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(54) **Shaving systems with rinse passages**

Rasiersysteme mit Spüldurchgängen

Systèmes de rasoirs avec passages de rinçage

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EP 0 885 699 B1

Description

[0001] The present invention is directed to shaving systems having improved rinsability and, more particularly, to shaving systems having one or more rinse passages extending through a portion of a razor.

[0002] Shaving systems which comprise a razor that releasably attaches to a razor head have found widespread use for providing close and comfortable shaves. Safety razors comprise a guard, a seat blade, a cap blade, and a cap. Each of these elements is typically disposed in skin-engaging contact during shaving. Many razors typically comprise a razor mechanism having metal prongs or forks which engage the razor head so that the razor head can move relative to the razor in one or more directions.

[0003] Those skilled in the art will appreciate that shaving debris such as shaving aids, soap, hair, skin cells, etc., can adversely affect the operation of the razor mechanism which generally comprises movable elements, e.g., slidable levers, springs, etc., and thus can affect the ability of the shaving system to operate as intended. Some designs attempt to protect razor mechanisms from shaving debris by enclosing the mechanism in a housing of the razor. To enhance proper functioning of the razor mechanism after extended exposure to shaving debris, greater clearances are required between the elements of razor mechanisms. Greater clearances lead to less control over the razor head and negatively influence the resulting shave. Attempts to better seal the razor mechanism within a housing of a razor have only been partially successful and have left small openings which allow shaving debris to contact and accumulate within the razor mechanism over time.

[0004] Document US-5-5,265,337 discloses a shaving system comprising a razor adapted to selectively support a razor head comprising a housing, a base, a cap and a blade, said razor comprising:

a at least one member for engaging a razor head, wherein the razor comprises a rinse passage extending therethrough for dislodging shaving debris from the razor head, the rinse passage extending substantially perpendicular to the base of the razor head, the razor further comprising a body portion.

[0005] According to the invention there is provided a razor as defined in Claim 1.

[0006] In Claim 1 "relatively moveable elements" includes but is not limited to two or more elements that are moveable relative to one another.

[0007] An advantage of the invention is to provide shaving systems or apparatuses which comprise one or more rinse passages through which water can pass for removing shaving debris from the razor mechanism.

[0008] Preferred features of embodiments of the invention are defined in the dependent claims.

[0009] Various embodiments of the present invention provide shaving systems which comprise a razor head and a razor comprising a handle portion, means for releasably attaching the razor head to the razor and, at least one passage for directing a fluid, e.g., water, to the releasable attaching means for cleaning and/or reducing the rate of accumulation of shaving debris within the razor mechanism.

[0010] Still other embodiments of the present invention provide razor mechanisms for shaving systems in which the razor mechanism comprises a top cover and a bottom cover connected to said top cover with a rinse passage extending between the covers to allow rinsing of the razor mechanism.

[0011] The various embodiments of the present invention comprise at least one rinse passage extending through a razor for directing rinse water through at least a portion of the razor and to the razor mechanism. The embodiments comprise shaving systems having a razor mechanism with a rinse passage. The various embodiments of the present invention are useful with razor heads having rinse passages. As used herein, the term "razor head" is meant to include cartridges adapted to be connected to a separate razor as well as the operative cutting portion of a disposable razor wherein the handle and cutting portion are formed as a single unit.

[0012] There now follows a description of preferred embodiments of the invention, by way of example, with reference being made to the accompanying drawings, in which:

FIG. 1 is a perspective view of one embodiment of the present invention.

FIG. 2 is a top plan view of the shaving system shown in FIG. 1.

FIG. 3 is a cross-sectional view taken along line 3-3 shown in FIG. 2.

FIG. 4 is a partial front elevational view of the shaving system shown in FIG. 1.

FIG. 5 is a perspective view of the razor mechanism shown in FIG. 4.

FIG. 6 is a perspective view of the razor head shown in FIG. 1.

[0013] One preferred embodiment of the present invention is illustrated in FIGS. 1 and 2 wherein a shaving system 10 comprises a razor 20, a razor head 50, and a razor mechanism 70 (FIG. 5) which is disposed within razor 20 for releasably attaching razor head 50 via prongs 72 (FIG. 1). This illustrated embodiment of the present invention provides passages for directing water through a portion of the razor and preferably through the razor mechanism for removing and/or reducing the rate of accumulation of shaving debris.

