(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
02 March 2023 (02.03.2023)

WIPO | PCT

(10) International Publication Number
WO 2023/027598 A1

(51) International Patent Classification:
A45D 19/00 (2006.01) *A45D 8/30* (2006.01)

(21) International Application Number:
PCT/NZ2022/050111

(22) International Filing Date:
25 August 2022 (25.08.2022)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
779414 25 August 2021 (25.08.2021) NZ

(71) Applicant: **FENWICK & CO LIMITED** [NZ/NZ]; 26 Tay Street, Tauranga, 3116 (NZ).

(72) Inventors: **FENWICK, Aarron**; c/- 26 Tay Street, Tauranga, 3116 (NZ). **BACKLER, Matthew**; c/- 26 Tay Street, Tauranga, 3116 (NZ). **REES-JONES, Blythe**; c/- 26 Tay Street, Tauranga, 3116 (NZ). **FULLERTON, Mark**; c/- 26 Tay Street, Tauranga, 3116 (NZ).

(74) Agent: **SOUTHERN CROSS INTELLECTUAL PROPERTY LIMITED**; PO Box 8026, Wellington, 6140 (NZ).

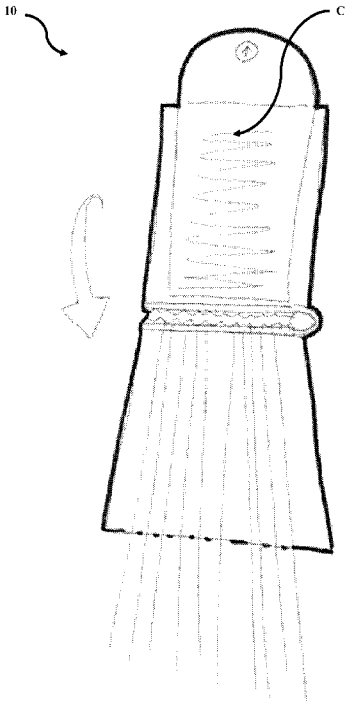
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report (Art. 21(3))*
— *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

(54) Title: DEVICE, COMPONENTS, AND KITS FOR APPLYING HAIR COMPOSITIONS AND THE MANUFACTURE AND USE THEREOF

FIG. 1



(57) Abstract: The present disclosure encompasses a device, method, and kit for applying hair compositions, including colouring, highlighting, and lowlighting compositions. The disclosure further encompasses methods of manufacturing this device and kit, and methods of using the same.

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DEVICE, COMPONENTS, AND KITS FOR APPLYING HAIR COMPOSITIONS AND THE MANUFACTURE AND USE THEREOF

RELATED APPLICATIONS

[0001] This application claims the benefit of New Zealand provisional patent application number 779414, filed 25 August 2021, the entire contents of which being incorporated by reference herein.

FIELD

[0002] The present disclosure relates to devices, methods, and kits for applying compositions to hair, including hair colouring, hair highlighting, and hair lowlighting compositions.

BACKGROUND

[0003] Hair enhancements, particularly hair colouring and highlighting/lowlighting, are extremely time consuming and complicated, and require the services of trained colourists. A considerable amount of lost time and inefficiency at salons arises from the need to regularly prepare foils for the later use in salon client's hair. In addition, the foil wrapping process is very involved with stylist/colourist having to hold their fingers and foils in precise orientations to section and secure the hair for colouring to achieve the desired colouring result. Delays caused during colouring and highlighting/lowlighting cause downstream delays in haircuts, straightening, and styling. All of this, in turn, reduces the throughput/volume of customers that salons can manage, and substantially increases costs for both salons and customers alike.

[0004] Additionally, hair foils and their application lead to inconsistent results. The top edges of foils are straight and unable to flex. This linearity and inflexibility produce irregular and inferior treatment. Because the top edge of the foil is rigid and straight, it cannot follow the contour of the scalp. Only the centre point of the top edge actually contacts the scalp when the foil is put into place. To either side of this centre point, the top edge extends away from the scalp. This means that a composition cannot be applied in even amounts to the section of hair in the foil. The hairs positioned precisely at the centre point of the foil can be treated all the way up to the scalp, given that the centre

point contacts the scalp. The hairs positioned at any other position on the foil (to the left or right of the centre point) cannot be treated all the way up to the scalp. In addition, the progressive application of foils and application of the colour composition means that earlier applied foils have an extended exposure to the composition as compared to later applied foils. In the short term, this produces variations in colouring/highlighting/lowlighting (e.g., blotching) over the head of hair. In the long term, this causes damage in certain regions of the hair, i.e., regions that are regularly over exposed.

[0005] This increased exposure increases the potential for skin sensitivities such as dermatitis, and for serious allergic conditions such as anaphylaxis. It is noted that most hair colour and highlighting/lowlighting compositions contain known sensitisers such as 1,4-phenylenediamine (PPD) and 1,4-toluenediamine (PTD). There is also increased risk of toxicity and illness from chemical exposure. Many hair colourants and highlighting/lowlighting treatments use chemicals, such as peroxide, alkalizers, ammonia, metal oxides including titanium dioxide and iron oxide, and a variety of other agents. Many of these chemical agents are toxic and some are classified as carcinogens. Because foil based application methods are inherently imprecise (lack of contouring, lack of uniformity, etc, as noted), this means that the noted chemical agents can contact the scalp, forehead, neck, ears, and other parts of the head each time that treatment is carried out.

[0006] From the customer's standpoint, foils are inconvenient, awkward, and dated. The appearance of foils in one's hair is highly unattractive. Foils often result in "blotches" of colour due to their imprecision (lack of contouring, lack of uniformity, etc, as noted). For the same reasons, foils can result in skin irritation. These effects are concerning to the customer. Moreover, there is a considerable and negative impact on the environment, given the single use nature of the foils, how the foils are made, and the source of materials used for foils. Foils are produced in an energy intensive process from non-sustainable materials. The single use nature of foils means that there is substantial waste. At the end of each hair treatment, the large pile of foils is discarded. This is problematic given the increasing focus of salons and colour manufacturers to join

sustainability programmes, and the increasing awareness of customers as to environmental and sustainability issues.

[0007] Therefore, there is an ongoing need in the field for alternative means for applying colouring, highlighting, lowlighting, and other compositions to the hair. Particularly noted are means that provide improvements in one or more of: efficiency, accuracy, customer satisfaction, customer well being, and environmental considerations.

SUMMARY

[0008] In one aspect, the disclosure encompasses a device for applying a hair composition to hair of a subject, the device comprising:

at least one flap component,

wherein the at least one flap component comprises a leading edge that is one or more of: (i) deformable, (ii) arcuate or essentially arcuate in shape, and (iii) generally follows the contour of the scalp of the subject,

wherein the at least one flap component allows engagement with a section of hair of the subject,

wherein the at least one flap component facilitates contact between the section of hair and the composition, and helps to protect the scalp and surrounding hair from contact with the composition, and

wherein the at least one flap component is adapted to fold or roll onto itself or to engage with a further flap component.

[0009] In various aspects:

[0010] The at least one flap component includes at least one of:

(a) one or more positioning means to assist in positioning of the at least one flap component onto the section of hair;

(b) one or more tensioning means to assist in keeping the section of hair tensioned against the at least one flap component;

(c) one or more locking mechanisms to assist in locking and unlocking the one or more tensioning means;

(d) one or more supporting means to assist in shaping the at least one flap component;

(e) one or more raised features to assist in preventing drips or runs of the hair composition;

(f) one or more impedance means so as to prevent or reduce contact between the hair composition and the scalp;

(g) one or more reservoirs to assist in accommodating the section of hair on the flap component;

(h) one or more barrier means for preventing the hair composition from contacting the section of hair until contact is desired;

(i) one or more coloured sections; or one or more clear sections; or

(j) one or more sensing means.

[0011] The one or more positioning means includes one or more projections and/or sticky materials at or proximate to the leading edge of the at least one flap component.

[0012] The one or more positioning means includes a plurality of teeth, bulges, humps, jags, juts, ridges, or any combination thereof, at or proximate to the leading edge of the at least one flap component.

[0013] The one or more tensioning means includes one or more protuberances and/or one or more ingresses.

[0014] The one or more tensioning means is selected from the group consisting of knobs, buttons, prongs, pegs, nibs, hooks, fingers, flanges, clasps, hub and spoke configurations, and any combination thereof.

[0015] The one or more locking mechanism is selected from the group consisting of pins, buttons, levers, and any combination thereof.

[0016] The one or more supporting means includes one or more of:

(a) two supporting arms;

(b) a supporting body; and

(c) a plurality of bracing elements.

[0017] The one or more raised features comprise one or more lips, ribs, rims, ridges, shoulders, guard rails, or any combination thereof.

[0018] The one or more impedance means is selected from one or more projections, one or more ingresses, and any combination thereof.

[0019] The one or more impedance means is selected from the group consisting of lips, ribs, rims, ridges, shoulders, teeth, guard rails, channels, dimples, slots, ruts, and any combination thereof.

[0020] The one or more reservoirs comprises one or more chambers.

[0021] The one or more barrier means comprises one or more sheets, one or more projections, or any combination thereof.

[0022] The one or more barrier means comprises pull tabs, pouches, or any combination thereof.

[0023] The one or more sensing means comprises heat sensors, time sensors, or any combination thereof.

[0024] The one or more sensing means communicates data to one or more electronic devices and/or one or more databases.

[0025] The tensioning means includes one or more textures and/or one or more sticky materials to assist in keeping contact with the section of hair.

[0026] The at least one flap component is comprised of one or more plastics, elastomers, resins, or any combination thereof.

[0027] In one aspect, the disclosure encompasses a kit for applying a hair composition to hair of a subject, the kit comprising:

(a) at least one flap component according to a preceding aspect, and

(b) optionally, instructions for use.

[0028] In various aspects:

[0029] The kit includes at least one of:

(a) one or more hair tools; or

(b) one or more hair compositions.

[0030] The one or more hair tool is selected from the group consisting of brushes, combs, picks, applicators, and any combination thereof.

[0031] The one or more hair composition is selected from colouring compositions, highlighting compositions, lowlighting compositions, and any combination thereof.

[0032] In one aspect, the disclosure encompasses a method of preparing a device for applying a hair composition to hair of a subject, the method comprising:

obtaining at least one flap component according to a preceding aspect.

[0033] In one aspect, the disclosure encompasses a method of utilising the device according to a preceding aspect, comprising:

(a) engaging a flap component with a section of hair of the subject, and positioning the section of hair onto the flap component;

(b) optionally, tensioning the section of hair onto the flap component;

(c) applying the hair composition to the section of hair;

(d) folding or rolling the flap component over the section of hair or adding a further flap component over the section of hair, and allowing treatment for a necessary duration.

[0034] In various aspects:

[0035] The applying of the hair composition is via a reservoir provided with the at least one flap component.

[0036] The applying of the hair composition is via a pouch or chamber provided with the at least one flap component.

[0037] The necessary duration is communicated by one or more sensing means on the device to one or more electronic devices.

[0038] The device is removed and cleaned following treatment.

[0039] The steps (a)-(d) are repeated for additional sections of hair until all desired sections of hair are treated.

[0040] In one aspect, this disclosure encompasses a device for applying a hair composition to a subject, the device comprising:

(i) a pair of clip components, the pair of clip components including a top clip component and a bottom clip component,

wherein the pair of clip components allows securement to and engagement with a section of hair of the subject,

wherein the top clip component and/or the bottom clip component is arcuate or essentially arcuate in shape, and generally follows the contour of the scalp, and

wherein the top clip component and the bottom clip component are adapted for connected at one or more points to allow a clamping action between the top clip component and the bottom clip component;

and one of:

(ii) a pair of flap components, the pair of flap components including a top flap component and a bottom flap component,

wherein the pair of flap components facilitate contact between the section of hair and the composition, and helps to protect the scalp and surrounding hair from contact with the composition, and

wherein the top flap component is adapted to be connected to the top clip component, and the bottom flap component is adapted to be connected to the bottom clip component,

or

(iii) a top flap component or a bottom flap component,

wherein the top flap component or the bottom flap component facilitate contact between the section of hair and the composition, and/or help to protect the scalp and surrounding hair from contact with the composition, and

wherein the top flap component is adapted to be connected to the top clip component, or the bottom flap component is adapted to be connected to the bottom clip component.

[0041] In various aspects:

[0042] The top clip component and/or the bottom clip component includes one or more teeth to allow fastening to the section of hair.

[0043] The top clip component and/or the bottom clip component include a tapered region to allow a closer positioning to the scalp.

[0044] The top clip component and/or the bottom clip component include one or more impedance means so as to prevent or reduce contact between the composition and the scalp.

[0045] The impedance means is selected from one or more projections, one or more ingresses, and any combination thereof.

[0046] The impedance means is selected from the group consisting of lips, ribs, rims, ridges, shoulders, teeth, guard rails, channels, dimples, slots, ruts, and any combination thereof.

[0047] The top clip component and the bottom clip component are connected by one or more hinging means.

[0048] The top clip component and/or the bottom clip component include one or more securing means to keep the top clip component and the bottom clip component clamped in a closed position.

[0049] The securing means is selected from the group consisting of magnetic closures, teeth, hooks, loops, hook and loop materials, clips, pins, snaps, and any combination thereof.

[0050] The top clip component and/or the bottom clip component include one or more releasing means to transition the top clip component and the bottom clip component from the closed position to an open position.

[0051] The releasing means is selected from the group consisting of pins, buttons, levers, and any combination thereof.

[0052] The releasing means is offset from the top clip component and/or the bottom clip component.

[0053] The top clip component and/or the bottom clip component include one or more engaging means to allow interaction with a hair tool.

[0054] The hair tool is selected from the group consisting of a hair brush, a hair comb, a hair pick, an applicator, and any combination thereof.

[0055] The engagement means is selected from one or more recesses, one or more projections, or any combination thereof.

[0056] The engagement means is selected from the group consisting of bores, slots, loops, hooks, clips, pins, snaps, and any combination thereof.

[0057] The top clip component and/or the bottom clip component are comprised of one or more metals, plastics, resins, and any combination thereof.

[0058] The top clip component and/or the bottom clip component include one or more of: (a) one or more coloured sections; (b) one or more clear sections; or (c) a bench portion to allow connection to a flap component.

[0059] The top flap component and/or the bottom flap component includes one or more reservoirs for holding the hair composition until contact between the hair composition and the section of hair is desired.

[0060] The reservoir comprises one or more chambers.

[0061] The top flap component and/or the bottom flap component includes one or more barrier means for preventing the hair composition from contacting the section of hair until contact is desired.

[0062] The barrier means comprises one or more sheets, one or more projections, or any combination thereof.

[0063] The barrier means comprises pull tabs, pouches, or any combination thereof.

[0064] The top flap component and/or the bottom flap component includes one or more protrusions to assist in preventing drips or runs of the hair composition.

[0065] The one or more protrusions comprise lips, ribs, rims, ridges, shoulders, guard rails, or any combination thereof.

[0066] The top flap component and/or the bottom flap component includes one or more one or more ingresses or one or more protuberances to assist with treating longer hair.

[0067] The one or more ingresses are selected from the group consisting of channels, dimples, slots, ruts, and any combination thereof.

[0068] The one or more protuberances are selected from the group consisting of knobs, prongs, pegs, nibs, hooks, fingers, flanges, clasps, and any combination thereof.

[0069] The top flap component or the bottom flap component includes one or more sensing means, or the top clip component or the bottom clip component includes one or more sensing means.

[0070] The one or more sensing means comprise heat sensors, time sensors, or any combination thereof.

[0071] The one or more sensing means communicate data to one or more electronic devices.

[0072] The one or more electronic devices are selected from the group consisting of smart watches, mobile phones, tablets, personal computers, and any combination thereof.

[0073] The data is transmitted to one or more databases for storage.

[0074] The top flap component and/or the bottom flap component are comprised of one or more plastics, elastomers, resins, metals, or any combination thereof.

[0075] The top flap component and/or the bottom flap component include one or more of: (a) one or more coloured sections; (b) one or more clear sections.

[0076] In one aspect, this disclosure encompasses a kit for applying a hair composition to a subject, the kit comprising:

(i) one or more pairs of clip components of a previous aspect, and/or

(ii) one or more pairs of flap components of a previous aspect, and

(iii) optionally, instructions for use.

