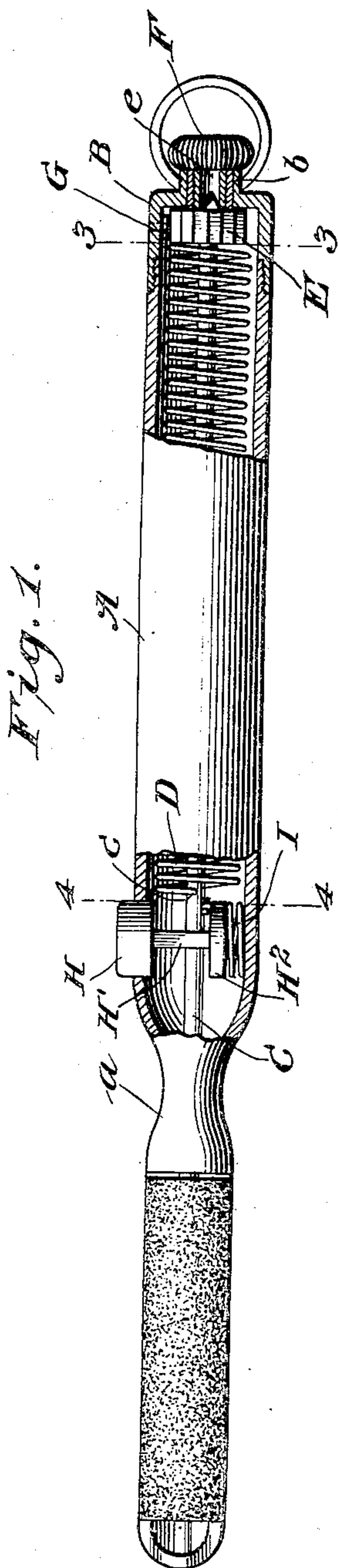


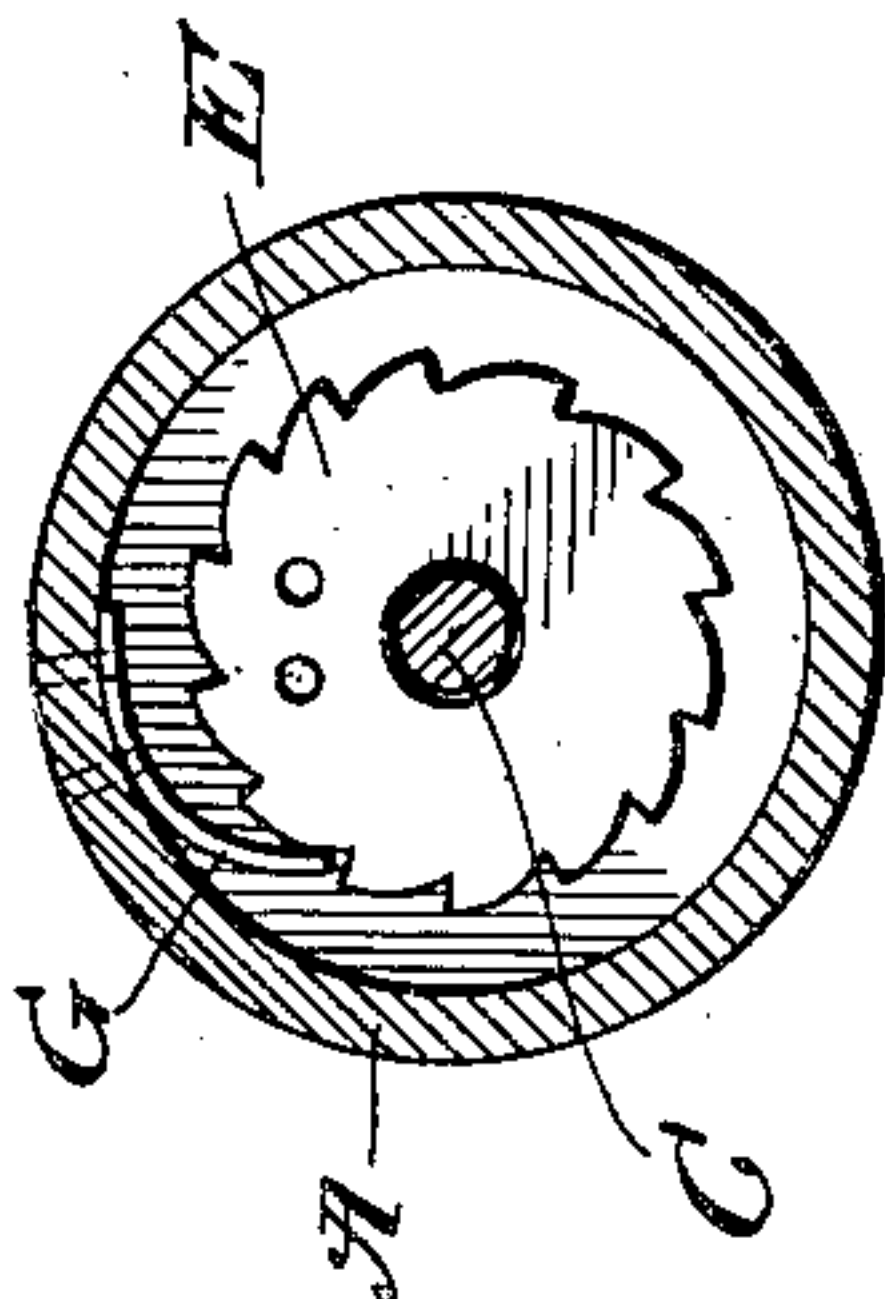
C. L. PHILLIPS.  
 ROTARY TOOTH BRUSH.  
 APPLICATION FILED JUNE 8, 1908.

