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(54) Razor blade cartridge with movable cover.

(57) A wet shaving cartridge including two or more blades of the type operable to make a separable connection with a razor handle where the individual cartridge is provided with a permanently attached movable blade cover or cap.

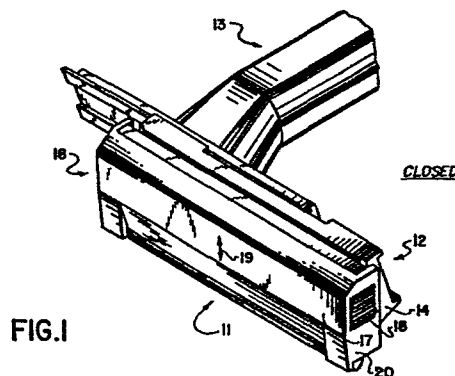


FIG.1

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RAZOR BLADE CARTRIDGE WITH MOVABLE COVER

The present invention relates to razor blade cartridges or blade assemblies for use in wet shaving. Such cartridges or assemblies usually comprise a pair of blades separated by a spacer having staggered or offset blade edges and the
5 cartridge or blade assembly is operable to make a connection with a razor handle in well known fashion.

The present invention is more particularly concerned with an improvement of a cartridge such as that disclosed in U.S. Patent No. 3,964,159 in which a plastic cap 12 is
10 permanently and rigidly staked to a seat or support 14 and blades 16 and 18, straddling a spacer 20, are sandwiched between the cap and support with proper blade edge exposure.

Throughout the specification the term "blade means" is intended to designate one or more blades within a given blade
15 cartridge or blade assembly.

According to the present invention we provide a blade cartridge of the type comprising a cap and a support element provided with blade means securely staked thereto, said blade means having at least one cutting edge and being sandwiched
20 between the support element and the cap, said cutting edge being permanently exposed at the proper position relative to the cap and the support element to permit wet shaving characterised in that:

the blade means is securely staked to the blade support
25 element to create a blade assembly, and said cap being slidably retained on said blade assembly and arranged to be slidable between a closed position and an open position in which said at least one cutting edge is exposed for shaving.

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

Figure 1 is a perspective view of a blade cartridge of the present invention showing the blade means cover or cap in the closed or first position with the blade cutting edges covered;

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Figure 2 is similar to Figure 1 and shows the cover in the open or second position with the blade means cutting edges properly exposed for wet shaving;

Figure 3 shows a prior art blade cartridge where the
5 cover, blade means and blade support are all rigidly staked together and with the cutting edges permanently exposed;

Figure 4 is a sectional view of Figure 2 in the plane represented by the line 4-4 showing the track-slide relationship;

10 Figure 5 is an exploded view showing the sliding cap removed revealing the staked blade means and the track on the blade support;

Figure 6 is a view of the interior of the skirt or side wall of the sliding cap as viewed in the direction of the
15 arrow 6-6 in Figure 5 showing the slide and one element of a stop means;

Figure 7 is a left end view of the blade means and blade support as viewed in the direction of the arrow 7-7 of Figure 5 revealing a guide means or track and a second element of
20 the stop means; and

Figure 8 is an end view with parts broken away to show the operation of elements of the stop means for limiting the stroke of the cap relative to the blade means.

Referring to the drawings and in particular to Figures 1
25 and 2, the reference numeral 11 designates a blade cartridge having a channel 12 for making a separable connection to a mating handle 13 in well known fashion.

The cartridge includes a blade support 14, blade means 16 and movable cover 17.

30 As indicated by legends Figure 1 shows the cover 17 in the first or closed position while Figure 2 shows the cover 17 retracted to the open position properly exposing blade means 16 for wet shaving.

As will be more apparent hereinafter, the cover 17
35 engages the assembled blade support 14 and blade means 16, permanently but slidably, by means of a track-slide arrangement with appropriate stop means for limiting the

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stroke of the cover. Motion is effected by grasping the knurls 18 on opposed end walls or skirts 20 of cover 17 and moving cover to and fro in direction of arrows labelled 19 while restraining the handle 13 and thus the blade assembly.

5 Figure 3 shows a prior art cartridge of the type disclosed in said 3,964,159 patent in which the cover C, the blade means B, spacer and blade support S are staked and fixed permanently into a rigid assembly, the blade means exposure having been set permanently at the time of
10 manufacture.