[0077] In one aspect, this disclosure encompasses a kit for applying a hair composition to a subject, the kit comprising:

(i) one or more top clip components and one or more bottom clip components, according to a previous aspect, and

(ii) one or more top flap components, and one or more bottom flap components, according to a previous aspect, and

(iii) optionally, instructions for use.

[0078] In various aspects:

[0079] The kit further includes one or more hair tools.

[0080] The hair tools are selected from the group consisting of brushes, combs, picks, applicators, and any combination thereof.

[0081] The kit further includes one or more hair compositions.

[0082] The hair composition is selected from colouring compositions, highlighting compositions, lowlighting compositions, and any combination thereof.

[0083] In one aspect, this disclosure encompasses a method of manufacturing a device for applying a hair composition to a subject, the method comprising:

obtaining

(i) one or more pairs of clip components according to a previous aspect, and

(ii) one or more pairs of flap components according to a previous aspect.

[0084] In one aspect, this disclosure encompasses a method of manufacturing a device for applying a hair composition to a subject, the method comprising:

(i) obtaining one or more top clip components and one or more bottom clip components, according to a previous aspect, and

(ii) obtaining one or more top flap components, and one or more bottom flap components, according to a previous aspect; and in any order:

(iii) connecting at least one top clip component to at least one bottom clip component,

(iv) connecting at least one top flap component to at least one top clip component; and

(v) connecting at least one bottom flap component to at least one bottom clip component.

[0085] In various aspects:

[0086] The one or more pairs of clip components are comprised of one or more metals, plastics, resins, and any combination thereof.

[0087] The one or more pairs of flap components are comprised of one or more plastics, elastomers, resins, metals, or any combination thereof.

[0088] The one or more top clip components are comprised of one or more metals, plastics, resins, and any combination thereof.

[0089] The one or more bottom clip components are comprised of one or more metals, plastics, resins, and any combination thereof.

[0090] The one or more top flap components are comprised of one or more plastics, elastomers, resins, metals, or any combination thereof.

[0091] The one or more bottom flap components are comprised of one or more plastics, elastomers, resins, metals, or any combination thereof.

[0092] In one aspect, this disclosure encompasses a method of utilising the device of a previous aspect, comprising:

(a) clamping the pair of clip components to the section of hair of the subject;

(b) applying the hair composition to the section of hair, the section of hair being oriented between the top flap component and the bottom flap component;

(c) allowing the top flap component to cover the section hair applied with the hair composition, and to cover the bottom flap component, thereby allowing treatment for a necessary duration.

[0093] In various aspects:

[0094] The hair composition is applied by a tool.

[0095] The tool is selected from a comb, brush, pick, applicator, or any combination thereof.

[0096] The hair composition is applied from a composition supply in the top flap component or the bottom flap component.

[0097] The hair composition is applied from a composition reservoir provided with the top flap component or the bottom flap component.

[0098] The hair composition is applied from a pouch or chamber provided with the top flap component or the bottom flap component.

[0099] The necessary duration is signalled by one or more sensing means on the device to one or more electronic devices.

[00100] The one or more electronic devices are selected from the group consisting of smart watches, mobile phones, tablets, personal computers, and any combination thereof.

[00101] The device is removed and cleaned following the treatment.

[00102] The device is disassembled prior to cleaning.

[00103] Optionally, step (i) is repeated with additional pairs of clip components as needed, and following this, steps (ii) and (iii) are carried out for each section of hair.

[00104] In one aspect, this disclosure encompasses a paired clip componentry suitable for use in applying hair treatment to a subject,

the paired clip componentry comprising a top clip component and a bottom clip component,

wherein the top clip component and the bottom clip component co-operate together to facilitate a clamping action between the top clip component and the bottom clip component,

such that in use the top clip component and bottom clip component clamp a section of hair of the subject to allow treatment to be applied to the section of hair retained by the clip element,

the top clip component and/or bottom clip component being adapted in shape and configuration to prevent hair treatment applied to the hair from contacting the scalp or other hair of the subject.

[00105] In various aspects:

[00106] The top clip component and the bottom clip component co-operate together to facilitate a clamping action through a tongue and groove configuration.

[00107] The top clip component and the bottom clip component co-operate together to facilitate a clamping action through complimentary opposing tongues that abut together.

[00108] The top clip component and/or bottom clip component are further adapted in use to receive and retain at least one flap component.

[00109] The at least one flap component is adapted to facilitate contact between the section of hair and the hair treatment composition.

[00110] The at least one flap component is further adapted to prevent hair treatment applied to the hair from contacting the scalp or other hair of the subject.

[00111] The foregoing brief summary broadly describes the features and technical advantages of certain embodiments. Further technical advantages will be described in the detailed description and examples that follow.

[00112] Novel features that are believed to be characteristic will be better understood from the detailed description when considered in connection with any accompanying figures and examples. However, the figures and examples provided herein are intended to help illustrate or to assist with developing an understanding, and are not intended to limit the scope of the subject matter that is disclosed.

BRIEF DESCRIPTION OF THE DRAWINGS

[00113] Figure 1: An illustration depicting a front view of one embodiment of the device. The device is depicted in an open position.

[00114] Figure 2: An illustration depicting a perspective view, from the left side, of one embodiment of the device. The device is depicted in an open position.

[00115] Figure 3: An illustration depicting a perspective view, from the left side, of one embodiment of the device. The device is depicted in a closed position.

[00116] Figures 4A-4C: Illustrations depicting a perspective view, from the right side, of particular embodiments of a paired clip componentry and a flap component.

[00117] Figures 5A-5C: Illustrations depicting perspective views, from the right side, of particular embodiments of the device.

[00118] Figures 6A-6B: Illustrations depicting perspective views, from the right side, of particular embodiments of a paired clip componentry and a flap component.

[00119] Figures 7A-7B: Illustrations depicting perspective views, from the right side, of particular embodiments of the device in use.

[00120] Figures 8A-8B: Illustrations depicting perspective views, from the right side, of particular embodiments of the device in use.

[00121] Figures 9A-9B: Illustrations depicting perspective views, from the right side, of particular embodiments of the device in use.

[00122] Figures 10A-10F: Illustrations depicting perspective views of particular embodiments the paired clip componentry or device in place on a head of hair.

[00123] Figures 11A-11C: Illustrations depicting perspective views, from the right side, of particular embodiments of the device and component parts.

[00124] Figures 12A-12C: Illustrations depicting perspective views, from the right side, of particular embodiments of the device and component parts.

[00125] Figures 13A-13C: Illustrations depicting perspective views, from the right side, of particular embodiments of a paired clip componentry.

[00126] Figures 14A-14B: Illustrations depicting cross-sectional views of particular embodiments of a device in place on a head of hair.

[00127] Figures 15A-15B: Illustrations depicting perspective views of particular embodiments the paired clip componentry.

[00128] Figures 16A: An illustration depicting an inside view of one embodiment of the device. The device is depicted in an open position.

[00129] Figure 16B: An illustration depicting an outside view of one embodiment of the device. The device is depicted in an open position.

[00130] Figure 16C: An illustration depicting a front view of one embodiment of the device. The device is depicted in a closed position.

[00131] Figures 17A-17J: Illustrations depicting perspective views of particular embodiments the device being used on a head of hair.

[00132] Figures 18A-18B: Illustrations depicting cross-sectional views of particular embodiments of a device in place on a head of hair.

DETAILED DESCRIPTION

[00133] The following description sets forth numerous exemplary configurations, parameters, and the like. It should be recognised, however, that such description is not intended as a limitation on the scope of what is disclosed, but is instead provided as a description of exemplary embodiments.

Definitions

[00134] In each instance herein, in descriptions, embodiments, and examples of the present disclosure, the terms "comprising", "including", etc., are to be read expansively, without limitation. Thus, unless the context clearly requires otherwise, throughout the description and the claims, the words "comprise", "comprising", and the like are to be construed in an inclusive sense as to opposed to an exclusive sense, that is to say in the sense of "including but not limited to".

[00135] As used herein, "approximately" means up to 10% greater or up to 10% lesser than a particular value. This includes up to 2% greater or up to 2% less than the value, or up to 5% greater or up to 5% less than the value, or up to 6% greater or up to 6% less than the value, or up to 7% greater or up to 7% less than the value, or up to 8% greater or up to 8% less than the value, or up to 9% greater or up to 9% less than the value.

[00136] The directional terms "top", "bottom", "upper", and "lower", as used herein are defined relative to application device, given the viewpoint of a user engaging with the device, for example, in attaching to or removing from the hair on the back of the head.

[00137] The dimension of "length" (or "height") for the device is determined by measuring the device from top to bottom, with the user looking at a vertically oriented device. The dimension of "width" for the device is determined by measuring the device from left to right, with the user looking at a vertically oriented device.

[00138] The dimension of "depth" for the device is determined by measuring the device from front to back, with the user looking at a vertically oriented device. The width and depth may be measured at the top or bottom of the device.

[00139] "Essentially vertical" encompasses an orientation that is up to 10° out from true vertical. "Essentially identical" encompasses a dimension (e.g., length, width, height or depth, for example, length 'A') that is up to 10% greater or lesser than the dimension being compared (e.g., length, width, height or depth, for example, length 'B').

[00140] Various shapes and configurations, as referred to herein, e.g., "quadrilateral", "rectangular", etc, can be, but will not necessarily be, precise by mathematical, geometric, or engineering standards. Approximations of such shapes and configurations (e.g., essentially quadrilateral, essentially rectangular) are thereby included in this disclosure.

[00141] As used herein, a "composition" refers to a substance applied to hair. This can be, for example, a liquid, gel, cream, or paste, or other formulation for the hair. Colouring and highlighting/lowlighting compositions are specifically noted, including bleaching, dyeing, tinting, toning, ombre, glossing, and glazing compositions, as well as permanent, semi-permanent, demi-permanent, and temporary colouring compositions. Compositions having natural components, e.g., henna, cassia, or indigo compositions, are also included.

[00142] As used herein, a "clip" refers to an engagement component which can be, for example, arcuate or essentially arcuate in configuration. Clip components can be provided as pairs (e.g., top clip component assembled with bottom clip component), or can be provided individually (e.g., top clip component and bottom clip component provided without assembly).

[00143] As used herein, a "flap" refers to a supporting or covering component which can be, for example, flat or essentially flat in configuration. Flap components can be provided as pairs, or can be provided individually.

[00144] "Connecting", as used herein, refers to provision of an association or linking between two or more components. Connecting can be direct or indirect, and can be reversible.

[00145] "Other means", as used herein, includes additional means, as well as any combination of the means being recited.

Device and components for applying hair compositions

[00146] The present disclosure encompasses a device for applying compositions to the hair, including hair colouring and highlighting/lowlighting compositions. The device is designed to provide ease, consistency, and efficiency for application, substantially improved safety and accuracy for applying for compositions, and sustainable and reusable componentry. The device is designed to prevent or significantly reduce incidences of undesirable colour variations, hair damage, and scalp irritation. The device is designed to allow for substantially faster application, and to have an appealing and modern appearance for customers. The device is envisioned as producing superior results. Such results can be achieved where the composition is applied onto each section of hair at the closest proximity to the scalp (ideally, without over shooting onto the scalp and adjacent hair), and where each section of hair is treated uniformly such that the composition is applied along the same distance from the scalp. Further to these aims, it is the aim of this disclosure to at least to provide the public with a useful alternative.

Clip component

[00147] The device disclosed herein may comprise a clip component. The clip component is designed so as to secure the device in position. The device may be secured, for example, proximate to the scalp, adjacent to the scalp, or onto a section of hair (e.g., not adjacent to the scalp). The clip component thereby provides a point of engagement with the hair. The clip component also helps to protect the scalp from contact with the composition. In particular aspects, the clip component can be positioned adjacent to the scalp, and provide an effective barrier for the scalp. In this way, the scalp is essentially sealed off from the composition.

[00148] In various aspects, the clip component may include one or more projections for engaging with a section of hair. For example, the clip component may include on its length one or more teeth or other projections to allow fastening to a section of hair. The one or more projections may be of a similar size or may be different sizes. The size of the projections may be graded, e.g., gradually increasing in size towards the centre of the clip component. A plurality of projections may be utilised, for example, a plurality of teeth, bulges, humps, jags, juts, ridges, or other means.

[00149] In particular aspects, the clip component may be designed as arcuate or essentially arcuate in its configuration. For example, the clip component may be contoured in such a way as to generally follow the curvature of the scalp. In certain exemplifications, the clip component may be a concave or essentially concave in shape. The clip or a portion of the clip may be deformable so as to enhance a concave or essentially concave shape at the leading edge. The clip component may have different widths, lengths, spans and curvatures. In this way, the clip component can be adapted to different areas of the scalp and/or different scalp sizes and shapes. Thus, a kit as disclosed herein may include clip components of varying dimensions and curvatures.

[00150] As one embodiment, the portion of the clip component that contacts the hair is tapered and/or elongated. This allows the closest possible connection to the scalp, while at the same time forming a safety boundary to prevent the composition from contacting the scalp. The tapered design also assists in making a positive connection with the section on hair, thereby securing the clip component in place.

[00151] The clip component may be designed to prevent the colourist from overshooting the composition onto the scalp. Similarly, the clip can be designed to catch any product that swells or migrates during treatment. In specific aspects, the clip component may include one or more impedance means so as to prevent or reduce contact between the composition and the scalp. This impedance means can be provided by one or more projections or other shapes for the clip component (e.g., one or more lips, ribs, rims, ridges, shoulders, teeth, guard rails, or other means) and/or one or more ingresses for the clip component (e.g., one or more channels, dimples, slots, ruts, or other means). Various exemplifications for projections are provided herein. Combinations of projections, shapes, and/or ingresses may also be used.

[00152] The clip component may be provided individually or as a paired set. For example, single components (e.g., separate top clip components and bottom clip components) may be connected together by the user to form a paired componentry for clamping onto a section of hair. As an alternative, pre-connected and paired clip components can be provided (e.g., top clip component assembled with bottom clip component) to allow clamping onto a section of hair. In certain circumstances, the paired

clip components are connected via one or more hinging means. Such means allow for the paired componentry to be readily open and clamped closed over a section of hair.

[00153] For a paired set of clip components, the one or more projections (e.g., one or more teeth, bulges, humps, jags, juts, ridges, or other means) of the individual components may provide securement when the paired set is clamped closed. In this way, the paired components can hold a section of hair more tightly. For example, a plurality of teeth of the top clip component may fit into a corresponding plurality of cavities of the bottom clip component. Alternatively, a plurality of teeth of the bottom clip component may fit into a corresponding plurality of cavities of the top clip component. As a further alternative, a plurality of teeth of the top clip component may interlock with a corresponding plurality of teeth of the bottom clip component.

[00154] Therefore, in certain aspects, it may be suitable to include one or more securing means to keep the paired clip components in a closed position, e.g., clamped onto a section of hair. Exemplifications include projections (e.g., teeth, bulges, humps, jags, juts, ridges, or other means) as noted above, as well as magnetic closures, hooks, loops, hook and loop materials (e.g., Velcro®), clips, pins, snaps, and other means. As further examples, the top clip component and the bottom clip component may clamp together via a tongue and groove configuration. Alternatively, the top clip component and the bottom clip component may clamp together through complimentary opposing tongues that abut together.

[00155] It is also possible for the paired set of clip components to include one or more releasing means. In this way, the paired componentry can be transitioned from a closed position (e.g., clamped onto a section of hair) to an open position (e.g., released from the section of hair). Exemplifications include pins, buttons, levers, and other means. As an example, a releasing means may be positioned proximate to a hinging means for the paired clip componentry. In certain aspects, the releasing means (e.g., lever) may be offset from the assembled top clip component and bottom clip component so that it does not get in the way of another paired set being attached onto to a section of hair that is in proximity to the original paired set.

[00156] As an alternative to hinging and releasing means (e.g., as in Figure 15A), it is possible to use guiding means and releasing means (e.g., as in Figure 15B). In this way, it is possible to use an "alligator clamp" embodiment for the paired clip componentry, or a "parallel clamp" embodiment for the paired clip componentry. Other embodiments are also encompassed. Notably, the opening of the paired clip components allows the insertion of a section of hair at the beginning of treatment, and also allows the releasing of the section of hair at the end of treatment.