[0014] With reference to FIG. 3, razor 20 comprises a chamber 30 for housing a razor mechanism 70 shown in FIG. 5. Specifically, chamber 30 is disposed in an upper portion 22 of razor 20 and comprises an opening 32

through which razor mechanism 70 is received so that prongs 72 extend outwardly from the upper portion 22 of razor 20 (shown best in FIG. 4) and are selectively movable for attaching/detaching a razor head, as well as in response to shaving forces if the particular design so requires. From the present description, those skilled in the art will appreciate that the razor mechanism can take different forms in order to provide proper attachment and dynamics for a particular application provided that the razor mechanism comprises at least one rinse passage, as described in greater detail below.

[0015] In addition, the illustrated razor 20 comprises at least one passage 40 extending therethrough for directing a fluid, e.g., water from a sink faucet or forced air, to chamber 32 and razor mechanism 70. Specifically, passage 40 has a discharge outlet 42 which opens into chamber 30, and an inlet 44 which opens onto a rearward, upper surface 24 (FIGS. 1 and 2) of razor 20. In the embodiment illustrated in FIGS. 2 and 3, a support 46 is disposed generally in the middle of razor 20 which provides additional stability particularly to upper portion 22, and separates a second passage 41 from passage 40. Preferably, passage 40 and second passage 41 taper inwardly from the rearward portion of razor 20 toward the forward (razor head engaging) portion in order to facilitate acceleration of the fluid flowing through the passages for more effective debris removal. As illustrated in FIGS. 2 and 3, the entrances of passages 40 and 41 are provided with chamfered surfaces 47 and 48, respectively, to allow easy rinsing and to provide proper entrance for pressurized fluid, e.g., running water from a sink faucet, as well as to minimize splash. Desirably, passages 40 and 41 of razor 20 are disposed along a substantially straight path with chamber 30 and are generally perpendicular to base 51 of razor head 50, as illustrated in FIG. 1.

[0016] From the present description, it will be appreciated that the razor, although shown as being fabricated from a solid member, can comprise several parts or elements, e.g., first and second housing members which can be snap fit, thermally or adhesively joined. The razor is most preferably formed of a thermal plastic material known in the art and, alternatively, can be fabricated out of another water-resistant material.

[0017] The illustrated razor mechanism 70, as shown in FIG. 5, generally comprises a top cover 74 and a bottom cover 76 connected via connecting pins 75. Prongs 72 are linked to a spring-biased slide 78 which is operable to cause prongs 72 to move toward and away from each other in a manner known in the art. Razor mechanism 70 comprises a passage 80 comprising an inlet 82 and a discharge outlet 84 (best shown in FIG. 5). Although the razor mechanism is illustrated as comprising a top cover and a bottom cover, those skilled in the art will appreciate that a razor mechanism can comprise a single cover, e.g., either a top or bottom cover, or not have a cover.

[0018] As shown in FIG. 6, the illustrated razor head

50 generally comprises a cap 52, a guard 54, a cap blade 56, a seat blade 58, and base 51. Razor 20 (FIG. 1) further comprises an actuation member 26 which attaches to spring-biased slide 78 of razor mechanism 70 (FIG. 5) so that the base 51 of the razor head 50, which has prong-receiving indents, can be engaged by prongs 72. Alternatively, it is within the scope of the present invention to provide a razor head which is also adapted for improved rinsability.

[0019] By placing shaving system 10 in a fluid stream, e.g., under running water during shaving, fluid will enter inlets 44 and 45, as illustrated by arrow A in FIG. 1, travel through passages 40 and 41 to razor mechanism 70, and then exit discharge outlet 84 (FIG. 4) carrying away shaving debris. As will be appreciated from the present disclosure, by running water through passages 40 and 41 as described above, the water will advantageously rinse debris from all movable parts of the razor. The razor mechanism rinse path is substantially perpendicular to the passages between the blades, cap and base of the razor head which also commonly requires rinsing. This substantially perpendicular arrangement is designed to minimize the amount of debris that could be rinsed from the razor mechanism and enter open spaces of the razor head, and vice-versa.

[0020] From the present description it will also be appreciated by those skilled in the art that by providing a shaving system comprising rinse passages, the elements of a razor mechanism can be constructed with greater tolerances while reducing the likelihood that the razor mechanism will malfunction or not operate as intended.