931,143.

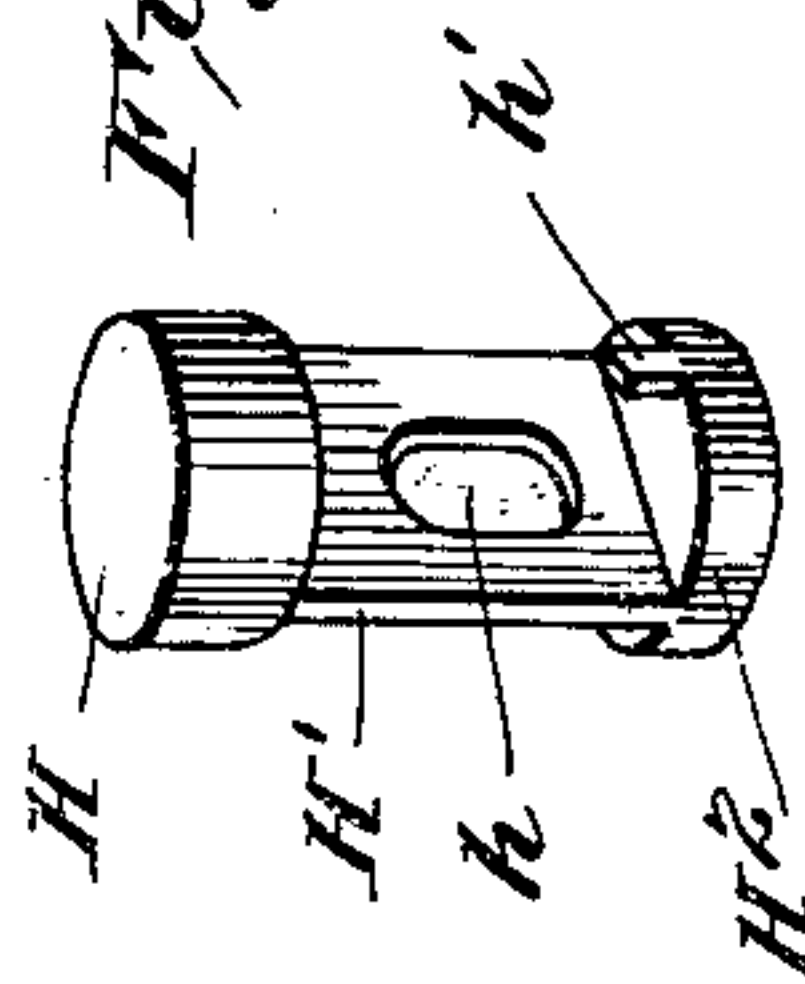
Patented Aug. 17, 1909.