[00157] In one specific aspect, the clip component can include one or more engaging means for interaction with a comb, brush, pick, applicator or other tool. The engaging means may include recesses, projections, or various combinations of these. For example, the clip component may include a bore or slot (e.g., hexagonally shaped bore) that can be engaged by an appropriately configured tool (e.g., having an Allen key-shaped handle). Other arrangements are also possible, for example, two or more projections (e.g., loops, hooks, clips, pins, snaps, or other means) can allow engagement between the comb, brush, etc. and the clip component. These arrangements can be used to engage with and adjust the clip component, and reposition the clip component when needed. It will be understood that bores, slots, hooks, etc, are some of the available options, and that the engagement means and the corresponding tool can be any appropriate shape to allow interaction.

[00158] The materials used for the clip component may be natural, non-natural, or combinations thereof. Nonlimiting examples include metals, plastics, resins, and any combination of these. Specifically noted are components constructed from one or more durable plastics, such as polyethylene (e.g., HDPE or LDPE), polypropylene, or polycarbonate. Also noted are components constructed from plastic coated metals, e.g., nylon covered aluminium, or nylon covered aluminium alloys. Other metal and non-metal materials may also be suitable.

[00159] In specific examples, clip components may be approximately 30 mm to approximately 120 mm, or approximately 40 mm to approximately 110 mm, or approximately 50 mm to approximately 100 mm, or approximately 60 mm to approximately 90 mm in width. Exemplary width for the clip components include: at least 30 mm, at least 40 mm, at least 50 mm, at least 60 mm, at least 70 mm, at least 80

mm, at least 90 mm, at least 100 mm, at least 110 mm, and at least 120 mm. Other sizes may also be suitable.

[00160] In further examples, clip components may be approximately 5 mm to approximately 10 mm, or approximately 6 mm to approximately 9 mm or approximately 7 mm to approximately 8 mm in height. Exemplary height for the clip components include: at least 5 mm, at least 6 mm, at least 7 mm, at least 8 mm, at least 9 mm, and at least 10 mm. Other sizes may also be suitable. It will be understood that device is not limited to any particular size or type of clip component to be used.

[00161] In certain embodiments, the clip component may be provided in one or more colours, e.g., with colour coding, to assist in the colouring or highlighting/lowlighting process. For example, different sized clip components may be provided in different colours or shades. This could assist the colourist in identifying the correct clip component for a particular colouring/highlighting/lowlighting project. Optionally, the clip component (or a portion of the clip component) may be provided as a clear or essentially clear material. This could assist the colourist in seeing the scalp and identifying any ingress of the composition onto the scalp. In particular aspects, the clip component may include a bench portion, e.g., a flat portion where the flap component can be mounted. The bench portion may be included on the top clip component or the bottom clip component, or on both top and bottom clip components. The flap component is described in further detail below.

Flap component

[00162] The device disclosed herein comprises a flap component. The flap component is designed so as to support/cover a section of hair and/or to support/cover a portion of the composition. The flap component thereby provides a means for facilitating contact between the hair and the composition. This facilitation can assist with heating the hair and/or the composition, and thereby accelerating the treatment process. The flap component also helps to protect the scalp and surrounding hair from contact with the composition.

[00163] In various aspects, the flap component may be provided such that it is adapted to be connected to a clip component. Alternatively, the flap component may

include one or more means for connecting to the clip component, and the user can affect the connection. It is also possible for the clip component to include one or more means for connection to the flap component. It is further possible for both flap component and clip component to include connecting means. Exemplary connecting means include rings (e.g., spiral rings, axial rings), loops, hooks, clips, pins, snaps, and other means. In certain aspects, the connection is reversible, such that the flap component can be removed (e.g., for washing) or replaced.

[00164] As one exemplification, the top edge of a first flap component can be connected to the bottom edge of a first clip component. In the same way, the top edge of a second flap component can be connected to the bottom edge of a second clip component. With this arrangement, the pair of clip components can be clamped on a section of hair proximate to or adjacent to the scalp, while the connected flap components extend down from the clip components and cover the section of hair. This arrangement allows the efficient application of the composition onto the hair positioned on the lower flap component. Further, the hair composition stays in place on the section of hair that is positioned between the pair of flap components.

[00165] In another exemplification, one flap component can be attached: (1) on its back side to the front side of a first clip component; and (2) on its bottom edge to the top edge of a second clip component. With this arrangement, the first clip component can be engaged with a section of hair, and the second clip component can be clamped to first clip component, thereby folding the flap component back on itself. This arrangement allows the efficient application of the composition onto the hair positioned on the flap component. Further, the hair composition stays in place on the section of hair that is positioned under the folded flap component.

[00166] As a further exemplification, one flap component can be attached: (1) on its top edge to the bottom edge of a first clip component; and (2) on its bottom edge to the top edge of a second clip component. With this arrangement, the first clip component can be engaged with a section of hair, and the second clip component can be clamped to first clip component, thereby folding the flap component back on itself. These and other variations are feasible. For example, it is possible to attach only a bottom flap component to a bottom clip component, i.e., to omit the top flap component. It is also possible to

attach only a top flap component to a top clip component, i.e., to omit the bottom flap component. It is further possible to attach only a bottom flap component or only a top flap component, and to fold the selected flap component back on itself. It is therefore possible for the single or paired flap components effectively act as a "rolled wrap" or a "sandwich" or a "folded pocket", keeping the hair section in place, keeping the composition in contact with the hair section, and keeping the composition separate from the untreated hair and the scalp. Moreover, where the flap component is positioned close to the scalp, the composition will not bleed and produce coloured/lightened blotches.

[00167] In particular aspects, the flap component may include means for positioning the flap component onto the hair, such that a separate clip component or paired clip componentry may not be necessary. For example, the flap component may be positioned proximate to the scalp, or adjacent to the scalp, or onto a section of hair (e.g., not adjacent to the scalp). As exemplifications, one or more projections (e.g., teeth, bulges, humps, jags, juts, ridges, or other means), and/or one or more sticky material or substance may be included at or proximate to the leading edge of a flap component to assist with positioning. The one or more projections may be of a similar size or may be different sizes. The size of the projections may be graded, e.g., gradually increasing in size towards the centre of the flap component. As an exemplification, a plurality of projections (e.g., teeth, bulges, humps, jags, juts, ridges, or other means) along the leading edge of the flap component may be used to position the leading edge of the flap component proximate to the scalp, or adjacent to the scalp, or onto a section of hair which is not proximate to/adjacent to the scalp.

[00168] In specific aspects, the flap component may be designed as arcuate or essentially arcuate in its configuration, particularly where the positioning means (such as a plurality of projections) is provided. For example, the flap component may be contoured at its leading edge in such a way as to generally follow the curvature of the scalp. In certain exemplifications, the flap component may be a concave or essentially concave in shape at its leading edge. The flap may be flexible so that when the leading edge deforms, the flap will follow, i.e., stretch and retract. In particular, the flap may be deformable so as to enhance a concave or essentially concave shape at the leading edge. The flap component may have different widths, lengths, spans and curvatures. In this

way, the flap component can be adapted to different areas of the scalp and/or different scalp sizes and shapes. Thus, a kit as disclosed herein may include flap components of varying dimensions and curvatures.

[00169] In other aspects, the flap component may be designed to prevent the colourist from overshooting the composition onto the scalp. For example, the flap component can be designed to catch product that goes beyond the flap surface. In specific aspects, the flap component may include one or more impedance means so as to prevent or reduce contact between the composition and the scalp. This impedance means can be provided by one or more projections or other shapes for the flap component (e.g., one or more lips, ribs, rims, ridges, shoulders, teeth, guard rails, or other means) and/or one or more ingresses for the flap component (e.g., one or more channels, dimples, slots, ruts, or other means). Various exemplifications for projections are provided herein. Combinations of projections, shapes, and/or ingresses may also be used.

[00170] The flap component (e.g., top flap component, bottom flap component, both top and bottom flap components, or a single flap component) may include one or more reservoirs. For example, one or more reservoirs may be used for holding the hair composition until contact between the hair composition and the section of hair is desired. The reservoirs may include one or more chambers. For example, separate chambers may be used for holding compositions that require mixing before use, or for holding compositions that are used sequentially. In addition, one or more reservoirs may be used to provide accommodation for the section of hair on the flap component. For example, one or more concave or essentially concave formations on the flap component (e.g., bubble formations, teardrop formations, or other means) may assist in accommodating the hair on the flap component. Again, these reservoirs may include one or more chambers. For example, separate chambers may be used to apply/maintain different compositions on different parts of the hair. Alternatively, separate chambers may be used to apply a composition to different parts of the hair at different times (e.g., sequential application). In certain aspects, a reservoir can include one or more clear sections or essentially clear sections (e.g., window(s)) to assist with inspection and monitoring of the treatment. For manufacture, the one or more reservoirs on the flap component may

be moulded directly into the flap component, or may be produced separately and then attached to the flap component.

[00171] In such aspects where a flap component is utilised without a separate clip component or paired clip componentry, it may be helpful to include additional functionality as part of the flap component. For example, the leading edge of the flap component may be provided so as to be deformable, particularly in the horizontal plane. This allows shaping and moulding of the leading edge to the customer's scalp. To provide additional functionality, the flap component (side facing the scalp) may include a support body and one or more support arms. In particular aspects, the support body and one or more support arms may be presented in essentially a Y shape or wishbone shape, whereby the left and right arms reach towards the left and right of the leading edge of the flap component. The support body may contain the locking mechanism, as described further below.

[00172] As a further example, the flap component may include one or more bracing elements. In particular aspects, the one or more bracing elements may include a plurality of elongated members (e.g., juts, palings, fingers, or other means) that span between the left and right of the leading edge of the flap component. As an exemplification, the bracing elements may be positioned along the leading edge, and may span between the left and right support arms. In certain aspects, the bracing elements may be attached to the projections (e.g., teeth, bulges, humps, jags, juts, ridges, or other means), which assist in positioning the flap component. The bracing elements may also provide a platform which assists in application of the hair composition. In addition, the bracing elements may provide assistance in keeping the correct configuration for the leading edge of the flap component. In this way, the flap component may be enhanced by additional supporting/shaping features.

[00173] In particular aspects, the flap component may be designed as quadrilateral or essentially quadrilateral in its configuration. For example, the flap component may be shaped approximately as a rectangle or a square. One or more corners of the quadrilateral configuration may be rounded. Alternatively, the flap component may have even more of a curved shape, e.g., as oval, half-oval, elliptical, half-elliptical, stadium, half-stadium, pyriform, parabolic, or hyperparabolic configurations, or variations thereof. Other

configurations and shapes may also be suitable. The top edge, or at least a portion thereof, of a flap component may optionally include edging to enhance engagement with a clip component. For example, the top flap component, the bottom flap component, or both top and bottom flap components may include edging to enhance engagement with the clip componentry.

[00174] As indicated above, the clip component may be arcuate or essentially arcuate in shape, and may have different spans and different curvatures. In the same way, the flap component may be sized and shaped to allow the appropriate connection with the clip component. In this way, a flap component can be matched with its corresponding clip component. Thus, a kit as disclosed herein may include flap components of varying sizes and shapes. In addition, in lieu of a flap component being utilised, it is possible for the clip component (e.g., the top clip component and/or bottom clip component) to have a shape or configuration to help prevent the hair treatment from contacting the scalp or other hair of the subject. That is, the top clip component and/or the bottom clip component can be adapted to have a built-in element that is comparable to a flap as described herein.

[00175] In specific aspects, the flap component may include or may be associated with a barrier means so as to prevent or delay contact between the composition and the section of hair until such contact is desired. This barrier means can be provided by one or more sheets (e.g., pull tab or other means) or one or more projections (e.g., pouch or other means) associated with or included with the flap component. For example, the composition can be positioned below the top most flap component and above the barrier means. The barrier means, in turn, sits above the section of hair. When the barrier is removed (e.g. tab pulled out) or otherwise traversed, the composition can come in contact with the hair and processing can begin. Combinations of various sheets and projections may also be used.

[00176] As further aspects, the flap component may include one or more means to assist in securing and tensioning the section of hair. This may be helpful for when wanting to treat the full length of hair for a customer that has long hair. Exemplifications include one or more tensioning means, including one or more protuberances, such as one or more knobs, buttons, prongs, pegs, nibs, hooks, fingers, flanges, clasps, hub and

spokes, and other means. For example, the section of hair may be wrapped around or otherwise trapped or secured by one protuberance or more than one protuberance. The section of hair may be held in place between a plurality of protuberances, e.g., in a channel formed by the protuberances.

[00177] In certain aspects, it may be desirable to lock the one or more tensioning means in place, to further secure the hair to the flap component. For example, tensioning means may be pressed to achieve a locked position, and may be pulled on to achieve an unlocked position. As an alternative to this, a tensioning means may engage with a locking mechanism, and thereby be locked and unlocked through use of the locking mechanism. It will be understood that one or more secondary tensioning means (e.g., protuberance(s)) can be utilised for longer sections of hair. For example, a longer section of hair can be wrapped around the secondary tensioning means before being wrapped around the primary tensioning means (which can be locked and unlocked). In this way, a longer section of hair may be arranged neatly on the flap component.

[00178] The tensioning means for the flap component can be highly beneficial for the user. It allows the user to hold the section in hair in place while freeing up the users fingers. With foils, the user typically uses a thumb or other finger to hold the hair onto the foil, i.e., gather into a "v" shape. The tensioning means keeps this "v" shape, but without the user needing to keep one or more fingers in place. Moreover, the tensioning means can be used to keep the hair positioned in initial stages and throughout the entire treatment process. The tensioning means may be optimised for ease of use, ease of cleaning, and/or ease of manufacture. Different shapes and options may be utilised for the tensioning means, e.g., open and closed positions, one or more transparent portions, and/or hub and spoke configurations to allow hair to be treated while being trapped at a tension point.

[00179] As one option, when pushed into its locked position, an outer rim of the tensioning means can be utilised to compress against the flap component and hair and hold the hair in position. As one option, the underside of the tensioning means may include a sticky softer polymer or similar substance to aid in the holding of the hair. As one option, the hub and each of the spokes may be utilised as connection points. The hair composition may be applied whilst the tensioning means is in a locked position in

between the spokes. As one option, when the tensioning means is in an unlocked position, this can be utilised to assist in releasing the hair and also provide ease of cleaning under the tensioning means. As one option, when the user wishes to disengage the device of this disclosure, the device can be lifted from its tail end. In this way, the tightness of the tensioning means may be lessened. As one option, the user may disengage the tensioning means by disengaging the locking mechanism on the underside of the flap component, and in this way and the hair may be released.

[00180] In specific aspects, the tensioning means may take advantage of the hair's cuticle, which is comprised of small scales pointing downward. In this way, the tensioning means can facilitate attachment of the hair (going in the direction of the cuticle), but can work against release of the hair (going against the direction of the cuticle). When the user wished to remove the hair from the tension means, it is possible to pull the device on an angle and this releases the tension points. For example, sharks teeth tread may be utilised on the flap component to get under the cuticle and help to hold the hair in place. When sharks teeth tread is applied on an angle (e.g., about 30° to about 45° angle), then it is possible to facilitate removal of the flap component by tilting the flap component to approximately the tread angle (e.g., about 30° to about 45° angle), and pulling on the flap component to assist with release. This tilting and pulling action can be performed along with releasing/unlocking the one or more tensioning means, if such is/are being used.

[00181] As indicated above, the clip component may be provided individually, or as a paired set (e.g., top and bottom clip components assembled together). In the same way, the flap components may be provided individually, or as a paired set (e.g., top and bottom flap components assembled together). For example, a device comprising pre-connected and paired clip components and pre-connected and paired flap components can be provided to allow clamping onto a section of hair. As an alternative, the user can connect the pairs of clip components, and can also connect the pairs of pairs of flap components to allow clamping and holding a section of hair. It is also possible to provide a clip component and a flap component as one integrated piece, i.e., a flap component having a built in clip. It is further possible to provide pairs of integrated componentry, i.e., a pair of flap components with each having a built in clip.

[00182] In addition, it is possible to forgo the clip component/paired clip componentry and rely on the flap component having certain features, for example, one or more of: engagement or positioning means (e.g., one or more teeth or other projections), tensioning means (e.g., one or more protuberances), operational features (e.g., one or more supporting arms, supporting body, and/or bracing elements), and/or contouring (e.g., curvature to generally follow the scalp), as described herein. Thus, the one or more aspects, features, and advantages of the clip component noted herein may be incorporated into the flap component.

