

(No Model.)

F. C. HOWE.  
FOUNTAIN TOOTH BRUSH.

No. 565,273.

Patented Aug. 4, 1896.

FIG. 1.

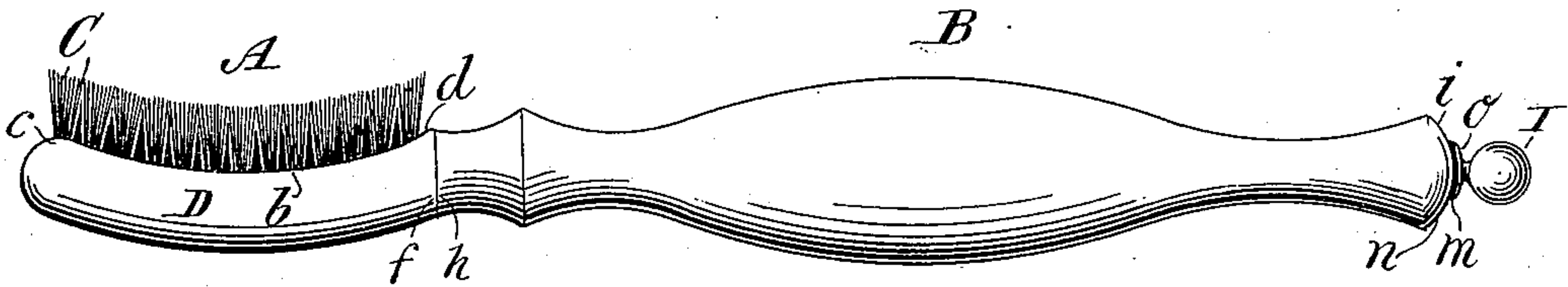


FIG. 2.

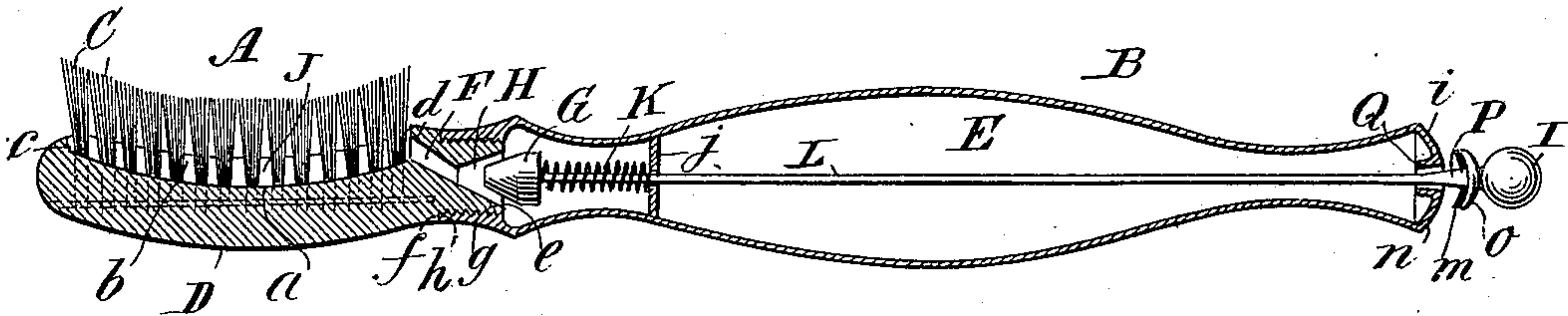


FIG. 3.

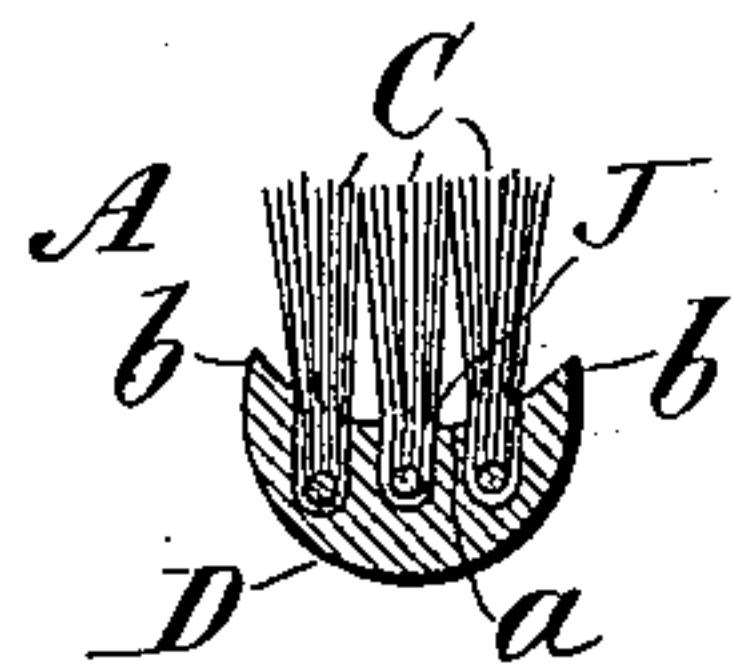
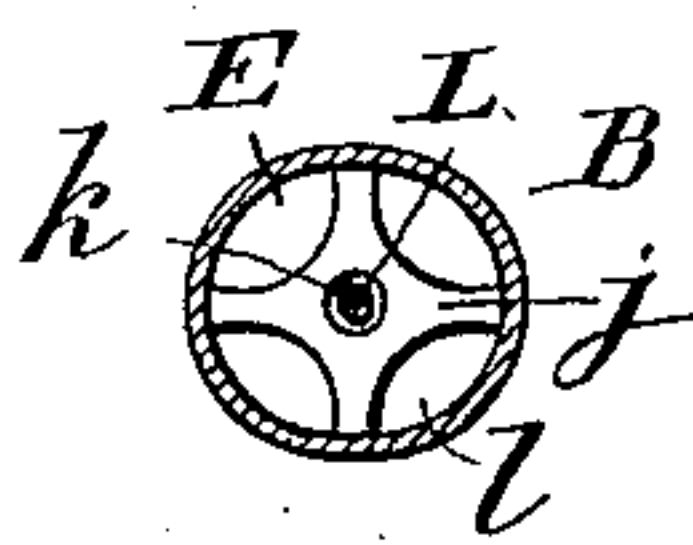


