away so that the pressure device can be maintained in substantially the same position, regardless of the length of the brush.

More specifically considered, my invention consists in a brush-holder having a brush guide or socket, and a pivoted spring-pressed finger having at its outer free end, a screw or bolt the position of which may be adjusted to maintain the pressure finger in the proper position for different lengths of the brush.

For a better understanding of my invention, reference is had to the accompanying drawings in which—

Figure 1 is a side elevation of a brush-holder equipped with my invention, parts being broken away and in section; Fig. 2 is an end view of the same; Fig. 3 is a side elevation of a modification; and Fig. 4 is an end view of the same.

Referring now to the figures of the drawing in which I have shown the best forms of my invention now known to me, 10 represents a brush stud on which is secured by means of a set screw 11, a metal brush-holder frame or casting 12 having at one end a brush guide or socket 13 which receives the brush 14 adapted to be fed inward toward the commutator or other contact surface as the brush wears away. The brush is pressed toward the commutator by a pressure device, which is in this case a pressure finger 16 having a transverse pivotal member 17 mounted in the rear of the brush frame. At 18 is shown a long spiral spring, one end of which is adapted to be adjustably secured to the pressure finger in one of several notches 19, and the other end of which is secured to a pin 20 in the lower end of the brush frame.

It is seen that as the brush wears away and the pressure finger moves toward the commutator that the spiral spring 18 contracts considerably, and hence the pressure on the brush decreases as the brush wears away. Furthermore if the brush finger is above a line drawn substantially from the pivotal center 17 at right angles to the line of movement of the brush, a pressure is applied to the brush not in its direction of movement but at an angle thereto, which pressure tends to force the brush toward the outer guiding surface, and if the pressure finger is below a line drawn from the pivotal center 17 at right angles to the line of movement of the brush, the brush is pressed toward the inner guiding surface of the socket. In either case, the

brush tends to stick in the socket, and may have an uneven or non-uniform movement. To avoid these difficulties I provide on the end of the pressure finger which bears on the brush, an adjustable member, in this case I provide screw-threaded members adapted to move toward or away from the brush as is desired. In Figs. 1 and 2, I have shown a screw 20 mounted in the end of the pressure finger, adapted to move substantially at right angles to the finger. The lower end of the screw 20 bears upon the brush and the upper end is provided with a knurled head 21 by means of which the position of the screw can be adjusted. The screw is prevented from being accidentally moved by a check-nut 22. As shown in the drawing, the finger is in position for transmitting the pressure of the spring in the proper direction, and in order that the brush may be held on the commutator with uniform pressure, the finger must be maintained in this position and the screw 20 adjusted toward the brush as the latter is shortened by wear.

In Figs. 3 and 4 I have shown a slight modification of my invention. In this case the end of the pressure finger 16^a is slotted as shown at 23 to receive a knurled thumb-nut 24. Passing through the thumb-nut, and threaded therein, is a movable screw 25, the latter passing freely through the end of the pressure finger, thus by turning the thumb-nut 24 the screw is moved toward or away from the brush, and as the brush wears away, the pressure finger can be maintained in the proper position.

It is evident that many modifications can

be made without departing from the spirit and scope of my invention, and I therefore do not wish to be confined to the exact details shown.

What I claim as new and desire to secure by Letters Patent is:—

1. In combination, a brush holder having a brush guide or socket, a brush therein, and a spring actuated pressure finger pivoted at one end to the holder and having an outer free end provided with an adjustable member which bears upon the end of the brush, whereby a substantially uniform pressure can be exerted upon the brush in the line of movement thereof, regardless of the length of said brush.

2. In combination, a brush holder having a brush guide or socket, a brush adapted to slide in said guide or socket, and a spring actuated pressure finger pivoted at one end to the holder and having an outer free end provided with an opening or passageway, a threaded member of considerable length in said opening or passageway and bearing on the end of the brush, and means whereby said member may be adjusted in the direction of movement of the brush whereby a uniform pressure may be exerted on the brush in the same direction for different lengths of the brush.

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

ARTHUR J. BROWN.

Witnesses:

ARTHUR F. KWIS,
FRED J. KINSEY.