[00183] In certain aspects, one or more surfaces of the flap component are adapted to allow easy and neat application of the composition. For example, the surface of the flap component that holds the section of hair can be essentially flat, smooth, and firm. This assists the colourist in painting or brushing the composition onto the hair, and ensures easy and even coverage. Ideally, the surface is not slippery as to make the composition drip or run during application. At the same time, the flap component may include a portion having one or more textures, e.g., elevated features such as treads, scales, corrugations, or other means. The flap component may include a portion having one or more sticky substances or materials, e.g., tacky components, such as one or more viscoelastics, and/or friction forming components, such as one or more frictional polymers. These one or more textures and/or sticky substances/materials may assist in holding the hair in place. In specific aspects, the one or more textures and/or sticky substances/materials may be on the underside of the one or more tensioning means on the flap component.

[00184] In some circumstances, it may be helpful to include one or more raised features on the surface of a flap component. This can include, for example, one or more protrusions to help prevent drips or runs. In particular, this can help to prevent the composition from leaking from the flap component, and/or help to prevent overshooting, i.e., to prevent the user from applying the composition to the scalp. As exemplifications, the flap component may include one or more lips, ribs, ridges, rims, shoulders, teeth, guard rails, or other means. For example, a moulded guard rail may extend along left and/or right portions of the flap component, and/or bottom portion of the flap component, to inhibit leaking of the composition onto the scalp or neighbouring regions of hair. In

certain aspects, it may be possible to align the left and right guard rails on the bottom portion of the flap component with the left and right guard rails on the top portion of the flap component, to allow folding and securing of the flap component on itself. This is particularly useful where the flap component is used without the clip component/paired clip componentry. In this way, the guard rails may provide a means for securing the top and bottom portions of the flap component together, but other securement means may also be utilised.

[00185] It is also possible to include one or more ingresses in the flap component (e.g., one or more channels, dimples, slots, ruts, or other means) to assist with holding and colouring longer hair. In addition, as noted above, the flap component may include one or more reservoirs for holding a hair composition, which can be transitioned onto the hair, e.g., by pressing, sliding, squeezing action. The reservoir may be refillable and/or recyclable. The flap component (and or the clip component) may also be designed to include a heat sensor, time sensor, or other means for sensing relevant parameters. The sensing means may in turn communicate with one or more electronic devices, e.g., smart watches, mobile phones, tablets, personal computers, etc. Optionally, the data may be transmitted to one or more databases for storage. For example, databases may be employed to store client information and specific treatment details.

[00186] In other aspects, the design of the flap component allows easier manipulation or folding. For example, where paired flap components are used, the top most flap can be a construction that is lighter weight and/or more flexible than the bottom most flap. At the same time, it is helpful for the construction to have some stiffness, to ensure that the top most flap can close over the bottom most flap. As a further example, where individual flap components are used (single flap folded or rolled back on itself), the construction will tend to be lighter weight and/or more flexible. In addition, these components may include a "fold line" or similar construction, so that the fold occurs in the same region with each use. Ideally, this region is sufficiently durable so as to stand up to repeated folding and unfolding.

[00187] Notably, where paired flap components are sandwiched together over a section of hair, this will assist in heating up the hair and accelerating any treatment on the hair. Similarly, where a flap component is folded onto itself or rolled onto itself so

as to cover the section of hair, this will assist in heating up the hair and accelerating any treatment on the hair. It will be understood that hair cuticles will be able to open in a heated environment, and will be more receptive to treatment in this environment. In addition, hair compositions will tend to work faster and/or more completely where heat is increased. Therefore, the one or more flap components can be utilised to provide highly efficient and highly effective treatments.

[00188] The materials used for the flap component may be natural, non-natural, or combinations thereof. Nonlimiting examples include plastics, elastomers, resins, metals, and any combination of these. Noted are materials that form a malleable surface, and can be manipulated to cover the section of hair on the flap component. Specifically noted are flap components constructed from one or more polymers, such as silicone, rubber, polyisoprene, polybutadiene, ethylene propylene, or polyurethane. Other polymer and non-polymer materials may also be suitable. As one exemplification, a flap component can comprise a foil, e.g., an aluminium foil sheet. For example, the top flap component, bottom flap component, or both top and bottom flap components can be an aluminium foil sheet. Ideally, the one or more materials for the flap component will be capable of retaining heat for the reasons noted herein.

[00189] In specific examples, flap components may be approximately 30 mm to approximately 120 mm, or approximately 40 mm to approximately 115 mm, or approximately 50 mm to approximately 110 mm, or approximately 60 mm to approximately 100 mm in length. Exemplary lengths for the flap components include: at least 30 mm, at least 40 mm, at least 50 mm, at least 60 mm, at least 70 mm, at least 80 mm, at least 90 mm, at least 100 mm, at least 110 mm, and at least 120 mm. Other sizes may also be suitable.

[00190] In further examples, flap components may be approximately 30 mm to approximately 120 mm, or approximately 40 mm to approximately 110 mm, or approximately 50 mm to approximately 100 mm, or approximately 60 mm to approximately 90 mm in width. Exemplary widths for the flap components include: at least 30 mm, at least 40 mm, at least 50 mm, at least 60 mm, at least 70 mm, at least 80 mm, at least 90 mm, at least 100 mm, at least 110 mm, and at least 120 mm. Other sizes may also be suitable.

[00191] It will be understood that increasing the height of the flap component(s) that are provided will increase the length of hair to be supported/covered. Similarly, increasing the width of the flap component(s) that are provided will increase the width of hair to be supported/covered. In some situations, the paired flap components will be similar or essentially identical in size. In other situations, it is possible for the paired flap components to be different sizes. For example, the bottom most flap component that sits closest to the scalp can be provided as slightly larger in length or width than the top most flap component. This would provide additional protection for the scalp. The device is not limited to any particular size or type of flap component to be used.

[00192] In certain embodiments, the flap component may be provided in one or more colours, e.g., with colour coding, to assist in the colouring or highlighting/lowlighting process. For example, different sized flap components may be provided in different colours or shades. This could assist the colourist in identifying the correct flap component for a particular colouring/highlighting/lowlighting project. In one aspect, the flap component that supports the section of hair may be a dark colouration, for example, black, dark grey, dark blue, or dark purple. This provides a visual contrast for the colourist and shows clearly where the composition has been applied or where it needs to be applied.

[00193] Optionally, the flap component (or a portion of the flap component) may be provided as a clear or essentially clear material. Ideally, the clear or essentially clear material (e.g., a clear or essentially clear window) will allow visualisation of the hair processing. Particularly of interest is the area close to the scalp. For example, where there is paired flap componentry, the top most flap may be transparent or translucent, or may include a transparent or translucent window, to allow the colourist to confirm where colour has been applied and to visualise the extent of processing without lifting the top most flap, or otherwise disturbing the hair that is being processed. This is particularly helpful when multiple treatments are being applied to the hair, e.g., two or more colours being applied for the same customer.

[00194] Similarly, where individual flap components are used (single flap folded or rolled back on itself), it is possible for the bottom half of the flap component to be transparent or translucent, or to include a transparent or translucent window in the bottom

half of the flap component. Then, when the flap component is folded back on itself and secured (such that the bottom half is now positioned over the top of the hair section), the colourist will be able to visualise the extent of processing without unfolding the flap, or otherwise disturbing the hair that is being processed.

Manufacture and use of the device

[00195] The disclosed device may be used to optimise hair treatments and to prevent or reduce damage to the hair and scalp. The device is designed to provide for faster application and treatment times. The device is designed to be simple to remove, and can be rinsed out the customer's hair upon treatment completion. The device and its components are designed to be washed and reused numerous times, thereby reducing waste. Where the clip component is contoured to the shape of the scalp, this keeps colour and highlighting/lowlighting even and protects the scalp. The look of the device is clean, professional, and modern.

[00196] The clip components may be manufactured by any suitable means. Production may be from a natural or non-natural material, or any combination thereof. Particularly noted are plastic materials, metal materials, resin materials, and various combinations of these. The clip components may be bent or moulded to the appropriate shape and size, and/or may be modified by one or more of cutting, drilling, or coating, or other means. The clip components may then be assembled, e.g., paired and connected together, or may be provided individually.

[00197] In the same way, the flap components may be manufactured by any suitable means. Production may be from a natural or non-natural material, or any combination thereof. Particularly noted are plastic materials, elastomer materials, resin materials, and various combinations of these. The flap components may be sliced or moulded to the appropriate shape and size, and/or may be modified by one or more of cutting, drilling, or coating, or other means. The flap components may then be assembled, e.g., paired and connected to the cognate clip components, or may be provided individually. As noted above, the flap components may be designed for use without the clip components/paired clip componentry.

[00198] In one aspect, a kit may be provided which includes one or more of the clip components and/or one or more of the flap components. In one other aspect, the kit may include one or more assembled devices and/or one or more assembled componentry pairs, e.g., one or more pre-connected and paired clip components. The devices and/or components may be provided in one or more containers or packages in the kit. Additional items may also be provided with the kit, for example, one or more compositions for hair or one or more tools (e.g., combs, brushes, picks, applicators, or other means) for hair. Optionally, instructions may be provided with the kit, as well as any other containers (e.g., jars, bottles, envelopes, bags, sachets, sacks, pouches, or other means), labels, fasteners, or implements.

[00199] As one embodiment, a method of this disclosure comprises positioning a first clip component under a section of hair, positioning a second clip component over this section of hair, and clamping the first clip component and the second clip component together so as to hold the section of hair in place. This method can further comprise connecting the first clip component to a first flap component, and connecting the second clip component to a second flap component.

[00200] As one other embodiment, a method of this disclosure comprises positioning a first clip component under a section of hair, positioning a second clip component over this section of hair, and clamping the first clip component and the second clip component together so as to hold the section of hair in place, wherein the first clip component is connected to a first flap component, and the second clip component attached to a second flap component.

[00201] As another embodiment, the method comprises clamping a pair of clip components onto a section of hair, and then connecting each clip component to a flap component. According to this embodiment, the clip components are pre-connected and already paired.

[00202] As a further embodiment, the method comprises clamping a pair of clip components onto a section of hair, wherein each clip component is connected to a flap component. According to this embodiment, the clip components are already paired

together and connected to each other and to the corresponding flap components. In this way, it is possible to pre-assemble the device before use.

[00203] As still a further embodiment, the method comprises positioning a first clip component under a section of hair, positioning a second clip component over this section of hair, and clamping the first clip component and the second clip component together so as to hold the section of hair in place, wherein the first clip component is connected to the backside of a flap component, and the second clip component is connected to the bottom end of the flap component.

[00204] As even a further embodiment, the method comprises positioning the flap component (that does not include a clip component or paired clip componentry) proximate to the scalp, adjacent to the scalp, or onto a section of hair (i.e., not adjacent to the scalp). For example, a plurality of projections (e.g., teeth, bulges, humps, jags, juts, ridges, or other means) may be lined along the leading edge of the flap component, and such may assist with positioning of the flap component. In addition, the hair may be secured and tensioned onto the flap component by one or more tensioning means (e.g., protuberance(s)) on the flap component. In certain aspects, the plurality of projections (e.g., teeth, bulges, humps, jags, juts, ridges, or other means) can work in conjunction with the one or more tensioning means (e.g., protuberance(s)) so as to position the device and secure the hair that is to be treated. In addition, the leading edge of the flap component may be deformed when put into position, so as to provide better engagement with the scalp and/or the section or hair.

[00205] In some cases, it will be helpful to put all of the necessary devices in place on the head before applying the composition. This ensures a more even processing result over the whole head (unlike foils, which are much slower to apply and necessarily progressive). However, it is also possible to add composition to one or more devices at different times, if desired. Where the barrier means is used with the flap components of the device, it is possible to release the composition onto the sections of hair very quickly, and provide what is effectively a coordinated application of the composition. Again, this assists with providing an even result.

[00206] Therefore, it can be advantageous to utilise devices where the flap components are pre-loaded with composition. This removes the need to paint or brush the composition onto each section of hair. As already noted, it is possible to utilise the barrier means to keep the composition from the hair until the desired contact time. In certain circumstances, it is possible to pre-load the flap components with a precursor composition that is not activated until addition of a specific compound or substance, or until removal of a barrier means. It is also possible to transition a composition from a reservoir in a flap component to the hair, e.g., by pressing, sliding, or squeezing action. It is further possible to activate the heat sensor, time sensor, or other means on the clip component and/or the flap component for sensing relevant parameters. It is then possible to use the sensing means to communicate with one or more electronic devices, (e.g., smart watches, mobile phones, tablets, personal computers, or other means), and optionally to transmit data to one or more databases. These various approaches can provide for an even and consistent colour result.

[00207] In one aspect, the device disclosed herein may be used with a specially modified comb, brush, pick, applicator, or similar tool. For example, the tool may be specifically adapted to interact with the device or one or more components of the device. As noted above, a hexagonally configured tool (e.g., having an Allen key-shaped handle) may be used to engage with a hexagonally configured bore in the clip component. Other tool configurations may be utilised, e.g., rectangular, rounded, etc. As exemplifications, the tool handle may be composed of metal, plastic, or resin, or any combination of these.

[00208] The tool handle may also be adapted to allow parting and sectioning hair. For example, the handle may have a point or other projection. In one aspect, the head of the comb or brush, or other tool, is sized to be similar to or slightly wider than the flap component. This helps the colourist to obtain sections of hair that are suitable to fit the flap components. While this specification refers to colouring and highlighting/lowlighting compositions, in particular, it will be understood that the disclosed device and disclosed methods are not limited to use with these hair compositions. Other compositions of note include conditioning, repairing, protecting (e.g., heat protection), detoxifying, densifying, relaxing, smoothing, straightening,

styling, curling, wave applying, moisture applying, shine applying, and gloss applying compositions. A combination of compositions may be utilised.

Specific exemplifications of the device and components

[00209] Non-limiting exemplifications of the device and components are described as follows.

[00210] Referring to the drawing of Figure 1, this provides a front view of one embodiment of the device, which is depicted in an open position. In this illustration, the device **10** is shown as having a pair of clip components **20a** and **20b** (top and bottom, assembled together), and a pair of flap components **25a** and **25b** (top and bottom, assembled together). The top clip component **20a** is reversibly connected with the top flap **25a** component, while the bottom clip **20b** component is reversibly connected with the bottom flap component **25b**. The clip components **20a** and **20b** each have a plurality of projections (e.g., plurality of teeth, **22a** and **22b**) for engaging with the section of hair (**H**). The device **10** is also shown as having a releasing means (e.g., push button, **21**) for transitioning the device from the closed position to the open position. In addition, the device **10** is shown as having a barrier means (e.g., pull tab, **26**) which prevents the hair composition (**C**) from contacting the hair until the allotted time. That is, the composition (**C**) is above the barrier means and below the top flap component.

[00211] Referring to the drawing of Figure 2, this provides a perspective view (left side) of one embodiment of the device, which is depicted in an open position. In this illustration, the device **10** is again shown as having a pair of clip components **20a** and **20b** (top and bottom, assembled together), and a pair of flap components **25a** and **25b** (top and bottom, assembled together). The top clip component **20a** is reversibly connected with the top flap **25a** component, while the bottom clip **20b** component is reversibly connected with the bottom flap component **25b**. The section of hair (**H**) is shown as projecting between the connected pair of clip components, **20a** and **20b**, and engaging with the corresponding plurality of projections emanating from the pair of clip components. The barrier means (e.g., pull tab, **26**) holds the composition (**C**) against the top flap component **25a**, and away from the section of hair (**H**). That is, the composition (**C**) is above the barrier means and below the top flap component.

[00212] Referring to the drawing of Figure 3, this provides a perspective view (left side) of one embodiment of the device, which is depicted in a closed position. In this illustration, only the top clip component **20a** and the top flap component **25a** are shown. Although not depicted, the bottom clip component will be directly beneath the top clip component, while the bottom flap component will be directly beneath the top flap component. As shown here, the barrier means (e.g., pull tab, **26**) is pulled out of the device, allowing the composition to contact the hair within the device (not shown). The composition and hair are then sandwiched between the top flap component **25a** and the bottom flap component **25b** (not shown), and this allows processing to take place. The portion of hair (**H**) projecting out from the device is not contacted with the composition, and is thereby protected from processing.

