June 14, 1938. F. S. MINASSIAN 2,120,940

SAFETY RAZOR AND BLADE THEREFOR

Filed July 12, 1934 2 Sheets-Sheet 1

Fig. 1

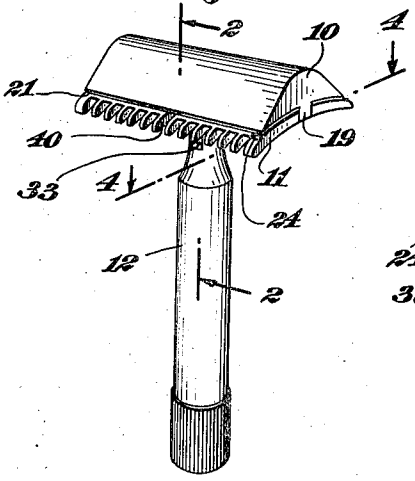


Fig. 2

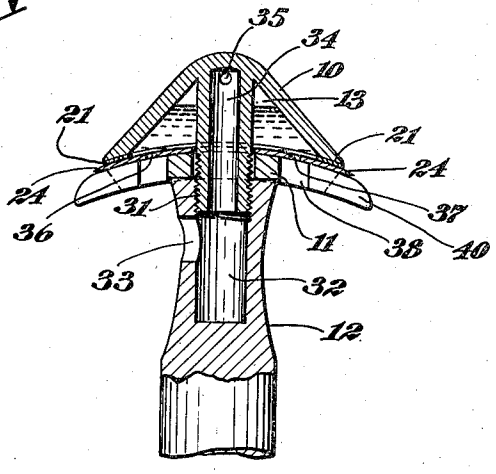


Fig. 3

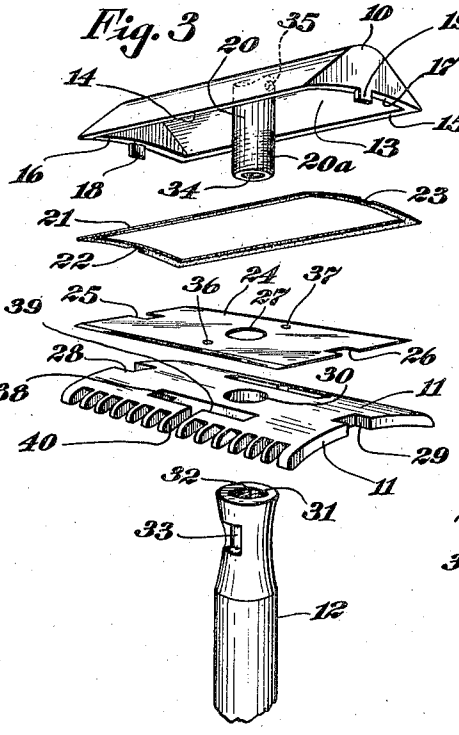


Fig. 4

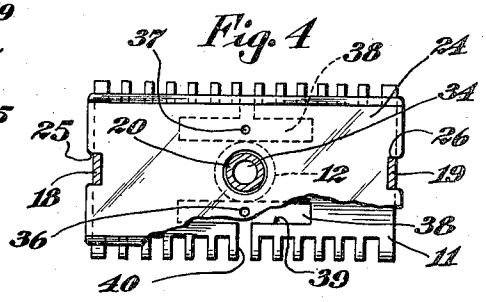
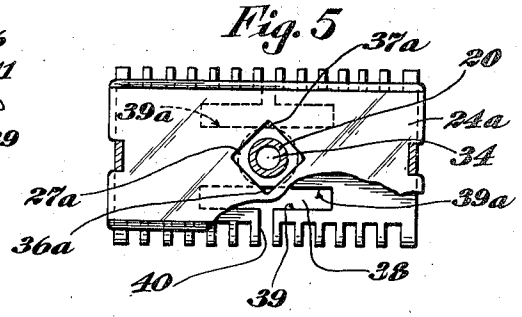


Fig. 5



INVENTOR,
Fredric S. Minassian,
BY
F. Bassecher
his ATTORNEY.

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Fig. 6.

