

No. 618,690.

Patented Jan. 31, 1899.

A. M. W. TER LAAG.  
ROTARY TOOTH BRUSH.

(Application filed Jan. 21, 1898.)

(No Model.)

Fig. 1.

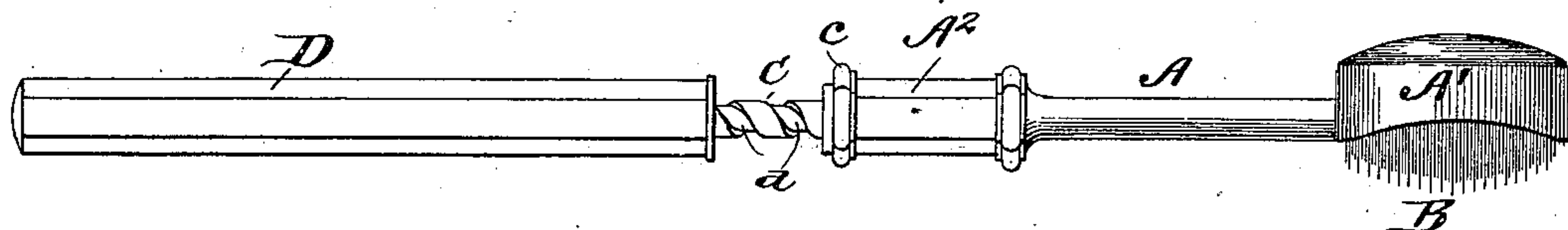


Fig. 2.

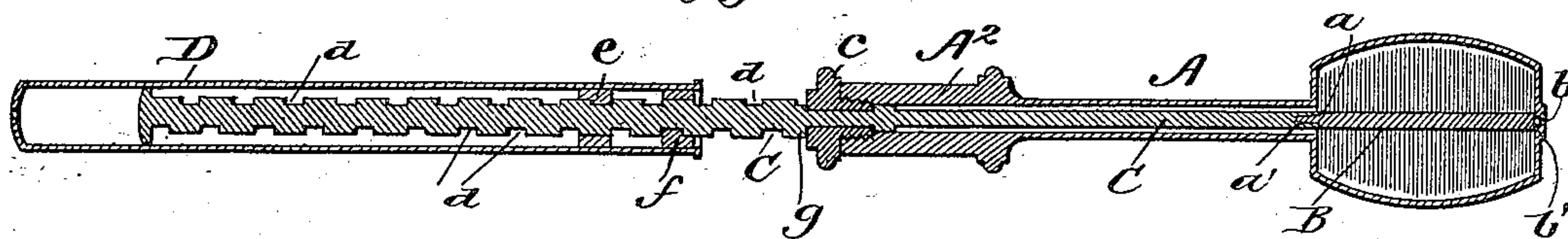


Fig. 3.

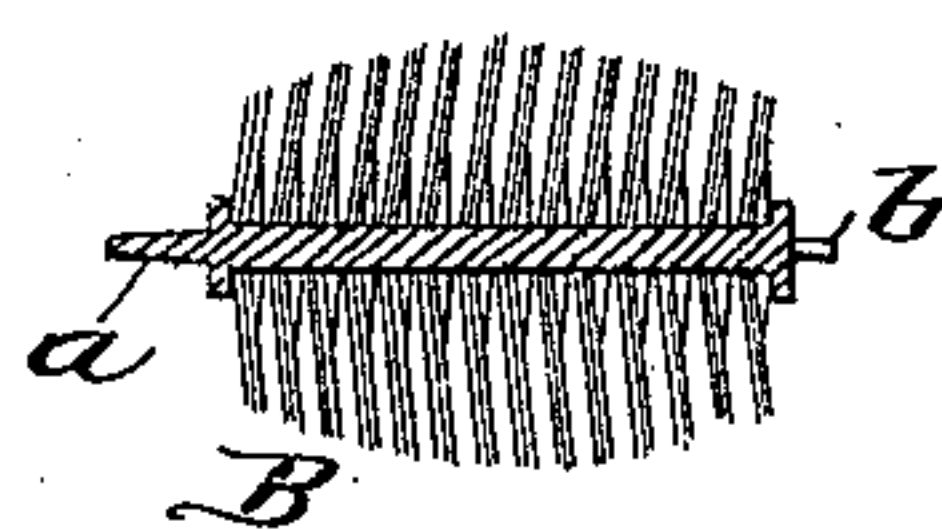


Fig. 4.