[00213] Referring to the drawings of Figures 4A-4C, these provide perspective views (right side) of particular embodiments of the paired clip componentry and a flap component. Figure 4A illustrates the paired clip componentry (**190**) in an open position, while Figure 4B illustrates the paired clip componentry (**190**) in a closed position. As shown here, the paired clip componentry (**190**) includes a top clip component (**201a**) and a bottom clip component (**201b**). The paired clip componentry (190) further includes a hinging means (**240**) and a releasing means (**230**) which together allow the paired clip componentry to be opened to receive a section of hair. The releasing means (**230**) is shown here as a lever. The paired clip componentry (**190**) also include optional securing means (**203**), e.g., magnetic elements, to assist in keeping the componentry in a closed position. In Figure 4C, the flap component (**180**) includes an optional clear section (**252**), and an optional edging (**253**) to enhance engagement with the bottom clip component (**201b**). In turn, the bottom clip component (**201b**) includes an optional bench portion (**202**) to enhance engagement with the flap component (**180**). In these exemplifications, only a single flap component is shown, e.g., a bottom flap component, but other exemplifications may include more than one flap component, e.g., a bottom flap component and a top flap component.

[00214] Referring to the drawings of Figures 5A-5C, these provide perspective views (right side) of particular embodiments of the device. Figure 5A illustrates the device (**100**) having the paired clip componentry an open position, while Figure 5B and

5C illustrate the device (**100**) having the paired clip componentry in a closed position. As in Figures 4A and 4B, the paired clip componentry (**190**) includes a top clip component (**201a**) and a bottom clip component (**201b**). The paired clip componentry (**190**) further includes a hinging means (not shown) and a releasing means (**230**) which allow the componentry to transition to an open position. In Figures 5A and 5B, the bottom flap component (**251b**) is shown as connected to the bottom clip component. In Figure 5C, the bottom flap component is shown as being folded back on itself, this conformation providing enhanced holding power and treatment for a section of hair (**H**) that is positioned on the flap component. In these exemplifications, only a single flap component is shown, e.g., a bottom flap component, but other exemplifications may include more than one flap component, e.g., a bottom flap component and a top flap component.

[00215] Referring to the drawings of Figures 6A and 6B, these provide perspective views (right side) of particular embodiments of paired clip componentry and a flap component. Figure 6A illustrates the flap component (**180**) as having a barrier means (**254**) that can be removed to allow the section of hair to be contacted with a composition (**C**). A bottom flap component is illustrated here. Figure 6B illustrates the flap component (**180**) being removed from the paired clip componentry (**190**). This can be done, for example, upon completion of treatment. As in Figures 4A and 4B, the paired clip componentry (**190**) includes a top clip component (**201a**) and a bottom clip component (**201b**). The paired clip componentry (**190**) further includes a hinging means (**240**) and a releasing means (**230**) which allow the componentry to transition to an open position. In these exemplifications, only a single flap component is shown, e.g., a bottom flap component, but other exemplifications may include more than one flap component, e.g., a bottom flap component and a top flap component.

[00216] Referring to the drawings of Figures 7A and 7B, these provide perspective views (right side) of particular embodiments of a device positioned on a head of hair. Initially, the subject's hair can be prepared for treatment and a section of hair can be pulled towards the user. Figure 7A illustrates an embodiment whereby the section of hair (**H**) is pulled under tension and the top clip component (**201a**) and the bottom clip component (**201b**) of the paired clip componentry are positioned in proximity to the

subject's scalp. The section of hair (**H**) is then positioned on the bottom flap component (**251a**), and the paired clip componentry can then be clamped onto the hair. The user may also connect a top flap component, if this is desired. Figure 7B illustrates an alternative embodiment, whereby the paired clip componentry is be clamped onto the section of hair (**H**), and the bottom flap component (**251a**) is connected to the bottom clamp component (not shown) after the clamping has taken place. The user may also connect a top flap component, if this is desired.

[00217] Referring to the drawings of Figures 8A and 8B, these provide perspective views (right side) of particular embodiments of a device positioned on a head of hair. As with the previous embodiments, the subject's hair can be prepared for treatment and a section of hair can be pulled towards the user. Figure 8A illustrates an embodiment whereby the section of hair (**H**) is pulled under tension and the paired clip componentry are positioned in proximity to the subject's scalp. The section of hair (**H**) is then positioned on the bottom flap component (**251a**), and the paired clip componentry is then be clamped onto the hair. The clamped configuration is illustrated in Figure 8B. The user may also connect a top flap component, if this is desired.

[00218] Referring to the drawings of Figures 9A and 9B, these provide perspective views (right side) of particular embodiments of a device positioned on a head of hair. Figure 9A illustrates an embodiment where composition (**C**) is contacted to the section of hair (**H**) that is positioned on the bottom flap component (**251b**). Once the composition is added, the user may also connect a top flap component, if this is desired. Figure 9B illustrates an embodiment where the bottom flap component is folded back on itself, this conformation providing enhanced holding power and treatment for a section of hair (**H**) that is positioned on the bottom flap component (**251b**). The user may choose to use this conformation for the bottom flap component in lieu of adding top flap component.

[00219] Referring to the drawings of Figures 10A-10C, these provide perspective views of particular embodiments the paired clip componentry in place on a head of hair. Figure 10A illustrates paired clip componentry (**190**) arrayed for radial latitudinal treatment, e.g., spanning over the top of the head. Figure 10B illustrates paired clip componentry (**190**) arrayed for longitudinal treatment, e.g., spanning along the back of

the head. Figure 10C also illustrates the longitudinal arrangement along the back of the head. Figure 10B is depicted as viewing the top of the head, while Figure 10C is depicted as viewing the back of the head.

[00220] Referring to the drawings of Figures 10D-10F, these provide perspective views of particular embodiments the devices in place on a head of hair. Figure 10D illustrates devices (**100**) arrayed for longitudinal treatment, e.g., arranged on the back of the head in an essentially vertically manner. Figure 10E illustrates devices (**100**) arrayed for longitudinal treatment, e.g., spanning along the back of the head. Figure 10F also illustrates the longitudinal arrangement along the back of the head. Figure 10E is depicted as viewing the top of the head, while Figure 10F is depicted as viewing the back of the head.

[00221] Referring to the drawings of Figures 11A-11C, these provide perspective views (right side) of particular embodiments of the device. Figure 11A illustrates the device (**300**) having the paired clip componentry an open position, while Figure 11B illustrates the device (**300**) having the paired clip componentry in a closed position. As depicted here, the paired clip componentry (**390**) includes a top clip component (**301a**) and a bottom clip component (**301b**). The paired clip componentry (**390**) further includes guiding means (**321**) and releasing means (**330**) which allow the componentry to transition to an open position. Figure 11C illustrates the flap component (here shown as the bottom flap component, **351b**) being removed from the paired clip componentry. This can be done, for example, upon completion of treatment. In Figures 11A and 11B, the bottom flap component (**351b**) is shown as connected to the bottom clip component. In Figure 11C, the bottom flap component (**351b**) includes an optional edging (**353**) to enhance engagement with the bottom clip component (**301b**). In turn, the bottom clip component (**301b**) includes an optional bench portion (**302**) to enhance engagement with the flap component. In these exemplifications, only a single flap component is shown, e.g., a bottom flap component, but other exemplifications may include more than one flap component, e.g., a bottom flap component and a top flap component.

[00222] Referring to the drawings of Figures 12A-12C, these provide perspective views (right side) of particular embodiments of the device. Figure 12A illustrates the device (**400**) having the paired clip componentry an open position, while Figure 12B

illustrates the device (**400**) having the paired clip componentry in a closed position. As depicted here, the paired clip componentry (**490**) includes a top clip component (**401a**) and a bottom clip component (**401b**). The paired clip componentry (**490**) further includes releasing means (**430**) which allow the componentry to transition to an open position. Figure 12C illustrates the flap component as having been removed from the paired clip componentry. This can be done, for example, upon completion of treatment. In these exemplifications, only a single flap component is shown, e.g., a bottom flap component, but other exemplifications may include more than one flap component, e.g., a bottom flap component and a top flap component.

[00223] Referring to the drawings of Figures 13A-13C, these provide perspective views (right side) of particular embodiments of the paired clip componentry. Figure 13A illustrates the componentry (**590**) in an open position, while Figure 13B illustrates the componentry (**590**) in a closed position. As depicted here, the paired clip componentry (**590**) includes a top clip component (**501a**) and a bottom clip component (**501b**). The paired clip componentry (**590**) further includes a locking and release system (**581, 582**) which allow the componentry to transition between an open position and a closed position. In Figure 13C, the tool engagement means (**570**), e.g., for a comb, brush, pick, applicator, etc, is also shown.

[00224] Referring to the drawings of Figures 14A and 14B, these provide cross-sectional views for particular embodiments of the device, as positioned on a head of hair. Referring to Figures 15A and 15B, these provide perspective views (right side) for alternative embodiments of the paired clip componentry. Figure 15A illustrates an "alligator clamp" exemplification, while Figure 15B illustrates a "parallel clamp" exemplification.

[00225] Referring to the drawings of Figures 16A-16C, these provide views of a particular embodiment of the device which includes a flap component but does not include a clip component or paired clip componentry.

[00226] Figure 16A shows the inside of the device as depicted in an open position. The inside of the device faces the user, when the device is put into place, the device being in an open position. Shown are the front (**651a**) and back (**651b**) portions of the flap

component (front and back oriented correctly when closed). Shown also are the front (**652a**) and back (**652b**) guard rails of the flap component (front and back oriented correctly when closed). Noted are the plurality of projections (**601**; teeth), arranged along the leading edge of the flap component. These are shown as being positioned perpendicular or essentially perpendicular to the flap component. In this way, the plurality of projections (**601**; teeth) project outward towards the user, when the device is put into position Noted also is the tensioning means (**602**; hub and spokes), which assists in tensioning the section of hair against the flap component. An optional textured region (**605**) is shown; this also assists in securing the hair onto the flap component. Noted as well is a secondary tensioning means (**603**; optional feature), which is shown as a protuberance.

[00227] Figure 16B shows the outside of the device as depicted in an open position. The outside of the device faces the scalp, when the device is put into place, the device being in an open position. Shown are the supporting arms (**610**) and also the supporting body (**611**), which together make a Y formation. The supporting arms (**610**) extend toward the left and right of the leading edge of the flap component. The supporting body (**611**) contains the optional locking mechanism (**612**; button), which actuates locking and unlocking of the tensioning means. Shown also are the bracing elements (**613**), which span between the left and right sides of the leading edge. Although not depicted in this view of the device, the bracing elements (**613**) may attach to the plurality of projections (**601**; teeth).

[00228] Figure 16C shows the device in a closed position. In the closed position, the optional reservoir (**653**) of the flap component extends outwards, towards the user. In this way, the reservoir (**653**) can provide additional space to hold the tensioning means as well as the hair tensioned thereby. As an illustration of the closing motion, the front portion (**651a**) of the flap component in Figure 16A will fold toward the back portion (**651b**) of the flap component in Figure 16A, with the front portion (**651a**) coming forward (i.e., towards the reader, out of the plane of the page) while closing.

[00229] Referring to the drawings of Figures 17A-17J, these provide perspective views of the employment of a particular embodiment of the device. The device depicted here includes a flap component but does not include a clip component or paired clip

componentry. Figures 17A-17B illustrate sectioning the hair and positioning the device (**600**) in place. Figures 17C-17D illustrate use of a comb to section the hair and assist in positioning device (**600**). Figure 17E shows the section of hair (**H**) wrapped around the tensioning means (**602**; hub and spokes), but with the tensioning means in an unlocked positioned. Figure 17F shows the tensioning means (**602**; hub and spokes) in the locked position, with the section of hair (**H**) being tensioned. Figure 17G shows the device (**600**) in the closed position. Figure 17H shows multiple devices (**600**) stacked vertically on the back of the head. Figure 17I shows multiple devices (**600**) arranged longitudinally on the back of the head. Figure 17J shows multiple devices (**600**) arranged longitudinally, but viewed from the top of the head.

[00230] Referring to the drawings of Figures 18A-18B, these provide cross-sectional views of a particular embodiment of the device. The device depicted here includes a flap component but does not include a clip component or paired clip componentry. Noted are the tensioning means (**602**; hub and spokes), which is used to assist in tensioning the hair (**H**), and the secondary tensioning means **(603)**, which is an optional feature for use with longer sections of hair, as described herein. Also shown is the locking mechanism (**612**; button), which assists in locking the tensioning means (**602**; hub and spokes) in place over the hair, and in unlocking the tensioning means (**602**; hub and spokes) when release of the hair is desired. Figure 18A shows the tensioning means (**602**; hub and spokes) in an unlocked position, with the hair (**H**) not being tensioned. Figure 18B shows the tensioning means (**602**; hub and spokes) in a locked position, with the hair (**H**) being tensioned.

[00231] In this specification, where reference has been made to external sources of information, including patent specifications and other documents, this is generally for the purpose of providing a context for discussing the features of this disclosure. Unless stated otherwise, reference to such sources of information is not to be construed, in any jurisdiction, as an admission that such sources of information are prior art or form part of the common general knowledge in the art.

[00232] The subject matter of the present disclosure and its embodiments have been described in detail. However, the scope of this subject matter is not intended to be limited to the particular embodiments of any process, manufacture, composition of

matter, compounds, means, methods, and/or steps described in the specification. Various modifications, substitutions, and variations can be made to the disclosed material without departing from the scope and/or essential characteristics of what is disclosed.

[00233] Accordingly, one of ordinary skill in the art will readily appreciate from the disclosure that later modifications, substitutions, and/or variations performing substantially the same function or achieving substantially the same result as embodiments described herein may be utilized according to such related embodiments. Thus, the present disclosure is intended to encompass, within its scope, the modifications, substitutions, and variations to processes, manufactures, compositions of matter, compounds, means, methods, and/or steps set out herein.

[00234] The description herein may contain subject matter that falls outside of the scope of the claimed invention. This subject matter is included to aid understanding of the invention.

WHAT IS CLAIMED IS:

1. A device for applying a hair composition to hair of a subject, the device comprising:

at least one flap component,

wherein the at least one flap component comprises a leading edge that is one or more of: (i) deformable, (ii) arcuate or essentially arcuate in shape, and (iii) generally follows the contour of the scalp of the subject,

wherein the at least one flap component allows engagement with a section of hair of the subject,

wherein the at least one flap component facilitates contact between the section of hair and the composition, and helps to protect the scalp and surrounding hair from contact with the composition, and

wherein the at least one flap component is adapted to fold on itself or to engage with a further flap component.

2. The device of claim 1, wherein the at least one flap component includes at least one of:

(a) one or more positioning means to assist in positioning of the at least one flap component onto the section of hair;

(b) one or more tensioning means to assist in keeping the section of hair tensioned against the at least one flap component;

(c) one or more locking mechanisms to assist in locking and unlocking the one or more tensioning means;

(d) one or more supporting means to assist in shaping the at least one flap component;

(e) one or more raised features to assist in preventing drips or runs of the hair composition;

(f) one or more impedance means so as to prevent or reduce contact between the hair composition and the scalp;

(g) one or more reservoirs to assist in accommodating the section of hair on the flap component;

(h) one or more barrier means for preventing the hair composition from contacting the section of hair until contact is desired;

(i) one or more coloured sections, or one or more clear sections; or

(j) one or more sensing means.

3. The device of claim 2, wherein the one or more positioning means includes one or more projections and/or sticky materials at or proximate to the leading edge of the at least one flap component.

4. The device of claim 2 or claim 3, wherein the one or more positioning means includes a plurality of teeth, bulges, humps, jags, juts, ridges, or any combination thereof, at or proximate to the leading edge of the at least one flap component.

5. The device of any one of claims 2 to 4, wherein the one or more tensioning means includes one or more protuberances and/or one or more ingresses.

6. The device of any one of claims 2 to 5, wherein the one or more tensioning means is selected from the group consisting of knobs, buttons, prongs, pegs, nibs, hooks, fingers, flanges, clasps, hub and spoke configurations, and any combination thereof.

7. The device of any one of claims 2 to 6, wherein the one or more locking mechanism is selected from the group consisting of pins, buttons, levers, and any combination thereof.

8. The device of any one of claims 2 to 7, wherein the one or more supporting means includes one or more of:

(a) supporting arms;

(b) a supporting body; or

(c) a plurality of bracing elements.

9. The device of any one of claims 2 to 8, wherein the one or more raised features comprise one or more lips, ribs, rims, ridges, shoulders, teeth, guard rails, or any combination thereof.

10. The device of any one of claims 2 to 9, wherein:

(a) the one or more impedance means is selected from one or more projections, one or more ingresses, and any combination thereof; or

(b) The one or more impedance means is selected from the group consisting of lips, ribs, rims, ridges, shoulders, teeth, guard rails, channels, dimples, slots, ruts, and any combination thereof.

