United States Patent [19]

Hackmyer

[11] **3,726,009**

[45] **Apr. 10, 1973**

[54] **SELF-LATHERING SHAVER**

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[21] Appl. No.: **133,108**

[52] **U.S. Cl.**.....**30/41,** 222/402.11

[51] **Int. Cl.**.....**B26b 21/44,** B65d 83/00

[58] **Field of Search**.....30/41, 41.5; 222/402.11, 402.21, 402.22, 402.23; 251/205, 208, 209; 401/190, 264, 272

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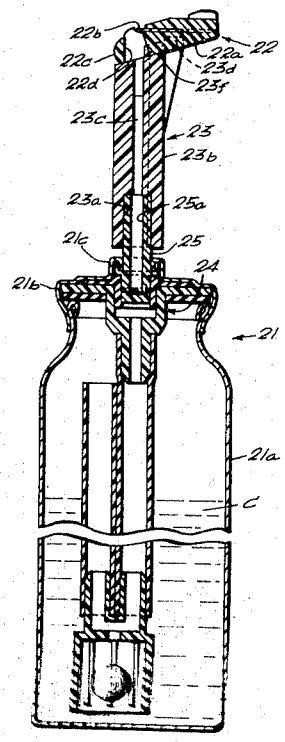
[57] **ABSTRACT**

A holder for a razor blade and guard is directly mounted on the valve stem of an aerosol lather dispenser can which serves as a handle for the shaver. The valve stem has a bore communicating with a fan-shaped passageway formed in the holder for feeding the lather to the skin along the length of the cutting edge of the blade and in advance thereof. Pressure exerted as the guard is stroked along the skin serves to tilt the valve stem and release lather from the can.

5 Claims, 10 Drawing Figures



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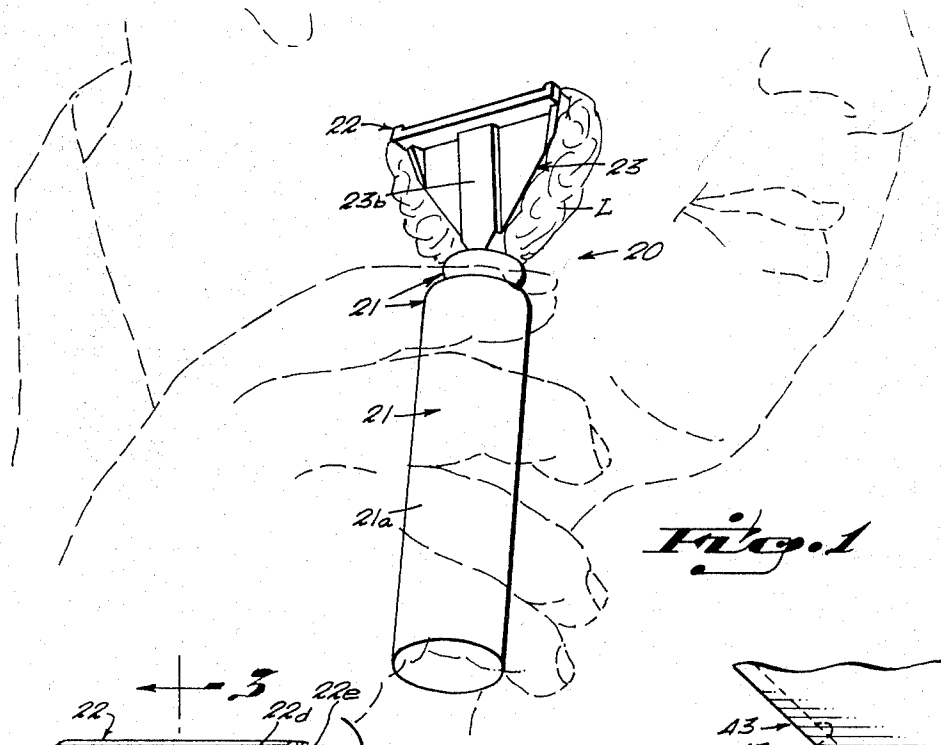