FIG. 4.



WITNESSES:

*Fred White*  
*Thomas F. Wallace*

INVENTOR:

*Fred C. Howe,*  
By his Attorneys,  
*Arthur C. Frazer & Co.*

# UNITED STATES PATENT OFFICE.

FRED C. HOWE, OF WORCESTER, MASSACHUSETTS.

## FOUNTAIN TOOTH-BRUSH.

SPECIFICATION forming part of Letters Patent No. 565,273, dated August 4, 1896.

Application filed February 25, 1896. Serial No. 580,670. (No model.)

*To all whom it may concern:*

Be it known that I, FRED C. HOWE, a citizen of the United States, residing in the city and county of Worcester, in the State of Massachusetts, have invented certain new and useful Improvements in Fountain Tooth-Brushes, of which the following is a specification.

This invention relates to that class of tooth-brushes in which a fountain or reservoir for dentifrice is formed in the handle of the brush and supplies to the brush, as required, a valve controlling the outflow of dentifrice.

The invention aims to provide certain improvements in tooth-brushes of this character, to the end of providing such a brush which will be convenient and effective in operation, and with the object of preventing waste or loss of the dentifrice, either by accidental flow of the latter from the reservoir or by its escape from the brush.

To this end, in carrying out my present invention, I provide certain improvements in the brush, the reservoir, and the valve, which will hereinafter be fully set forth with reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a tooth-brush, showing the preferred form of my improvements. Fig. 2 is a vertical axial section thereof. Fig. 3 is a cross-section of the brush, and Fig. 4 is a cross-section of the handle.

Referring to the drawings, letter A indicates the brush, and B the handle; C, the tufts of bristles of the brush; D, the back or body thereof; E, the reservoir for the dentifrice; F, the duct leading therefrom to the brush; G, the valve; H, the valve-seat, and I the handle.

According to the preferred form of my present improvements the body D, which is constructed of ivory, wood, or other suitable material, has a spoon-shaped or concave recess or trough J for the dentifrice on its bristle side and in communication with the duct F. This cavity receives and holds the dentifrice about the bottoms of the tufts of bristles and retains it in position until it is absorbed by the use of the brush, when the pressure of the bristles against the teeth and their move-

ment with the brush serve to draw the dentifrice into contact with the teeth. The trough J is preferably continued to include all the bristles of the brush, and is concave in both its longitudinal and its transverse sections. It consists of a curved inner wall *a* of the body, terminated at side by abrupt edges *b*, at the outer end by a shoulder *c*, and at the inner end by a shoulder *d*. The duct F communicates with the trough J at the bottom of the shoulder *d*. Dentifrice flows through the duct into the groove until the desired quantity is located in the latter, the brush being held with the bristles up to prevent spilling of the dentifrice prior to use.

The body D is constructed with a cylindrical externally-screw-threaded neck *e* at its inner end, and with an abrupt shoulder *f* at the end of this neck. Concentrically of this neck the valve-seat H is formed as a conical or tapering bore extending from the duct F outwardly as a wide flaring seat. The handle B is a hollow tubular member of any suitable material, preferably metal, having an open brush end *g*, internally screw-threaded and fitting and screwing on the neck *e*, and terminating in a shoulder *h*, abutting against the shoulder *f* of the body. The screw-threaded connection and the engagement of the shoulders make a leak-tight joint for the reservoir at this end. At its other end the handle is closed by an integral cap *i*. Intermediate of its ends the handle is shaped as convenience dictates for ready grasping.