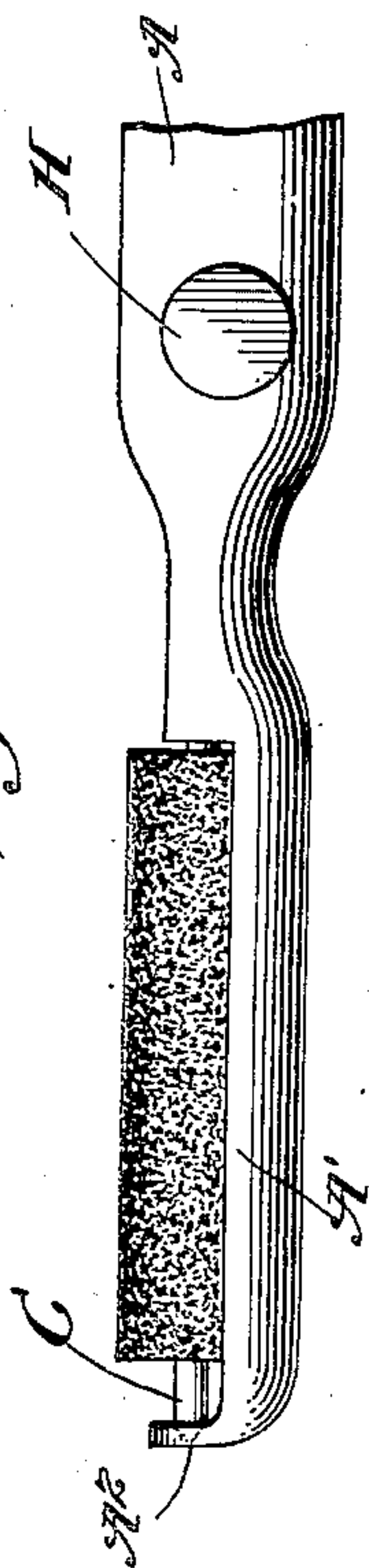
*Fig. 3.*



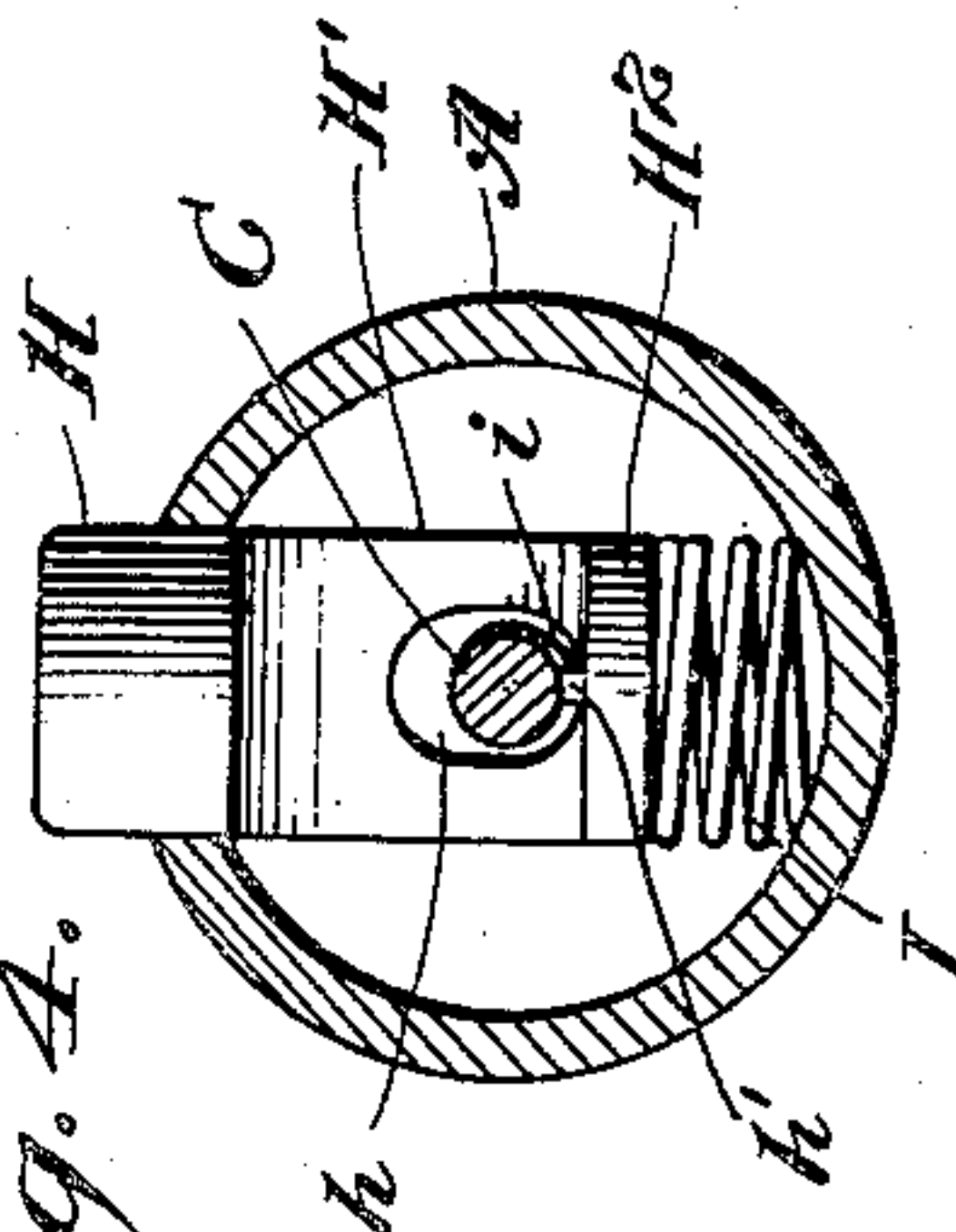
*Fig. 5.*



*Fig. 2.*



*Fig. 4.*



Witnesses  
*M. C. Lyddane*  
*J. D. L. Mulhall.*

Inventor  
*Charles L. Phillips*

*Joshua R. Stone*

Attorney



# UNITED STATES PATENT OFFICE.

CHARLES LEE PHILLIPS, OF RONDOUT, NEW YORK.

## ROTARY TOOTH-BRUSH.

No. 931,143.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed June 8, 1908. Serial No. 437,461.

*To all whom it may concern:*

Be it known that I, CHARLES LEE PHILLIPS, a citizen of the United States, residing at Rondout, in the county of Ulster and State of New York, have invented certain new and useful Improvements in Rotary Tooth-Brushes, of which the following is a specification.

My invention relates to brushes and more particularly to rotary brushes of a character used for cleaning teeth and for like objects, wherein mechanism is provided connecting with the handle of the brush whereby the brush may be rapidly rotated.

The object of my invention is to provide a brush of this class wherein the motive power is carried within the handle of the brush, wherein the brush is rotated in one direction, and wherein the speed of rotation may be slackened at will or stopped altogether.

To these ends my invention consists in providing a brush of this character with a spring motor in the handle acting upon the shaft carrying the brush, and in also providing a brake contacting with the shaft and acting either to slacken its speed of rotation or stop it altogether.

I have shown an embodiment of my invention in the accompanying drawings wherein—

Figure 1, is an elevation of the brush, certain portions of the casing being broken away to show the driving and brake mechanism. Fig. 2, is a side elevation of the end of the brush. Fig. 3, is an enlarged transverse section on line 3—3 of Fig. 1. Fig. 4, is a transverse section on line 4—4 of Fig. 1, and Fig. 5, is a detail perspective.

In the drawings A designates a cylindrical or tubular handle, narrowed at one end as at *a* to form a bearing for the brush shaft and extended as at *A'* to form a guard plate which prevents contact of the brush with portions of the mouth other than the teeth. This extension *A'* is semicylindrical in cross section and the end thereof, as at *A<sup>2</sup>*, is turned upward to form a bearing for the brush shaft. At its other end the handle A is provided with a cap B, which screws down upon the handle to close the end of the same. This cap has an opening in its center surrounded by an outward projecting flange *b*.

