

No. 677,834.

Patented July 2, 1901.

J. J. WOOD.
BRUSH HOLDER.

(Application filed Nov. 22, 1900.)

(No Model.)

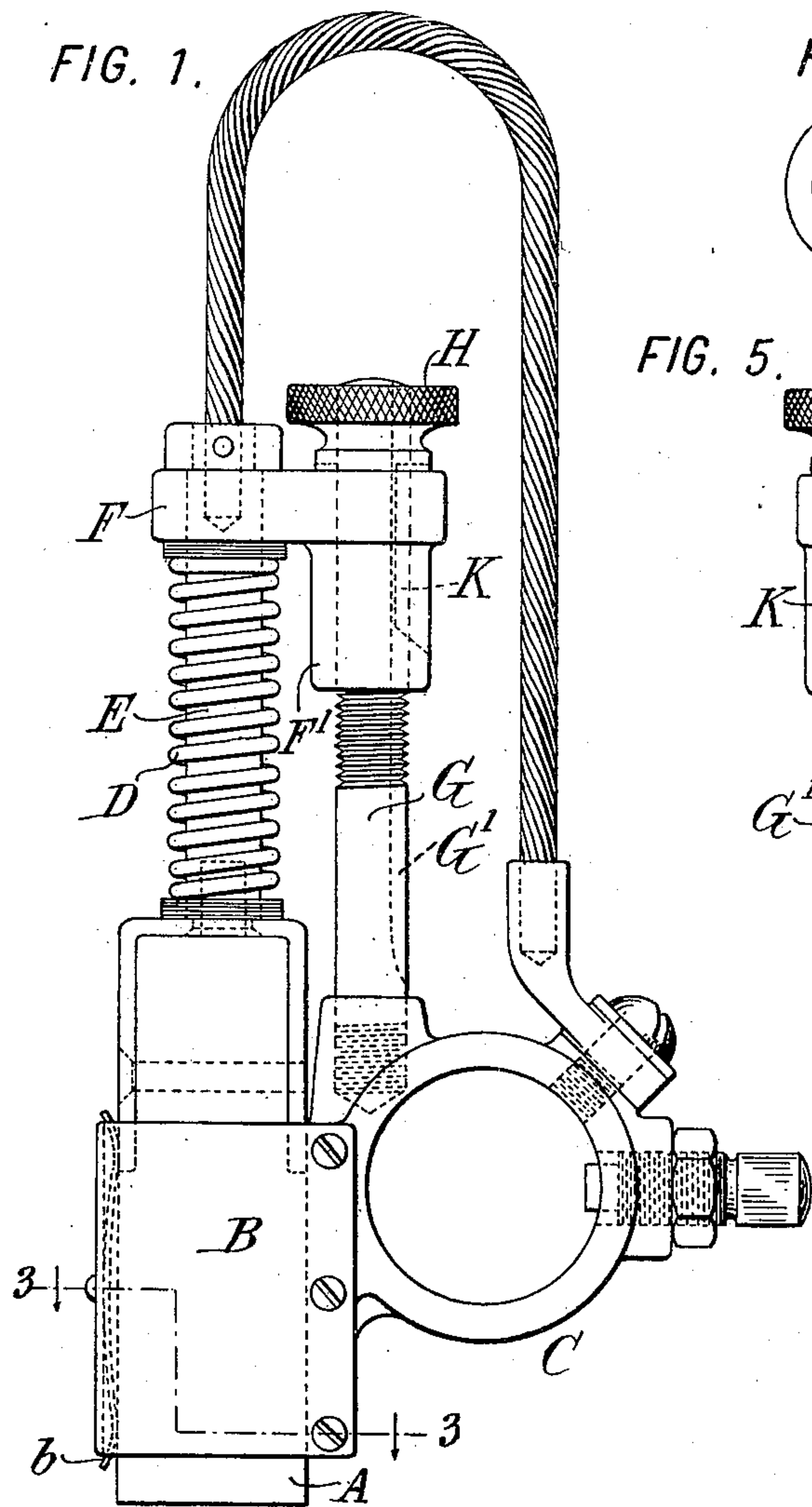


FIG. 4.

