**PCT** WORLD INTELLECTUAL PROPI International B

INTERNATIONAL APPLICATION PUBLISHED UNDER WO 9605950A1

(51) International Patent Classification 6 : B26B 21/44, 21/16, 21/22 — A1

(11) International Publication Number: **WO 96/05950**

(43) International Publication Date: 29 February 1996 (29.02.96)

(21) International Application Number: PCT/US95/01208

(22) International Filing Date: 30 January 1995 (30.01.95)

(30) Priority Data:
2,130,513 19 August 1994 (19.08.94) CA

(71)(72) Applicant and Inventor: GREGORY, Harbert, S. [US/US]; 26 Country Club Park, Covington, LA 70433 (US).

(74) Agents: VEAL, Robert, J. et al.; Veal & Marsh, Suite 525, 2001 Park Place North, Birmingham, AL 35203 (US).

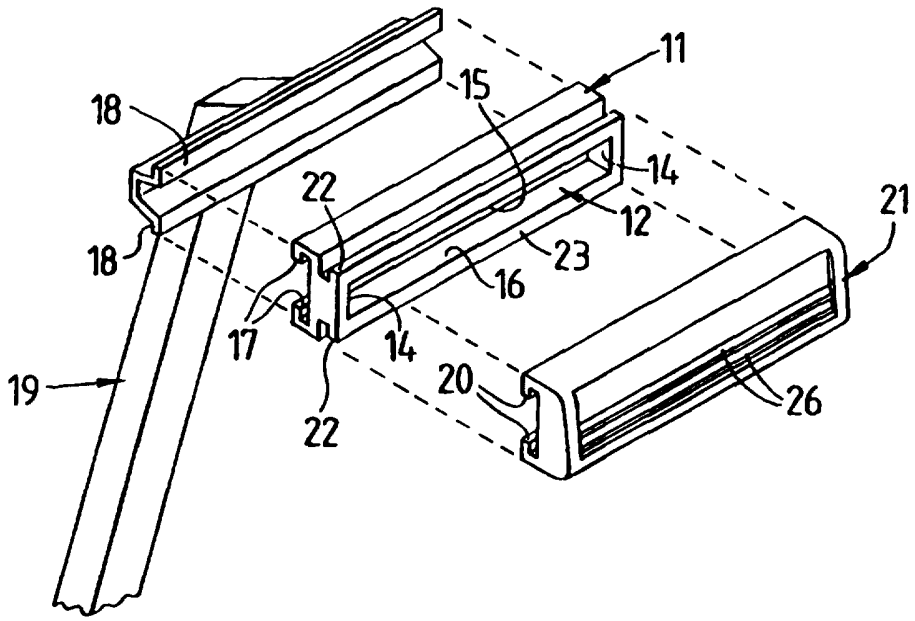
(81) Designated States: AU, JP, MX, NO, NZ, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
*With international search report.*

(54) Title: APPARATUS AND METHOD FOR SHAVING

(57) Abstract

An improved apparatus and method for shaving including a rectangular dispenser (11) detachably connected to a razor handle (19) and a disposable blade carrying head (21). The dispenser (11) includes a reservoir (12) that may be divided into open compartments that are in direct communication with separate conduits in the blade head that extend adjacent to the blades (26) carried by the disposable head. A method specially adapted for using the aforestated apparatus for shaving including the steps of applying a water soluble lubricant to the user's face, allowing the lubricant to dry into a film, applying shaving foam to the film, holding the razor and reservoir beneath a running faucet to fill the same, and stroking the blades across the user's face. When the blades are placed against the user's face, the water flows from the reservoir onto the blades and the user's face adjacent thereto to reactivate the lubricant just prior to the passage of the blades thereover.



*FOR THE PURPOSES OF INFORMATION ONLY*

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

| | | | | | |
|---|---|---|---|---|---|
| **AT** | Austria | **GB** | United Kingdom | **MR** | Mauritania |
| **AU** | Australia | **GE** | Georgia | **MW** | Malawi |
| **BB** | Barbados | **GN** | Guinea | **NE** | Niger |
| **BE** | Belgium | **GR** | Greece | **NL** | Netherlands |
| **BF** | Burkina Faso | **HU** | Hungary | **NO** | Norway |
| **BG** | Bulgaria | **IE** | Ireland | **NZ** | New Zealand |
| **BJ** | Benin | **IT** | Italy | **PL** | Poland |
| **BR** | Brazil | **JP** | Japan | **PT** | Portugal |
| **BY** | Belarus | **KE** | Kenya | **RO** | Romania |
| **CA** | Canada | **KG** | Kyrgystan | **RU** | Russian Federation |
| **CF** | Central African Republic | **KP** | Democratic People's Republic of Korea | **SD** | Sudan |
| **CG** | Congo | | | **SE** | Sweden |
| **CH** | Switzerland | **KR** | Republic of Korea | **SI** | Slovenia |
| **CI** | Côte d'Ivoire | **KZ** | Kazakhstan | **SK** | Slovakia |
| **CM** | Cameroon | **LI** | Liechtenstein | **SN** | Senegal |
| **CN** | China | **LK** | Sri Lanka | **TD** | Chad |
| **CS** | Czechoslovakia | **LU** | Luxembourg | **TG** | Togo |
| **CZ** | Czech Republic | **LV** | Latvia | **TJ** | Tajikistan |
| **DE** | Germany | **MC** | Monaco | **TT** | Trinidad and Tobago |
| **DK** | Denmark | **MD** | Republic of Moldova | **UA** | Ukraine |
| **ES** | Spain | **MG** | Madagascar | **US** | United States of America |
| **FI** | Finland | **ML** | Mali | **UZ** | Uzbekistan |
| **FR** | France | **MN** | Mongolia | **VN** | Viet Nam |
| **GA** | Gabon | | | | |

# DESCRIPTION

# APPARATUS AND METHOD FOR SHAVING

## Technical Field

The present invention relates to shaving implements and particularly to disposable razors having a blade carrying head detachably and reattachably connected to a handle. In greater particularity, the present invention relates to razors having a fluid reservoir thereon for dispensing water onto one or more razor blades carried by the razor. In even greater particularity, the present invention relates to instant interaction of user-controlled water dispensed on a film of dried lubricant pre-applied to a user's face to minimize the abrading thereof by a razor.