Claims

1. A shaving system (10) comprising a razor (20) adapted to selectively support a razor head (50) comprising a housing (30), a base (51), a cap (52) and a blade (56; 58), said razor comprising:

a razor mechanism (70), said razor mechanism comprising at least one member for engaging a razor head,

characterised in that the razor mechanism comprises relatively moveable elements and said razor mechanism further comprises a rinse passage (80) extending therethrough for dislodging shaving debris from said razor mechanism, the rinse passage extending substantially perpendicular to passages defined between the blade (56; 58), cap (52) and the base (51) of the razor head,

the razor further comprising a body portion (20) connected to said razor mechanism and a body passage (40; 41) extending through said body portion, and wherein said body portion is in fluidic communication with said rinse passage (80) of said ra-

zor mechanism.

2. A shaving system according to claim 1 wherein the razor mechanism (70) comprises means (72) for connecting the razor head to the body portion.
3. A shaving system according to claim 2 wherein said connecting means (72) releasably connects the razor head to said body portion.
4. A shaving system according to any of claims 1 to 3 wherein said body portion (20) comprises a forward portion proximate said razor mechanism and a rearward portion, and wherein said body passage (40; 41) extends from said rearward portion to said forward portion.
5. A shaving system according to any one of the preceding claims wherein said razor comprises a chamber (30) which receives at least a portion of the razor mechanism.
6. A shaving system according to claim 5 wherein said body passage (40) comprises an inlet (44) which opens onto an outer surface of said razor and a discharge outlet (42) which opens into said chamber.
7. A shaving system according to any of the preceding claims wherein said razor is provided with two body passages (40, 41) therethrough for directing a fluid to said razor mechanism.
8. A shaving system according to claim 7 wherein said razor comprises a brace (46) disposed between said body passages.
9. A shaving system according to claim 7 or claim 8 wherein said body passages (40, 41) widen as they open onto an outer surface of said razor.
10. A shaving system according to claim 9 wherein a portion (47, 48) of said razor adjacent each of said body passages is chamfered.
11. A shaving system according to any one of the preceding claims wherein a discharge outlet (84) of said rinse passage (80) is disposed adjacent attachment of said razor head.
12. A shaving system according to any one of the preceding claims wherein said razor (20) further comprises an actuation member (78) attached to said razor mechanism to activate said connecting means to connect to said razor head.
13. A shaving system according to any one of the preceding claims further comprising a razor head which comprises a guard (54).

14. A shaving system according to any one of the preceding claims further comprising a razor head which comprises at least two blades (56, 58).

- 5 15. A shaving system according to any one of the preceding claims wherein said razor mechanism (70) comprises a top cover (74) and a bottom cover (76) spaced therefrom, and a spring-biased slide (78) operably attached to at least one of said covers to operate a pair of prongs which attach to said razor head.

Patentansprüche

1. Rasiersystem (10) mit einem Rasierer (20), der dafür ausgelegt ist, selektiv einen Rasiererkopf (50) zu halten, welcher ein Gehäuse (30), eine Basis (51), eine Abdeckung (52) und eine Klinge (56; 58) aufweist, wobei der Rasierer umfasst:

einen Rasierermechanismus (70), wobei der Rasierermechanismus zumindest ein Element zum Ineingriffbringen eines Rasiererkopfes aufweist,

dadurch gekennzeichnet, dass der Rasierermechanismus relativ bewegliche Elemente umfasst und der Rasierermechanismus ferner einen sich durch ihn hindurch erstreckenden Spüldurchgang (80) aufweist, um Rasurreste vom Rasierermechanismus zu entfernen, wobei sich der Spüldurchgang im Wesentlichen senkrecht zu Durchgängen erstreckt, die zwischen der Klinge (56; 58), der Abdeckung (52) und der Basis (51) des Rasiererkopfes definiert sind, wobei der Rasierer ferner einen Körperabschnitt (20), der mit dem Rasierermechanismus verbunden ist, und einen Körperdurchgang (40; 41) umfasst, der sich durch den Körperabschnitt erstreckt, und wobei der Körperabschnitt in Fluidverbindung mit dem Spüldurchgang (80) des Rasierermechanismus steht.