Fig. 1

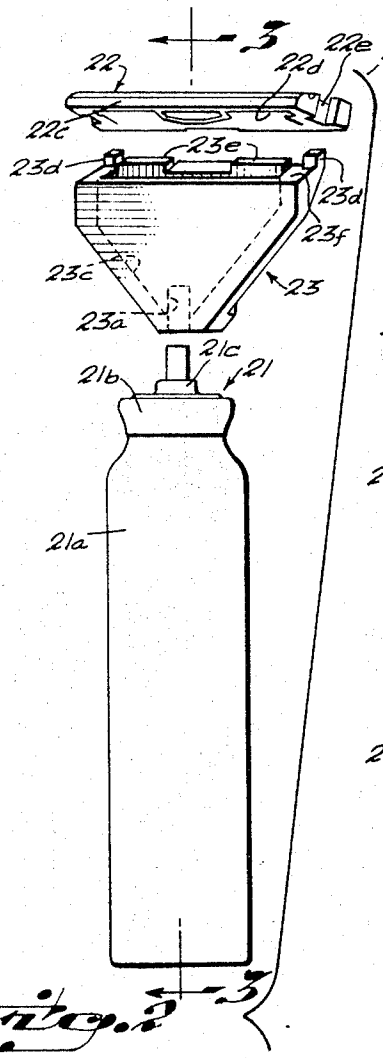

Fig. 2

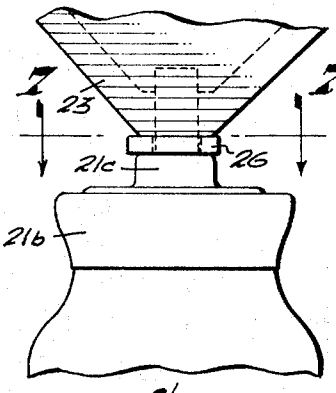

Fig. 6

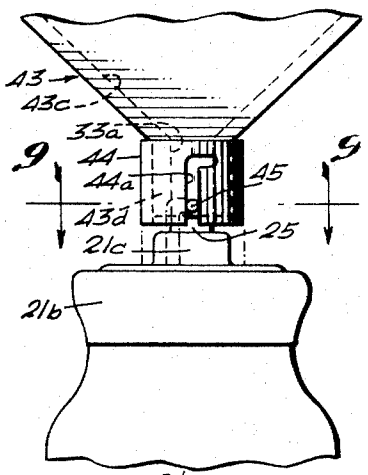

Fig. 8

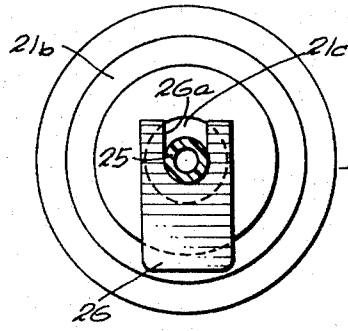

Fig. 7

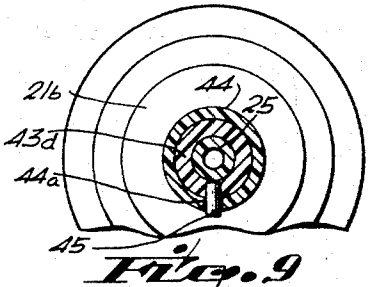

Fig. 9

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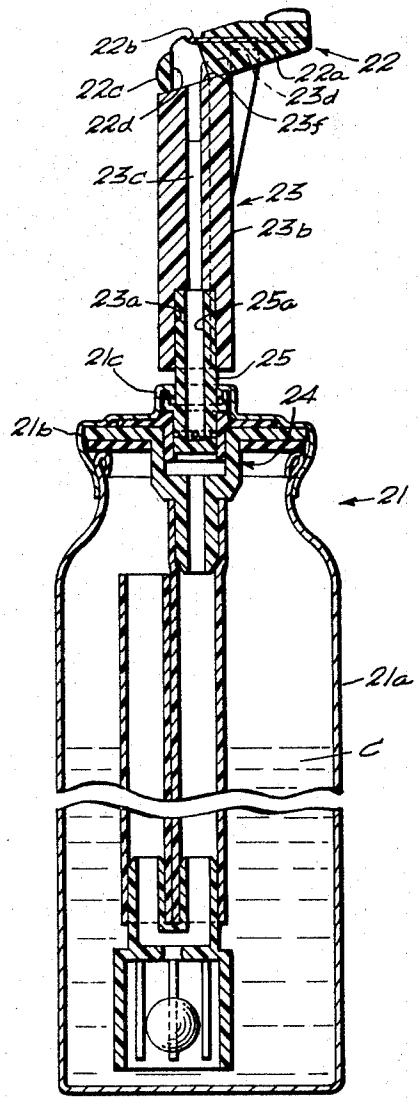
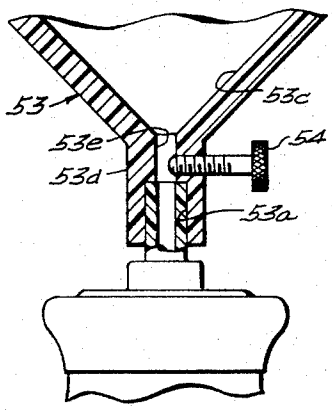
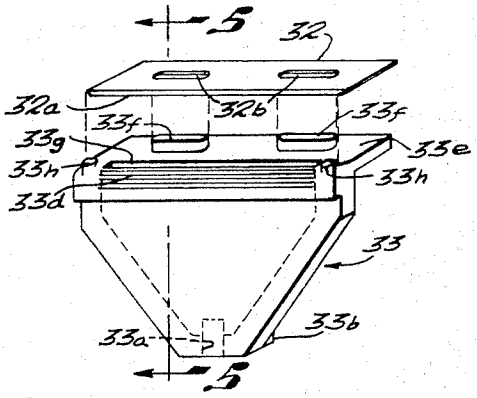


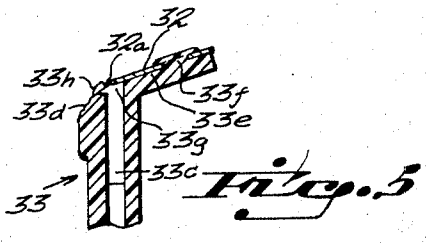
Fitg. 3



Fitg. 10



Fitg. 4



Fitg. 5

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SELF-LATHERING SHAVER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates generally to safety razors and aerosol lather dispensers and more particularly is directed to the novel combination of a safety razor blade holder mounted directly on the valve stem of an aerosol can for automatically dispensing lather from the can to the shaving surface in advance of the blade while shaving.

2. Description of the Prior Art

Numerous attempts have been made to provide shavers incorporating blade and lather applying means in a compact, readily operable and inexpensive unit, capable of feeding a shaving lubricant or lather directly to the skin in advance of the cutting blade. Such shavers heretofore failed to achieve popularity apparently because of their cumbersome valve mechanisms and finger actuating means which materially increased both the cost of the device and the difficulty of operation.

SUMMARY OF THE INVENTION

Among the objects of the invention is to provide a self-lathering shaver of the character described comprising few and simple parts most of which are of standard construction, widely used and, consequently, readily available at low cost, in combination with a novel blade and guard holder moldable in