11. The device of any one of claims 2 to 10, wherein the one or more reservoirs comprise one or more chambers.

12. The device of any one of claims 2 to 11, wherein:

(a) the one or more barrier means comprises one or more sheets, one or more projections, or any combination thereof; or

(b) The one or more barrier means comprises pull tabs, pouches, or any combination thereof.

13. The device of any one of claims 2 to 12, wherein:

(a) the one or more sensing means comprises heat sensors, time sensors, or any combination thereof; and/or

(b) the one or more sensing means communicates data to one or more electronic devices and/or one or more databases.

14. The device of any one of claims 2 to 13, wherein the tensioning means includes one or more textures and/or one or more sticky materials to assist in keeping contact with the section of hair.

15. The device of any one of claims 1 to 14, wherein the at least one flap component is comprised of one or more plastics, elastomers, resins, or any combination thereof.

16. A kit for applying a hair composition to hair of a subject, the kit comprising:

(a) the device according to any one of claims 1 to 15, and

(b) optionally, instructions for use.

17. The kit of claim 16, which includes at least one of:

(a) one or more hair tools; or

(b) one or more hair compositions.

18. The kit of claim 17, wherein the one or more hair tool is selected from the group consisting of brushes, combs, picks, applicators, and any combination thereof.

19. The kit of claim 17, wherein the one or more hair composition is selected from colouring compositions, highlighting compositions, lowlighting compositions, and any combination thereof.

20. A method of preparing a device for applying a hair composition to hair of a subject, the method comprising:

obtaining at least one flap component according to any one of claims 1 to 15.

21. A method of utilising the device according to any one of claims 1 to 15, comprising:

(a) engaging a flap component with a section of hair of the subject, and positioning the section of hair onto the flap component;

(b) optionally, tensioning the section of hair onto the flap component;

(c) applying the hair composition to the section of hair;

(d) folding or rolling the flap component over the section of hair or adding a further flap component over the section of hair, and allowing treatment for a necessary duration.

22. The method of claim 21, wherein the applying of the hair composition is via a composition reservoir provided with the at least one flap component.

23. The method of claim 21, wherein the applying of the hair composition is via a pouch or chamber provided with the at least one flap component.

24. The method of any one of claims 21 to 23, wherein the necessary duration is communicated by one or more sensing means on the device to one or more electronic devices.

25. The method of any one of claims 21 to 24, wherein the device is removed and cleaned following treatment.

26. The method of any one of claims 21 to 25, wherein steps (a)-(d) are repeated for additional sections of hair until all desired sections of hair are treated.