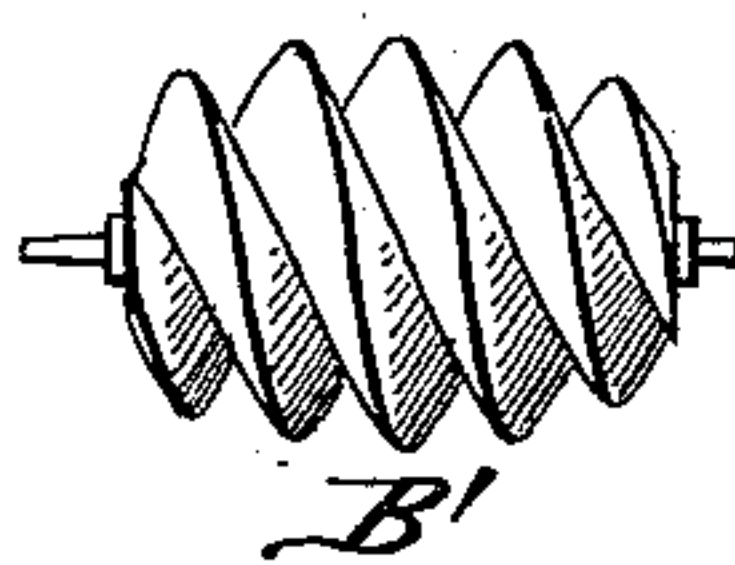
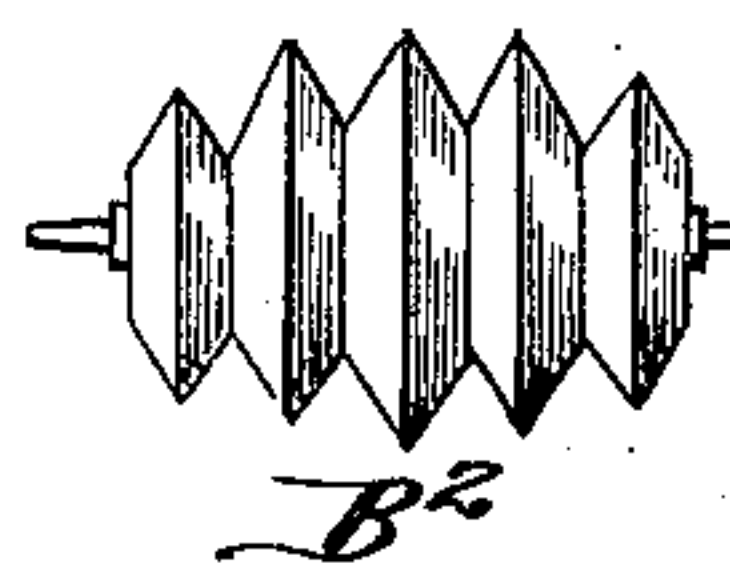


Fig. 5.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ADRIAAN MARIE WILLEM TER LAAG, OF PHILIPSBURG, ST. MARTIN,  
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## ROTARY TOOTH-BRUSH.

SPECIFICATION forming part of Letters Patent No. 618,690, dated January 31, 1899.

Application filed January 21, 1898. Serial No. 667,516. (No model.)

*To all whom it may concern:*

Be it known that I, ADRIAAN MARIE WILLEM TER LAAG, a subject of Her Majesty the Queen of the Netherlands, residing at Philipsburg, St. Martin, West Indies, have invented new and useful Improvements in Rotary Tooth-Brushes, of which the following is a full, clear, and exact description.

This invention relates to improvements in rotary tooth-brushes, and has for its objects, first, a brush in which in use the bristles follow the direction of the enamel-bars; second, to protect the gums and other parts of the mouth from being injured by the bristles; third, to procure with facility the required rotary motion of the brush, and, fourth, to enable the brush to be removed from the handle or casing in an easy and efficient manner.

The invention consists in a brush held to turn in a casing which partially closes the bristles, so as to protect the mouth when using the brush, the casing and handle being so connected together that longitudinal movement will effect the rotary motion of the brush.

The invention also consists in certain novel constructions and arrangements of the parts, which I will first describe and then particularly point out in the appended claims.

Reference is to be had to the accompanying drawings, forming part of this specification, and in which corresponding characters of reference indicate corresponding parts in all the views where they occur.