quantity production of a resinous plastic or die cast in metal, the parts being readily assembled with a minimum of labor. The invention involves a shaver of great versatility adaptable for daily use in the home and also useful away from home as a disposable unit which may be dispensed in wash rooms, on airplanes, in hospitals, in hotels and motels, incorporated in travel kits, used by the military in the field, and by the ladies for shaving legs and under the arms.

A feature of the invention is the utilization of any of the conventional tilt-to-dispense valves in use on aerosol dispensers as the sole valve for the lather feed mechanism, eliminating the need for any other moving parts. The aerosol can serves as a handle for the shaver and the upstanding valve stem, having an axial bore through which the lather is dispensed, directly mounts a holder which carries the razor blade and guard at the upper end thereof. The cutting edge of the blade is spaced inwardly of the leading edge of the guard and extends partly across an elongated discharge opening from a passageway formed in the holder communicating with the valve stem bore. As the guard is pressed against the skin by pressure exerted through the handle in shaving, the valve stem is tilted to discharge lather through said opening and onto the skin in advance of the blade. Various refinements are contemplated, for example, means for locking the valve stem against accidental tilting when the shaver is not in use and means for adjusting the size of the opening in the valve stem to control the flow of lather.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a self-lathering shaver constructed to embody the invention shown shaving a side of a face, a hand holding the shaver and the face being outlined in broken lines.

