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(54) PERSONAL CARE APPLIANCE WITH AN ADDITIVE SUPPLY SYSTEM

KÖRPERPFLEGEAPPARAT MIT EINEM ZUGABESYSTEM FÜR ADDITIVE

APPAREIL DE SOINS D'HYGIENE PERSONNELLE DOTE D'UN SYSTEME D'ALIMENTATION EN
ADDITIF

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(56) References cited:
WO-A-98/08660 DE-A- 4 418 682
DE-B- 1 247 900 FR-A- 2 613 975
FR-A- 2 770 768

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Description

[0001] The invention relates to a personal care appliance as defined in the preamble of claim 1.

[0002] Such an appliance as defined in the preamble of claim 1 is known, for example, from the patent document DE 1 247 900 B. The known appliance is an electric shaver which comprises as its body treatment parts three substantially U-shaped stationary cutters which are provided with hair passage slots and are kept stationary in the appliance, and three cutters which can be driven into reciprocating movement, which are also provided with hair passage slots, which are also U-shaped, and which cooperate with the stationary cutters. The additive supply system of this known appliance comprises an additive reservoir which is situated at the base end of the appliance and in which a fluid is accommodated as the additive. The additive can be produced from the additive reservoir by means of a pumping valve, which is provided as a dispensing means and can be operated by hand, so as to be supplied to the application means via connection means which comprise inter alia two connection tubes, said application means being formed here by two application tubes which are arranged between the cutter elements and which are each provided in their respective regions facing the skin under treatment with a plurality of openings through which the supplied additive can be applied to the skin under treatment, i.e. to the skin being shaved during a shaving operation. The connection means and the dispensing means and the application means are fixedly incorporated in the known personal care appliance, which is indeed favorable for achieving the simplest possible construction of the appliance, but which also involves a major problem, i.e. that the substantially fluid treatment additive may dry out more or less strongly if the appliance is not used for a longer period, in particular in the region of the connection means, which in its turn may substantially block the supply of the additive to the application means and thus render the appliance inoperative. Such an inoperative defect can only be remedied in the known appliance in that this appliance is repaired in a specialized service workshop.

[0003] The invention has for its object to avoid the problems described above in a simple manner and by simple means and to provide an improved personal care appliance.

[0004] To achieve this object, according to the invention, the characteristics as defined in the characterizing part of claim 1 are provided in a device as defined in the preamble of claim 1. The provision of the characteristics according to the invention achieves that the connection means can be easily separated from an appliance according to the invention and can accordingly be thoroughly cleaned by any user of the appliance, so that perfect hygienic conditions prevail at all times and inoperative defects, which are caused by drying of the treatment additive in the case of a long period of disuse, can

be eliminated by each user himself in a simple manner. It is further achieved by the measures according to the invention that the connection means can be exchanged in a simple manner for the purpose of replacing connection means which do not function perfectly any more, so that new, correctly functioning connection means can be substituted.

[0005] In the patent document WO 98/08660 A1 there is shown a personal care appliance comprising an additive supply system. The additive supply system comprising dispensing means realized by a bump. The bump comprising an outlet piece which is fixedly connected to the bump and which is formed by a tube section. The outlet piece of the bump being arranged adjacent an outlet opening of the additive supply system which outlet opening forming the application means for the application of the additive to body regions under treatment. Due to the fact that the outlet piece of the bump being arranged nearby the outlet opening no connection means between the dispensing means and the application means are necessary and therefore no connection means are provided.

[0006] In the patent document FR 2 613 975 A1 there is shown a personal care appliance comprising and the connection means which are arranged between dispensing means and application means. But in this case the between the dispensing means and the application means are fixedly incorporated in the known personal care appliance and the application means comprising small outlet openings for the application of the additive to body regions under treatment.

[0007] It was found to be very advantageous in an appliance according to the invention when in addition the characteristics of claim 2 are provided. It is achieved thereby that a perfect connection between the dispensing means and the connection means remains intact at all times in the case of an exchange of the additive reservoir, in spite of the fact that a mechanical load is exerted on said means in the case of such an exchange.

[0008] It was found to be particularly advantageous in an appliance according to the invention when in addition the characteristics of claim 3 are provided. A simple separation of the application means from an appliance according to the invention is additionally rendered possible thereby, so that also the application means can be thoroughly cleaned in a simple and easy manner and can be replaced, if so desired.

[0009] An appliance according to the invention may have various constructions. For example, an appliance according to the invention may be constructed as a depilation device, or as a massaging device, or as a skin cleaning device. It was found to be particularly advantageous, however, when the characteristic as defined in claim 4 is realized. The measures according to the invention were found to be of particular advantage in such an electric shaver.

[0010] It was found to be highly advantageous in such an appliance according to the invention formed by an

electric shaver when in addition the characteristics of claim 5 are provided. Such a construction stands out on account of its particular simplicity and also of a particularly good and simple cleaning possibility.

[0011] It was furthermore found to be very advantageous in an appliance according to the invention of the kind described in the preceding paragraph when in addition the characteristics of claim 6 are provided. Such an arrangement offers the advantage of a particularly good supply of the treatment additive to the channel provided as the application means and open to the outside, because this channel can be provided with the additive from both its ends.

[0012] The above aspects and further aspects of the invention will become apparent from the embodiment described below and are clarified with reference to this embodiment.

[0013] The invention will now be explained in more detail below with reference to an embodiment shown in the drawings, to which, however, the invention is not limited.

Fig. 1 shows in an exploded view, viewed obliquely from above and from the front, a personal care appliance in an embodiment of the invention, this being a ladies' shaver which is fitted with an additive supply system.

Fig. 2 shows the ladies' shaver of Fig. 1 in cross-sectional view in its assembled state, in which, however, a housing cover part, a rechargeable battery, a motor, a holder for the latter two parts, and a few appliance components which can be driven by the motor are not shown.

Fig. 3 shows in the same manner as Fig. 2 the ladies' shaver of Figs. 1 and 2, but here the additive supply system is shown in a position removed from the rest of the appliance.

Fig. 4 shows in the same manner as Fig. 3 the ladies' shaver of Figs. 1 to 3 in an oblique view from above and from the front.

Fig. 5 shows in the same manner as Figs. 3 and 4 the ladies' shaver of Figs. 1 to 4 in an oblique view from below and from the rear.

Fig. 6 shows a detail of the ladies' shaver 1 of Figs. 1 to 5, said detail being indicated in Fig. 2 with a dash-dot circle VI.

Fig. 7 is a cross-section taken on the line VII-VII in Fig. 2 of a detail of the ladies' shaver of Figs. 1 to 5, in which especially fastening means for the detachable fastening of the additive supply system to the rest of the appliance are visible.

Fig. 8 is a cross-section taken on the line VIII-VIII in Fig. 2 of a further detail of the ladies' shaver of Figs. 1 to 8 in which especially an essential part of the additive supply system is visible.

[0014] Figs. 1 to 8 show a personal care appliance and appliance regions of this appliance. The personal

care appliance under discussion is a so-called ladies' shaver which will be referred to as shaver 1 for short hereinafter.

