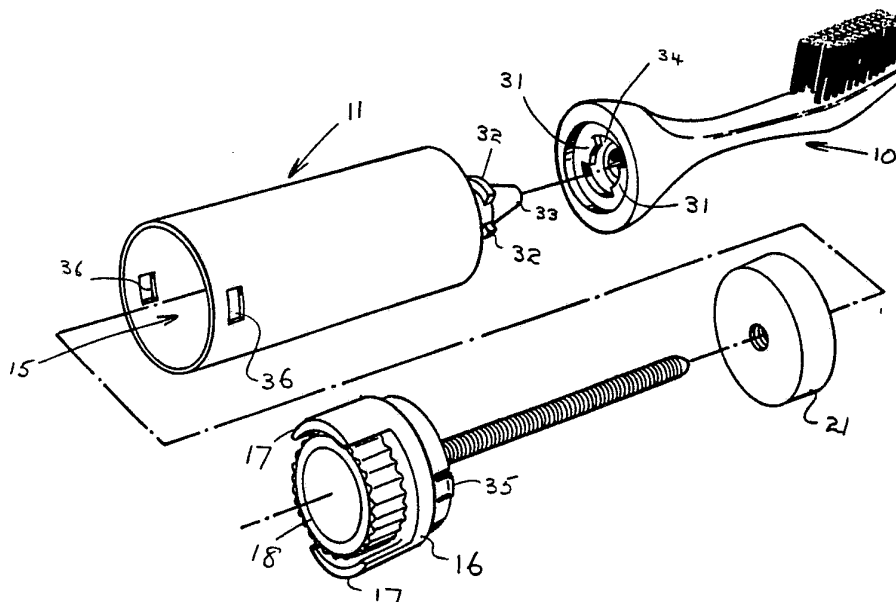




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: BRUSH ASSEMBLY		



## (57) Abstract

A brush assembly includes a bristle holder (10) which has an outwardly disposed bristle array (13) and an internal supply flowpath (12) from which toothpaste is supplied through opening (14) in the holder (10) into the bristle array (13). A container (11) for toothpaste coupled to the bristle holder (10) has a reservoir (15) and an outlet (33) in communication with the flowpath (12) in the bristle holder (10). A piston (21) within the reservoir (15) is moved along a threaded spindle (20) by rotation of a thumb roller (18) so as to force toothpaste from the reservoir (15) into the flowpath (12).

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BRUSH ASSEMBLYFIELD OF INVENTION

This invention relates to toothbrushes and more particularly to toothbrushes having an associated toothpaste  
5 container.

BACKGROUND ART

Hitherto, there has been a number of proposals concerning dispensing toothbrushes but these have met with little, if any, commercial success because of various  
10 inherent disadvantages regarding difficulty of use and/or manufacture as well as cost. It is, therefore, an object of this invention to provide an improved toothbrush and toothpaste container which will be simple to use and simple to manufacture.

15 DISCLOSURE OF INVENTION

According to the invention there is provided a brush assembly comprising:-

- 20 i) a bristle holder having an outwardly disposed bristle array and an internal supply flowpath from which toothpaste may be supplied through an opening in the holder into the bristle array,
- ii) a container for toothpaste coupled to the bristle holder and having a reservoir portion and an outlet portion in communication with the flowpath  
25 in the bristle holder,
- iii) piston means within the reservoir adapted to be



moved along the reservoir so as to force tooth-paste from the reservoir into the flowpath, and,  
iv) control means for moving the piston means.

Preferably, the piston is mounted on a threaded spindle  
5 that is supported by and rotated by a thumb roller mounted  
externally of the container.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be more readily  
understood and put into practical effect reference will now  
10 be made to the accompanying drawings in which:-

Fig. 1 is a perspective view of a brush assembly  
according to one embodiment of the invention,

Fig. 2 is a cross sectional view taken along lines  
II-II of Fig. 1,

15 Fig. 3 is a view taken along lines III-III of Fig. 2,  
and,

Fig. 4 is an exploded view of the brush assembly shown  
in Fig. 1.