- 45 2. Rasiersystem nach Anspruch 1, bei dem der Rasierermechanismus (70) Einrichtungen (72) zum Verbinden des Rasiererkopfes mit dem Körperabschnitt umfasst.
- 50 3. Rasiersystem nach Anspruch 2, bei dem die Verbindungseinrichtung (72) den Rasiererkopf lösbar mit dem Körperabschnitt verbindet.
- 55 4. Rasiersystem nach einem der Ansprüche 1 bis 3, bei dem der Körperabschnitt (20) einen vorderen Abschnitt nahe dem Rasierermechanismus und einen rückwärtigen Abschnitt umfasst, wobei sich der

Körperdurchgang (40; 41) vom rückwärtigen Abschnitt zum vorderen Abschnitt erstreckt.

5. Rasiersystem nach einem der vorhergehenden Ansprüche, bei dem der Rasierer eine Kammer (30) umfasst, die zumindest einen Abschnitt des Rasierermechanismus aufnimmt. 5
6. Rasiersystem nach Anspruch 5, bei dem der Körperdurchgang (40) einen Einlass (44), der an einer Außenfläche des Rasierers mündet, und einen Ablaufauslass (42) umfasst, der in die Kammer mündet. 10
7. Rasiersystem nach einem der vorhergehenden Ansprüche, bei dem der Rasierer mit zwei durch ihn hindurch verlaufenden Körperdurchgängen (40, 41) versehen ist, um ein Fluid zum Rasierermechanismus zu leiten. 15
8. Rasiersystem nach Anspruch 7, bei dem der Rasierer eine Strebe (46) umfasst, die zwischen den Körperdurchgängen angeordnet ist. 20
9. Rasiersystem nach Anspruch 7 oder Anspruch 8, bei dem sich die Körperdurchgänge (40, 41) verbreitern, wenn sie an einer Außenfläche des Rasierers münden. 25
10. Rasiersystem nach Anspruch 9, bei dem ein Abschnitt (47, 48) des Rasierers, der zu jedem der Körperdurchgänge benachbart ist, abgeschrägt ist. 30
11. Rasiersystem nach einem der vorhergehenden Ansprüche, bei dem ein Ablaufauslass (84) des Spüldurchganges (80) benachbart zur Befestigung des Rasiererkopfes angeordnet ist. 35
12. Rasiersystem nach einem der vorhergehenden Ansprüche, bei dem der Rasierer (20) ferner ein Betätigungselement (78) umfasst, das an dem Rasierermechanismus angebracht ist, um die Verbindungseinrichtung zur Verbindung mit dem Rasiererkopf zu aktivieren. 40
13. Rasiersystem nach einem der vorhergehenden Ansprüche, das ferner einen Rasiererkopf umfasst, der eine Schutzeinrichtung (54) aufweist. 45
14. Rasiersystem nach einem der vorhergehenden Ansprüche, das ferner einen Rasiererkopf umfasst, der zumin-

dest zwei Klingen (56, 58) aufweist.

15. Rasiersystem nach einem der vorhergehenden Ansprüche, bei dem der Rasierermechanismus (70) eine obere Abdeckung (74) und eine davon beabstandete untere Abdeckung (76) sowie einen unter Federspannung stehenden Schieber (78) umfasst, der betriebsfähig an zumindest einer der Abdeckungen angebracht ist, um ein Paar Zinken zu betätigen, die mit dem Rasiererkopf in Eingriff geraten.

Revendications

1. Système de rasage (10) comprenant un rasoir (20) adapté pour supporter de manière sélective une tête de rasoir (50), comprenant un logement (30), une embase (51), un capuchon (52) et une lame (56 ; 58), ledit rasoir comprenant

un mécanisme de rasoir (70), ledit mécanisme de rasoir comprenant au moins un élément destiné à s'engager avec une tête de rasoir, le mécanisme de rasoir comprend des éléments pouvant être mobiles les uns par rapport aux autres et ledit mécanisme de rasoir comprend en outre un passage de rinçage (80) qui s'étend au travers de celui-ci, afin de déloger des résidus de rasage restant dans ledit mécanisme de rasoir, le passage de rinçage s'étendant essentiellement de manière perpendiculaire aux passages définis entre la lame (56 ; 58), le capuchon (52) et l'embase (51) de la tête de rasoir ;

le rasoir comprenant en outre une partie de corps (20) connectée au dit mécanisme de rasoir et un passage de corps (40 ; 41) qui s'étend au travers de ladite partie de corps, et dans lequel ladite partie de corps est en communication par fluide avec le passage de rinçage (80) dudit mécanisme de rasoir.

