

W. A. TURBAYNE.
BRUSH HOLDER.
APPLICATION FILED AUG. 8, 1907.

916,065.

Patented Mar. 23, 1909.

Fig. 1

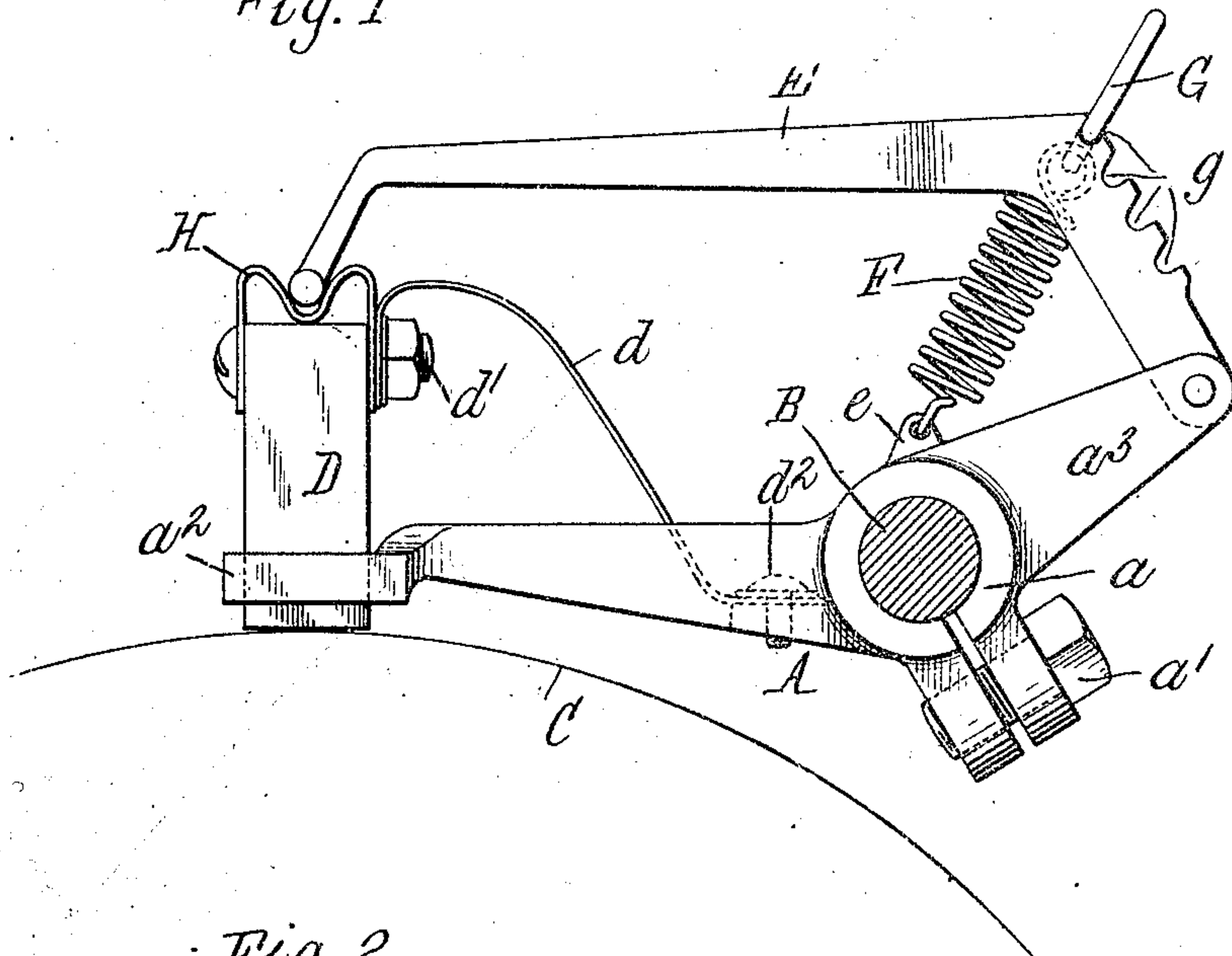


Fig. 2.