[0015] The shaver 1 comprises a housing 2. The 5 housing 2 is formed substantially by a trough-shaped housing part 3 and a closing part 4 by means of which a lateral opening 5 in the trough-shaped housing part 3 can be closed off, and by a cover part 6 which is detachably connected to the trough-shaped housing part 3.

[0016] It is to be noted with respect to the trough-shaped housing part 3 that the latter is provided at its lower end 7 with two contact pins 8 and 9 to which a mains voltage can be applied by means of a cable which is not shown. At a lateral surface 10, furthermore, the 15 housing part 3 comprises a cover 11 which is integrally connected to the housing part 3 by means of a so-called two-component injection molding process, which is elastically movable, and behind which an on/off-switch of the shaver 1 is situated in the assembled state of the

20 shaver 1, which switch can thus be operated by means of the cover 11. At the upper end 12 of the housing part 3, the housing part 3 is provided with means 13 for accommodating and retaining a frame holder 14 and a trimmer holder 15, which means are not described in any detail. The frame holder 14 and the trimmer holder 15 will be explained in more detail below. The housing part 3 further comprises a recessed groove 16 surrounding the lateral opening 5, into which groove a continuous piece of wire 17 can be laid. After the wire 17 has been

30 laid in the groove 16, the closing part 4 can be laid on the trough-shaped housing part 3 in the region of the lateral opening 5. Then this assembled unit can be introduced into a magnetic field, which will have the result that the piece of wire 17 is so strongly heated inductively 35 that the housing regions of the housing part 3 and the closing part 4, both made of synthetic resin, which are in contact with the wire 17 are so strongly heated that they melt, which leads to a watertight joint between the trough-shaped housing part 3 and the closing part 4. Obviously, this watertight joint is not made until after the relevant appliance parts have been incorporated in the trough-shaped housing part 3.

[0017] It should be noted on the closing part 4 that this 45 closing part 4 has fastening means 19 for fastening parts of an additive supply system in the region of its outer lateral surface 18, which will be explained in more detail below. The fastening means 19 comprise two fastening sleeves 20 projecting from the lateral surface 18 and two locating studs 21, the function whereof will be explained 50 in more detail below.

[0018] It should be noted on the cover part 6 that this 55 cover part 6 is provided with an elastically deformable cover 22, again manufactured in a two-component injection molding process, in a similar manner as the housing part 3. It should further be noted that the cover part 6 is provided with connection means not visible in the Figures, by means of which the cover part can be or is connected in a detachable manner to the trough-

shaped housing part 3.

[0019] The shaver 1 is provided with a holder 23 which comprises a chamber 24 for a rechargeable battery 25 and a chamber 26 for a motor 27. The rechargeable battery 25 and the motor 27 can be introduced into the holder 23 in a simple manner. The holder 23 is additionally constructed for holding a printed circuit board 28 which can be retained to the holder 23 by means of retaining hooks. The on/off-switch 29, which can be operated by means of the elastically deformable cover 11 as mentioned above, is connected to the printed circuit board 28. Furthermore, charging electronics are provided on the printed circuit board by means of which the rechargeable battery 25 can be charged. The holder 23 is furthermore provided and constructed for accommodating and retaining a pin-battery contact piece 30, a battery-motor contact piece 31, and also a pin-print contact piece 32. The pin-battery contact piece 30 constitutes an electrically conducting connection between the contact pin 8 and the rechargeable battery 25. The battery-motor contact piece 31 constitutes a connection between the rechargeable battery 25 and the motor 27. The pin-print contact piece 32 is provided for achieving an electrically conducting connection between the contact pin 9 and a connection point 33 of the printed circuit board 28, the electrically conducting connection between the pin-print contact piece 32 and the connection point 33 being realized by means of a wire which is not shown.

[0020] The holder 23 is provided with an oscillation bridge 34 which is substantially U-shaped. The oscillation bridge 34 comprises a rigid bar 35 and two legs 36 and 37 which are connected in a known manner to the holder 23 at one side and to the rigid bar 35 at the other side by means of film joints. A drive tube 38 projects from the rigid bar 35 of the oscillation bridge 34. The drive tube 38 is provided with an insert 39. The drive tube 38 is slotted at its free end and comprises two retaining projections 40 and 41. The motor 27 is provided with an eccentric piece 42 having an eccentric pin 43 for the purpose of driving the oscillation bridge 34. The eccentric pin 43 projects into a recess (not visible in Fig. 1) in the rigid bar 35 of the oscillation bridge 34. The oscillation bridge 34 can be driven by the eccentric piece 42 so as to move to and fro in the direction of a double arrow 44.

[0021] The shaver 1 is designed for treating body regions which are to be shaved and is constructed accordingly. The shaver 1 comprises body treatment parts so as to enable this treatment of body regions to be shaved. In the present shaver 1, said body treatment parts comprise a foil shaving system 45 and a clipper shaving system 46.

[0022] The foil shaving system 45 comprises as its body treatment parts a sieve-type shaving foil 47 and a lamella-type lower cutter 48 consisting of a plurality of lamellae. The lamella-type lower cutter 48 can be pushed home onto the free end of the drive tube 38 after

a helical compression spring 49 has been inserted into the interior of the drive tube 38, whereupon the lamella-type lower cutter 48, once pushed home onto the drive tube 38, is retained against the forces exerted by the

5 helical compression spring 49 by means of the retaining projections 40 and 41. The lamella-type lower cutter 38 can be removed from the drive tube 38 again by hand in that the action of the retaining projections 40 and 41 is overcome.

10 **[0023]** The shaver 1 comprises a foil frame 50 for retaining the sieve-type shaving foil 47. The foil frame 50 has a first longitudinal wall 51 which extends substantially planarly and parallel to a foil frame longitudinal direction indicated by the double arrow 44, and a curved

15 second longitudinal wall 51 (see in particular Fig. 5), as well as a first side wall 53 and a second side wall 54. The shaver 1 is provided with the frame holder 14 mentioned above for holding the foil frame 50. The frame holder 14 comprises a total of four retaining projections

20 55, of which only two retaining projections 55 are visible in Fig. 1. The frame holder 14 can be inserted into a compartment 56 provided for this purpose in the trough-shaped housing part 3 in the region of the upper end 12 of the trough-shaped housing part 3. The compartment

25 56 for the frame holder 14 is closed off with a bottom wall 56A (cf. Figs. 2 and 3) at its end facing towards the lower end 7 of the housing part 3, which bottom wall is provided with an opening 56B (cf. Figs. 2 and 3) through which the drive tube 38 is passed. When the shaver 1

30 is assembled together, a hood-type sealing 57 is passed over the drive tube 38 such that said hood-type sealing 57 will lie with a recessed portion 57A (cf. Fig. 3) in the area of the insert 39, thus forming a watertight joint with the drive tube 38 in the area of the insert 39. The hood-type sealing 57 has a circular portion 58 which at one

35 side lies on the bottom wall 56A of the compartment 56 and at the other side is kept pressed down by means of a transverse wall 59 of the frame holder 14, which transverse wall 59 has a passage 60 for the hood-type sealing 57.

