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**GB-A-1 593 979**
**US-A-2 335 547**
**US-A-3 852 883**
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Courier Press, Leamington Spa, England.

## Description

Background of the Invention

*Field of the Invention*

The invention relates to a shaving implement having a casing comprising a platform portion and a cap portion for receiving a blade means therebetween in clamping manner, said blade means having two blades and one spacer member therebetween, said cap portion extending from a back portion, overlying said platform portion and being inclined toward said platform portion.

*Description of the Prior Art*

It is generally known in the art to provide a housing having platform and cap portions adapted to receive a blade means therebetween. In US—A—1,195,259 there is shown a platform and cap portion formed from a single piece of metal, the cap overlying the platform.

It is also generally known to embed a blade in a plastic shaving head, the head being permanently attached to a handle, or alternatively, removable from a handle for replacement by another shaving head. US—A—1,864,995 shows such an arrangement.

More recent examples of plastic shaving head having blades fixed therein include US—A—3,703,764, US—A—3,724,070, and US—A—4,026,016. While such recent examples have been eminently successful, there is, as always, a need for such products which are less expensive to manufacture and offer improved functional characteristics.

A combination of the simplicity of the device according to US—A—1,195,259 and the more recent blade-in-plastic shaving implements would afford significant cost savings, and at the same time permit manufacture of a more maneuverable, more easily handled shaving implement.

Recognizing that it is only the cutting edge of a razor blade that does a razor's work, there have been attempts to use narrower blades. In most cartridge-type shaving units blades are retained in plastic cartridges by the passing of plastic posts, or pins, through holes in the blades and heading over the posts. While such method has successfully accomplished its goal, the use of "rivets" of this sort requires a blade of a width of about 2,54 mm, limiting to a great extent the degree of narrowness possible. Efforts have been made, as described in US—A—4,084,316, to utilize very narrow blades by way of welding the blades to a support, such as a rigid wire. Welding presents problems by virtue of the heat required and the effect of such heat on the blade metal.

Accordingly, there exists a need for a shaving implement construction which will permit use of blades narrower than 2,54 mm but not such as to subject the blades to harmful temperatures, or other deleterious conditions, during fabrication.

According to the US—A—3,852,883 the lower blade of a two blade assembly lies over the whole length on the platform portion, which can be pressed towards the cap portion by a special spring in order to clamp the blade assembly. This means that the platform portion itself is the active member for effecting the clamping pressure. The cap portion and the back portion are secured to a member not being directly connected with the platform portion. Otherwise the two blades are connected with the spacer member by welding spots, wherein eventually aligning projections of the parts extend in corresponding slots in order to bring the blades and the spacer element in a predetermined relationship one to another before welding.

Besides a relatively complicated construction for creating the clamping pressure this prior art solution has the disadvantage, that by welding the blades and the spacer member problems arise, because by the welding procedure heat is created influencing negatively the material of the blades.

From the US-patent 4,084,316 it is well-known to use narrow blades due to a special supporting structure. The supporting structure however is relatively complicated and affords furthermore a welding procedure for securing the blades on the supporting structure together with the mentioned disadvantages. From this prior art document it is well-known to make the casing of one piece. In this connection the back portion connects the platform portion and the cap portion. The platform portion is provided as a movable part acting as an active member for applying a clamping pressure to the blade assembly and urging the same against the cap member. By this structure a disadvantage is given in that during applying the skin engaging pressure to the cutting edges of the blades directly the spring elastic platform portion is influenced so that the blades cannot be held in safe manner.

In the GB—A—1,593,979 a one piece casing for a shaving implement is provided with slots in which the blades are inserted. The blades have bent away portions which hold the blades within the slots. Alternatively broads protrude through holes of the blades in order to hold the blades within the slots.

Summary of the Invention

It is therefore an object of the present invention to provide a shaving implement including blade means disposed between cap and platform portions which operate to retain the blade means without need of rivet portions, or the like.

A further object of the invention is to provide a shaving implement utilizing narrow blade means disposed between the cap and platform portions and retained therebetween.

