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(54) RAZOR WITH BLADE PROTECTION MEANS

RASIERER MIT EINEM KLINGENSCHUTZMITTEL

RASOIR EQUIPE D'UN SYSTEME PROTEGEANT LES LAMES

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(73) Proprietor: **THE GILLETTE COMPANY**
Boston, Massachusetts 02199 (US)

(72) Inventors:
- **OLDROYD, Brian**
  Reading, Berkshire (GB)
- **WAIN, Kevin James**
  Reading, Berkshire (GB)

(74) Representative:
Baillie, Iain Cameron et al
Ladas & Parry,
Dachauerstrasse 37
80335 München (DE)

(56) References cited:
GB-A- 2 107 236
GB-A- 2 113 594
US-A- 3 938 247
US-A- 4 785 534
US-A- 4 860 449

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Description

[0001] This invention relates to a razor according to the preambles of claims 1 and 14.

[0002] Such a razor is described in GB-A-1565415. The razor has a shaving unit mounted on a handle for pivotal movement about an axis extending parallel with the blade edge. The handle is bifurcated to provide wings which are resilient enough to provide for assembly of the shaving unit between the wings of the handle by elastic deformation of the wings and retention of the head over its range of movement.

[0003] A disadvantage of the construction, shown in GB-A-1565415, is the need for a finger or thumb of the user to manipulate the shaving unit, close to the actual blade edges, with the consequent danger of physical damage to the blade edges, or the user's hand.

[0004] GB-A-2100650 describes a razor having a guard and blade members in a fixed position on a handle of the razor and includes a cap surface, which is movable between a position in which the blade(s) are exposed for shaving and one in which the or each blade is shielded. In yet another previous proposal the cap surface is fixed but the guard-platform and blade pivot on an axis in the area of the guard surface, to carry the blade edge between a shaving position and a shielded position.

[0005] GB-A-2113594 and GB-A-2107236 each disclose a razor having a fixed guard bar and top cap, and a blade platform which can move between a shaving position and a retracted position. GB-A-2118088 describes a razor having a fixed blade and top cap, but a pivotable guard bar, movable between a position in which the blade is exposed for shaving and a position in which the blade is protected.

[0006] A problem with all such proposals is the element of doubt and unpredictability which they introduce into the shaving geometry (that is, the relative positions of the blades, cap surface and guard surface in the shaving disposition). Even very small changes in shaving geometry can have a pronounced effect on shaving performance, and are therefore undesirable.

[0007] The present invention is a razor which provides for blade protection during periods of non-use, without detriment to the shaving geometry, and with a reduced likelihood of damage to the blades or the bands of a user during manipulation of the razor.

[0008] According to the present invention there is provided a razor including a handle, a razor blade assembly having a cap and a guard with at least one blade interposed between them and a shielding member on said handle for shielding said at least one blade, said razor blade assembly being movable relative to the handle between a shaving position and a non-shaving position in which the cutting edge of said at least one blade is protected, said razor blade assembly being movable into said non-shaving position behind said shielding member without changing the shaving geometry defined by relative positions between said cap, guard and at least one blade, characterized in that said razor blade assembly is in the form of a retractable shaving unit, and in that an actuator is provided on the handle and coupled to the shaving unit for retracting the shaving unit either out and from behind said shielding member to said shaving position or into and behind said shielding member to said non-shaving position. shaving unit and in that an actuator is provided on the handle and coupled to the shaving unit for retracting the shaving unit between a starting shaving position and a range of deflected shaving positions.

[0009] According to a further aspect of the present invention there is provided a razor including a handle, a razor blade assembly having a cap and a guard with said at least one blade interposed between them, said razor blade assembly being movable relative to the handle between a shaving position and a non-shaving position in which the cutting edge of said at least one blade is protected, and a shielding member on said handle for shielding said at least one blade, said razor blade assembly being movable into said non-shaving position behind said shielding member without changing the shaving geometry defined by relative positions between said cap, guard and at least one blade, characterized in that said razor blade assembly is in the form of a retractable shaving unit, in that an actuator is provided on the handle for retracting the shaving unit, in that the shaving unit in a shaving disposition is carried on the handle for swivelling movement between a starting shaving position and deflected shaving positions, and in that the shaving unit is held by claw surfaces captive in the handle for rotation on the handle between the retracted position, a starting shaving position and a range of deflected shaving positions.

[0010] Preferably, the actuator means is manually movable in order to move the shaving unit at will between the shaving and retracted positions.

[0011] Expediently, the actuator means comprises a link between the shaving unit and the handle.

[0012] In a preferred embodiment, the shaving unit has two shaving blades, arranged in tandem. It can be arranged for the handle to be a permanent one, cooperating with replaceable shaving cartridges, the handle having a head which includes surfaces for releasably retaining one such cartridge on the head.

[0013] In one preferred embodiment the link is flexible, preferably having a distal end contiguous with the head and a proximal end attached to the body. This attachment is conveniently by a pin and slot. If the pin is on the link it may provide a surface (such as a button) on the back of the handle, that is, on the surface of the body which faces away from the surface to be shaved.

[0014] A substantial proportion of razors currently bought by consumers are of the type which allows swivelling movement between a shaving cartridge and a shaver body, during shaving, to allow the working surfaces of the cartridge to follow the contours of the skin

surface being shaved. In another preferred embodiment of the present invention, the connection between the shaving unit and the body is such as to allow, in the shaving disposition, such swivelling movement.

[0015] In preferred embodiments, the link provides a tensile force which pulls the shaving cartridge into its retracted disposition, and a compressive force which pushes the head into its shaving disposition.

[0016] Preferably, translational movement between these two dispositions is accompanied by a rotational component of motion. The direction of rotational movement can be, in different embodiments, that which would increase the shaving attitude angle or reduce it.

[0017] The shaving attitude angle is the angle subtended between the longitudinal axis of the handle and a line through the skin-contacting surfaces of the cap and guard, perpendicular to the length of the cap, guard and blade surfaces.

