

Description

This invention relates to safety razors for use in wet shaving, that is razors comprising one or more razor blades mounted in a head or frame including a guard member which limits the danger of the blade (or blades) deeply penetrating the skin of the user.

For many years, all razors which were marketed on a commercial scale incorporated a single blade, mostly of the "double-edged" type of which the edges could be used alternately. The early 1970's saw the introduction of blade cartridges comprising a pair of blade members having spaced, parallel cutting edges parallel with each other, so that they act in tandem upon the skin of the user. These "tandem blade cartridges" are now consumed in very large quantities in many countries.

It had long been predicted that the provision of a number of parallel blade edges would tend to increase the closeness and/or comfort in use of safety razors and this expectation has been fulfilled by the better quality tandem blade cartridges marketed in recent years.

It might accordingly be expected that a further improvement could be obtained by adding a third blade (see for instance DE-A-2750796) and trials conducted by the present Applicants have shown this to be the case.

However, the present invention is based on the surprising discovery that the results are even more satisfactory if the skin engaging edge of either the second or third member of a group of three tandem blades is rounded to such an extent that it will not penetrate facial hairs or scrape the skin. On the other hand, the edge should have a very narrow area of contact with the skin, so that the pressure which it applies is similar to that applied by the sharpened edges of the true blade members.

Most conveniently, the third member is substantially identical with the two blade members, being of the same general form and made of blade steel, but its skin engaging edge is formed with a relatively large radius. This edge is, however, electro-polished to give it a very smooth surface. The tip radius is preferably between 0.5 and 30 microns.

It would alternatively be possible to provide a third "blunted" member of quite a different form from the blade members and of another material, such as a relatively rigid plastics material.

Two forms of safety razor cartridge in accordance with the invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

Fig. 1 is a perspective view of a first form of cartridge;
Fig. 2 is a cross-section taken at the line II-II in Fig. 1;
Fig. 3 is scrap cross-section taken in the line III-III in Fig. 1; and
Fig. 4 is a cross-section, corresponding to Fig. 2, of a second form of razor cartridge.

The cartridge shown in Figs. 1 to 3 comprises a generally rectangular open frame 1 of moulded plastics, shaped to define a shoulder to receive and support a separately formed guard member 2 and a slot 3 to receive a separately formed cap member 4, preferably made of a lubricating strip.

Three substantially identical units B1, B2 and B3 are mounted in the frame 1, each comprising a metal support of inverted L-shape having an upwardly and forwardly directed limb constituting a blade platform 7 and a vertical support leg 8. The platform 7 has directly attached to it a respective member 9A, 9B, 9C of stainless steel razor blade strip. The three units are mounted for movement independently of each other in the planes of their legs 8 and are supported on respective spring fingers 11.

The member 9A of unit B1 and that of either B2 or B3 are conventionally sharpened, at their forward, leading edges to form two blade members, but the third member (9C or 9B) (at either B3 or B2, respectively) is formed with a relatively blunt edge having an ultimate tip radius of at least 0.5 micron, so that it is not quite sharp enough to penetrate facial hairs, nor to scrape the skin. It is, however, electro-polished to have a very smooth surface finish. The third member could have a larger radius, up to about 50 microns but preferably no more than about 30 microns.

The third member may be incorporated in blade unit B2 or B3, but not in the leading blade unit B1.

The second form of cartridge, illustrated in Fig. 4, has a moulded frame 101 of more conventional form, comprising a first, lower moulding 101A having secured to it by integral rivets 112 a second, upper moulding 101B which supports a cap member 104, preferably formed of lubricating strip. The lower moulding 101A provides a guard member 102. Securely and fixedly clamped between the mouldings 101A and 101B is an assembly of three members 109A, 109B, 109C and two spacers 113, 114.

Once again, the leading member (109A) and one of the others are conventionally sharpened, whilst the third (109B or 109C) has a relatively blunt edge, rounded to a radius of between 0.5 and 30 microns.

This second form of razor cartridge has been subjected to trials which have shown that, compared with a control cartridge having three conventional sharpened edges, significant improvements in comfort with no loss in closeness were obtained by use of the slightly blunted member in the second or third positions, i.e. at 109B or 109C. However, when the blunted member is placed in the leading position, at 109A, the closeness was significantly reduced.

It will be noted that in both embodiments described above, the three skin engaging edges are equally spaced from each other. They are all formed of blade steel and correspondingly shaped, except for the slight rounding of one member. This is convenient from a manufacturing viewpoint but it would also be possible to form the third member quite differently, say as a moulded member of relatively rigid plastics material.