 Figures 4 through 8 show the slidable cover 17, blade means 16, spacer 21 and blade support 14.

 Note that the blades 16-16 and spacer 21 are staked rigidly to blade support 14 by rivets 22-22.

15 Cover side walls 20 formed with recesses 23-23 define a slide engaging a track 24-24 formed on the blade support 14. The track 24-24, for purposes of claiming the invention, is sometimes referred to as a guide means and may be formed on the assembled blade means and blade support as manufacturing
20 considerations and good design dictate.

 The cover 17 makes a permanent but sliding connection with the blade support in that side walls 20 terminate in claws 26-26 which flex outwardly and inwardly to make a snap fit to the underside of the track 24 when the cover is
25 assembled to the track.

 To control the stroke of the cover relative to the blade assembly and to insure proper blade edge exposure, the interior of the cover side walls and the ends of the blade assembly are formed with stop elements cooperating to define
30 stop means.

 The stop means defines a stop element 27 on the interior of each cover skirt 20 having opposed shoulders 28 and 29 operative to engage mating stop elements 31 and 32 on the blade assembly.

35 As is apparent in Figure 8, the dotted line position of the cover 17 denotes the closed or first position of the cover and in this position shoulder 29 of top element 27

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abuts mating stop element 32.

The solid line position shows the cover 17 in the open or second position with the shoulder 28 of stop element 27 abutting stop element 31 of blade assembly, thereby exposing
5 the blade edges properly for wet shaving.

Obviously the disposition and conformation of stop elements is a matter of engineering choice consistent with proper blade edge exposure in the open position and proper blade protection in the closed position.

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CLAIMS

1. A blade cartridge of the type comprising a cap and a support element provided with blade means securely staked thereto, said blade means having at least one cutting edge and being sandwiched between the support element and the cap, said cutting edge being permanently exposed at the proper position relative to the cap and the support element to permit wet shaving, characterised in that:
- the blade means (16) is securely staked to the blade support element (14) to create a blade assembly (14, 16), and said cap (17) being slidably retained on said blade assembly and arranged to be slidable between a closed position and an open position in which said at least one cutting edge is exposed for shaving.
2. A cartridge according to Claim 1 characterised in that the blade assembly (14, 16) is provided with guide means (24), and a cooperating slide (26) is formed on said cap (17) to connect the cap permanently to the blade assembly and to permit sliding the cap relative to the blade assembly between said open and closed positions.
3. A cartridge according to Claim 2 characterised in that the guide means (24) is formed on the blade support element (14).
4. A cartridge according to Claim 3 characterised in that the guide means (24) defines a track (24-24) moulded integrally with said blade support element.
5. A cartridge according to any of Claims 1 to 4 characterised in that the cap (17) is formed with knurls (18) to provide friction in grasping the cap.
6. A cartridge according to any of Claims 1 to 5

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characterised in that stop means (27) are provided on the cartridge for limiting the movement of the cap relative to the blade support element.

- 5 7. A cartridge according to Claim 6 characterised in that
said stop means defining cooperating stop elements (27) and
(31) on said cap and on said support element for defining a
first position in which said edge is covered by said cap and
protected from contact with extraneous matter, and cooperating
10 stop elements (27) and (32) on said cap and on said support
element for defining a second position in which said edge is
properly exposed for shaving.

