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(54) **A SINGLE-USE HAIR COLORING APPLIANCE**

HAARFÄRBUNGSGERÄT ZUM EINMALIGEN GEBRAUCH

APPAREIL DE COLORATION DES CHEVEUX À USAGE UNIQUE

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(73) Proprietor: **L'OREAL**
75008 Paris (FR)

(72) Inventor: **GREZ, Joseph**
North Bend, Washington 98045 (US)

(74) Representative: **CSY London**
10 Fetter Lane
London EC4A 1BR (GB)

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Description

TECHNICAL FIELD

[0001] This disclosure relates generally to hair coloring appliances, particularly those which are useful at home, and more specifically concerns such an appliance which is a single-use, consumable product.

BACKGROUND

[0002] Coloring of hair, particularly by a user at home, can produce satisfactory results, but also can be cumbersome and in some cases lead to unpredictable or unsatisfactory results. It is typically time-consuming and requires clean-up time. The typical home-based process, which also can be used by a professional or in a salon, involves a sequence of specific steps, including user steps of opening one or more containers and mixing their contents to produce the desired color formulation. The formulation is then applied by the user to the hair, including rubbing it into the hair area and then combing it. Following completion of the process, the tools must be cleaned and put away. Documents: US 2004/187883 A1, WO 00/27240 A1 and US 2005/183736 A1 disclose examples of hair color appliances known in the art. WO 2016/086016 A1, which is a document falling within the terms of Art.54(3) EPC, discloses another example of a known hair color appliance.

[0003] It would be desirable to have a coloring appliance useful at home which produces predictable coloring results in the form of a single-use consumable product.

SUMMARY

[0004] The invention provides an appliance according to claim 1. Accordingly, the single-use disposable hair coloring appliance, comprises: a receptacle assembly for hair color formulation, the receptacle assembly having a portal member capable of receiving hair color formulations from a source of the hair color formulation; a brushhead-dispenser member attached to the receptacle and in fluid communication therewith; wherein the hair color formulation in the receptacle is directed to the brushhead/dispenser by a user operating on the receptacle or by a pump operating on the receptacle, wherein the combination is structurally sized and adapted for a single use coloring event and further is disposable by the user after a single use.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005]

FIG. 1 is a cross-sectional view of one single-use coloring appliance which falls outside the scope of the claims.

FIG.2 is a cross-sectional view of one portion of an example useful for understanding the invention.

FIG. 3 is a schematic view of an embodiment of the hair coloring appliance of the present invention.

FIGS. 4A, 4B and 4C are top, end and cross-sectional views of portions of the embodiment of FIG. 3.

FIG. 5 is a cross-sectional view of the embodiment of FIG. 3.

[0006] FIG. 1 shows a single-use hair coloring appliance 10. In FIG. 1, premixed hair coloring formulation of the selected color is provided in a storage member or a mixing device 14 connectable to the receptacle 12.

[0007] In the applianceof FIG. 1, the receptacle 12 has a volume of approximately 70 ml, sufficient for a single hair coloring use. In the appliance, the volume of the receptacle can range from about 40 to 140 ml. While the volume can vary from receptacle to receptacle, depending upon the volume of hair to be colored, the hair color formulation and the number of applications, the above volume of 70 ml is sufficient for most single hair coloring events.

[0008] The proximal end 18 of the receptacle 12 includes a port connection 20, with a valve 22 therein. The port 20 mates securely in a fluid-tight relationship with a mating port connection 24 in a proximal end 25 of a color formulation storage unit or formulation mixing device 14. When receptacle 12 and storage unit 14 are securely mated, color formulation can flow from storage unit 14 into receptacle 12.

[0009] At the distal end 26 of receptacle 12 is a brushhead/distributor 27. The brushhead/distributor 27 is in fluid connection with the interior volume of the receptacle by a fluid pathway 28. The brushhead in the appliance shown includes a plurality of individual tines 29, which can vary in number, but in the appliance shown comprises four separate tines. The tines can be evenly spaced or not evenly spaced, linear or non-linear. The color formulation flows out of the tines into the hair during use. In various embodiments the length of a tine ranges from about 0.5 inches to about 1.5 inches. In the appliance shown, the tines are approximately 0.7 inches long, with each tine having an opening 30, which is approximately 0.1 inches in diameter at the distal end thereof. In various embodiments the diameter of the tine opening ranges from approximately 0.05 inches to approximately 0.1 inch. In various, embodiments, one or more of the tines 29 include a plurality of openings along the length thereof to permit lateral delivery of color formulation. In various embodiments, the cross-section of tines 29 can have a variety of shapes, configurations or geometries, including circular, polygonal, conical, regular or irregular shapes, among others.