#### BEST MODE OF CARRYING OUT THE INVENTION

20 The brush assembly shown in the drawings has a bristle  
holder portion 10 and a container portion 11. In this  
instance, the bristle holder portion 10 and the container  
portion 11 are coupled together by means of a bayonet  
coupling 30 comprised of retainer members 31 on the bristle  
25 holder portion 10 and key members 32 on the container  
portion 11. When the coupling is made, the outlet 33 of the



container portion 11 is housed within a correspondingly shaped recess 34 in the bristle holder portion 10 as can be seen in Fig. 2. If desired, the container portion 11 could be a snap fit on to the bristle holder portion 10 or could  
5 be threaded thereto. A flowpath 12 formed in the interior of the bristle holder portion 10 communicates with the outlet 33.

At the free end of the bristle holder portion 10 there is an outwardly directed bristle display 13 and toothpaste  
10 within the flowpath 12 is forced into the bristle array through opening 14. The bristle holder portion 10 may be of any convenient shape or configuration.

The container portion 11 is, in this instance, of constant oval cross section (as indicated in Fig. 3) and has  
15 a cavity or reservoir 15 which constitutes the toothpaste reservoir. The free end of the container portion 11 is closed by an end cap 16 which is engaged in the free end of the container portion 11 by means of lugs 35 which lock into apertures 36 of the container portion 11. The end cap 16  
20 has projections 17 which overlie a thumb roller 18 but which do not totally enclose the thumb roller 18 so that the roller 18 may be freely rotated by the user.

The thumb roller 18 has a stub portion 19 which projects through the end cap 16 and is held in position by  
25 the fingers 37 on the end cap 16 and a collar 38 on the stub portion 19. A threaded spindle 20 is supported by and rotated by the thumb roller 18 and has thereon a piston

member 21. As mentioned above, the container portion 11 is oval in shape and the piston 21 is also oval in shape so that upon rotation of the thumb roller 18 the piston 21 will move along the threaded spindle 20.

5           In use, the bristle holder 10 is removed from the container portion 11 by uncoupling the bayonet fitting 30. The thumb roller 18 is then rotated so as to move the piston member 21 to the inner end of the cavity 15. The toothpaste is introduced into the cavity 15 through the outlet 33 and  
10           air is able to escape through aperture 39. Rotation of the thumb roller 18 will move the piston 21 towards the bristle array 13 and toothpaste will be forced along the flowpath 12 through the openings 14 into the bristle array 13.

          Various modifications may be made in details of design  
15           and construction without departing from the scope and ambit of the invention.



CLAIMS

1. A brush assembly comprising:-

- i) a bristle holder having an outwardly disposed bristle array and an internal supply flowpath from which toothpaste may be supplied through an opening in the holder into the bristle array,
- ii) a container for toothpaste coupled to the bristle holder and having a reservoir portion and an outlet portion in communication with the flowpath in the bristle holder,
- iii) piston means within the reservoir adapted to be moved along the reservoir so as to force toothpaste from the reservoir into the flowpath, and,
- iv) control means for moving the piston means.

2. A brush assembly according to claim 1 wherein the piston is mounted on a threaded spindle that is supported by and rotated by a thumb roller mounted externally of the container.

3. A brush assembly according to claim 1 wherein the container is coupled to the bristle holder by a bayonet coupling which includes retainer members on the bristle holder and key members on the container.

4. A brush assembly according to claim 1 wherein the container is of oval cross section and the piston is similarly shaped.