[0018] In some embodiments the shaving unit is held to the body by the link, but in other embodiments the unit can be held onto the body by separate means, such as a pin and slot at each side of the shaving head. When the connection is through the link, it may be convenient to provide a guide channel at each side of the shaving unit for guiding the unit between the shaving and non-shaving dispositions. In embodiments in which the shaving unit is attached to the body by a pin and slot at each side of the unit, these pin and slot connections can also serve as the guide channels.

[0019] Razor cartridges and shaving units are increasingly provided with a hydrophilic lubricating strip. This needs to dry out between uses. To facilitate evaporation of water from the lubricating strip, when the cartridge is protected by the shielding member, it may be desirable to provide the shielding member with vents, such as a series of small slots. The provision of such holes in the shielding member has the incidental benefit of reducing the amount of plastics material needed to make the razor.

[0020] It is envisaged that the present invention will have general application to a wide range of disposable razors and shaving systems. For a better understanding of the present invention, and to show more clearly how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, in which:

Fig. 1 is an exploded perspective view of a cartridge, cartridge carrier and head of a handle of a first embodiment of razor in accordance with the present invention;

Figs. 2 and 3 are longitudinal sections through the central axis of the head of the first embodiment, with Fig. 2 showing a shaving disposition and Fig. 3 showing a retracted disposition of the shaving cartridge;

Figs. 4 and 5 are a side view and top plan view respectively of a second embodiment of razor, with a retractable cartridge in its retracted position;

Figs. 6 and 7 are a side view and a top plan view of the razor of Figs. 4 and 5 in the extended position;

Figs. 8, 9 and 10 are sections A-A, B-B, C-C respectively, taken from Fig. 5;

Figs. 11, 12 and 13 are corresponding sections from Fig. 7; and

Figs. 14, 15 and 16 are sections corresponding to those of Figs. 11 to 13 but with the shaving cartridge pushed, against a spring bias, into a swivelled shaving disposition.

[0021] Referring first to Figs. 1, 2 and 3, the razor comprises a handle 10 and a shaving unit in the form of a cartridge 11 at the head of the razor. The cartridge 11 comprises a cap 20, blades 50, 51 and a guard 22 and is mounted in a cartridge carrier 61 which is movably mounted in a head end of the handle 10. A lubricating strip 52 extends along one edge of the cartridge.

[0022] Each end wall 63 of the cartridge carrier 61 has a projecting pin 12 which engages in a corresponding elongate slot 13 in the head end of the handle 10. Inherent resilience of the handle 10 permits engagement of the pins 12 in their corresponding slots 13.

[0023] The carrier 61 has a long wall 62 and two end walls 63 each carrying one of the pins 12. Lugs 19a, 19b, 19c are provided at the mid-point of the long wall 62. A narrow shelf surface 64 extends around the base of a space 65 between the long wall 62 and the two end walls 63, the space 65 being sized to receive snugly the cartridge 11, with the cartridge sliding over the top surface of the shelf 64. A pair of resilient picker fingers 66 extends forwards from the shelf 64, each finger having a detent shoulder 67, the two shoulders both facing out from the centre of the carrier 61, in opposed directions. These fingers engage with corresponding formations, on the cartridge 11, which are not visible in Fig. 1 but which are described below, with reference to Figs. 1 to 6.

[0024] Referring to Figs. 2 and 3, a link 14 is a snap fit in the handle 10, by the engagement of a button 15 in a slot 16 on the back surface of the handle 10. The outward-facing surface of the button 15 is provided with ridges to assist the grip of a finger or thumb of the user on the button 15 to move the link 14 between the extended disposition of Fig. 2, for shaving, and the retracted disposition shown in Fig. 3 shielded by a shield member 23.

[0025] The distal end 18 of the link 14 is a slide fit between a pair of lugs 19a, 19b, and a third, opposed, lug 19c, all of which are on the long wall 62 of the cartridge carrier 61 adjacent to the cap 20 of any cartridge carried by the carrier 61. Fig. 2 shows the pin 12 in the distal end of the slot 13, so that the blades 50, 51 of the cartridge 11, between the guard 22 and the cap 20, are presented at the correct attitude for comfortable shaving.

[0026] With the button 15 moved to the proximal posi-

tion shown in Fig. 3, it can be seen that a tension force applied by the link 14 has pulled the cartridge 11 into a more proximal position, demonstrated by the position of the pin 12 at the proximal end of the slot 13. The cap 20 and shaving blades 50, 51 have been drawn up inside the handle, to be protected by the shield member 23. A simple reverse movement of the button 15, back to its distal position, is sufficient to place the cartridge back in its shaving disposition as shown in Fig. 2.

[0027] The movement of the pins 12 along the slots 13 corresponds to the translational movement of the cartridge between the shaving and non-shaving (retracted) dispositions. Comparison of Figs. 2 and 3 shows that this translation accompanies a rotational movement which places the shaving surface of the cartridge adjacent to the protecting shield member 23.

[0028] The above-described first embodiment is of a shaving system, with a succession of replaceable cartridges being used in the same razor handle. In a variant, a cartridge can be connected direct to the link, thereby providing a razor in which the handle and cartridge are disposable together.

[0029] Figs. 4 to 16 show the construction and operation of the second illustrated embodiment, and much of this is the same as for the first embodiment, so that identical reference numerals are used whenever possible. The handle 10 has a stem which widens at its head into a plate 30 which has upturned ends 31 which farm a guide channel 32 for each side of the cartridge 11. Figs. 4 and 5 show the cartridge 11 fully accommodated within the guide channels 32, with the shaving blades 21 of the cartridge 11 closely protected by a shielding wall 33 of the plate 30 of the handle 10.

[0030] The link 14 has a proximal end in the form of a strip 34 which slides in a corresponding slot within the plate 30 of the handle. As with Fig. 2, there is a button 15 on the top surface of the plate 30, for manual manipulation of the link to move between its distal and proximal positions but, unlike rig. 2, the strip 34 lies on the outside of the handle. The link includes first and second saddle pieces 36, 37 which run in the slot and retain the strip 34 on the plate 30. Latching surfaces 39 and a degree of resilience are provided so that the strip latches to the handle at each extreme of its movement, but unlatches upon application of pressure and movement to the button 15.

