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(54) **ELECTRIC SHAVER**

ELEKTRISCHER RASIER APPARAT

RASOIR ELECTRIQUE

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(73) Proprietors:

- **Koninklijke Philips Electronics N.V.**
5621 BA Eindhoven (NL)
- **Philips Domestic Appliances and Personal Care**
B.V.
9723 AS Groningen (NL)

(72) Inventor: **Dessilani, Teresio**
13011 Borgosesia VC (IT)

(74) Representative:
Rolfes, Johannes Gerardus Albertus et al
INTERNATIONAAL OCTROOIBUREAU B.V.,
Prof. Holstlaan 6
5656 AA Eindhoven (NL)

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Description

[0001] The invention relates to an electric shaver featuring high adaptability to the contour to be shaved, comprising a housing that forms a handgrip and supports, at an end portion, at least one shaving head in which the face coming into contact with the contour to be shaved has passages for the hairs to be shaved, said at least one shaving head accommodating a cutting blade, said housing accommodating a drive for rotatably actuating said cutting blade about an axis that lies substantially at right angles to said resting face of the shaving head, said at least one shaving head being supported by a flexible member connected to said housing.

[0002] Such an electric shaver is known from US 4,077,120. This rotary shaver has a floating shaving head that is supported beneath its periphery by resilient spring means. The spring means are intended to give extra support to the floating shaving head to prevent undesirable flexing thereof. The spring means comprises an element having a number of flexible arms, said element being centrally fixed to the housing. Free ends of the arms support the peripheral edge of the shaving head. During shaving operation a floating shaving head is able to follow the contour of the skin to be shaved, resulting in a better shaving performance.

[0003] The object of the invention is to improve the floating movement of the shaving head, resulting in an improved following of the contour of the skin during shaving.

[0004] According to the invention the electric shaver is characterized in that the flexible member is a membrane, which has a peripheral rim that engages a seat, formed in a ring that is detachably connected to said housing.

The flexible member being a membrane improves the flexibility and thereby the floating movement of the shaving head. The suspension of the membrane at its perimeter in a seat of the housing further improves this flexibility.

[0005] The particular technical characteristics and advantages of the invention will become apparent from the following detailed description of some preferred but not exclusive embodiments of the electric shaver according to the invention, illustrated in the accompanying drawings and described only by way of non-limitative example, wherein:

figure 1 is a top plan view of one preferred embodiment of the shaver according to the invention;

figure 2 is a sectional view of figure 1, taken along the plane II-II;

figure 3 is a view of a detail of the shaver, related to a shaving head, shown in an exploded axial sectional view;

figure 4 is an enlarged-scale sectional view of a detail of the shaver according to the invention;

figure 5 is a sectional view of figure 2, taken along

the plane V-V;

figure 6 is a schematic view of a detail of the shaver, extended flat;

figure 7 is a partially sectional lateral elevation view of another preferred embodiment of the shaver according to the invention.

Ways of carrying out the invention

[0006] With reference to the above figures, the electric shaver according to one preferred aspect of the invention, generally designated by the reference numeral 1, comprises a housing 2 that forms a handgrip region 3 and has, in an end portion, a head 4 supporting at least one shaving head 5.

[0007] More particularly, the shaver 1 is preferably provided with three mutually equidistant shaving heads 5 having a circular plan shape and arranged so that their center lies on an imaginary circumference. In practice, the three heads 5 are spaced by an angle, with respect to the center of the imaginary circumference, that is substantially equal to 120°, as shown in particular in figure 1.

[0008] Each shaving head 5 has a resting face 5a adapted to come into contact with the contour to be shaved; passages 6 for the hairs to be shaved are formed in said face.

[0009] Each head 5 has a substantially cylindrical hollow shape in which one end is directed towards the outside of the shaver and forms the face 5a, whereas the other end is directed towards the inside of the shaver and is open.

[0010] A cutting blade 7 with a plurality of cutting elements 7a is located inside each head 5 and can rotate about an axis that lies substantially at right angles to the base of the corresponding head 5, forming the face 5a. The cutting blade 7 is arranged so that its cutting edges 7a are adjacent to the base of the head 5 forming the resting face 5a, so as to shave the hairs entering through the passages 6.

[0011] Means for rotatably actuating the cutting blades 7 about their own axes, in order to shave the hairs inside the heads 5, are arranged inside the housing 2.

[0012] According to the invention, the shaving heads 5 are supported by a flexible membrane 8 connected to the housing 2.

[0013] The membrane 8 has a perimetric rim 9 which is appropriately thicker than the remaining part of the membrane 8 and engages a seat 10a formed in a ring 10 detachably associated with the end portion of the housing 2.