With the above and other objects in view, as will hereinafter appear, a feature of the present invention is the provision of a shaving implement comprising a platform portion, a back portion upstanding from a lengthwise margin of the platform portion, a cap portion extending from the back portion and overlying the platform portion, end walls interconnecting said platform and cap

portions at either end thereof, said platform back, cap and end wall portions being an integrally molded plastic unit, the cap portion being adapted, in an unstressed state, to incline toward the platform portion to a first position, and blade means permanently disposed between the cap and platform portions and adjacent the back portion, the blade means stressing the cap portion and retaining the cap portion in a second position further removed from the platform portion than the first position, the cap portion thereby exercising a clamping pressure on the blade means, wherein said blade means comprises a first blade member, a spacer member, and a second blade member, said spacer member being disposed between said first and second blade members, said blade and spacer members being in abutting engagement and held together by said clamping pressure, but otherwise being unconnected with one another.

The above and other features of the invention, including various novel details of construction and combinations of parts, will now be more particularly described with reference to the accompanying drawings and pointed out in the claims. It will be understood that the particular device embodying the invention is shown by way of illustration only and not as a limitation of the invention.

Brief Description of the Drawings

Reference is made to the accompanying drawings in which is shown an illustrative embodiment of the invention from which its novel features and advantages will be apparent.

In the drawings:

FIG. 1 is a top plan view of a housing suitable for use in an illustrative embodiment of the invention;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a sectional view taken along line III—III of FIG. 1;

FIG. 4 is a sectional view taken along line IV—IV of FIG. 1;

FIG. 5 is an exploded perspective view of an illustrative blade means;

FIG. 6 is a top plan view of one form of shaving implement illustrative of an embodiment of the invention;

FIG. 7 is a front elevational view of the shaving implement;

FIG. 8 is a sectional view taken along line VIII—VIII of FIG. 6;

FIG. 9 is a side elevational view of one form of razor illustrative of a further embodiment of the invention; and

FIG. 10 is a sectional view, similar to FIG. 8, but showing still another embodiment of the invention.

Description of the Preferred Embodiments

Referring to the drawings, and particularly FIGS. 1—4, it will be seen that an illustrative housing 2 includes a platform portion 4. A back portion 6 upstands from a lengthwise margin of the platform portion 4, and a cap portion 8 extends forwardly from the back portion 6 to overlie the platform portion. The housing further includes leg portions extending forwardly from the platform portion and joining a guard portion 12 which is disposed parallel to the back portion 6. The housing is further provided with end walls 14, 16 interconnecting the back and guard portions at the ends of the housing.

The cap portion 8 is an unstressed state (FIGS. 3 and 4) is adapted to incline toward the platform portion 4 to a first position. The cap portion is sufficiently flexible to receive a blade means therebeneath, the blade means stressing the cap portion to a second position (FIG. 8) further removed from the platform portion than the first position. The cap portion thereby exercises a clamping pressure on the blade means.

The cap portion 8 may comprise a series of spaced, aligned, forwardly extending fingers 18. The platform portion may be provided with a series of spaced, aligned recesses 20, the recesses being separated by platform rib portions 22. As may be seen in FIG. 1, each of the fingers 18 is disposed over one of the recesses 20 and each of the rib portions 22 is in alignment with a space between two of the fingers 18.

Preferably, the entire housing, and at least the platform back, cap and end portions, is of molded plastic and is molded as an integral unit. The fingers 18 are in effect leaf springs adapted to flex to receive a blade means between the fingers and the platform and further serve to urge the blade means against an upper surface 24 of the platform portion.

In a preferred embodiment, the end walls 14, 16 are provided with inwardly extending projections 26 which are opposed to each other, as seen in FIGS. 1 and 2. The projections provide an additional blade means retention facility. Each projection includes a forward surface 28 extending from the end wall on which the projection is mounted obliquely to a side surface 30. A rear surface 32 interconnects the rearward edge of the side surface and the end wall surface. The function and operation of the projections 26 will be further described hereinbelow.