40 In this manner a watertight joint is formed also between the bottom wall 56A of the compartment 56 and the transverse wall 59 of the frame holder 14 by means of the annular portion 58 of the hood-type sealing 57, because the frame holder 14 retained in the housing part

45 3 by the retaining projections 55 presses the annular portion 58 of the hood-type sealing 57 against the bottom wall 56A of the compartment 56.

[0024] The frame holder 14 has two blocks 61 and 62 which project from its bottom wall 59 and from which

50 project respective retaining hooks 63 and 64. Each of the two retaining hooks 63 and 64 has a depression 65 in its rear portion into which a respective hook-shaped auxiliary spring 66, 67 is inserted, which ensures the spring action of the retaining hooks 63 and 64 also in

55 the case of a longer operational life. The foil frame 50 is detachably connected to the rest of the shaver 1 by means of the retaining hooks 63 and 64.

[0025] The clipper shaving system 46, which is often

also denoted trimmer, consists of a stationary cutter 68 and a drivable cutter 69 which each constitute a body treatment part of the shaver 1. The shaver 1 is fitted with the trimmer holder 15 mentioned above for holding the stationary cutter 68. The trimmer holder 15 can be or is fixedly connected to the trough-type housing part 3 in the region of its upper end 12, similar to the frame holder 14. The drivable cutter 69 is movably supported relative to the stationary cutter 68 and can be moved relative to the stationary cutter 68 in a reciprocating movement.

[0026] The drive of the lamella-type lower cutter 48 and of the drivable trimmer cutter 69 is achieved by means of the oscillation bridge 34 and by means of the drive tube 38. The lamella-type lower cutter 48 can be driven into a reciprocating movement parallel to the direction of the double arrow 44 by the drive tube 38, which double arrow 44 at the same time also indicates the longitudinal direction of the foil frame of the foil shaving system 45. A trimmer drive lever 70 which is supported by the trimmer holder 15 so as to be pivotable about a pivot axis 71 is provided for driving the drivable trimmer cutter 69 in the shaver 1. The trimmer drive lever 70 has a passage 72 through which the drive tube 38 is passed. The trimmer drive lever 70 further comprises a drive stud 73 which is in operational connection with the drivable trimmer cutter 69. The drivable trimmer cutter 69 can thus be driven into a reciprocating movement in the direction of the double arrow 44 by means of the trimmer drive lever 70. The provision of the trimmer drive lever 70 here achieves that the drive stud 73 carries out a movement which is opposed to that of the drive tube 38, which has the result that the lamella-type lower cutter 48 and the drivable trimmer cutter 69 carry out mutually opposed movements, which was found to be favorable for achieving a behavior which is as free from vibrations as possible.

[0027] The shaver 1 is fitted with an additive supply system 75. The additive supply system 75 is designed for applying a treatment additive to the body regions under treatment, i.e. in the present case to the body regions to be shaved. The treatment additive in this case is a fluid shaving lotion which renders the shaving process easier and more pleasant.

[0028] The additive supply system 75 comprises an additive reservoir 76 for the storage of the treatment additive, which reservoir lies in a position starting from the lower end 7 of the housing part 3, i.e. clearly at a distance from the body treatment parts, so that it is well away from the shaving foil 47 and the lamella-type lower cutter 48 as well as from the stationary trimmer cutter 68 and the reciprocating trimmer cutter 69. The additive reservoir 76 here consists of a bag formed from an aluminum foil and a connection piece 78 which is substantially shaped as a hollow cylinder and which is internally closed with a closing means which is impermeable to gas and liquids. In the assembled state of the shaver 1, the connection piece 78 is held in its position by means of the two locating studs 21 of the fastening means 19

of the closing part 4.

[0029] The additive supply system 75 further comprises dispensing means 79 which are provided for producing the treatment additive from the additive reservoir 76 in dosed quantities and which are also arranged at a distance from the body treatment parts 47, 48, 68, and 69. The dispensing means 79 comprise a pump 80 which is constructed in a simple manner as a membrane pump. The pump 80 is provided with an operating elevation 81 which, in the assembled state of the shaver 1, lies behind the elastically deformable cover 22 and can thus be operated by means of the elastically deformable cover 22 so as to activate the pump 80. The dispensing means 79 further comprise an inlet piece 82 which is fixedly connected to the pump 80, which is tubular in shape, and whose free end is provided with three tags 83. The connection piece 78 of the additive reservoir 76 can be connected to, i.e. pushed home onto the inlet piece 82, in which case the hollow cylindrical connection piece 78 is passed over the inlet piece 82, whereby the closing means present in the interior of the connection piece 78 is destroyed by the three tags 83, so that a supply of the treatment additive in dosed quantities from the additive reservoir 76 is rendered possible. The dispensing means 79 further comprise an outlet piece 84 which is fixedly connected to the pump 80 and which is substantially formed by a tube section.

[0030] The additive supply system 75 further comprises application means 85 which are designed for applying the treatment additive to the body regions under treatment and which are arranged adjacent to the body treatment parts 47, 48, 68, and 69. In the present case, the application means 85 are formed by a channel 85, depicted particularly clearly in Fig. 8, which is provided in the foil frame 50, more particularly in the region of the planar first longitudinal wall 51 of the foil frame 50, which channel extends parallel to the double arrow 44, i.e. parallel to the foil frame longitudinal direction 44, and is open to the outside. The channel 85 which forms the application means 85 has a length which is substantially defined by the distance between the two side walls 53 and 54 of the foil frame 50. The width of the channel 85 varies along its length. This width is smallest in the regions of the two ends 86 and 87 of the channel 85 and greatest in the central region 88 of the channel 85, as is apparent from Fig. 4. It is further to be noted on the channel 85 that the channel 85 is bounded at the lower side by two boundary surfaces 89 and 90 (see Fig. 8) which together have a roof shape, which has the result that the channel 85 has its greatest depth in the areas of its two ends 86 and 87 and the smallest depth in the area of its center 88. Such a shape of the application means 85 in the form of a channel 85 which is open to the exterior and has a varying width and varying depth was found to be particularly advantageous as regards an effective and satisfying application of the treatment additive in the shaver 1 with the foil shaving system 45. It should also be noted with respect to the application means 85, i.e.

the channel 85, that this channel 85 extends with its two ends 86 and 87 through respective bores 91 and 92 (cf. in particular Fig. 8) up to respective end surfaces 93 and 94 of the longitudinal wall 51.

[0031] The additive supply system 75 finally comprises connection means 95 which are necessary for connecting the components of the additive supply system 75 arranged at a distance from the body treatment parts 47, 48, 68, and 69, i.e. the dispensing means 79 and the additive reservoir 76, to the components of the additive supply system 75 arranged adjacent to the body treatment parts 47, 48, 68, and 69, i.e. the application means 85. The connection means 95 are designed for supplying the treatment additive, which is produced in dosed quantities from the additive reservoir 76 by the dispensing means 79, to the application means 85. The connection means 95 here consist of a first connection part 96 and a second connection part 97, both made of synthetic resin. The two connection parts 96 and 97 are fixedly connected to one another.