[0014] The heads 5 are accommodated in appropriate seats 11 formed in the membrane 8, in which the seats 11 are delimited perimetrically by a thicker rim 12. A groove 13, arranged along a circumference on the outer skirt of the heads 5, engages said rim, so as to firmly but detachably connect each head 5 to the membrane 8.

[0015] The membrane 8 is made of a known type of elastomeric material so as to be highly flexible.

[0016] Proximate to the bottom of the seats 11 there are cross-members 14 obtainable directly from the body of the membrane 8 during molding, engaging appropriate recesses 15 formed in the skirt of the heads 5, and having the purpose of supporting the cutting blades 7, keeping them inside the heads 5 when the membrane 8 is removed from the housing 2, as will become apparent hereinafter.

[0017] An auxiliary flexible membrane 18 is interposed between the membrane 8 and the inside of the housing 2 and forms supporting regions 19 at the open end of the shaving heads 5, i.e., at the end of the heads that is directed towards the inside of the housing 2.

[0018] Conveniently, the membrane 8 has, at the supporting regions 19, reinforcement plates 20 which are conveniently made of rigid material, for example metal, which are embedded in the body of the auxiliary membrane 18, and which form, with one of their portions, the supporting regions 19 in direct contact with the shaving heads 5.

[0019] The auxiliary membrane 18, too, has a perimetric rim 21 that detachably engages an appropriate seat 22 formed in the housing 2.

[0020] The auxiliary membrane 18 furthermore has, at the center of the supporting regions 19, passages 23 crossed by shafts 24 for driving the cutting blades 7. The auxiliary membrane 18 provides a seal at the passages 23 on the shafts 24, so as to effectively contrast the passage of shaved hairs from the region formed between the membrane 8 and the auxiliary membrane 18 into the innermost region of the housing 2.

[0021] The electric shaver according to the invention furthermore comprises elastic means that elastically contrast the deformation of the membrane 8 towards the inside of the housing 2.

[0022] The elastic means are constituted by a central spring 25 arranged so that its axis lies at the center of the imaginary circumference along which the shaving heads 5 are arranged; the spring 25 is interposed between the auxiliary membrane 18 and a supporting wall 26 located inside the housing 2.

[0023] More particularly, one end of the spring 25 rests against the auxiliary membrane 18, by means of an interposed mushroom-shaped pin 39, and the opposite end rests on a threaded cap 27 that engages a threaded seat 28 formed in a raised portion 29 that rises from the supporting wall 26, so that the pre-loading of the spring 25 can be adjusted by screwing the cap 27 along the threaded seat 28.

[0024] The elastic means contrasting the deformation of the membrane 8 also include, for each shaving head 5, a spring 30 arranged so that its axis lies at the axis of each head, and interposed between the auxiliary membrane 18 and the supporting wall 26.

[0025] Conveniently, means are provided for adjusting the pre-loading of the elastic means.

[0026] The adjustment means comprise one or more pins 31 rigidly coupled to the supporting wall 26 and protruding laterally from the housing 2. The pins 31 engage the inner face of an adjustment ring 32 having, on its side directed towards the housing 2, a step-like profile 33; by virtue of the rotation of the ring 32 about the housing 2, the steps sequentially engage the pins 31, moving the support wall 26, which is slideably supported inside the housing 2, towards or away from the auxiliary membrane 18, increasing or reducing the loading of the springs 30 and of the central spring 25. Figure 6 shows, by way of example, a portion of the ring 32, seen from the side directed towards the housing 2 and extended flat.

[0027] If the main head 4 of the shaver is substantially cylindrical, as shown in particular in figure 7, the ring 32 can be a circular ring of the rigid type; if the main head 4 of the shaver is substantially triangular with curved and blended sides, as shown in particular in figure 1, the ring can be made of flexible material so that it can nonetheless rotate about the housing 2 to vary, by means of the engagement of the pins 31 with the steps 33, the distance of the supporting wall 26 from the auxiliary membrane 18.

[0028] The means for actuating the cutting blades 7 can be constituted, in a per se known manner, by an electric motor 40 accommodated inside the housing 2 and powered for example by means of an electric power cord 41 that exits from the housing 2. The output shaft 40a of the electric motor 40 is keyed on a central gear 42 that meshes with gears 43 arranged coaxially to the corresponding heads. The gears 43 have an external toothed profile, engaging the central gear 42, and an internal profile 43a, which has lugs or is in any case not circular and engages the base of the shafts 24, which is complementarily shaped. This particular coupling allows the shafts 24 to be rigidly coupled to the corresponding gear 23 in rotating about its axis, while being able to move parallel to such axis along a certain extent inside the corresponding gear 43.

