(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 972 417 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
24.09.2008 Bulletin 2008/39

(51) Int Cl.:
B26B 19/06 *(2006.01)* ***B26B 19/14*** *(2006.01)*

(21) Application number: **08153215.2**

(22) Date of filing: **25.03.2008**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA MK RS

(30) Priority: **23.03.2007 JP 2007077293**

(71) Applicants:
- **Seiko S-Yard, Ltd**
  Chiyoda-ku
  Tokyo (JP)
- **IZUMI PRODUCTS COMPANY**
  Matsumoto,
  Nagano (JP)

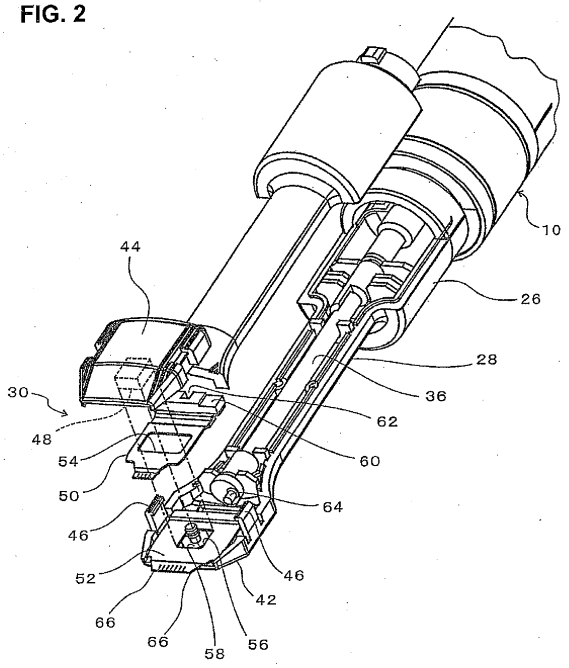
(72) Inventors:
- **Tagaya, Yasuko**
  Tokyo, Nagano (JP)
- **Hayashi, Kenya**
  Nagano, Nagano (JP)

(74) Representative: **Jenkins, Peter David**
Page White & Farrer
Bedford House
John Street
London WC1N 2BF (GB)

(54) Eyebrow beautifying apparatus

(57) An eyebrow beautifying apparatus having a comb-tooth shaped fixed blade and movable blade, including: a substantially tube-shaped grip unit (10) accommodating a motor (12) and a battery (14); a head unit (24) which is comprised of a rod section (28), extending linearly from the grip unit (10) and having a smaller diameter than the grip unit (10), and a flat section (30), provided at a tip end of the rod section (28) and having a width smaller than a diameter of the grip unit (10); a comb-tooth shaped fixed blade (52) and movable blade (50) that are accommodated in the flat section (30) and protrude in a longitudinal direction of the head unit (24) from a tip of the flat section (30); and a transmission member (36) inserted inside the rod section (28) for transferring a driving force of the motor (12) to the movable blade (50) and reciprocally driving the movable blade (50).

FIG. 2



EP 1 972 417 A1

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to an eyebrow beautifying apparatus having extremely small comb-tooth shaped fixed and movable blades and suitable for the care of facial care such as that for eyebrow hair.

2. Description of the Related Art

[0002] There have, for some time now, been electric beautifying apparatuses for cosmetically forming the eyebrow hairs of the face or shaving fine downy hairs.

[0003] In Japanese Patent Application Laid-Open (Kokai) No. 54-154664, an electric shaver is disclosed, and in this shaver, one end of a main body (1) that, overall, is substantially rod shaped is made to have a flat shape that is long in the longitudinal direction of the main body (1), and, at the two edges of this flat shaped portion, a movable blade (5) and fixed blade (4) having a comb tooth shape and long in the longitudinal direction of the main body are provided. Accordingly, in this electric shaver, the substantially rod shaped main body thereof is moved in the radial direction thereof parallel to the surface of the skin.

[0004] In Japanese Patent Application Laid-Open (Kokai) No. 57-200178, a trimmer type electric shaver is disclosed. In this shaver, a connecting housing (9) that curves and extends from one end of a substantially rod shaped gripping member (1) is provided, and a perpendicularly oriented blade support (17) is provided so as to freely swing up and down at the upper end of this connecting housing (9). The width of the blade support (17) is made sufficiently large as compared to the diameter of the gripping member (1), forming overall what is substantially a T-shape.