[0031] The link 14 is bifurcated at its distal end to form left and right arms 40, 41 which extend respectively to the left and right sides of the cartridge 11. On the distal end of the arm 40 is a claw 42 (best shown in rig. 9) which engages with a latch surface 43 of the cartridge for rotary movement of the cartridge on the claw 42 at the surface 43. A shell bearing surface 53 on the cartridge co-operates with a bearing surface 54 on the arm 40 (see rig. 10). There are corresponding claw 44 and latch 45 surfaces, and bearing surfaces, at the distal end of the right arm 41, and the cartridge is retained to the link 14 by the co-operation of these respective surfaces.

[0032] As illustrated in Figures 8, 11 and 14, a hook 46 at the left hand side of the cartridge 11 engages with an internal surface of the channel end 31 of the handle 10 to rotate the cartridge to the initial shaving disposition during movement of the button 15 from the proximal to the distal end of the slot 16. A corresponding hook (not shown) is present at the other end of the cartridge, and co-operates in the sane way with the handle.

[0033] Referring to Fig. 5 the link 14 also has a pair of leaf springs, that is, a left hand spring 471 which extends along the back of the arm 40 and a right hand spring 472 which extends along the back of the arm 41. Each spring has at its outer end a pressure pad 48 which is pressed by the resilience of the leaf on to a camming surface 49 of the cartridge 11, in the direction of arrow f. Thus, rotation of the cartridge from the Fig. 11 starting position to the Fig. 14 deflected position drives the springs back and increases the biasing force on the cartridge 11 tending to return it to the Fig. 11 position as soon as it is permitted to do so. Thus, during shaving, the springs provide a return force on the cartridge 11 which acts to return the cartridge 11 to its starting position whenever it is deflected from that position.

[0034] The tandem blades 50, 51 of the cartridge are visible in the sections along B-B and C-C. As is known per se, these blades can be mounted resiliently, to be deflected by the skin surface being shaved, as shaving pressures vary in use of the razor. The cartridge may incorporate a hydrophilic lubricating strip 52, as is also known per se.

[0035] With the described razors, the cartridge includes all of the cap surface, guard surface and blade(s). Because the whole cartridge moves between the shaving and retracted positions, there is accordingly no relative movement between the components of the cartridge during this cartridge movement.

[0036] The simplicity of design of the illustrated embodiments open up possibilities for using a wide range of cartridge designs including those with spring-loaded tandem blades. The embodiments also provide a good basis for designs which use replaceable shaving cartridges with a permanent handle. It will be appreciated that manipulation of the button 15 can be done repeatedly without any danger of accidental contact damage to the shaving blade edges, because the button 15 is so far from the edges and is on the backface of the handle.

[0037] Retraction of the shaving head into the handle brings about a reduction in physical size of the razor which is another attractive feature of the device when it is not in use.

Claims

1. A razor including a handle (10), a razor blade assembly (11) having a cap (20) and a guard (22)

with at least one blade (50,51) interposed between them and a shielding member (23,33) on said handle for shielding said at least one blade (50,51), said razor blade assembly being movable relative to the handle between a shaving position and a non-shaving position in which the cutting edge of said at least one blade (50,51) is protected, said razor blade assembly (11) being movable into said non-shaving position behind said shielding member (23) without changing the shaving geometry defined by relative positions between said cap (20), guard (22) and at least one blade (50,51), characterized in that said razor blade assembly is in the form of a retractable shaving unit, and in that an actuator is provided on the handle (10) and coupled to the shaving unit for retracting the shaving unit either out and from behind said shielding member to said shaving position or into and behind said shielding member to said non-shaving position.

2. A razor according to claim 1, characterized in that the actuator includes a link (14) between the shaving unit (11) and the handle (10).

3. A razor according to claim 2, characterized in that the link (14) is flexible.

4. A razor according to claim 2, characterized in that the link (14) is connected to the handle (10) by a pin (15) and slot (16) connection.

5. A razor according to claim 4, characterized in that the pin (15) is on the link (14) and provides an operating button.

6. A razor according to claim 1, characterized in that the shaving unit (11,61) comprises a cartridge carrier (61) and a replaceable cartridge (11) carried by the carrier (61).

7. A razor according to claim 6, characterized in that the cartridge carrier (61) and the replaceable cartridge (11) each have at least one co-operating latching surface (67) for retaining the cartridge (11) in the carrier (61).

8. A razor according to claim 7, characterized in that the carrier latch surface (67) is a shoulder on a resilient spring finger (66) and the cartridge latch surface is a lug.

9. A razor according to claim 7, characterized in that said razor includes means to inhibit co-operation of the latching surfaces if the handle is offered up to the cartridge in the opposite orientation from the useful orientation.

10. A razor according to claim 1, characterized in that the shaving unit (11) in a shaving deposition is carried on the handle (10) for swiveling movement between the starting shaving position and deflected shaving positions.

11. A razor according to claim 10, characterized in that the shaving unit (11) has camming surfaces (49), and the handle has leaf springs (471,472) which act against the camming surfaces (49) to urge the shaving unit (11) into the starting shaving position.

12. A razor according to claim 10, characterized in that the shaving unit (11) is held by claw surfaces (42) captive in the handle (10) for rotation on the handle (10) between the retracted position, the starting shaving position and the range of deflected shaving positions.

13. A razor according to claim 1, characterized in that the shaving unit (11,61) is retained to the handle (10) by a pair of pin (12) and slot (13) connections which also define the locus of movement of the shaving unit between the shaving and retracted positions.

14. A razor including a handle (10), a razor blade assembly having a cap (20) and a guard (22) with said at least one blade (50,51) interposed between them, said razor blade assembly being movable relative to the handle between a shaving position and a non-shaving position in which the cutting edge of said at least one blade (50,51) is protected, and a shielding member (23) on said handle (10) for shielding said at least one blade (50,51), said razor blade assembly being movable into said non-shaving position behind said shielding member (23) without changing the shaving geometry defined by relative positions between said cap (20), guard (22) and at least one blade (50,51), characterized in that said razor blade assembly is in the form of a retractable shaving unit, in that an actuator is provided on the handle (10) for retracting the shaving unit, in that the shaving unit in a shaving disposition is carried on the handle (10) for swivelling movement between a starting shaving position and deflected shaving positions, and in that the shaving unit is held by claw surfaces (42) captive in the handle (10) for rotation on the handle (10) between the retracted position, a starting shaving position and a range of deflected shaving positions.