[0010] In various embodiments, the single use hair coloring applicator includes one or more structural ele-

ments manufactured from various metals, ceramics, polymers, composite materials, or others. Non-limiting examples of polymeric materials include polyvinyl chloride, polyester, polyethylene, polypropylene, ethylene or polyolefin, or nomopolymers or copolymers thereof.

[0011] Positioned between the separate tines 29 and at the ends of the brushhead are individual bristle tufts 31. The bristle tufts 31 extend a distance beyond the tines, acting as a standoff for the tines relative to the scalp of the user. In the appliance shown, the bristle tufts typically comprise 10 bristles, with the tufts having a diameter of approximately 0.1 inches, although these dimensions can vary.

[0012] The receptacle 12 comprises a flexible material which, when squeezed by the user, results in the color formulation present in the receptacle being moved through and then out from the brushhead. The user then moves the brushhead, coloring the hair in a typical sequence of the hairline, the roots and the remainder of the hair. The receptacle can then be discarded. The storage unit can be retained for future use or discarded.

[0013] FIG. 2 shows another example of the source of color material, shown generally at 32, involving a color packet assembly, usable with the receptacle 12 of the appliance of FIG. 1. The color packet assembly 32 in FIG. 2 shows three individual color packets 33, 34, 35, each having a separate color, for instance, blonde, red and brown. However, other numbers of packets can be used, including a single color packet. The example shown also includes a developer packet 36, although a developer packet is not required in the single use appliance. Each of the packets includes its own separate pump 37-40. The pumps are driven by individual motors (not shown), which are in turn controlled by a color programming unit. The individual motors and pumps are controlled to produce the desired color selected by the user and communicated to the programming unit by card, barcode or the like, which is read by the programming unit. In the example shown, the color formulations from the individual packets are directed to a combination color line 46, while the developer formulation is directed toward a developer line 48. The two lines meet in a connecting mixing line 48, in which is positioned a mixing element 50 to produce the desired color.

[0014] The assembly of FIG. 2 is described in more detail in co-pending application entitled "Hair Coloring Appliance", owned by the assignee of the present invention. The contents of that application are hereby incorporated by reference herein. The source unit 32 terminates in a connecting member 52 which connects in a fluid-tight relationship to the receptacle. The packet assembly 32 can be retained for use with other single-use receptacles whether the desired color changes or remains the same.

[0015] FIGS. 3-5 show an embodiment of a single-use receptacle. In this case, the single-use receptacle 56 is contained within a housing 58, which comprises a lower housing member 60 and an upper housing member 62, with the upper housing member 62 being hinged at 63 to the lower housing member 60. The single-use receptacle is conveniently positionable into and removable from the housing 58. The single-use receptacle includes a color source sachet 64 containing the desired color and a brushhead/distributor unit 66. The sachet can be single use or in a variation can be refilled through a connecting fill line 65 (FIGS. 4A, 4B). The brushhead 66 with its tines 68 can be configured similarly to that shown in FIG. 1. The brushhead 66 is in fluid communication with sachet 64 via a connecting tube 68. Positioned on the brushhead assembly is a crank assembly 70 driven by a drive shaft 74. The drive shaft 74 is driven by a motor 73 (FIG. 5) through a two-part drive coupling assembly 76, one part of which is in the housing 58 and the other part of which is on a lower surface of the brushhead assembly 66.

[0016] The crank assembly includes a connecting rod 77 which connects to a movable portion 81 of the brushhead assembly. The movable portion slides back and forth by action of the connecting rod, as one end 79 thereof describes a circular motion and the other end 80 drives the movable portion 81 linearly over a selected distance, usually 1/2-1-1/2 times the distance between tines 68. An O-ring 82 surrounds the movable portion, acting as a seal against fluid leakage. The driveshaft 74 and motor 73 also drive a pump 84, located below the crank assembly, which moves the color material from sachet 64 into the brushhead and out the tines through line 68. The action of the pump and the motion of the brushhead are thus linked together, although in a variation, the crank assembly and the pump could be independent. The appliance also includes an on/off button 90, a control microprocessor 92 and a battery 94. In the embodiment of FIGS. 3-5, when the single-use event is over, the sachet and the connecting brushhead unit can be disposed of as a single-use consumable. Another sachet/brushhead assembly can be inserted into the housing for the next single-use event.