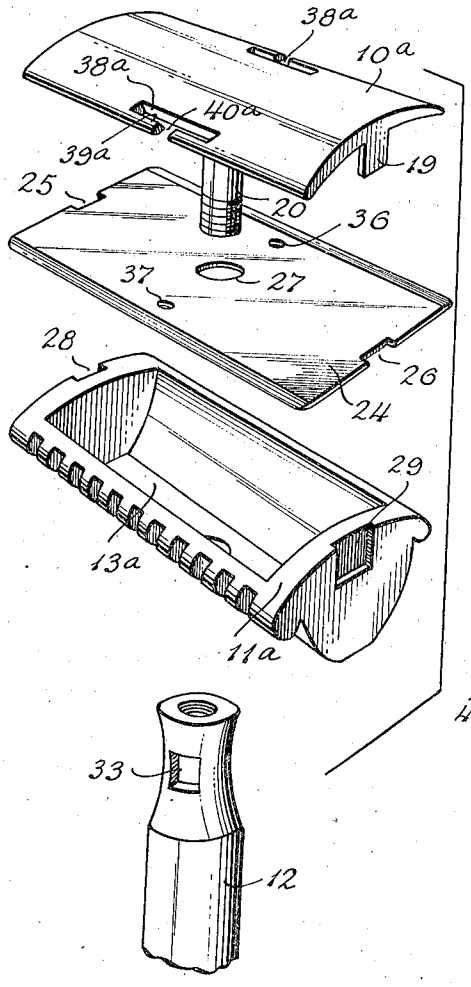


Fig. 7.

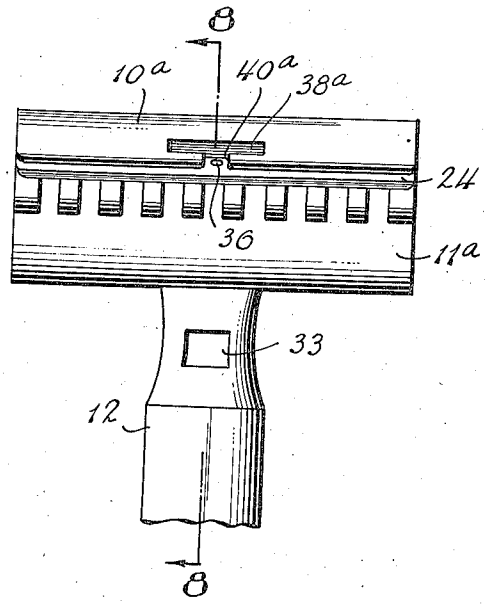
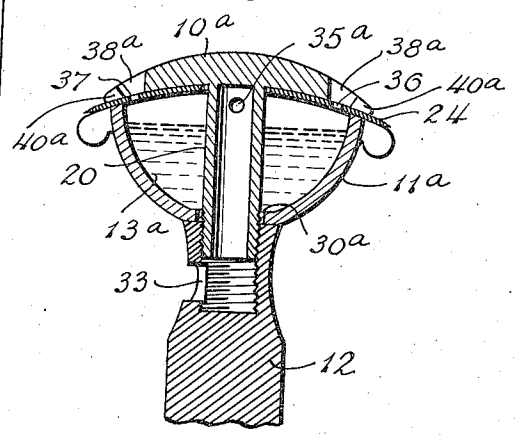


Fig. 8.



INVENTOR.
FREDRIC S. MINASSIAN

BY J. F. Bassecher
his ATTORNEY.

Patented June 14, 1938 2,120,940

UNITED STATES PATENT OFFICE

2,120,940

SAFETY RAZOR AND BLADE THEREFOR

Fredric S. Minassian, New York, N. Y., assignor of thirty per cent to Jacob T. Basseches, New York, N. Y.

Application July 12, 1934, Serial No. 734,731

17 Claims. (Cl. 30—41)

This invention relates to razor constructions for the application of moistening fluids, and more particularly, to blades for use therewith.

It is an object of my invention to provide a razor construction, particularly of the safety razor type which includes associated therewith, a reservoir for moistening fluids, such as water or emollients, which ingredients may be delivered to the face of the user during shaving operations with a certainty and efficiency, while maintaining the razor in a clean and sanitary condition.