[0032] The first connection part 96 comprises a fastening piece 98 which is provided for fastening the connection means 95 to the closing part 4 in conjunction with the fastening means 19. The fastening piece 98 is provided with two fastening receptacles 99, as is particularly clearly visible in Figs. 5 and 7. The fastening receptacles 99 can be or are placed over the fastening sleeves 20 on the closing part 4 with frictional force, so that the fastening piece 98, and accordingly the fastening means 95, are securely retained to the closing piece 4, and accordingly to the housing 2, because of the frictional retention between the fastening sleeves 20 and the fastening receptacles 99. The fastening receptacles 99 and the fastening sleeves 20 of the fastening means 19 provide the additional major advantage that they can also be disconnected from one another again, which has the result that the connection means 95 are detachably connected to the shaver 1, i.e. to the housing 2 of the shaver 1, and that the connection means 95 are so constructed that they can be taken off by hand, because the connection means 95 can be gripped with the thumb and the index finger of one hand in the region of the fastening piece 98 and can subsequently be simply and easily pulled from the fastening sleeves 20.

[0033] The connection means 95 further comprise an intermediate piece 100 whose shape is comparable to that of the letter Y. The intermediate piece 100 consists of a central portion 101 which is connected to the fastening piece 98 and a substantially U-shaped end portion 102 which comprises a bridge portion 103 and two leg portions 104 and 105. The second connection part 97 is connected mainly to the bridge portion 103 with the two leg portions 104 and 105.

[0034] As is visible in Figs. 2 and 3, a bore 106 is provided in the central portion 101, into which bore the outlet piece 84 of the dispensing means 79 projects with its free end, thus forming a connection impermeable to liquids. This detail is also visible in Fig. 6. A further impor-

tant detail is visible in Fig. 6, i.e. that the connection means 95 and the dispensing means 79 are joined into one component which is detachably connected to the shaver 1, i.e. to the housing 2 of the shaver 1, and which is so constructed that it can be taken off by hand. The assembly formed by the connection means 95 and the dispensing means 79 is realized in that the outlet piece 84 of the dispensing means 79 is provided with a locking stud 107, as is clearly visible in Fig. 6, which will lie behind a locking projection 108 of the central portion 101 when the outlet piece 84 is inserted into the central portion 101, whereby a positive retaining connection is realized and the assembly mentioned above is created. The result of this is that, when the fastening piece 98 and accordingly the connection means 95 are removed from the fastening sleeves 20 of the fastening means 19 by hand, the dispensing means 79 will also always be detached from the shaver 1.

[0035] It should be further noted with reference to the connection means 95 that a channel configuration 109 substantially having the shape of a letter Y is present in the intermediate piece 100 of the connection means 95. Reference is made especially to Fig. 3, but also to Figs. 1, 2, 4, 5, and 8 in connection with the channel configuration 109. The channel configuration 109 consists of circumferentially closed channels. The channel configuration 109 comprises a first channel 110 which is situated in the central portion 101 of the connection means 95 and which starts from the bore 106. Two channels 111 branch off from the first channel 110, which extends substantially in the longitudinal direction of the shaver 1, which channels run in mutually opposed directions and transversely to the longitudinal direction of the shaver 1, and of which channels only one channel 111 is visible in Fig. 3. The two channels 111 here extend in the bridge portion 103 of the intermediate piece 100. Since the bridge portion 103 (cf. in particular Fig. 4) has a curved shape, corresponding approximately to half of an oval, the two channels 111 provided in the bridge portion 103 also follow a curved path. Each of the two channels 111 is connected to a respective channel 112 and 113 which again runs substantially in the longitudinal direction of the shaver 1, particularly clearly visible in Fig. 8, the one channel 112 being provided in the one leg portion 104 of the intermediate piece 100 and the other channel 113 being provided in the other leg portion 105 of the intermediate piece 100. The two channels 112 and 113 are in communication with respective ends 86 and 87 of the channel 85 open to the exterior, i.e. the application means 85, in the foil frame 50 via the respective bores 91 and 92. The treatment additive can be reliably and quickly supplied to the application means 85, i.e. to the open channel 85, through the channel configuration 109 through operation of the pump 80 of the dispensing means 79.

[0036] It should yet be noted with respect to the application means 85 in the present case that it is achieved in a simple manner in the shaver 1 that not only the con-

nection means 95 and the dispensing means 79, but also the application means 85 are detachably connected to the shaver 1 and can be taken off by hand because of the fact that the application means 85 are mounted to the foil frame 50.

[0037] It is advantageously achieved because of the advantageous construction of the shaver described above that the application means 85, the connection means 95, and the dispensing means 79 of the additive supply system 75 can be separated from the shaver 1 in a simple and easy manner, so that they can be thoroughly cleaned by any user of the shaver 1. It is safeguarded in this manner that perfect hygienic conditions prevail in the shaver 1 also in the case of frequent and long use. It is further achieved that, if the treatment additive has dried out in the region of the dispensing means 79, the connection means 95, and the application means 85 after a longer period of disuse of the shaver 1, this drying-out can be easily remedied because the dried treatment additive can be removed by the respective user. Furthermore, the advantage is present that the connection means 95 and the dispensing means 79 can be easily exchanged by the respective user for the purpose of replacement with new connection means 95 and new dispensing means 79.

[0038] The invention is not limited to the appliance described with reference to the above embodiment. The invention can be used not only in a shaver with cutters which can be driven into a reciprocating movement, but also in a shaver with cutters which can be driven into rotation. The invention is not only applicable to shavers, but also to other appliances for personal care, for example depilation devices, massaging devices, skin cleaning devices, and similar devices. In an appliance according to the invention, the dispensing means may comprise not a pump but a valve by means of which a supply of a treatment additive from an additive reservoir in dosed quantities can be achieved, provided the treatment additive is present in the additive reservoir under excess pressure. In an appliance according to the invention, connection means of alternative construction and application means of alternative construction may be provided instead of the connection means and application means of the appliance in accordance with the embodiment described above. The connection means of the additive supply system of an appliance according to the invention may alternatively be fastened and secured in the appliance by separate securing means, for example, said securing means may be a locking screw or an adjustable retaining bracket, but alternative securing devices may also be used; in that case, the securing means should first be disconnected, whereupon the connection means constructed so as to be detachable by hand may easily be taken off by hand.

