H. H. KONE.

ROTARY TOOTH BRUSH.

APPLICATION FILED SEPT. 6, 1917.

1,257,883. Patented Feb. 26, 1918.

Fig. 1.

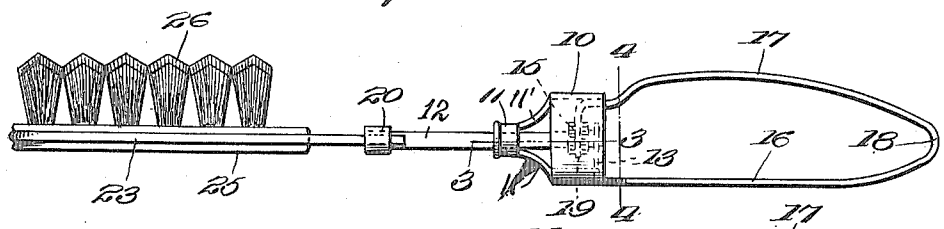


Fig. 2.

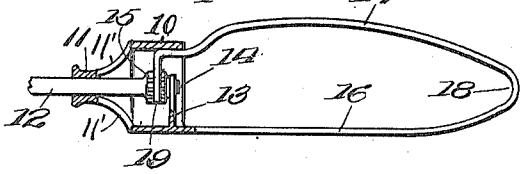


Fig. 3.

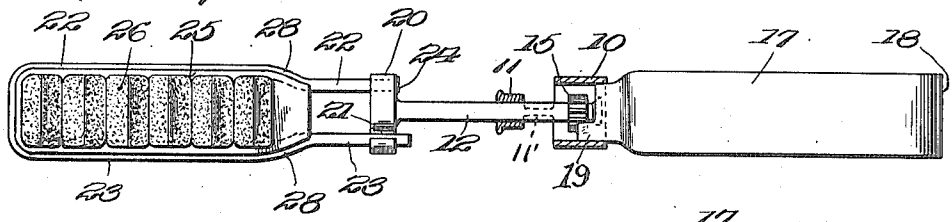


Fig. 4.

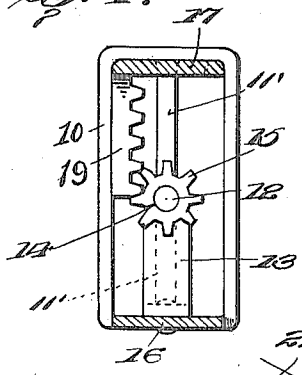


Fig. 5.

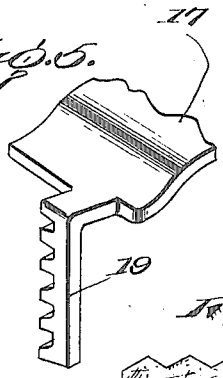
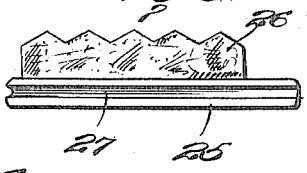


Fig. 8.



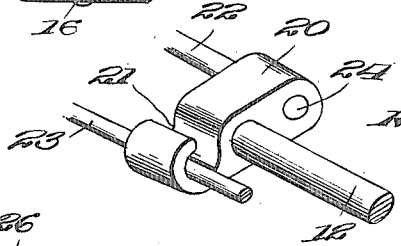


Fig. 6.

Inventor

H. H. Kone.

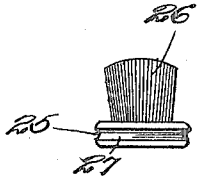


Fig. 7.

By

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UNITED STATES PATENT OFFICE.

HENRY H. KONE, OF SUMMERFIELD, KANSAS.

ROTARY TOOTH-BRUSH.

1,257,883. Specification of Letters Patent. Patented Feb. 26, 1918.

Application filed September 6, 1917. Serial No. 190,037.

To all whom it may concern:

Be it known that I, HENRY H. KONE, a citizen of the United States, residing at Summerfield, in the county of Marshall and State of Kansas, have invented certain new and useful Improvements in Rotary Tooth-Brushes, of which the following is a specification.

This invention relates to improvements in tooth brushes of the class wherein provision is made for oscillating or vibrating the brush against the teeth, and has for one of its objects to simplify and improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a device of this character wherein provision is made for detaching the brush portion of the device so that broken or impaired brushes may be renewed without discharging the remaining portion of the implement, and whereby brushing and abrading implements of varying forms and materials may be attached and detached.

With these and other objects in view, the invention consists in certain novel features of construction, as hereinafter shown and described and then specifically pointed out in the claims; and in the drawings illustrative of the preferred embodiment of the invention—

Figure 1 is a side elevation of the improved implement;

Fig. 2 is a detail side elevation partly in section;

Fig. 3 is a plan view with parts in section on the line 3—3 of Fig. 1;

Fig. 4 is an enlarged transverse section on the line 4—4 of Fig. 1;

Fig. 5 is an enlarged perspective detail illustrating the construction of the brush actuating rack;

Fig. 6 is an enlarged perspective view illustrating the construction of the coupling of the brush holding portion of the device;

Fig. 7 is an end elevation of the brush, detached;

Fig. 8 is a detached detail illustrating a modification in the form of the brush.

