

No. 622,609.

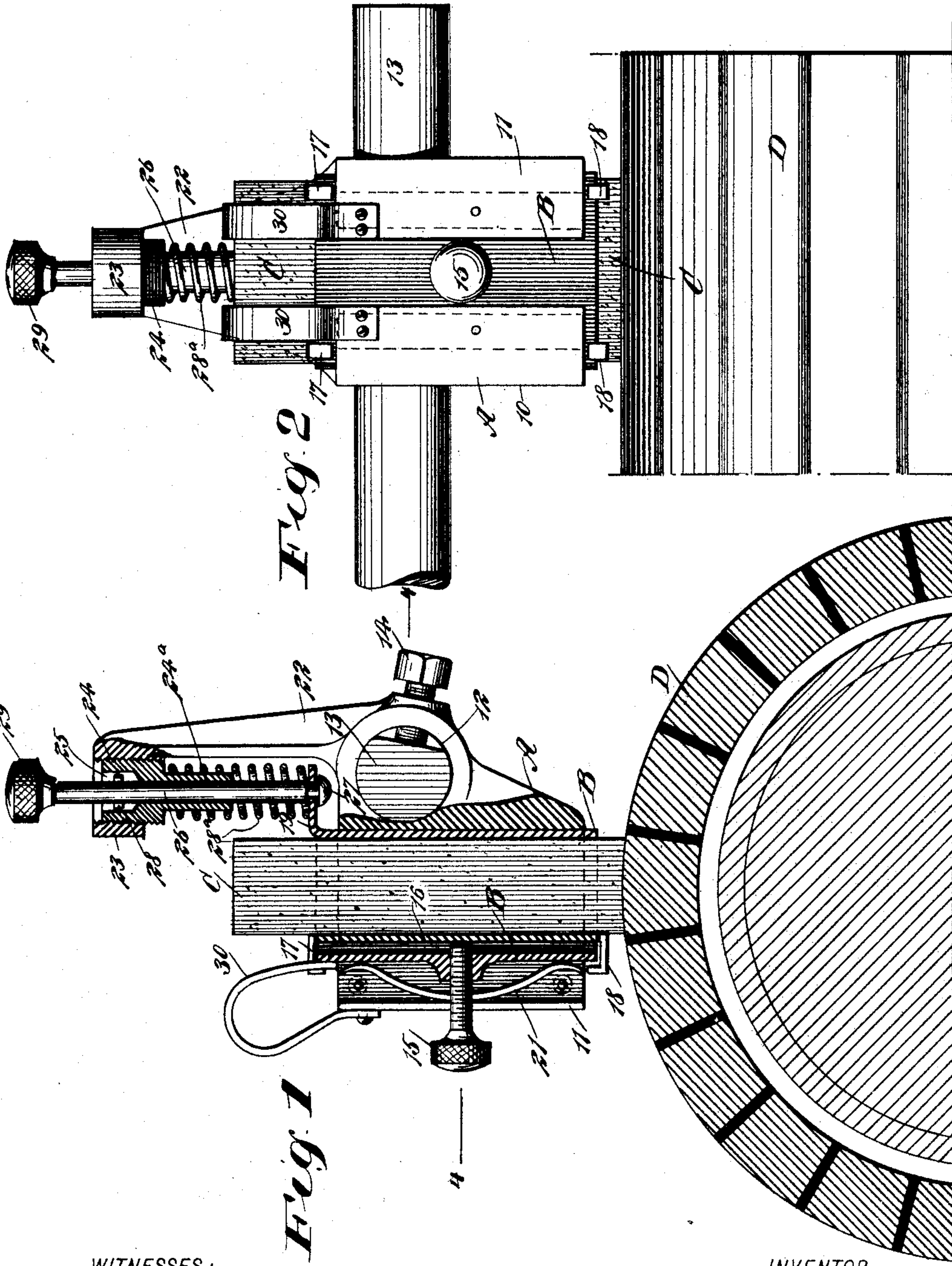
Patented Apr. 4, 1899.