## Background Art

Shaving comfort is defined as smoothness of the shaving stroke. The ultimate objective is to gain the closest possible shave, without abrading the skin. Several factors must be considered to provide maximum closeness, smoothness and comfort. The most crucial factors are: (1) softness of facial hairs; (2) keenness of the razor blades; (3) facial hair orientation relative to the skin surface and razor blades; and (4) maximum lubrication to remove friction between the moving razor head and skin, and to render the skin surface so slippery that abrasion by the moving blade is eliminated.

The cutting edge of the razor blades must be very keen to provide the most efficient cutting of facial hair. Closely associated with razor keenness is facial hair orientation relative to skin surface. Facial hair should be standing as normal as possible to the user's face and razor blades such that a minimum cross-section is presented to the blade. In other words, the hair should protrude substantially perpendicular to or at a substantially ninety degree angle relative to the skin surface. Such hair orientation affords enhanced comfort and cutting efficiency due to less surface area of hair to be cut. The most

successful and widely used method employed to hold facial hair erect is through the use of shaving foam or gel. Note, however, that shaving foam has many other purposes in addition to facial hair orientation (e.g., medicated, scented, moisturizers), namely softening of facial hair.

An additional factor involved with the efficient cutting of facial hair is the temperature of the water on the skin surface. The warmer the water on the user's face, the softer the facial hair becomes which complements the function of the present invention.

Natural friction between the moving razor head and skin surface must be minimized to avoid locally distorting the skin thus leaning the hair away as the blade approaches. Maximum lubrication of the skin must be present to minimize the friction, and to lubricate the skin so that the blade edge will "slide" instead of "cut" the skin. When the friction is reduced, and maximum lubrication is provided, nicks and razor abrasion are also reduced which promotes shaving comfort. The degree of lubrication depends on the amount of lubricant which is activated in place when the blade moves across the skin. Diluted lubricant does not prevent razor burn.

Various usages of razors, especially disposable razors, shaving foams, water and selected lubricants for facilitating the removal of facial hair from the surface of a user's face, are commonly known. Most commonly, a user will wet his face and apply shaving foam, cream or gel thereto before stroking the razor blades across the face. On application, the foam must be quite dry, or it will not hold its position on the face. The water, which is retained in the dampness of the face and which clings to the razor body, interacts with the shaving foam to soften the user's facial hairs and to hold them erect thus promoting easier cutting thereof by the razor blades. Dilute lubricants may be embodied in the foam to interact with the water and lubricate the user's face to effect unabrasive movement of the razor blades thereacross.

However, the major problem with using shaving foams

having lubricants therein is that the amount of lubricant and water retained on the user's face is minimal. Water has a tendency to: (1) combine with the foam; (2) evaporate; and (3) run-off due to gravitation, thus negating its lubricating effectiveness. Hence, lubrication of the skin must be maximized and remain constant to avoid nicks and abrasion, therefore water must remain constant or be constantly applied.

A diluted pre-shave "water-based" lubricant (i.e., a lubricant that contains water) which depends on facial wetness loses much of its desired lubricating effectiveness when shaving foam is applied thereon and combined therewith. The comparatively dry foam, when applied to the pre-shave water-based lubricant, wicks the wet lubricant from the user's face making the face highly vulnerable to skin abrasion. The diluted lubricant will provide reduced lubrication.

A more successful attempt to maintain the lubricant and shaving foam in a hydrated form was the development of water and/or lubricant dispersing razors which allegedly supply a quantity of water or lubricant to the user's face adjacent to the blades. Exemplary of such razors is that shown in U.S. Patent No. 2,120,940, issued to Minassian, which includes a reservoir superjacent the blades whereby water seeps from the reservoir and onto the blades. Another example of such razors is U.S. Patent No. 4,809,432, issued to Schauble. Schauble includes a hollow handle having emollient stored therein and discharged therefrom adjacent the blades. A similar razor is disclosed in U.S. Patent No. 2,747,273, issued to Olsson, which has a fluid containing reservoir in the handle and means for dispersing the fluid therefrom and onto a razor blade. Lastly, U.S. Patent No. 4,238,882, issued to Harrison, Sr., discloses a razor having a shaving-liquid reservoir.

Harrison's reservoir includes a filling tube which opens to the atmosphere proximal the razor's handle. It is sealed once the reservoir is full of shaving liquid.

In addition, a "very small breather duct" extends through the wall of the reservoir into the atmosphere to let air escape while the reservoir is being filled. The breather duct is so small that the surface tension of the shaving liquid will not permit the liquid to pass through the duct. No amount of movement, rotation or shaking of the reservoir will overcome the surface tension thus allowing shaving liquid to escape through the breather duct. Only air can pass through the breather duct.

In addition to the breather duct, capillary size ports extend through the top of Harrison's reservoir. These can also be characterized as weep holes. A double-edge razor blade is captured by a cap intermediate the cap and the outer surface of the top of the reservoir. The blade is captured so that it overlies the capillary size ports in the top of the reservoir.

