

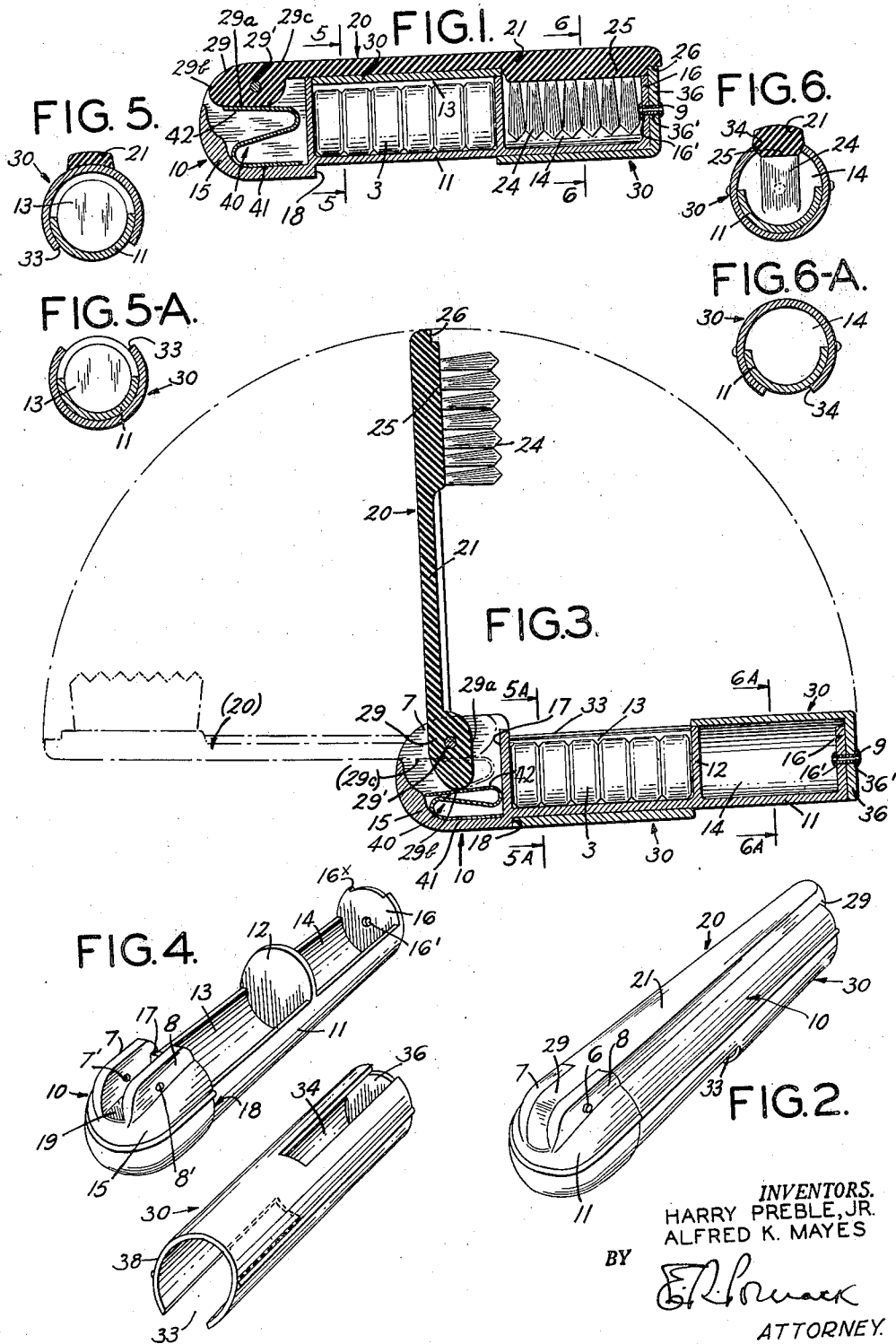
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DENTAL DEVICE

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DENTAL DEVICE

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This invention relates to dental devices, and more particularly, to a combined toothbrush and dentifrice container.

One of the principal objects of the invention is to provide a combined toothbrush and container for dentifrice in tablet form. The common form of a dentifrice is powdered, although liquid dentifrice have been marketed. More recently there has been introduced dentifrice in tablet form. The principal object of this invention is to provide a convenient container for this new type of dentifrice which is associated with the toothbrush in a manner to enable a tablet to be extracted therefrom and used in conjunction with the toothbrush.