R. E. CROCKETT.
CARBON BRUSH HOLDER.

(Application filed Nov. 29, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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2 Sheets—Sheet 2.

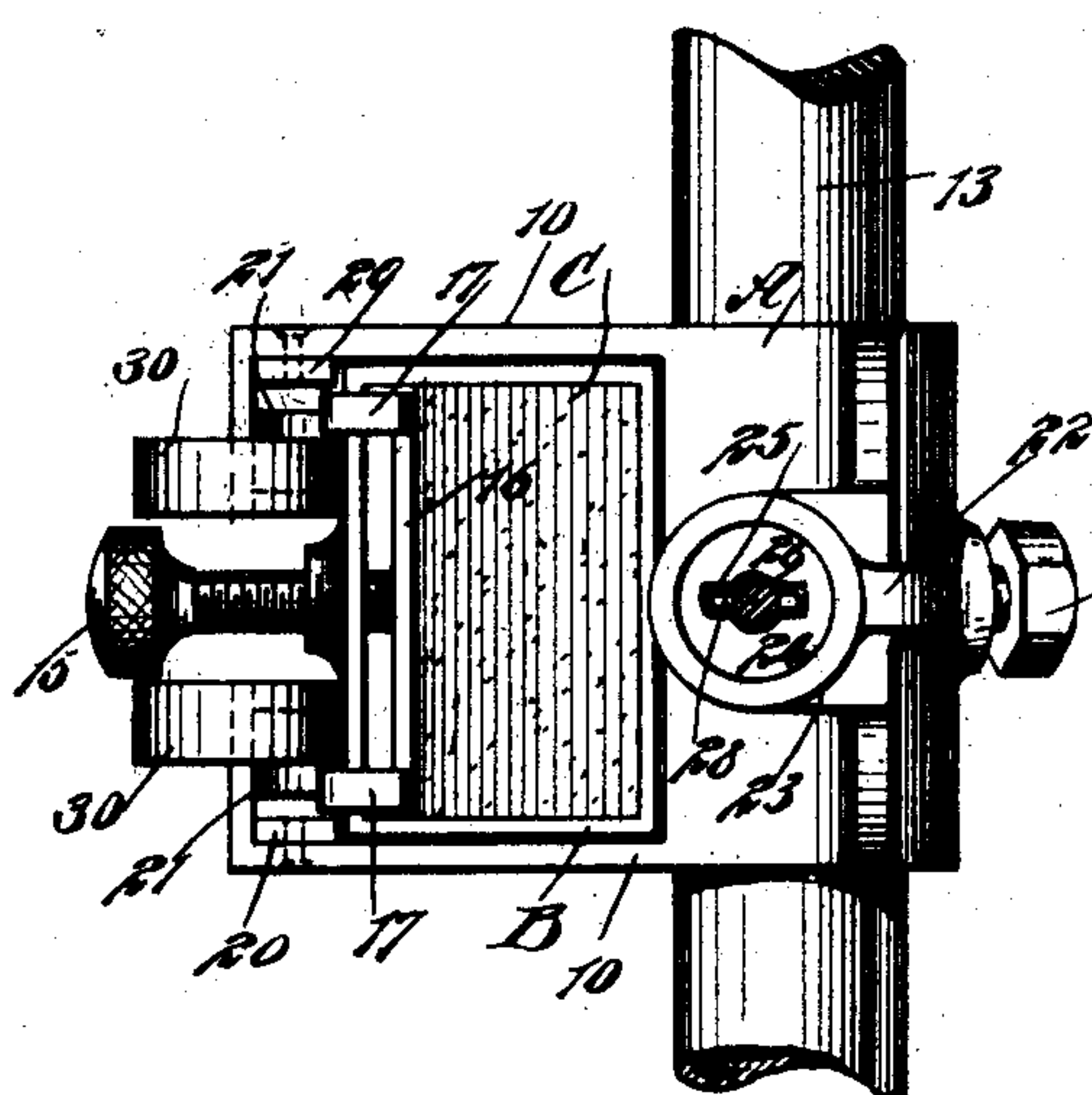


Fig. 3

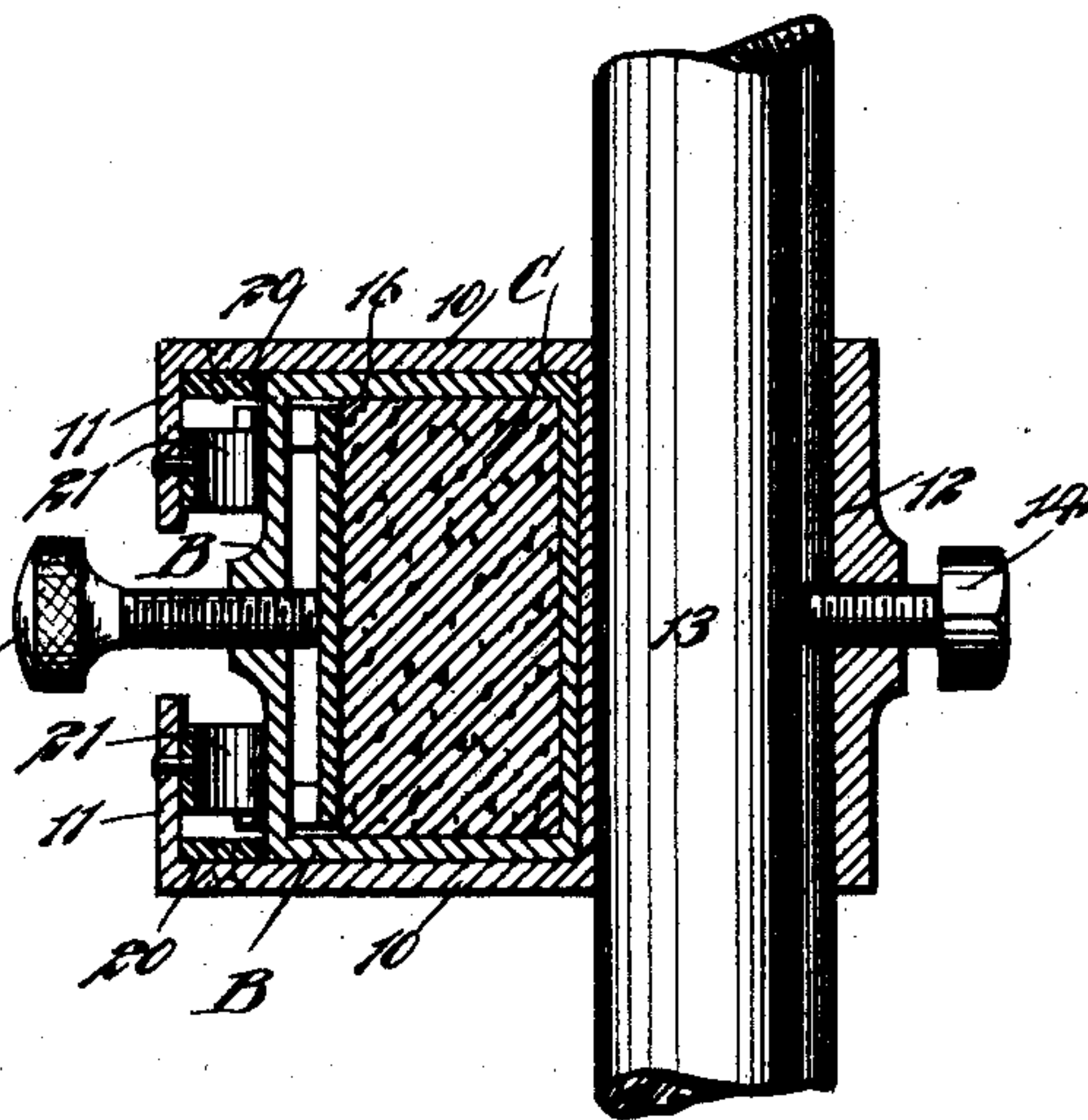


Fig. 4

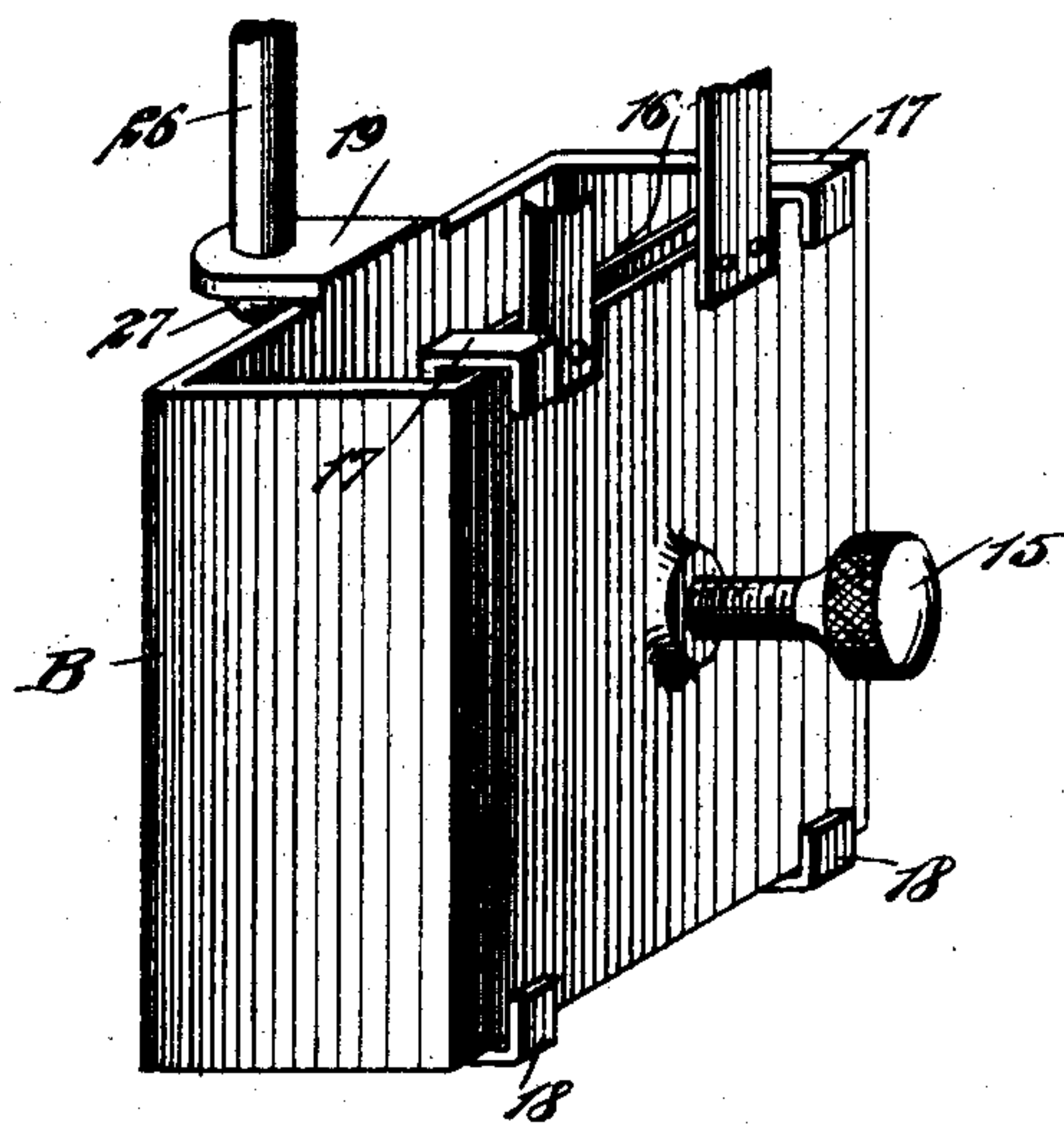


Fig. 5