Each of the fingers 18 include a guide surface 34, serving to guide a blade means into the gap, or pocket, formed by the platform and back portion and the fingers. As noted above, the fingers 18 are formed such that while extending forwardly, the fingers also extend slightly downwardly, as viewed in FIGS. 3 and 4, or toward the platform surface 24.

Referring to FIG. 5, it will be seen that a blade means suitable for use with the above-described housing includes a first blade 44 having a cutting edge 46, the blades 40, 44 being fixed to either side, respectively, of a spacer member 50. The spacer member 50 includes an elongated central portion 52 and end portions 54 extending forwardly of a frontal edge 56 of the central portion 52 and having outwardly-facing notches 58 therein adapted to receive the projections 26. The

notches 58 are defined in part by extensions 60, each having a cam surface 62, an outer surface 64, and a notch surface 66.

In assembly, the blade means including the first blade 40, spacer 50, and second blade 44, is inserted between the fingers 18 and the upper surfaces 24 of the rib portions 22, the finger guide surfaces 34 guiding and urging the blade means into place. The cam surface 62 engages the projection forward surface 28. Continued pressure on the blade means causes the extensions 60 to override the projections 26, with the notches 58 coming to rest about the projections 26, as seen in FIG. 6.

The blade and spacer portions of the blade means are retained in position relative to each other solely by the pressure thereon exercised by the cap portion 8 and are otherwise not attached to each other. There being no rivet connecting means, it will be apparent that the width of the blade is not a critical factor and a very narrow blade, less than 2,54 mm from the cutting edge to rearward edge, may be used.

Referring to FIG. 9, it will be seen that the housing may be provided with means for attachment to a razor handle. While such means may comprise the well known groove means disclosed in the aforementioned U.S. Patent 3,724,070, or journal bearing means as disclosed in the aforementioned U.S. Patent No. 4,026,016, in the embodiment shown in FIGS. 1—4, the housing is provided with connecting means 70 adapted to be engaged by a razor handle 80. The handle 80 may be of the type permanently connected to the housing 2, or may be of the type selectively connected and disconnected to and from the handle.

**Claims**

1. Shaving implement comprising a platform portion (4) and a cap portion (8) for receiving a blade means therebetween, a back portion (6) upstanding from a lengthwise margin of said platform portion (4), said cap portion (8) extending from said back portion (6) and overlying said platform portion (4), end walls (14, 16) interconnecting said platform and cap portions at either end thereof, said platform, back, cap and end wall portions being an integrally molded plastic unit, said cap portion (6) being adapted, in an unstressed state, to incline toward said platform portion (4) to a first position, and blade means permanently disposed between said cap and platform portions (8, 4) and adjacent said back portion (6), said blade means stressing said cap portion (8) and retaining said cap portion (8) in a second position further removed from said platform portion (4) than said first position, said cap portion (8) thereby exercising a clamping pressure on said blade means, wherein said blade means comprises a first blade member (40), a spacer member (50), and a second blade member (44), said spacer member (50) being disposed between said first and second blade members (40, 44), said blade and spacer members (40, 44, 50) being in abutting engagement and held together by said clamping pressure, but otherwise being unconnected with one another.

2. Shaving implement according to claim 1, wherein at least one of said blades is less than 2,54 mm from cutting edge to back edge.

3. Shaving implement according to claim 1, wherein said spacer member (50) includes an elongated central portion (52) and end portions (54) extending forwardly of a frontal edge of said central portion (52), said end portions extending forwardly of said first and second blade members (40, 44).