[0005] Japanese Utility Model Application Laid-Open (Kokai) No. 56-44657 discloses an electric shaver in which an arm unit (9), to which a blade unit (15) is secured, is secured so that it can swing up and down relative to a blade unit (1). In this shaver, the blade unit (15) and the arm unit (9) are in substantially a T-shape, and these form an integrated unit that turns about a shaft (8) that is parallel to the blade unit (15).

[0006] In the shaver disclosed in Japanese Patent Application Laid-Open (Kokai) No. 54-154664, the main body (1) extends to the tip, and blades long in the longitudinal direction are provided at both edges of this tip portion. Accordingly, in actual use, when the blades are positioned at the eyebrows or the like, the main body (1) will cover the front of the eyes, making it difficult to verify the position of the blade tip when performing a process while looking in a mirror.

[0007] In the shavers shown in Japanese Patent Application Laid-Open (Kokai) No. 57-200178 and Japanese Utility Model Application Laid-Open (Kokai) No. 56-44657, in both cases, a blade unit (the blade support (18) in Japanese Patent Application Laid-Open (Kokai) No. 57-200178, and the blade unit (15) in Japanese Utility Model Application Laid-Open (Kokai) No. 56-44657) and an arm unit supporting it (the connecting housing (9) and arm unit (9), respectively) form a substantially T-shape. The blade unit is such that the dimension (lateral width) in the length direction of the fixed blade and movable blade and the dimension (fore-and-aft width) in a direction perpendicular thereto and parallel to the blade(s), become large. For this reason, in actual use, it becomes difficult to view the place where the blade tips and skin make contact, depending on the location being processed, making it necessary to take approximate aim when processing hair.

BRIEF SUMMARY OF THE INVENTION

[0008] An object of the present invention, which was devised in view of such circumstances as described above, is to provide an eyebrow beautifying apparatus in which, when performing processing to care for hair such as downy facial hair or eyebrow hair, it is easy to view the processing unit and the blade tips in a mirror, making the instrument ideal for performing accurate and quick care.

[0009] According to the present invention, the above-descried object is accomplished by an eyebrow beautifying apparatus that includes a comb-tooth shaped fixed blade and movable blade and is characterized in that it comprises a substantially tube-shaped grip unit accommodating a motor and a battery; a head unit which is comprised of a rod section , extending linearly from the grip unit and having a smaller diameter than the grip unit, and a flat section , provided at a tip end of the rod section and having a width smaller than a diameter of the grip unit; a comb-tooth shaped fixed blade and movable blade that are accommodated in the flat section and protrude in a longitudinal direction of the head unit from a tip of the flat section; and a transmission member inserted inside the rod section for transferring a driving force of the motor to the movable blade and reciprocally driving the movable blade.

[0010] In the present invention, the grip unit is substantially tube-shaped, the head unit extending from the grip unit extends linearly, the head unit is formed by a rod section and a flat section that is at the tip end of the rod section, a comb-tooth shaped fixed blade and movable blade protrude at the tip end of the flat section, the movable blade is reciprocally driven by a transmission member passing through the rod section, and the width of the flat section is made smaller than the diameter (maximum outer diameter) of the grip unit. Accordingly, it can be manipulated by gripping the grip unit just like a pen is gripped and has good manipulability.

[0011] In addition, because the flat section is small and the rod section is narrow (of smaller diameter than the

grip unit), no hindrance to vision occurs when performing a process on an eyebrow or the like while watching through a mirror. As a result, accurate and quick processing can be done while verifying the process location visually.

[0012] In the present invention, it is preferable that the grip unit be in the shape of a round tube; however, the grip unit may also be made polygonal such as square or hexagonal, for example. It is preferred to make the head unit attachable to and detachable from the grip unit, and to make the head unit replaceable. In such cases, if an attachment-detachment operation section having a larger diameter than the rod section is provided so as to be integral with the head unit, and the head unit is attached to and detached from the grip unit by this attachment-detachment operation section, the operations of attaching and detaching become easy.

[0013] Furthermore, by way of making the width of the flat smaller than the diameter of the attachment-detachment operation section, it is convenient to attach or detach a cap to or from the head unit. In other words, the flat section will not become a hindrance when placing a cap on the head unit that covers the head unit from the tip end thereof, and the cap can be formed in a substantially round tubular shape so that it covers from the tip end to the base portion of the head unit, that is, to the attachment-detachment operation section.