FIG. **2** is an exploded perspective view of the shaver illustrated in FIG. **1** showing details of a shaving head comprising a holder and razor blade and guard unit.

FIG. **3** is an enlarged vertical sectional view of the shaver of FIG. **1** showing details as seen on line **3—3** in FIG. **2**.

FIG. **4** is an exploded perspective view of a modified shaving head embodying the invention comprising a holder and blade.

FIG. **5** is a fragmentary sectional view taken on line **5—5** in FIG. **4** with the blade shown permanently mounted on the holder.

FIG. **6** is an enlarged fragmentary elevational view showing a shim positioned between the holder and a central prominence of the can cap for immobilizing the valve stem when the shaver is not in use.

FIG. **7** is a sectional view taken on line **7—7** in FIG. **6** showing the shim in position on the valve stem.

FIG. **8** is an enlarged fragmentary elevational view showing another means for immobilizing the valve stem in the form of a movable collar shown in full lines in raised, inoperative position and indicated in broken lines in a lowered and locked tilt-preventing position.

FIG. **9** is a sectional view taken on line **9—9** in FIG. **8** showing details of the collar, and

FIG. **10** is an enlarged fragmentary elevational view with parts in section showing the holder provided with a metering device for controlling the rate of flow of lather being dispensed.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring in detail to FIGS. **1**, **2** and **3** of the drawings, **20** generally denotes a self-lathering shaver, constructed to embody the invention, comprising an aerosol lather dispenser **21**, a blade and guard unit **22** and a holder **23** for the latter, dispenser **21** being of any conventional construction to provide a projecting valve stem of a desired tilt-to-dispense valve capable of functioning in any position in which the dispenser may be disposed.

FIG. **3** shows a representative form of aerosol construction, well known in the art, and, therefore, not described in detail. Dispenser **21** generally includes a can **21***a* having contents C composed of well known ingredients for emitting shaving lather L through bore **25***a* of a tiltable or toggle action valve stem **25** of valve assembly **24**. Valve stem **25** protrudes through a center opening in prominence **21***c* of cap **21***b* which forms the top closure for can **21***a*.

Shaver **20** illustrates an embodiment of the invention contemplating the use of a blade and guard unit **22** shown and described in U.S. Pat. No. 3,388,831 wherein razor blade **22***a* is embedded in a resinous plastic material, such as polystyrene, of which unit **22** is molded, to pre-fix cutting edge **22***b* in spaced relation to guard surface **22***c* for an optimum shave. Blade **22***a* also extends above and partially across an elongated slot **22***d* which is substantially the length of cutting edge **22***b* and serves as a port through which lather L is delivered to the shaving surface.

Holder **23** may be molded of a resinous plastic material similar to that of unit **22** and is suitable shaped and sized to support the latter at a distance above the top of can **21***a* convenient for manipulation and to spread lather L as it emerges from bore **25***a* for feeding

through slot 22*d* evenly along the length thereof. Holder 23, being generally fan-shaped and relatively thin in cross-section, has a cylindrical bore 23*a* formed at the lower end of a thickened midportion 23*b* which extends the length thereof to upper surface 23*f* on which unit 22 is seated. Bore 23*a* is sized to be press-fitted onto the end of valve stem 25 and to position the bottom of holder 23 a spaced distance above prominence 21*c* to permit valve stem 25 sufficient freedom of movement for tilting. A triangular chamber or passageway 23*c*, formed in holder 23, communicates at its lower or apex end with bore 23*a* and at its upper or base end with slot 22*d*. To facilitate proper alignment of slot 22*d* with passageway 23*c* when assembling the parts and for strengthening the attachment of unit 22 to holder 23 which may be accomplished by ultrasonic bonding or other suitable means, a pair of lateral ears 23*d* are integrally formed to upstand from upper surface 23*f* of holder 23 at opposite sides thereof and project rearwardly to engage a pair of lateral notches 22*e* formed in opposite ends of unit 22. Likewise, a pair of spaced bosses 23*e* upstand from upper surface 23*f* as extensions of the rear wall of passageway 23*c* to engage registering recessed portions formed in the under surface of unit 22.