2. Système de rasage selon la revendication 1, dans lequel le mécanisme de rasoir (70) comprend des moyens (72) destinés à connecter la tête de rasoir à la partie de corps.
3. Système de rasage selon la revendication 2, dans lequel lesdits moyens de connexion (72) connectent de manière amovible la tête de rasoir à ladite partie de corps.
4. Système de rasage selon l'une quelconque des revendications 1 à 3, dans lequel ladite partie de corps (20) comprend une partie avant située à proximité dudit mécanisme de rasoir et une partie arrière, et dans lequel ledit passage de corps (40 ;

41) s'étend entre ladite partie arrière et ladite partie avant.

5. Système de rasage selon l'une quelconque des revendications précédentes, dans lequel le rasoir comprend une chambre (30) qui reçoit au moins une partie du mécanisme de rasoir. 5
6. Système de rasage selon la revendication 5, dans lequel ledit passage de corps (40) comprend une entrée (44) qui s'ouvre sur une surface externe dudit rasoir et une sortie d'évacuation (42) qui s'ouvre à l'intérieur de ladite chambre. 10
7. Système de rasage selon l'une quelconque des revendications précédentes, dans lequel ledit rasoir comporte deux passages de corps (40, 41) aménagés au travers de celui-ci, afin de diriger un fluide vers ledit mécanisme de rasoir. 15
20
8. Système de rasage selon la revendication 7, dans lequel ledit rasoir comprend un renfort (46) disposé entre lesdits passages de corps.
9. Système de rasage selon la revendication 7 ou la revendication 8, dans lequel lesdits passages de corps (40, 41) s'élargissent en s'ouvrant sur une surface externe dudit rasoir. 25
10. Système de rasage selon la revendication 9, dans lequel une partie (47, 48) dudit rasoir située à proximité de chacun desdits passages de corps est chanfreinée. 30
11. Système de rasage selon l'une quelconque des revendications précédentes, dans lequel une sortie d'évacuation (84) dudit passage de rinçage (80) est disposée à proximité de la fixation de ladite tête de rasoir. 35
40
12. Système de rasage selon l'une quelconque des revendications précédentes, dans lequel ledit rasoir (20) comprend un élément de commande (78) fixé sur ledit mécanisme de rasoir, afin d'actionner lesdits moyens de connexion et de permettre la connexion de ladite tête de rasoir. 45
13. Système de rasage selon l'une quelconque des revendications précédentes comprenant en outre une tête de rasoir qui comprend une protection (54). 50
14. Système de rasage selon l'une quelconque des revendications précédentes comprenant en outre une tête de rasoir qui comprend au moins deux lames (56, 58). 55
15. Système de rasage selon l'une quelconque des revendications précédentes, dans lequel ledit méca-

nisme de rasoir (70) comprend un capot supérieur (74) et un capot inférieur (76) espacés l'un de l'autre, et une glissière décentrée par ressort (78) fixée en fonctionnement sur au moins l'un desdits capots, afin d'actionner une paire de griffes qui se fixent sur ladite tête de rasoir.