[0029] Each gear 43 has, in the seat 44 accommodating the base of the corresponding shaft 24, a bottom 43b and an upper rim 43c that delimit the axial stroke of the shafts 24; each shaft 24 is appropriately hollow proximate to its base and accommodates a spring 45 that engages, with one of its ends, the bottom of a cavity 46 of the corresponding shaft 24 and the bottom 43b of the seat 44 formed in the gear 43, so as to keep the shaft 24 constantly pushed or biased towards the heads 5.

[0030] The end 47 of the shafts 24 that is directed towards the corresponding shaving head 5 conveniently has a polygonal or cross-shaped cross-section and engages a correspondingly shaped seat 48 formed at the center of the cutting blades 7, so as to ensure the coupling of the cutting blades 7 in the rotation of the shaft 24 about the axis 24a even if the axis of the head 5 is at an angle with respect to the axis 24a of the corresponding shaft 24.

[0031] As shown in particular in figure 4, the supporting wall 26 can be provided with a lower pin 50; when the supporting wall 26 is spaced to the maximum distance from the auxiliary membrane 18, the pin 50 interrupts the contact between two electrodes 51a and 51b placed along the electric circuit that supplies power to the motor 40. In this manner, the pin 50 acts as a switch that deactivates the motor 40 when the supporting wall 26 is moved to the maximum distance from the auxiliary membrane 18.

[0032] According to another aspect of the electric shaver according to the invention, the handgrip 3 has a rounded shape, and a neck 60 is formed between the main head 4 and the handgrip 3; the user can rest the tips of his fingers in the neck after gripping the handgrip 3 with the palm of his hand, thus making it very easy to handle the shaver according to the invention during use.

[0033] Preferably, the handgrip 3 has a substantially spheroidal shape which is flattened at the neck 60 and at the free end that lies opposite to the main head 4.

[0034] The handgrip 3 has, on the opposite side with respect to the main head 4, a lid 61 that can be opened to allow access to a compartment formed inside the handgrip 3.

[0035] The compartment is divided into a central compartment 62, the drive elements of the shaver being accommodated therein, and into an auxiliary compartment 63 that surrounds the central compartment 62 and is separated therefrom by a tubular body 64. The tubular body 64 forms, with the face of its skirt that is directed towards the auxiliary compartment 63, a winding surface for the power cord 41, which can be easily accommodated inside the auxiliary compartment 63.

[0036] Clips 65 can furthermore be provided on the inner face of the lid 61 to retain the plug 66 of the power cord 41.

[0037] The lid 61 can conveniently be pivoted to the remaining part of the handgrip 3.

[0038] The operation of the electric shaver according to the invention is as follows.

[0039] The user, after gripping the shaver, turns the ring 32 in the direction that makes the supporting wall 26 move towards the auxiliary membrane 18. In this manner, in addition to pre-loading the springs 30 and 25 with the desired force, the power supply circuit of the electric motor 40 is closed and the cutting blades 7 are therefore actuated by virtue of the contact of the electrodes 51a and 51b. The user then puts the shaving heads 5 into contact with the contour to be shaved and moves the shaver so that the shaving heads 5 gradually affect all of the contour to be shaved.

[0040] It should be noted that the support of the shaving heads 5 provided by means of the membrane 8, which can assume a convex, flat, or concave shape, allows the shaving heads 5 to oscillate about the axes 24a of the shafts 24 with an oscillation angle wider than that allowed by conventional shavers, and therefore to adapt better to the variations in the curvature of the contour to

be shaved. In particular, the shaving heads 5, by exploiting this possibility of wide oscillation, can perfectly follow even any hollow regions of the contour to be shaved, such as for example at the center of the cheeks or below the chin, ensuring quick and fully satisfactory shaving.

[0041] Furthermore, the user, by using the particular ergonomic shape of the shaver, shown in figure 7, can rest the handgrip 3 on the palm of his hand and, while supporting the shaver with his fingertips in the neck 60, can very easily orientate the shaver by turning it so as to better reach the various parts of the face to be shaved.

[0042] When he has finished using the shaver, the user turns the ring 32 in the opposite direction, interrupting the supply of power to the electric motor 40 and releasing the springs 25 and 30 so that the membranes 8 and 18 are not loaded uselessly when the shaver is not being used.

[0043] The shaver can be cleaned very quickly and easily by removing from the housing 2 the ring 10 that supports the membrane 8 with the heads 5 and the cutting blades 7. During this operation, the cutting blades 7 are retained in the corresponding head 5 by the cross-members 14.