The utility and operation of self-lathering shaver 20 will now be apparent. After blade and guard unit 22 is permanently mounted on holder top surface 23*f* as a unitary shaving head which is pressed onto valve stem 25 of aerosol dispenser 21 filled with lather producing contents C, as shown in FIG. 3, self-lathering shaver 20 is assembled and ready for use. Holding can 21*a* in the palm of the hand as the handle of any conventional safety razor, guard surface 22*c* is placed against the surface to be shaved with cutting edge 22*b* in shaving position. Additional pressure may then be applied to the handle thereby pressing guard surface 22*c* against said shaving surface which, in offering resistance, causes buckling, that is, tilting of valve stem 25 to dispense lather L through bore 25*a*. Lather L spreads out evenly as it completely fills triangular passageway 23*c* and then feeds in a broad stream evenly through the entire length of elongated slot 22*d* to be deflected by razor blade 22*a* onto the shaving surface in advance of cutting edge 22 *b* as seen in FIG. 1. As pressure is released, as, for example, at the end of a stroke which preferably should be short, the flow of lather L is immediately cut off by valve stem 25 returning to its normal upright closed position. Thereafter, normal shaving can readily accomplished, such as by repeated strokes over an area previously lathered, utilizing such pressure against the shaving surface as to render a satisfactory shave but being insufficient to tilt valve stem 25. With very little practice the person shaving will become adept at applying just the right amount of pressure for dispensing lather L as desired.

It will also be apparent that shaver 20 has the added convenience of making lather L readily available for manual application.

Thus, by holding can 21 in one hand and pressing guard surface 22*c* against the palm of the other hand, valve stem 25 may be tilted to deliver lather L into the palm for application where desired.

FIGS. 4 and 5 illustrate a modified construction of shaving head which, instead of the pre-formed unit 22, utilizes a standard type razor blade 32 having a single cutting edge 32*a* and a pair of spaced alignment openings 32*b*. To this end the modified shaving head includes a plastic holder 33, which is similar to holder 23 in being fan-shaped and relatively thin in cross-section and having a cylindrical bore 33*a* formed at the lower end of a thickened midportion 33*b* and a triangular passageway 33*c*. Holder 33 is integrally molded with the front upper edge formed as a guard surface 33*d* and with a top ledge 33*e* extending rearwardly therefrom for mounting razor blade 32 thereon. A pair of spaced bosses 33*f* upstand from ledge 33*e* to register with and extend through blade openings 32*b* and to be spread in rivet-like fashion to permanently secure blade 32 on ledge 33*e* in proper position, namely, so that cutting edge 32*a* aligns with guard surface 32*d* for coaction therewith and also partially extends over elongated top opening or port 33*g* of passageway 33*c* in a manner similar to cutting edge 22*b* and elongated slot 22*d* of unit 22. A pair of nubs 33*h* may also be provided to upstand from ledge 33*e*, each nub 33*h* being located to shield a corner of cutting edge 32*a* against nicking the shaver's skin. Holder 33, with blade 32 secured thereon as shown in FIG. 5 when mounted by press fitting cylindrical bore 33*a* on valve stem 25 of an aerosol dispenser 21, will operate in the same manner as hereinbefore described for holder 23 fitted with unit 22.

A feature of the invention is the suitability of self-lathering shaver 20 for use in toilet article travel kits and the like. In order to completely avoid accidental tilting of valve stem 25 resulting in the dispensing of lather L while shaver 20 is packed for travel, a locking means may be provided to immobilize valve stem 25. This may readily be accomplished, as illustrated in FIGS. 6 and 7, by a shim 26 having a cut-out central portion 26*a* to accommodate valve stem 25 enabling insertion between the bottom of holder 23 and prominence 21*c* of cap 21*b*.