5. A brush assembly according to claim 1 wherein the end cap is mounted on the container by means of lugs integral



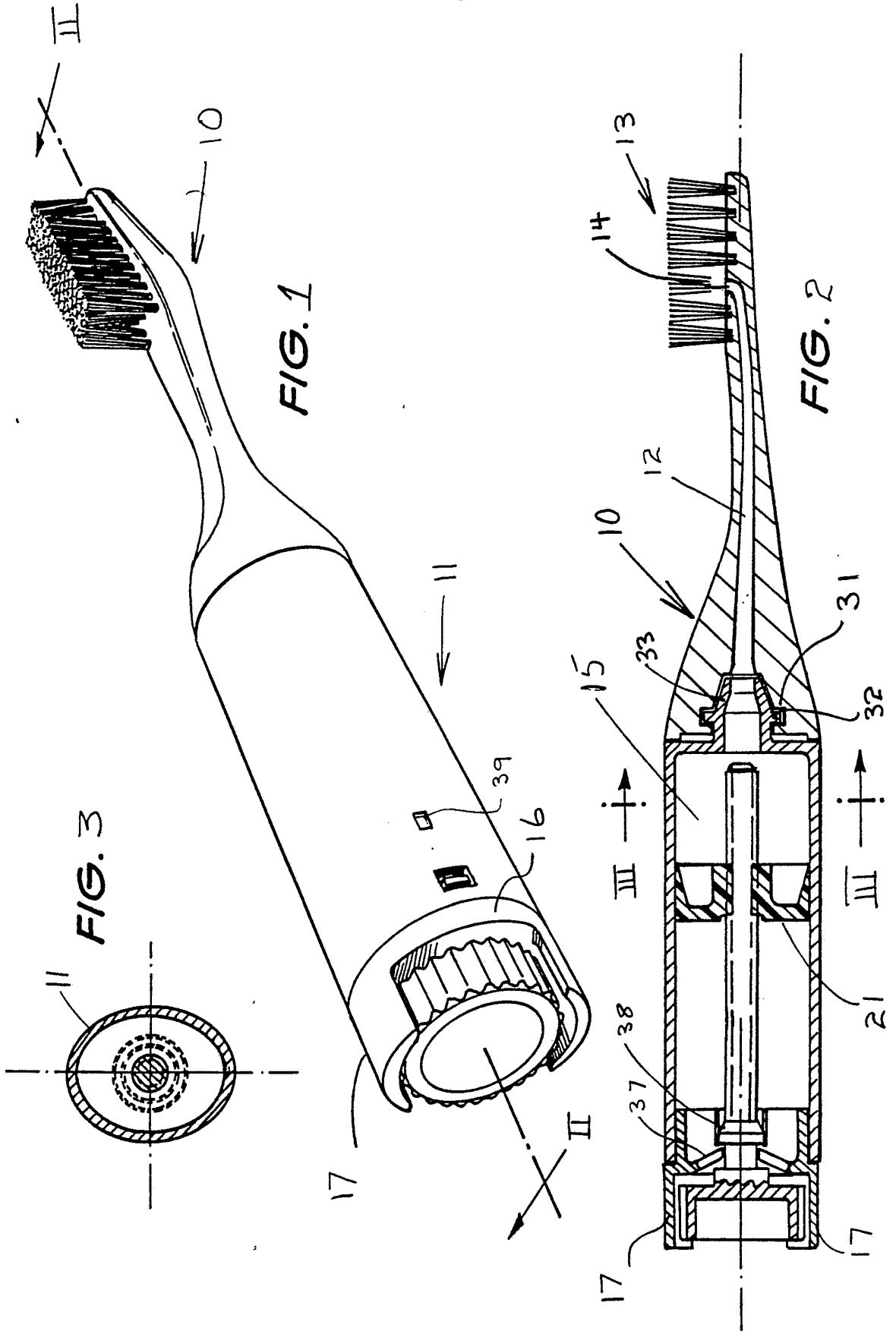
with the end cap that engage in apertures in the container.