I have observed that shaving operations may be more effectively and efficiently carried out by maintaining a film of water or similar emollient liquid upon the face adjacent the shaving edge and that this condition also alleviates discomfort to the sensitive skin during shaving operations. While frequent lathering with shaving soap provides the requisite effect for shaving, the lather frequently dries on the face or a good portion thereof, during the time consumed in shaving other portions, and this condition is not conducive to best shaving results. Where shaving creams are used instead of lathers or soaps, the application of moistening agents, such as water or similar emollient to the shaving edge becomes particularly important and desirable for efficient shaving operations.

It is therefore contemplated as an object of my invention to provide, in association with a razor, and particularly those of the safety razor type, of means for dispensing fluids, such as water or an emollient adjacent the shaving edge of the blade so that contact of the razor with the face for performing the shaving operation will include the application of liquids, such as water or other emollients.

I have also found that in attempting to spread a wetting fluid in the form of water or other emollients, to the face during shaving operations, by including a fluid dispensing reservoir in association with the razor, depending upon a capillary orifice for feeding the liquid from the reservoir to the space adjacent the shaving edge, that difficulty is involved in discharging the liquid, unless the proper fluid "head" is maintained and the flow through a capillary orifice is augmented by the application of a priming fluid which precedes the wetting action of the face adjacent the capillary orifice.

It is therefore contemplated as an object of my invention to associate in a safety razor construction, a reservoir for purposes of delivering liquids, such as water or similar emollients, by a capillary flow, and to provide a construction which assures the proper fluid "head" and the application of priming liquids in relation to the capillary orifice, to assure an efficient and effective discharge of the liquid during all shaving operations.

It is further contemplated as an object of my invention to provide in a safety razor construction, of means to efficiently apply liquids adjacent the shaving edge of the razor from a liquid reservoir, to provide the proper liquid discharge and which includes a fluid "head" and priming flow of the liquid to augment the capillary action, and to further facilitate the filling of the reservoir during the normal operations used in cleansing the razor.

It is still further contemplated as an object of my invention to provide, in a safety razor construction arranged for the application of fluids during shaving operations, a novel construction of blade to assure an efficient and proper application of an emollient liquid, such as water, adjacent the shaving edge and in advance thereof, while maintaining the relationship of the shaving edge to a liquid reservoir to maintain the proper fluid "head" for the efficient distribution of the emollient liquid, and to determine and control the capillary action by the blade construction whereby an efficient and sanitary operation is maintained.

To attain these objects and such further objects as may appear herein or be hereinafter pointed out, I make reference to the accompanying drawings, forming a part hereof, in which—

Fig. 1 is a perspective view illustrating one embodiment of my invention;

Figure 2 is a section taken on the line 2—2 of Figure 1;

Figure 3 is a perspective, exploded view of my device;

Figure 4 is a sectional plan view, with one form of blade, as contemplated by my invention, taken on the line 4—4 of Figure 1;

Figure 5 is a view similar to Figure 4, with a blade forming another embodiment of my invention;

Figure 6 is a perspective exploded view of my device, with the primary parts reversely arranged;

Figure 7 is a fragmentary view in side elevation;

Figure 8 is a section taken on the line 8—8 of Figure 7.

Making reference to the drawings, I have illustrated my invention, in one embodiment thereof, in connection with a double-edge flexible

wafer-type blade holder, and in this construction, 10 represents the cap disposed upon the guard plates 11 and is arranged to be urged towards each other in clamping realtionship, by the handle 12.

In my preferred embodiment, the cap 10 is dished or arcuately formed so as to provide at its interior a substantial receptacle or reservoir 13.

In this cap, the side edges 14 and 15 and the end edges 16 and 17 are shaped to form a seat corresponding substantially to the curvature assumed by the blade hereinafter to be described, in the preferred shaving position. Formed on the seat hereinabove described, there are provided a pair of lugs 18 and 19, depending from the edges 16 and 17, respectively. A central stem 20 may be formed integrally with the cap 10, or as a separately formed member, and connected to the cap.

In my preferred embodiment, a gasket 21 is provided, arranged to lie upon the seat formed by the edges 14, 15, 16, and 17 and substantially conform thereto. Notches 22 and 23 are provided in the ends thereof, to engage the lugs 18 and 19, respectively. The cap 10 and gasket 21 may then be disposed over the blade 24. The blade is provided with edge slots 25 and 26 and a central orifice 27, adapted to receive the lugs 18, 19 and the central stem 20, respectively.

