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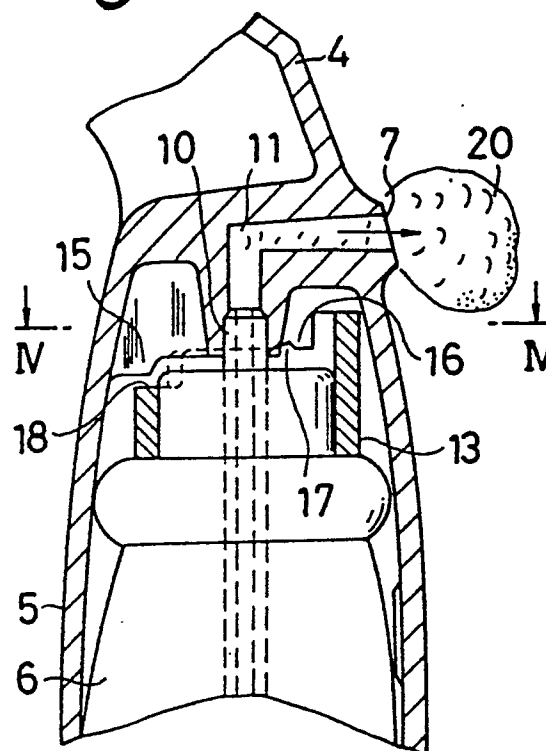
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54 **Razor incorporating shaving foam supply.**

57 A razor is disclosed comprising a head (2) carrying a blade or blades (3) and a handle which takes the form of a pressurised canister (6) containing substances which will emerge as shaving foam from a valve at an upper end of the canister when the valve is operated. The valve includes a tubular outlet and operating member (10) from which, when member (10) is depressed axially, the foam emerges. The razor head has a hollow socket which receives the upper end of the canister and has an axial bore (9) which receives the end of the tubular operating member (10). The bore (9) leads by way of a passage (11) to a dispensing outlet (7) on the side of head (2). The foam is thus dispensed by pressing the head (2) axially onto canister (6). The valved end of the canister (6) has fixed thereto a notched collar (13) which cooperates with an abutment member (15) within the socket in head (2). The head (2) is capable of limited rotational movement about the canister axis relative to the canister (6) and the collar (13) is so configured that except in one rotational position of the head (2) on the canister, depression of the head (2) to operate the valve is prevented by abutment of the member (15) with the collar. Thereby the risk of accidental operation of the valve is minimised.

Fig. 3



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Razor incorporating shaving foam supply

This invention relates to a mechanical razor whereby the user can be supplied with shaving foam in an amount which is adjustable as required.

Several embodiments of mechanical razors of the disposable type are already known in which the shaving head at the end of a handle held by the user comprises a blade embedded in a support which is generally formed by moulding of a suitable plastic integrally with the handle, which is made in one piece with the head. The head forms a suitable angle with the handle so that the blade which is held captive in the head and projects by an edge thereof out of the head has an inclination which is adapted to the user's skin, following the curves of his face at every point, more particularly the cheeks and chin, where the user wishes to shave. Mechanical razors of this kind have considerable commercial success because of their practicality, simplicity of manufacture, light weight and relatively very low cost price.

However, like all other devices of the same kind, before they can be used these razors require that the user's skin, previously wetted, should be covered with a layer of foam or shaving soap, which is generally delivered from a supply in the form of an aerosol containing a certain volume of such foam with a gas under pressure so that a suitable quantity of foam can be delivered as required, or alternatively from a tube or the like.

Consequently, in order to shave himself the user must have two separate items, i.e., the razor on the one hand, and the supply of foam on the other hand. In some circumstances, particularly when travelling or when the user wants to take with him only a lightweight portable and easily used system, it would be advantageous for the supply of foam required for shaving to be made automatically as required during shaving. With conventional systems in fact the supply of foam is sometimes difficult to regulate beforehand, and the user tends to expel from the aerosol or tube excessive quantities which are not strictly required for the shaving operation and which are then wasted.