[0014] In the present invention, the transmission member is a rotary shaft that is passed through the head unit, so that the rotary shaft is rotated by a motor, while causing the tip of this rotary shaft to advance inside the flat section, and engaging the offset pin provided at the tip thereof in the long channel provided in the movable blade, the movable blade can be made to move reciprocally. Furthermore, it is preferable that the width of the fixed blade be made wider than the range of movement of the movable blade, and flat portions having substantially the same height as the tips of the comb teeth be formed at either side of the fixed blade in the width direction thereof. The reason for this structure is that with such a structure damage to the skin can be prevented by these flat portions at either side when the comb teeth portions come up against the skin forcefully.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0015]

Figure 1 is a perspective view of an eyebrow beautifying apparatus according to an embodiment of the present invention, showing the condition of use thereof;

Figure 2 is an exploded perspective view of the head unit thereof;

Figure 3 is a perspective view showing a mechanism for attaching and detaching the head unit;

Figure 4 is a perspective view showing the internal structure of the grip unit.

DETAILED DESCRIPTION OF THE INVENTION

[0016] Figure 1 is a perspective view of one embodiment of the present invention, showing the condition of use thereof; Figure 2 is an exploded perspective view of the head unit thereof; Figure 3 is a perspective view showing a mechanism for attaching and detaching the head unit thereof; and Figure 4 is a perspective view showing the internal structure of the grip unit.

[0017] In these figures, the reference numeral 10 designates a grip unit, which has the thickness and length of a cylindrical pen shaft shape. In the interior of this grip unit 10, a motor 12 and a battery(s) (AAA type, for instance) 14 are accommodated, in that order, from the head unit 24 end (described below). The rotary shaft 16 of the motor 12 protrudes into an attachment-detachment hole 18 provided in the end surface of the grip unit 10. To this protruding end is secured a square column-shaped engagement member 20 that engages a rotary shaft 36, which functions as a transmission member to be described below, and transfers the rotation of the rotary shaft. A slide switch 22 is provided on the grip unit 10, and the motor 12 is rotated ON and OFF by operating this switch 22.

[0018] The reference numeral 24 designates the head unit. In this head unit 24, an attachment-detachment operation section 26, a rod section 28, and a flat section 30 are formed, substantially linearly, in that order, from the grip unit 10 end toward the tip end. The attachment-detachment operation section 26 is cylindrical in shape, having substantially the same diameter as the grip unit 10, while the rod section 28 has a smaller diameter than this. The cross-sectional shape of this rod section 28, moreover, is not circular but is slightly flattened. The thickness of the flat section 30 is substantially the same as the diameter of the rod section 28, while the lateral width thereof is slightly smaller than the diameter of the attachment-detachment operation section 26. The "thickness" of the flat section 30 is a length in the direction of the imaginary lines shown in Fig. 2, and the "width or lateral width" of the flat section 30 is a length orthogonal to the imaginary lines and in the right and left direction in Fig. 2.

[0019] The head unit 24 is made so that it can be attached to and detached from the grip unit 10 by engaging a cylindrical engagement part 32 erected on the end surface on the attachment-detachment operation section 26 end into the above-described attachment-detachment hole 18 on the grip unit 10 end. More specifically, a pair of projections 34 are formed in the outer circumference of the cylindrical engagement part 32, and a channel (not shown) is formed, in the center axial direction (longitudinal direction) through which these projections 34 pass, in the inner circumferential surface of the attachment-detachment hole 18. The tip end (bottom side) of this channel is bent in the circumferential direction. When the

projections 34 are positioned in this channel, the cylindrical engagement part 32 of the attachment-detachment operation section 26 is inserted into the attachment-detachment hole 18, and the attachment-detachment operation section 26 is turned slightly, the projections 34 thus can be engaged in the tip end (bottom side) of the channel. The result is that a substantially pen shape, as a whole, is formed which, overall, is linear.

[0020] Inside the head unit 24, the rotary shaft 36 is passed so as to function as a transmission member. More specifically, the rotary shaft 36 is supported inside the rod section 28, the end thereof on the attachment-detachment operation section 26 end protrudes from the cylindrical engagement part 32, and, into the protruding part 38 thereof, the above-described engagement member 20 engages. In other words, in this protruding part 38, a square column-shaped concavity 40 (Figure 3) is formed which corresponds to the square column-shaped engagement member 20. This engagement member 20 and the square column-shaped concavity 40 engage when the head unit 24 is joined to the grip unit 10. As a consequence, the rotation of the motor 12 is transferred to the rotary shaft 36.