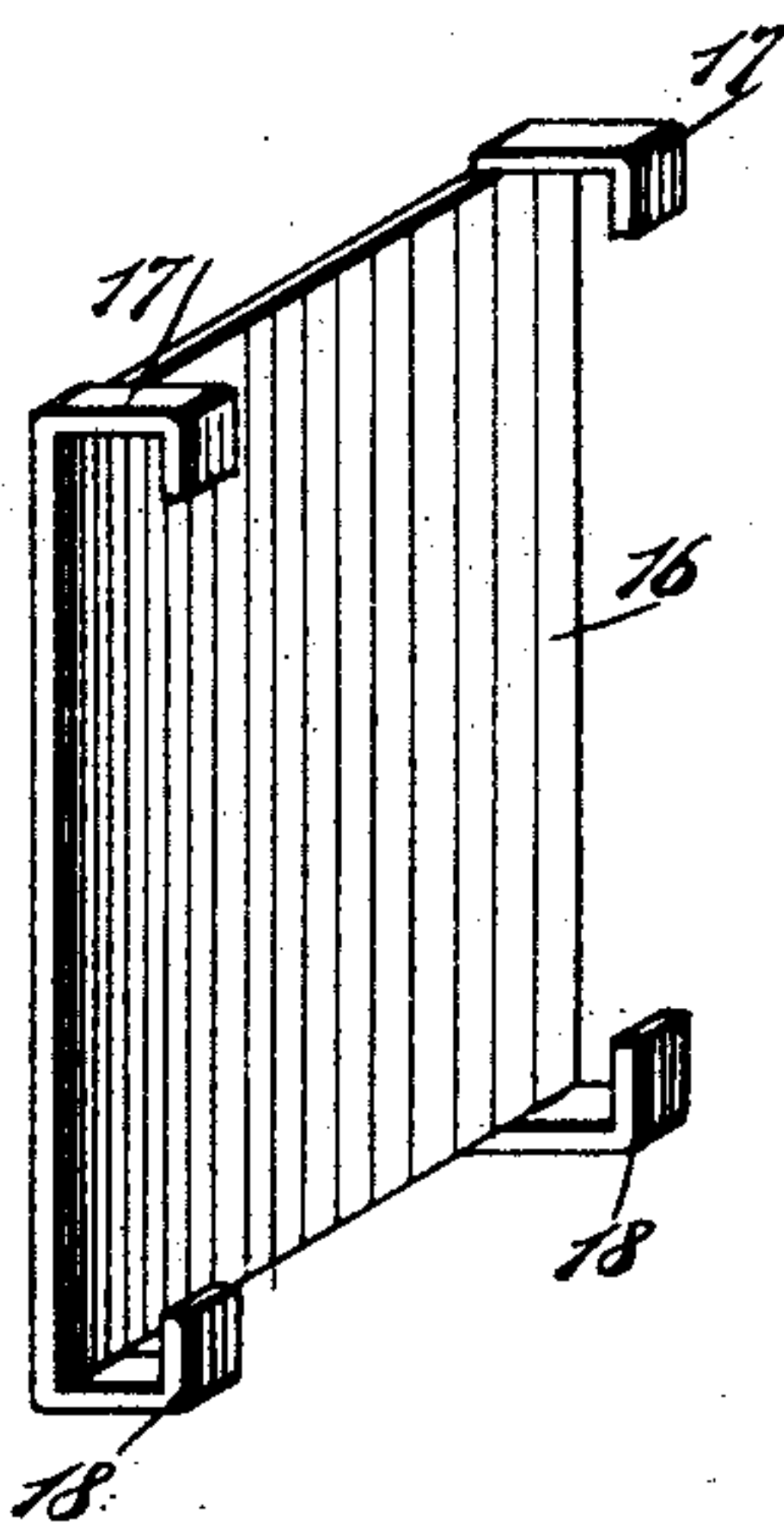


Fig. 6

WITNESSES:

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UNITED STATES PATENT OFFICE.

RENEWICK ELVIN CROCKETT, OF MICHIGAN CITY, INDIANA.

CARBON-BRUSH HOLDER.

SPECIFICATION forming part of Letters Patent No. 622,609, dated April 4, 1899.

Application filed November 29, 1898. Serial No. 697,747. (No model.)

