

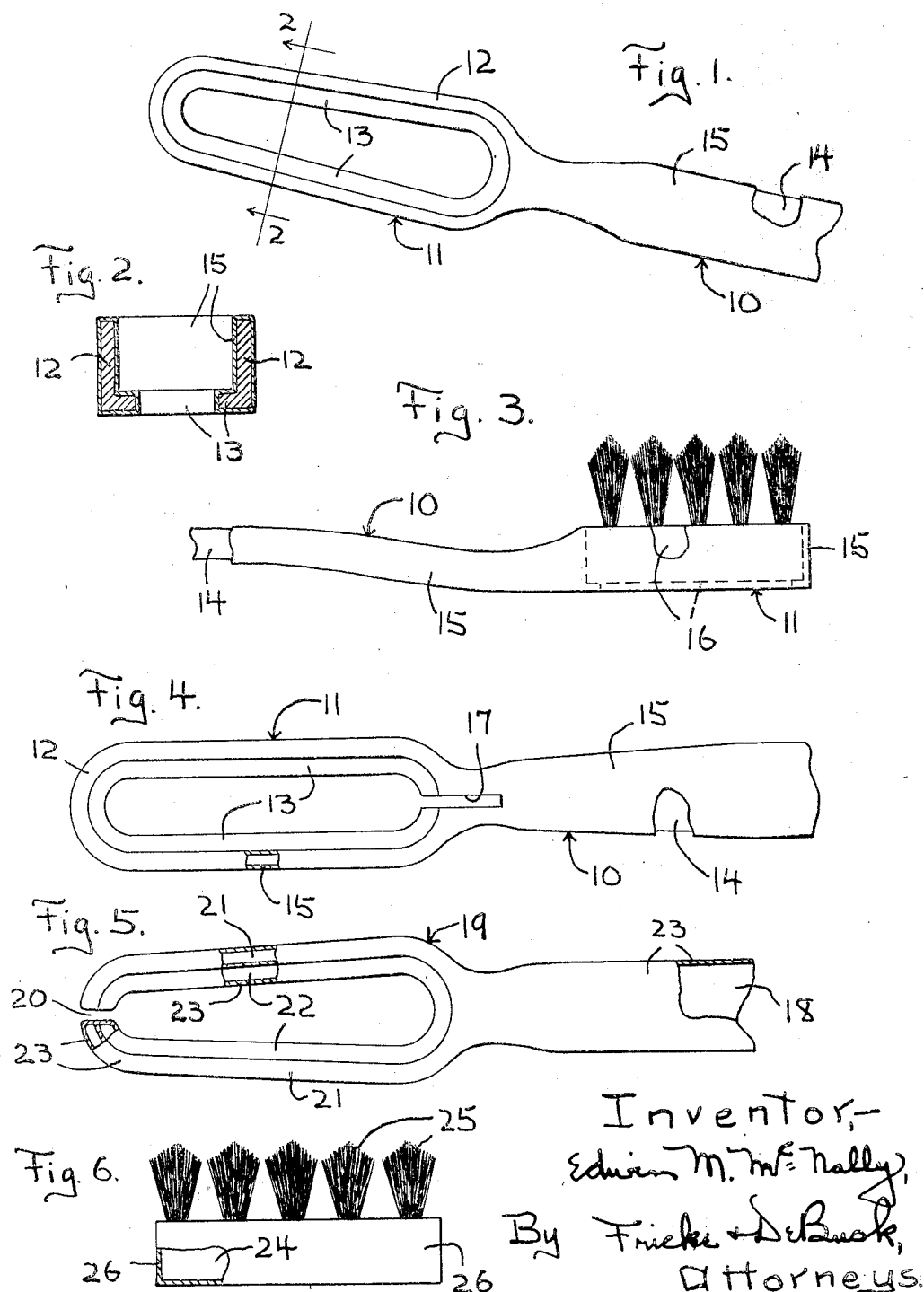
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TOOTHBRUSH

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UNITED STATES PATENT OFFICE

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TOOTHBRUSH

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My invention relates to toothbrushes and it has for its object the provision of a new and improved form and arrangement of parts comprising a brush head and handle means in which said brush head may be removably mounted so as to enable the substitution of a new head at any time in the handle when the head in use becomes worn or a substitution otherwise becomes desirable. It is one of the objects of my invention to provide a construction which shall have a high degree of strength whereby the brush head may be manipulated for applying the desired heavy pressure on the teeth at the desired angles and with the desired twisting action without likelihood of the brush head being loosened in its socket.

To this end, it is one of the objects of my invention to provide a composite handle structure comprising a base portion of metal by which the required strength may be supplied, together with a covering and protecting portion of pyroxyline or the like by which the metal base portion is insulated and is protected from contact with the teeth in use. As will be readily appreciated, the use of a toothbrush having a handle of uninsulated metal is highly objectionable. Such a brush is likely to injure the teeth or to dislodge fillings from the teeth when employed in an approved manner by which a fair amount of pressure is applied through the handle. In any event, such a construction would be uncomfortably hot or uncomfortably cold in many cases where no protection was afforded with respect to such conditions. In the use of many types of metal for such handles, it would be practically necessary that the metal be protected against rusting, and it would be practically necessary in all cases that the metal be polished or otherwise carefully treated to insure that there were no rough edges which could injure the gums or other tissues.