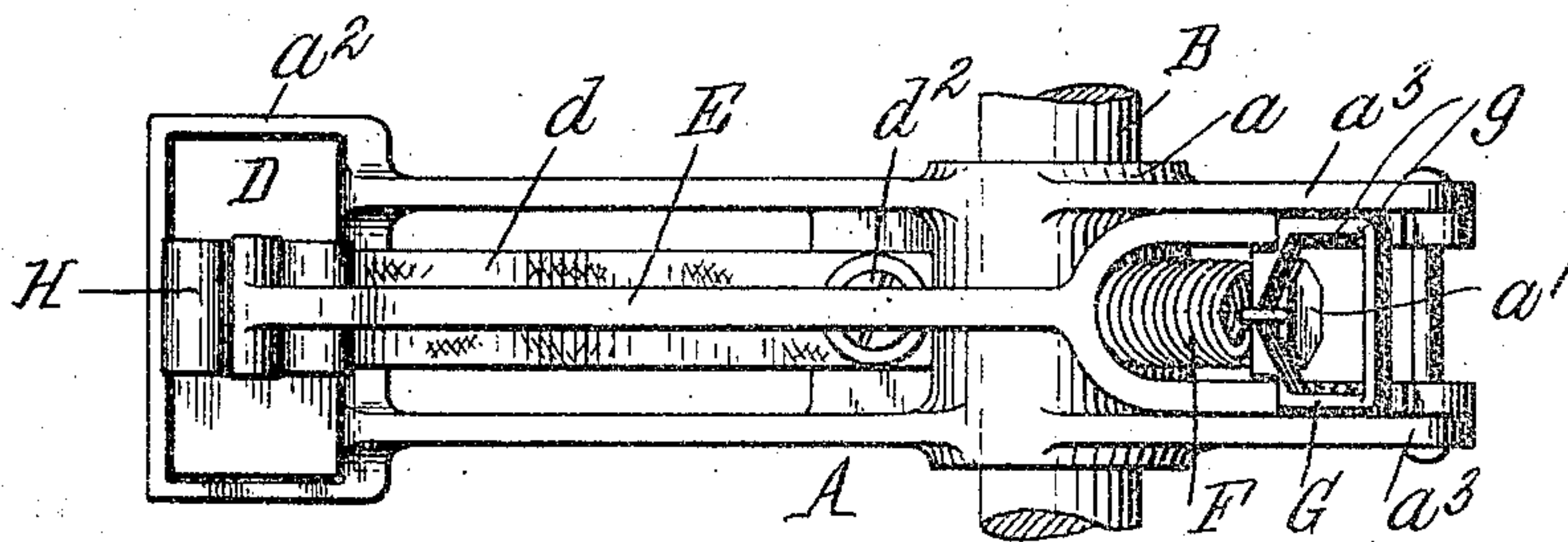
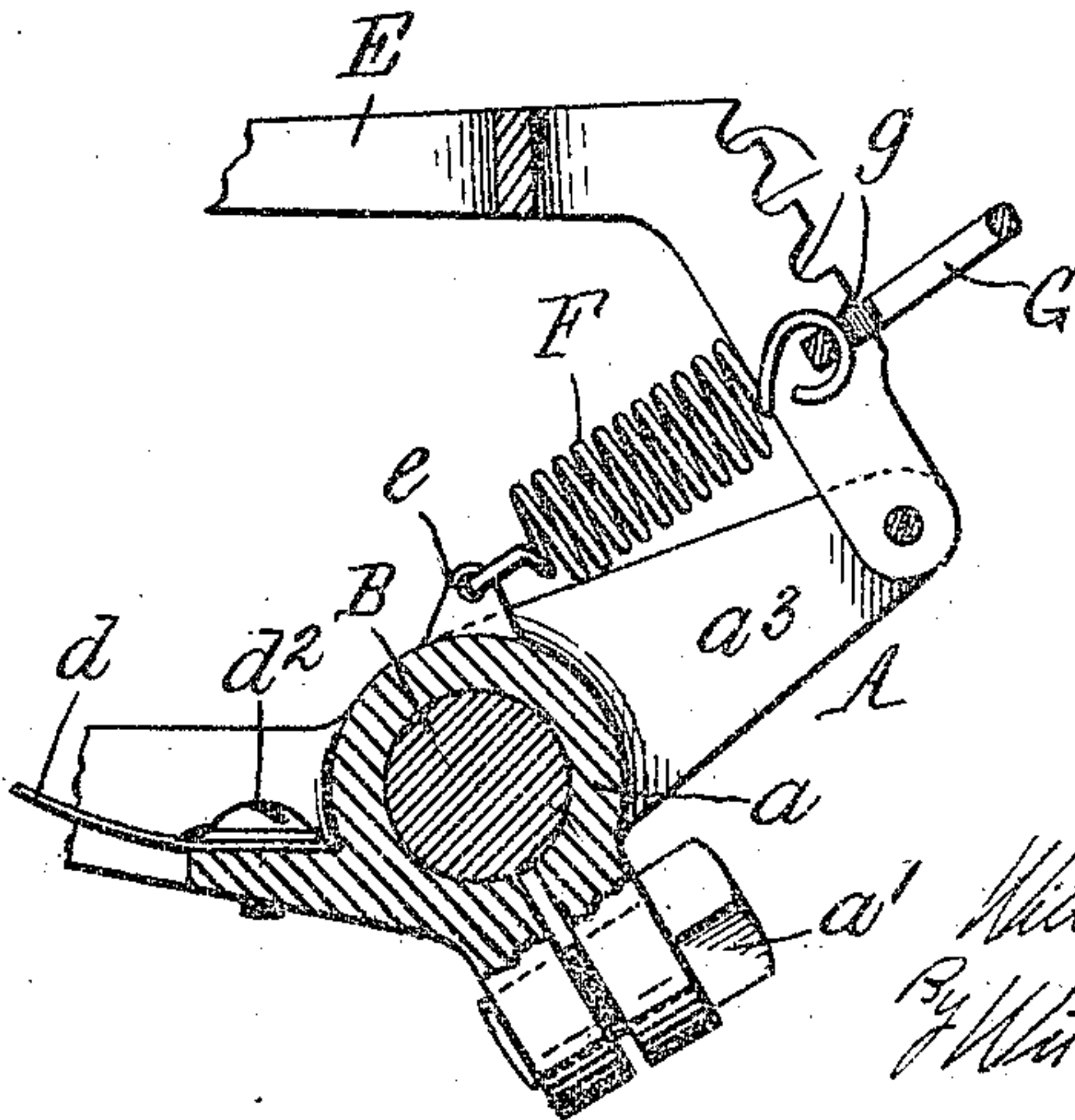