To all whom it may concern:

Be it known that I, RENEWICK ELVIN CROCKETT, of Michigan City, in the county of Laporte and State of Indiana, have invented a new and Improved Carbon-Brush Holder, of which the following is a full, clear, and exact description.

The object of the invention is to provide a carbon-brush holder that will be simpler and more durable and economic in construction than those heretofore employed and one wherein the brush may be expeditiously and conveniently adjusted.

Another object of the invention is to so construct the holder that the brush can be entirely removed for inspection or raised from the surface of a commutator without altering the tension upon the brush.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through the improved brush-holder and brush contained therein and also a section through a portion of the commutator to which the brush is applied. Fig. 2 is a front elevation of the improved holder and a partial elevation of the commutator. Fig. 3 is a plan view of the brush-holder, the adjusting-rod of the tension device being in horizontal section. Fig. 4 is a horizontal section taken substantially on the line 4 4 of Fig. 1. Fig. 5 is a detail perspective view of the brush-casing and its contact-plate, and Fig. 6 is a perspective view of the contact-plate removed from the casing.

The body A of the brush-holder is constructed with parallel sides 10 and two front plates 11, that are at right angles to said sides, a space intervening the ends of said plates. At the rear of the body an eye 12 is formed, adapted to receive the brush-holder stud 13, the body being held in connection with the stud through the medium of a set-screw 14.

A brush-casing B is held to slide in the body, and the said brush-casing is preferably rectangular in general contour, as illustrated

in Fig. 5, and the said brush-casing is adapted to receive a contact-plate 16, the said plate being provided with angular lugs 17 at the top and corresponding lugs 18 at the bottom, which lugs are arranged to extend over the upper front edge of the brush-casing and beyond the lower front edge thereof, so that when the brush C, which is fitted into the casing B, is removed the contact-plate 16 will not drop out from the said casing.

A set-screw 15 is introduced into the front of the brush-casing, having a bearing against the contact-plate 16, so as to force said plate to a firm bearing against the front face of the brush C.

At the upper rear edge of the brush-casing B a lug 19 is formed, and the brush-casing is guided in its movement in the body A by means of guide strips or ribs 20, formed upon the inner surfaces of the sides of the body adjacent to the front plates 11, as is particularly shown in Figs. 3 and 4. These guide-plates serve to prevent the brush-casing from jarring when the brush is applied to the commutator D, which latter may be of any suitable construction. The brush-casing is held in contact with the body at its rear by means of springs 21, which springs may be of any approved character. In the drawings they are illustrated as bow-springs and have bearing against the inner faces of the plates 11 of the body and against the outer face of the front of the brush-casing, as is especially shown in Fig. 1.

At the rear of the body A a standard 22 is upwardly projected, preferably from the eye 12, as shown in Figs. 1 and 2. A socket 23, interiorly threaded, is formed at the upper end of the standard 22, and in the said socket a tension-nut 24 is secured, which nut is provided with a reduced tubular lower section 24^a. At the upper end of the tension-nut 24 a slot 25 is formed, (shown especially in Fig. 3,) and a rod 26 is passed up through the tension-nut, the said rod being mounted to turn at its lower end in the rearwardly-extending lug 19 at the upper end of the brush-casing B, as is also shown in Fig. 1, the lower end of the rod 26 being provided with a head 27, and near the upper end of the rod 26 a cross-bar 28 is located, normally adapted to enter

the slot 25 in the tension-nut, thus preventing the rod 26 from turning; but the said rod 26 is free to be moved upward or downward for the adjustment of the brush C relative to the commutator.

A spring 28^a is coiled around the rod 26 and also around the reduced portion 24^a of the tension-nut, the spring having bearing at its upper end against a shoulder formed by the reduction in diameter of the tension-nut and at its lower end against the upper surface of the lug 19, rearwardly projected from the brush-casing, as is shown especially in Fig. 1, and the tension-rod 26 is preferably provided with a milled head 29 at its upper end in order that the said rod may be readily turned and conveniently raised.

