

(12) **EUROPEAN PATENT APPLICATION**

(21) Application number: 85105835.4

(51) Int. Cl.⁴: A 46 B 11/00

(22) Date of filing: 13.05.85

(30) Priority: 21.05.84 IT 2187784 U

(43) Date of publication of application:
04.12.85 Bulletin 85/49

(84) Designated Contracting States:
AT BE CH DE FR GB LI LU NL SE

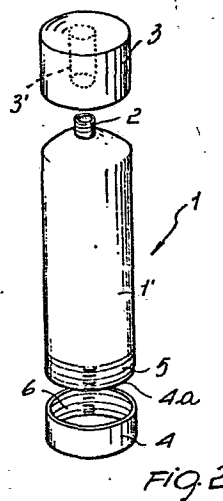
(71) Applicant: **SAVE S.r.l.**
Via Repubblica 6
I-24060 Endine Gaiano Bergamo(IT)

(72) Inventor: **Ventura, Savino**
Via Ottoboni 21
I-24065 Lovere (Bergamo)(IT)

(74) Representative: **Modiano, Guido et al,**
MODIANO, JOSIF, PISANTY & STAUB Modiano &
Associati Via Meravigli, 16
I-20123 Milan(IT)

(54) **Toothbrush with refillable toothpaste reservoir.**

(57) The refillable tube structure (1) comprises a tubular body (1'), having a dispensing outlet (2) at one end thereof. The other end (4a) of said tubular body (1') also being apertured for refilling purposes and being closable by means of a stopper element (4), provided with threads (6) for engaging a thread formation (5) formed on the tubular body (1').



TITLE MODIFIED

see front page

- 1 -

0163189

"REFILLABLE TUBE STRUCTURE, PARTICULARLY FOR PRODUCTS OF THE DENTIFRICE TYPE AND THE LIKE"

This invention relates to a refillable tube structure, particularly for products of the dentifrice type and the like. More specifically, the invention concerns a tube structure of the miniaturized type
5 arranged to contain dentifrice in the paste and/or liquid form , for use in association with a tooth brush.

Known and commercially widely available are pocket tooth brushes, which have extremely reduced
10 dimensions and are self-contained, wherewith a small tube is generally associated which is provided to contain a product of the dentifrice type, either in liquid or solid form. These tubes, which also have much reduced dimensions, generally contain a fairly
15 limited number of doses, thereby the dentifrice-type product contained therein is soon exhausted. The user is accordingly obliged to fit the brush with a fresh, dentifrice-filled tube. This need involves the ready availability of spare filled tubes, since known tubes
20 are of the disposable type once their contents have been exhausted. This implies, on the one side, that the user has a stock of filled tubes, and on the other side, that the consumer should renew his/her stock as the dentifrice tubes are being used. Now, such
25 miniaturized tubes are rather difficult to find especially in villages and small towns.

In addition, the user generally cannot choose from a wide range of dentifrice makes, because tubes of the miniaturized type are generally filled with

dentifrices which are often of an undefined quality and are not produced by leading manufacturers.

Accordingly, it is an aim of this invention to provide a tube structure, particularly for products
5 of the dentifrice type and the like, which is refillable, i.e. whereinto, on exhaustion of the dentifrice, fresh dentifrice can be introduced with a simple and extremely fast operation.

Within that aim, it is an important object of
10 the invention to provide a refillable tube structure, particularly for products of the type of dentifrice and the like which is adapted for use as a miniature tube for pocket tooth brushes, which affords its user the possibility of introducing into the tube
15 structure any desired and/or preferred type of dentifrice, and the possibility of readily refilling the tube on exhausting the dentifrice contained therein with an amount of fresh dentifrice picked up from an ordinary tooth paste tube of conventional size.

20 It is another object of the invention to provide a miniaturized refillable tube structure, particularly for products of the type of dentifrice and the like, which can be manufactured at a competitive cost from commercially readily available materials.

25 According to one aspect of the invention, the above-mentioned aim, and these and other objects such as will be apparent hereinbelow, are achieved by a refillable tube structure, particularly for products of the dentifrice type and the like, characterized in

comprising a tubular body having dispensing outlet means at one location thereof and refilling inlet means at another location thereof at a distance from said one location and means for association with a pocket
5 tooth brush.

Further features and advantages of the refillable, miniature-type, tube structure, particularly for products of the dentifrice type and the like, provided for association with a pocket tooth brush, will be
10 more clearly understood from the following detailed description of a currently preferred embodiment thereof, as illustrated by way of example in the accompanying drawings, where:

Figure 1 is a perspective view showing the
15 refillable miniaturized tube structure according to the invention as associated with a pocket tooth brush element of known design which forms a part of a commercially available pocket tooth brush set;

Figure 2 is an exploded view of the tube structure
20 according to the invention, with both its ends open;

Figure 3 is a view of the tube structure according to the invention, with both ends closed by respective stopper elements.