FIG-1

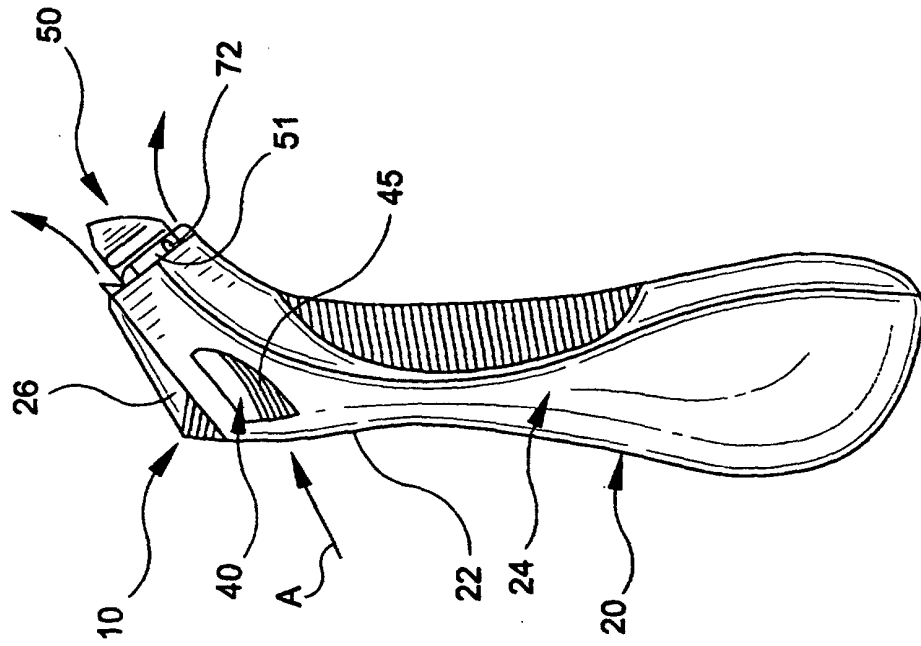


FIG-2

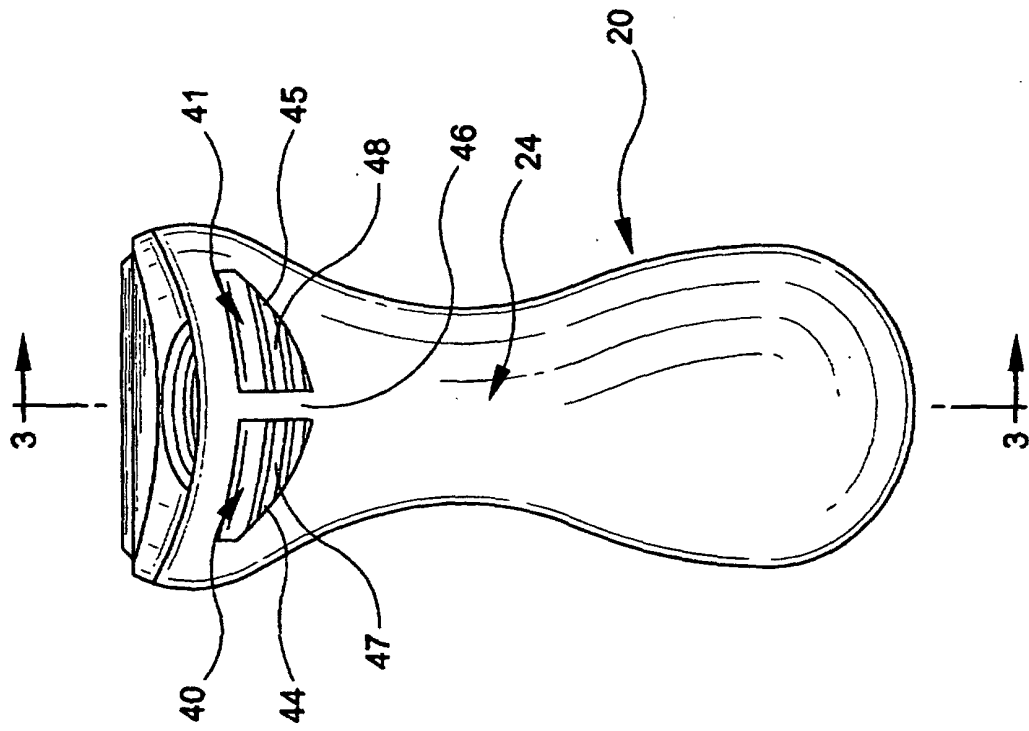


FIG-4

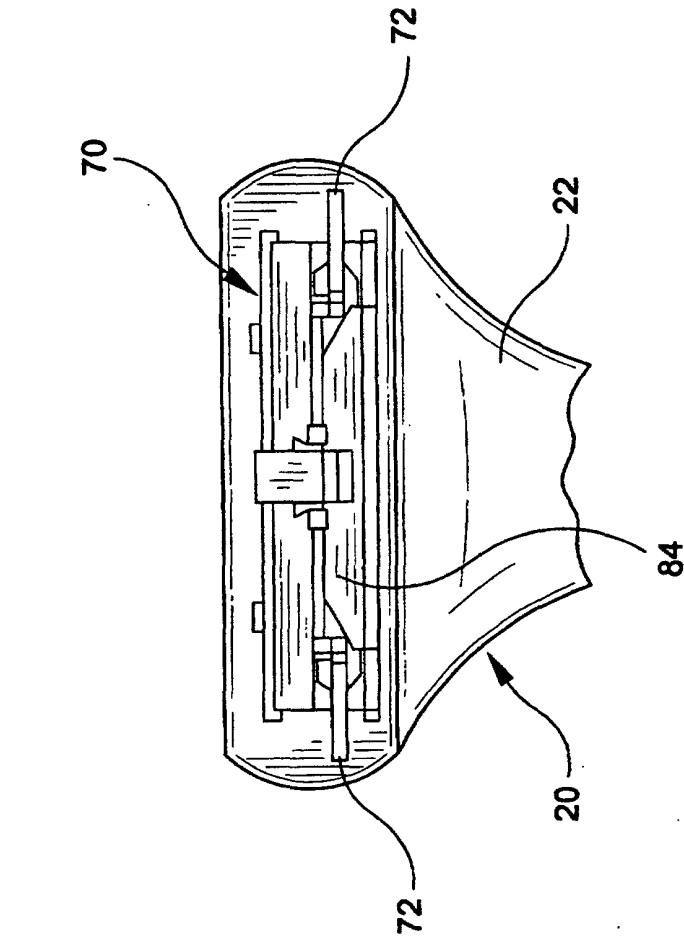