Embodiments are also known in which the foam supply is in the form of a capsule containing the foam and the pressure gas, the capsule being connected to the razor head supporting the blade and forming a short neck, the latter comprising a hollow member terminating in a cylinder, having an axial bore adapted to fit without clearance over the tubular end of the valve of the capsule forming the foam supply. The axial bore of the cylinder continues in the form of a fine tube in which there flows the foam delivered by the capsule through the

valve, and leads out for example to the top of the neck near the head, the foam delivery being readily adjustable by the user who actuates the valve by a slight axial force applied to the neck or razor head.

However, these known embodiments have a disadvantage due to the fact that because of the direct fitting of the neck on the capsule adjustment of the opening of the valve to deliver the foam is relatively inaccurate and takes place particularly when the user presses the end of the valve in one way or another. During shaving, because of the movements required for suitable use of the device, pressures are frequently applied to the neck which, on each occasion, bears on the valve and delivers foam, such additional supply being unwanted.

This invention relates to a mechanical razor with a built-in supply of shaving foam, whereby this disadvantage is obviated as a result of the neck being so fitted on the capsule that the supply of foam occurs only at exactly selected times following a fast and simple but deliberate operation by the user.

To this end, the mechanical razor in question, comprising a head supporting a blade extending with the head transversely of a short neck terminating in a cylindrical end having an internal axial bore adapted to fit over the tubular end of the valve of a supply of shaving foam, the valve opening by axial movement, said supply being formed by a sealed cylindrical capsule known per se containing the foam and a pressurized gas, adapted to be capped by the cylindrical end of the neck, the axial bore being continued in the form of a conduit in which the foam flows and which leads out to the top of the cylindrical end near the neck, is characterised in that the tubular end of the valve of the capsule is surrounded by a notched collar adapted to co-operate with a push-member provided inside the cylindrical end so that axial displacement of the valve to deliver the foam takes place only in a specific relative position of the cylindrical end and capsule in which the push-member engages in a cavity in the notched collar.

As a result of these features, the user who has previously fitted the cylindrical end of the neck over the capsule forming the foam supply and holding the razor by its body which continues the neck connected to the head bearing the blade can open the capsule valve only after having carried out a slight relative rotation of the capsule in the cylindrical end to bring the push-member in register with the cavity in the collar whereupon limited axial movement of the parts can take place, with the valve being actuated and foam delivered through the axial bore in the cylindrical end and the

conduit leading out to the top thereof, the foam finally being collected by the user. Consequently the foam is used as it is required in the exact quantity required without any loss or waste.

Other features of a mechanical razor having a built-in supply of foam according to the invention will be apparent from the following description of one exemplified embodiment given by way of information without limiting force with reference to the accompanying drawing wherein:

Fig. 1 is a diagrammatic perspective view of the razor in question.

Fig. 2 is a partial section to an enlarged scale of the cylindrical end of the neck and the top part of the capsule showing the features which particularly form part of this invention.

Fig. 3 is a similar section to Fig. 2 completing it and showing operation of the system for delivery of the shaving foam.

Fig. 4 is a cross-section on the line IV-IV in Fig. 3.

The razor illustrated in the drawings bears the general reference 1 and comprises a head 2 provided with one or two blades 3 and a short neck 4 continued in the form of a cylindrical end 5 adapted to fit over and cap the end of a capsule 6 containing a supply of foam under pressure, a capsule of this kind being known per se. A port 7 is provided at the top of the cylindrical end 5 to allow the foam delivered by the capsule 6 to be supplied.

As will be apparent from Figs. 2 and 3, the cylindrical end 5 has on the inside a central boss 8 formed with an axial bore 9 adapted to receive the valve 10 which forms the continuation of the top end of the capsule 6, in its part engaging inside the cylindrical end. The bore 9 continues in the form of a bent conduit 11 which leads to the exterior of the cylindrical end via the port 7 so that the foam delivered by the capsule 6 through the valve 10 can be finally collected by the user in the correct amount required.

In order, according to the invention, that the foam delivered should be produced in this way by the capsule solely on demand and not as a result of accidental operation of the valve 10, the razor comprises a cylindrical collar 13 above the conventional capsule sealing ring 12, said cylindrical collar 13 being provided with a notch 14 which is open in the upward direction and in which, when the cylindrical end 5 caps the capsule 6, a flat push-member 15 engages (see Fig. 4), which is provided in the inner surface of said cylindrical end and is formed integrally therewith.