Claims

1. A personal care appliance (1) with body treatment parts (47, 48, 68, 69) which are provided for the treatment of body regions, and
 - 5 with an additive supply system (75), which system is provided for the supply of a treatment additive to the body regions under treatment and
 - 10 which system comprises an additive reservoir (76) for the storage of the treatment additive, which reservoir is arranged at a distance from the body treatment parts (47, 48, 68, 69), and
 - 15 which system comprises dispensing means (79) which are designed for producing the treatment additive from the additive reservoir (76) in dosed quantities and which are arranged at a distance from the body treatment parts (47, 48, 68, 69), and
 - 20 which system comprises application means (85) for the application of the treatment additive to the body regions under treatment, which application means are arranged adjacent to the body treatment parts (47, 48, 68, 69), and
 - 25 which system comprises connection means (95) which are arranged between the dispensing means (79) and the application means (85) and through which the treatment additive obtained in dosed quantities from the additive reservoir (76) can be supplied to the application means (85),
 characterized in that
 - 30 the connection means (95), the dispensing means (79) and the application means (85) are realized by separate means which are connected to each other, and **in that**
 - 35 the connection means (95), the dispensing means (79) and the application means (85) are constructed such that they can be detached from each other, and **in that**
 - 40 the connection means (95) are detachably connected to the appliance (1), and **in that**
 - 45 the connection means (95) are constructed such that they can be taken off by hand.
 2. An appliance (1) as claimed in claim 1, **characterized in that** the connection means (95) and the dispensing means (79) are joined together into one assembled unit which is detachably connected to the appliance (1) and which is constructed such that it can be taken off by hand.
 3. An appliance (1) as claimed in claim 1, **characterized in that** in addition the application means (85) are detachably connected to the appliance (1) and are constructed such that they can be taken off by hand.
 4. An appliance (1) as claimed in claim 3, **character-**

ized in that the appliance (1) is constructed as an electric shaver (1).

5. An appliance (1) as claimed in claim 4, **characterized in that** the appliance (1) is constructed as an electric shaver (1) with a foil shaving system (45) having a longitudinal foil frame direction (44), which system comprises a foil frame (50) for retaining a sieve-type shaving foil (47), and **in that** the application means (85) are formed by a channel (85) which is open to the exterior, which is provided in the foil frame (50), and which extends therein parallel to the longitudinal foil frame direction (44).

6. An appliance (1) as claimed in claim 5, **characterized in that** the connection means (95) comprise an intermediate piece (100) situated between the dispensing means (79) and the foil frame (50), in which intermediate piece (100) a substantially Y-shaped channel configuration (109) of circumferentially closed channels (110, 111, 112, 113) is provided, and **in that** said channel configuration (109) comprises a channel (110) connected to the dispensing means (79) and two further channels (112, 113), each of the latter two channels being in communication with a respective end (86, 87) of the channel (85) open to the exterior in the foil frame (50).

Patentansprüche

1. Gerät (1) zur Körperpflege mit Körperbehandlungsteilen (47, 48, 68, 69), die zum Behandeln von Körperbereichen vorgesehen sind, und mit einem Zusatzmittelzufuhrsystem (75), welches System zum Zuführen eines Behandlungszusatzmittels zu den zu behandelnden Körperbereichen vorgesehen ist und welches System zum Speichern des Behandlungszusatzmittels einen Zusatzmittelspeicherbehälter (76) aufweist, der mit Abstand von den Körperbehandlungsteilen (47, 48, 68, 69) angeordnet ist, und welches System zum dosierten Herausbringen des Behandlungszusatzmittels aus dem Zusatzmittelspeicherbehälter (76) Dosiermittel (79) aufweist, die mit Abstand von den Körperbehandlungsteilen (47, 48, 68, 69) angeordnet sind, und welches System zum Auftragen des Behandlungszusatzmittels auf die zu behandelnden Körperbereiche Auftragsmittel (85) aufweist, die benachbart zu den Körperbehandlungsteilen (47, 48, 68, 69) angeordnet sind, und welches System Verbindungsmitte (95) aufweist, die zwischen den Dosiermitteln (79) und den Auftragsmitteln (85) angeordnet sind und über die

das aus dem Zusatzmittelspeicherbehälter (76) dosiert herausgebrachte Behandlungszusatzmittel den Auftragsmitteln (85) zugeführt werden kann, **dadurch gekennzeichnet**, **daß** die Verbindungsmitte (95), die Dosiermittel (79) und die Auftragsmittel (85) durch gesonderte Mittel realisiert sind, die miteinander verbunden sind, und daß die Verbindungsmitte (95), die Dosiermittel (79) und die Auftragsmittel (85) so ausgebildet sind, daß sie voneinander gelöst werden können und daß die Verbindungsmitte (95) mit dem Gerät (1) lösbar verbunden sind und daß die Verbindungsmitte (95) mit der Hand abnehmbar ausgebildet sind.

10. Gerät (1) nach Anspruch 1, **dadurch gekennzeichnet**, **daß** die Verbindungsmitte (95) und die Dosiermittel (79) zu einer Baueinheit verbunden sind, die mit dem Gerät (1) lösbar verbunden ist und die mit der Hand abnehmbar ausgebildet ist.

15. Gerät (1) nach Anspruch 1, **dadurch gekennzeichnet**, **daß** zusätzlich die Auftragsmittel (85) mit dem Gerät (1) lösbar verbunden sind und mit der Hand abnehmbar ausgebildet sind.

20. Gerät (1) nach Anspruch 3, **dadurch gekennzeichnet**, **daß** das Gerät (1) als Elektrorasierer (1) ausgebildet ist.

25. Gerät (1) nach Anspruch 4, **dadurch gekennzeichnet**, **daß** das Gerät (1) als Elektrorasierer (1) mit einem eine Folienrahmenlängsrichtung (44) aufweisenden Folienrasiersystem (45) ausgebildet ist, welches System einen Folienrahmen (50) zum Halten einer Siebscherfolie (47) aufweist, und daß die Auftragsmittel (85) durch einen in dem Folienrahmen (50) vorgesehenen und hierbei parallel zu der Folienrahmenlängsrichtung (44) verlaufenden und nach außen hin offenen Kanal (85) gebildet sind.

30. Gerät (1) nach Anspruch 5, **dadurch gekennzeichnet**, **daß** die Verbindungsmitte (95) ein zwischen den Dosiermitteln (79) und dem Folienrahmen (50) liegendes Zwischenstück (100) aufweisen, in welchem Zwischenstück (100) eine im wesentlichen Y-förmige Kanalkonfiguration (109) aus umfangsseitig geschlossenen Kanälen (110, 111, 112, 113) vorgesehen ist, und daß die Kanalkonfiguration (109) einen mit den Dosiermitteln (79) verbundenen Kanal (110) und zwei weitere Kanäle (112, 113) aufweist, wobei jeder der letzteren beiden Kanäle mit einem jeweiligen Ende (86, 87) des nach außen hin offenen Kanals (85) in dem Folienrahmen (50) in Verbindung steht.