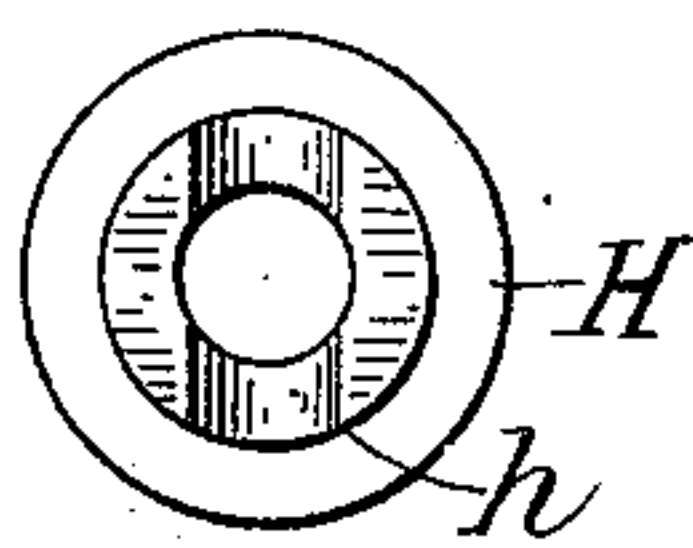


FIG. 5.

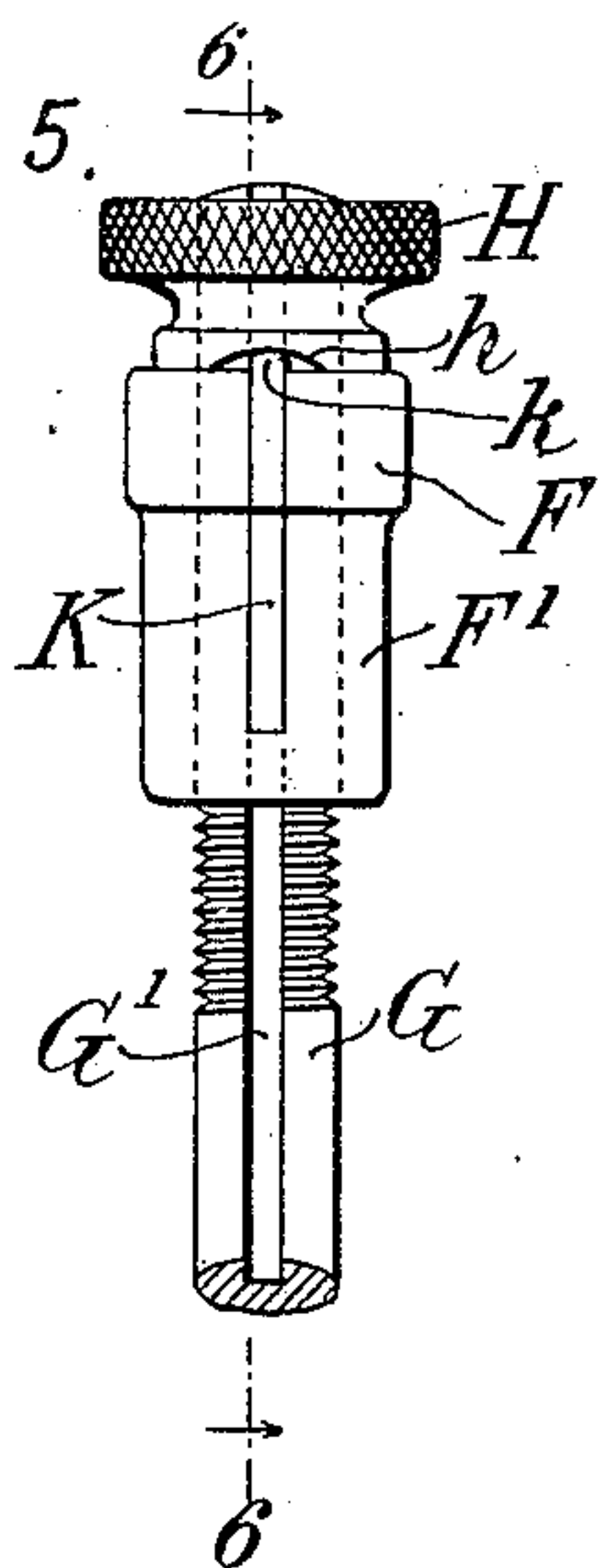


FIG. 2.