Once the reservoir is filled, the shaving liquid tends to fill the capillary size ports. Some of the shaving liquid passes through the capillary size ports and migrates into the interstices between the adjacent surfaces of the razor blade and outer surface of the top of the reservoir. As a result, Harrison discloses that a vacuum tends to build up in the reservoir as some of the liquid is fed through the capillary size ports so that an equilibrium is quickly reached tending to oppose further feed of the liquid through the capillary size ports.

However, the system is designed so that as soon as the person begins shaving, the razor blade will begin a small fluttering action between the cap and the top of the reservoir, whereby a small amount of shaving liquid will be pumped out of the reservoir, through the capillary size ports, past the interstices mentioned earlier, to the skin of the user. Thus, in order for Harrison's invention to be operable, Harrison requires a pumping action due to the fluttering of the razor blade in order to dispense liquid from his reservoir.

Nevertheless, the common characteristic of the prior art devices discussed heretofore is that the handle and

razor engaging heads are affixed, with only the razor blade itself being a disposable component. Since the head is affixed to the handle, the head can be channeled, hollowed or otherwise constructed to conduct fluid to the blades.

The more commonly used razors on the market today use a blade carrying head that is disposable along with the razor blades carried thereby. The prior art cited above could not accommodate such disposable heads. Further, such razors having hollowed handles and/or heads plus additional means for facilitating flow are comparatively more complex than most disposable razors thus significantly more difficult to manufacture and accordingly more expensive to purchase. Also, the razors described above, though allegedly efficient in providing water to the user's face, do not address the problem of the wicking of separately applied lubricant from the user's face by the shaving cream applied thereto. Further, prior razors do not offer volume selectivity to accommodate variations in the heaviness of the user's beard which may require more or less water to perform the entire stroke. Also, the prior razors do not provide any control feature that enables the user to elect when, during the course of a stroke, the water will be released to activate the lubricant. The other systems also do not provide a means where by the water can be maintained with desired temperature as does this system which involves frequent refills.

## Disclosure of Invention

It is the principal object of the present invention to provide an attachment for disposable razors having a blade carrying head detachably and reattachably connected to a handle, wherein the attachment supplies a quantity of water to the blades and user's face adjacent thereto.

Another object of the present invention is to provide a method for shaving that produces continuous super-saturation of foam and lubricant contacting the user's face as the razor blades are urged thereacross.

Another object of the present invention is to provide a

system wherein maximum lubricant can be applied to the face in a dried film and wherein adequate water can be provided to super-saturate the foam throughout the stroke there by providing sufficient moisture to activate the heavy film of lubricant in place.

Yet another object of the present invention is to provide a reservoir of water, adjacent to the blades, that can be controllably released by the user onto the blades and user's face adjacent thereto.

And still another object of the present invention is to provide a convenient system for shaving whereby the user can select a razor head adaptor that will provide a selected water capacity comparable to the thickness of the users beard.

In support of the previous objects, another object of the present invention is to provide a method for shaving using the above mentioned attachment for disposable razors wherein separately applied lubricant is not wicked from the user's face by the shaving foam.

These and other objects and advantages of the present invention are accomplished through the use of a rectangular dispenser having means for detachably and reattachably connecting the dispenser reservoir between a razor handle and a disposable blade carrying head such that one or more reservoir openings (i.e., flow through areas) defined in a selected face of the dispenser are adjacent to the disposable head and the razor blades carried thereby. The open side of the reservoir is in direct communication with the flow areas defined within the razor head and when the disposable head and dispenser are held beneath a flowing faucet, the water passes easily through the razor head to fill the reservoir. When the user of the present invention places the disposable head against his face to urge the blades thereacross, water in predetermined quantity flows from the reservoir through the areas of the blade head and onto the blades and user's face adjacent thereto.

The present invention does not require a pump created by the fluttering of the razor blades for pumping the water

from the reservoir through the head and across the blades to the face as does Harrison Sr. That is, pumping liquid through a very small capillary size weep hole is a different concept altogether than in the present invention's concept of placing control of the surface tension effect in the hands of the shaver so that flow can be regulated. Refill of the reservoirs with hot water by merely holding the razor under a running faucet (as foam is washed off) is a new concept. The present invention is much more simplistic and a great improvement over the teachings of Harrison Sr. in that cumbersome refilling of a reservoir is eliminated and hot water is provided by the refilling process.

The method for shaving using the present invention requires applying a quick drying lubricant onto the user's face and allowing the lubricant to quickly dry into a film. This is accomplished by placing a small amount of liquid lubricant in the palm of one hand whereupon it is thinly spread by the fingers of the other hand, or by some similar natural action. The film forms almost instantly. Maximum lubrication is therefore provided in place.

After the lubricant is applied, shaving foam is applied to the film of dried lubricant for the reasons set forth above. It is very important to note that since the lubricant is already dry, the dry shaving foam cannot dilute, or wick the lubricant from the user's face. The reservoir is then filled under the running faucet with a predetermined temperature of water and is stroked across the user's face. The reservoir is refilled as the foam is rinsed from the razor. Water flowing through the separated flow-through areas of the blade head will instantly super-saturate the foam and activate the dried lubricant film. Activation of the undiluted lubricant by the super-saturated foam is continuous through the stroke. Super-saturation of the foam through-out the stroke is provided by the water from the reservoir. Thus, maximizing the lubrication of the skin to minimize abrasion thereof by the razor blades traveling thereacross.

The prior art shaver's frequent problem with "razor burn" and facial tenderness are proof of inadequate lubrication. Adequate lubrication to cause the blade to "slip" over the skin and not cut it is provided by the dried film. However, a comparatively copious amount of water is needed to supersaturate the foam adequately and thereby completely activate the lubricant and provide a degree of lubrication not yet available. This system which has been created to provide maximum lubrication, and the resulting maximum slipperiness (and thus shaving comfort) is a two-component system, and requires both components to be effective.