The guard plate 11 is similarly provided with slots 28 and 29, and a central orifice 30, adapted to receive the lugs 18 and 19, and the central stem 20, respectively. The stem 20 is preferably screw-threaded at 20*a* and when it is passed through the orifice 27 of the blade, and the orifice 30 of the guard plate, it is engaged by the handle 12, the upper portion thereof being screw-threaded at 31, to engage the screw-threaded portion 20*a* of the stem 20 and thereby clamp the assembly together. The handle 12, previously described, is centrally drilled or orificed at 32 immediately below the threaded interior section 31, previously mentioned. The transverse drilling or opening 33 is formed through the side walls of the handle so drilled or orificed, and terminates in the opening 32 to provide a passage thereto.

The stem 20 previously described, is tubular in shape to provide a conduit 34 and at its upper edge, adjacent the central walls of the cap 10, a transverse drilling or orifice 35 is provided, to form a passage leading to the receptacle or reservoir 13. The conduit 34 and orifice 35 are positioned in relation to the reservoir so that in the shaving position, the fluid cannot discharge through the orifice 35.

When the cap 10, the guard plate 11 and the handle 12 are assembled as shown in Figures 1 and 2, and clamped against the blade 24, a completely enclosed receptacle or reservoir is provided.

Under these conditions, by inverting the assembly in water or similar fluid, or by holding the same under a spigot of flowing water, the liquid will be deflected from the bottom of the guard plate 11, through the orifice 33 and then through the conduit 34, outwardly through the orifice 35 to fill the reservoir 13 completely.

The cap of the construction thus provided serves to operate in conjunction with the blade 24 to form a sealed reservoir, as previously noted, in which discharge of the liquid cannot occur through the orifice 35, in the normal shaving position. To permit the discharge of the liquid contained within the chamber in the shaving position, the blade is formed so that it cooperates with the guard plates to provide a discharge orifice, and for this purpose, in one embodiment of my invention, capillary orifices 36 and 37 are formed in the blade.

The orifices 36 and 37 not only serve to discharge fluid from within the reservoir, but also facilitate filling the reservoir through the orifice 33, as by holding the assembly in an inverted position, as these orifices when the liquid enters the reservoir 13 through the orifice 35, will permit air to escape through one or both of the orifices 36 or 37.

The guard plate immediately below the capillary orifices 36 and 37, is formed with an enlarged chamber or slot 38, the front wall 39 thereof being slotted at 40, in the direction of the combs of the guard plate. The chamber or slot 38 and its transversely disposed slot 40 serve to entrap liquid during the filling of the reservoir and the presence of this liquid serves to facilitate the flow of the liquid from within the chamber outwardly to the edge of the comb of the guard plate. For purposes of convenience, I have referred to the chamber 38 and its discharge opening 40 as a "priming chamber" or priming slot in that in the filling of the reservoir 13, the fluid which is trapped within the priming chamber, when this is brought in contact with the face in the shaving position will serve to provide a film of the liquid which will first be spread over the face.

As the film of liquid spreads upon the face, the liquid will be drawn through the capillary orifices 37 or 38, whichever happens to be in use, into the priming chamber, constantly maintaining a supply of liquid in advance of the shaving edge of the blade. The relationship of the cap forming the reservoir to one side of the blade and the guard plate to the other side of the blade for feeding the liquid contained within the reservoir through the blade maintains a proper pressure "head" upon the fluid, and permits of the maintenance of liquid in the priming chamber to the other side of the blade, assuring prompt and accurate discharge of the liquid in the normal shaving position of the razor, without further attention.

By the construction as shown, it will be observed that the blade controls and determines the discharge of the liquid from the reservoir through the priming chamber through the orifice provided in the blade, so that with each shaving operation and the usual cleansing accompanying the completion of the shaving operation, the parts may be readily and thoroughly cleansed and also a discharge orifice of predetermined characteristics maintained. Thus, with variations in construction of the guard plate and the priming chamber or equivalent portion thereof and the character of liquid used, variations may be made in the form of the blade and the form of the capillary orifice between the liquid reservoir and the priming chamber, to obtain proper flow of the liquid to be applied during the shaving operation.