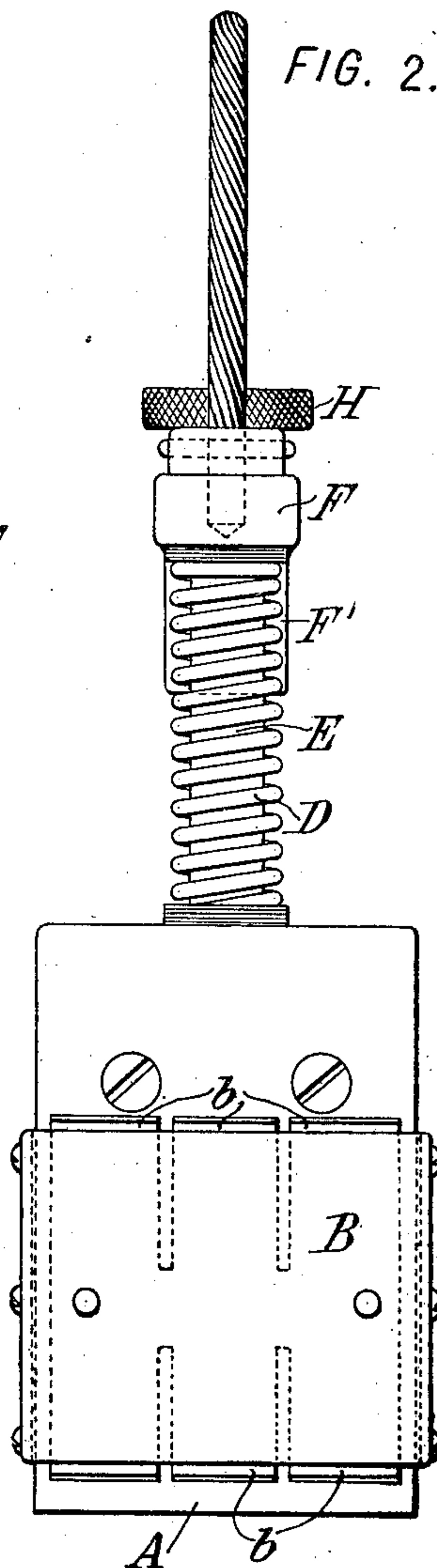