The amount of water which flows from the reservoir is directly proportionate to the cross-sectional area of the water compartments in the reservoir. Thus, a large rectangular compartment may be provided which accommodates a rapid discharge of the water almost simultaneously with the placement of the razor against the user's face. Smaller, rectangular compartments, precisely dimensioned, the openings of which coincide with the portals in the blade cartridge, because of their size and depth, retain water by virtue of surface tension when the razor is held level in contact with the face. At the beginning of the stroke, a slight tilt of the razor to one side causes an accumulation of water in the corner of each small rectangular compartment so that gravity breaks the surface tension, and causes water to flow out across the blade face. A tilt in the other direction during the stroke releases the remainder of water. Tilting the small and rectangular reservoirs concentrates a greater weight of the contained water against a smaller area of surface tension which ruptures it and permits the water to flow. Thus, the user is able to enjoy complete control of the water flow, which creates instant lubrication. Alternatively, rectangular portals and/or small weep holes may be provided which allow the water to seep continuously from the reservoir during the entirety of the stroke.

There has thus been outlined, rather broadly, the more

important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the present invention that will be described hereinafter and which will form the subject matter of the claims appended hereto. In this respect, before explaining the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting. As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

## Brief Description of the Drawings

Apparatus embodying features of the present invention are depicted in the accompanying drawings which form a portion of this disclosure and wherein:

FIG. 1 is an exploded perspective view showing a razor handle, a disposable blade carrying head and my detachable reservoir;

FIG. 2 is a sectional view showing the handle, reservoir and blade carrying head in use;

FIG. 3 is a sectional view of the reservoir configured to contain a minimum volume of water;

FIG. 4 is a sectional view of the reservoir configured

to contain a moderate volume of water;

FIG. 5 is a sectional view of the reservoir configured to contain a maximum volume of water;

FIG. 6 is a perspective view of a second embodiment of my invention;

FIG. 7 is a sectional view taken along line 7-7 of FIG. 6;

FIG. 8 is a sectional view taken along line 8-8 of FIG. 6;

FIG. 9 is a perspective view of a third embodiment of my invention;

FIG. 10 is a sectional view taken along line 10-10 of FIG. 9;

FIG. 11 is a sectional view taken along line 11-11 of FIG. 9;

FIG. 12 is a perspective view of a fourth embodiment of my invention;

FIG. 13 is a sectional view taken along line 13-13 of FIG. 12;

FIG. 14 is a sectional view taken along line 14-14 of FIG. 12;

FIG. 15 is an exploded perspective view of a fifth embodiment of my invention; and

FIG. 16 is a sectional view taken along line 16-16 of FIG. 15.

## Best Mode for Carrying Out the Invention

Referring to the drawings for a clearer understanding of the invention, it should be noted in FIG. 1 that a first embodiment of the present invention contemplates the use of an elongated water dispenser **11** that defines a substantially rectangular reservoir **12** therein. The dispenser **11** has a rectangular bottom **13** with two vertically extending ends **14** integrally connected to the bottom **13** in perpendicular relation thereto, a first side **15** integrally connected to the ends **14** and bottom **13** in normal relation thereto, and a second side **16** integrally connected to the bottom **13** and ends **14** in normal relation

thereto and in spaced relation to the first side **15**.

Bottom **13** and sides **15** and **16** have a pair of opposing channel members **17** integrally connected thereto in longitudinal extension thereon for slidably engaging a pair of flange members **18** which form a portion of a razor handle **19**. Such attachment members **18** are commonly found on many razor handles **19** and are typically engaged by channel members **20** connected to a disposable blade carrying head **21** for detachably and reattachably securing the head **21** to the handle **19**. When the dispenser **11** is connected to the razor handle **19**, the head **21** is connected to the dispenser **11** opposite the razor handle **19** such that the dispenser **11** is intermediate handle **19** and head **21**.

The channel members **20** detachably and reattachably engage a pair of opposing flange members **22** forming a forward face **23** of dispenser **11** in longitudinal extension thereon.

It should be apparent that other methods and apparatus for connecting a blade carrying head **21** to a razor handle **19** are available and contemplated for use with the present invention to connect the dispenser **11** intermediate the handle **19** and head **21**. Such other methods include the "attachment" type methods currently used with Schick ™, Gillette ™ types, Afta ™ and Sensor ™ blade carrying heads.

The dispenser **11** defines an enlarged rectangular opening **24** which is connected to and in communication with the reservoir **12**. The opening **24** extends longitudinally on the dispenser **11** adjacent to head **21** and one or more flow through areas in the head **21** that lead to the blades **26** carried thereby.

In operation, the present invention is used in conjunction with a lubricant **31** and shaving foam or gel **27**. The method described herein for using the naturally quite dry foam **27** and lubricant **31** is necessary to insure optimum efficiency of the aforedescribed razor and reservoir combination. Prior to shaving, the lubricant **31** is applied to the user's dry face **28** and allowed to quickly dry into

a film **29**. After the lubricant **31** has dried, shaving foam **27** is applied to the film **29**. Allowing the lubricant **31** to dry before applying the shaving foam **27** prevents the shaving foam **27**, which must be comparatively dry in order to hold its shape, from wicking the lubricant **31** from the user's face **28**.

After the shaving foam **27** is applied, the head **21** and dispenser **11** may be held beneath a running faucet (not shown) wherein the reservoir **12** is filled through opening **24**. The head **21** is placed against the user's face **28** and the razor handle **19** and dispenser **11** are tilted such that water in the reservoir **12** flows therefrom and onto blades **26**.