[0017] Accordingly, a single-use appliance has been disclosed which produces a single coloring event, with the single event consumable being disposed of when the event is concluded.

Claims

1. A single-use disposable hair coloring appliance, comprising;

   a receptacle (56) assembly for a hair color formulation, the receptacle assembly having a portal member (65) capable of receiving the hair color formulation from a source of the hair color formulation;

   a brushhead-dispenser member (66) attached to the receptacle and in fluid communication therewith;

   a pump (84), which is driven by a motor (73) for

moving color formulation from the receptacle to the brushhead-dispenser member,
a driving assembly (70, 77, 76) for moving the brushhead-dispenser member in a lateral direction back and forth,
wherein hair color formulation in the receptacle is directed to the brushhead-dispenser member by the pump operating on the receptacle, wherein the combination of the receptacle assembly and the brushhead-dispenser member is structurally sized and adapted for a single use coloring event and further is disposable by the user after a single use, and wherein the pump and the driving assembly are driven by a single drive motor assembly.

2. The appliance of claim 1 wherein the appliance is removably fitable into a housing (58) and removable therefrom.

3. The appliance of either preceding claim wherein the driving assembly includes crank (70) and connecting rod (77) members responsive to the drive motor for moving the brushhead-dispenser member.

4. The appliance of any preceding claim wherein the brushhead-dispenser member comprises a plurality of tines (68) having openings at distal ends thereof, configured so that in operation color formulation is able to move from the receptacle through the tines into a user's hair.

5. The appliance of claim 4 wherein, when the brushhead-dispenser member is moved back and forth, the distance of lateral movement is greater than half the distance between adjacent tines (68) but no greater than twice the distance between adjacent tines, and wherein the appliance further comprises a sealing member (82) for preventing leakage of color formulation as the brushhead-dispenser member is moved back and forth.

6. The appliance of claim 4 wherein the tines are regularly spaced.

7. The appliance of claim 4 further comprising bristle tufts located between the tines or in addition nearby the tines, the bristle tufts extending beyond the tines such that in operation they act as a standoff for the tines from a user's scalp.

Patentansprüche

1. Einweg-Haarfärbehilfsmittel, umfassend:

eine Aufnahmeanordnung (56) für eine Haarfarbezubereitung, wobei die Aufnahmeanordnung ein Portalelement (65) aufweist, das geeignet ist, die Haarfarbezubereitung von einer Quelle der Haarfarbezubereitung aufzunehmen,
ein Bürstenkopf-Ausgabeelement (66), das an der Aufnahme angebracht ist und mit dieser in Fluidverbindung steht,
eine Pumpe (84), die von einem Motor (73) angetrieben wird, um Farbezubereitung von der Aufnahme zu dem Bürstenkopf-Ausgabeelement zu bewegen,
eine Antriebsanordnung (70, 77, 76) zum Bewegen des Bürstenkopf-Ausgabeelements in einer seitlichen Richtung vor und zurück,
wobei Haarfarbezubereitung in der Aufnahme durch die Pumpe, die auf die Aufnahme wirkt, zu dem Bürstenkopf-Ausgabeelement geleitet wird, wobei die Kombination der Aufnahmeanordnung und des Bürstenkopf-Ausgabeelements für einen Einmal-Färbevorgang strukturell bemessen und eingerichtet ist und von dem Anwender nach einer Einmalverwendung wegzuwerfen ist, und wobei die Pumpe und die Antriebsanordnung durch eine Einzelantriebsmotoranordnung angetrieben werden.

2. Hilfsmittel nach Anspruch 1, wobei das Hilfsmittel entnehmbar in ein Gehäuse (58) einsetzbar und daraus entnehmbar ist.

3. Hilfsmittel nach einem vorhergehenden Anspruch, wobei die Antriebsanordnung ein Kurbelelement (70) und ein Verbindungsstangenelement (77) beinhaltet, die auf den Antriebsmotor ansprechen, um das Bürstenkopf-Ausgabeelement zu bewegen.