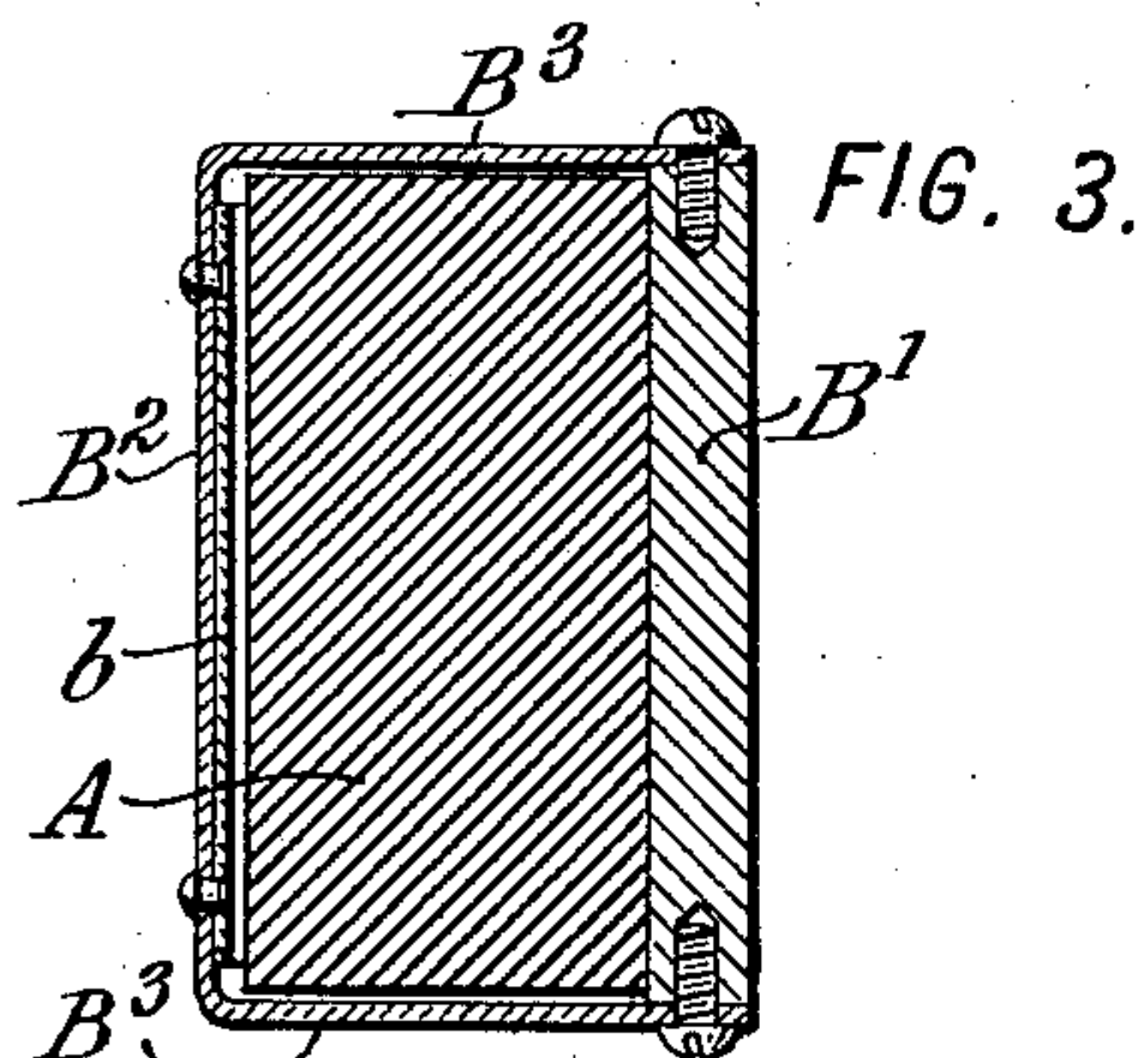