[0044] In practice it has been observed that the electric shaver according to one preferred aspect of the invention fully achieves the intended aim, since by virtue of the greater range of oscillation allowed to the shaving heads and of the flexibility of the membrane supporting them, it allows to achieve a perfect shave in all the regions of the contour to be shaved, even in hollow regions.

[0045] Furthermore, the particular shape of the housing makes it particularly easy to use the shaver.

[0046] In practice, the materials employed, as well as the dimensions, may be any according to the requirements and the state of the art.

Claims

1. Electric shaver (1) featuring high adaptability to the contour to be shaved, comprising a housing (2) that forms a handgrip (3) and supports, at an end portion, at least one shaving head (5) in which the face (5a) coming into contact with the contour to be shaved has passages (6) for the hairs to be shaved, said at least one shaving head accommodating a cutting blade (7), said housing accommodating a drive (40-44) for rotatably actuating said cutting blade about an axis (24a) that lies substantially at right angles to said resting face of the shaving head, said at least one shaving head being supported by a flexible member (8) connected to said housing, **characterized in that** said member is a membrane (8) which has a peripheral rim (9) that engages a seat (10a) formed in a ring (10) that is detachably connected to said housing.

2. Electric shaver according to claim 1, **characterized in that** it comprises three shaving heads (5) having a circular plan and arranged so that their centers are uniformly mutually spaced along an imaginary circumference, each one of said shaving heads accommodating a cutting blade (7). 5
3. Electric shaver according to claim 2, **characterized in that** each one of said shaving heads (5) has a substantially cylindrical internally hollow shape in which one end forms said resting face (5a) and the opposite end is directed towards the inside of said housing (2) and is open. 10
4. Electric shaver according to claim 2, **characterized in that** said shaving heads (5) are inserted in seats (11) formed in said membrane. 15
5. Electric shaver according to claim 4, **characterized in that** said seats for said shaving heads (5) are delimited by a rim (12) that engages a circumferential groove (13) formed in the outer cylindrical skirt of said shaving heads. 20
6. Electric shaver according to claim 4, **characterized in that** said seats (10a) for said shaving heads (5) have cross-members (14) that form an auxiliary support for retaining said cutting blades (7) inside said shaving heads. 25
7. Electric shaver according to claim 4, **characterized in that** it comprises a flexible auxiliary membrane (18) interposed between said membrane (8) and the inside of said body, said auxiliary membrane forming supporting regions (19) for the open end of said shaving heads (5). 30
8. Electric shaver according to claim 7, **characterized in that** said auxiliary membrane (18) has reinforcement plates (20) at said supporting regions (19). 35
9. Electric shaver according to claim 7, **characterized in that** said auxiliary membrane (18) has a peripheral rim (21) that detachably engages an appropriately provided seat (22) formed in said housing. 40
10. Electric shaver according to claim 7, **characterized in that** said auxiliary membrane (18) has, at the center of said supporting regions (19), passages (23) that are hermetically crossed by shafts (24) for actuating said cutting blades. 45
11. Electric shaver according to claim 1, **characterized in that** it comprises elastic elements (25,30) that elastically contrast the deformation of said membrane (8) towards the inside of said housing. 50
12. Electric shaver according to claim 11, **characterized in that** it comprises adjusting elements (27, 31) for adjusting the pre-loading of said elastic elements (25,30). 55
13. Electric shaver according to claims 8 and 11, **characterized in that** elastic elements comprise springs (30) that are interposed between said auxiliary membrane (18) in the region of said plates and a supporting wall (26) accommodated inside said housing.
14. Electric shaver according to claim 13, **characterized in that** said elastic elements comprise a central spring (25) arranged at the center of said auxiliary membrane (18) and interposed between said auxiliary membrane and said supporting wall (26).
15. Electric shaver according to claim 13, **characterized in that** said adjusting elements (27,31) comprise means for moving said supporting wall (26) towards or away from said auxiliary membrane (18).
16. Electric shaver according to claim 15, **characterized in that** supporting wall (26) is slideable accommodated in said housing in a direction that is substantially parallel to the axis (24a) of said shaving heads (5), said means for moving said supporting wall (26) comprising a ring (32) that runs around said housing and has, on the side directed towards said housing, a step-like profile (33) that engages pins (31) protruding laterally from the profile of said housing.
17. Electric shaver according to claim 1, **characterized in that** said drive comprises an electric motor (40) which is accommodated in said housing.
18. Electric shaver according to claim 13, **characterized in that** supporting wall (26) is connected to a switch (51a, 51b) that deactivates said drive (40) when said supporting wall is spaced to the maximum distance from said auxiliary membrane (18).