4. Hilfsmittel nach einem vorhergehenden Anspruch, wobei das Bürstenkopf-Ausgabeelement mehrere Zinken (68) umfasst, die an ihren fernen Enden Öffnungen aufweisen, die derart gestaltet sind, dass sich während des Betriebes Farbzubereitung von der Aufnahme durch die Zinken zum Haar eines Anwenders bewegen kann.

5. Hilfsmittel nach Anspruch 4, wobei, wenn das Bürstenkopf-Ausgabeelement vor und zurück bewegt wird, die Strecke seitlicher Bewegung größer als die Hälfte der Strecke zwischen benachbarten Zinken (68), jedoch nicht größer als das Doppelte der Strecke zwischen benachbarten Zinken ist, und wobei das Hilfsmittel ferner ein Dichtungselement (82) umfasst, um das Austreten von Farbzubereitung zu verhindern, wenn das Bürstenkopf-Ausgabeelement vor und zurück bewegt wird.

6. Hilfsmittel nach Anspruch 4, wobei die Zinken regelmäßig beabstandet sind.

7. Hilfsmittel nach Anspruch 4, ferner umfassend Bors-

tenbüschel, die zwischen den Zinken oder zusätzlich nahe den Zinken angeordnet sind, wobei sich die Borstenbüschel derart über die Zinken hinaus erstrecken, dass sie während des Betriebes für die Zacken als Abstandshalter zur Kopfhaut eines Anwenders dienen.

Revendications

1. Appareil jetable de coloration capillaire à usage unique, comportant :

un ensemble formant réceptacle (56) pour une formulation de coloration capillaire, l'ensemble formant réceptacle ayant un élément d'accès (65) en mesure de recevoir la formulation de coloration capillaire en provenance d'une source de la formulation de coloration capillaire ;
un élément formant distributeur-tête de brosse (66) fixé sur le réceptacle et en communication fluidique avec celui-ci ;
une pompe (84), qui est entraînée par un moteur (73) pour déplacer la formulation de coloration depuis le réceptacle jusqu'à l'élément formant distributeur-tête de brosse,
un ensemble d'entraînement (70, 77, 76) servant à déplacer l'élément formant distributeur-tête de brosse dans une direction latérale selon un mouvement de va-et-vient,
dans lequel la formulation de coloration capillaire dans le réceptacle est dirigée jusqu'à l'élément formant distributeur-tête de brosse par la pompe fonctionnant sur le réceptacle, dans lequel la combinaison de l'ensemble formant réceptacle et de l'élément formant distributeur-tête de brosse est structurellement dimensionnée et adaptée pour un événement de coloration à usage unique et est par ailleurs jetable par l'utilisateur après une seule utilisation, et dans lequel la pompe et l'ensemble d'entraînement sont entraînés par un ensemble à moteur d'entraînement unique.

2. Appareil selon la revendication 1, dans lequel l'appareil est en mesure d'être monté de manière amovible dans un logement (58) et en mesure d'être retiré de celui-ci.

3. Appareil selon l'une ou l'autre des revendications précédentes, dans lequel l'ensemble d'entraînement comprend des éléments formant manivelle (70) et bielle (77) qui réagissent par rapport au moteur d'entraînement pour déplacer l'élément formant distributeur-tête de brosse.

4. Appareil selon l'une quelconque des revendications précédentes, dans lequel l'élément formant distributeur-tête de brosse comporte une pluralité de dents (68) ayant des ouvertures au niveau des extrémités distales de celles-ci, configurées de telle sorte que, lors de l'utilisation, la formulation de coloration est en mesure de se déplacer depuis le réceptacle au travers des dents jusque sur les cheveux d'un utilisateur.

5. Appareil selon la revendication 4, dans lequel quand l'élément formant distributeur-tête de brosse est déplacé selon un mouvement de va-et-vient, la distance du mouvement latéral est supérieure à la moitié de la distance entre des dents adjacentes (68) mais n'est pas supérieure à deux fois la distance entre des dents adjacentes, et dans lequel l'appareil comporte par ailleurs un élément d'étanchéité (82) servant à empêcher toute fuite de la formulation de coloration alors que l'élément formant distributeur-tête de brosse est déplacé selon un mouvement de va-et-vient.