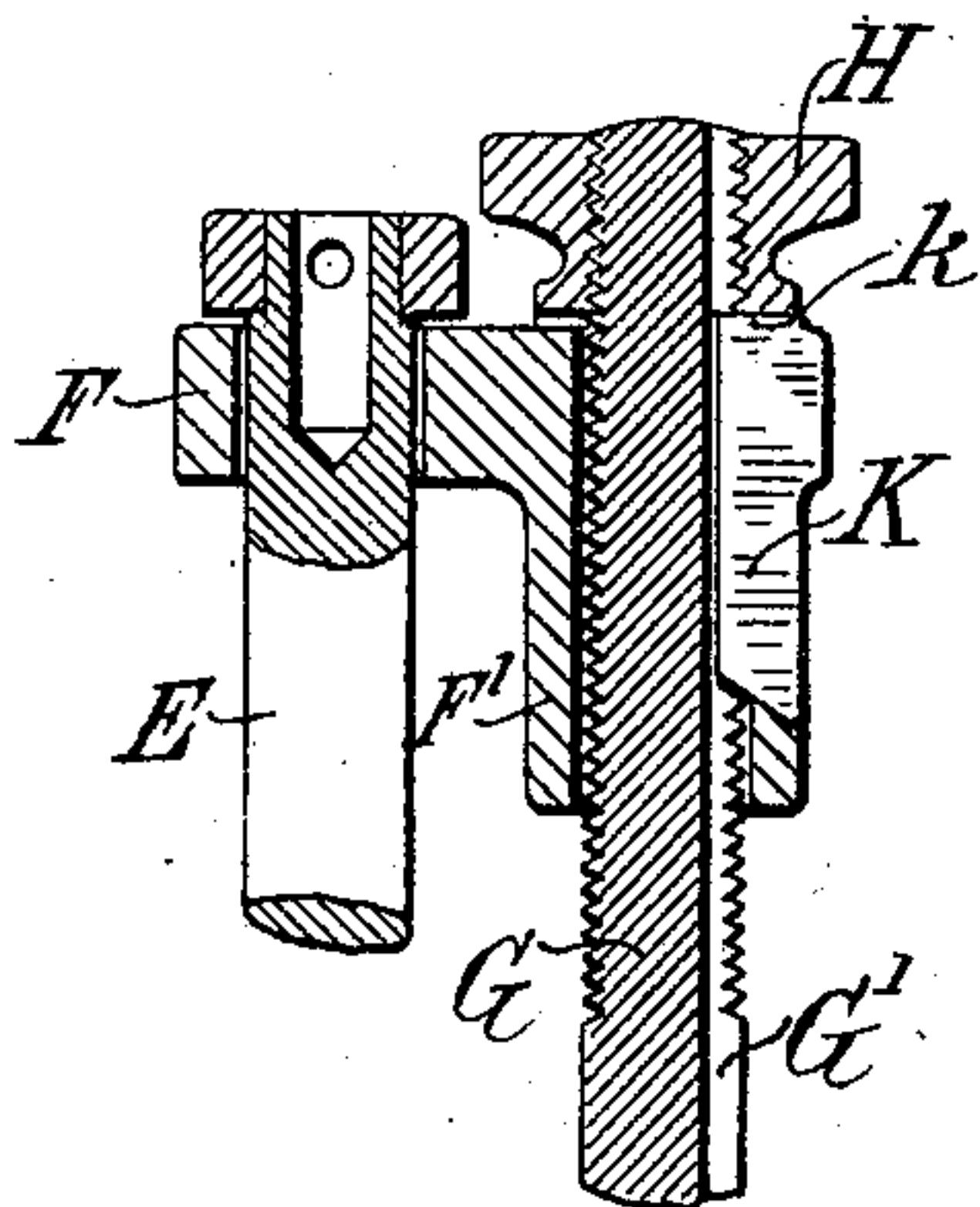


