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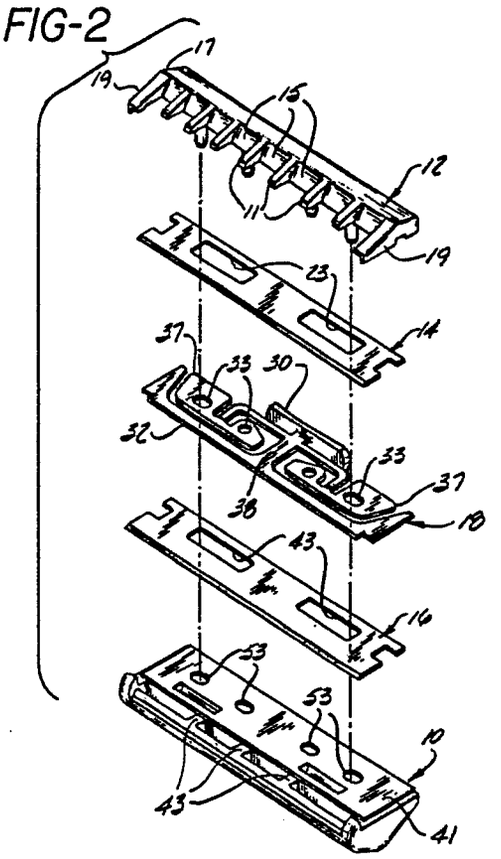
(54) Razor head.

(57) A razor head includes a blade seat (10), a lower blade (16) disposed on said seat (10), and an upper blade (14) disposed above said lower blade (16). The upper and lower blades (14, 16) have spaced substantially parallel shaving edges. A guard bar (40) extends from the seat (10) below and beyond the shaving edge of the bottom blade (16). A cap (12) is disposed over the upper blade (14), and spacing means (18) is provided to maintain the upper and lower blades (14, 16) in spaced relationship. First cleaning means (11, 15) and second cleaning means (32) are disposed over the first and second blades (14, 16) to remove shaving debris.

FIG-2



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RAZOR HEAD

This invention relates to a razor head. More particularly the invention relates to a twin bladed shaving system in particular one having means for cleaning shaving debris from the top of each blade in the system.

US-A-2,780,682 discloses a disposable razor having a fingered cap with angled slots positioned between the fingers which aid in the provision of a rinsable surface for the cap. This surface, which is preferably at an angle, enables the removal of debris from the space between the fingers by rinsing the razor head.

This slanted recessed area does help in the removal of debris but does nothing to remove the debris from between the blades in a twin bladed shaving system such as that disclosed in US-A-3,786,563. This shaving system, which is becoming increasingly popular as both a disposable razor and also in a shaving cartridge, features two relatively narrow blades separated by a spacer which maintains the spatial relationship between the blades. The blades are mounted with the shaving edges parallel to each other with the top most blade being recessed from the bottom most blade. A seat which supports the bottom most blade has a guard bar extending outwardly from the seat beyond the edge of the bottom most blade. A cap is provided to help maintain the orientation of the shaving components and also protect the top surface. The alignment of the blades and the relative spacing is finally assured by either staking means which can be provided by projections downward from the cap through mating slots in the blades and spacer locking into suitable openings in the seat, or the process can be reversed using staking means upstanding on the seat.

An alternative means for maintaining alignment is disclosed in US-A-4,407,067 which provides for the insertion of the blade and spacer and subassembly into what is basically a set of opposing leaf springs provided by the cap and seat. The relative positioning of the blades and spacer is maintained by the compressing action of the opposing leaf springs, as well as a unitary back portion whcih is constructed as an upstanding element from the seat with the fingered cap forming a part of the back portion. The back portion, while providing a stop before the spacing of the blade subassembly, also eliminates the use of any movable cleaning means for eliminating the debris which easily collects in the slot between the blades.

US-A-4,205,437 and US-A-4,344,227 disclose a combination spacer/ejector. Basically, these patents disclose the concept of a twin bladed razor, such as that disclosed in US-A-3,786,563, with an open back and a spacer which is anchored in place by staking means extending downward from the cap through the upper blade assembly. The spacer is an achor for a biased unitary ejector bar which extends parallel to the blade edges and is reciprocally movable to push shaving debris out from the top surface of the bottom blade as it is activated. The ejector bar, which is biased against the anchoring portion of the spacer is activated in a forward direction against the bias by a thumb activator which extends through the open back portion of the razor. The ejector bar, when activated, actually extends beyond at least the edge of the upper blade and preferably beyond the edge of the lower blade, forcing out the debris which is collected between the blades. While the combination ejector spacer is extremely efficient in the removal of debris collected between the blades, the conventional cap, with an edge which is parallel to the blade edges tends, to collect debris which can get lodged in the junction between the top of the blade and the cap. When very thin bladed upper blades are utilized, the distance between cap edge and upper blade edge is minimal and the possibility of the debris inhibiting upper blade performance is increased.