FIG. 1

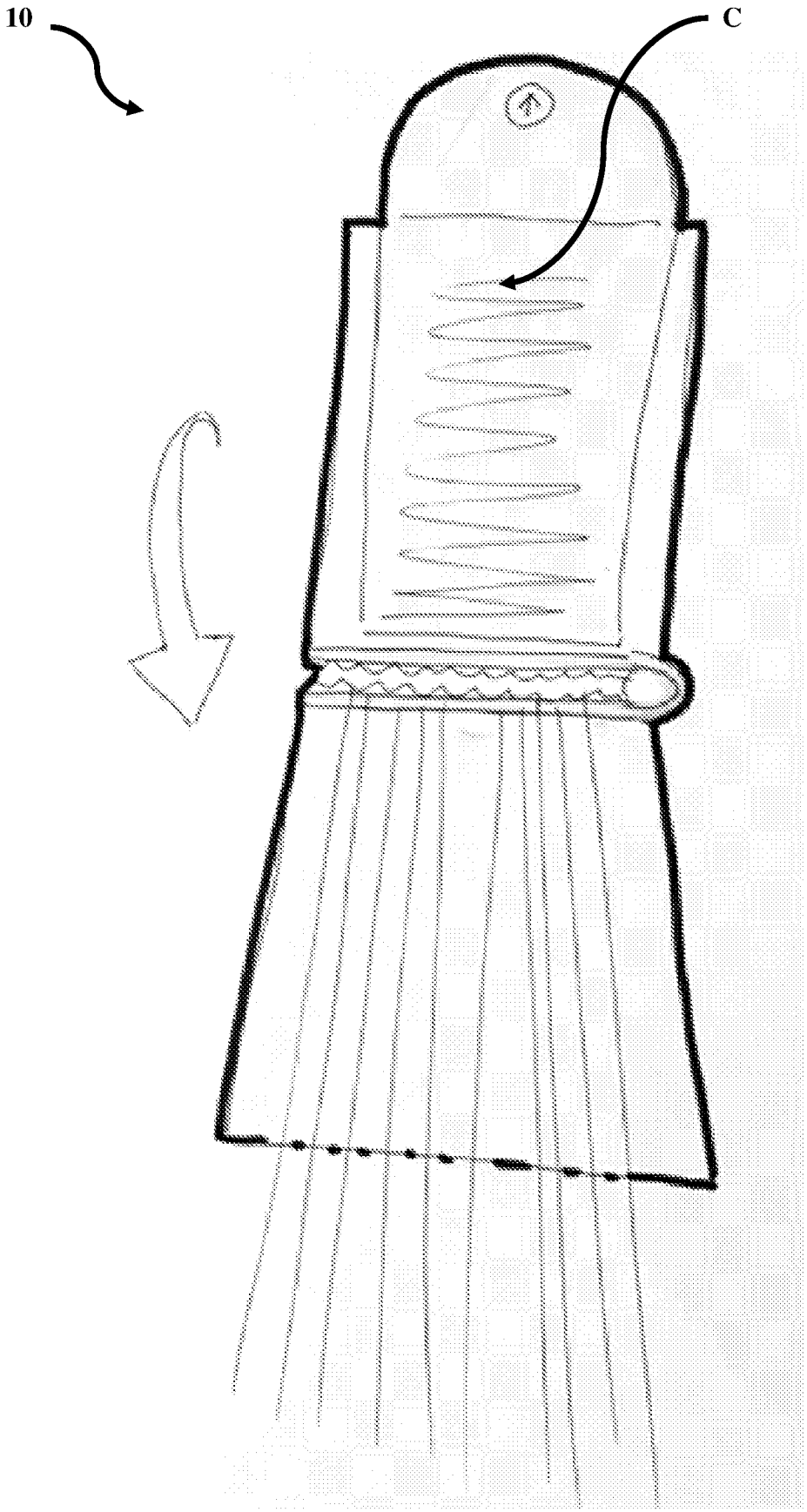


FIG. 2

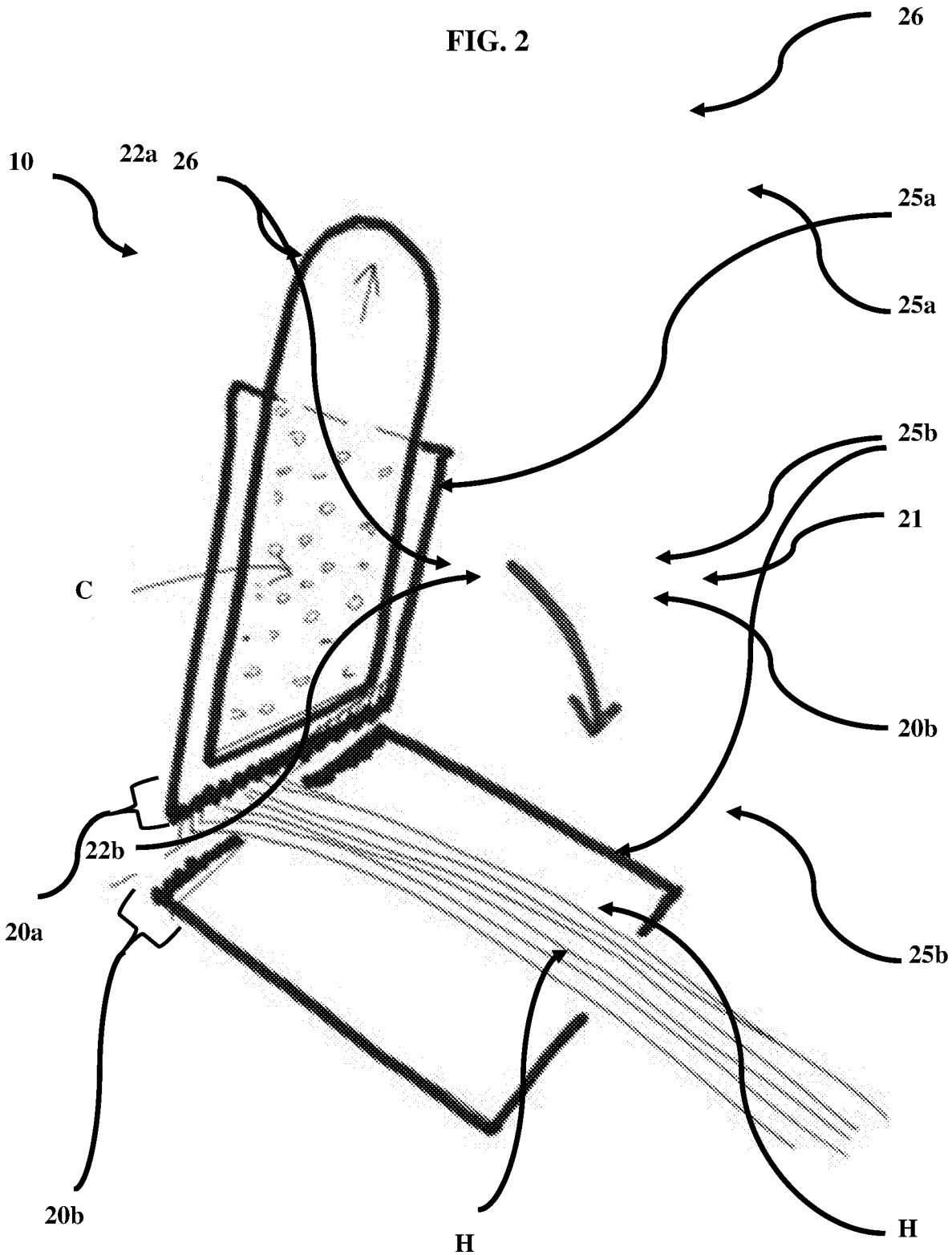


FIG. 3

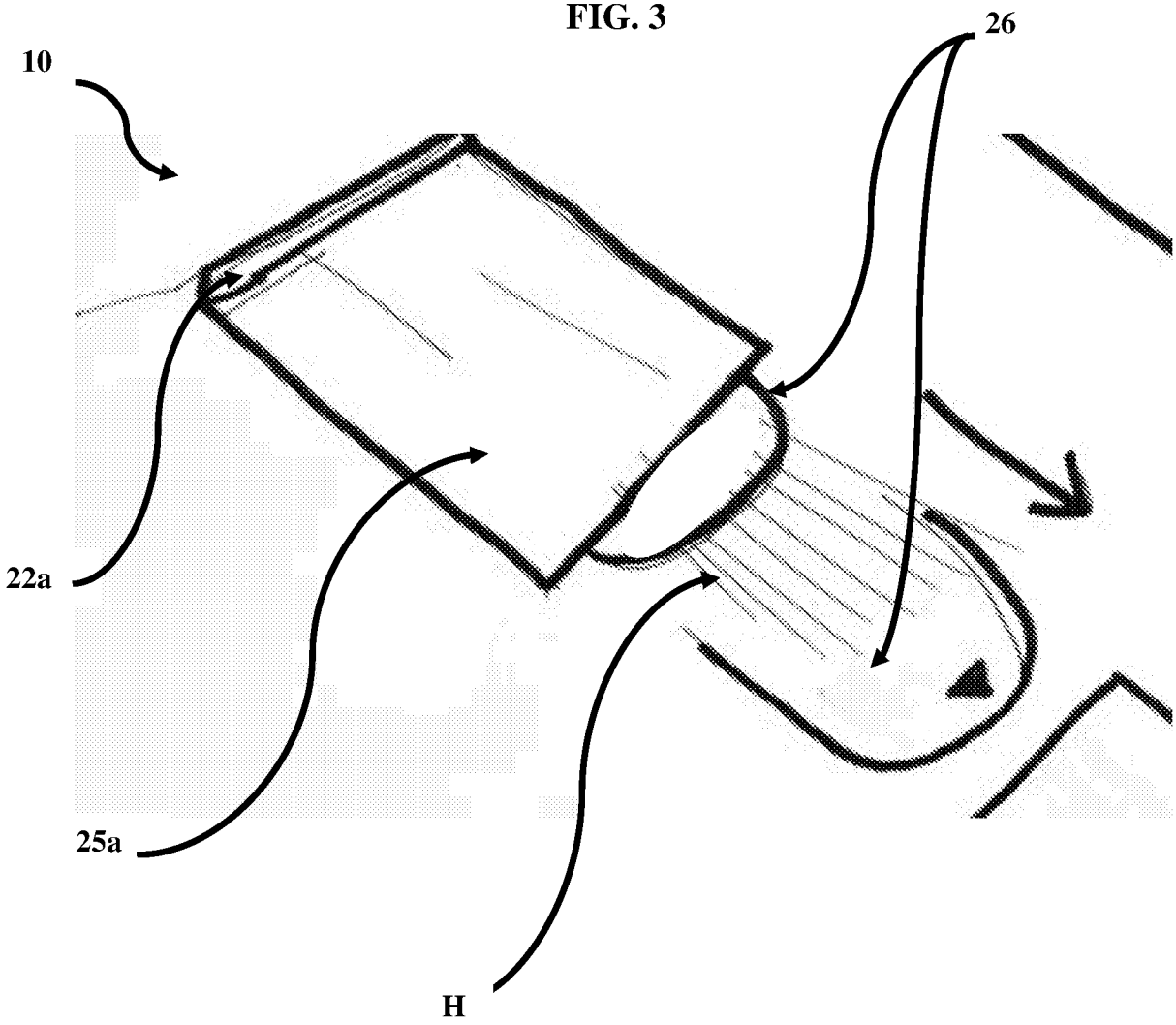


FIG. 4A

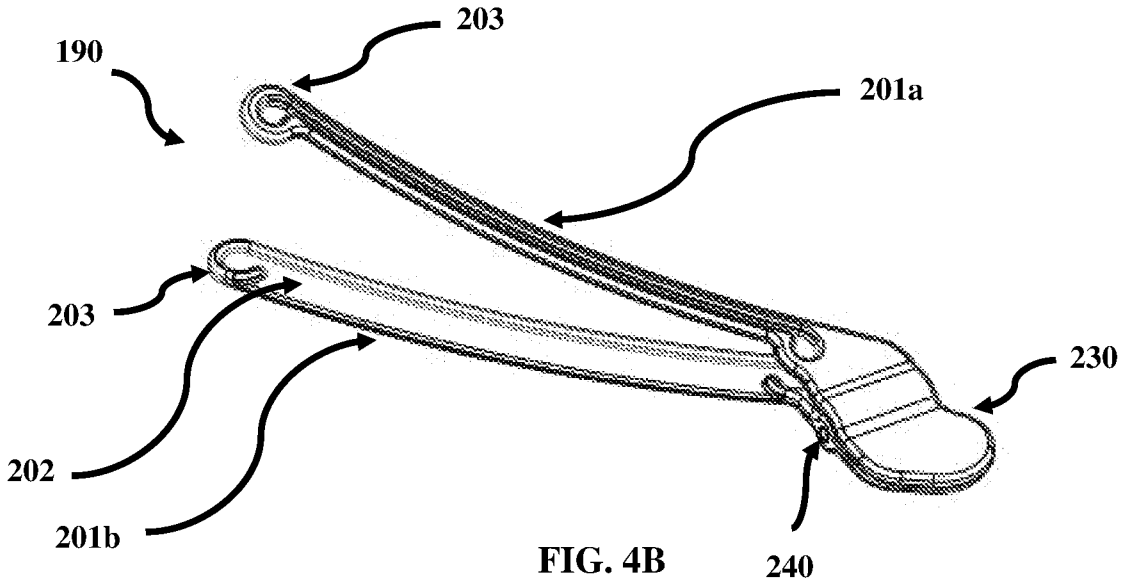


FIG. 4B

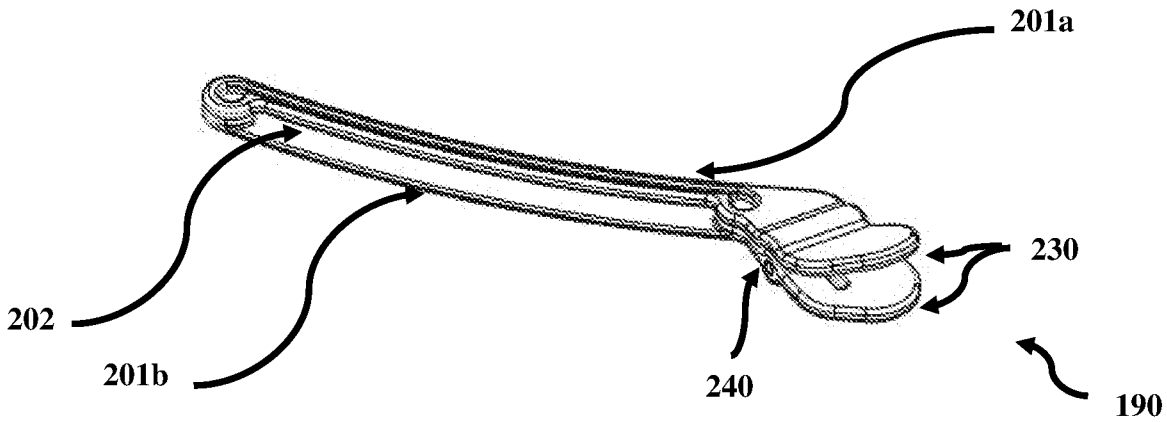


FIG. 4C

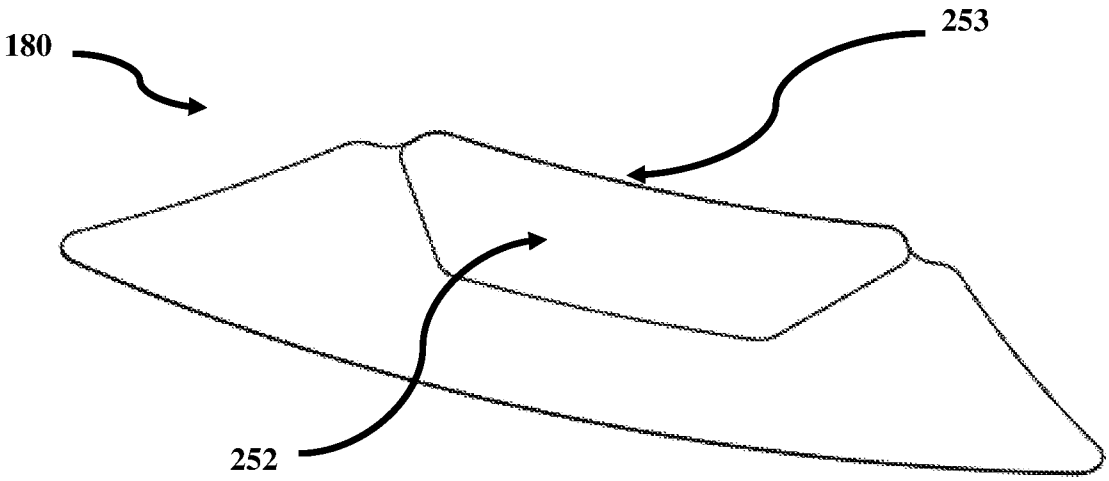


FIG. 5A

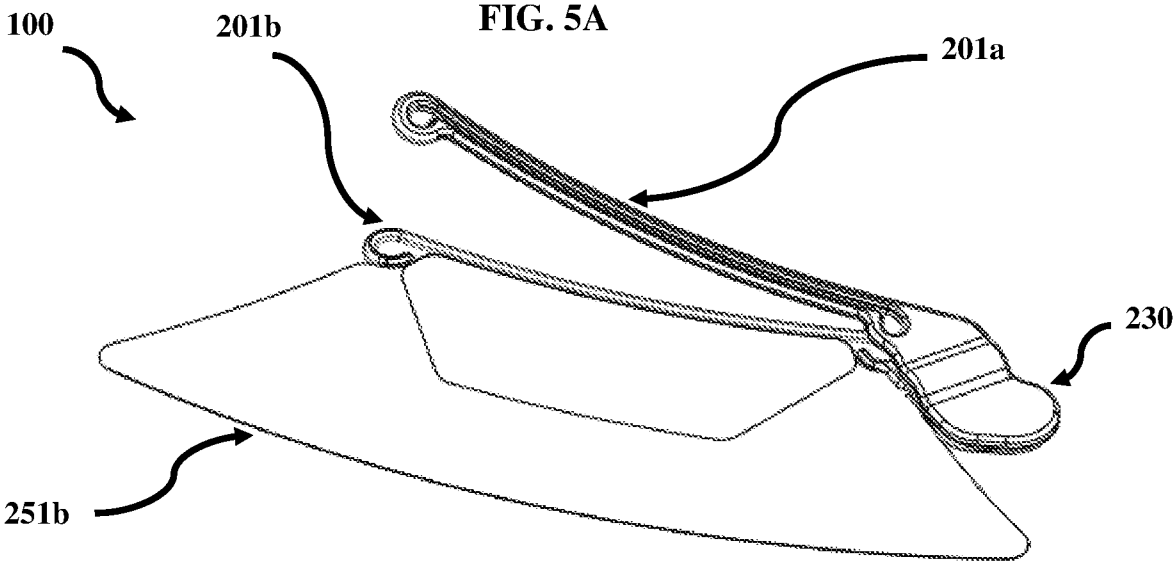


FIG. 5B

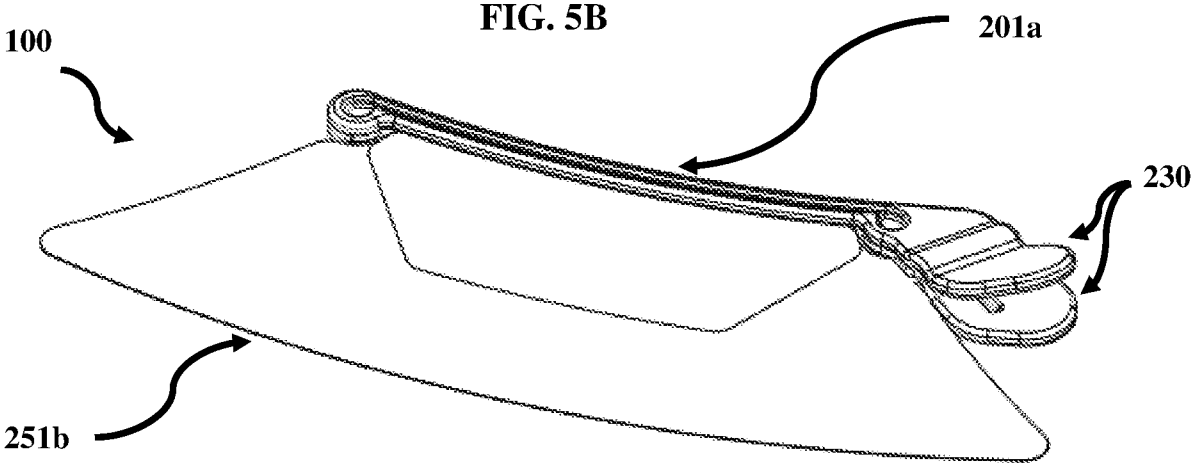


FIG. 5C

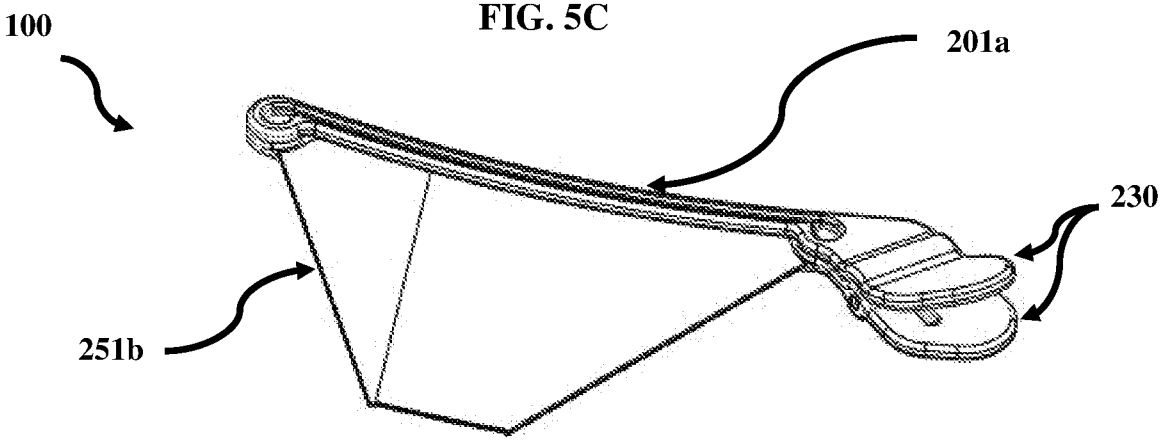


FIG. 6A

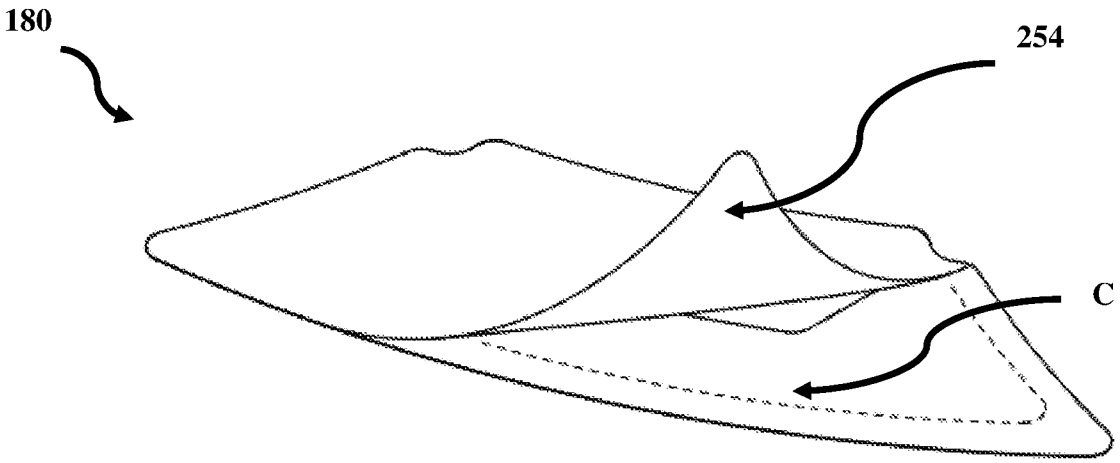


FIG. 6B

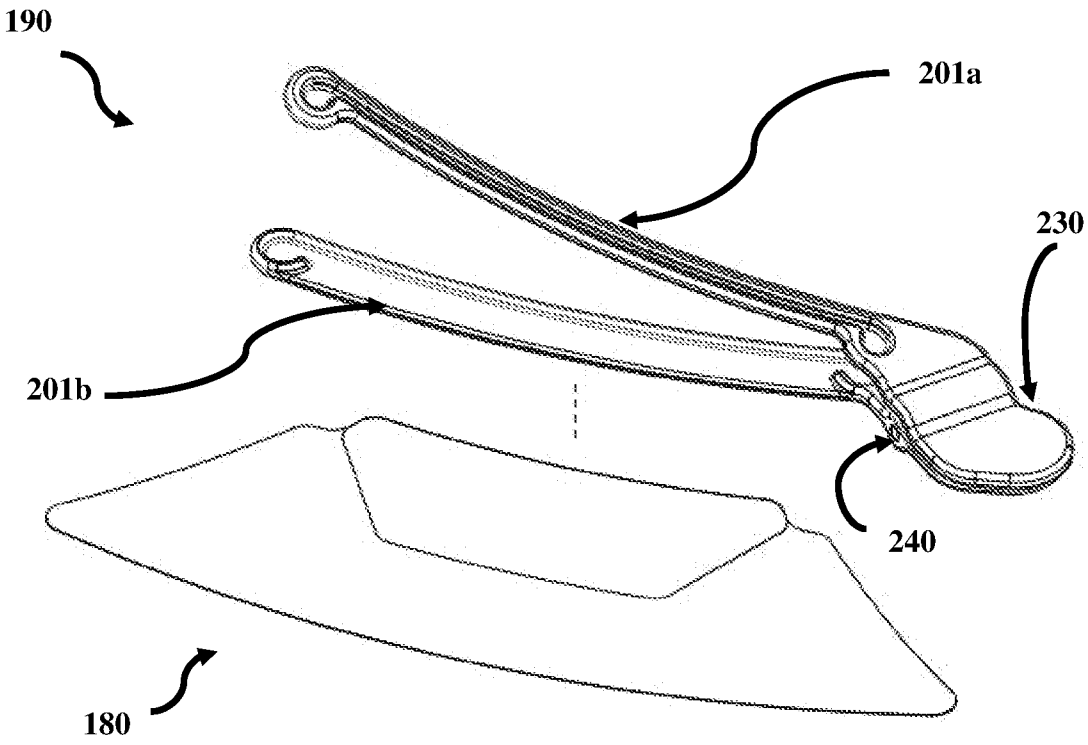