The notch 14 of the collar 12 has an end 16 with a projection 17, said end terminating in a cavity 18 so that relative rotation of the capsule 6 in the cylindrical end 5 causes the push-member

15 to slide on the end 16 of the notch between the projection 17 which acts as an abutment and in opposition to the cavity 18 or, at the end of its travel, it engages thus producing an axial movement of the valve 10, as illustrated in Fig. 3, delivering foam in the bent conduit 11. Advantageously, cylindrical end 5 has a lateral internal boss 19 which limits the forcing in of the capsule without going beyond the travel for engagement of the flat push-member 15 in the recess 18.

The delivery of the foam is thus regulated just to what is required and as needed by the user who, on each occasion, slightly turns the capsule in the cylindrical end and, at the end of the travel, moves the valve, the spring of the latter returning it to the closure position as soon as the application force ceases, the flat push-member emerging from the collar cavity while with the reverse rotation the capsule is returned to the inoperative position.

The assembly is therefore very simple and effective and gives appreciable advantages over devices of the kind already known.

Of course the invention is not limited simply to the embodiments described and illustrated above but covers all variants thereof.

The features disclosed in the foregoing description, in the following claims and/or in the accompanying drawings may, both separately and in any combination thereof, be material for realising the invention in diverse forms thereof.

Claims

1. A mechanical razor with a built-in supply of shaving foam, comprising a head (2) supporting a blade (3) extending with the head transversely of a short neck (4) terminating in a cylindrical end (5) having an internal axial bore (9) adapted to fit over the tubular end of the valve (10) of a supply of shaving foam, the valve opening by axial movement, said supply being formed by a sealed cylindrical capsule (6) containing the foam and a pressurized gas, adapted to be capped by the cylindrical end fitted to the neck, the axial bore being continued in the form of a conduit (11) in which the foam flows and which leads out to the top of the cylindrical end near the neck, characterised in that the tubular end of the valve (10) of the capsule (6) is surrounded by a notched collar (13) adapted to cooperate with a push-member (15) provided inside the cylindrical end (5) so that axial displacement of the valve to deliver the foam takes place only in a specific relative position of the cylindrical end and capsule in which the push-member engages in a cavity (18) in the notched collar (13).

2. A mechanical razor according to claim 1, characterised in that the notched collar (13) has an end (16) provided with a projection (17) forming a stop for the movement of the flat push-member (15) in opposition to the cavity (18).

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3. A mechanical razor according to claim 1 or 2, characterised in that the cylindrical end (5) has an internal lateral boss (19) which limits the forcing of the capsule (6) into the cylindrical end.