In the event the brush is used to its full carrying capacity and is liable to become heated it is advisable to use strap conductors 30, and said strap conductors are preferably made of thin leaf copper bent to such shape that one end may be sweated to the brush-casing, for example, and the other end detachably secured to the body of the holder by means of screws or their equivalents. Two of such contact-straps would be sufficient for each brush used in a holder; but it will be understood that the holder may be made to contain any desired number of brushes.

In operation by turning the knob 29 of the tension device to the right or left the pressure upon the brush can be increased or decreased, as desired. By drawing up the rod 26 of the tension device until the cross-bar 28 is brought above the tension-nut 24 and then slowly turning the rod the brush is raised from the commutator and is held in its elevated position until the rod is again turned to carry the cross-bar into the slot 25 of the tension-nut. The brush may be removed from the holder by first drawing the brush up clear of the commutator and then loosening the set-screw 15. It is evident that no matter how the brush may be manipulated the tension on said brush will not be changed.

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

1. A carbon-brush holder, comprising a body arranged for attachment to the brush-holder support, a brush-casing arranged to slide in the body, a tension device connected with the brush-casing and acting in the direction in which said casing is adapted to slide, and means for holding said tension device in a position to hold the brush-casing elevated, or away from the surface adapted for engagement with the brush.

2. A carbon-brush holder, comprising a body arranged for attachment to the brush-holder support, a brush-casing arranged to slide in the body, a rod connected with the brush-casing and adapted to turn relatively thereto, but constructed to slide with the casing, said rod carrying a cross-bar, a nut screwing on the body and having a slot to receive

said cross-bar and permitting it to slide relatively to the nut but normally preventing a rotary movement of the bar relatively to the nut, the cross-bar being capable of being lifted out of said slot and then turned to rest on the nut and thus hold the brush elevated, and a spring interposed between the body and said nut.

3. In a carbon-brush holder, a body arranged for attachment to a brush-holder stud, a brush-casing having sliding movement in the body and arranged for contact with the body, a tension device having lateral bearing on a face of the brush-casing, a vertical tension device also connected with the brush-casing, and means, substantially as described, for holding the vertical tension device in a position adapted to elevate the brush-casing, as described.

4. In a carbon-brush holder, the combination, with a body provided with means for attachment to a brush-holder stud, a brush-casing having sliding movement in the body and arranged for contact therewith, a set-screw adapted to bind a brush in the brush-casing, and springs arranged to hold the brush-casing in contact with the body, of a tension device consisting of a nut carried by the body, the said nut being provided with a slot, a rod attached to the brush-casing, extending through the nut, a cross-bar attached to said rod, adapted to enter the slot in the nut, and a spring encircling the rod, normally acting to hold the brush-casing in lowered position, as described.

5. In a carbon-brush holder, the combination, with a body provided with means for attachment to a brush-holder, a brush-casing having sliding movement in the body and arranged for contact therewith, a set-screw adapted to bind a brush in the brush-casing, and springs arranged to hold the brush-casing in contact with the body, of a tension device consisting of a nut carried by the body, the said nut being provided with a slot, a rod attached to the brush-casing, extending through the nut, a cross-bar attached to said rod, adapted to enter the slot in the nut, a spring encircling the rod, normally acting to hold the brush-casing in lowered position, and conductors attached to the body and to the brush-casing, said conductors being detachably secured to either of said portions of the holder, as set forth.

6. In a carbon-brush holder, the combination, with a body arranged for attachment to the brush-holder stud, of a brush-casing arranged to have vertical movement in the body and contact therewith, a contact-plate located within the brush-casing and arranged to intervene one of the walls of the casing and the brush contained in the casing, a set-screw carried by the casing and adapted to be brought in engagement with the contact-plate, means for holding the contact-plate in position in the brush-casing when the brush is removed therefrom, laterally-applied tension devices

having bearing against a portion of the body and the portion of the brush-casing in which the set-screw is located, a vertical adjusting tension-controlled device connected with the
5 brush-casing, and means for locking the vertical adjusting tension-controlled device in raised position, whereby the brush-casing may be maintained in raised position, as described.

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Witnesses:

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