As is shown in FIG. 2, the water moves from the blades **26** and onto the user's face **28** adjacent the blades **26** to saturate the foam **27** and rehydrate the film **29** of lubricant **31** proximal thereto. The razor head **21** and blades **26** are urged across the rehydrated lubricant **31** which prevents abrasion of the user's face **28**. Since the lubricant **31** is hydrated just before the razor head **21** and blades **26** pass thereover, the comparatively dry shaving foam **27** is unable to wick the lubricant **31** from the user's face **28** before the passage of the head **21** and blades **26** thereover. Moreover, water flowing from the reservoir **12** super-saturates the foam **27** as the stroke progresses which, in turn, continuously activates the film **29** of lubricant**31**. Super-saturated foam **27** cannot be applied directly to the user's face **28**. It will run off. Unless the foam **27** is saturated, it will not properly activate the lubricating film **29**. All three ingredients are essential.

The large rectangular opening **24** of the first embodiment facilitates a rapid discharge of the water from the reservoir **12** such that a predominant portion of the water is discharged at the beginning of the stroke. A user may prefer a particular volume of water discharged at the beginning of the stroke and, accordingly, the depth of the reservoir **12** (indicated as A) may vary from shallow to deep as shown in FIGS. 3-5, respectively.

A second embodiment of the invention is shown in FIGS. 6-8, wherein the reservoir **12** is divided by one or more interior walls **32** into a plurality of compartments **33**. The interior walls **32** extend normal to the longitudinal extension of the reservoir **12** and in coplanar relation to associated parallel divider walls **34** , FIG. 7, which are typically formed in the blade carrying head **21** for supporting blades **26**. The interior walls **32**, FIG. 6, in cooperation with the associated divider walls **34**, provide separate conduits **35** along which water may travel from the reservoir **12** to specific portions of the blades **26**. Such separate conduits **35** insure that the water is dispersed evenly across the blades **26**. Also, the rectangular shape and size of the compartments **33** are designed to react with water surface tension to restrain water, when held level, and to spill the water into the conduits **35** when the reservoir **12** is tilted.

A third embodiment of the present invention is shown in FIGS. 9-11 and, in addition to the interior walls **32**, has a plurality of lower baffles **36** integrally connected to the interior walls **32** for reducing the flow of water from the reservoir **12**. The lower baffles **36** extend adjacent to the second side **16** to partially define the forward face **23**. The lower baffles **36** and walls **32** define a plurality of primary portals **37** through which water is dispersed from the reservoir **12**. Weep holes **38** are defined by the lower baffles **36** to provide additional controlled flow.

By reducing the initial flow of water from the reservoir **12**, the dispenser **11** will provide a continuous stream of water during the entirety of a razor stroke. Initially, water will flow rapidly through the primary openings **37**. This rapid initial flow is necessary to quickly convey some of the water from the reservoir **12** to the foam **27** and lubricant film **29** prior to or simultaneous to the urging of the blade head **21** across the user's face **28**. A predominate portion of the water, however, will flow through the weep holes **38** even though the weep holes **38**

provide only a minimal flow area relative to the primary opening **37**. During the latter portion of the stroke, when the water level has fallen below an upper margin **36a** of the baffle **36**, water will flow exclusively through the weep holes **38** due to the placement of the weep holes **38** proximal to the lower portion of the reservoir **12**. Thus, a continuous stream of water will flow through the weep holes **38**, onto the lubricant **29** and user's face **28** during the entirety of the stroke. Thus, two required conditions are met. First, an immediate quantity of water which super-saturates the foam **27** and activates the film **29** of lubricants and, second, provides saturation through the stroke.

A fourth embodiment of the present invention is shown in FIGS. 12-14 and includes the interior walls **32** previously described and a plurality of vertical baffles **39** integrally connected to the interior walls **32** for restricting the flow of water from the reservoir **12**. The vertical baffles **39** define a plurality of vertical flow ports **41** which extend between sides **15** and **16** of the dispenser **11**. The fourth embodiment provides a positive retainment of water when the dispenser **11** is tilted in one direction, releasing only the water held behind an elevated baffle **39a** in the compartment. When the razor is tilted in the opposite direction, the remaining water, previously contained by the opposite baffle **39b**, is released. This design enhances the control which the user exercises over the discharge of water during the shaving stroke. The second, third and fourth embodiments are available in variable volume capacities, as represented in FIGS. 3, 4 and 5.

A fifth embodiment of the present invention is shown in FIGS. 15 and 16, whereby the handle **19** has a planar face **30**. The planar face **30** replaces bottom **13** which has been eliminated from dispenser **11** to facilitate easier manufacture thereof. It should be apparent that the present invention also contemplates the razor handle **18**, dispenser **11** and head **21** being integrally connected and

disposable as a single unit.

While I have shown my invention in several forms, it will be obvious to those skilled in the art that it is not so limited but is susceptible of various changes and modifications without departing from the spirit thereof.

## Claims

1. An article to be used with disposable shaving razors having a handle (19), a blade carrying head (21) and means for detachably and reattachably connecting said blade carrying head to said handle (18), for supplying a controllable quantity of water adjacent to one or more blades (26) carried by said head, said article characterized by:

(a) an elongated dispenser (11) defining an elongated rectangular reservoir (12) therein and one or more openings (24) through a selected face thereof, wherein said one or more openings are integral with said reservoir such that said reservoir may be iteratively filled with a quantity of water by placing said reservoir under a water faucet, whereupon said water passes through said openings to fill said reservoir and is retained therein by surface tension of said water until said reservoir is tilted to a selected angle when said one or more blades are urged across a user's face to allow said quantity of water to flow through said openings from said reservoir onto said blades and said face;

(b) first means connected to said dispenser for detachably and reattachably connecting said dispenser to said handle (17); and

(c) second means connected to said dispenser adjacently to said selected face for detachably and reattachably connecting said dispenser to said blade carrying head (22), such that said selected face having said one or more openings therethrough is positioned adjacent to said blade carrying head.