In the embodiment illustrated in Figures 1 to 4 I have described and illustrated a safety razor in which the flow of liquid from a liquid reservoir and a priming slot or chamber is controlled and determined by the blade, preferably by a capillary orifice formed in the blade. I may, however, control and determine the discharge capillary orifice interposed between the liquid reservoir and the priming slot or priming chamber by utilizing an

orifice in the blade, other than of such size as may be considered as a capillary orifice but nevertheless provide a construction in which I have the blade control and determine the discharge orifice connecting the liquid reservoir and the priming slot or priming chamber.

In Figure 5 I have shown the guard plate 11 of similar construction as illustrated in Figure 4, but having superimposed thereon another form of blade, referred to as 24a.

The blade 24a has its general outline similar to the blade 24, except that the central orifice 27a is of irregular configuration and need not be of such size as to engage snugly the stem 20. In this form, for purposes of illustrating this form of the embodiment of the invention, the orifice 27a, which is formed in the blade 24a, is generally of rectangular configuration so that one or more portions of the walls thereof, such as the corners 36a or 37a overlap the priming chamber 38, by an overhang over the wall 39a of the priming chamber 38. Thus the blade and its orifice 27a, cooperate with a wall of the priming chamber 38 and serve to control and determine the capillary orifices between the reservoir 13 and the priming chamber 38. Thus it will be apparent that in this construction, orifices 36a and 37a are formed by the overlap which the larger orifice 27a makes over the guard plate 11 and the priming slot or priming chamber 38 therein provided.

While I have shown the cap 10 and the reservoir 13 therein formed, with a closure, when the same bears upon the blade 24 by an interposed gasket in that, in this construction the cap and a guard plate are made of metallic material and of a contour which permits of a variation in curvature of the blade, it will be understood that where the cap 10 and the guard plate 11 are so constructed as to give to the blade a relatively fixed curvature, the gasket 21 may be entirely omitted and still obtain substantially efficient operation. So also, the gasket 21 may be omitted where the cap 10 is made of relatively resilient material, such as hard rubber, cast or molded artificial resinous materials, such as bakelite, celluloid or similar plastics which, under pressure in tensioning the cap upon the blade to the guard plate, these materials serve to provide an effective seal between the cap and blade.

It will also be observed that though I have described the cap 10 as being provided with locating lugs 18 and 19 properly to position the blade 24 by engagement of the slots 25 and 26 in relation to the slots 28 and 29, carried by the guard plate, other locating means may be used and the lugs 18 and 19, for example, may be extended for a substantial width to encase completely the blade between the cap and the guard plate 11, thereby providing edge sealing of the blade between the cap 10 and the guard plate 11.

A substantial reversal of parts as contemplated by my invention is shown in Figures 6 to 8 wherein, as contemplated by me, instead of having the reservoir 13 carried by the cap the reservoir may be carried by the guard plate. Conversely, under these conditions the priming chamber 38 and its discharge opening 40 may, under these conditions, be carried by the cap.

To further illustrate the reversal of parts, which will be readily recognized by those skilled in the art as inherent in the embodiment illustrated in Figures 1 to 5, it will be observed that where the parts are reversed 10a represents the cap which may be disposed upon the guard plate 11a, and which parts are arranged to be urged towards each other in clamping relationship by the handle 12. In the cap, the side edges of the cap are formed with lugs 18 and 19, to be seated in the slots 28 and 29. The cap carries a central stem 20 of the form and construction already described. The guard plate is formed with a reservoir 13a, the bottom of which is orificed at 30a, to permit discharge therethrough of the stem 20. The same handle 12a may be associated with the parts so that water may enter the orifice 32 through the lateral opening 33 and be directed through the orifice 35a and be discharged into the reservoir 13a.