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Fig. 1

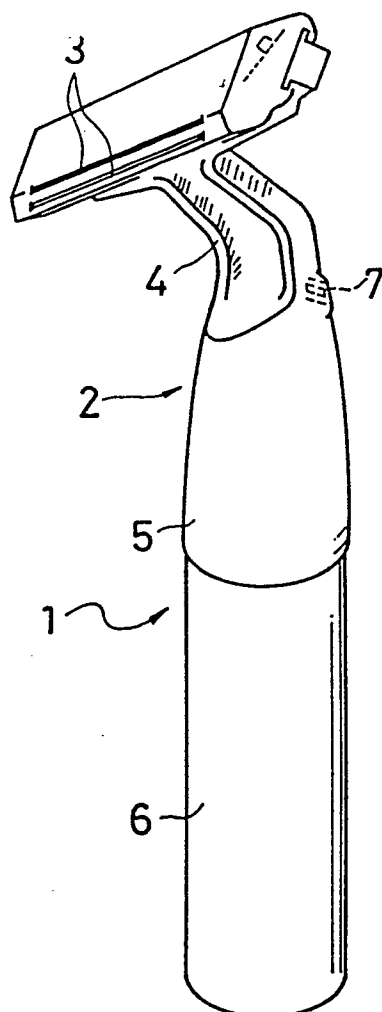


Fig. 2

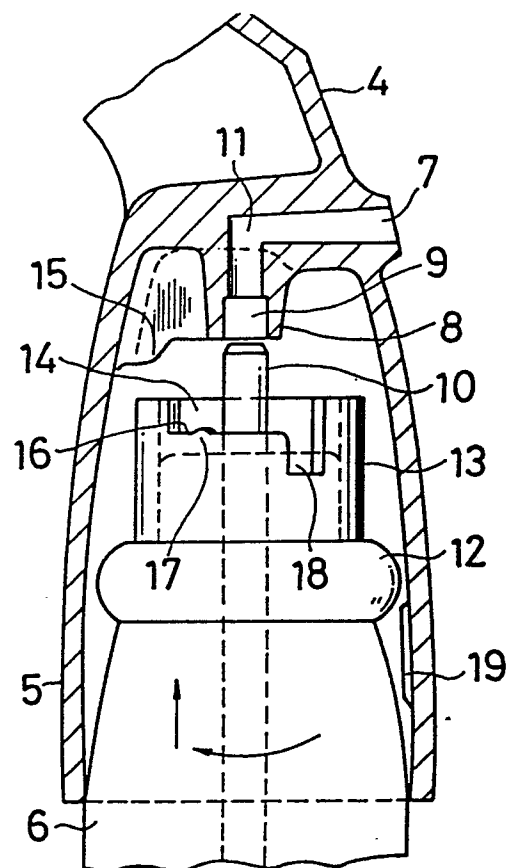


Fig. 3

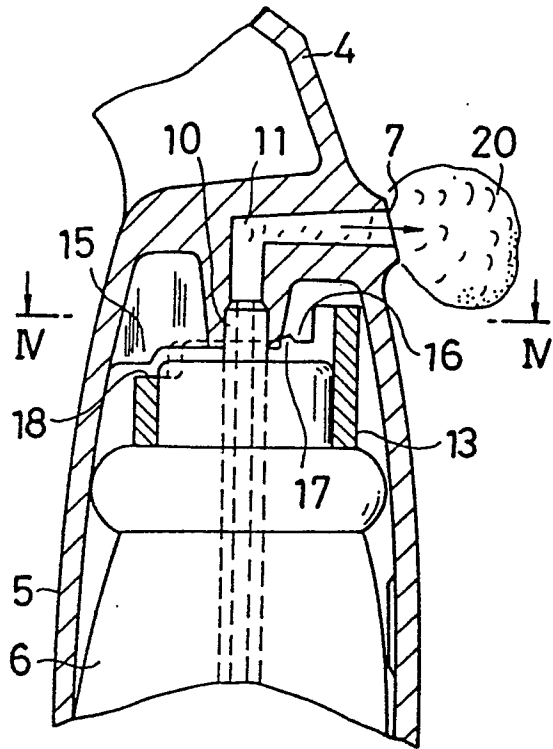
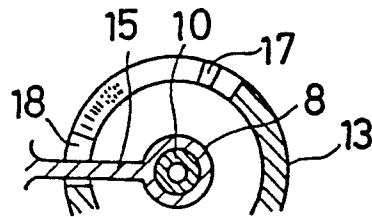


Fig. 4





DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)		
Y	FR-A-2 583 672 (T. YAMASAKI) * Page 5, line 22 - page 6, line 15; figures 1,2 * ---	1-3	B 26 B 21/44		
Y	US-A-4 454 964 (R.F. SACHER) * Column 2, line 50 - column 3, line 30; figures 1,3,4,5 * ---	1-3			
Y	US-A-3 417 468 (H. MIYAUCHI) * Column 2, line 28 - column 3, line 19; figures 1,2 * ---	1-3			
Y	US-A-3 827 606 (M.G. KNICKERBOCKER) * Column 3, line 60 - column 4, line 45; figures 1-6 * -----	1-3			
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)		
			B 26 B B 05 B		
The present search report has been drawn up for all claims					
Place of search THE HAGUE		Date of completion of the search 02-08-1988	Examiner WOHLRAPP R.G.		
<table><tr><td>CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</td><td>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document</td></tr></table>				CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document	T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document
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