2. An article as defined in claim 1 wherein said one or more openings comprises an elongated rectangular flow port extending in parallel longitudinal relation to said reservoir.

3. An article as defined in claim 1 wherein said dispenser is further characterized by one or more internal walls (32) dividing said reservoir into a plurality of compartments (33), wherein said internal walls traverse said reservoir in corresponding, coplanar relation to one or more divider walls formed within said blade carrying head (21) for supporting said one or more blades (26) therein, such that said internal walls and said corresponding divider walls form a plurality of conduits through which said quantity of water may flow from said reservoir to said one or more blades.

4. An article as defined in claim 3 further characterized by a plurality of lower baffles (36) integrally connected to said internal walls (32) and partially forming said selected face adjacent to said blade carrying head for reducing the flow rate of said quantity of water from said reservoir and through said plurality of conduits.

5. An article as defined in claim 4 wherein said one or more openings comprise a plurality of rectangular primary flow ports (37) partially defined by said internal walls and above said lower baffles.

6. An article as defined in claim 4 wherein each said lower baffle defines one or more weep holes (38) through which said quantity of water may flow at a regulated rate.

7. An article as defined in claim 5 wherein each said lower baffle defines one or more weep holes (38) through which said quantity of water may flow at a regulated rate, wherein said quantity of water will flow predominantly through said plurality of primary flow ports until said quantity of water within said reservoir is below an upper margin of said lower baffle, whereafter said water will flow predominantly through said weep holes at said regulated rate.

8. An article as defined in claim 3 further characterized by a plurality of vertical baffles (36) connected to said internal walls and to said dispenser and partially forming said selected face, wherein said plurality of vertical baffles partially restrict the flow of said quantity of water from said reservoir and through said plurality of conduits.

9. An article as defined in claim 8 wherein said one or more openings comprises a plurality of rectangular vertical flow ports (37) partially defined by said vertical baffles and extending flush with spaced first and second sides of said reservoir.

10. An article as defined in claim 1 further characterized by one or more internal walls (32) connected to said first and second sides and to said bottom in parallel planar relation to said ends and in corresponding coplanar relation to a plurality of divider walls (34) integrally connected to said blade carrying head, wherein said internal walls, and said corresponding divider walls restrict the lateral movement of said quantity of water as said quantity of water flows from said reservoir and onto said one or more razor blades such that said quantity of water is evenly distributed across said blades.

11. An article as defined in claim 10 further characterized by a plurality of baffle plates (36) integrally connected to said internal walls for controlling the flow of said quantity of water from said reservoir.

12. A method for shaving characterized by the steps of:

(a) manually applying a quantity of quick-drying hydrated lubricant onto a user's face by hand and allowing the lubricant to quickly dry into a film such that wicking thereof is prevented;

(b) spreading a quantity of comparatively dry, lathered shaving foam across said film to hold facial hairs in an upright or substantially perpendicular position

relative to skin surface;

(c) urging one or more razor blades across said user's face; and

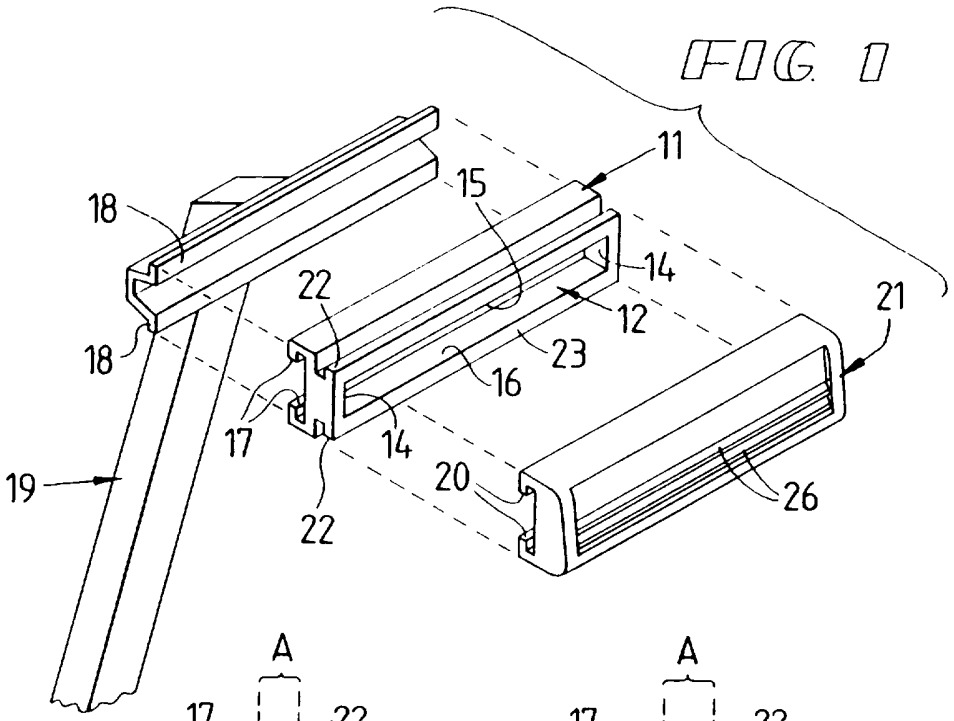
(d) concurrently with said urging step, controllably dispensing a quantity of water from a reservoir detachably connected to said blades onto said one or more razor blades and said film adjacent thereto to super-saturate the foam and rehydrate said lubricant immediately prior to the movement of said blade carrying head and said one or more blades thereover such that said blades may travel over said super-rehydrated lubricant without abrading said user's face.