Another object of the invention is to provide a combined toothbrush and dentifrice tablet container in which the bristles of the brush are fully encased and protected when the unitary device is not in use. An allied object is to provide a unitary device as described having a toothbrush component which may be readily adjusted from its non-use position, in which its bristles are encased and protected, to an operative position presenting its bristles for convenient use.

A further object of the invention is to provide a unitary dental device as described in which the dentifrice tablet container is automatically closed at the time that the toothbrush component is in its said non-use position with the bristles thereof encased and protected.

Another object of the invention is to provide a dental device as described which will be compact, comprised of a relatively few number of parts—only three parts being employed, and easily manipulated; which will be sanitary and easy to clean; which will have a special provision for ventilation; which will be convenient to use, presenting a convenient grip for the toothbrush; and which will hold the tablets in a manner to prevent inadvertent displacement from the container.

For the attainment of these and such other objects as may appear or be pointed out, we have shown a preferred embodiment of our invention in the accompanying drawing, wherein:

Figure 1 is an elevational section through the improved device in its said non-use position;

Figure 2 is a perspective view of the device in this position;

Figure 3 is an elevational section through the device with the toothbrush component in mid-position and the tablet compartment in open position, the toothbrush component being shown in dot-and-dash lines in its operative extended position;

Figure 4 is a perspective view of the body member and the barrel member separated from one another, but shown in coordinated relation;

Figure 5 is a transverse section through the

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tablet compartment taken on the line 5-5 of Figure 1, showing this compartment closed;

Figure 5A is a similar transverse section but showing the tablet compartment in open position;

Figure 6 is a transverse section through the brush compartment taken on the line 6-6 of Figure 1, showing the brush bristles in their non-use, encased position; and

Figure 6A is a similar transverse section but showing the closed condition of the brush compartment upon withdrawal of the brush bristles and opening of the tablet compartment.

The improved device comprises but three parts, viz., a toothbrush component 20, a body member 10, and a tubular closure or barrel 30; preferably, all three parts are fabricated of plastic, although other suitable material may be used for one or more of the three parts. Body member 10 has a substantially semi-cylindrical shell portion 11 which is divided by an integral, circular partition 12 into a tablet compartment 13 and a bristle compartment 14. The tablet compartment 13 extends between partition 12 and a head portion 15 which forms one end of the body member, as best shown in Figure 4. The brush compartment 14 extends between partition 12 and an integral, circular end plate 16. Head portion 15 is hollow, as best shown in Figure 1, and has a wall 17 adjacent the semi-cylindrical shell 11, which is circular and of somewhat larger diameter than the diameter of the semi-cylindrical shell 11 so that a recessed shoulder 18 is provided at the juncture with the semi-cylindrical shell.

Barrel 30 is cylindrical or, rather, tubular, and open at one end, 38, as best shown in Figure 4; its other end is closed by an integral, circular end plate 36. The internal diameter of barrel 30 is somewhat larger than the diameter of semi-cylindrical shell 11 and partition 12 and end plate 16 thereof, so that barrel 30 may be placed in encircling relation to the semi-cylindrical shell 11 and turned relative to the body member. The length of barrel 30 is such that when placed in said encircling relation to the semi-cylindrical shell 11, its end edge 38 abuts the outer annular portion of wall 17 of the body member 10 (including recessed shoulder 18) and its end plate 36 is disposed outwardly of, and adjacent to, the end plate 16 of the body member.

End plate 16 of the body member is provided with a central aperture 19 and the end plate 36 of the barrel is provided with a central aperture 39, the two apertures aligning for reception of a hollow rivet 9, Figures 1, 3. In addition to its function in securing end plates 16, 36 for rotative movement, hollow rivet 9 serves as a ventilation opening to admit air into brush bristle compartment 14.