According to the present invention there is provided a dual razor blade razor head having first and second cleaning blade means for cleaning the blades. The first cleaning means can clean an upper blade, whilst the second blade cleaning means can clean a lower blade.

In the preferred embodiment there is provided a razor head characterised by a blade seat, a lower blade disposed on said seat, an upper blade disposed above said lower blade, said upper and lower blades preferably having spaced substantially parallel shaving edges, preferably a guard bar extending from the seat below and beyond the shaving edge of the bottom blade, spacing means for maintaining the upper and lower blades in spaced parallel relationship, a cap disposed over the upper blade, and first and second blade cleaning means disposed over the upper and lower blades to remove shaving debris.

Advantageously the first blade cleaning means comprises a series of fingers extending toward the blade edge, said fingers being separated by recesses with inclined back walls sloping toward said blade edge, said fingers being provided on the cap. The fingers may form part of the cap.

Preferable the angle between the plane of the blade and the wall of the recess is greater than 90°, preferably about 110°.

Desirably the recess forms a web interrupted by said fingers.

Advantageously also, the second blade cleaning means comprises ejector means, said ejector preferably having a unitary transversely extending ejector element extending parallel to and substantially along the length of said shaving edges, said element being biased and reciprocally movable parallel to the blades.

Preferably the ejector means is activated by operating means extending beyond a rear portion of the razor head.

Desirably the spacer means is combined with the ejector means as unitary assembly.

The razor head may be in the form of a cartridge attachable to a handle, or may be part of a disposable razor in which the handle is integral with the razor head.

Reference is now made to the accompanying drawings, in which:-

Figure 1 is a plan view of a razor head according to the invention;

Figure 2 is an exploded perspective view of the razor head according to the invention; and

Figure 3 is a view in cross-section of the razor head taken along line 3-3 of Figure 1.

As can be seen by reference to the drawings in particular Figures 1 and 2, a razor head according to the invention includes a cap 12 having a raised central area 17 with fingers 11 extending outwardly therefrom. Slots 15 taper outward from the raised area 17 between the fingers 11. Sides 19 of the cap 12 are designed to rest upon longitudinal edges of a support surface 41 of a seat 10.

The razor head further includes upper and lower blades 14 and 16, and a spacer/ejector 18.

Staking means in the form of four separate stakes 13 extends downward through two elongate holes 23 provided in the top blade 14. The stakes 13 extend also through holes 33 providing anchor sites in the spacer/ejector 18, through matching elongate holes 43 in the lower blade 16, and into seat holes 53 provided in the seat 10.

As can be seen by reference to Figure 3, the stakes 13 have an extended bottom portion which is positioned below the planar blade support portion 41 of the seat 10.

A guard bar 40 extends outward from the seat 10 and is attached thereto by ribs 43.

As can best be seen in Figure 2 the spacer/ejector 18 has a bar 32 which extends parallel to, and has approximately the same length as, the blade shaving edge on blades 14 and 16. The bar 32 is connected to operating means in the form of a pusher member 30 by a perpendicular connector 38. The perpendicular connector 38 has a beam spring 36 depending from either side and attached to an anchor portion 37 positioned around each hole 33.

As can best been seen by reference to Figure 3, when forces are exerted against the pusher member 30 it is dislodged in a linear forward direction against the bias provided by the beam spring 36 to force the bar 32 forward thereby ejecting shaving debris which is collected in the site between the two blades 14 and 16. Release of the pressure against the pusher member 30 allows the beam spring 36 to bias the spacer/ejector assembly 18 backwards.

With regard to cap 12, it is preferred that the slots 15 have an angle measured from the plane formed by the blade 14 and angled portion of the recess 15 greater than 90° and preferably about 110°.

A web (not shown) may be disposed such that is extends with the recessed area to a secondary edge of reduced thickness extending only slightly inward from the cap. The addition of the web tends to aid in the maintaining of the cap in a rigid position. The web may comprise a substantially flat piece of material disposed at the bottom of each recess and extending between the fingers.