Patentansprüche

1. Elektrischer Rasierapparat (1) mit einer großen Anpassungsfähigkeit an die zu rasierende Kontur, der ein Gehäuse (2) aufweist, welches einen Handgriff (3) bildet und an einem Endabschnitt mindestens einen Scherkopf (5) trägt, bei welchem die mit zu der rasierenden Kontur in Kontakt kommende Oberfläche (5a) Kanäle (6) für die zu rasierenden Haare aufweist, wobei mindestens ein Scherkopf ein Schneidmesser (7) aufnimmt, wobei das Gehäuse einen Antrieb (40-44) aufnimmt, um das Schneidmesser um eine Achse (24a), welche im Wesentlichen in rechten Winkeln an der inaktiven

- Oberfläche des Scherkopfs anliegt, drehbar anzutreiben, wobei mindestens ein Scherkopf von einem, mit dem Gehäuse verbundenen, flexiblen Teil (8) getragen wird, **dadurch gekennzeichnet, dass** das flexible Element durch eine Membran (8) dargestellt ist, welche einen peripheren Rand (9) aufweist, der in einen Sitz (10a) greift, welcher in einem, lösbar mit dem Gehäuse verbundenen Ring (10) ausgebildet ist.
2. Elektrischer Rasierapparat nach Anspruch 1, **dadurch gekennzeichnet, dass** dieser drei Scherköpfe (5) vorsieht, welche einen kreisförmigen Grundriss aufweisen und so angeordnet sind, dass deren Mittelpunkte entlang einer imaginären Kreislinie voneinander gleichmäßig beabstandet sind, wobei jeder der Scherköpfe ein Schneidmesser (7) aufnimmt.
3. Elektrischer Rasierapparat nach Anspruch 2, **dadurch gekennzeichnet, dass** jeder der Scherköpfe (5) eine im Wesentlichen zylindrische, innen hohle Form aufweist, wobei das eine Ende die inaktive Oberfläche (5a) bildet und das gegenüber liegende Ende zu der Innenseite des Gehäuses (2) hin gerichtet und offen ist.
4. Elektrischer Rasierapparat nach Anspruch 2, **dadurch gekennzeichnet, dass** die Scherköpfe (5) in, in der Membran ausgebildete Sitze (11) eingesetzt sind.
5. Elektrischer Rasierapparat nach Anspruch 4, **dadurch gekennzeichnet, dass** die Sitze für die Scherköpfe (5) durch einen Rand (12) begrenzt sind, welcher in eine, in dem zylindrischen Außenrand der Scherköpfe ausgebildete, umlaufende Rille (13) greift.
6. Elektrischer Rasierapparat nach Anspruch 4, **dadurch gekennzeichnet, dass** die Sitze (10a) für die Scherköpfe (5) Querstreben (14) aufweisen, welche eine zusätzliche Unterstützung bieten, um die Schneidmesser (7) im Innern der Scherköpfe zu halten.
7. Elektrischer Rasierapparat nach Anspruch 4, **dadurch gekennzeichnet, dass** dieser eine flexible Zusatzmembran (18) aufweist, welche zwischen der Membran (8) und der Innenseite des Gehäuses angeordnet ist, wobei die Zusatzmembran Stützbereiche (19) an dem offenen Ende der Scherköpfe (5) bildet.
8. Elektrischer Rasierapparat nach Anspruch 7, **dadurch gekennzeichnet, dass** die Zusatzmembran (18) Verstärkungsplatten (20) an den Stützbereichen (19) aufweist.
9. Elektrischer Rasierapparat nach Anspruch 7, **dadurch gekennzeichnet, dass** die Zusatzmembran (18) einen peripheren Rand (21) aufweist, welcher mit einem entsprechend vorgesehenen, in dem Gehäuse ausgebildeten Sitz (22) lösbar im Eingriff steht.
10. Elektrischer Rasierapparat nach Anspruch 7, **dadurch gekennzeichnet, dass** die Zusatzmembran (18) an dem Mittelpunkt der Stützbereiche (19) Kanäle (23) aufweist, welche von Wellen (24) zum Antreiben der Schneidmesser hermetisch gekreuzt werden.
11. Elektrischer Rasierapparat nach Anspruch 1, **dadurch gekennzeichnet, dass** dieser elastische Elemente (25, 30) aufweist, welche die Deformation der Membran (8) zu der Innenseite des Gehäuses hin elastisch kontrastieren.
12. Elektrischer Rasierapparat nach Anspruch 11, **dadurch gekennzeichnet, dass** dieser Einstellelemente (27, 31) aufweist, um das Vorspannen der elastischen Elemente (25, 30) einzustellen.
13. Elektrischer Rasierapparat nach den Ansprüchen 8 und 11, **dadurch gekennzeichnet, dass** die elastischen Elemente Federn (30) aufweisen, welche zwischen der Zusatzmembran (18) in dem Bereich der Platten und einer, im Innern des Gehäuses vorgesehenen Stützwand (26) angeordnet sind.
14. Elektrischer Rasierapparat nach Anspruch 13, **dadurch gekennzeichnet, dass** die elastischen Elemente eine zentrale Feder (25) aufweisen, welche am Mittelpunkt der Zusatzmembran (18) vorgesehen und zwischen der Zusatzmembran und der Stützwand (26) angeordnet ist.
15. Elektrischer Rasierapparat nach Anspruch 13, **dadurch gekennzeichnet, dass** die Einstellelemente (27, 31) Mittel aufweisen, um die Stützwand (26) zu der Zusatzmembran (18) hin bzw. von dieser weg zu bewegen.
16. Elektrischer Rasierapparat nach Anspruch 15, **dadurch gekennzeichnet, dass** die Stützwand (26) in dem Gehäuse in einer Richtung, welche im Wesentlichen parallel zu der Achse (24a) der Scherköpfe (5) verläuft, verschiebbar aufgenommen wird, wobei die Mittel zum Bewegen der Stützwand (26) einen Ring (32) aufweisen, welcher sich um das Gehäuse erstreckt und auf der zu dem Gehäuse gerichteten Seite ein stufenartiges Profil (33) aufweist, welches in Stifte (31) greift, die aus dem Profil des Gehäuses lateral hervorragen.
17. Elektrischer Rasierapparat nach Anspruch 1, **da-**