The cap is formed with an enlarged chamber or slot 38a, the front wall whereof 39a being slotted at 40a. The chamber 38a and its discharge opening 40a form, as in the already described embodiment, the priming chamber or priming slot, the location whereof is operatively positioned in respect of the capillary orifices 36 and 37 in the blade 24, when this is mounted in position. It will therefore be appreciated that the construction shown in Figures 6 to 8 involves merely a reversal of parts in so far as the reservoir and priming chamber are concerned in relation to the blade 24 and that no further specific description need be made for fuller appreciation of my invention that in a construction embodying a blade clamping member and a guard plate member, one of said members may include a reservoir for the liquid and the other may include a priming slot or chamber for connecting said reservoir through the capillary orifice in the blade for determining and controlling the flow of liquid from the receptacle. In the claims, where I have referred to a capillary orifice, I mean to include thereby an opening which normally forms an effective closure for a fluid pressure head of a reservoir, when maintained without disturbance, but which under action of a disturbing force, including the spreading action of a priming film of liquid adjacent the orifice, will serve to permit a flow of liquid from the reservoir at least equivalent to the spreading action of the priming film.

It will also be understood that the form of holder and blades herein described are only illustrative of my invention and that other razor assemblies or razor holders and blades may be provided, and that the invention as contemplated by me, as set forth and coming within the spirit and scope of my invention, is set forth in the appended claims.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is—

1. The combination with a razor of the character described comprising in its construction a blade clamping member and a guard plate member, a reservoir for a liquid formed in the space between said members, and a blade forming a closure for said reservoir and including a capillary orifice for solely determining and controlling the flow of liquid from said reservoir adjacent the shaving edge of said blade.

2. The combination with a razor of the character described, comprising in its construction a blade clamping member and a guard plate member, one of said members including a reservoir for a liquid, a blade therefor, a capillary discharge opening for said reservoir for feeding liquid adjacent the shaving edge of said blade, and means for filling said reservoir, including a passage directed to said reservoir and located

at the upper level of the liquid when the razor is in the shaving position.

3. The combination with a razor of the character described, comprising in its construction a blade clamping member and a guard plate member, one of said members including a reservoir for a liquid, a blade therefor, a capillary discharge opening for said reservoir for feeding liquid adjacent the shaving edge of said blade, and means for filling said reservoir, including a passage directed to said reservoir and located at the upper level of the liquid when the razor is in the shaving position, a filling passage for said last mentioned means, cooperating with one of said members for receiving liquid therein to fill said reservoir by deflection.

4. The combination with a razor of the character described, comprising in its construction, a blade clamping member and a guard plate member, one of said members including a reservoir for a liquid, a blade therefor, a capillary discharge opening for said reservoir for feeding liquid adjacent the shaving edge of said blade, means for cooperatively connecting said members comprising a handle, including a conduit connected with said reservoir, and including a passage directed to said reservoir located at the upper level of the liquid when the razor is in a shaving position.

5. The combination with a razor of the character described, comprising in its construction, a blade clamping member and a guard plate member, the clamping member including a reservoir for a liquid, a blade therefor, a capillary discharge opening for said reservoir for feeding liquid adjacent the shaving edge of said blade, means for cooperatively connecting said members comprising a handle, including a conduit connected with said reservoir, and including a passage directed to said reservoir located at the upper level of the liquid when the razor is in a shaving position and a filling opening in said handle, positioned in relation to one of said members for receiving liquid therein to fill said reservoir by deflection from said member.

6. The combination with a razor of the character comprising in its construction, a blade clamping member and a guard plate member, the clamping member including a reservoir for a liquid and a blade forming a closure for said receptacle and including a capillary orifice for determining and controlling the flow of liquid from said receptacle adjacent the shaving edge of said blade, a conduit directed through one of said members for filling said reservoir and including a passage directed to said reservoir located at the upper level of the liquid when the razor is in the shaving position.

7. The combination with a razor of the character described, comprising in its construction, a blade clamping member and a guard plate member, one of said members including a reservoir for a liquid, and a blade forming a closure for said receptacle and including a capillary orifice for determining and controlling the flow of liquid from said receptacle adjacent the shaving edge of said blade, a handle member cooperating with said clamping member to hold the assembly in clamped position upon said blade, and including a conduit connected with said reservoir, a passage in said handle leading to said conduit for filling the reservoir by liquid deflected from said guard plate member.