Claims

1. A razor head characterised by a blade seat, a lower blade disposed on said seat, an upper blade disposed above said lower blade, said upper and lower blades having spaced substantially parallel shaving edges, a guard bar extending from the seat below and beyond the shaving edge of the lower blade, spacing means for maintaining the upper and lower blades in spaced parallel relationship, a cap disposed over the upper blade, and first and second blade cleaning means disposed over the upper and lower blades to remove shaving debris.

2. A razor head according to Claim 1, characterized in that the first blade cleaning means comprises a series of fingers extending toward the blade edge, said fingers being separated by recesses with inclined black walls sloping toward said blade edge, said fingers being provided on the cap.

3. A razor head according to Claim 2, characterised in that the angle between the plane of the blade and the wall of the recess is greater than 90°, preferably about 110°.

4. A razor head according to Claim 1, 2 or 3, characterised in that the recess forms a web interrupted by said fingers.

5. A razor head according to any preceding claim, characterised in that the second blade cleaning means comprises ejector means, said ejector having a unitary transversely extending ejector element extending parallel to and substantially along

the length of said shaving edges, said element being biased and reciprocally movable parallel to said blades.

6. A razor head according to Claim 5, characterised in that the ejector means is activated by operating means extending beyond a rear portion of the razor assembly.

7. A razor head according to Claim 5 or 6, characterised in that the spacer means is combined with the ejector means as a unitary assembly.

FIG-1

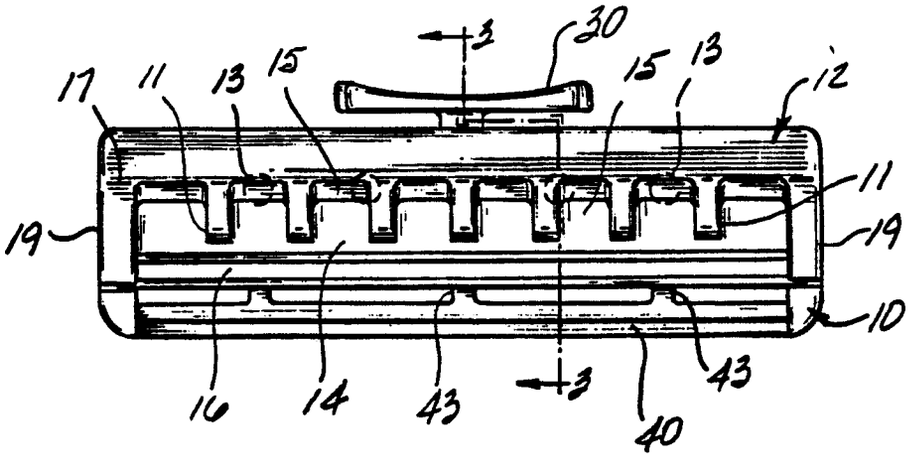
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FIG-3