Many other variations and modifications will, of course, be possible within the scope of the present invention as defined by the claims.

Claims

1. A safety razor comprising a pair of tandem blade members (9A; 9B or 9C) having their sharpened cutting edges parallel with each other, characterised by the provision of a third skin engaging member (9B or 9C; 109B or 109C) of planar form and having a skin engaging edge parallel with the edges of the first and second blade members, the said skin engaging edge having a tip radius of 0.5 to 50 microns, and in that the said third skin engaging member (B2 or B3) is positioned rearwardly of the leading blade member (B1).
2. A safety razor according to claim 1, characterised in that the said tip radius is between 0.5 and 30 microns.
3. A safety razor according to claim 1 or 2, characterised in that the said third member has the same form as the said blade members.
4. A safety razor according to claim 1, 2 or 3, characterised in that the said third member is made of metal.
5. A safety razor according to claim 4, characterised in that the said third skin engaging member (9B or 9C; 109B or 109C) is made of blade steel and has its skin engaging edge electro-polished.
6. A safety razor according to claim 1, 2 or 3, characterised in that the said third skin engaging member (9B, 9C; 109B, 109C) is formed as a plastics moulding.
7. A safety razor according to any preceding claim, characterised in that the skin engaging edges of the first, second and third members (9A, 9B, 9C 109A, 109B, 109C) are substantially equally spaced from each other.

Patentansprüche

1. Rasierapparat, der ein Paar hintereinander angeordneter Klingenelemente (9A; 9B oder 9C) umfaßt, deren geschärfte schneidkanten parallel zueinander sind, gekennzeichnet durch das Vorhandensein eines dritten mit der Haut in Kontakt kommenden Elementes (9B oder 9C; 109B oder 109C) mit planer Form, das eine mit der Haut in Kontakt kommende Kante parallel zu den Kanten der Klingenelemente aufweist, wobei die mit der Haut in Kontakt kommende Kante einen Spitzenradius von 0,5 bis 50 µm aufweist, und dadurch, daß das dritte

mit der Haut in Kontakt kommende Element (B2 oder B3) hinter dem vorderen Klingenelement (B1) angeordnet ist.

2. Rasierapparat nach Anspruch 1, dadurch gekennzeichnet, daß der Spitzenradius zwischen 0,5 und 30 µm liegt.
3. Rasierapparat nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß das dritte Element die gleiche Form hat wie die Klingenelemente.
4. Rasierapparat nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, daß das dritte Element aus Metall besteht.
5. Rasierapparat nach Anspruch 4, dadurch gekennzeichnet, daß das dritte mit der Haut in Kontakt kommende Element (9B oder 9C; 109B oder 109C) aus Klingenstein besteht und seine mit der Haut in Kontakt kommende Kante elektropoliert ist.
6. Rasierapparat nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, daß das dritte mit der Haut in Kontakt kommende Element (9B, 9C; 109B, 109C) als ein Kunststoffformteil ausgebildet ist.
7. Rasierapparat nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die mit der Haut in Kontakt kommenden Kanten des ersten, zweiten und dritten Elementes (9A, 9B, 9C; 109A, 109B, 109C) im wesentlichen gleichmäßig voneinander beabstandet sind.

Revendications

1. Rasoir de sûreté comprenant une paire d'éléments lames en tandem (9A ; 9B ou 9C) ayant leurs arêtes tranchantes affûtées, parallèles entre elles, caractérisé par la présence d'un troisième élément de contact avec la peau (9B ou 9C ; 109B ou 109C), de forme plane et ayant une arête de contact avec la peau parallèle aux arêtes des éléments lames, ladite arête de contact avec la peau ayant un rayon d'arrondi de pointe de 0,5 à 50 microns, et en ce que ledit troisième élément de contact avec la peau (B2 ou B3) est positionné en arrière de l'élément lame de tête (B1).
2. Rasoir de sûreté selon la revendication 1, caractérisé en ce que ledit rayon d'arrondi de pointe est d'entre 0,5 et 30 microns.
3. Rasoir de sûreté selon la revendication 1 ou 2, caractérisé en ce que ledit troisième élément a la même forme que lesdits éléments lames.



Many other variations and modifications will, of course, be possible within the scope of the present invention as defined by the claims.