durch gekennzeichnet, dass der Antrieb einen Elektromotor (40) aufweist, welcher in dem Gehäuse untergebracht ist.

18. Elektrischer Rasierapparat nach Anspruch 13, **da-**
durch gekennzeichnet, dass die Stützwand (26)
mit einem Schalter (51a, 51b) verbunden ist, wel-
cher den Antrieb (40) deaktiviert, wenn die Stüt-
zwand von der Zusatzmembran (18) bis zu dem Ma-
ximalabstand beabstandet ist.

Revendications

1. Rasoir électrique (1) **caractérisé par** une grande adaptabilité au contour à raser, comprenant un boîtier (2) qui forme une poignée (3) et supporte, à une partie d'extrémité, au moins une tête de rasage (5) dans laquelle la face (5a) venant en contact avec le contour à raser comporte des passages (6) pour les poils à raser, ladite au moins une tête de rasage recevant un couteau (7), ledit boîtier recevant un mécanisme d'entraînement (40-44) pour entraîner le couteau en rotation autour d'un axe (24a) qui se trouve pratiquement à angle droit par rapport à la-
dite surface d'appui de la tête de rasage, ladite au moins une tête de rasage étant supportée par un organe flexible (8) relié audit boîtier, **caractérisé en ce que** ledit organe est une membrane (8) qui comprend un bourrelet périphérique (9) qui s'engage dans un siège (10a) formé dans un anneau (10) qui est relié de manière détachable audit boîtier.
2. Rasoir électrique suivant la revendication 1, **carac-**
térisé en ce qu'il comprend trois têtes de rasage (5) présentant un plan circulaire et agencées de sorte que leurs centres sont uniformément espacés les uns des autres le long d'une circonférence imaginaire, chacune desdites têtes de rasage recevant un couteau (7).
3. Rasoir électrique suivant la revendication 2, **carac-**
térisé en ce que chacune desdites têtes de rasage (5) a une forme interne creuse sensiblement cylindrique dans laquelle une extrémité forme ladite sur-
face d'appui (5a) et l'extrémité opposée est dirigée vers l'intérieur dudit boîtier (2) et est ouverte.
4. Rasoir électrique suivant la revendication 2, **carac-**
térisé en ce que lesdites têtes de rasage (5) sont insérées dans des sièges (11) formés dans ladite membrane.
5. Rasoir électrique suivant la revendication 4, **carac-**
térisé en ce que lesdits sièges pour lesdites têtes de rasage (5) sont délimités par un bourrelet (12) qui engage une gorge circonférentielle (13) formée dans la jupe cylindrique externe desdites têtes de

rasage.