The hollow interior of the handle serves as the reservoir or chamber for the dentifrice. The valve G is movable axially of the handle, being carried rigidly on a stem L, extending through the center of the reservoir and the outer end *i* thereof, and terminating in a handle I at its outer end, by which the valve G is manipulated. The valve is of rubber, or other suitable packing or compressible material, and has a tapering or conical face fitting and seating in the seat H. A spring K, surrounding the stem L, reacts against the valve, forcing it tightly against the seat. A guide *j*, fixed within the handle, guides the inner end of the stem and provides a surface receiving the reaction of the spring K. The



guide *j* is a skeleton member, having a central hole *k*, through which the stem passes and is guided, and openings *l*, adjacent to the wall of the handle, through which the contents of the reservoir can flow past the guide. The valve *G* is normally pressed to its seat by the spring, and to be opened the handle must be grasped with one hand while the valve-handle *I* is pulled outwardly with the other. Upon release of the valve-handle the valve closes automatically, thus preventing further escape of dentifrice. To facilitate the discharge or outflow from the reservoir when the valve is open, I provide a second or air valve *P* on the stem *L*, and a second valve-seat *Q* for the reservoir. This valve-seat is preferably a tapering hole in the head *i*, through which hole the valve-stem passes and is guided. The valve *P* is formed as an enlargement of the valve-stem fitting the hole or seat *Q*, and preferably a small rubber washer *m* is provided around the stem outwardly of the valve *P*, which washer is compressed between the outer face *n* of the handle *B* and a shoulder *o* on the handle *I* when the valve is closed, to insure an air-tight joint at this end of the brush. The valves *G* and *P*, being rigidly coupled together and moving simultaneously, permit a corresponding inflow of air to the reservoir when there is an outflow of fluid therefrom, thus avoiding any retarding vacuum effect. When closed, they make tight closures at both ends of the reservoir and insure against any leakage of the contents thereof. The valves and stem are rotary, so that either valve can be cleaned or resealed by simply revolving the stem until the desired seating is acquired.

In use the reservoir will be filled with dentifrice by unscrewing the brush from the handle and pouring into the open end of the latter the desired quantity of dentifrice. The spring *K* will keep the valves closed during this operation. When properly filled, the body *D* will be screwed onto the handle until home thereon. In so doing its valve-seat *H* will make a tight closure with the valve *G*. The brush can then be left in any position with safety. When it is to be used, if no dentifrice is desired the valve will not be manipulated. If dentifrice is to be employed, the user will open the valves and tilt the brush end downward, with the bristles upward, until the desired amount of dentifrice has run from the reservoir into the cavity *J*, whereupon the valve will be released and the dentifrice kept in the cavity by holding the brush in a horizontal position until used on the teeth.

Such brushes are particularly convenient for travelers, who will fill the reservoir prior to beginning a journey, and thus avoid carrying a special bottle for dentifrice.

It will be seen that my invention provides

improvements which can be readily and advantageously availed of, and it will be understood that the invention is not limited to the exact details of construction and arrangement set forth and shown as constituting its preferred form.

What I claim is, in fountain tooth-brushes, the following-defined novel features and combinations, substantially as and for the purposes hereinbefore set forth, namely:

1. In tooth-brushes, the combination with the hollow handle, having a dentifrice-reservoir and a valve, of the brush, having bristles and a body, connected to said handle and having a trough-shaped cavity on its face adjacent to the bristles, and a duct leading from said valve to said cavity, whereby dentifrice can be collected in said cavity from said reservoir and held therein for use.
2. In a brush, the combination with a handle, of a brush end, the brush end having a body and tufts of bristles projecting from one side thereof, said body having a trough-shaped cavity at its side adjacent to said bristles, for receiving and holding dentifrice.
3. In tooth-brushes, a handle, in combination with a spoon-shaped body, having a concave side, and having a plurality of rows of tufts of bristles projecting from its concave face.
4. In tooth-brushes, a hollow handle, in combination with a brush end separably connected thereto, consisting of a body, having a brush, a valve-seat, and a conduit leading therefrom to the brush, a valve in said handle opposite and engaging said seat on said body when the handle and body are connected, a spring in said handle forcing said valve in said handle against said seat on said body, a stem for said valve extending through said handle, projecting externally thereof and having a handle end beyond said handle, and a compressible washer on said stem and seating against the exterior of said handle, whereby the engaging faces of said seat and valve are accessible when the handle and body are separated, and said washer insures tightness at said handle.
5. In fountain tooth-brushes, in combination, a brush end consisting of a body having a brush, a valve-seat, a duct leading from said seat to the brush, and a handle-holding portion surrounding said seat, a hollow handle connected at one end to said brush end and there inclosing said seat on said body, and having a valve-seat near its other end, an air-valve opposite and engaging the valve-seat on said handle, a second valve opposite and engaging the valve-seat on said body, a stem carried by said handle and rigidly connecting said valves together, a spring closing one of said valves against the seat on said body and the other of said valves against the seat on said handle, and an external valve-



handle operating said valves, said valves and stem freely rotative, whereby they can be rotated without unseating to avoid sticking.

6. In fountain tooth-brushes, the brush A  
5 having the body D, having cavity J and bristles C on its one side, a duct F and a seat H, in combination with the handle B having chamber E, valve G, stem L and handle I, as and for the purpose set forth.

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

FRED C. HOWE.

Witnesses:

E. E. HOWE,  
J. M. HOWE.