Claims

1. A safety razor comprising a pair of tandem blade members (9A; 9B or 9C) having their sharpened cutting edges parallel with each other, characterised by the provision of a third skin engaging member (9B or 9C; 109B or 109C) of planar form and having a skin engaging edge parallel with the edges of the first and second blade members, the said skin engaging edge having a tip radius of 0.5 to 50 microns, and in that the said third skin engaging member (B2 or B3) is positioned rearwardly of the leading blade member (B1).
2. A safety razor according to claim 1, characterised in that the said tip radius is between 0.5 and 30 microns.
3. A safety razor according to claim 1 or 2, characterised in that the said third member has the same form as the said blade members.
4. A safety razor according to claim 1, 2 or 3, characterised in that the said third member is made of metal.
5. A safety razor according to claim 4, characterised in that the said third skin engaging member (9B or 9C; 109B or 109C) is made of blade steel and has its skin engaging edge electro-polished.
6. A safety razor according to claim 1, 2 or 3, characterised in that the said third skin engaging member (9B, 9C; 109B, 109C) is formed as a plastics moulding.
7. A safety razor according to any preceding claim, characterised in that the skin engaging edges of the first, second and third members (9A, 9B, 9C 109A, 109B, 109C) are substantially equally spaced from each other.

Patentansprüche

1. Rasierapparat, der ein Paar hintereinander angeordneter Klingenelemente (9A; 9B oder 9C) umfaßt, deren geschärfte Schneidkanten parallel zueinander sind, gekennzeichnet durch das Vorhandensein eines dritten mit der Haut in Kontakt kommenden Elementes (9B oder 9C; 109B oder 109C) mit planer Form, das eine mit der Haut in Kontakt kommende Kante parallel zu den Kanten der Klingenelemente aufweist, wobei die mit der Haut in Kontakt kommende Kante einen Spitzenradius von 0,5 bis 50 µm aufweist, und dadurch, daß das dritte

mit der Haut in Kontakt kommende Element (B2 oder B3) hinter dem vorderen Klingenelement (B1) angeordnet ist.

2. Rasierapparat nach Anspruch 1, dadurch gekennzeichnet, daß der Spitzenradius zwischen 0,5 und 30 µm liegt.
3. Rasierapparat nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß das dritte Element die gleiche Form hat wie die Klingenelemente.
4. Rasierapparat nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, daß das dritte Element aus Metall besteht.
5. Rasierapparat nach Anspruch 4, dadurch gekennzeichnet, daß das dritte mit der Haut in Kontakt kommende Element (9B oder 9C; 109B oder 109C) aus Klingenstein besteht und seine mit der Haut in Kontakt kommende Kante elektropoliert ist.
6. Rasierapparat nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, daß das dritte mit der Haut in Kontakt kommende Element (9B, 9C; 109B, 109C) als ein Kunststoffformteil ausgebildet ist.
7. Rasierapparat nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die mit der Haut in Kontakt kommenden Kanten des ersten, zweiten und dritten Elementes (9A, 9B, 9C; 109A, 109B, 109C) im wesentlichen gleichmäßig voneinander beabstandet sind.

Revendications

1. Rasoir de sûreté comprenant une paire d'éléments lames en tandem (9A ; 9B ou 9C) ayant leurs arêtes tranchantes affûtées, parallèles entre elles, caractérisé par la présence d'un troisième élément de contact avec la peau (9B ou 9C ; 109B ou 109C), de forme plane et ayant une arête de contact avec la peau parallèle aux arêtes des éléments lames, ladite arête de contact avec la peau ayant un rayon d'arrondi de pointe de 0,5 à 50 microns, et en ce que ledit troisième élément de contact avec la peau (B2 ou B3) est positionné en arrière de l'élément lame de tête (B1).
2. Rasoir de sûreté selon la revendication 1, caractérisé en ce que ledit rayon d'arrondi de pointe est d'entre 0,5 et 30 microns.
3. Rasoir de sûreté selon la revendication 1 ou 2, caractérisé en ce que ledit troisième élément a la même forme que lesdits éléments lames.



4. Rasoir de sûreté selon la revendication 1, 2 ou 3, caractérisé en ce que ledit troisième élément est fait de métal.

5. Rasoir de sûreté selon la revendication 4, caractérisé en ce que ledit troisième élément de contact avec la peau (9B ou 9C ; 109B ou 109C) est fait d'acier pour lames et a son arête de contact avec la peau polie par polissage électrolytique.

6. Rasoir de sûreté selon la revendication 1, 2 ou 3, caractérisé en ce que ledit troisième élément de contact avec la peau (9B, 9C ; 109B, 109C) est fait d'une pièce moulée en matière plastique.

7. Rasoir de sûreté selon une quelconque des revendications précédentes, caractérisé en ce que les arêtes de contact avec la peau des premier, deuxième et troisième éléments (9A, 9B, 9C ; 109A, 109B, 109C) sont sensiblement également espacées l'une de l'autre.

25

30

35

40

45

50

55