Patentansprüche

1. Rasierer mit einem Handstück (10), einem Rasierklingenzusammenbau (11) mit einer Kappe (20) und einer Schutzeinrichtung (22), wobei sich mindestens eine Klinge (50, 51) zwischen der Kappe und der Schutzeinrichtung befindet, und mit einem

Abschirmelement (23, 33) an dem genannten Handstück zur Abschirmung der genannten mindestens einen Klinge (50, 51), wobei der genannte Rasierklingenzusammenbau im Verhältnis zu dem Handstück zwischen einer Rasierposition und einer nicht rasierenden Position beweglich ist, an der die Schneidkante der genannten mindestens einen Klinge (50, 51) geschützt wird, wobei der genannte Rasierklingenzusammenbau (11) an die genannte nicht rasierende Position hinter dem genannten Abschirmelement (23) beweglich ist, ohne dabei die durch die relativen Positionen zwischen der genannten Kappe (20), der Schutzeinrichtung (22) und der mindestens einen Klinge (50, 51) definierte Rasurgeometrie zu verändern, dadurch gekennzeichnet, daß der genannte Rasierklingenzusammenbau in Form einer einziehbaren Rasiereinheit vorgesehen ist, und wobei ein Stellglied an dem Handstück (10) vorgesehen und mit der Rasiereinheit verbunden ist, um die Rasiereinheit entweder aus und von hinter dem genannten Abschirmelement an die genannte Rasierposition oder in und hinter das genannte Abschirmelement an die genannte nicht rasierende Position zu bewegen.

2. Rasierer nach Anspruch 1, dadurch gekennzeichnet, daß das Stellglied eine Verbindungseinrichtung (14) zwischen der Rasiereinheit (11) und dem Handstück (10) aufweist.

3. Rasierer nach Anspruch 2, dadurch gekennzeichnet, daß die Verbindungseinrichtung (14) flexibel ist.

4. Rasierer nach Anspruch 2, dadurch gekennzeichnet, daß die Verbindungseinrichtung (14) durch eine Verbindung mit einem Stift (15) und einem Schlitz (16) mit dem Handstück (10) verbunden ist.

5. Rasierer nach Anspruch 4, dadurch gekennzeichnet, daß der Stift (15) sich an der Verbindungseinrichtung befindet und einen Betätigungsknopf vorsieht.

6. Rasierer nach Anspruch 1, dadurch gekennzeichnet, daß die Rasiereinheit (11, 61) einen Patronenträger (61) und eine auswechselbare Patrone (11) umfaßt, die von dem Träger (61) getragen wird.

7. Rasierer nach Anspruch 6, dadurch gekennzeichnet, daß der genannte Patronenträger (61) und die auswechselbare Patrone (11) jeweils mindestens eine zusammenwirkende verriegelnde Oberfläche (67) aufweisen, die dazu dient, die Patrone (11) in dem Träger (61) zu halten.

8. Rasierer nach Anspruch 7, dadurch gekennzeichnet, daß die Trägerverriegelungsoberfläche (67) einen Ansatz an einem elastischen Federfinger (66) darstellt, und wobei es sich bei der Patronenverriegelungsoberfläche um einen Vorsprung handelt.

9. Rasierer nach Anspruch 7, dadurch gekennzeichnet, daß der genannte Rasierer eine Einrichtung aufweist, die dazu dient, das Zusammenwirken zwischen den Verriegelungsoberflächen zu verhindern, wenn das Handstück der Patrone in der entgegengesetzten Ausrichtung zu der nützlichen Ausrichtung vorgesehen wird.

10. Rasierer nach Anspruch 1, dadurch gekennzeichnet, daß die Rasiereinheit (11) an einer Anordnung für die Rasur an dem Handstück (10) getragen wird, so daß sie zwischen der Ausgangsrasierposition und den abgelenkten Rasierpositionen schwenkbar beweglich ist.

11. Rasierer nach Anspruch 10, dadurch gekennzeichnet, daß die Rasiereinheit (11) Nockenoberflächen (49) aufweist, und wobei das Handstück Blattfedern (471, 472) aufweist, die auf die Nockenoberflächen (49) einwirken, um die Rasiereinheit (11) an die Ausgangsrasierposition zu drängen.

12. Rasierer nach Anspruch 10, dadurch gekennzeichnet, daß die Rasiereinheit (11) durch Greifoberflächen (42) gehalten wird, die in dem Handstück (10) festgehalten werden, so daß die Einheit an dem Handstück (10) zwischen der eingezogenen Position, der Ausgangsrasierposition und dem Bereich der abgelenkten Rasierpositionen drehbar ist.

13. Rasierer nach Anspruch 1, dadurch gekennzeichnet, daß die Rasiereinheit (11, 61) an dem Handstück (10) durch ein Paar von Verbindungen aus Stift (12) und Schlitz (13) gehalten wird, die ferner den Bewegungsbereich der Rasiereinheit zwischen den Rasierpositionen und der eingezogenen Position definieren.