It is one of the objects of my invention to provide an arrangement of parts comprising a metal handle and means readily applicable to said handle for providing the desired insulation against heat and cold, for providing the required protection against rusting and

against injury through roughness of the metal, and for providing the highly desirable cushioning effect for protecting the teeth against injury mechanically.

It is another object of my invention to improve devices of this type in sundry details hereinafter pointed out. The preferred means by which I have accomplished my several objects are illustrated in the drawing and are hereinafter specifically described. That which I believe to be new and desire to cover by Letters Patent is set forth in the claims.

In the drawing,—

Fig. 1 is a front face view of the handle member of my improved brush, broken away at one end;

Fig. 2 is a vertical cross section taken at line 2—2 of Fig. 1;

Fig. 3 is a side view of my improved brush upon a smaller scale, also broken away at certain points for clearness of illustration;

Figs. 4 and 5 are views similar to Fig. 1 but showing modified forms of construction; and

Fig. 6 is a side view of the preferred form of brush head, partially broken away for clearness of illustration.

Referring now to Figs. 1 to 3, in which corresponding parts are indicated by the same reference characters, 10 indicates a handle having a loop 11 formed on one end thereof, said loop comprising a band portion 12 and an inwardly extending flange portion 13. As is clearly shown in Fig. 2, the flange portion 13 and the band portion 12 are formed integrally with each other, in the arrangement shown being formed of metal. The handle portion 10, as is indicated in Fig. 1 comprises a metal shank 14, which in the construction shown is formed integrally with the metal portions 12 and 13 of the loop. The whole metal structure, comprising the shank 14, the band 12 and the flange 13, is covered with a layer 15 of pyroxyline which in the construction shown is firmly bonded to the metal so as to be immovable with respect thereto. As is clearly shown in Fig. 3, a brush head 16 of any approved type is secured within the loop 11 so as to be tightly

gripped thereby but so as to be removable therefrom by a moderate pressure upon the back face of the brush head through the loop 11.

5 By the use of my improved construction as above described, I have provided the required strength in the handle and loop, while at the same time providing the highly desired protection by the use of the insulating covering about the metal. While I have described the
10 protecting layer 15 as being formed of pyroxyline and prefer to employ this form of material, it is to be understood that any other suitable form of comparatively soft insulating material may be used of such character as
15 to be capable of application to the metal parts in firmly bonded relation thereto so as to be immovable with respect to the metal when applied thereabout in the form of a thin layer.
20 I do not accordingly desire to limit the invention to the use of any particular form of cellulosic compound or other protecting material, except so far as the claims may be so limited in detail. The shank 14 and the loop
25 parts 12 and 13 are to be formed by any suitable process available.

In the form of device as shown in Fig. 4, an arrangement similar to that shown in Fig. 1 is employed, except that a slot 17 is provided extending longitudinally of the handle
30 and opening into the loop. In view of the similarity of the parts as shown in Fig. 4 to the construction first described, the same reference characters have been applied. It
35 will be appreciated, of course, that in connection with the handle shown in Fig. 4, a slightly different form of brush head would be required.

In the form of device as shown in Fig. 5,
40 a metal handle 18 is employed provided at its end with a loop 19 provided with a slot 20 thereacross at the outer end of the loop. In the construction shown, the loop 19 comprises a band portion 21 of metal having an
45 inwardly extending flange 22 formed therewith, the metal portion of the loop being covered and entirely surrounded by a layer 23 of pyroxyline or other suitable material, such layer 23 of pyroxyline being continued also
50 about the shank or handle portion 18. By reason of the use of metal forming the principal portion of the handle and loop, a sufficiently high degree of strength is provided
55 for holding the brush head firmly in position even with the slot 20 provided, the use of the slot 20 providing the necessary resiliency for insuring that the brush head shall be held firmly in position regardless of
60 slight irregularities in its size.

In the form of brush head as shown in Fig. 6, I have employed a base member 24 preferably of metal having the tufts of
65 bristles 25 secured therein by any suitable method, the metal base member 24 being

covered with a thin tough layer 26 of pyroxyline or other suitable material.

By the use of my improved construction as above described, I have met all of the requirements with respect to a commercial form of device. My arrangement is such that I am
70 enabled to produce the brush readily upon a commercial basis at a cost which is not prohibitive, and the construction is such that the brush is capable of meeting all requirements
75 of its users with respect to comfort and convenience. The strength of the device is such that the brush head is held firmly in position, while being at the same time capable of being removed for substitution of a new
80 brush head whenever desired.

While I prefer to employ the forms of construction as shown in my drawing and as above described, it will be understood that my invention is not limited to such form except so far as the claims may be so limited
85 by the prior art.

I claim:—

1. A toothbrush comprising a handle formed of metal, a loop on one end of said
90 handle, a layer of comparatively much softer protecting material firmly bonded to the metal of said loop about the surface thereof, and a brush head removably held in tight gripping relationship in said layer-covered loop.

2. A toothbrush comprising a handle formed of metal, a loop on one end of said
95 handle, a layer of insulating material firmly bonded to the surface of the metal of said loop, and a brush head removably held in tight gripping relationship in said layer-covered loop.

3. A toothbrush comprising a handle formed of metal, a loop on one end of said
100 handle, a layer of organic material firmly bonded to the surface of the metal of said loop, and a brush head removably held in tight gripping relationship in said layer-covered loop.

4. A toothbrush comprising a handle formed of metal, a loop on one end of said
105 handle, a thin tough layer of pyroxyline formed about said loop and handle in immovable relation thereto, and a brush head removably held in tight gripping relationship
110 in said layer-covered loop.

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