

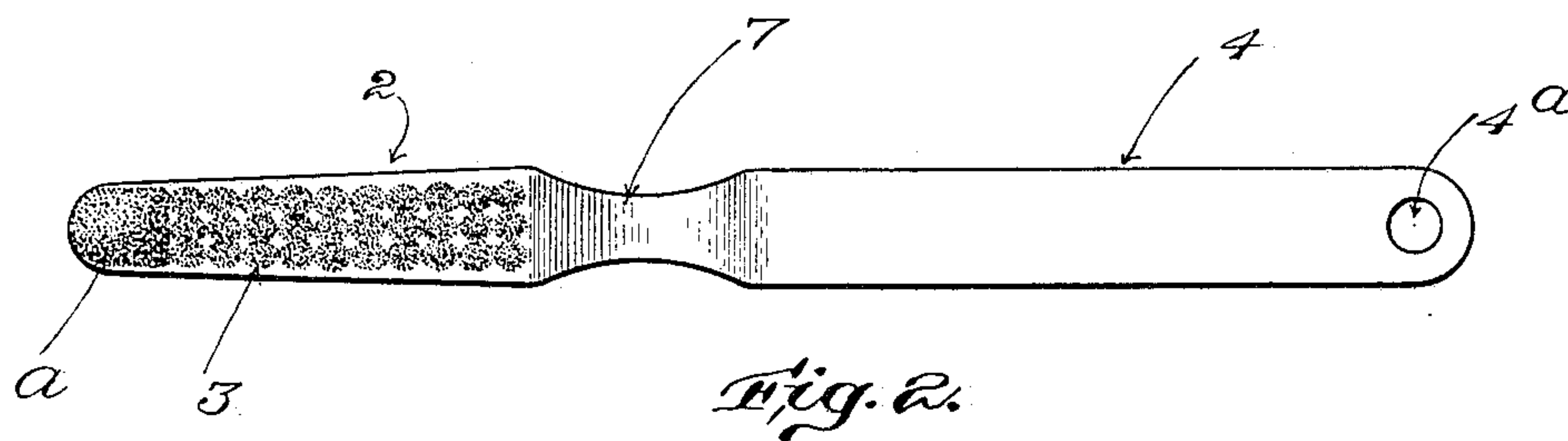
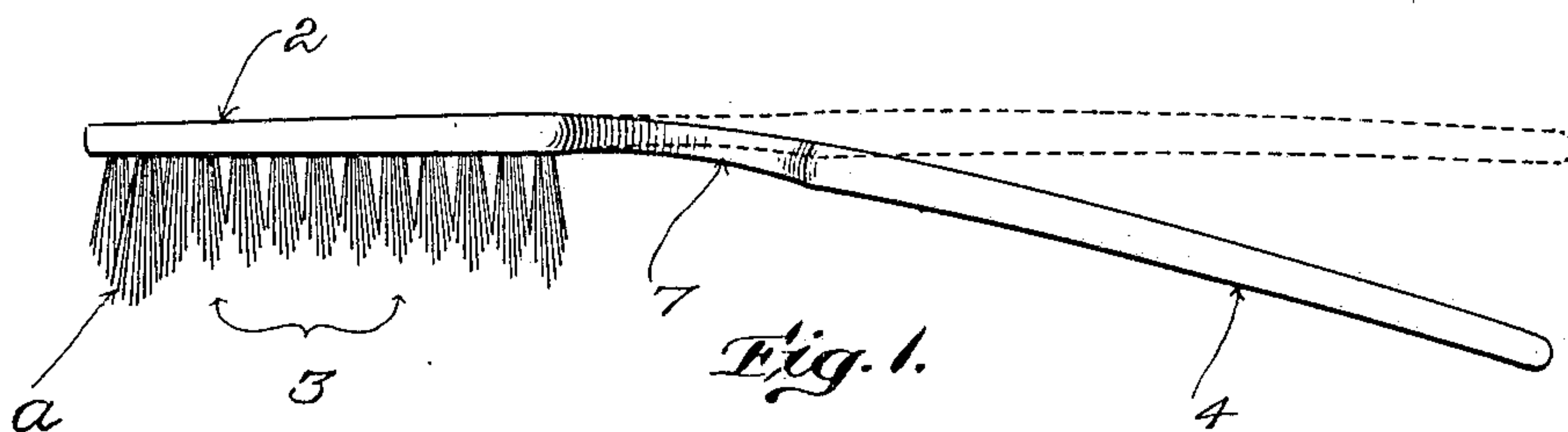
No. 758,764.

