



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 038 469 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
27.09.2000 Bulletin 2000/39

(51) Int. Cl.⁷: **A46B 11/00**

(21) Application number: **00302449.4**

(22) Date of filing: **24.03.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **26.03.1999 GB 9906953**

(71) Applicant:
**Hcare International, a Division of Hcare Limited
Tapton, Chesterfield, Derbyshire S41 0TZ (GB)**

(72) Inventor: **Lees, Dean Russell
Barlow, Sheffield S18 5TE (GB)**

(74) Representative:
**Ajello, Michael John
Urquhart-Dykes & Lord
Greg's Buildings
1 Booth Street
Manchester M2 4DU (GB)**

(54) **A toothbrush**

(57) A brush, preferably a toothbrush, containing a supply of toothpaste comprising a hollow body (10) to which is attached a bristle head assembly (12). A passage between the body and the bristle head assembly is occluded by a plug (19). Slidable within the body (10) and forming a rear extension thereof is a piston (14). A collapsible and replaceable sachet (15) of toothpaste is

inserted within the body and progressively collapsed by the piston (14) to dispense toothpaste onto the bristle head assembly as required. When the supply of toothpaste is exhausted the sachet can be removed and replaced so that the brush is reusable. A removable cap (13) protects the bristle head assembly.

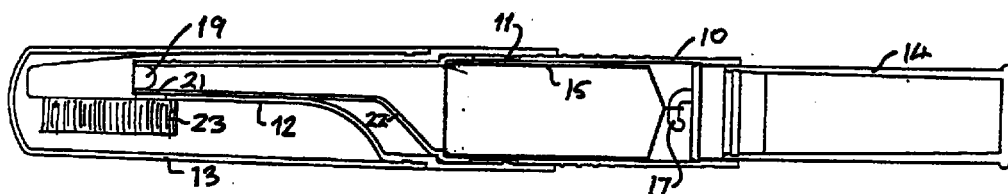


Fig. 1

Description

[0001] THIS INVENTION concerns brushes which contain a supply of a substance to be dispensed onto the bristles thereof, and particularly, though not exclusively, toothbrushes which contain a supply of toothpaste. Such toothbrushes are known having an internal compartment containing toothpaste and means to force the toothpaste from the compartment onto the bristles. However, known examples are disposable, i.e. they cannot be reused once the toothpaste is expended.

[0002] According to the present invention a brush containing a supply of a substance to be dispensed onto the bristles thereof, comprises a body, a bristle head assembly attached to the body, an internal passage communicating with the body and with the bristle head assembly; characterised in that the body includes an internal compartment to receive a replaceable and collapsible container of the substance, there being movable means associated with the body, to cause the container to become progressively collapsed to dispense the substance through the head assembly and onto the bristles.

[0003] The body may include means for puncturing the container upon an initial movement of said movable means.

[0004] The movable means may be a piston movable within the body towards the bristle head assembly to cause the container progressively to become collapsed.

[0005] The container may be a replaceable pan of the and be in the form of a flexible sack having a removable closure.

[0006] The movable means may include a hook or the like attachable to a part of a container to enable removal of the latter from the body by withdrawing the movable means.

[0007] The container may include a tear-off strip as the removable closure.

[0008] An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:-

Fig. 1 is a cross-sectional view of a toothbrush made in accordance with the invention;

Fig. 2 is a similar view of the toothbrush in a partially opened condition;

Fig. 3 is a similar view after removal of a cap, and ready for use;

Fig. 4 is a similar view illustrating a condition of the toothbrush after several uses;

and Fig. 5 is a perspective view of a replaceable and collapsible container of toothpaste for use with the toothbrush.

[0009] Referring now to the drawings, the toothbrush comprises a cylindrical body 10 on which is slidably engaged a bristle head assembly 12 and a removable protective cap 13. A plunger or piston 14 is slidable within the body 10 and forms a rear extension thereof remote from the bristle head assembly 12.

[0010] Contained and replaceable within the body 10 is a flexible sachet 15 containing toothpaste. At one end of the sachet (fig. 5), there is an aperture 16 which as shown in Fig. 1 receives a hook 17 attached to the forward end of the piston 14. At the opposite end of the sachet 15 a tear-off strip 18 is provided whereby the sachet is opened such that toothpaste may be dispensed therefrom.

[0011] With the toothbrush in the condition as illustrated in Fig. 1 the action of removing the cap 13 pulls the bristle head assembly 12 a distance along the body 10 as permitted by a stop 11, to reveal an aperture 20 in the bristle head assembly which in the closed condition is occluded by a plug 19 and the forward end 21 of a nozzle 22 forming a part of the body 10. Thus there is communication between the interior of the body 10 and the bristles 23 on the bristle head.

[0012] Fig. 3 shows the assembly with the cap 13 removed and thus ready for use. Forward movement of the piston 14 causes toothpaste to be dispersed from sachet 15, through aperture 20 and into the bristles 23.

[0013] As the piston 14 is gradually advanced within the body 10, i.e. it is indexed forward by a short distance for each dispensing of toothpaste onto the bristles, the sachet progressively becomes collapsed until it is completely collapsed whereupon no further toothpaste can be dispensed. In this condition by fully withdrawing the piston 14 and the empty sachet (on the hook 17) it is then possible to insert a replacement full sachet into the toothbrush which is then reusable.

[0014] If required, the piston may have graduations or other markings on its outer surface to indicate the quantity of toothpaste remaining for use.

[0015] Alternative methods of opening the sachet within the toothbrush may be provided such as internal spikes adapted to puncture the sachet when it is initially compressed by the piston.

[0016] It will be appreciated that a toothbrush of this kind is particularly useful when travelling, avoiding the need for carrying large and bulky toothpaste containers in addition to a toothbrush. Replacement sachets are compact and readily stored for use when required. The container may be telescopically or otherwise collapsible instead of being of a flexible material.

[0017] Brushes onto which other substances are to be dispersed may also be provided in accordance with the invention, with replaceable and collapsible containers of the appropriate substance.

Claims

1. A brush containing a supply of a substance to be

dispensed onto the bristles thereof, comprising a body, a bristle head assembly attached to the body, an internal passage communicating with the body and with the bristle head assembly; characterised in that the body includes an internal compartment to receive a replaceable and collapsible container of the substance, there being movable means associated with the body, to cause the container to become progressively collapsed to dispense the substance through the head assembly and onto the bristles.

2. A brush according to Claim 1, wherein the body includes means for puncturing the container upon an initial movement of the movable means. 15
3. A brush according to Claim 1 or claim 2, wherein the movable means is a piston movable within the body towards the bristle head assembly to cause the container progressively to become collapsed. 20
4. A brush according to any preceding claim, wherein the container is a replaceable part of the brush and is a flexible sack having a removable closure, 25
5. A brush according to any one of Claims 1 to 3, wherein the movable means includes a hook, or the like, attachable to a part of the container to enable removal of the latter from the body by withdrawing the movable means. 30
6. A brush according to Claim 4, wherein the container includes a tear off strip as the removable closure. 35
7. A brush according to any preceding claim, wherein the movable means is slidable within the body and forms a rear extension thereof remote from the bristle head assembly. 40
8. A brush according to any preceding claim, including, in the bristle head assembly, a plug to occlude the internal passage. 45
9. A brush according to any preceding claim, wherein the movable means includes visual markings to indicate the quantity of substance present within the container. 50
10. A brush according to any preceding claim, wherein the body includes means to puncture the container upon initial movement of the movable means. 55
11. A brush according to Claim 1, being a toothbrush containing a supply of toothpaste.