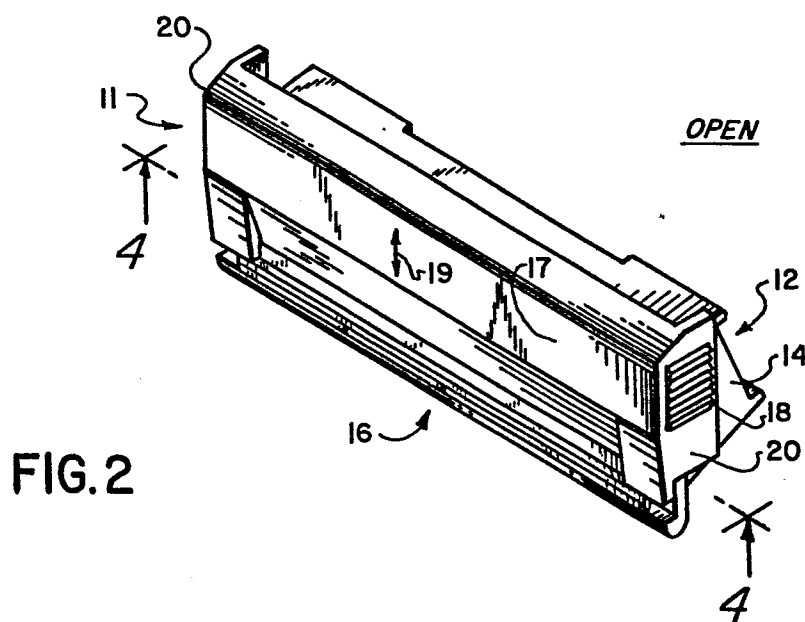
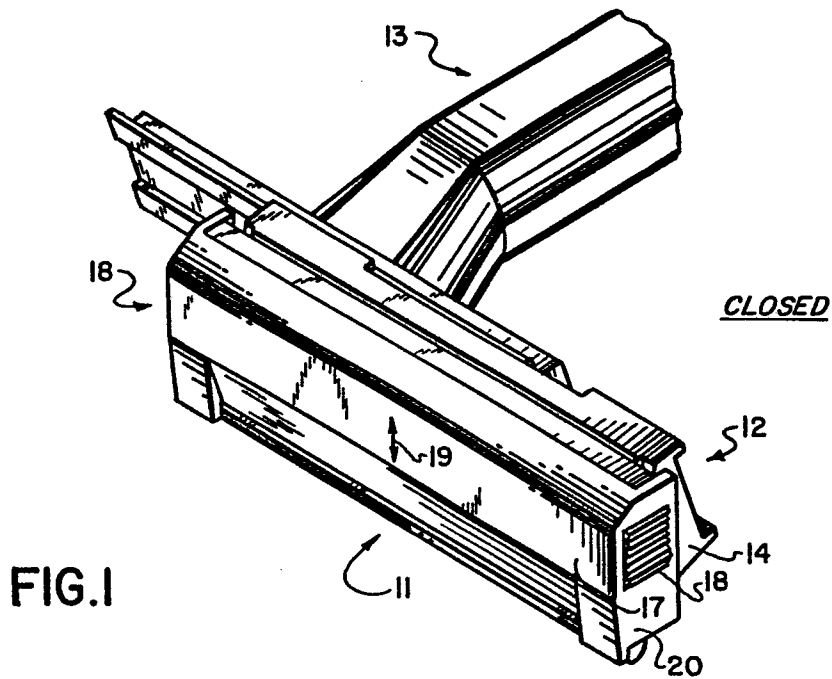
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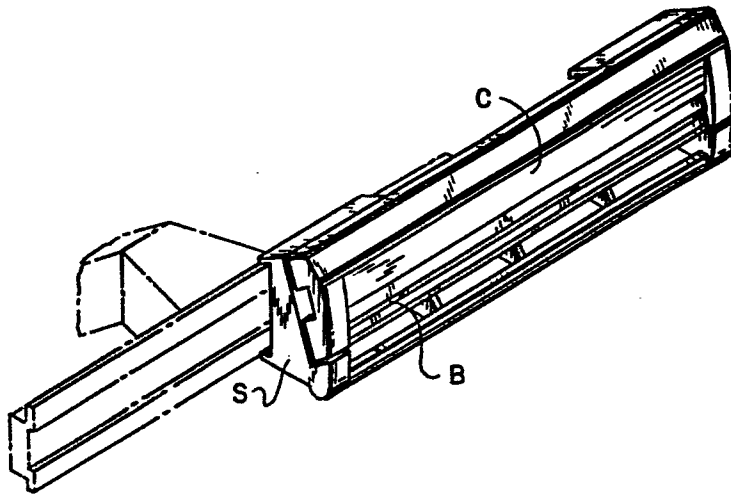