With more specific reference to Figure 1, there
25 is shown in perspective view the refillable, miniature-type, tube structure according to the invention. In Figure 1, the tube of this invention is generally designated with the reference numeral 1 and

is associated with a brush element 2 similar to a
per se known ordinary pocket tooth brush type. The
association of the tube 1 with the brush element 20
is accomplished by providing an enlarged bottom end
5 portion 21 of the brush handle 22 and a base hole 23
formed in the bottom end portion 21, and by inserting
the end portion of the tube 1 into said hole. Advan-
tageously, the hole 23 may be a dead hole, acting as
a seat receiving with frictional engagement the end
10 portion of the tube 1.

With reference to Figure 2, the refillable,
miniature-type, tube structure according to the inven-
tion is shown therein in exploded view. As may be
seen, the inventive tube comprises a tubular body 1',
15 for example, formed from a flexible plastics material
and having an outside threaded neck-like open end 2,
which open end defines a dispensing outlet which can
be closed by a first stopper element 3, adapted for
sealed closure engagement with said outside threaded
20 open end 2, e.g. also made from a preferably rigid,
plastics material and having an internally threaded
nut formation 3' for screwing engagement with said
neck-like open end 2.

According to the invention, the other end 4a of the
25 tubular body 1' is also open and may be closed tight,
but removably, by means of a further cover element 4
associable, such as by threading, with said other open
end. To that aim, on the outer surface of said other
end of the tubular body 1' there may be provided a
30 suitable thread formation 5, threadably engageable with

mating threads 6 provided inside the cover element 4.

Thus, the tube structure of this invention has, differently from known structures, both its ends open and adapted to be closed by respective stopper elements 3 and 4. As may be seen, the bottom end, or tooth paste filling end, has an opening of a much larger size, in relation to the opening of the tubular body, than the end whereat the dispensing outlet 2 is defined.

The way of using the tube structure according to the invention will be quite apparent from the preceding description. In particular, the miniaturized tube of this invention can be filled, during the manufacturing stage, through the bottom end 4a, and the tooth paste or liquid dentifrice can be dispensed from the orifice 2, e.g. by simply squeezing the tubular element 1. On exhausting the dentifrice, the user can easily refill the tube by just screwing out the stopper 4 and introducing a fresh amount of dentifrice, of a desired type, as picked up from an ordinary conventional dentifrice tube of standard size.

It may be seen from the foregoing that the invention achieves its objects.

In particular, a refillable, miniature-type tube structure has been provided, in particular for products of the type of dentifrice and the like, intended for association with a pocket tooth brush, which additionally to being readily fillable at the manufacturing stage, can be refilled by the user with any desired types of dentifrice. Of course, in the construction of the inventive tube structure, the

specific materials and dimensions, although the preferred material is a flexible plastics, may vary contingent on requirements.

CLAIMS

1 1. A refillable tube structure, particularly for
2 products of the dentifrice type and the like, charac-
3 terized in comprising a tubular body (1) having dispen-
4 sing outlet means (2) at one location thereof and
5 refilling inlet means (4a) at another location thereof
6 at a distance from said one location and means for
7 association with a pocket tooth brush.

1 2. A structure according to Claim 1, wherein said
2 dispensing outlet means (2) comprise an aperture and a
3 stopper means (3) for said aperture and wherein said
4 refilling inlet means (4a) comprise an opening and a
5 removable closure member (4) for said opening.

1 3. A structure according to Claims 1, 2, wherein
2 said dispensing outlet means (2) comprise a threaded
3 neck formation and an aperture therein and said stopper
4 means (3) comprises an internally threaded nut formation
5 (3') screwingly engageable with said neck formation and
6 wherein said refilling inlet means (4a) comprise an
7 externally threaded opening defining means (5) and said
8 removable closure member (4) is in the form of a cap
9 member having an internally threaded cylindrical portion
10 (6) in screwable engagement with said externally
11 threaded opening defining means.

1 4. A structure according to Claims 1-3, wherein
2 said means for association with a pocket tooth brush
3 comprise said pocket tooth brush (20) and supporting
4 means (21,22) therefor.

1 5. A structure according to Claims 1-4, wherein
2 said tubular body (1) is of flexible plastics material.

- 1 6. A structure according to Claims 1-5, wherein
- 2 said means for association with a pocket tooth brush
- 3 comprise said pocket tooth brush (20) including a
- 4 handle (22) having an enlarged bottom (21) and a seat
- 5 (23) in said bottom for receiving therein an end portion
- 6 (4) of said tubular body (1).