[0021] The flat section 30 will e described next. The flat section 30 comprises a lower case 42 and an upper case 44 which are stacked together at the surfaces where they are cut in the flat direction. The lower case 42 is integral with the rod section 28, while the upper case 44 can be joined thereto by a pair of engagement pawls 46 erected on the side edges of the lower case 42. On the inner surface of the upper case 44, a square column 48 (Figure 2) is projected. This square column 48 has two sides parallel to the longitudinal direction of the head unit 24 and two sides perpendicular thereto.

[0022] The reference numeral 50 designates a movable blade, and 52 designates a fixed blade. In the movable blade 50, as diagrammed in Figure 2, a rectangular opening 54 is formed with which the square column 48 engages. More specifically, this opening 54 engages with the two sides of the square column 48 in the width direction of the flat section 30, so that the movement of the head unit 24 in the longitudinal direction is limited; and the opening 54 has gaps between it and the two other sides of the square column 48, in the longitudinal direction of the head unit 24, thus allowing movement of the flat section 30 in the width direction.

[0023] In the fixed blade 52, an opening 56 is formed so that it engages with the square column 48 to limit the movement thereof. The fixed blade 52 is secured in this square column 48, with its opening 56 being engaged with the square column 48,. More specifically, in the end surface of the square column 48, a lock plate 58 having the same shape as the square column 48 is attached so that it can turn; as a result, when the four sides of the lock plate 58 are positioned so as to coincide with the sides of the square column 48, the movable blade 50 and the fixed blade 52 can be attached to and detached from the square column 48 in order.

[0024] Furthermore, when the lock plate 58 is slightly turned (approximately 45°) while the movable blade 50 and the fixed blade 52 are in the engagement with the square column 48, the fixed blade 52 will engage with the lock plate 58 and the fixed blade 52 will be held by the square column 48. Furthermore, on the inner surface of the upper case 44, a flat spring (not shown) is attached, so that the movable blade 50 is pressed toward the fixed blade 52 side and that the sliding contact pressure on both is suitably maintained.

[0025] The reverse tip end (or the end opposite from the tip end) of the movable blade 50 protrudes more to the rotary shaft 36 side than does the fixed blade 52, and, a block 60 made of plastic *(resins)* is secured to such a reverse tip end. In this block 60, a long channel 62 is formed in the up-and-down direction, that is, in a direction (thickness direction) that is perpendicular to the flat section 30. In this long channel 62, an offset pin 64 attached to the tip of the above-described rotary shaft 36 engages. As a consequence, the offset pin 64 slides inside the long channel 62 due to the rotation of the rotary shaft 36, and the movable blade 50 moves reciprocally in the lateral width direction of the flat section 30.

[0026] The tip ends of the movable blade 50 and fixed blade 52 protrude slightly farther (approximately 2 mm) than the tip of the flat section 30, so that fine hairs are cut by small comb teeth (having depths of approximately 1 mm) formed in these tip ends of the blades. The width of the tip end portion of the fixed blade 52 is wider than the range of movement of the movable blade 50, and flat portions 66 having substantially the same height as the tip ends of the comb teeth are formed on either side of the fixed blade 52 in its width direction. These flat portions 66 prevent the comb teeth from forcefully striking the skin when the skin is in contact with the blade tip ends, and thus function to protect the skin.

[0027] In Figure 1, the reference numeral 68 is a cap. This cap 68 is cylindrical in shape, with one end thereof closed, having substantially the same outer diameter as the grip unit 10. The open end of the cap 68 is brought to cover the head unit 24, and then the inner circumferential surface of the open end of the cap 68 is fitted to the outer circumferential surface of the attachment-detachment operation section 26, so that the cap 68 is secured to the attachment-detachment operation section 26. In this condition, a single overall cylindrical shape is formed by the cap 68 and the attachment-detachment operation section 26, making the instrument easy to accommodate in a pocket or handbag, etc. and convenient to carry.

[0028] When the beautifying apparatus described above is used, the grip unit 10 is gripped as a pen, as illustrated in Figure 1. The switch 22 thereof is switched to the ON position, and the flat section 30 at the tip thereof is positioned at a place to be processed such as the eyebrow hairs of the face as reflected in a mirror. By moving the flat section 30 in the width direction thereof, that is, in a direction perpendicular to the movable blade 50 and

fixed blade 52, eyebrow hairs and the like can be processed. Since, in the present invention, the head unit 24 and the rod section 28 are narrow and the flat section 30 is small, it is easy to verify the process position by viewing with a mirror, operability is good, and processing can be accomplished quickly.