Revendications

1. Appareil de soins d'hygiène personnelle (1) avec des pièces de traitement du corps (47, 48, 68, 69) qui sont prévues pour le traitement de régions du corps, et

avec un système d'alimentation d'additif (75), lequel système est prévu pour l'apport d'un additif de traitement à la région du corps sous traitement et

lequel système comprend un réservoir d'additif (76) pour le stockage de l'additif de traitement, lequel réservoir est disposé à distance des pièces de traitement du corps (47, 48, 68, 69), et

lequel système comprend un moyen de distribution (79) qui est conçu pour débiter l'additif de traitement du réservoir d'additif (76) en quantités dosées et qui est disposé à distance des pièces de traitement du corps (47, 48, 68, 69) et

lequel système comprend un moyen d'application (85) pour l'application de l'additif de traitement aux régions du corps sous traitement, lequel moyen d'application est disposé à proximité des pièces de traitement du corps (47, 48, 68, 69), et

lequel système comprend un moyen de raccordement (95) qui est disposé entre le moyen de distribution (79) et le moyen d'application (85), et par lequel l'additif de traitement obtenu en quantités dosées du réservoir d'additif (76) peut être fourni au moyen d'application (85),

caractérisé en ce que,

le moyen de raccordement (95), le moyen de distribution (79) et le moyen d'application (85) sont réalisés par des moyens séparés qui sont raccordés l'un à l'autre, et **en ce que**

le moyen de raccordement (95), le moyen de distribution (79) et le moyen d'application (85) sont construits de façon telle qu'ils peuvent être détachés l'un de l'autre, et **en ce que**

le moyen de raccordement (95) est relié de façon détachable à l'appareil (1), et **en ce que**

le moyen de raccordement (95) est construit de façon telle qu'il puisse être démonté à la main.

2. Appareil (1) selon la revendication 1 **caractérisé en ce que** le moyen de raccordement (95) et le moyen de distribution (79) sont assemblés en une unité assemblée qui est reliée de façon détachable à l'appareil (1) et qui est construite de façon qu'elle puisse être démontée à la main.

3. Appareil (1) selon la revendication 1 **caractérisé en ce que**, en plus, le moyen d'application (85) est relié de façon détachable à l'appareil (1) et est construit de façon telle qu'il puisse être démonté à la main.

4. Appareil (1) selon la revendication 3 **caractérisé en ce que** l'appareil (1) est construit comme un rasoir

5. Appareil (1) selon la revendication 4 **caractérisé en ce que** l'appareil (1) est construit comme un rasoir électrique (1).