14. Rasierer mit einem Handstück (10), einem Rasierklingenzusammenbau mit einer Kappe (20) und einer Schutzeinrichtung (22), wobei sich mindestens eine Klinge (50, 51) zwischen der Kappe und der Schutzeinrichtung befindet, wobei der genannte Rasierklingenzusammenbau im Verhältnis zu dem Handstück zwischen einer Rasierposition und einer nicht rasierenden Position beweglich ist, an der die Schneidkante der genannten mindestens einen Klinge (50, 51) geschützt wird, und mit einem Abschirmelement (23) an dem genannten Handstück (10) zur Abschirmung der genannten

mindestens einen Klinge (50, 51), wobei der genannte Rasierklingenzusammenbau an die genannte nicht rasierende Position hinter dem genannten Abschirmelement (23) beweglich ist, ohne dabei die durch die relativen Positionen zwischen der genannten Kappe (20), der Schutzeinrichtung (22) und der mindestens einen Klinge (50, 51) definierte Rasurgeometrie zu verändern, dadurch gekennzeichnet, daß der genannte Rasierklingenzusammenbau in Form einer einziehbaren Rasiereinheit vorgesehen ist, wobei ein Stellglied an dem Handstück (10) vorgesehen ist, um die Rasiereinheit einzuziehen, wobei die Rasiereinheit an einer Rasieranordnung an dem Handstück (10) getragen wird, so daß sie zwischen einer Ausgangsrasierposition und abgelenkten Rasierpositionen schwenkbar beweglich ist, und wobei die Rasiereinheit durch Greifoberflächen (42) gehalten wird, die in dem Handstück (10) festgehalten werden, so daß sie an dem Handstück (10) zwischen der eingezogenen Position, einer Ausgangsrasierposition und dem Bereich abgelenkter Rasierpositionen drehbar ist.

Revendications

1. Rasoir comprenant un manche (10), un ensemble de lame de rasoir (11) comportant un capuchon (20) et une garde (22) avec au moins une lame (50, 51) interposée entre eux, et un élément formant écran (23, 33) sur ledit manche pour former un écran pour ladite au moins une lame (50, 51), ledit ensemble de lame de rasoir étant mobile par rapport au manche entre une position de rasage et une position de non-rasage dans laquelle le fil de coupe de ladite au moins une lame (50, 51) est protégé, ledit ensemble de lame de rasoir (11) étant mobile jusque dans ladite position de non-rasage derrière ledit élément formant écran (23) sans changer la géométrie de rasage définie par les positions relatives entre ledit capuchon (20), ladite garde (22), et ladite au moins une lame (50, 51), caractérisé en ce que ledit ensemble de lame de rasoir a la forme d'une unité de rasage rétractable, et en ce qu'il est prévu un actionneur sur le manche (10) et accouplé à l'unité de rasage afin de faire rétracter l'unité de rasage soit en sortie depuis derrière ledit élément formant écran jusqu'à ladite position de rasage, soit en retour derrière ledit élément formant écran jusque dans ladite position de non-rasage.

2. Rasoir selon la revendication 1, caractérisé en ce que l'actionneur inclut un élément de liaison (14) entre l'unité de rasage (11) et le manche (10).

3. Rasoir selon la revendication 2, caractérisé en ce que l'élément de liaison (14) est flexible.

4. Rasoir selon la revendication 2, caractérisé en ce que l'élément de liaison est connecté au manche (10) par une connexion à tige (15) et à fente (16).

5. Rasoir selon la revendication 4, caractérisé en ce que la tige (15) est située sur l'élément de liaison (14) et constitue un bouton d'actionnement.

6. Rasoir selon la revendication 1, caractérisé en ce que l'unité de rasage (11, 61) comprend un porte-cartouche (61) et une cartouche remplaçable (11) portée par le porte-cartouche (61).

7. Rasoir selon la revendication 6, caractérisé en ce que le portecartouche (61) et la cartouche remplaçable (11) comportent chacun au moins une surface de blocage en coopération (67) afin de retenir la cartouche (11) dans le porte-cartouche (61).

8. Rasoir selon la revendication 7, caractérisé en ce que la surface de blocage (67) du porte-cartouche est un épaulement sur un doigt de ressort élastique (66), et en ce que la surface de blocage de la cartouche est une patte.

9. Rasoir selon la revendication 7, caractérisé en ce que ledit rasoir inclut des moyens pour inhiber la coopération des surfaces de blocage si le manche est présenté à la cartouche dans l'orientation opposée à l'orientation utile.

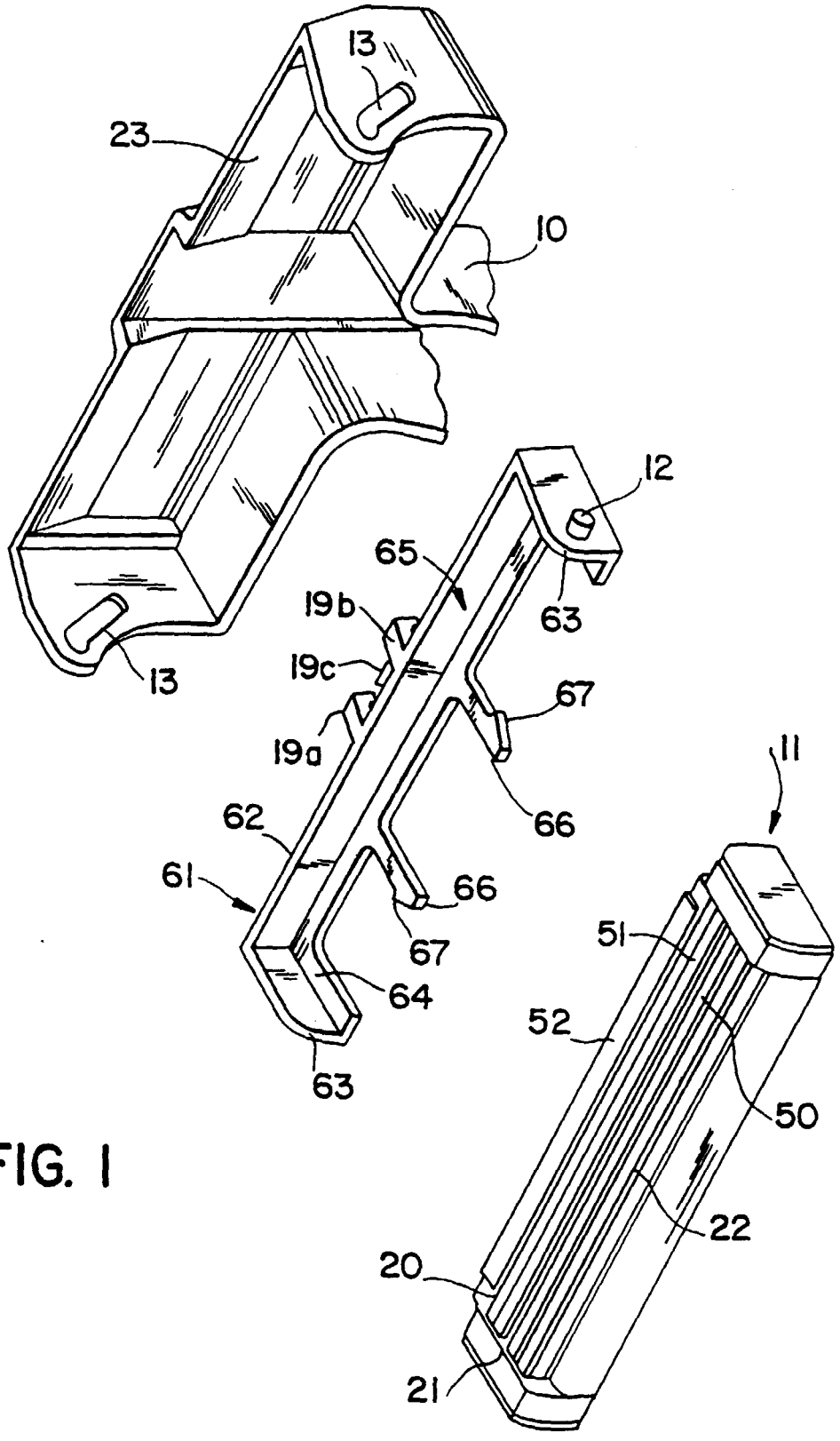
10. Rasoir selon la revendication 1, caractérisé en ce que l'unité de rasage (11) est portée sur le manche (10), dans une position de rasage, pour un mouvement de pivotement entre la position de rasage au départ et des positions de rasage déviées.