FIG. 6.



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BRUSH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 677,834, dated July 2, 1901.

Application filed November 22, 1900. Serial No. 37,361. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. WOOD, a citizen of the United States, residing in Fort Wayne, county of Allen and State of Indiana, have invented certain new and useful Improvements in Brush-Holders, of which the following is a specification.

My invention provides an improved brush-holder which can be built cheaply and which is adapted to occupy a minimum space on the stud, so as to reduce the amount of space occupied by a given number of carbons of the same standard size.

My invention provides also an improved brush-holder having various other novel features and advantages, as hereinafter set forth.

In the accompanying drawings, illustrating an embodiment of my invention, Figure 1 is a side elevation of my improved holder ready for attachment to its stud, the carbon being in place. Fig. 2 is a front elevation of the holder as shown in Fig. 1. Fig. 3 is a horizontal section on the line 3 3, Fig. 1. Fig. 4 is an under side plan view of the adjusting-nut. Fig. 5 is a rear view of the upper part of the screw-bolt and the slide and nut thereon; and Fig. 6 is a vertical section on the line 6 6, Fig. 5.

My improved holder is adapted to be set on a supporting-stud in the usual way, and it has, as is common, a socket for guiding the lower end of the brush, means for guiding the extension-rod which is attached to the upper end of the brush, and a spring for pressing down the end of the brush. The socket or guide which surrounds the lower end of the brush is simply and cheaply constructed, according to my invention, of a flat plate forming part of its bounding-wall—such, for example, as one entire side thereof—and of a plate of sheet metal bent to form the remaining portion of the bounding-wall, as the remaining three sides, and attached at its ends to the edges of the flat plate to form a guide for the brush. The flat plate is preferably of cast-brass and the bent plate of sheet-brass, the former being at the back and having an extension adapted for attachment to the stud.

Attached to the brush is a rod forming an outward extension thereof. A spring surrounds this rod and bears at its lower end on

the brush, its outer end being pressed downward by a slide on the rod. The slide is moved to adjust the compression of the spring. The guides for this slide have heretofore been of a cumbersome construction, necessitating generally the making of a single holder for several brushes in order to economize space and not working effectively to keep the brush in perfect alinement and prevent its sticking. In my holder this slide is guided directly by the adjusting-rod, on which it also slides, thus producing a very simple and compact construction and preserving at the same time the independence of the individual brush-holders. I am thus enabled to make my holders of a single standard size, so that any number of brushes may be put together on a machine without necessitating a frame adapted to hold this particular number of brushes and so that the brushes may be removed one at a time in case of accident. The alinement is perfectly preserved and the space on the stud occupied by the holder is a minimum, being very little more than the width of the brush itself.

An additional feature of this improved holder is a stop which holds the adjusting means so as to prevent its shaking loose under the vibration.

As shown in the drawings, A is the carbon brush, which is guided in the socket B, the socket B being attached to the stud which supports the holder by means of an extension C. A spring D bears against the outer end of the carbon, being guided on the extension-rod E and being adjusted in compression by the slide F, which in turn guides the rod E. In the rear of the rod E is a screw-threaded rod G, on which the slide F is also guided. An adjusting-nut H screws on the rod G and through the slide F maintains the proper compression on the spring D and the carbon.

The socket B, in which the lower end of the carbon is guided, is made up (see Fig. 3) of a plain flat plate B' at the back and of a bent sheet-metal plate B² B³, forming the front and sides. The entire width of the socket, it will be seen, is little more than that of the carbon. A flat spring b is attached on the inside of the front B² of the sheet-metal plate and holds the carbon steady.

The guide rod or screw G is made heavy, so as to form a stiff guide for the slide F. This slide has an extension F' surrounding the screw and is engaged non-rotatively there-
 5 with, as by a key K, which is guided in a groove G' on the screw and prevents rotary or lateral movement of the slide, which would permit the rod E to get out of alinement. The key K is preferably a separate piece sol-
 10 dered in a slot cut in the side of the slide F and its extension F', as shown best in Fig. 6. The nut H screws down on the screw-rod G to increase the pressure on the spring D when it slackens by the wearing of the carbon.

15 In order to prevent the nut H from rattling loose, I provide in its under side a groove *h* and extend the key K up slightly above the top of the slide F, as shown at *k*, Figs. 5 and 6, so that it will enter said groove by reason
 20 of the upward pressure of the spring D and will lock said nut against accidental rotation. The groove *h* extends entirely across the under face of the nut, so as to provide a stop-point at each half-revolution.

25 The operation of the apparatus as a whole, as well as that of the novel features particularly referred to, is clear from the foregoing description.