6. Rasoir électrique suivant la revendication 4, **carac-**
térisé en ce que lesdites embases (10a) pour les-
dites têtes de rasage (5) comprennent des traver-
ses (14) qui forment un support auxiliaire pour re-
tenir lesdits couteaux (7) à l'intérieur desdites têtes
de rasage.
7. Rasoir électrique suivant la revendication 4, **carac-**
térisé en ce qu'il comprend une membrane auxi-
liaire flexible (18) intercalée entre ladite membrane
(8) et l'intérieur dudit corps, ladite membrane auxi-
liaire formant des zones de support (19) pour l'ex-
trémité ouverte desdites têtes de rasage (5).
8. Rasoir électrique suivant la revendication 7, **carac-**
térisé en ce que ladite membrane auxiliaire (18)
comprend des plaques de renforcement (20) au ni-
veau desdites zones de support (19).
9. Rasoir électrique suivant la revendication 7, **carac-**
térisé en ce que ladite membrane auxiliaire (18)
comprend un bourrelet périphérique (21) qui s'en-
gage de manière détachable dans un siège prévu
de manière appropriée (22) ménagé dans ledit boî-
tier.
10. Rasoir électrique suivant la revendication 7, **carac-**
térisé en ce que ladite membrane auxiliaire (18)
comprend, au centre desdites zones de support
(19), des passages (23) qui sont traversés hermé-
tiquement par des arbres (24) pour entraîner lesdits
couteaux.
11. Rasoir électrique suivant la revendication 1, **carac-**
térisé en ce qu'il comprend des éléments élasti-
ques (25,30) qui s'opposent de manière élastique
à la déformation de ladite membrane (8) vers l'inté-
rieur dudit boîtier.
12. Rasoir électrique suivant la revendication 11, **ca-**
ractérisé en ce qu'il comprend des éléments
d'ajustement (27,31) afin d'ajuster la prétension
desdits éléments élastiques (25,30).
13. Rasoir électrique suivant les revendications 8 et 11,
caractérisé en ce que les éléments élastiques
comprennent des ressorts (30) qui sont intercalés
entre ladite membrane auxiliaire (18) dans la région
desdites plaques et une paroi de support (26) logée
à l'intérieur dudit boîtier.
14. Rasoir électrique suivant la revendication 13, **ca-**
ractérisé en ce que lesdits éléments élastiques
comprennent un ressort central (25) disposé au
centre de ladite membrane auxiliaire (18) et inter-
calé entre ladite membrane auxiliaire et ladite paroi

de support (26).

15. Rasoir électrique suivant la revendication 13, **caractérisé en ce que** lesdits éléments d'ajustement (27,31) comprennent des moyens pour déplacer ladite paroi de support (26) dans la direction de ladite membrane auxiliaire (18) ou dans la direction opposée à celle-ci. 5
16. Rasoir électrique suivant la revendication 15, **caractérisé en ce que** la paroi de support (26) est agencée de manière coulissante dans ledit boîtier dans une direction qui est pratiquement parallèle à l'axe (24a) desdites têtes de rasage (5), lesdits moyens pour déplacer ladite paroi de support (26) comprenant un anneau (32) qui ceinture ledit boîtier et comprend, sur le côté dirigé vers ledit boîtier, un profil en escalier (33) qui engage des ergots (31) faisant saillie latéralement du profil dudit boîtier. 10 15 20
17. Rasoir électrique suivant la revendication 1, **caractérisé en ce que** ledit entraînement comprend un moteur électrique (40) qui est logé dans ledit boîtier.
18. Rasoir électrique suivant la revendication 13, **caractérisé en ce que** la paroi de support (26) est reliée à un commutateur (51a, 51b) qui désactive ledit entraînement (40) lorsque ladite paroi de support est écartée à la distance maximale de ladite membrane auxiliaire (18). 25 30