PATENTED MAY 3, 1904.

W. A. MACLEOD.  
TOOTH BRUSH.

APPLICATION FILED DEC. 21, 1901.

NO MODEL.



*Witnesses:*

Oscar F. Hill  
Nathan B. Day

*Inventor:*

William A. Macleod  
by Macleod Calver & Randall  
Attorneys.

# UNITED STATES PATENT OFFICE.

WILLIAM A. MACLEOD, OF BOSTON, MASSACHUSETTS.

## TOOTH-BRUSH.

SPECIFICATION forming part of Letters Patent No. 758,764, dated May 3, 1904.

Application filed December 21, 1901. Serial No. 86,730. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. MACLEOD, a citizen of the United States, residing at Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Tooth-Brushes, of which the following is a specification, reference being had therein to the accompanying drawings.

As commonly made tooth-brushes comprise a series of tufts of bristles, a back in which the said tufts of bristles are secured, and a handle extending from the back. The said back and handle of these bristle brushes are formed from substantially rigid material—such as bone, composition, or wood—and in use there is no appreciable flexibility of the handle or movement of the handle and back relatively to each other. The inflexibility and rigidity of the handle and back result in a harshness of action which, unless the brush is used with care and gentleness, so long as the brush is new or in comparatively unworn condition, or unless its bristles are of carefully-selected stock of medium or slight stiffness, frequently is not only disagreeable or painful to the user, but is injurious in its effects. It is well known that overforceful use of a hard or stiff brush will wound the gums, occasion recession of the gums, and injure both the necks and the enamel of the teeth by wearing the same away. It has been sought to remedy these objections in part by grading bristles according to their stiffness and making therefrom brushes differing in their qualities and classed, respectively, as hard, medium, soft, &c., thereby enabling a choice of brushes to be had, rendering it possible to purchase a brush which is approximately adapted to the physical peculiarities or needs of the user of the brush. This renders it possible to supply a soft brush to those preferring or requiring such. Recourse to this expedient, however, only partially avoids some of the objections named and does not at all alleviate others, while it incurs still others which are equally or quite as great. For example, brushes which are soft enough to obviate discomfort and injury to the user have little or no value as cleaning agents even

when new. The points of soft bristles will not properly enter and cleanse crevices or spaces between the teeth. Inasmuch as bristles soften and break down comparatively soon in consequence of use, a brush which is only moderately soft at first quickly becomes unserviceable.

My invention has for its object to provide a tooth-brush which may be constructed with bristles of "hard" or "medium" quality, thereby rendering the brush capable of properly cleansing the teeth, which will at the same time be yielding and agreeable in use and which will operate to reduce to a minimum the danger of applying too great a force in the operation of cleaning the teeth, and thereby causing injury.

My invention is fully set forth in the following description, in which reference is made to the accompanying drawings, and the novel features thereof are pointed out and clearly defined in the claims at the close of this specification.

In the drawings, Figure 1 is a side elevation of a tooth-brush embodying my invention. Fig. 2 is a plain view thereof, the face or bristle portion of the brush being uppermost.