8. The combination with a razor of the character described, comprising in its construction, a blade clamping member and a guard plate member, a reservoir for a liquid formed in the space between said members, and a blade forming member and closure for said receptacle and including a capillary orifice for determining and controlling the flow of liquid from said receptacle adjacent the shaving edge of said blade, a priming slot or chamber on said guard plate connecting said reservoir through the capillary orifice.

9. The combination with a razor of the character described, comprising in its construction, a blade clamping member and a guard plate member, said clamping member including a reservoir for a liquid, and a blade forming member and closure for said receptacle and including a capillary orifice for determining and controlling the flow of liquid from said receptacle adjacent the shaving edge of said blade, a priming slot or chamber on said guard plate connecting said reservoir through the capillary orifice, and means for filling said reservoir.

10. The combination with a razor of the character described, comprising in its construction, a blade clamping member and a guard plate member, said clamping member including a reservoir for a liquid, and a blade forming member and closure for said receptacle and including a capillary orifice for determining and controlling the flow of liquid from said receptacle adjacent the shaving edge of said blade, a priming slot or chamber on said guard plate connecting said reservoir through the capillary orifice, and means for filling said reservoir, comprising a conduit having a passage located at the upper level of the liquid when the razor is in the shaving position.

11. The combination with a razor of the character described, comprising in its construction, a blade clamping member and a guard plate member, said clamping member including a reservoir for a liquid, and a blade forming member and closure for said receptacle and including a capillary orifice for determining and controlling the flow of liquid from said receptacle adjacent the shaving edge of said blade, a priming slot or chamber on said guard plate connecting said reservoir through the capillary orifice, and means for filling said reservoir, comprising a conduit having a passage located at the upper level of the liquid when the razor is in the shaving position, said filling means being included by a handle for said assembly and having a filling passage positioned in relation to one of said members for receiving liquid therein to fill said reservoir by deflection from said last mentioned member.

12. The combination with a razor of the character described, comprising in its construction, a blade clamping member including a receptacle and a guard plate member including a priming slot or chamber and a blade forming a closure for said receptacle, said blade including a capillary orifice for determining and controlling the flow of liquid from said receptacle to said priming slot or chamber.

13. The combination with a razor of the character described, comprising in its construction, a blade clamping member and a guard plate member, one of said members including a receptacle for a liquid, the other of said members including a priming slot or priming chamber, and a blade forming a closure for the receptacle formed in one of said members, a capillary orifice for determining and controlling the flow of liquid from said receptacle to said priming slot or priming chamber.

14. The combination with a razor of the char-

acter described, comprising in its construction, a blade clamping member and a guard plate member, one of said members including a receptacle for a liquid and a blade forming a closure for said receptacle and a capillary orifice between said members for determining and controlling the flow of liquid from said receptacle adjacent the shaving edge of said blade directed through said blade.

15. The combination with a razor of the character described, comprising in its construction, a blade clamping member and a guard plate member, one of said members including a reservoir for a liquid, the other of said members including a priming slot or priming chamber and a blade forming a closure for said reservoir, said reservoir and chamber being connected through a capillary orifice for controlling the flow of liquid from said reservoir adjacent the shaving edge of said blade.

16. A razor blade for use in a razor of the character described including in its construction, a reservoir for a gravitational supply of liquid, said blade being adapted to form a closure in said receptacle, and including a capillary orifice which forms the sole effective closure for the gravitationally exerted fluid pressure head of the reservoir on one side of the blade when maintained without disturbance, but which under the action of a disturbing force, including the spreading action of a priming film of liquid adjacent the opposite side of the blade will serve to permit the flow of liquid from the reservoir at least equivalent to the spreading action of the priming film for determining and controlling the flow of liquid from said reservoir adjacent the shaving edge of said blade.

17. A razor blade for use in a razor of the character described, comprising in its construction, a reservoir for a gravitational supply of liquid, said blade including a portion cooperating with such construction, forming a capillary orifice which forms the sole effective closure for the gravitationally exerted fluid pressure head of the reservoir on one side of the blade when maintained without disturbance, but which under the action of a disturbing force, including the spreading action of a priming film of liquid adjacent the opposite side of the orifice, will serve to permit the flow of liquid from the reservoir, at least equivalent to the spreading action of the priming film for determining and controlling the flow of liquid from the said reservoir adjacent the shaving edge of said blade.

FREDRIC S. MINASSIAN.