Claims

1. An eyebrow beautifying apparatus having a comb-tooth shaped fixed blade and movable blade, **characterized in that** the eyebrow beautifying apparatus comprises:

   a substantially tube-shaped grip unit (10) accommodating a motor (12) and a battery (14);
   a head unit (24) which is comprised of a rod section (28), extending linearly from the grip unit (10) and having a smaller diameter than the grip unit (10), and a flat section (30), provided at a tip end of the rod section (28) and having a width smaller than a diameter of the grip unit (10);
   a comb-tooth shaped fixed blade (52) and movable blade (50) that are accommodated in the flat section (30) and protrude in a longitudinal direction of the head unit (24) from a tip of the flat section (30); and
   a transmission member (36) inserted inside the rod section (28) for transferring a driving force of the motor (12) to the movable blade (50) and reciprocally driving the movable blade (50).

2. The eyebrow beautifying apparatus according to claim 1, wherein an attachment-detachment operation section (26) having a diameter larger than the rod section (28) is formed integrally with the head unit (24), and the head unit (24) is detachable from the grip unit (10).

3. The eyebrow beautifying apparatus according to claim 2, wherein the width of the flat section (30) is smaller than a diameter of the attachment-detachment operation section (26).

4. The eyebrow beautifying apparatus according to any one of claims 1 to 3, further including a cap (68) that has an outer diameter substantially the same as that of the grip unit (10) and is attachable to and detachable from the head unit (24).

5. The eyebrow beautifying apparatus according to any one of claims 1 to 4, wherein the transmission member (36) is a rotary shaft that is inserted into the head unit (24) and is rotationally driven by the motor (12), and an offset pin (64) is provided at a tip of the rotary shaft and engages a long channel (62) provided in the movable blade (50) so as to cause the movable blade (50) to move reciprocally.

6. The eyebrow beautifying apparatus according to any one of claims 1 to 5, wherein a width of the fixed blade (52) is greater than a range of movement of the movable blade (50), and flat portions (66) having substantially the same height as a tip end of comb teeth of the blades are provided at either side of the fixed blade (52) in a width direction thereof.