**Patentansprüche**

1. Rasierapparat mit einem Plattformabschnitt (4) und einem Kappenabschnitt (8) zum Aufnehmen von Klingenmitteln dazwischen, mit einem hinteren Abschnitt (6), der von einem Längsrand des Plattformabschnittes (4) nach oben wegsteht, wobei der Kappenabschnitt (8) vom hinteren Abschnitt (6) ausgeht und über dem Plattformabschnitt (4) liegt, mit den Plattformabschnitt und den Kappenabschnitt an den Enden verbindenden Endwänden (14, 16), wobei der Plattformabschnitt, der hintere Abschnitt, der Kappenabschnitt und die Endwandabschnitte eine integral gegossene Kunststoffeinheit bilden, wobei der Kappenabschnitt (8) im unbelasteten Zustand in Richtung auf den Plattformabschnitt (4) in einer ersten Stellung geneigt verläuft und Klingenmittel permanent zwischen dem Kappenabschnitt und dem Plattformabschnitt (8, 4) und neben dem hinteren Abschnitt (6) angeordnet sind, die auf den Kappenabschnitt (8) eine Beanspruchung ausüben und den Kappenabschnitt (8) in einer zweiten Stellung halten, die weiter vom Plattformabschnitt (4) entfernt liegt als die erste Stellung, wodurch der Kappenabschnitt (8) einen Klemmdruck auf die Klingenmittel ausübt, wobei die Klingenmittel eine erste Klinge (40), einen Abstandshalter (50) und eine zweite Klinge (44) umfassen, von denen der Abstandshalter (50) zwischen der ersten und zweiten Klinge (40, 44) angeordnet ist und die Klingen und der Abstandshalter (40, 44, 50) in aneinanderliegendem Verhältnis durch den Klemmdruck zusammengehalten und ansonsten nicht miteinander verbunden sind.

2. Rasierapparat nach Anspruch 1, bei dem zumindest eine der Klingen von der Schneidkante zur Hinterkante weniger als 2,54 mm misst.

3. Rasierapparat nach Anspruch 1, bei dem der Abstandshalter (50) einen länglichen Mittelabschnitt (52) und Endabschnitte (54) umfasst, die von einem vorderen Rand des Mittelabschnittes (52) nach vorne verlaufen und vor der ersten und zweiten Klinge (40, 44) liegen.

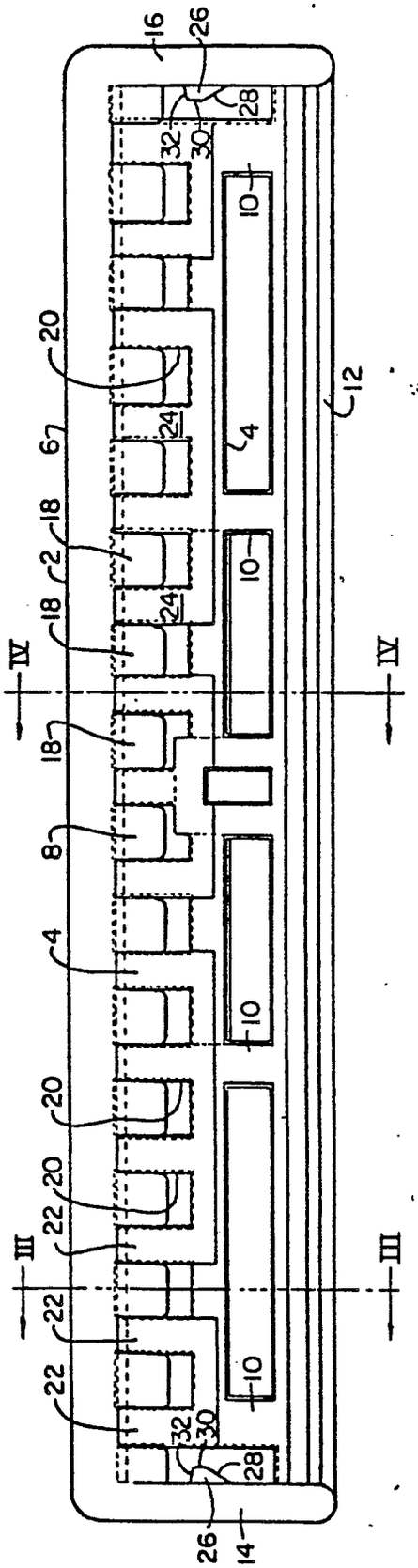
**Revendications**

1. Instrument de rasage qui comprend une partie plate-forme (4) et une partie chapeau (8) destinées à recevoir des moyens à lames entre