11. Rasoir selon la revendication 10, caractérisé en ce que l'unité de rasage (11) comporte des surfaces de came (49), et en ce que le manche comporte des ressorts à lame (471, 472) qui agissent contre les surfaces de came (49) pour repousser l'unité de rasage (11) jusque dans la position de rasage au départ.

12. Rasoir selon la revendication 10, caractérisé en ce que l'unité de rasage (11) est tenue par des surfaces à griffe (42) captives dans le manche (10) pour une rotation sur le manche (10) entre la position rétractée, la position de rasage au départ, et la plage des positions de rasage déviées.

13. Rasoir selon la revendication 1, caractérisé en ce que l'unité de rasage (11, 61) est retenue sur la poignée (10) par une paire de connexions à tige (12) et à fente (13) qui définissent également le lieu du mouvement de l'unité de rasage entre la position de rasage et la position rétractée.

14. Rasoir comprenant un manche (10), un ensemble de lame de rasoir comportant un capuchon (20) et une garde (22), et au moins une lame (50, 51) interposée entre eux, ledit ensemble de lame de rasoir étant mobile par rapport au manche entre une position de rasage et une position de non-rasage, dans laquelle le fil de coupe de ladite au moins une lame (50, 51) est protégé, et un élément formant écran (23) sur ledit manche (10) pour protéger ladite au moins une lame (50, 51), ledit ensemble de lame de rasoir étant mobile jusque dans ladite position de non-rasage derrière ledit élément formant écran (23) sans changer la géométrie de rasage définie par les positions relatives entre ledit capuchon (20), ladite garde (22), et ladite au moins une lame (50, 51), caractérisé en ce que ledit ensemble de lame de rasoir a la forme d'une unité de rasage rétractable, en ce qu'un actionneur est prévu sur le manche (10) pour faire rétracter l'unité de rasage, en ce que l'unité de rasage est portée sur le manche (10), dans une position de rasage, pour un mouvement de pivotement entre une position de rasage de départ et des positions de rasage déviées, et en ce que l'unité de rasage est maintenue par des surfaces à griffe (42) captives dans le manche (10) pour une rotation sur le manche (10) entre la position rétractée, une position de rasage au départ, et une plage de positions de rasage déviées.


13
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19b
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FIG. 1