FIG. 1

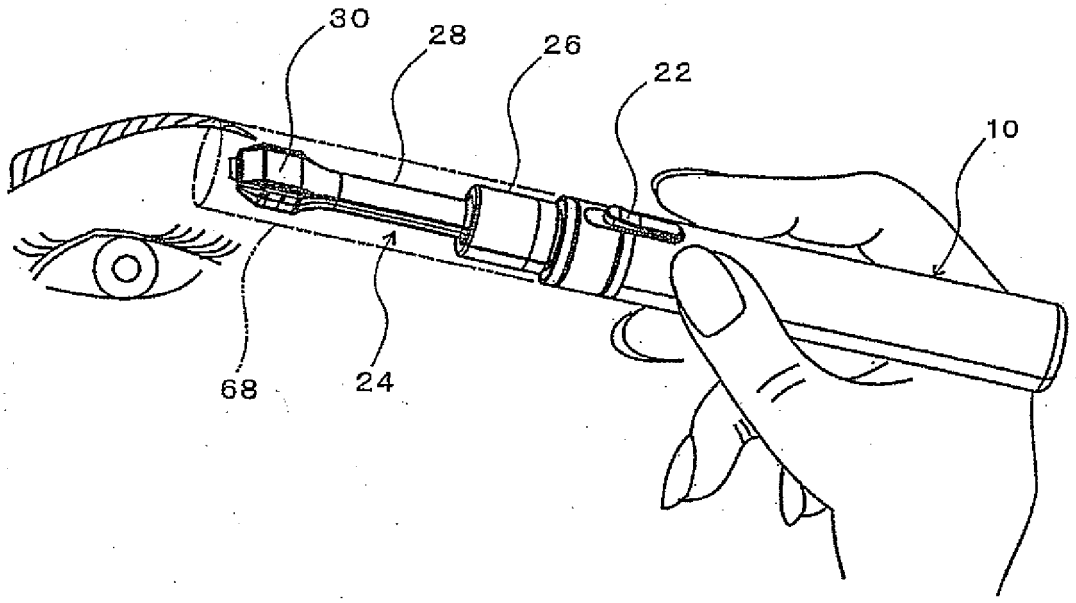


FIG. 2

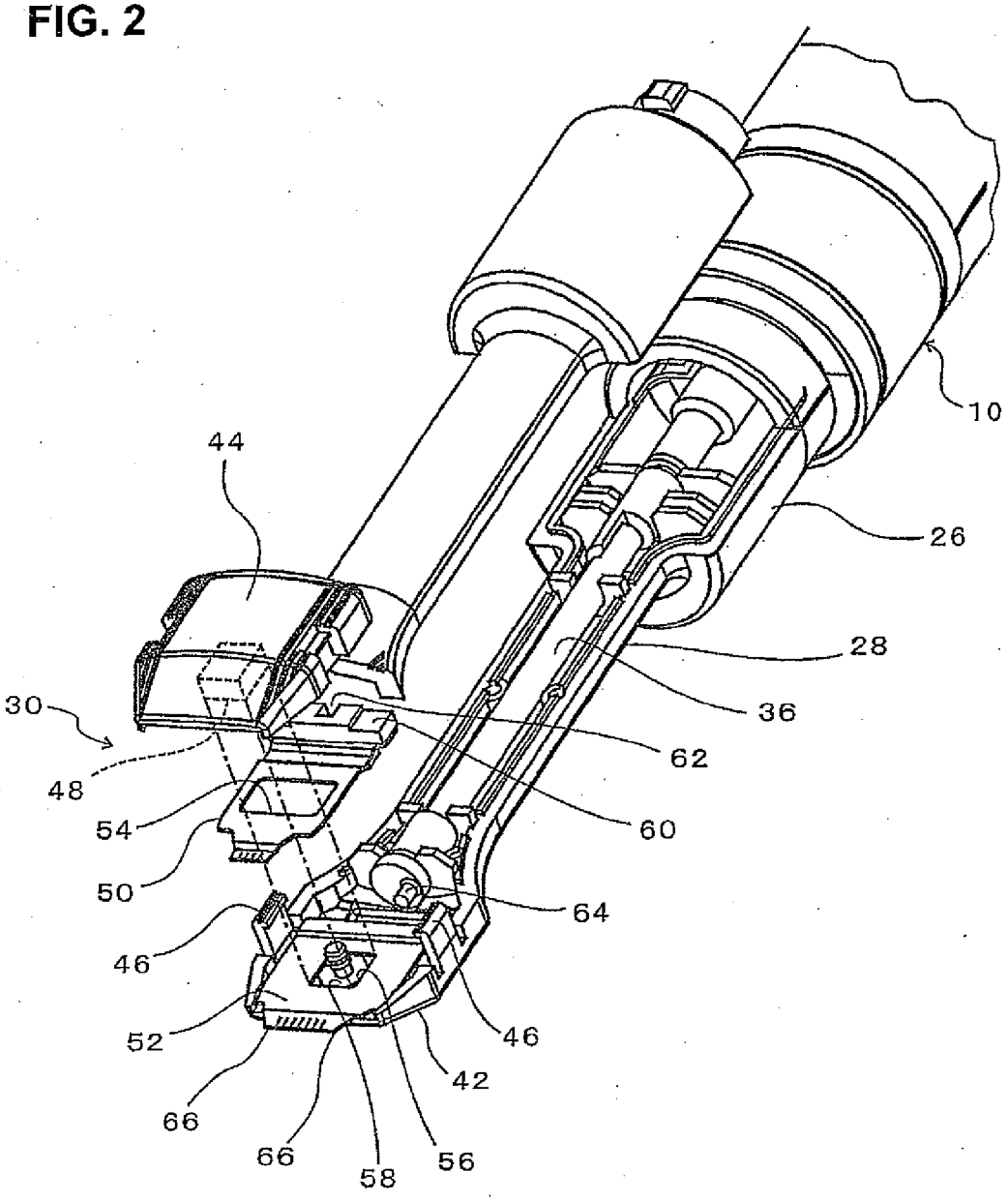