6. Appareil selon la revendication 4, dans lequel les dents sont espacées de façon régulière.

7. Appareil selon la revendication 4, comportant par ailleurs des touffes de poils situées entre les dents ou en plus à proximité des dents, les touffes de poils s'étendant au-delà des dents de telle sorte que, lors de l'utilisation, elles tiennent lieu d'éléments d'écartement pour les dents par rapport au cuir chevelu d'un utilisateur.

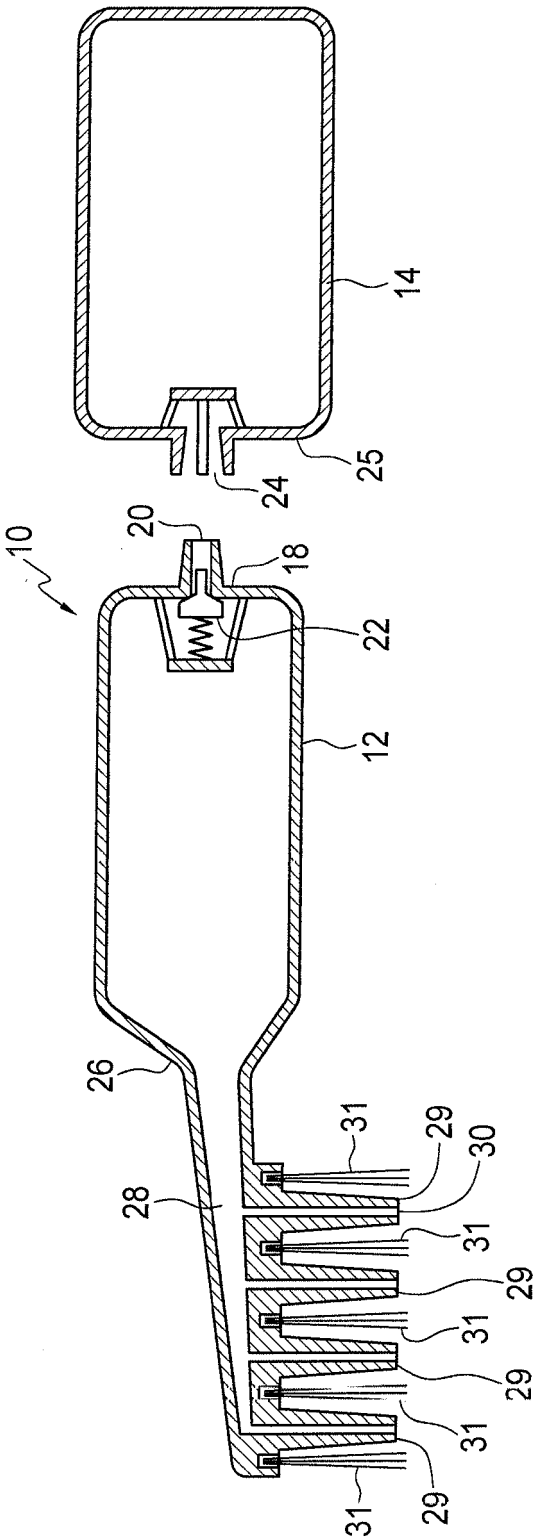


FIG. 1

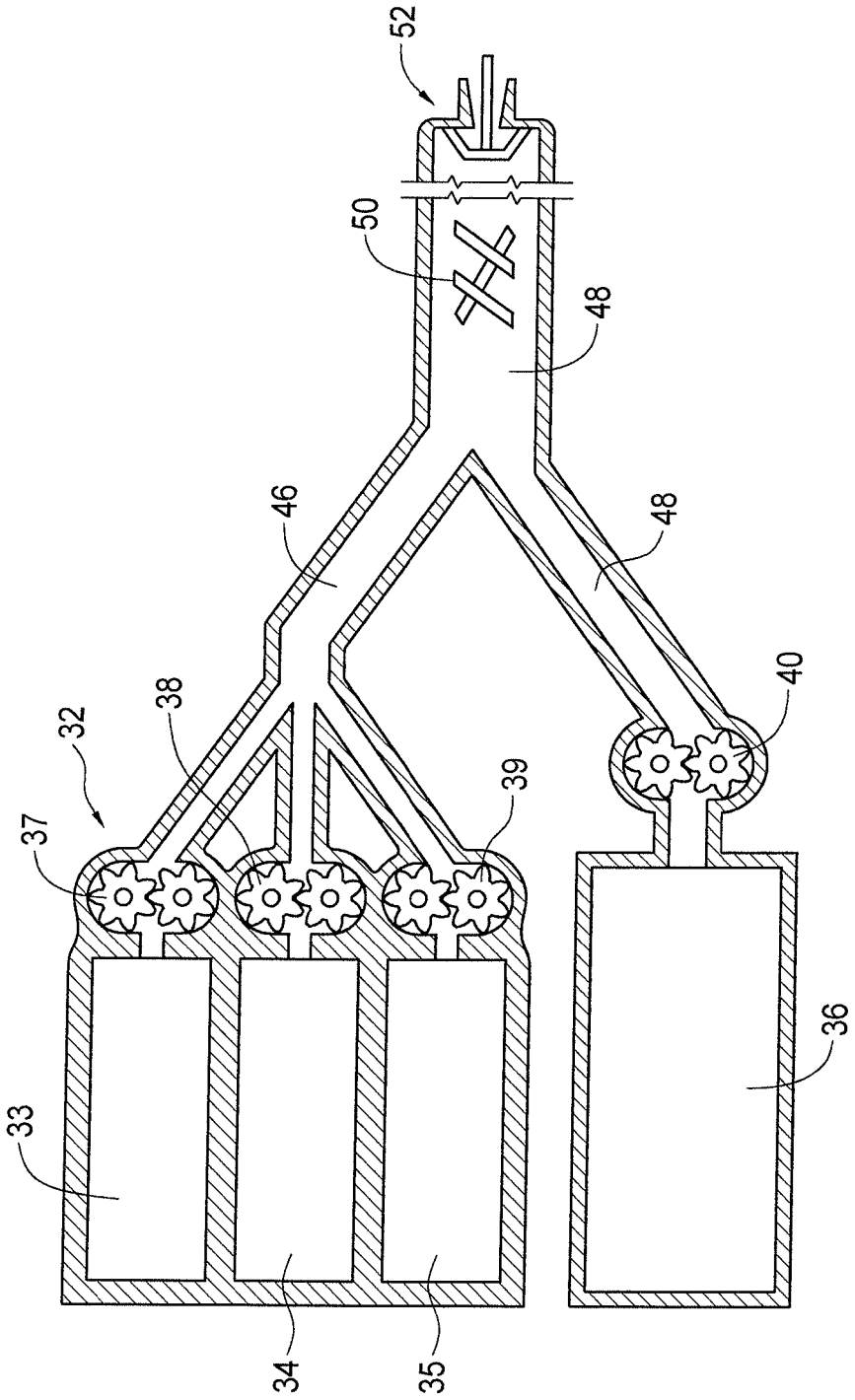


FIG. 2

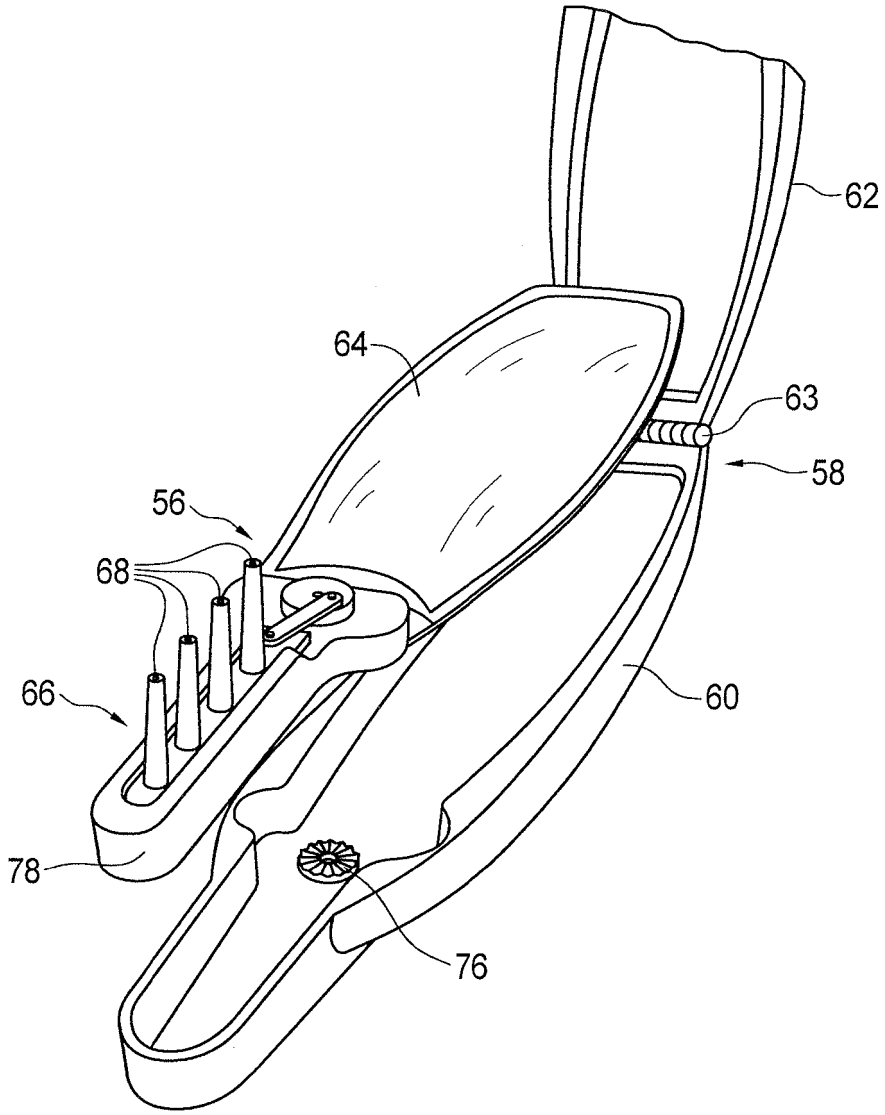


FIG. 3

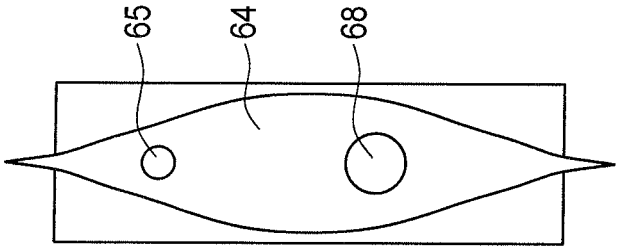


FIG. 4B

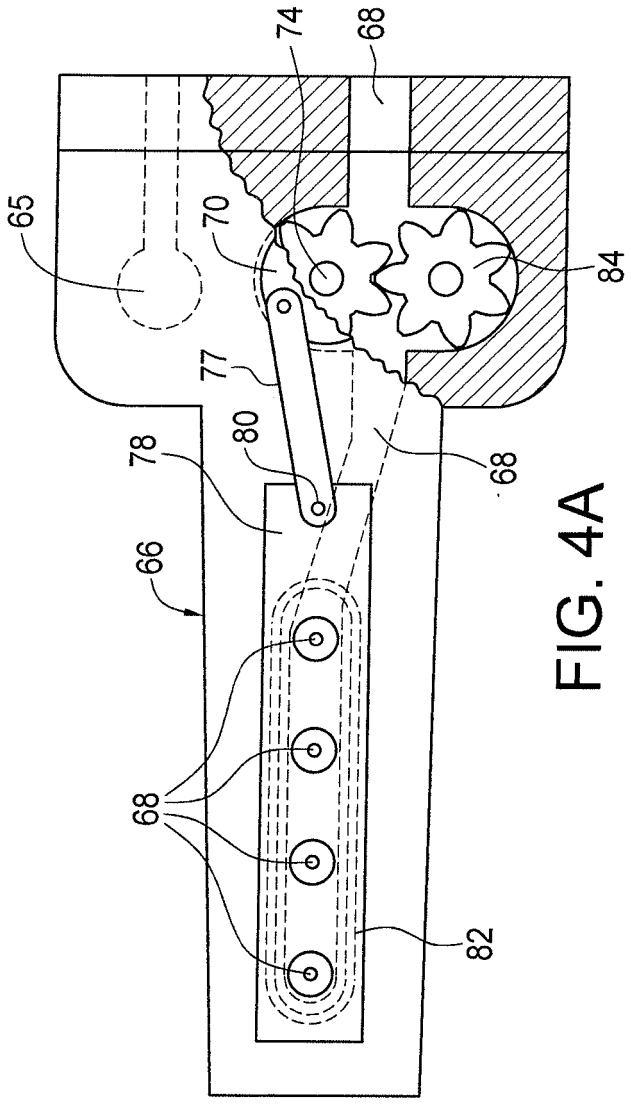