The improved device comprises a support including a shell or shield 10 having a bearing 11 connected thereto by ribs 11′, the bearing supporting the operating shaft 12 of the improved device for rotation or oscillation.

The shell is thus open to enable the parts to be readily cleansed, to insure the sanitary condition of the device. Extending inwardly from the shell 10 at its inner end is a bracket 13 in which the inner end of the shaft 12 is mounted, as shown at 14. A gear pinion 15 is carried by the shaft 12 in close proximity to the bracket 13 as shown in Figs. 2 and 3. Extending from the shell portion 10 is a hand grip comprising a rigid portion 16 and a movable portion 17, the two portions being united at 18. At its free end the portion 17 of the hand grip enters the shell 10 and is formed with a rack member 19 adapted to engage the teeth of the pinion 15. The parts 16—17 possess sufficient resiliency to hold the terminal having the rack 19 normally in withdrawn position, as shown in Fig. 4. By this means it will be obvious that when the portion 17 is compressed or moved toward the portion 16 against the resistance of the resiliency of the hand grip, the rack will be caused to engage the pinion 15 and rotate the latter, and then when the pressure is removed the reaction of the portion 17 will return the pinion to its former position.

The outer face of the rack member 19 bears movably against the adjacent face of the shell 10 and is guided and held thereby in coactive relation to the pinion and prevents the displacement of the rack during the operation of the device.

Connected to or formed upon the outer end of the shaft 12 is a head 20 having hook-shaped socket 21 at one end. A U-shaped member comprising side portions 22—23 is connected by the portion 22 to the head 20 in any suitable manner, for instance, by riveting, as represented at 24, while the other side 23 is received in the socket 21 as shown in Figs. 3 and 6. By this means the U-shaped holding member is firmly coupled at one side to the head 20, and the other side detachable therefrom by compressing the part 23 inwardly to a sufficient extent to release it from the socket 21. The brush portion of the improved device includes a head 25 to which the bristles, indicated at 26, are connected. The head 25 is provided with longitudinally directed channels 27 in its side edges and across one end to receive the portions 22—23 of the holding device. The parts 22—23 are nearer together adjacent the head 20 than at other portions, as shown in Fig. 3, and thus form curved stop portions 28 operating to prevent the movement of the brush head 25 longitudinally

of the holding member. By this arrangement it will be obvious that the brush head 25 together with its bristles 26 are firmly held in position relative to the shaft 12 and partake of its oscillating or rotary movement when the grip portion 17 is actuated. The bristles 26 preferably terminate in a curved surface, the center of the curvature being the axis of the shaft 12, so that the outer bristles will not scratch or pinch the gums during the oscillating movement. The operator by holding the grip portion in one hand with the bristles 26 against the teeth can cause the brush head or bristles to rapidly oscillate or vibrate by alternately applying pressure to the grip portion 17 and releasing the same. The operation is thus automatic in one direction, and produces a rapid vibratory or oscillating movement of the bristles against the teeth. The brush may thus be caused to revolve or oscillate as described and act longitudinally of the teeth, or between the same or transversely thereof, as may be required, by simply changing the position of the grip member and the shaft, or used in the same manner as the ordinary brush, but with greater efficiency. By arranging the shell portion 10 to entirely cover the operating parts including the pinion and rack, the hands of the operator are protected from engagement therewith or from injury by coming in contact with the moving parts.

The brush head member 25 together with the bristles 26 will not occupy a greater space than the corresponding parts of an ordinary tooth brush and will not therefore distend the mouth or otherwise inconvenience the user.

The bristles may be arranged in any required manner or in any required configuration, but will preferably be arranged in a series of conical outlines as shown in Figs. 1 and 2.

A plurality of the head members 25 having bristles or abrading or bushing elements of various forms or material may be furnished with each handle or coupling device, and can be alternately coupled to the holding devices, as required.

The device may be used in the same manner as an ordinary tooth brush by simply holding the hand grip portion without compressing the part 17.

All the parts are separably or readily accessible and can thus be effectually cleansed and rendered sanitary.

Having thus described the invention, what is claimed as new is:

1. An implement of the class described including a shaft mounted for oscillation and having a laterally directed head at one end, said head having an open socket, a holding member including a rigid side connected to said head and a movable side yieldably engaging said socket, portions of said sides being distended to form stop shoulders intermediate their ends, and a brush including a head member channeled to receive the sides of said holding member and bearing at one end against said shoulders.

2. An implement of the class described including a shaft mounted for oscillation and having a laterally directed head at one end, said head having an open socket, a holding member including a rigid side connected to said head and a movable side yieldably engaging said socket, and a brush including a head member channeled to receive the sides of said holding member.

3. An implement of the class described including a shaft mounted for oscillation and having a laterally directed head at one end, said head having an open socket, a holding member including a rigid side connected to said head and a movable side yieldably engaging said socket, said sides being directed inwardly or toward each other near the head, and a brush including a head held from movement in one direction by the inwardly directed portions of the holding member.

In testimony whereof I affix my signature.

HENRY H. KONE. [L. S.]