Figure 1 is a side elevation of my invention. Fig. 2 is a longitudinal section thereof. Fig. 3 is a detail view of the brush proper, and Figs. 4 and 5 are detail views of different forms of brushes.

The body of the brush B, or that part to which the bristles are attached, has one of its ends *a* made polygonal in cross-section and its other end *b* rounded. The polygonal or non-circular end *a* is removably inserted in a socket *a'* in the end of the shaft C, while the end *b* is journaled in an opening *b'* in the end of the casing A, which is mounted upon the shaft C. The casing A is formed at one end with a shield *A'*, preferably integral therewith and adapted to partially inclose the bristles of the brush B, so as to protect the inner

parts of the mouth from contact with the bristles, and at its opposite end with an enlarged portion *A<sup>2</sup>*, adapted to form a grip for the fingers. The shaft C is held from longitudinal movement within the casing A by a collar *c*, which screws into or is otherwise removably secured in the end of the casing-stem and engaging on each side projections or shoulders *g* formed in the shaft. It will thus be seen that to replace the brush B with another brush the collar *c* is unscrewed from the casing-stem and the said stem slipped off the shaft, when the brush B will be released from its bearing and can be easily removed and replaced by another. To effect a rotary motion of the shaft C, carrying the brush, with respect to the casing A, the said shaft is formed with one or more spiral grooves *d*, and a hollow handle D fits over the grooved portion of the shaft, bearings *e* and *f* being held within the handle and adapted to work in the grooves.

Instead of having the brush formed as shown in Fig. 3 the forms shown in Figs. 4 and 5 may be employed, in which the brushes *B'* and *B<sup>2</sup>* are formed of either rubber or bristles.

To operate the brush, the fingers of one hand grasp the enlarged portion of the stem of the casing and hold the bristles in contact with what surface of the teeth it is desired to clean. The other hand moves the handle toward and from the casing A, whereupon the bearings *e* and *f*, working in the groove of the shaft, will rotate said shaft and the brush which it carries.

It will be seen that I have provided a very simple but efficient device and one that will thoroughly cleanse the teeth, while the shield portion of the casing protects the mouth from contact with the bristles. It will also be observed that the brushes can be readily removed from their casing and replaced, so that extra brushes can be sold with every device at very little additional cost.

It is often absolutely necessary in the proper care of the teeth to brush them in the direction of the bars of enamel—that is, up and down instead of across—so that the bristles may get in between the teeth. With ordinary tooth-brushes in which there is a fixed



relation between the brush and its bristles and the handle the attempt to comply with this requirement is awkward and painful. With my construction and arrangement the operation is a very pleasant, thorough, and enjoyable one.

To get the best results from a brush of this character, I make the brush proper of such a form that its abrasive surface approximates a prolate spheroid. Such a form, it will be observed, corresponds to the contour of the teeth on the inside, and as that side is the one most troublesome to clean with the ordinary brush and most liable to be coated with tar or become discolored and decayed the advantage of employing a brush of the form I describe is obvious.

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

1. In a rotary tooth-brush, the combination of a casing, a shaft mounted to turn within said casing, but removable longitudinally therefrom, said shaft being formed with a spiral groove, a brush removably held in the end of said casing and moving therewith, and a hollow handle adapted to fit over the grooved portion of said shaft and having bearings arranged to work in the groove, as and for the purpose set forth.

2. In a rotary tooth-brush, the combination of a casing, a shaft mounted to turn in said

casing and provided with shoulders, a collar removably held in the end of said casing and located between said shoulders, whereby the shaft is held to rotate about a fixed axis, a brush removably held on said shaft to rotate therewith, the said shaft being further provided with a spiral groove, and a hollow handle fitted over the grooved portion of said shaft, and having bearings working in said groove, as and for the purpose set forth.

3. In a rotary tooth-brush, the combination with the casing, of a shaft removably held to rotate in said casing, and a brush proper having the end journaled in said casing and the other end detachably secured in the end of said shaft, whereby the removal of said shaft will release said brush, as and for the purpose set forth.

4. In a rotary tooth-brush, the combination with a casing formed of a stem and a shield, of a brush proper having one end loosely journaled in the forward end of said shield, a shaft removably held to rotate in said stem and having at its forward end a socket in which is received the adjacent end of the brush proper, and means for rotating said shaft, as and for the purpose set forth.

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Witnesses:

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