The back of a brush embodying my invention is shown at 2, the tufts or bristles at 3, and the handle at 4. The number of tufts or bristles used may be varied, and the bristle portion may be of any well-known contour or shape. I prefer, however, the shape shown, in which the bristle-face of the brush is concaved longitudinally. (See Fig. 1). Each tuft of bristles is pointed at the free end, and a large group or combined tuft of bristles, also pointed, as shown at *a*, is provided at that end of the brush which is farthest from the handle. These characteristics I believe to be valuable in improving the cleansing quality of the brush. I prefer also the tapering form of the back, which is narrowest at its free extremity, inasmuch as this is most convenient in use, and also the bent or curved shape of the back and handle combined, which is shown in the drawings, inasmuch as when the brush is suspended by means of the hole 4" in the end of the handle the bristle portion thereby is caused to stand out from the wall against



which the brush may be hanging. These, however, are old and well-known features of construction and are not material to the invention itself.

5 The gist of the invention consists in a bristle tooth-brush having the back thereof approximately firm or rigid, whereby the brush is fitted to be manipulated and utilized precisely to the same extent and for the same purposes as the ordinary tooth-brush, but yet  
10 having the handle or the neck connecting the same with the back sufficiently flexible to enable the same to yield and bend when a moderate pressure is transmitted through the handle in applying the brush to a person's teeth  
15 during the use of the brush.

In carrying my invention into effect I preferably form the back 2 and handle 4 integral with each other, though not necessarily in all embodiments of the invention, employing in the  
20 manufacture thereof a tough resilient material which may when properly shaped and proportioned be bent or flexed under the application of the predetermined degree of force, thereby  
25 permitting flexure of the handle and movement of the back and handle relatively to each other, as indicated by the dotted lines in Fig. 1. The resiliency of the material preferably should be such that the said parts when the bending  
30 strain is removed will quickly assume their normal relative positions. I have found celluloid to be a convenient and good material for the purpose, it possessing the requisite toughness and resiliency, while it may be readily shaped and otherwise manipulated in the  
35 manufacture of the brush. The flexibility may be distributed throughout the handle or the greater part of the length thereof. In some cases I confine the same chiefly to the  
40 portion of the handle immediately adjacent the back by forming the neck portion, as 7, intermediate the back and the handle of proportionately greater flexibility than the back and handle proper. This enables the brush-head  
45 to adapt itself to the contour of the jaw somewhat more freely and otherwise improves the action of the brush. This greater flexibility may in some cases be secured by forming said neck somewhat smaller than the adjacent portions of the back or handle, as shown, so that  
50 when pressure is applied the neck will bend more readily than other portions of the handle. Other means of rendering the neck por-

tion more flexible than the back and the handle proper may be adopted in practice. 55

A most important advantage of a brush embodying my invention is the fact that no matter how stiff and unyielding the bristles themselves may be the flexibility of the handle if  
60 proportioned as I contemplate having it renders practically impossible any such harsh action of the said bristles against the teeth of the user as would tend to occasion discomfort and injury, as in consequence of the application of an undue amount of force to the handle. Whatever force is exerted at the handle  
65 within reasonable limits the measure of the pressure of the bristles against the teeth and gums of the user is the degree of flexibility of the handle. This permits the use of firm bristles in the manufacture of brushes for all users, securing thereby more efficient and more durable brushes, the various degrees of firmness or resiliency which it is desired to provide in  
70 order to meet different requirements of use being secured by properly proportioning the flexibility of the handle. 75

What I claim is—

1. A bristle tooth-brush having a handle which is substantially firm or rigid but which  
80 is adapted to yield under a moderate pressure transmitted through the same, substantially as described.

2. A bristle tooth-brush having the back and handle integrally formed from a resilient material to permit yielding when pressure beyond a predetermined degree is applied to the handle. 85

3. A bristle tooth-brush having a back and handle and an intermediate neck integrally  
90 formed of resilient material, said neck being flexible to permit a movement of the back and handle relatively to each other under pressure applied to the handle.

4. A tooth-brush having a bristle-head and the back and handle thereof being yieldingly  
95 connected with each other; whereby pressure applied at the handle will be elastically transmitted to the brush-head and applied by the latter in a yielding manner. 100

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM A. MACLEOD.

Witnesses:

CHAS. F. RANDALL,  
WILLIAM A. COPELAND.