C designates the longitudinal brush-car-  
rying shaft which extends the full length of the handle, which is supported in the up-

turned portion *A<sup>2</sup>* at its forward end, and supported at its rear end in the manner to be hereafter described, and which may also have a bearing in the contracted portion *a*. Surrounding the shaft C is the coiled spring D which practically entirely fills the barrel A of the handle from its rear to its forward end. At this forward end the spring D is attached to the shaft as at *c*. The spring at its rear end is attached to the ratchet E which is tubular as shown in Fig. 3, and is mounted upon a tubular spindle *e*. This tubular spindle is screw threaded on its exterior to engage with the screw threaded spindle of the knurled head F. A spring pawl G is riveted to the interior of the cap B and engages with the teeth of the ratchet E. The shaft C passes through the hollow center of the ratchet E and is received within the hollow spindle *e* as will be seen in Fig. 1.

It will be obvious that by turning the head F, the spring will be rotated and wound up, around the shaft C, provided the shaft is held from rotation. For this purpose I have provided the stop button H having a slotted shank *H'*, and head *H<sup>2</sup>*, the button being normally pushed out from the casing in the position shown in Fig. 4, by the spring I with which the shank of the button through the head *H<sup>2</sup>* is engaged. The shank *H'* is slotted as at *h*, the upper end of the slot being curved and the lower end of the shank having a head *H<sup>2</sup>*, provided with a tooth *h'*. The shaft C is likewise provided with a ratchet tooth *i* adapted to engage the detent tooth and prevent the shaft from rotating. Of course the tooth *i* and the teeth on the ratchet wheel E are inclined in opposite directions. It will be seen that by this construction a rotation of the head F will act to wind up the spring as before explained, the hollow spindle *e* and the ratchet E rotating freely upon the rear end of the shaft C. The pawl G prevents any backward rotation of the spring by engaging with the teeth of the ratchet. When it is desired to use the brush, provided the spring is wound up, it is only necessary to depress the button H when the shaft will be released from the detent *h'* and will be rotated.

It is necessary of course that there should be some means of checking the speed of the shaft and to that end I have provided the curved upper end of the slot *h*. As the button H is depressed the upper end wall of the



slot will frictionally engage with the shaft to check the speed thereof. It is obvious that by this means the shaft may be slowed down to any required degree or allowed to rotate with the full strength of the spring. The detent tooth  $h'$  is placed at one side of the shank H, so that the tooth  $i$  in its rotation will not contact with the upper end of the shank and button. I do not wish to be limited to this particular construction however, as a support may be provided on the shank for the tooth  $h'$  in many other ways.

While I prefer to use my invention in the manufacture of tooth brushes and have so shown it, I do not wish to be limited thereto as it is capable of use for other purposes, and the construction may be modified to these ends without departing from the spirit of my invention as heretofore described.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a rotary brush, a tubular handle, a shaft mounted therein, a spring surrounding the shaft and connected at one end thereto and means for winding up said spring, a stop button on said handle, a tooth on said shaft, and means connected with said button for engaging said tooth when the button is in one position to hold the shaft against rotation and for releasing said shaft when the button is in another position, substantially as described.

2. In a rotary brush a tubular handle and a shaft mounted therein, in combination with a spring for driving said shaft and means for winding said spring, a button on said handle, a shank on said button, said shank having a slot to receive said shaft, a tooth on said shaft adjacent said shank, a detent at the end of said shank, means for

normally holding said detent in the path of said tooth and a brush on the end of said shaft, substantially as described.

3. In a rotary brush, a tubular handle contracted at its forward end to form a bearing, a shaft passing through said contracted portion and through the whole extent of the handle, a cap at the upper end of the handle having a central aperture, a spindle passing through said aperture carrying a head on its exterior end and a ratchet wheel on its interior end, the rear end of said shaft being carried within the tubular ratchet and spindle, a pawl mounted on the interior of the cap adapted to engage with the ratchet wheel, and means for preventing the rotation of the shaft while the head and ratchet are being turned and the spring wound.

4. In a rotary brush, a tubular handle, a shaft within said handle carrying the brush at one end, a spring surrounding said shaft attached to the shaft at one end and at the other provided with winding means, and a speed checking stop consisting of a slotted shank through which said shaft passes having a head at one end and provided with a spring at its other end, said shank carrying a detent tooth, and the shaft being provided with a ratchet tooth with which the detent tooth will engage, said slot being rounded at one end and adapted to have frictional engagement with said shaft to check the motion of the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES LEE PHILLIPS.

Witnesses:

JAY E. KLOCK,

WILLIAM C. SCHROEDER.