Various modifications of the apparatus
 30 shown are possible to those skilled in the art without departing from the spirit of my invention. For example, the stop for the adjusting member may be considerably modified without departing from the invention,
 35 the embodiment used depending largely upon the construction and arrangement of the other parts of the holder. Any combination of a spring pressing upon the brush with an adjusting means comprising a screw and nut so
 40 arranged that the movable member is held in place by a projection and a corresponding recess formed the one in the movable member and the other in the part against which it acts, whereby the force of the spring is utilized to
 45 press said projection and recess into engagement to hold the member from turning, is within my invention.

What I claim, therefore, and desire to secure by Letters Patent are the following-defined novel features and combinations, each
 50 substantially as described:

1. In a brush-holder, a socket comprising, in combination, a flat plate at one side forming a portion of the bounding-wall of said
 55 socket, and a sheet-metal plate bent to form the remaining portion of said bounding-wall and attached to said flat plate.

2. In a brush-holder, a socket comprising, in combination, a flat plate forming the back
 60 of said socket, and a sheet-metal plate bent to form the front and sides thereof and attached to said flat plate.

3. In a brush-holder, a socket comprising, in combination, a flat plate B' forming the
 65 back of said socket and having an extension C adapted for attachment to the supporting-stud, and a sheet-metal plate bent to form the

front B² and sides B³ of said socket and attached to said flat plate.

4. In a brush-holder, the combination of an
 70 extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said extension-rod adapted to be moved to adjust the pressure of said spring, and a guide-rod for said slide, said slide being engaged non-
 75 rotatively with said guide-rod.

5. In a brush-holder, the combination of an
 80 extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said extension-rod adapted to be moved to adjust the pressure of said spring, and a guide-rod for said slide, said guide-rod having a groove G' and said slide having a key K working in said groove and preventing rotation of the
 85 slide on the guide-rod.

6. In a brush-holder, the combination of a
 90 socket for the brush, a spring pressing upon said brush, and means for adjusting the pressure of said spring comprising a screw and nut, the movable member of said adjusting
 95 means having means for holding it in place comprising a projection and corresponding recess formed the one in said movable member and the other in the part against which it acts, whereby the force of the spring is utilized
 100 to press said projection and recess into engagement to form a stop for said movable member.

7. In a brush-holder, the combination of an
 100 extension-rod, a spring on said extension-rod and pressing upon the brush, and means for adjusting the pressure of said spring comprising a screw and nut, the movable member of said adjusting means having means for hold-
 105 ing it in place comprising a projection and corresponding recess formed the one in said movable member and the other in the part against which it acts, whereby the force of the spring is utilized to press said projection
 110 and recess into engagement to form a stop for said movable member.

8. In a brush-holder, the combination of an
 115 extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said extension-rod adapted to be moved to adjust the pressure of said spring, a guide-rod for said slide, a nut on said guide-rod adapted to move said slide to adjust the pressure of said
 120 spring, and a projection and corresponding recess on the adjacent faces of said slide and nut to form a stop for said nut.

9. In a brush-holder, the combination of an
 125 extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said extension-rod adapted to be moved to adjust the pressure of said spring, a guide-rod for said slide, a nut on said guide-rod adapted to move said slide to adjust the pressure of said
 130 spring, and a projection *k* on the top of said slide engaging a groove *h* in the under side of said nut to form a stop therefor.

10. In a brush-holder, the combination of an
 extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said

extension-rod adapted to be moved to adjust
the pressure of said spring, a guide-rod for
said slide, said guide-rod having a groove G'
and said slide having a key K and a projec-
5 tion *k* above the slide, and a nut on said guide-
rod adapted to move said slide to adjust the
pressure of said spring and having a groove
h in its under side to engage the projection *k*.

In witness whereof I have hereunto signed
my name in the presence of two subscribing
witnesses.

JAMES J. WOOD.

Witnesses:

EDWARD A. BARNES,
ARTHUR L. HADLEY.