13. A method as described in claim 12 wherein said step of dispensing comprises the steps of:

(a) filling a reservoir supported adjacent to said one or more blades with a quantity of water, wherein said water enters said reservoir through one or more flow ports connected to and in communication therewith and adjacent to said one or more blades; and

(b) tilting said reservoir at a selected angle when said one or more blades are urged across said user's face such that said quantity of water breaks the surface tension and flows from said reservoir and onto said blades and said film adjacent thereto when said blades are stroked across said user's face.

FIG. 1



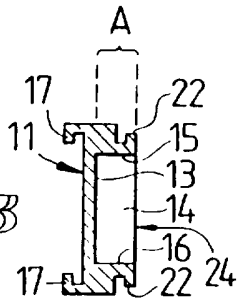




FIG. 3

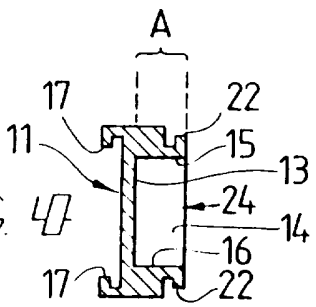



FIG. 4

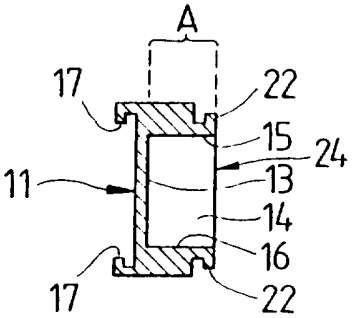



FIG. 5

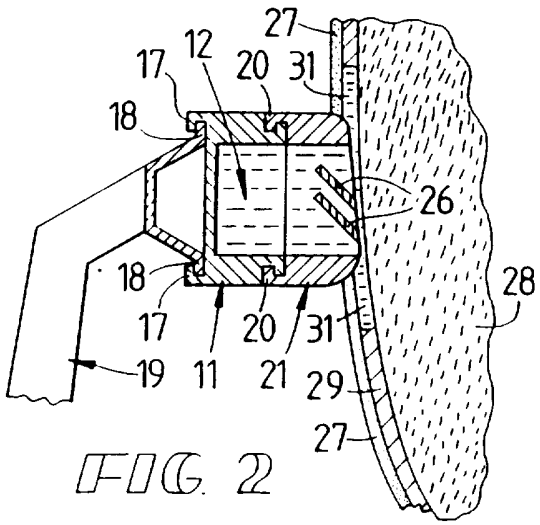



FIG. 2

FIG. 6

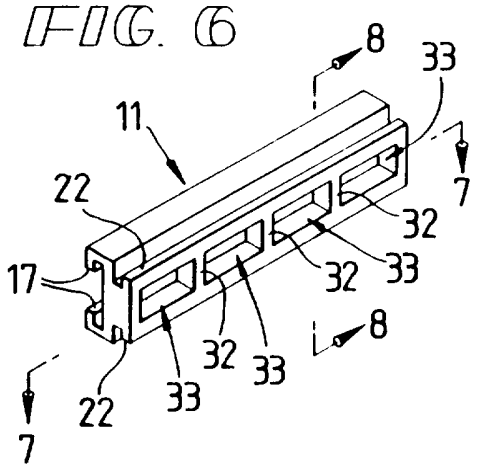
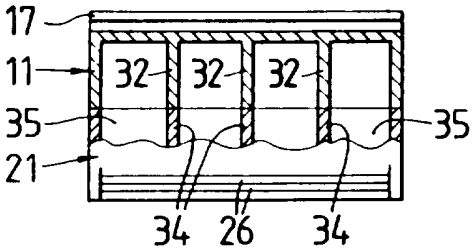



FIG. 7



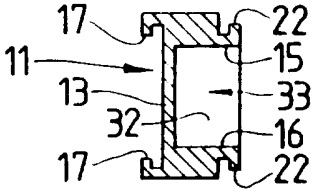




FIG. 8

FIG. 9

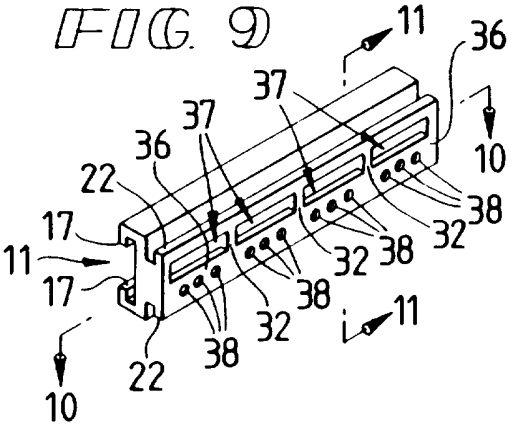
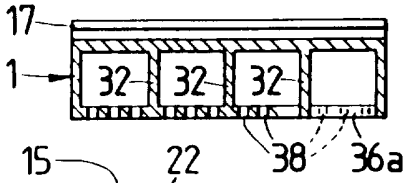



FIG. 10



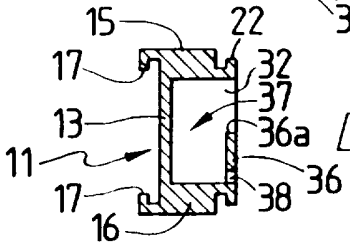




FIG. 11

FIG. 12

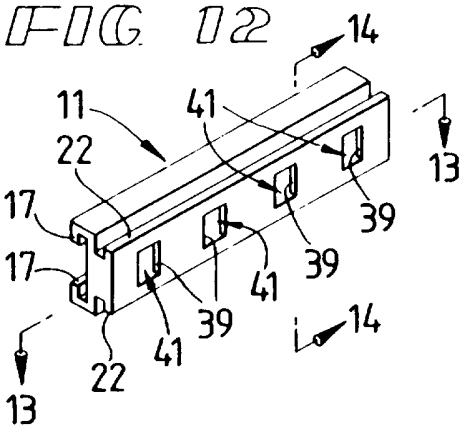
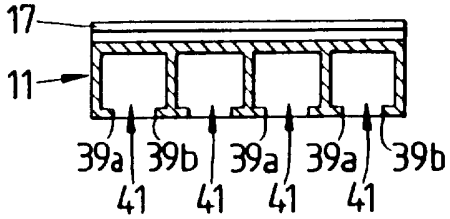