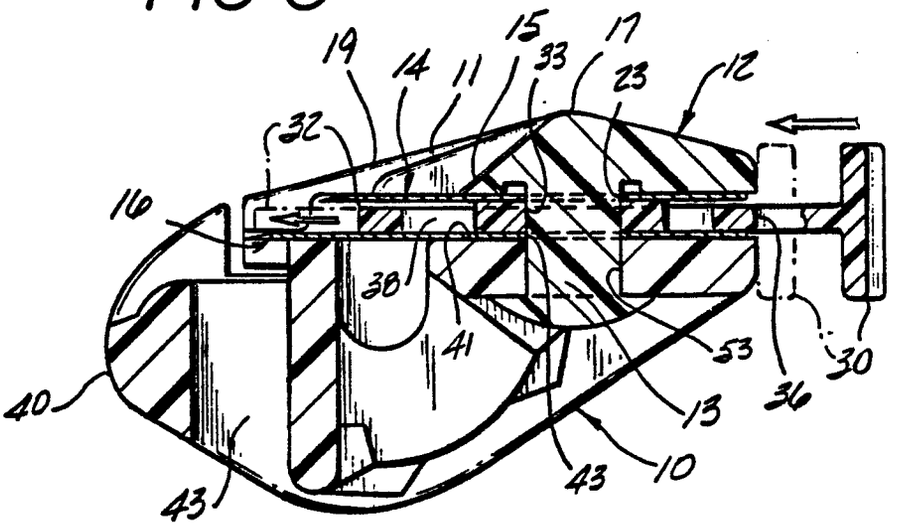
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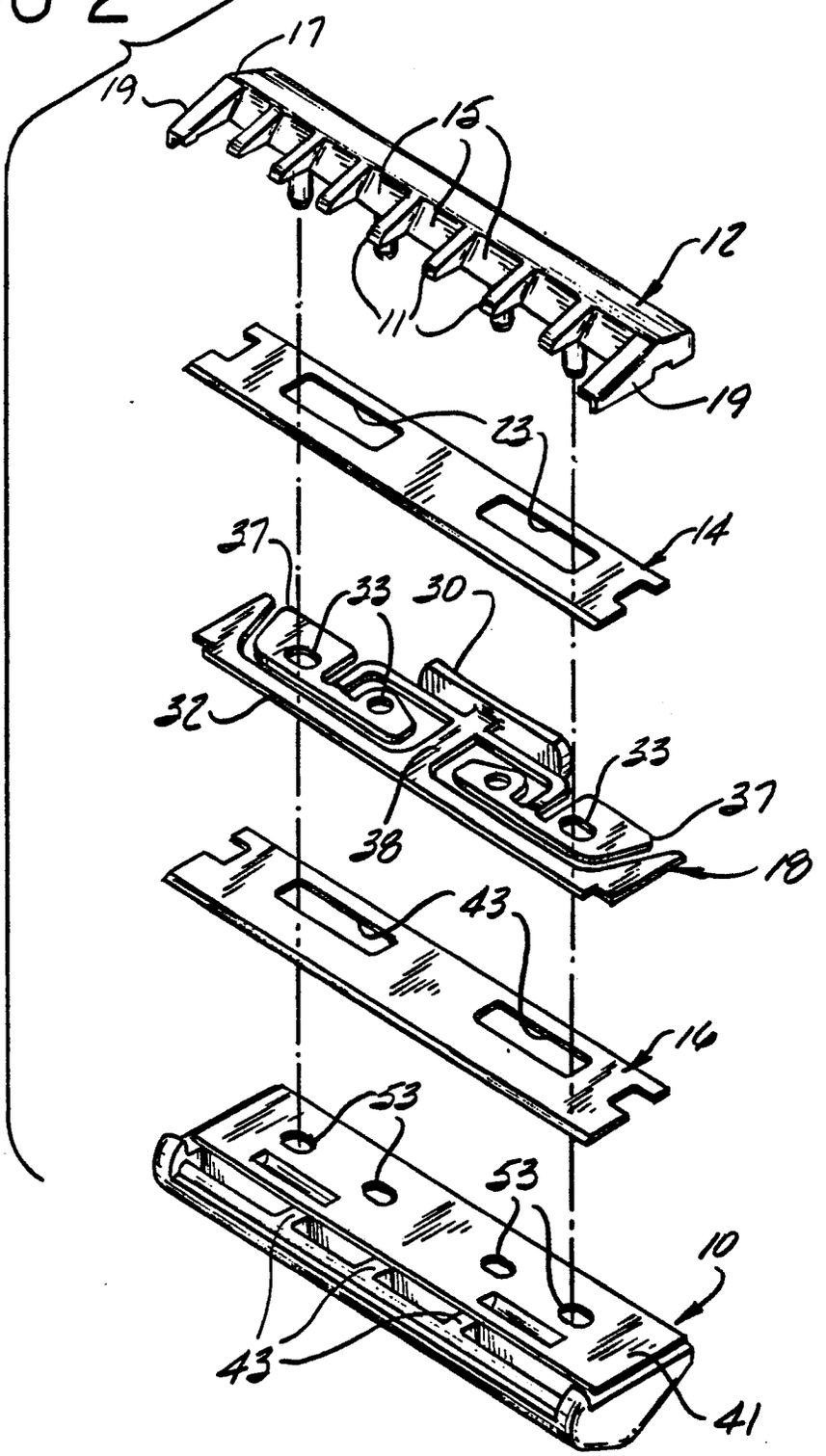
FIG-2



European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 30 1398

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
X	US-A-4 257 160 (Y. MURAI) * Column 2, line 25 - column 3, line 60; column 4, lines 38-47; figures 1,2,3,8 *	1,3	B 26 B 21/40
Y		5,6,7	
Y,D	US-A-4 205 437 (E.N. CHEN) * Column 4, line 7 - column 5, line 38; figure 3 *	5,6,7	
A,D	US-A-4 407 067 (R.A. TROTTA) * Column 3, lines 28-46; figure 1 *	2,4	
A,D	US-A-4 344 227 (E.N. CHEN) * Columns 3,4; figures 4,9 *	1,3,5,6,7	
A,D	US-A-4 047 296 (M. ISHIDA) * Column 2, line 48 - column 3, line 37; figure 2 *	1,3,6,7	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

B 26 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	03-06-1988	WOHLRAPP R.G.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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