Fig. 3.



Witnesses:

A. J. Dimond.
C. B. Hornbeck.

Inventor.

William A. Turbayne
By Wilhelm Parker Hunt,
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM A. TURBAYNE, OF LANCASTER, NEW YORK, ASSIGNOR TO GOULD COUPLER COMPANY, OF NEW YORK, N. Y.

BRUSH-HOLDER.

No. 916,065.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed August 8, 1907. Serial No. 387,640.

To all whom it may concern:

Be it known that I, WILLIAM A. TURBAYNE, a citizen of the United States, residing at Lancaster, in the county of Erie and State of New York, have invented a new and useful Improvement in Brush-Holders, of which the following is a specification.

This invention relates more particularly to brush holders for dynamo electric machines, of that sort in which the brush or carbon is held yielding against the surface of the commutator by a pressure device and is movable in and out or toward and from the commutator in a guide on the holder.

The objects of the invention are to provide an efficient and desirable brush holder of simple and inexpensive construction in which the brush or carbon has a relatively great range of movement and will not bind in the holder; also to provide the holder with a pressure device which can be quickly and easily adjusted without tools to regulate the pressure of the brush or carbon on the commutator; also to so construct the brush holder that the brush or carbon can be readily removed and replaced when worn or broken; and also to provide the carbon with a bearing or saddle for the pressure lever which prevents the lever from wearing or breaking the carbon.

In the accompanying drawings: Figure 1 is a side elevation of a brush holder embodying the invention. Fig. 2 is a plan view thereof. Fig. 3 is a fragmentary longitudinal sectional elevation thereof, showing a different adjustment of the pressure spring.

Like letters of reference refer to like parts in the several figures.

A represents the holder frame or bracket, which is secured on a suitable support or rod B appropriately arranged adjacent to the commutator, the surface of which latter is indicated by the curved line C. The bracket shown in the drawings is provided between its ends with an ordinary split clamping sleeve a and a bolt or screw a' for adjustably securing it on the supporting rod B. The main portion of the bracket at one side of the clamping sleeve is preferably made in skeleton form to reduce the weight of the holder and is provided at its outer end with a rectangular guide-loop or opening a^2 for the brush carbon D. The bracket has spaced

parallel bearing arms a^3 projecting from the opposite side of the clamping sleeve for supporting the pressure lever for the brush.