elles, une partie dos (6) qui s'élève sur un bord longitudinal de la partie plate-forme (4), ladite partie chapeau (8) faisant saillie sur ladite partie dos (6) et surplombant ladite partie plate-forme (4), des parois d'extrémités (14, 16) qui relient lesdites parties plate-forme et chapeau à chacune de leurs extrémités, lesdites parties plate-forme, dos, chapeau et parois d'extrémités formant une unité en matière plastique moulée d'un seul tenant, ladite partie chapeau (8) étant adaptée pour s'incliner vers ladite partie plate-forme (4) en prenant une première position lorsqu'elle est à l'état détendu, et des moyens à lames interposés de façon permanente entre lesdites parties chapeau et plate-forme (3, 4) et adjacents à ladite partie dos (6), lesdits moyens à lames exerçant une contrainte sur ladite partie chapeau (8) et retenant ladite partie chapeau (8) dans une deuxième position qui est plus éloignée de ladite partie plate-forme (4) que la première position, ladite partie chapeau (8) exerçant de cette façon une pression de serrage sur lesdits moyens à lames, instrument de rasage dans lequel lesdits moyens à lames comprennent un premier élément lame (40), un élément intercalaire (50) et un deuxième élément lame (44), ledit élément intercalaire (50) étant disposé entre lesdits premier et deuxième éléments lames (40, 44), lesdits éléments lames et intercalaire (40, 44, 50) étant en appui et étant maintenus assemblés par ladite pression de serrage sans être assemblés entre eux d'une autre façon.

2. Instrument de rasage selon la revendication 1, dans lequel au moins l'une desdites lames est d'une dimension inférieure à 2,54 mm entre l'arête tranchante et le bord arrière.

3. Instrument de rasage selon la revendication 1, dans lequel ledit élément intercalaire (50) comprend une partie centrale allongée (52) et des parties d'extrémités (54) qui font saillie en avant d'un bord frontal de ladite partie centrale (52), lesdites parties d'extrémités faisant saillie en avant desdits premiers et deuxièmes éléments lames (40, 44).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12
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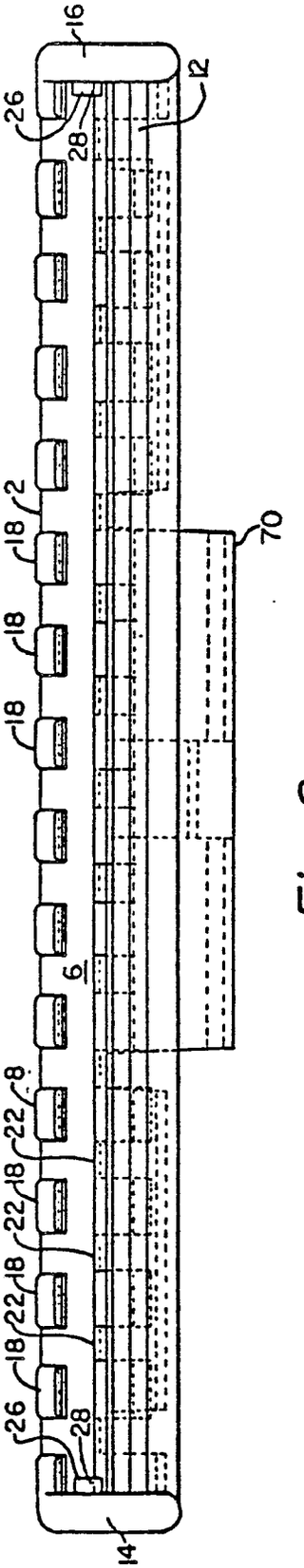
4
67
18
2
8
22
III
IV
14