FIG. 3

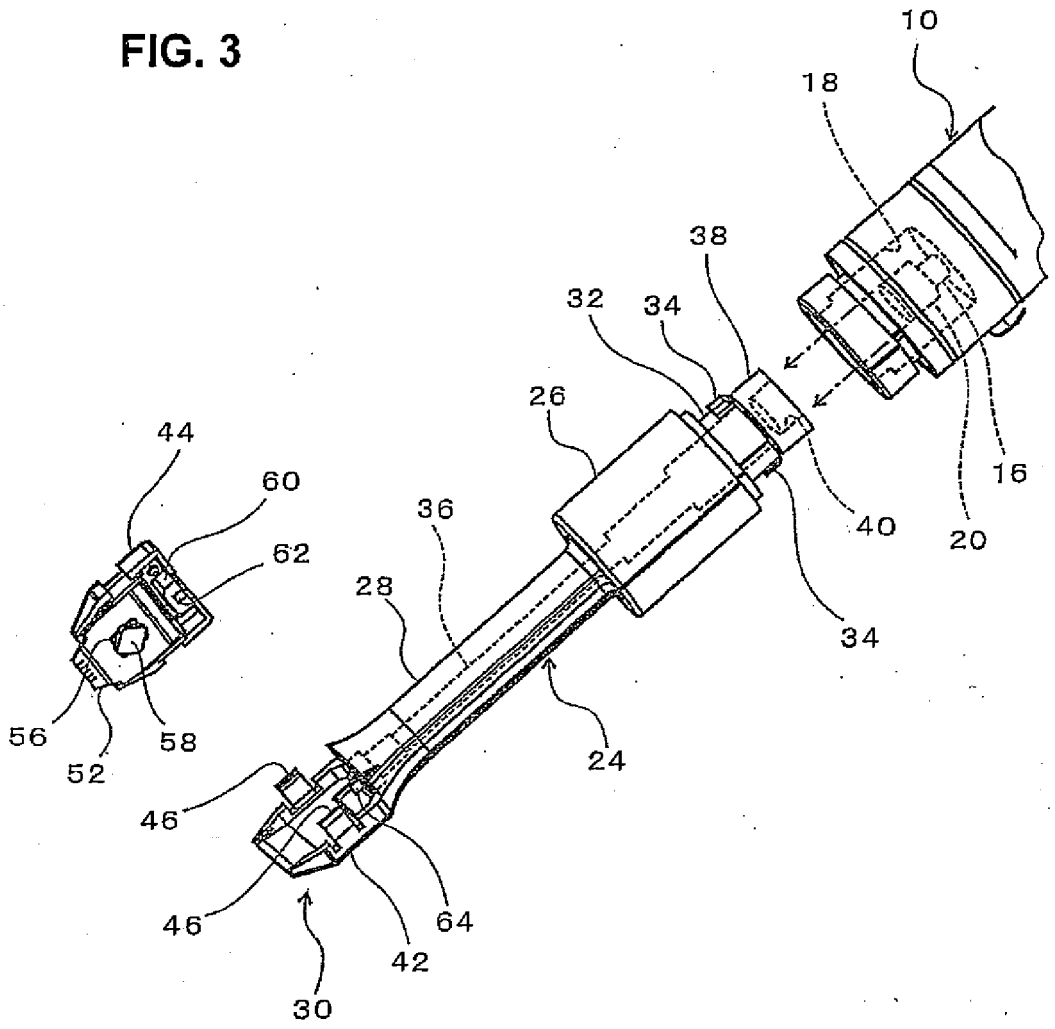
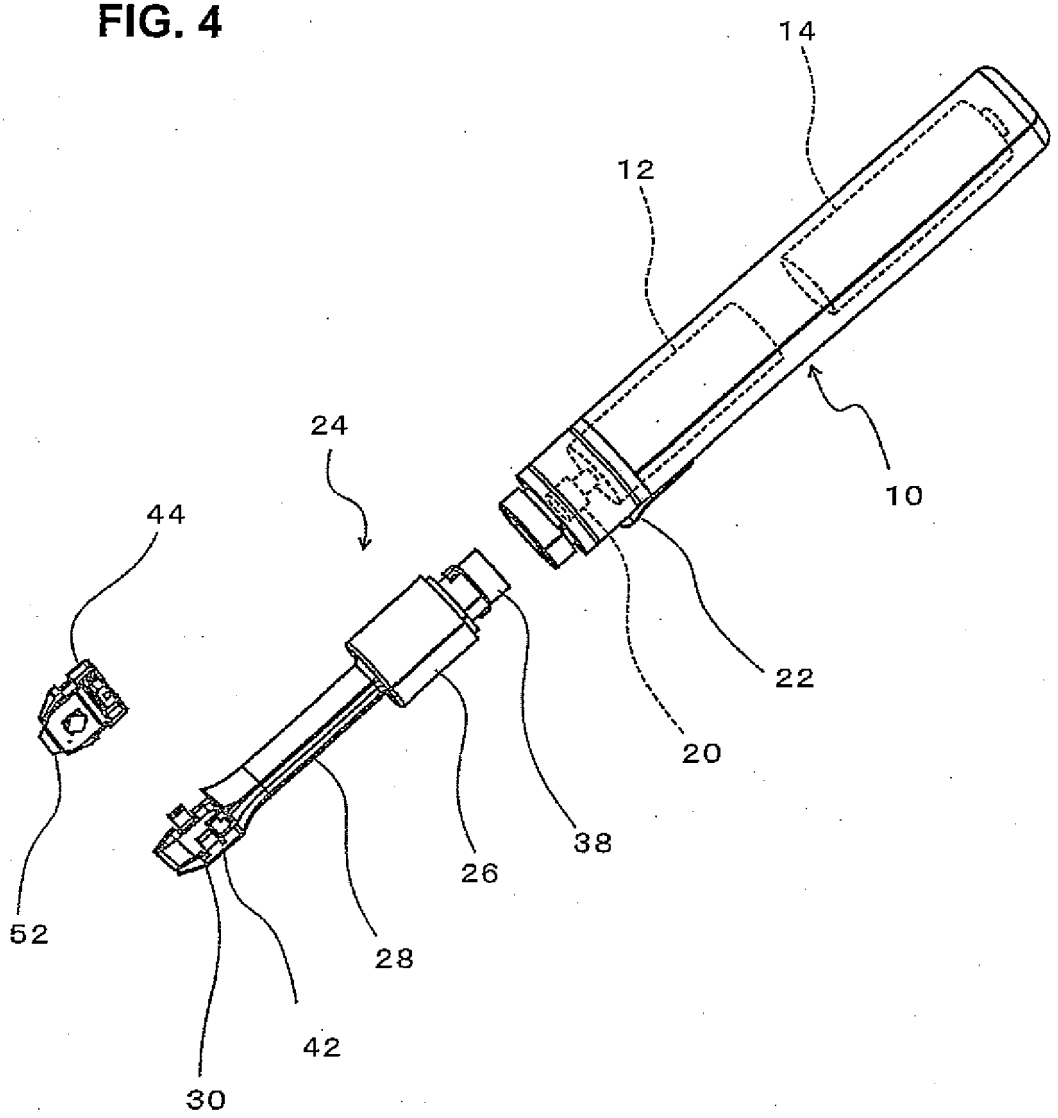