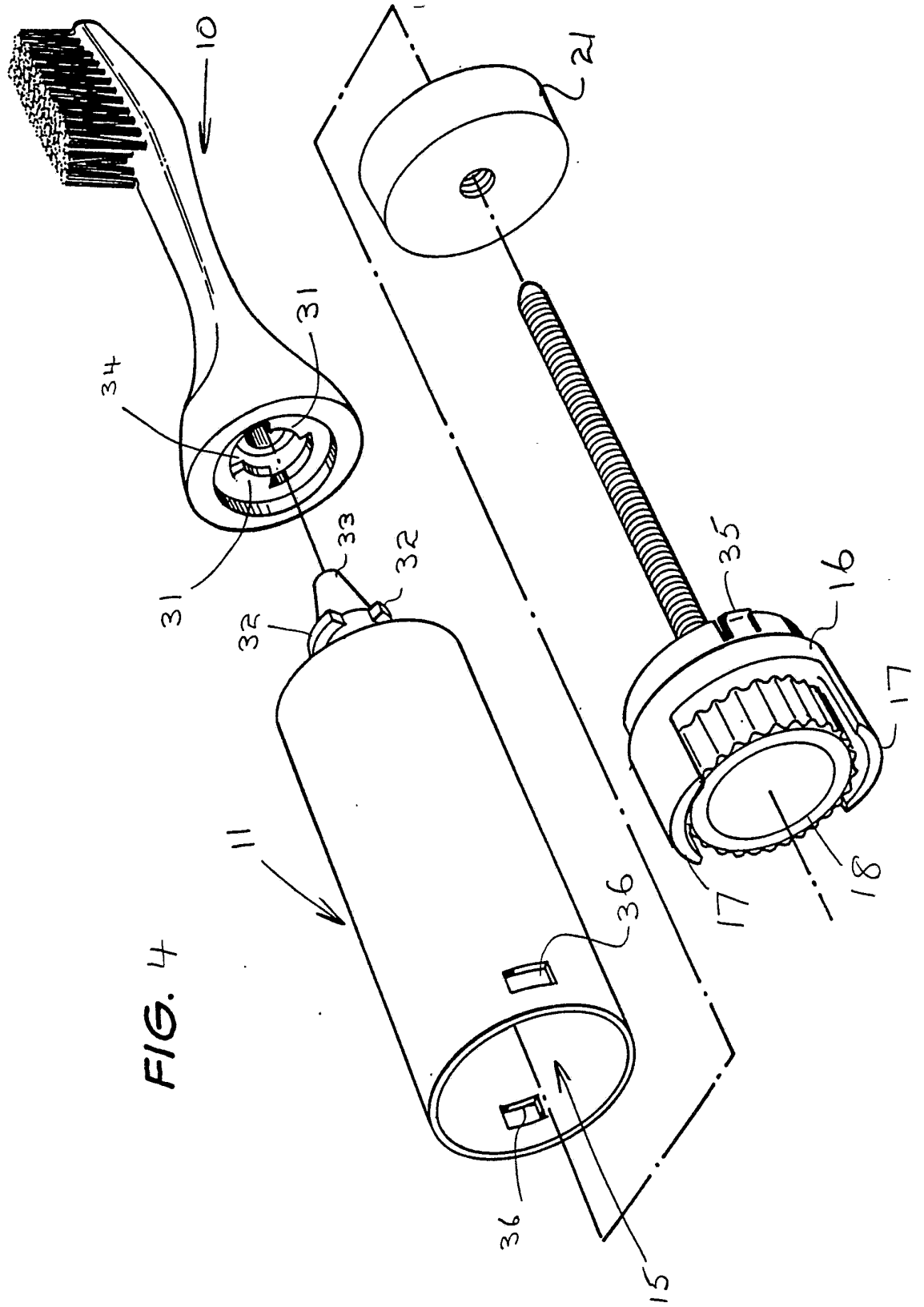


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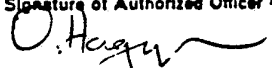


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# INTERNATIONAL SEARCH REPORT

International Application No PCT/AU84/00154

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (If several classification symbols apply, indicate all) <sup>3</sup>		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int. Cl. <sup>3</sup> A46B 11/02		
<b>II. FIELDS SEARCHED</b>		
Minimum Documentation Searched <sup>4</sup>		
Classification System	Classification Symbols	
IPC	A46B 11/02	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched <sup>5</sup>		
AU : IPC as above.		
<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT</b> <sup>14</sup>		
Category <sup>6</sup>	Citation of Document, <sup>15</sup> with indication, where appropriate, of the relevant passages <sup>17</sup>	Relevant to Claim No. <sup>18</sup>
P,X	US, A, 4421433 (VILLANUEVA) 20 December 1983 (20.12.83)	(1,2)
X	US, A, 4145147 (SCHUCK) 20 March 1979 (20.03.79)	(1,2)
X	US, A, 4135831 (REITKNECHT) 23 January 1979 (23.01.79)	(1,2)
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X	US, A, 3728035 (REITKNECHT) 17 April 1973 (17.04.73)	(1,2)
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X	AU, B, 15176/47 (142632) 16 September 1948 (16.09.48)	(1-3)
X	AU, B, 13551/33 (WALLACE) 12 July 1934 (12.07.34)	(1,2)
<p><sup>6</sup> Special categories of cited documents: <sup>15</sup></p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&amp;" document member of the same patent family</p>		
<b>IV. CERTIFICATION</b>		
Date of the Actual Completion of the International Search <sup>19</sup>	Date of Mailing of this International Search Report <sup>20</sup>	
8 October 1984 (08.10.84)	23/10/84.	
International Searching Authority <sup>1</sup>	Signature of Authorized Officer <sup>20</sup>	
Australian Patent Office	 (O. HAGGAR)	

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON  
INTERNATIONAL APPLICATION NO. PCT/AU 84/00154

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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Patent Document  
Cited in Search  
Report

Patent Family Members

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GB 2070922

DE 3104862

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END OF ANNEX