FIG-3

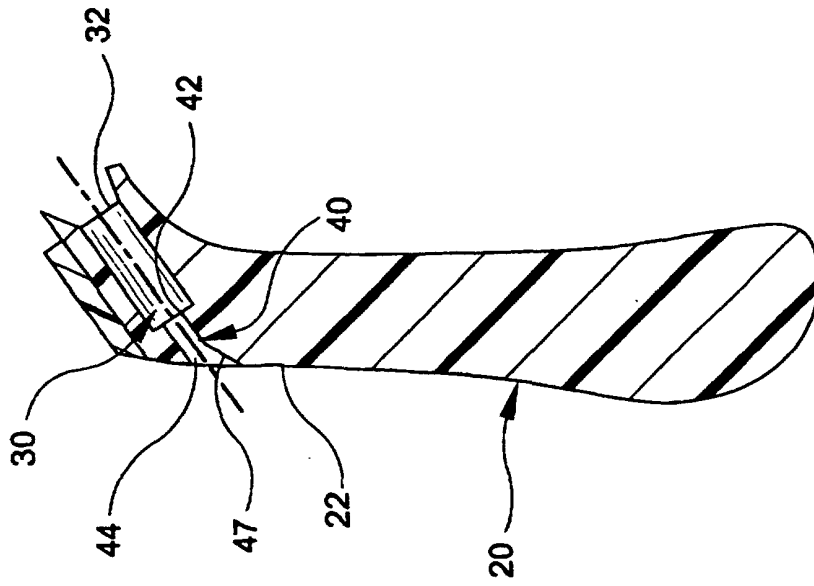


FIG-6

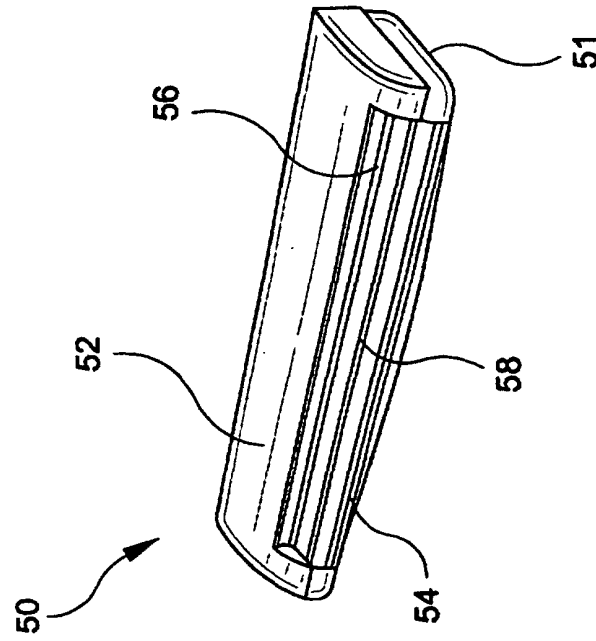


FIG-5