FIG. 4A

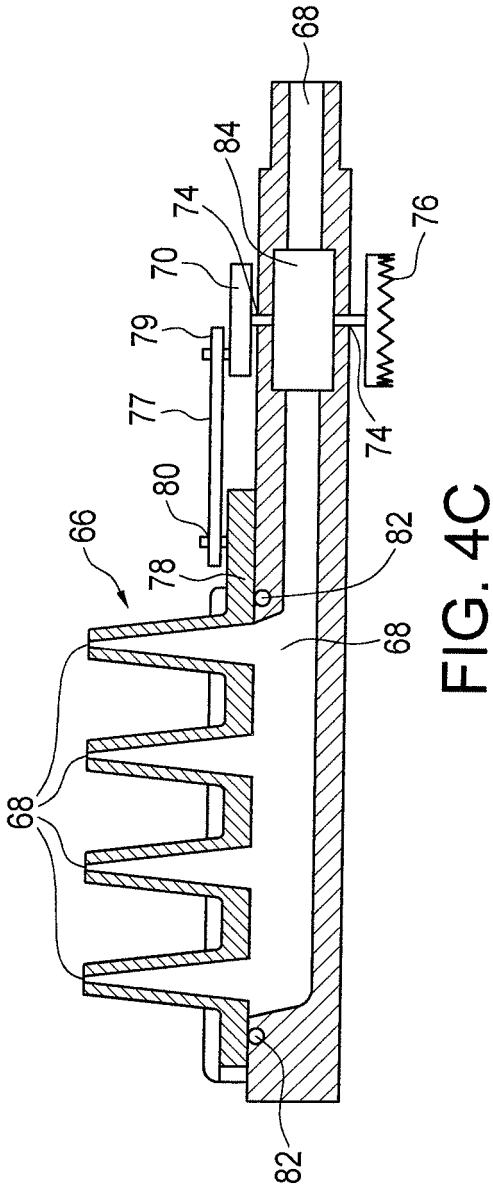


FIG. 4C

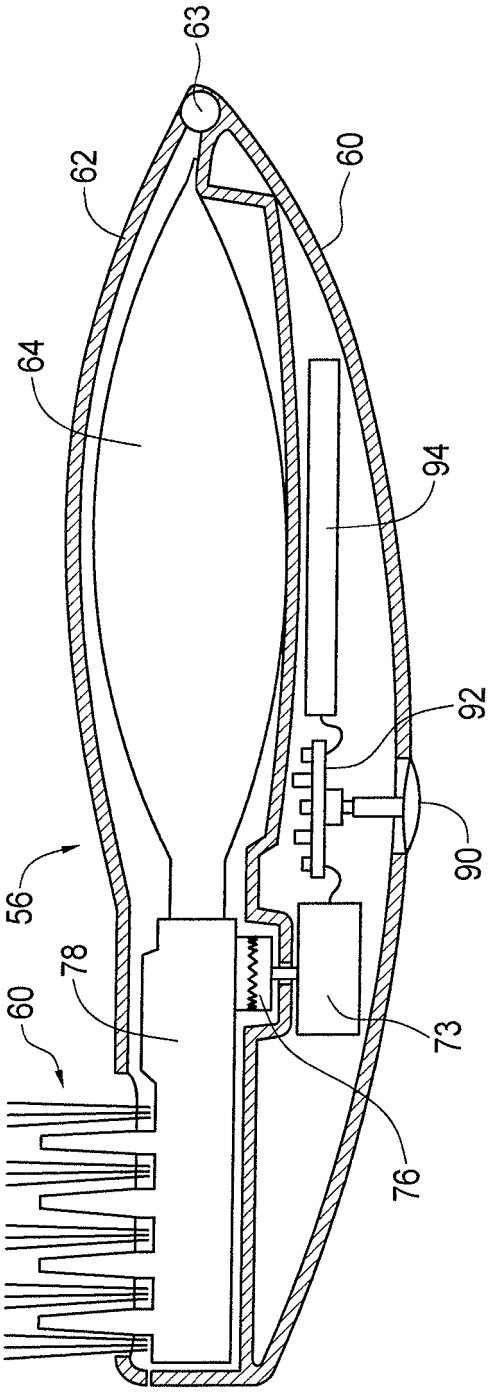


FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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