The brush carbon is confined laterally in the guide loop a^2 of the bracket but is free to slide in and out therein, or toward and from the commutator, to adjust itself to the surface of the latter and gradually move inward to maintain contact with the commutator as the carbon wears away. The usual flexible conductor d is connected at opposite ends by suitable screws or other means d' d^2 to the brush and holder bracket.

E represents a pressure arm or lever which is pivoted at one end to the bearing arms a^3 of the bracket with its other or free end held on the brush D by a suitable spring or springs F attached to the bracket and to the pressure lever. Preferably the pivot end of the pressure lever is forked or bifurcated and the spring F arranged between the fork branches of the lever with its inner end hooked into a perforated lug e on the clamping sleeve of the bracket, or otherwise attached to the bracket, and a handle, loop or the like G attached to its outer end resting in notches or seats g in the branches of the forked end of the lever. A series of opposite notches or seats are provided in the branches of the lever so that by engaging the loop G in a pair of notches nearer to or farther from the fulcrum of the lever the pressure on the brush is correspondingly decreased or increased. Thus by engaging the loop in one or another of the pairs of seats in the lever the pressure of the lever on the brush and consequently the pressure of the brush on the commutator can be regulated as desired or found necessary. The loop can be readily grasped, lifted out of one pair of seats and placed in another pair and it will be firmly held by the spring in the seats in which it is placed, thus making possible a very quick and easy adjustment of the lever pressure.

The pressure lever E is so located that its free end, which bears on the brush, swings in an arc very nearly parallel with the direction of movement of the brush in the guide loop, thereby reducing to the minimum the lateral pressure on the brush which would tend to cause it to bind in its guide loop. The lever is also preferably bent, or its ends extend at an angle from the middle part of the lever toward the brush and fulcrum, thereby afford-

ing ample room between the lever and bracket for the pressure spring and conductor *d* and enabling the use of a longer spring *F*. Furthermore, this form of the lever so locates the seats for the spring loop that they recede from the lever pivot as they recede from the point of attachment of the spring to the bracket, thus requiring the spring to be stretched farther and farther as its loop is adjusted away from the lever pivot and thereby increasing the tension of the spring as well as its leverage so that a greater range of adjustment of the pressure on the brush is secured.

H represents a bearing piece or saddle secured on the outer end of the brush carbon and forming a seat for the end of the pressure lever to prevent the same from directly engaging and wearing or breaking the carbon. The saddle is preferably made of a strip of copper or other good conducting material bent into substantially *M*-shape with the ends embracing and secured to the end of the carbon by the bolt *d'* which fastens the conductor *d* to the carbon. The end of the pressure lever, which is preferably rounded and laterally extended, bears in the depressed central part of the saddle in which it is held from displacement but allowed the necessary rocking movement. In addition to forming a bearing for the lever the saddle strengthens and improves the connection of the conductor *d* with the carbon. The pressure lever can be readily lifted out of the saddle and the carbon removed and replaced when broken or worn.

I claim as my invention:

1. The combination of a brush carbon, or the like, a frame provided with a relatively short guide opening in which said brush is

loosely confined, a lever which is pivoted to said frame and has a rocking bearing at its free end on the outer end of said brush for pressing the brush against the commutator, a spring attached to said frame, and a part attached to said spring and seated on said lever and being adjustable thereon to regulate the pressure of the lever on the brush, substantially as set forth.

2. The combination of a brush carbon, or the like, a frame provided with a relatively short guide opening in which said carbon is loosely confined, a lever which is pivoted at one end to said frame and has a rocking bearing at its free end on the outer end of said carbon, a coil spring attached at one end to said frame between the ends thereof, and a handle attached to the other end of said spring and bearing on said lever between the ends thereof, said lever having a plurality of open seats to receive said handle for regulating the pressure of said lever on the carbon, substantially as set forth.

3. The combination of a brush carbon, or the like, a frame provided with a guide for said carbon, a spring-pressed lever pivoted on said frame, and a saddle fixed to the outer end of said carbon and consisting of a metal strip having ends which embrace and are secured to said carbon and a depression between said ends in which said lever has a rocking bearing, substantially as set forth.

Witness my hand, this 29th day of July, 1907.

WILLIAM A. TURBAYNE.

Witnesses:

E. C. HURD,
C. B. HORNBECK.