A more elaborate locking means suitable for use on deluxe models of self-lathering shavers is shown in FIGS. 8 and 9 wherein holder 43 is constructed similar to holder 23 or 33 except for an integrally formed neck 43*d* in which cylindrical bore 43*a* is formed communicating with triangular passageway 43*c*. Neck 43*d* may have an O. D. at least as great as that of prominence 21*c* and carries a snug fitting slidable collar 44 and a fixed radially extending pin 45 which engages an L-shaped slot 44*a* in collar 44. Collar 44, which is normally in the raised position indicated in full lines in FIG. 8 wherein valve stem 25 is free to tilt, is moved axially downwardly to surround prominence 21*c* and contact cap 21*b* in which position pin 45 is located in alignment with the transverse portion of slot 44*a* and collar 44 may then be rotated to lock in bayonnet fashion, as indicated in broken lines, thereby immobilizing valve stem 25.

Although the rate of feeding lather L may be controlled by the extent to which valve stem 25 is tilted and facility in this respect can easily be acquired to achieve satisfactory results, where a more positive adjustment is desired, the modification seen in FIG. 10 is contemplated. Modified holder 53 is similar to holder 23 or 33 with the exception of an integrally formed elongated neck 53*d* having a throat portion 53*e* formed at the

inner end of cylindrical bore **53***a* adjacent triangular passageway **53***c*. Radially projecting thumb screw **54** threads through the wall of neck **53***d* in throat portion **53***e* for adjustably varying the effective diameter thereof.

Holders **23** and **33** illustrate embodiments of the invention utilizing a blade unit **22** and a blade **32**, respectively, which are widely used and therefore are readily available in quantity and at low cost for assembly into self-lathering shavers which are intended to be disposed of when the lather is consumed. It is to be understood that, within the scope of the invention, a holder may be fashioned as a permanent device incorporating any suitable means permitting replacement of the razor blade, as from a cartridge or the like, or designed to utilize a band type blade, and also be readily removable from valve stem **25** for replacement of dispenser **21** when contents C is consumed. Also, contents C may include ingredients for dispensing a "hot" lather.

The self-lathering shaver and the various modifications of its holder are seen to achieve the several objects of the invention and to be well adapted to meet conditions of practical use. As various possible embodiments might be made in this invention, and as various changes might be made in the disclosed constructions, it is to be understood that all matter herein set forth and shown in the accompanying drawings are to be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A self-lathering shaver comprising an aerosol can containing lather producing ingredients and having a tilt-to-dispense valve assembly including a projecting valve stem formed with an axial bore through which the lather is dispensed when the valve stem is tilted, a shaving head mounted on said valve stem for movement therewith, said shaving head having a razor blade and safety guard surface for a cutting edge of the blade, and passageway means formed in said shaving head communicating with said valve stem bore and having an elongated opening located beneath said blade cutting edge, said can serving as a handle for manipulating the shaving head and for pressing said safety guard surface against a shaving surface to tilt said valve stem and release lather from the can for delivery through said passageway means and said elongated opening to the shaving surface.

2. The self-lathering shaver defined in claim **1** including means coacting between said shaving head and can for selectively immobilizing said valve stem to prevent the accidental dispensing of lather.

3. The self-lathering shaver defined in claim **2** in which said immobilizing means is a removable shim inserted onto the valve stem between the shaving head and the top of said can.

4. The self-lathering shaver defined in claim **2** in which said immobilizing means is a collar carried by said shaving head movable from a raised inoperative position to a lowered operative position engaging the top of the can.

5. A self-lathering shaver comprising an aerosol can containing lather producing ingredients and having a tilt-to-dispense valve assembly including a projecting valve stem formed with an axial bore through which the lather is dispensed when the valve stem is tilted, a shaving head mounted on said valve stem for movement therewith, said shaving head having passageway means communicating with said valve stem bore and terminating in an opening for delivering the lather from the can upon application of sideward pressure on the shaving head whereby the valve stem is tilted to open the valve.

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