Toothbrush component 20 has a stem 21 at one

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end of which are provided the bristles 24. The other end of stem 21 has an enlargement 29 which is received between a pair of integral, parallel lugs 7, 8, see Figures 4 and 2, projecting upwardly from the head portion 15 of the body member. Head portion 15 has, between its parallel lugs 7, 8, an opening 19, see Figure 4, where through the lower portion of enlargement 29 of the toothbrush component clears. Parallel lugs 7, 8 are provided with apertures, respectively, 7', 8', Figure 4, and enlargement 29 is provided with an aperture 29', the three apertures being aligned for reception of a pin 6, Figure 2, for pivotally securing the toothbrush component to the body member.

Barrel 30 has an elongated slot 34 which is substantially the length of the bristle compartment 14 and of a width, see Figure 6, to permit bristles 24 to clear therethrough. Stem 21 has a projecting portion 25 at the bristle securement, which is of a length less than that of bristle compartment 14, see Figure 1, so that it enters the compartment to a limited extent and is abutted and stopped by the edges of slot 34 of the barrel, as clearly shown in Figure 6. Projection 25 terminates short of the distal end of the stem 21 to provide a shoulder 26, see Figure 1. As clearly shown in this figure, the end of the stem 21 extends beyond the end plate 36 to provide an overhanging lip at the shoulder 26. Bristle slot 34 of the barrel extends beyond the end plate 36, as clearly shown in Figure 4. The end plate 16 of the body member, see Figure 4, has an arcuate notch 16^x of substantially the width of bristle slot 34 of the barrel. The object of arcuate notch 16^x is to provide clearance for the projection 25 of the toothbrush component, see Figure 1.

Barrel 30 is provided with a second elongated slot 33 diametrically opposite the bristle slot 34 and extending for a length substantially that of the tablet compartment 13, to the open end 38 of the barrel. Slot 33 is considerably wider than the bristle slot 34 and is such that a dentifrice tablet—such as 3 in Figures 1, 3, which has a diameter slightly less than the inside of the tablet compartment 13, may clear the slot 33, see Figure 5A, when being withdrawn from, or inserted in, the tablet compartment. Preferably, the width of slot 33 is such that the tablet (either in its bare form or fully or partially enclosed by wrappers) must be forced slightly in withdrawing it from the tablet compartment.

By reason of the said diametrical relation of the bristle slot 34 and the tablet slot 33, barrel 30 may be turned 180° between non-use and operative positions, as will now be described. In its non-use position, the barrel 30 is turned to present its bristle slot 34 in upward position, as in Figure 4, at the opening of bristle compartment 14, as in Figure 1 and Figure 6. Toothbrush component 20 is turned on its pivot 29', see Figure 1, to encase its bristles 24 within the bristle compartment 14, see also Figure 6. When barrel 30 is in this non-use position, its tablet slot 33 is lowermost, as in Figure 4 and in Figure 5; as clearly seen in the latter figure, barrel 30 completely closes the tablet compartment 13.

To recapitulate, Figures 5 and 6 show the non-use position, Figure 5 showing the tablet compartment 13 (which is closed) and Figure 6 showing the bristle compartment 14 (which is open, at barrel slot 34, but closed by the toothbrush component itself).

It will be noted from Figure 1 that the recessed portion of the toothbrush component, between projection 21 at the bristles and proximal en-

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largement 29, receives the barrel 30, or rather the wall thereof, which closes the tablet compartment.

In its non-use position the device is completely enclosed, as best seen in Figure 2, the toothbrush component, more particularly, the portion of its stem 21 at the bristles serving as a closure for the bristle opening of the barrel. The lugs 7 and 8 of the head portion 11 of the body member and the enlargement 29 of the toothbrush component present a flush surface, as shown.

When the toothbrush is to be used, it is turned on its pivot 29'—the lip or shoulder 26 at its distal end facilitating initial turning—from the closing position of Figure 1 (also Figure 2) to the solid-line position of Figure 3, in which it is substantially normal to the body member. The toothbrush component is held in this position—by a spring 40, which will be fully described shortly—to facilitate the turning of the barrel 180° to bring its tablet slot 33 from its lowermost position (Figures 4 and 5, in the non-use position of the device) to its upper position, as in Figures 5A and 3, to provide an opening for removal of a tablet 3. In this turned position of the barrel 30, its bristle slot 34 will be in lowermost position, Figure 6A, completely closing the bristle compartment 14.

To recapitulate, Figures 5A and 6A show the in-use position, Figure 5A showing the tablet compartment 13 (which is open) and Figure 6A showing the bristle compartment 14 (which is closed by the barrel 30).