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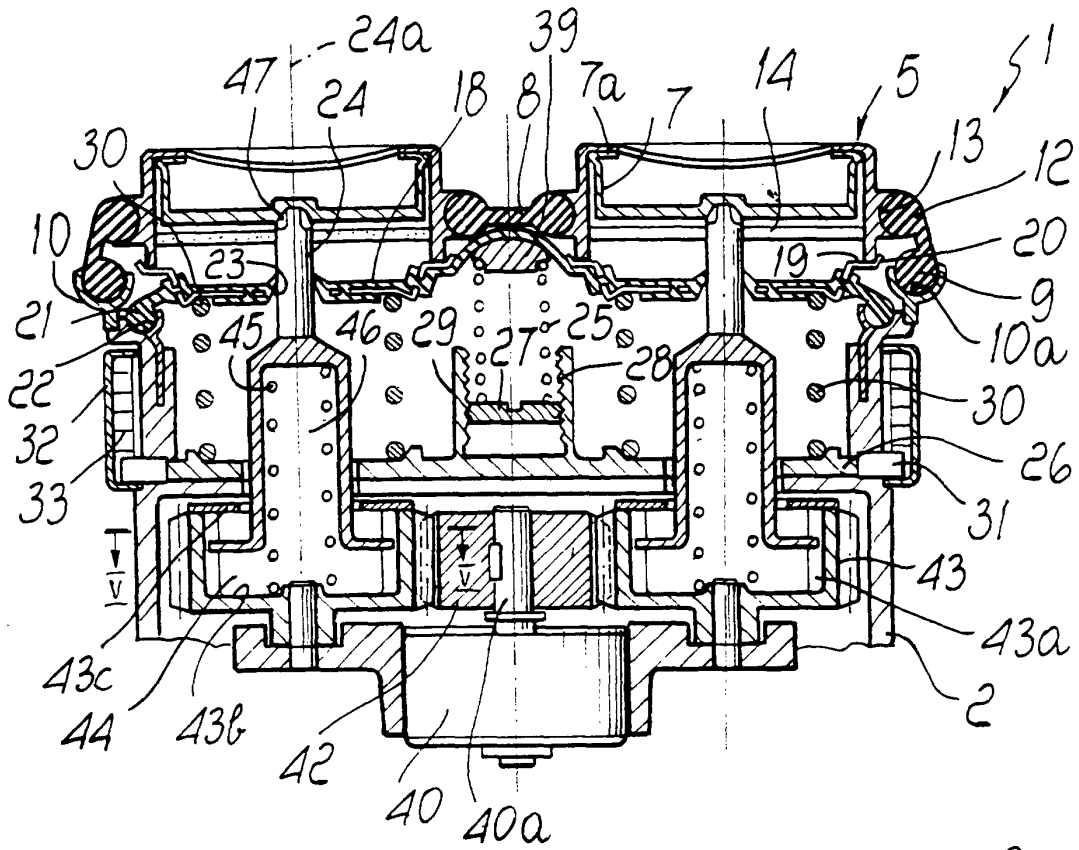


Fig. 2

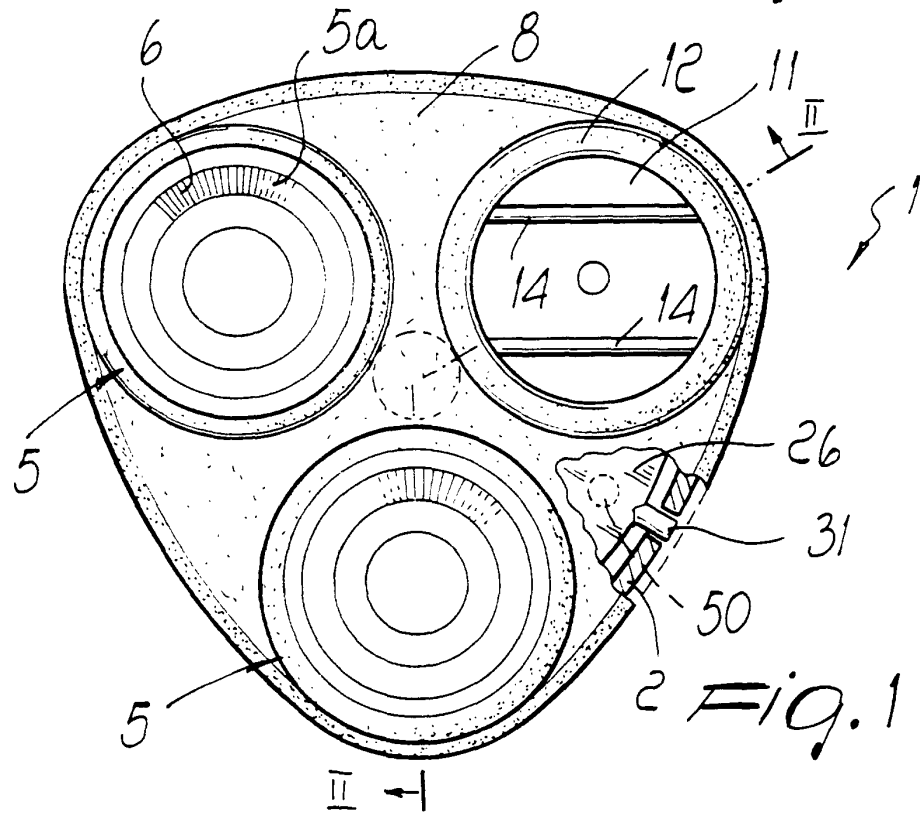


Fig. 1