Fig. 1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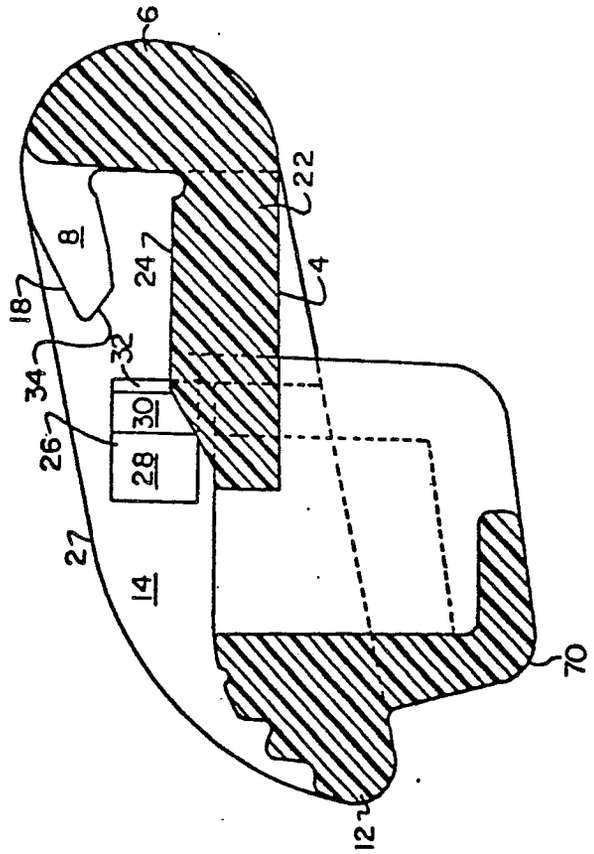
14

Fig. 2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70
12

Fig. 4

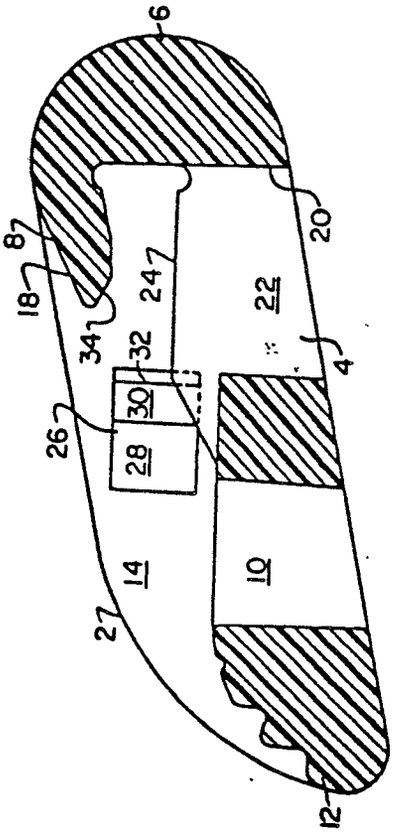
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Fig. 3