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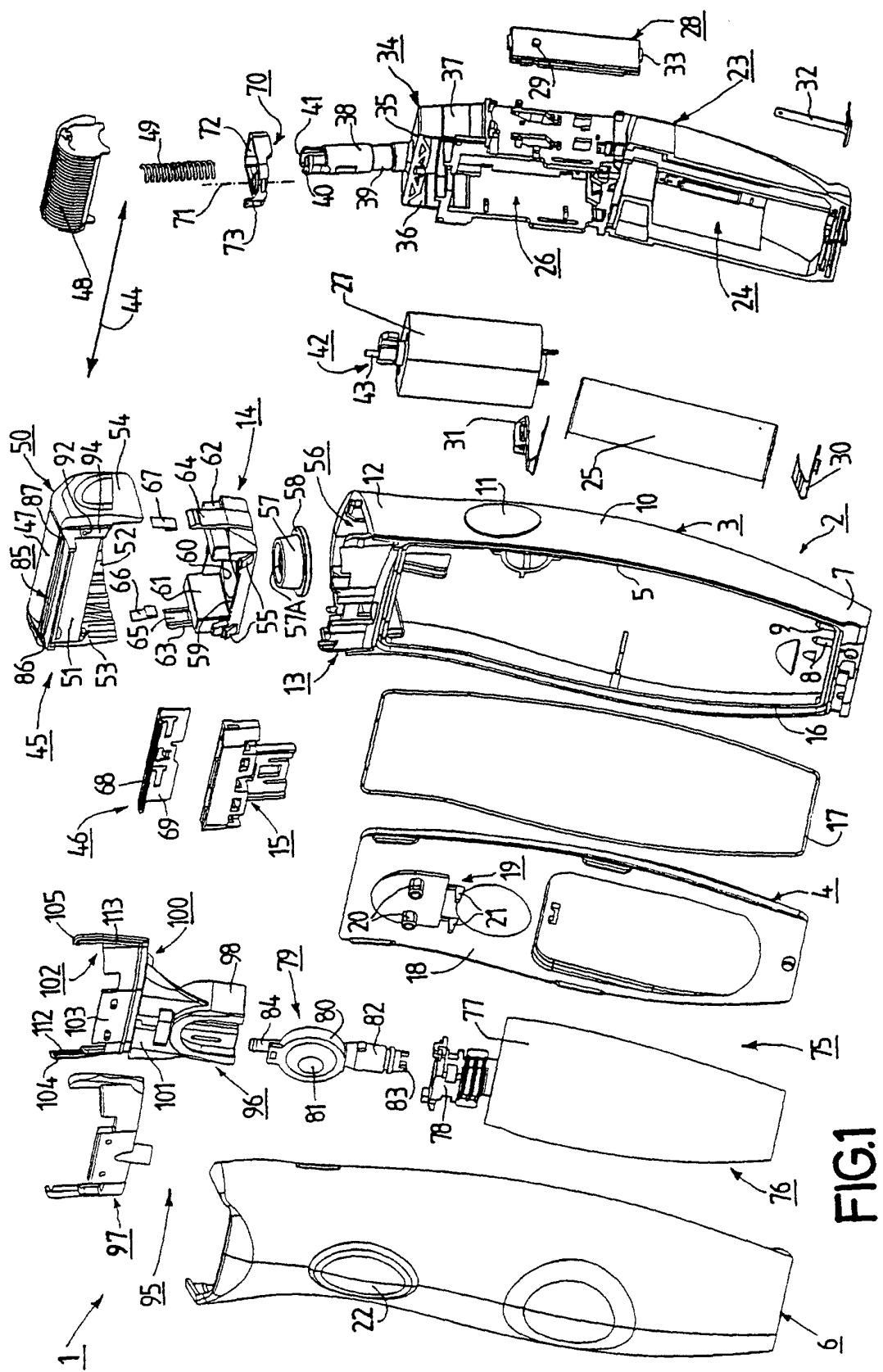
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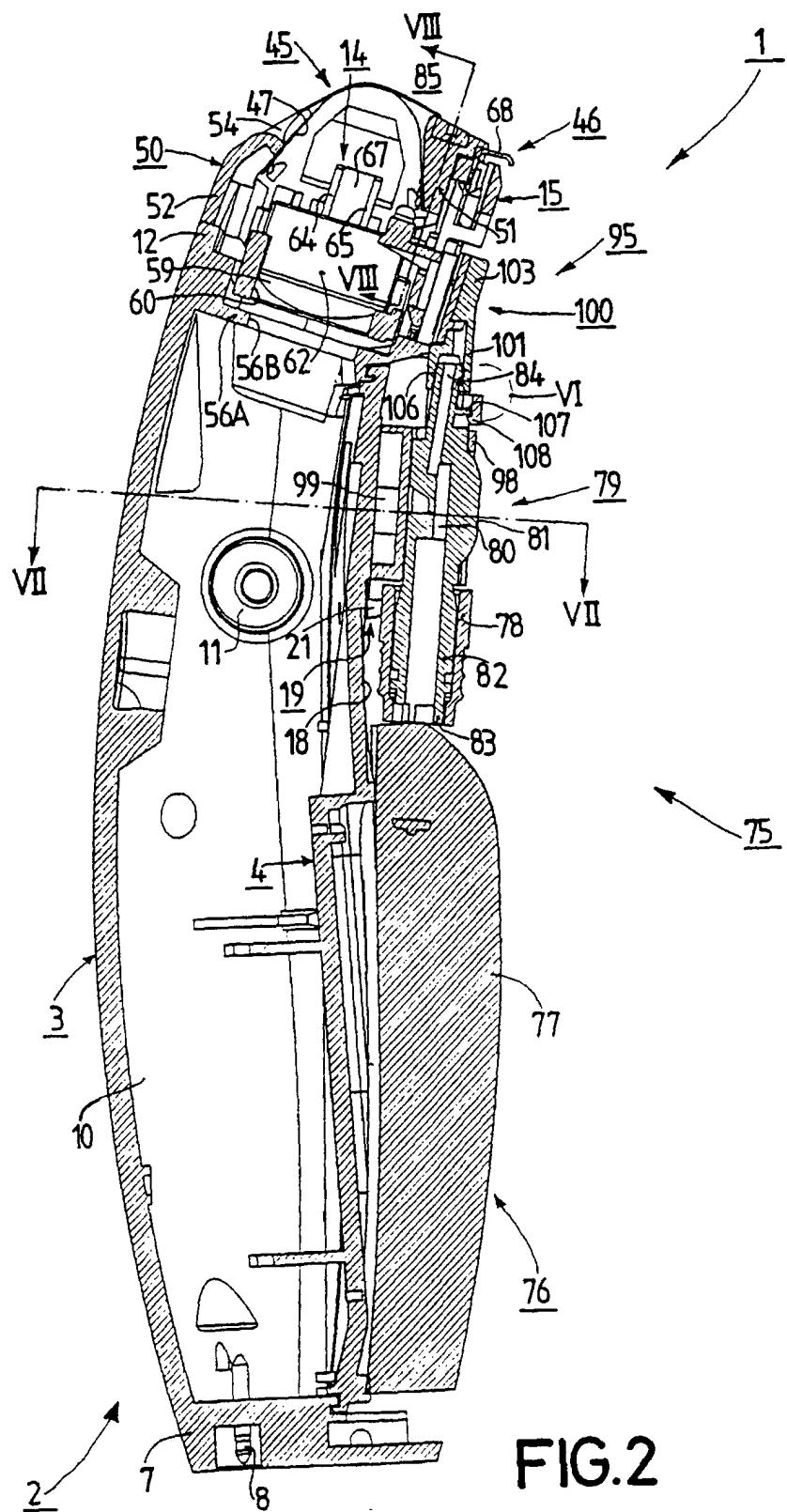
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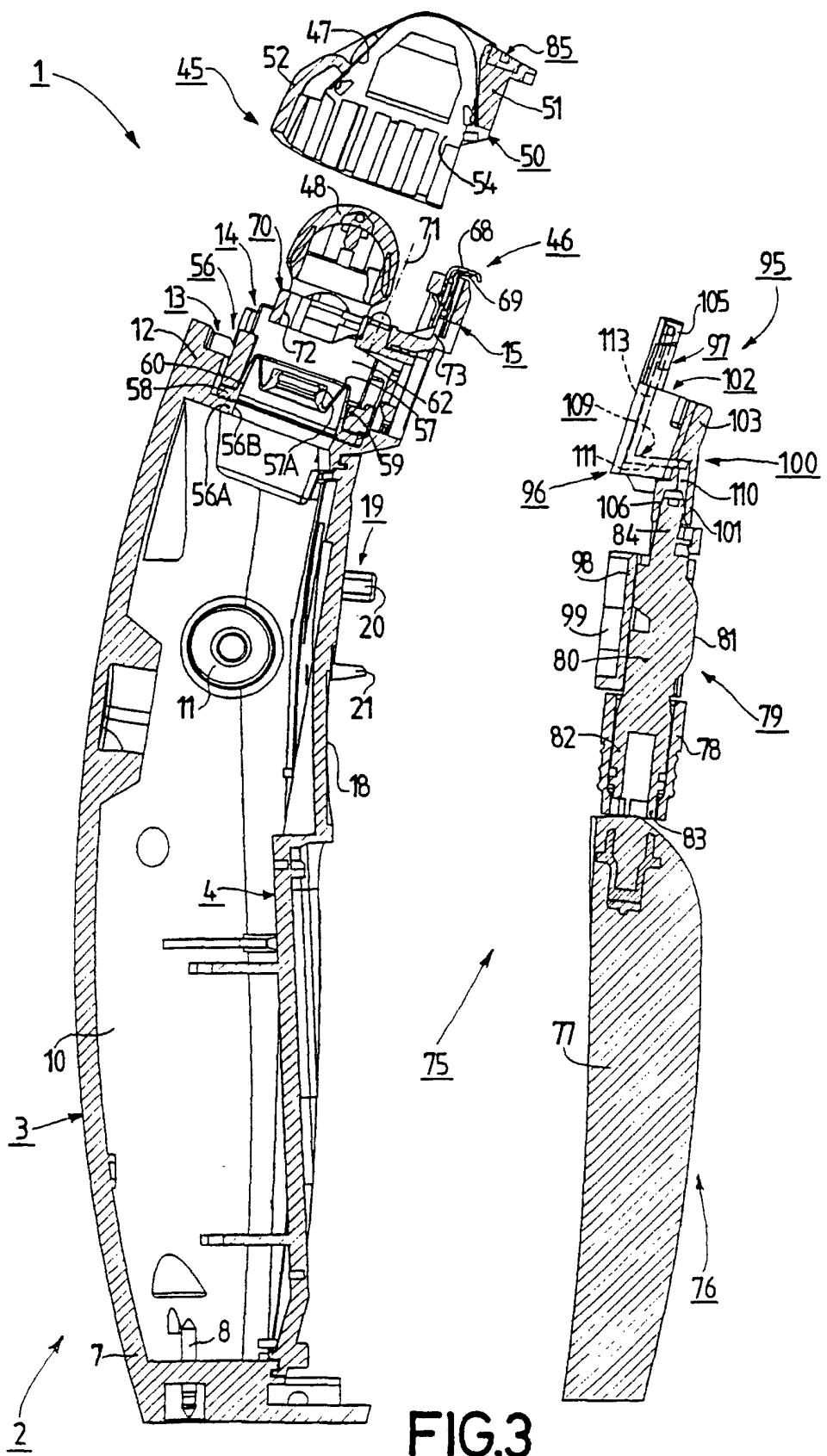
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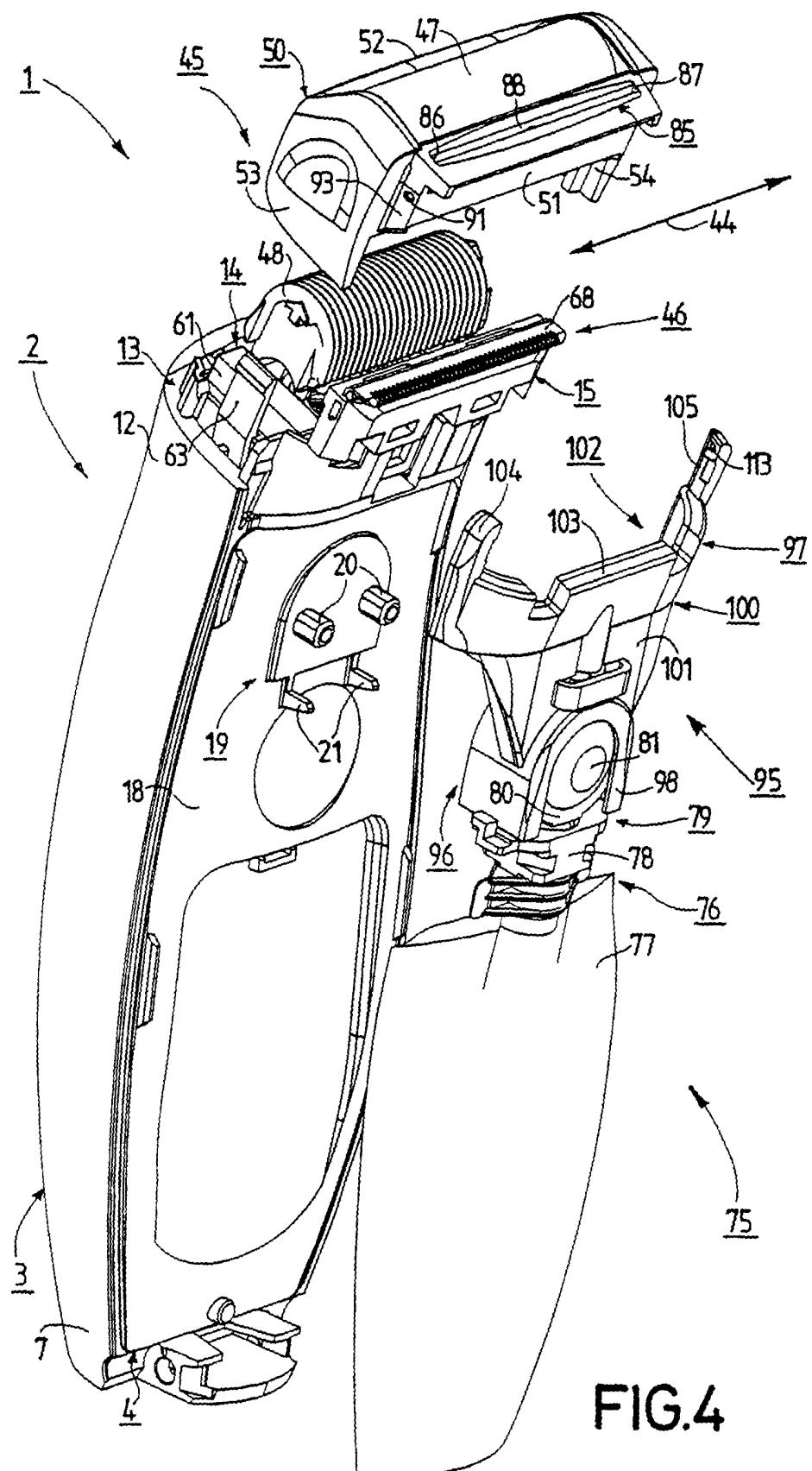