The barrel is then turned 180° to its closed position (Figures 5 and 6) and the toothbrush component 20 turned to its extended position, shown in dot-and-dash lines in Figure 3. The body member 10 with its barrel 30 serves as a convenient handle for the toothbrush; the body member is completely closed, see Figure 5, at the tablet compartment and there is merely the narrow bristle slot 34, see Figure 6, at the bristle compartment.

Spring 40 mentioned above, as holding the toothbrush component 20 in substantially normal position, Figure 3, performs in all, three functions: (a) It maintains the toothbrush component in closed position, Figure 1; (b) it maintains the toothbrush component in normal position, Figure 3, and (c) it maintains the toothbrush component in extended position, Figure 3 (shown in dot-and-dash lines). Spring 40 is a strip of suitable spring material formed as a reverse -S, with a lower branch 41 resting on the floor of the hollow within head portion 11 of the body member, and an upper branch 42. In the closed condition, Figure 1, the upper branch 42 abuts the flat underside 29a of the enlargement 29 to exert an upward force thereupon, so that the turning of the toothbrush component, more particularly, its enlargement 29, is resisted by the spring which must be pressed downwardly in the turning of enlargement 29. In the extended position of the toothbrush, dot-and-dash lines, Figure 3, the upper branch 42 of the spring—likewise shown in the dot-and-dash lines—abuts the flat surface 29c of the outer face of the toothbrush component, to resist the turning thereof and to maintain it in extended position. In the normal position of the toothbrush component, solid lines, Figure 3, the upper branch 42 abuts the end surface 29b of the enlargement, the spring 40 being in compressed condition and exerting an upward force which passes through pivot 29' to maintain the toothbrush component in the normal position as shown.

In the above description, the invention has

been disclosed merely by way of example and in preferred manner; but obviously many variations and modifications may be made therein which will still be comprised within its spirit, such as the employment of tablet compartment 13 for housing a powdered dentifrice. It is to be understood, therefore, that the invention is not limited to any specific form or manner of practicing same, except in so far as such limitations are specified in the appended claims.

We claim:

1. A dental device adapted for dispensing dentifrice tablets, comprising a body member closed at one end and divided into a bristle compartment at said end and a compartment adapted to contain the said dentifrice tablets at the opposite end, a toothbrush component pivotally mounted at the other end of the body member and having bristles at its distal portion, and a barrel closed at one end mounted in encircling relation to the body member and provided with slots opening into the said compartments, said ends of the body member and barrel being rotatively secured by a hollow rivet whereby the said bristle compartment is ventilated.

2. A dental device adapted for dispensing dentifrice tablets, comprising a body member divided into a bristle compartment and a compartment adapted to contain the said dentifrice tablets, a tooth brush component pivotally mounted at one end of the body member and having bristles at its distal portion, and a barrel mounted in encircling relation to the body member and rotatable about its longitudinal axis and provided with slots opening into said compartments, said toothbrush component being turnable from a closing position with its bristles disposed in the said bristle compartment to an extended position in substantial alignment with the said longitudinal axis of the body member, and spring means for holding the toothbrush component in its said closing, and in its said extended, position.

3. A dental device adapted for dispensing dentifrice tablets, comprising a body member divided into a bristle compartment and a compartment

adapted to contain the said dentifrice tablets, a toothbrush component pivotally mounted at one end of the body member and having bristles at its distal portion, and a barrel mounted in encircling relation to the body member and rotatable about its longitudinal axis and provided with slots opening into said compartments, said toothbrush component having a closing position with its bristles disposed in the said bristle compartment, an extended position in substantial alignment with said longitudinal axis of the body member, and an intermediate position, and spring means for holding the toothbrush component in any one of the said three positions.

4. A dental device adapted for dispensing a dentifrice, comprising a body member divided into a bristle compartment and a compartment adapted to contain the said dentifrice, a toothbrush component pivotally mounted at one end of the body member and having bristles at its distal portion, and a barrel mounted in encircling relation to the body member and rotatable about its longitudinal axis and provided with slots opening into said compartments, said toothbrush component being turnable from a closing position with its bristles disposed in the said bristle compartment to an extended position in substantial alignment with the said longitudinal axis of the body member.

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