FIG. 13



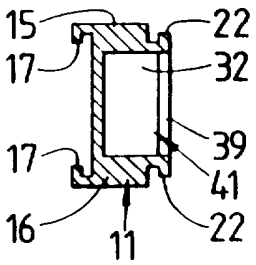




FIG. 14

FIG. 15

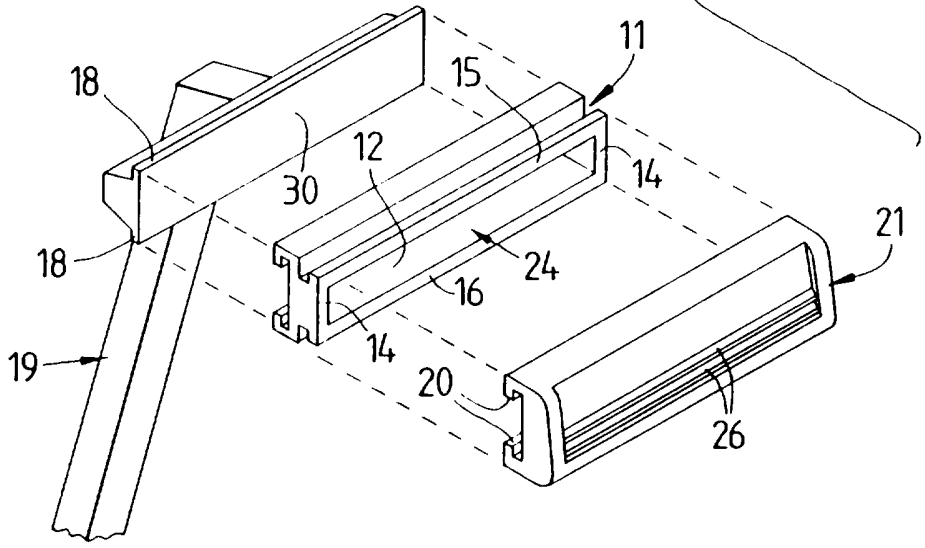
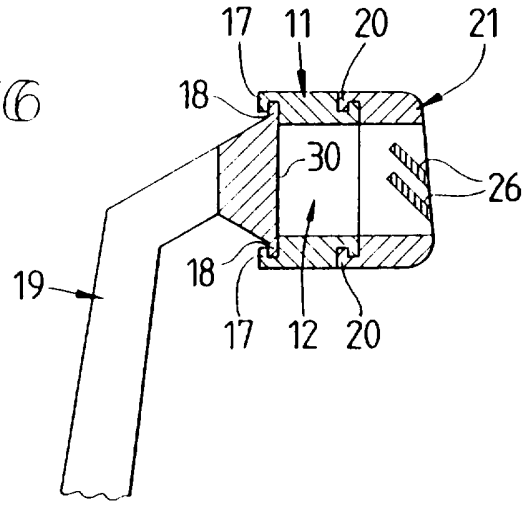

18
15
11
30
12
14
18
24
21
16
19
14
20
26

FIG. 16


17
11
20
21
18
30
26
19
18
17
12
20

# INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/01208

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) :B26B 21/44, 21/16, 21/22
US CL :30/41.5, 41
According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 30/41.5, 41, 32, 47, 79

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X<br>--<br>Y | US, A, 4,238,882 (HARRISON, SR.) 16 December 1980, see Figure 2 and col. 5, lines 1-68, and col. 6, lines 1-33. | 1 and 2<br>---------<br>12 and 13 |
| A | US, A, 5,134,775 (ALTHAUS ET AL.) 04 August 1992, see Figure 4. | 1-13 |
| A | US, A, 5,072,512 (NOUJAIN) 17 December 1991, see Figure 2. | 1-13 |
| A | US, A, 4,984,364 (SIMMONS) 15 January 1991, see Figure 5. | 1-13 |
| A | US, A, 4,850,107 (VALLIADES ET AL.) 25 July 1989, see Figure 3. | 1-13 |
| A | US, A, 4,395,822 (CIAFFONE) 02 August 1983, see Figure | 1-13 |

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

| | | | |
|---|---|---|---|
| * | Special categories of cited documents: | "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 |
| "A" | document defining the general state of the art which is not considered to be of particular relevance | "X" | document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "E" | earlier document published on or after the international filing date | "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 |
| "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) | "&" | document member of the same patent family |
| "O" | document referring to an oral disclosure, use, exhibition or other means | | |
| "P" | document published prior to the international filing date but later than the priority date claimed | | |

| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| 19 APRIL 1995 | 04.05.95 |
| Name and mailing address of the ISA/US<br>Commissioner of Patents and Trademarks<br>Box PCT<br>Washington, D.C. 20231<br>Facsimile No. (703) 305-3230 | Authorized officer<br>RINALDI I. RADA<br>Telephone No. (703) 308-1148 |

Form PCT/ISA/210 (second sheet)(July 1992)*

# INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/01208

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | US, A, 4,247,982 (BOOTH ET AL.) 03 February 1981, see entire document. | 1-13 |