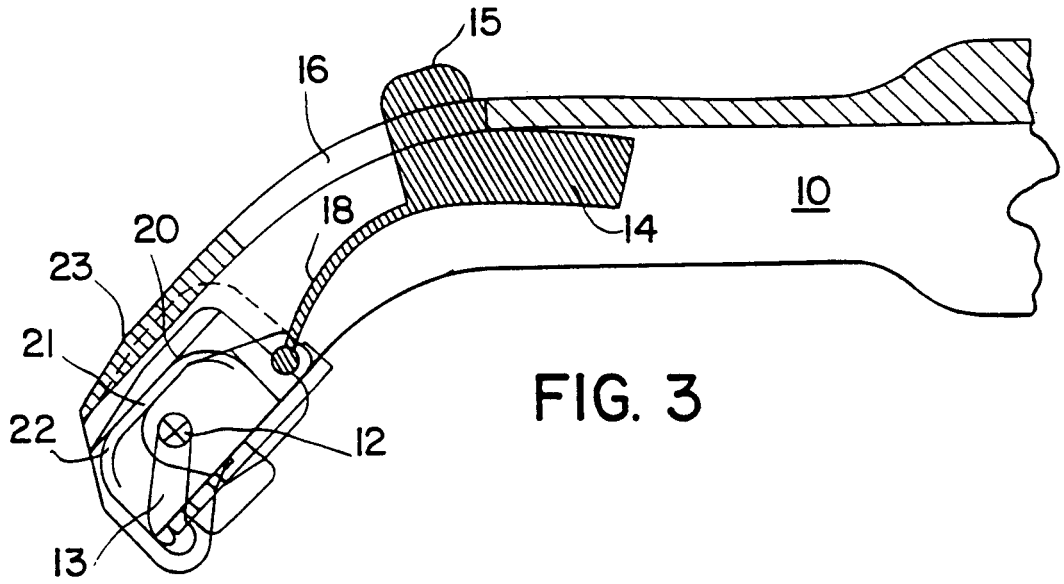

FIG. 3

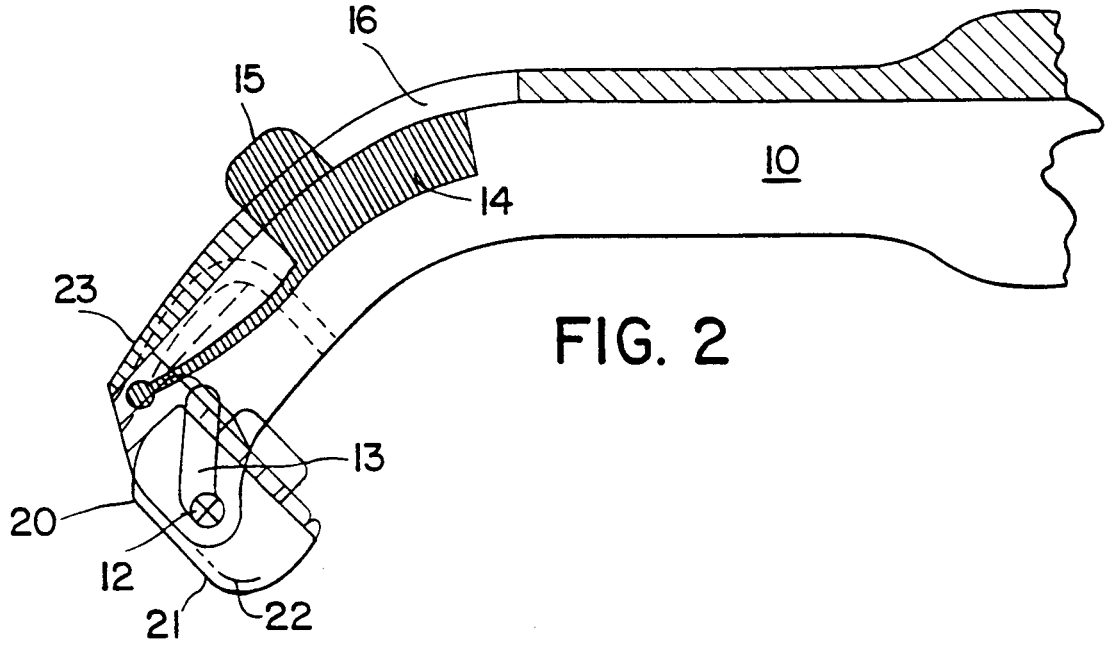

FIG. 2

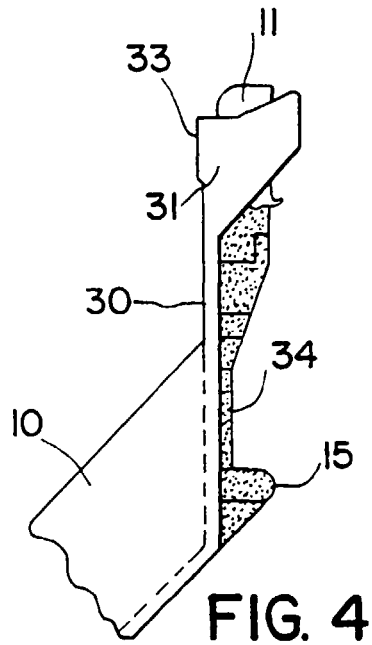

FIG. 4

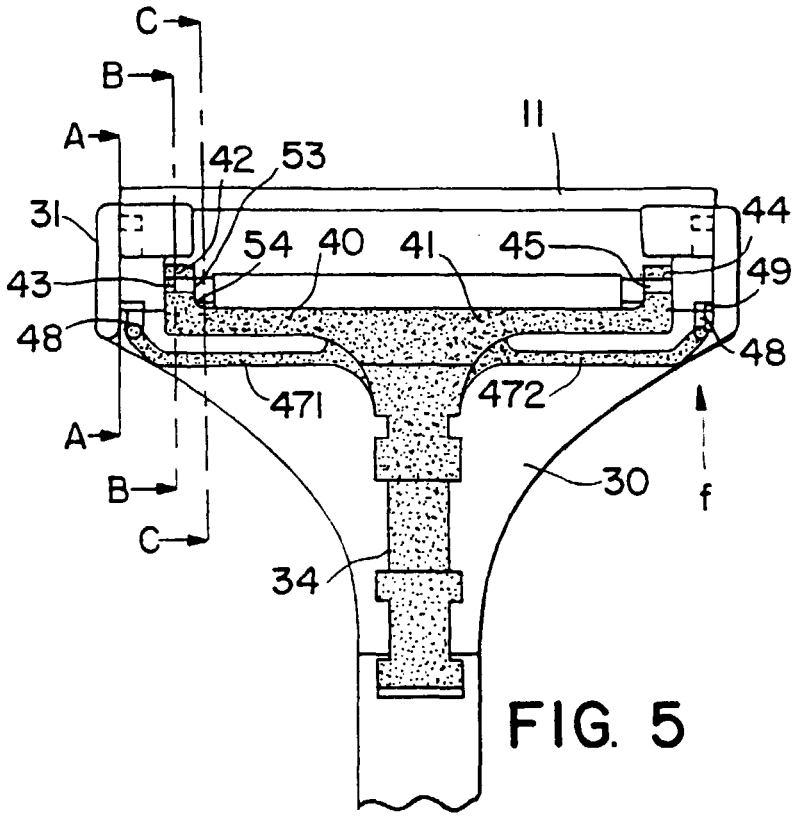

FIG. 5

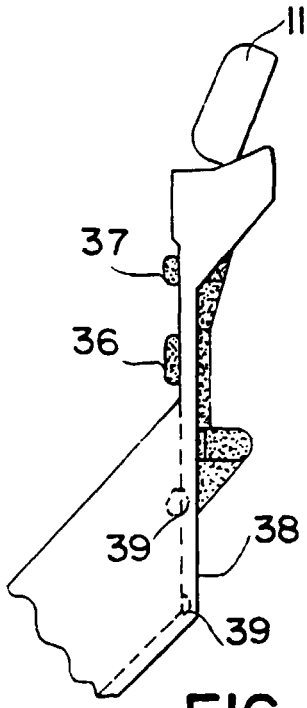

FIG. 6

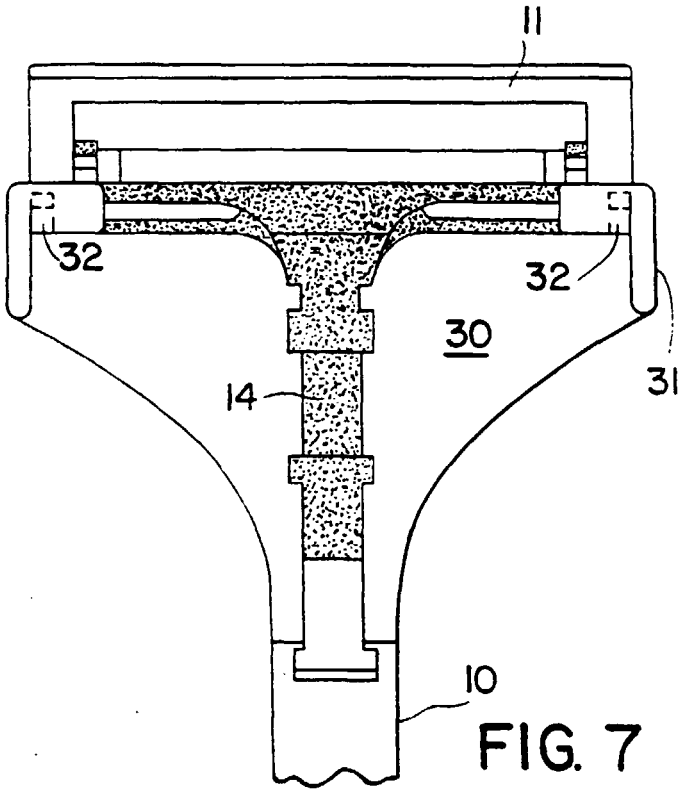

FIG. 7

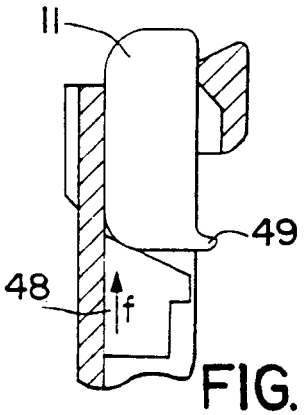

FIG. 8

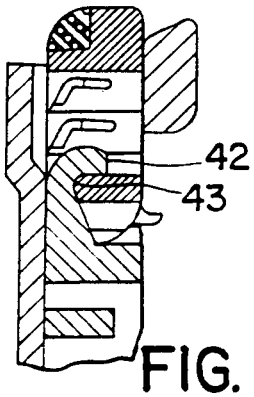