FIG.4

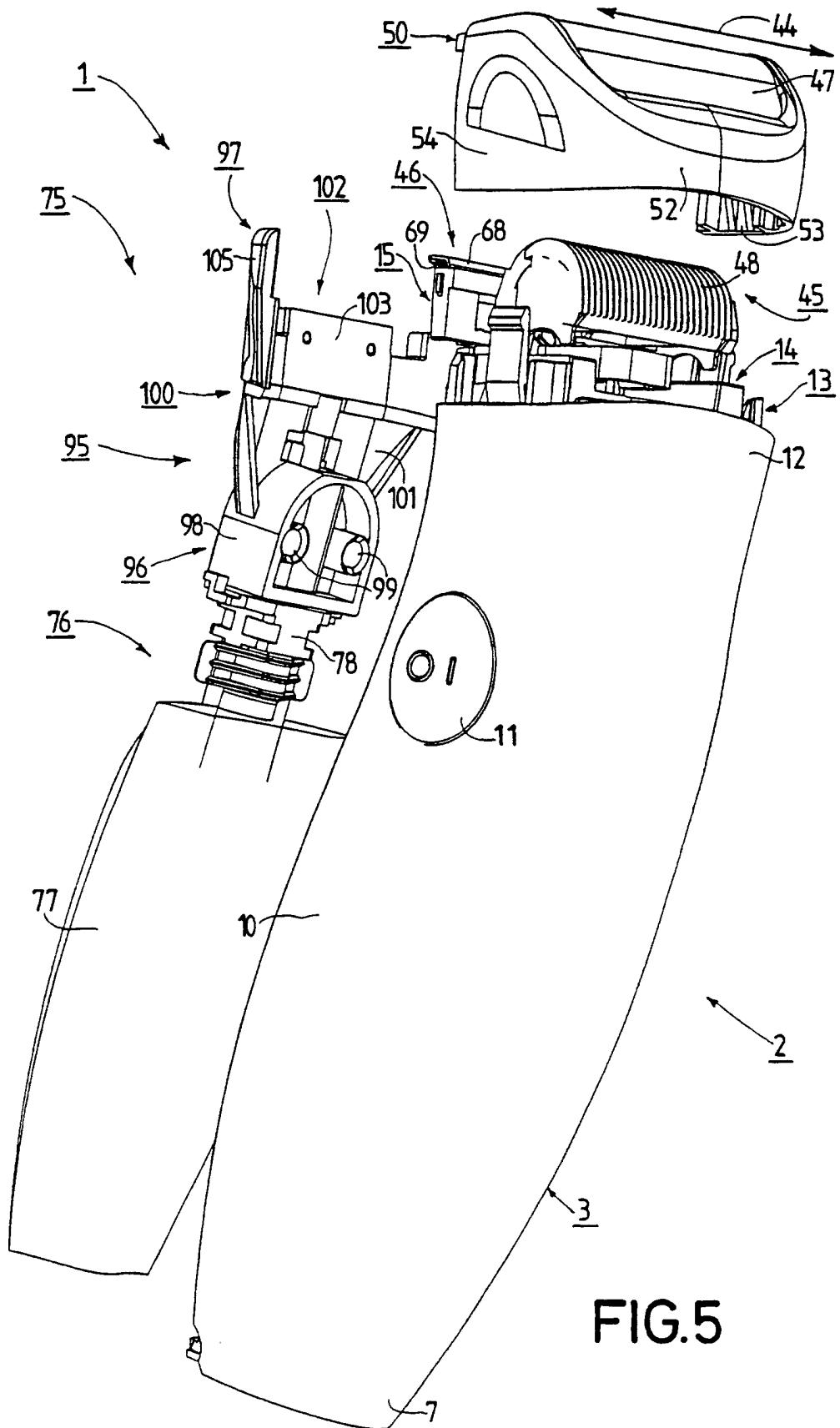


FIG.5