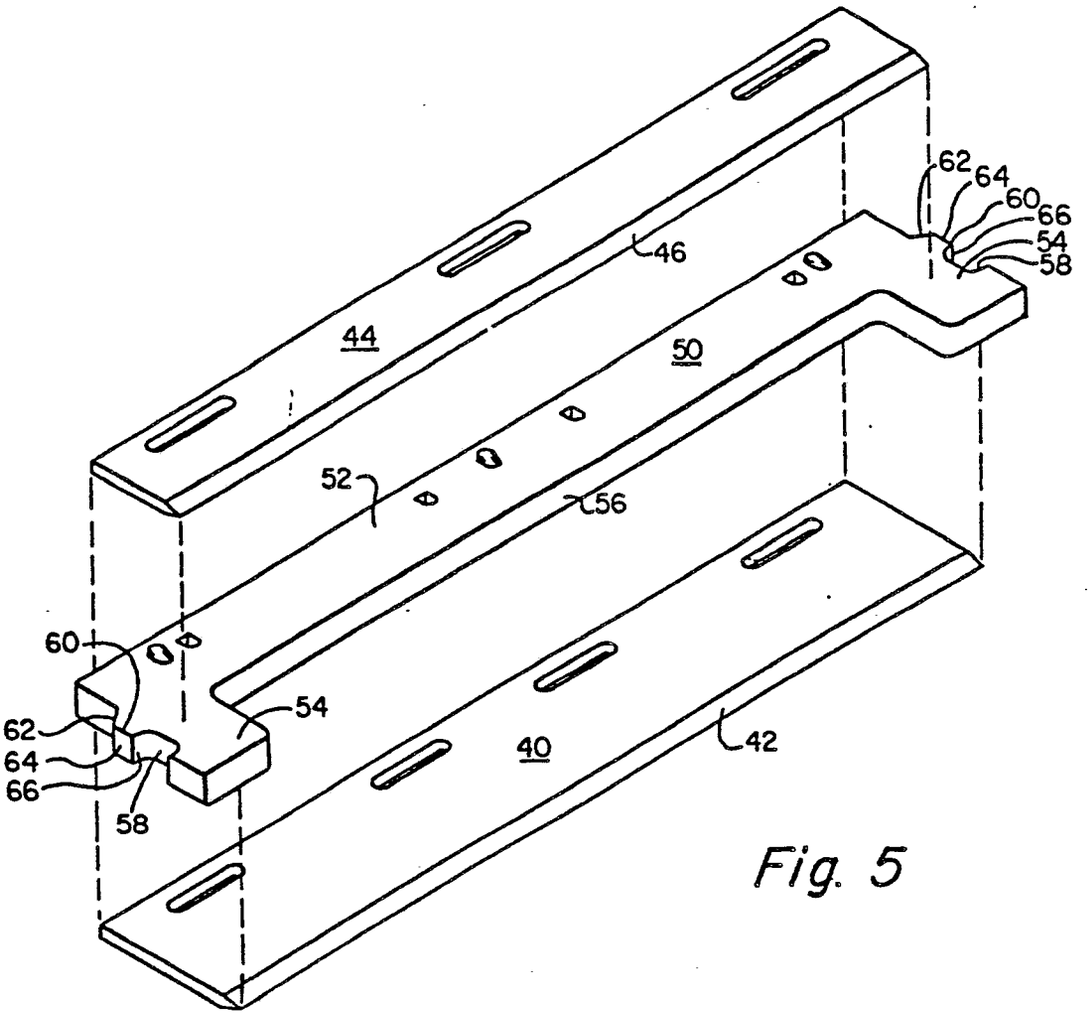


Fig. 5

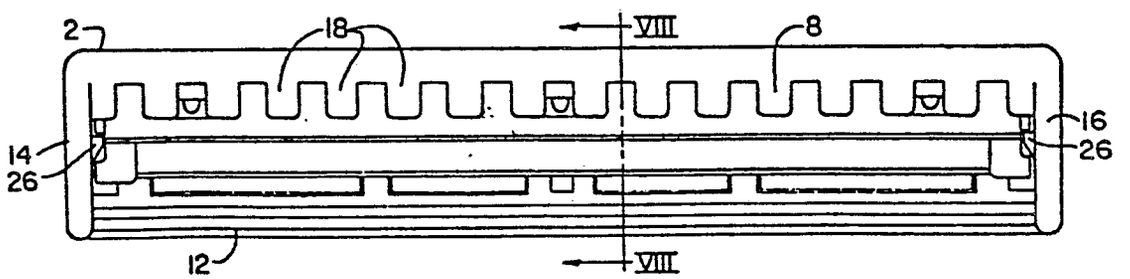


Fig. 6

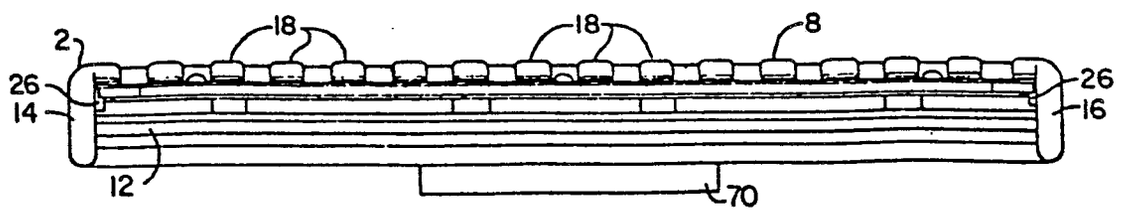


Fig. 7