FIG. 9

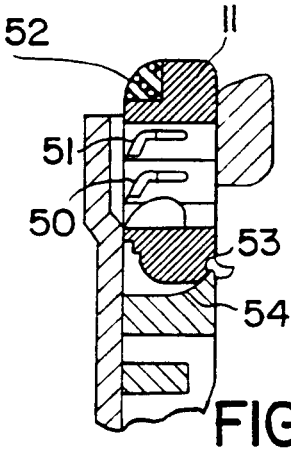

FIG. 10

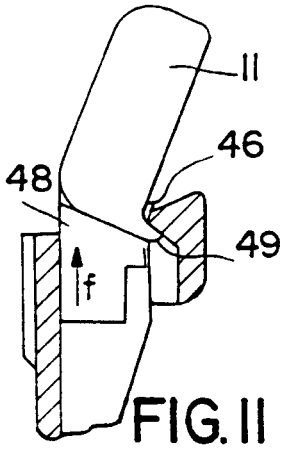

FIG. 11

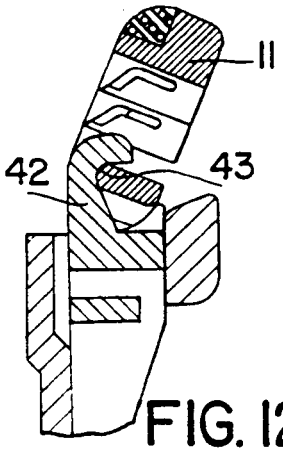

FIG. 12

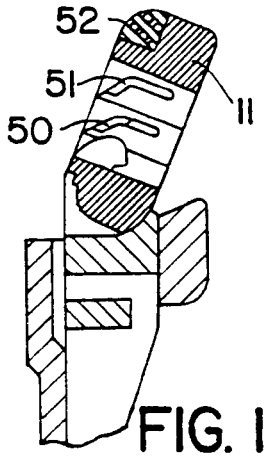

FIG. 13

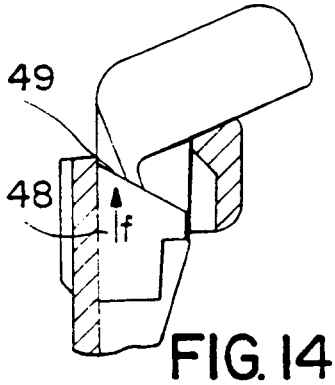

FIG. 14

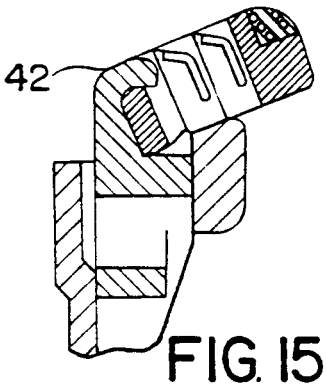

FIG. 15

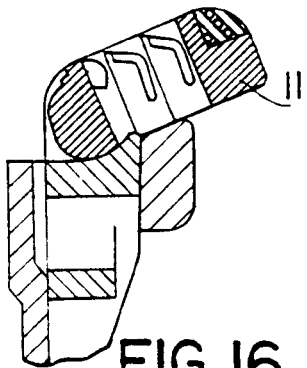

FIG. 16