FIG. 4



European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 08 15 3215

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	GB 2 266 259 A (SPECIALIFE IND LTD [HK]) 27 October 1993 (1993-10-27) * page 3, paragraph 2-4; figures 1-4 *	1-3 4,6	INV. B26B19/06 B26B19/14
Y	US 2005/144783 A1 (YIU WAI-WAH [CN]) 7 July 2005 (2005-07-07) * paragraphs [0011], [0012]; figures 1,2A *	4	
Y	GB 1 002 685 A (OSTER MFG CO JOHN) 25 August 1965 (1965-08-25) * page 2, lines 71-81; figure 4 *	6	
A	US 2 680 289 A (FERRARO ANTHONY P) 8 June 1954 (1954-06-08) * column 1, line 33 - column 3, line 23; figures 1,2 *	1	
A	US 2007/006463 A1 (PENNELLA ANDREW [US]) 11 January 2007 (2007-01-11) * paragraphs [0032] - [0034]; figures 7,8 *	1	TECHNICAL FIELDS SEARCHED (IPC) B26B
A	US 3 217 409 A (PROFFITT IRA J) 16 November 1965 (1965-11-16) * column 5, line 61 - column 6, line 2; figures 1,2 *	1	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	25 June 2008	Rattenberger, B

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 15 3215

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

25-06-2008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2266259 A	27-10-1993	NONE	
US 2005144783 A1	07-07-2005	WO 2005063077 A1	14-07-2005
		US 2005172490 A1	11-08-2005
GB 1002685 A	25-08-1965	BE 641777 A	24-06-1964
		CH 415348 A	15-06-1966
		DE 1198240 B	05-08-1965
		DK 103766 C	14-02-1966
US 2680289 A	08-06-1954	NONE	
US 2007006463 A1	11-01-2007	NONE	
US 3217409 A	16-11-1965	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 54154664 A **[0003] [0006]**
- JP 57200178 A **[0004] [0007] [0007]**
- JP 56044657 A **[0005] [0007] [0007]**