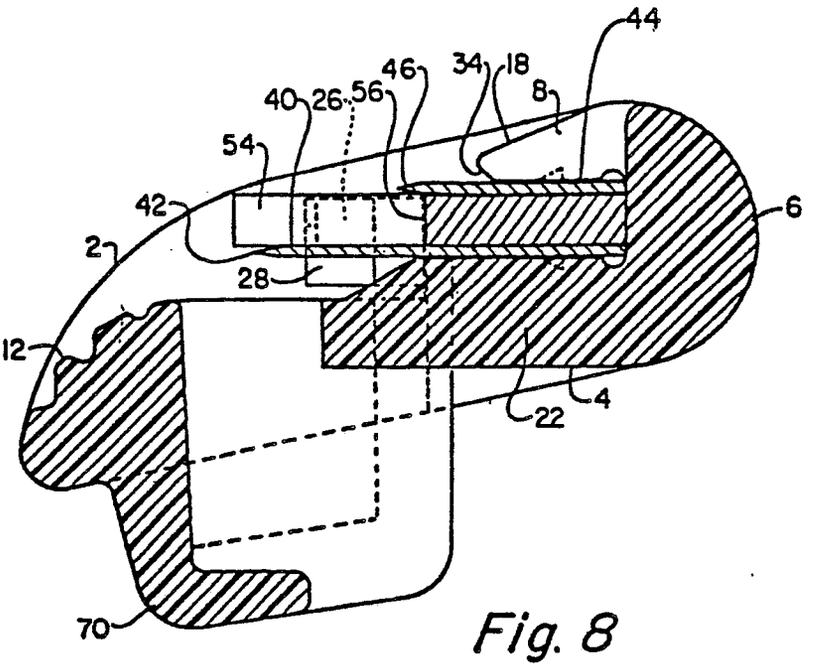


Fig. 8

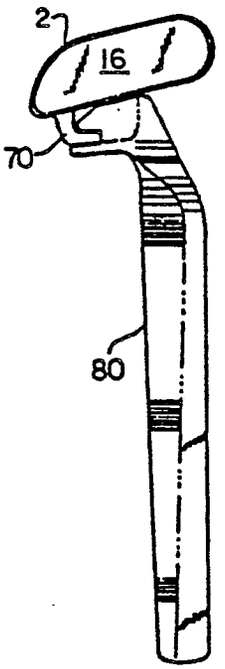


Fig. 9
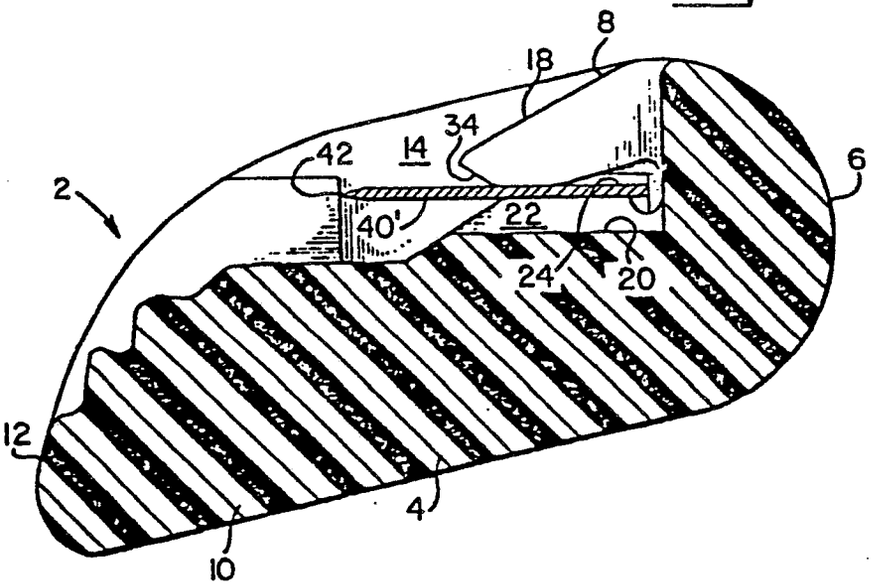
Fig. 10