FIG. 3
PRIOR ART

FIG. 4

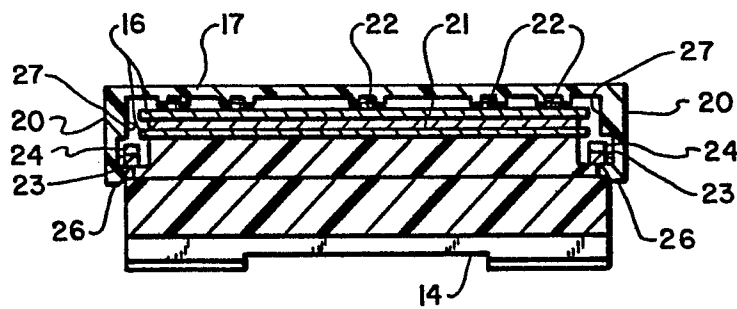


FIG.5

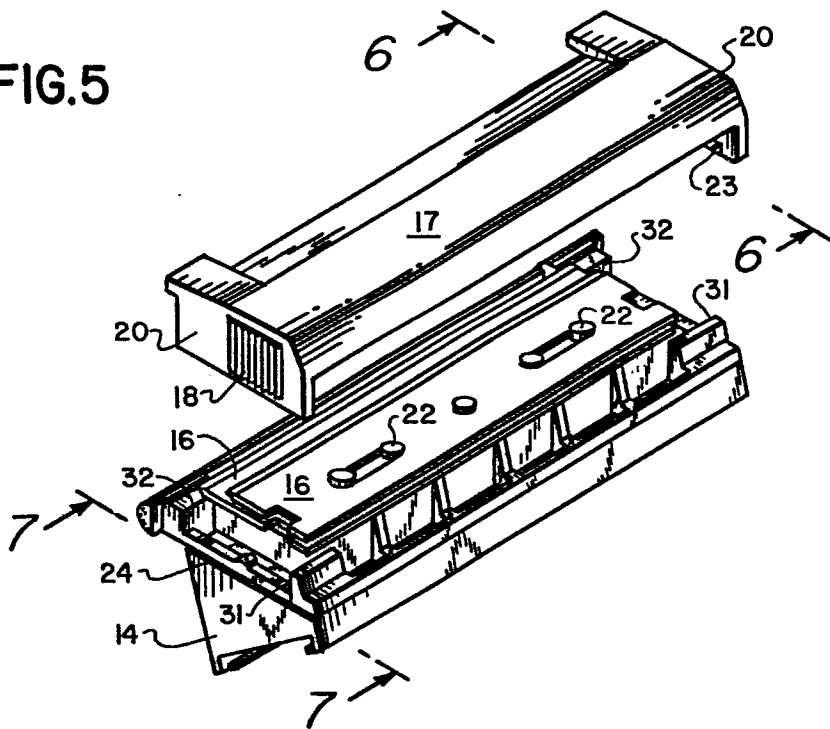


FIG.6

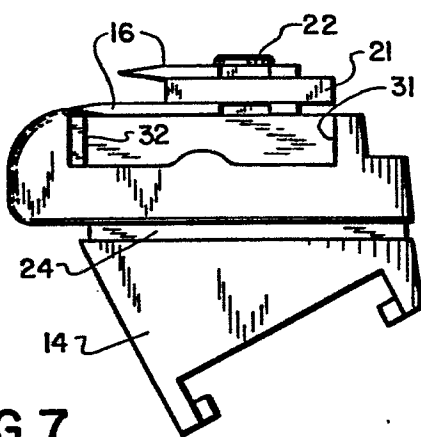


FIG.7

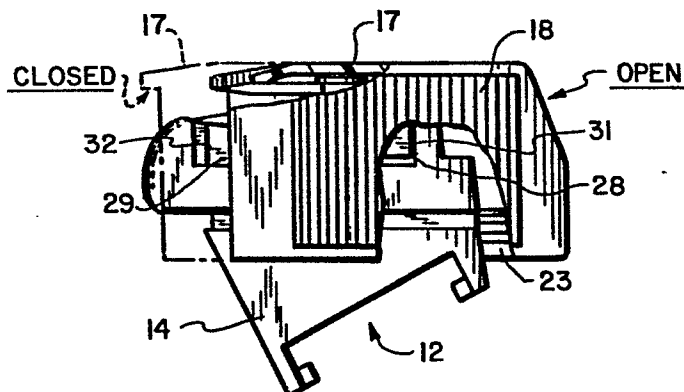
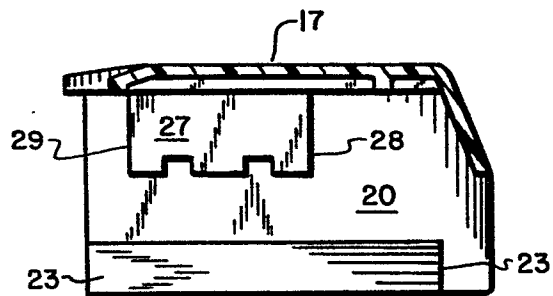


FIG.8