FIG. 7A

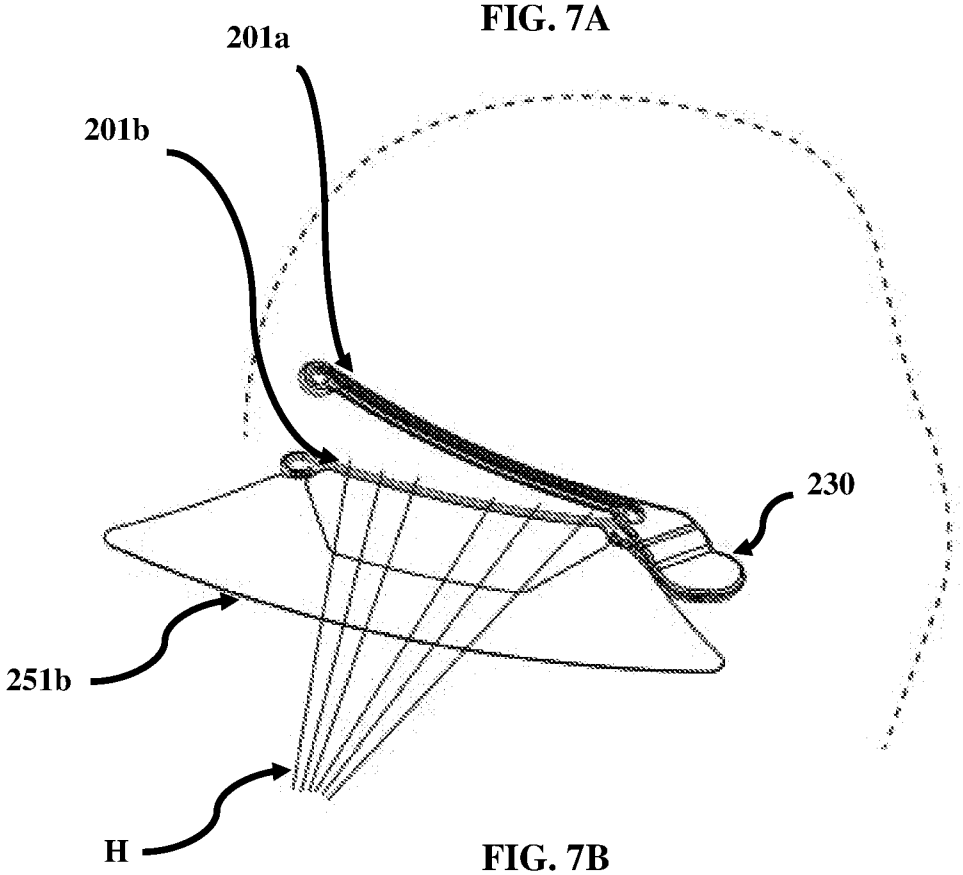


FIG. 7B

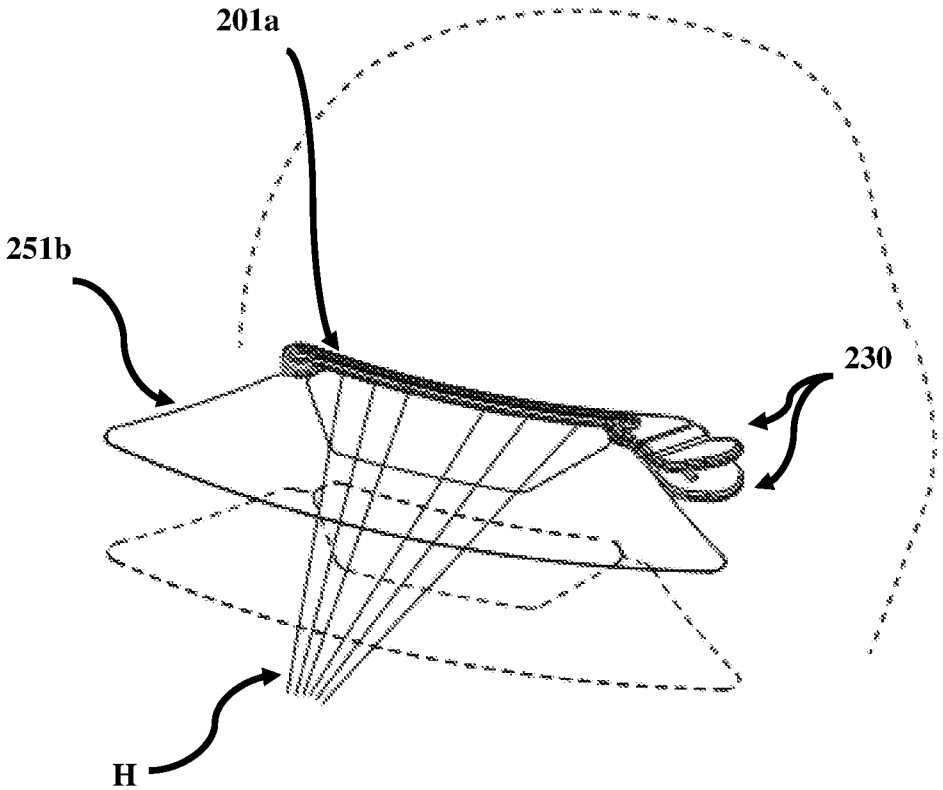


FIG. 8A

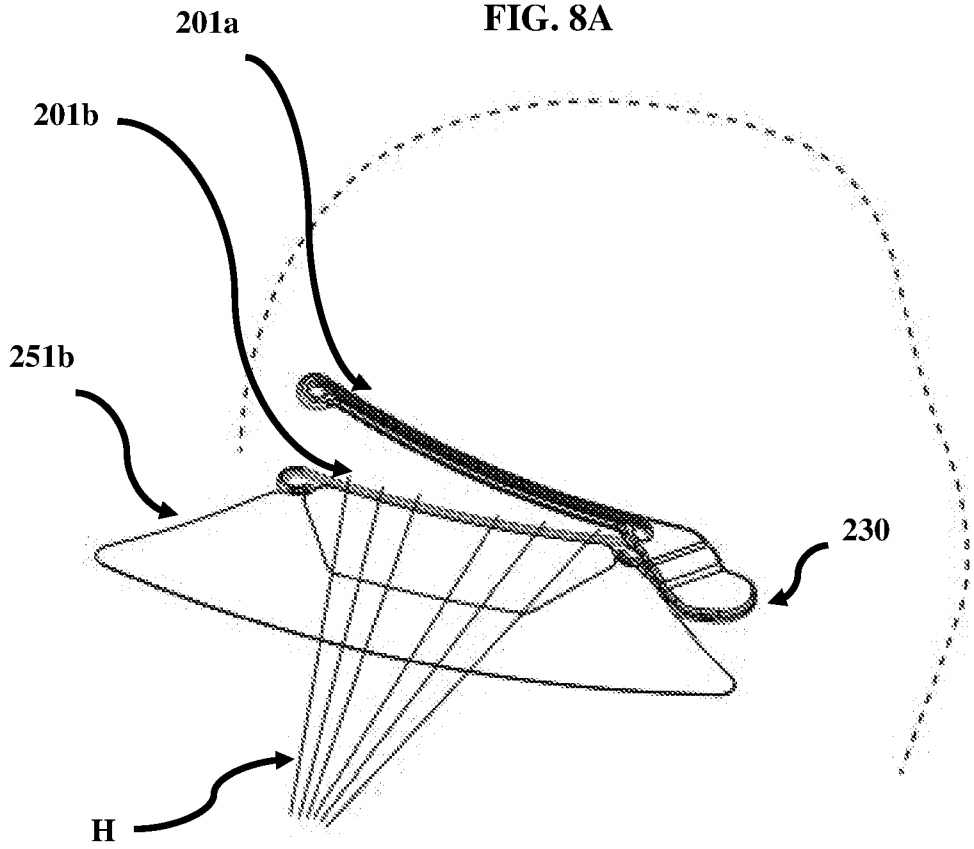


FIG. 8B

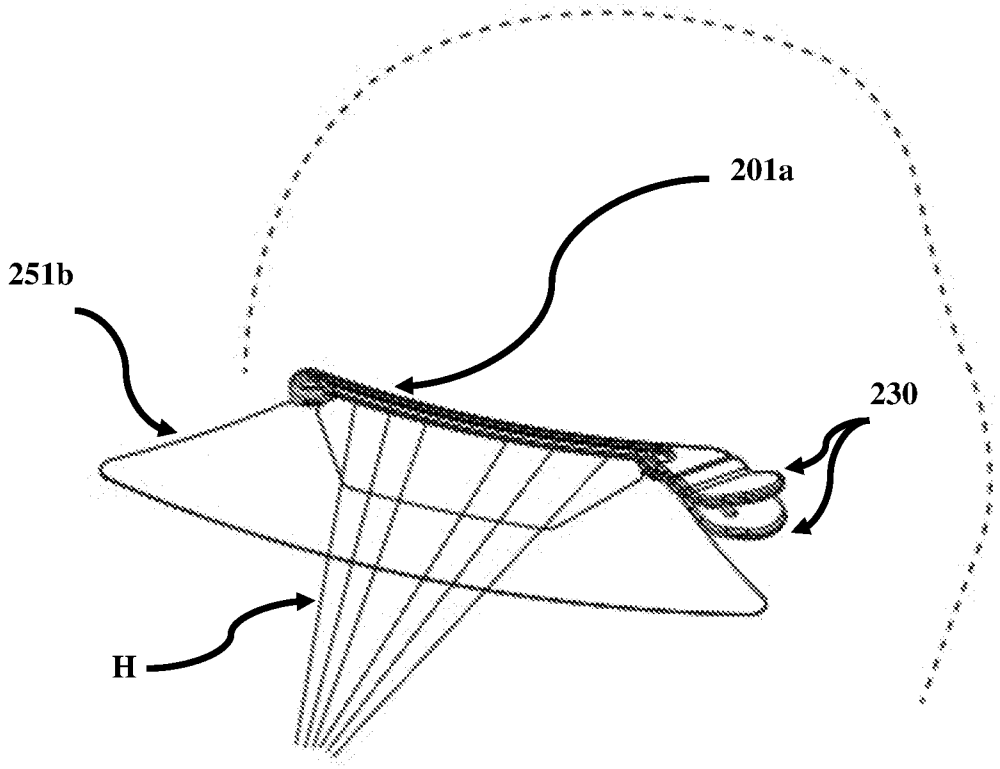


FIG. 9A

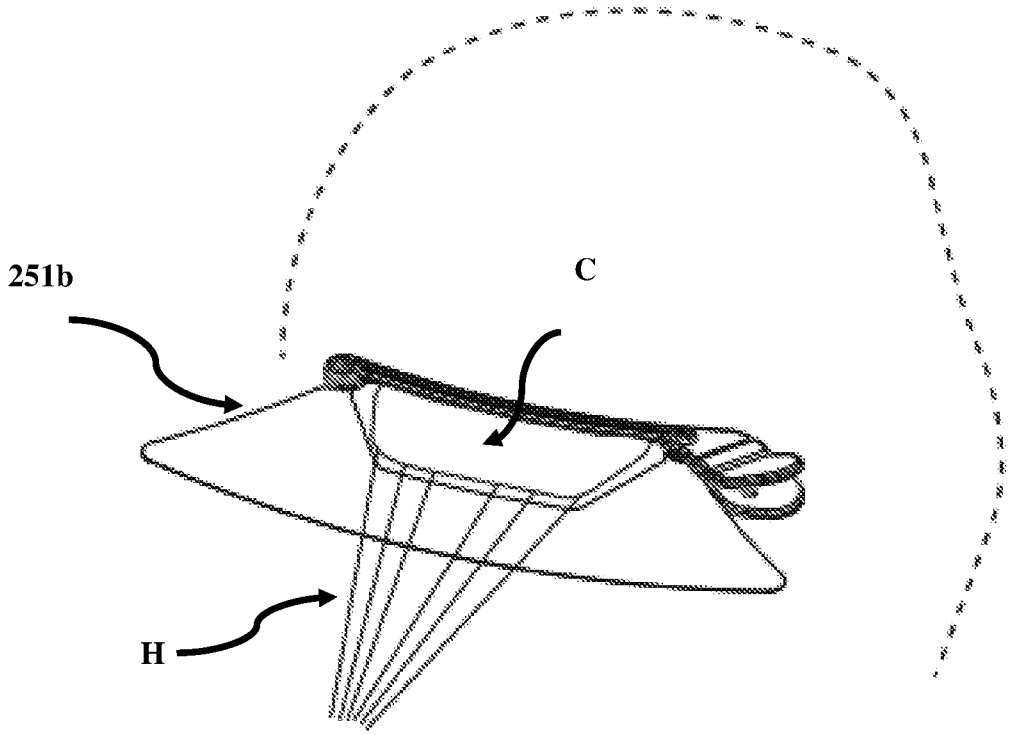


FIG. 9B

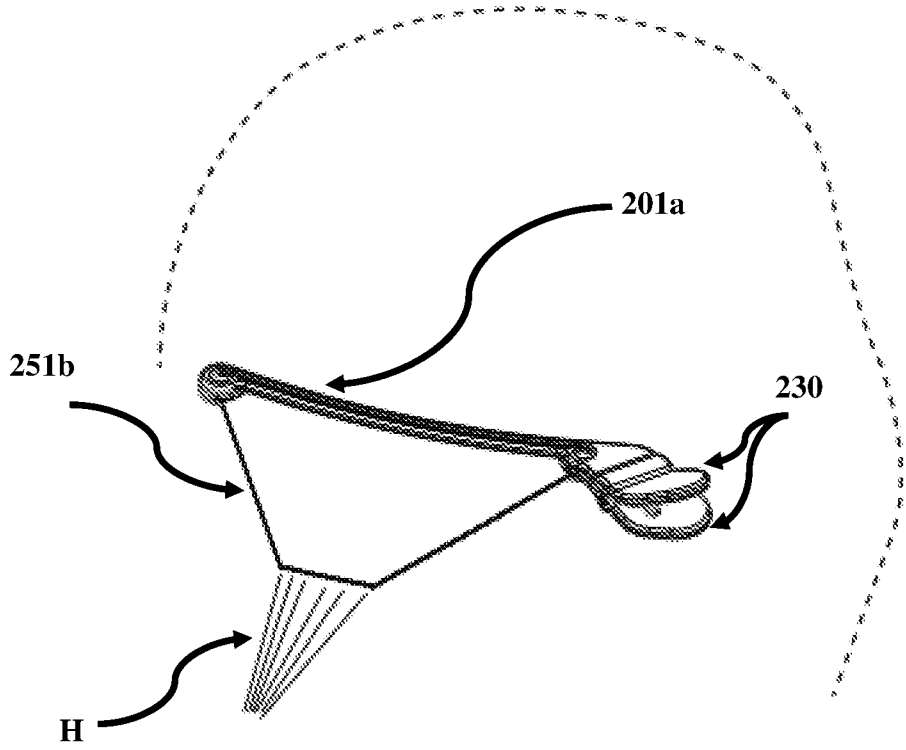


FIG. 10A

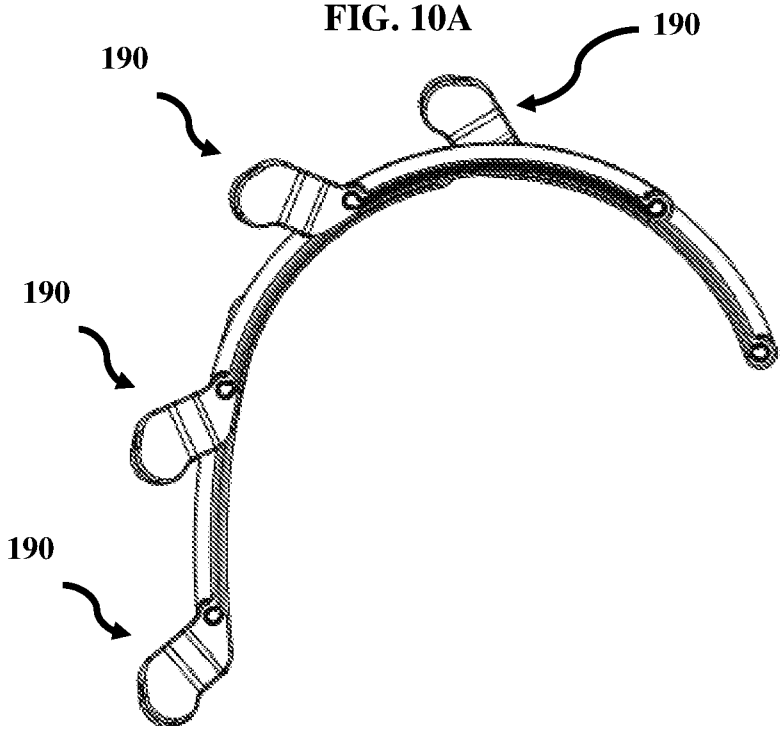


FIG. 10B

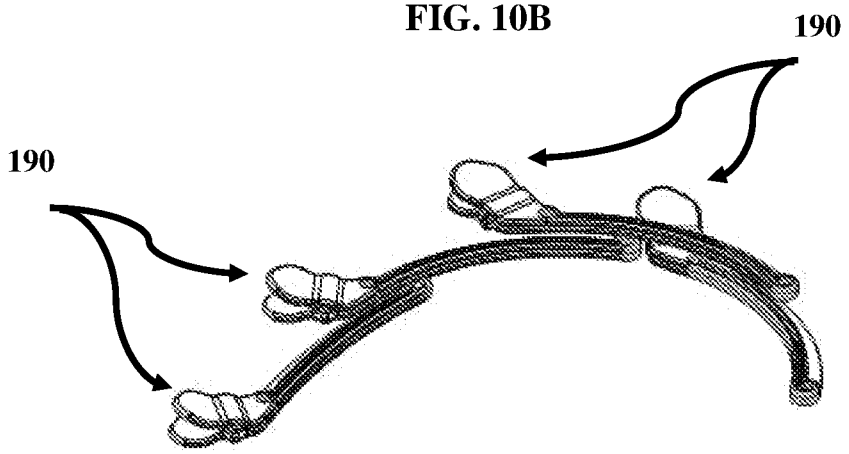


FIG. 10C

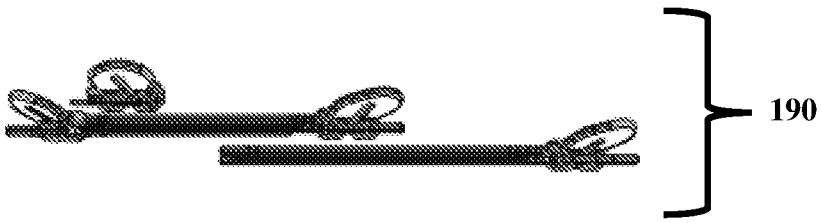


FIG. 10D

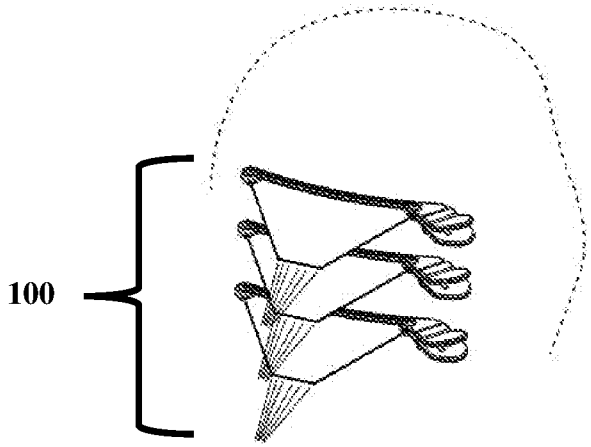


FIG. 10E

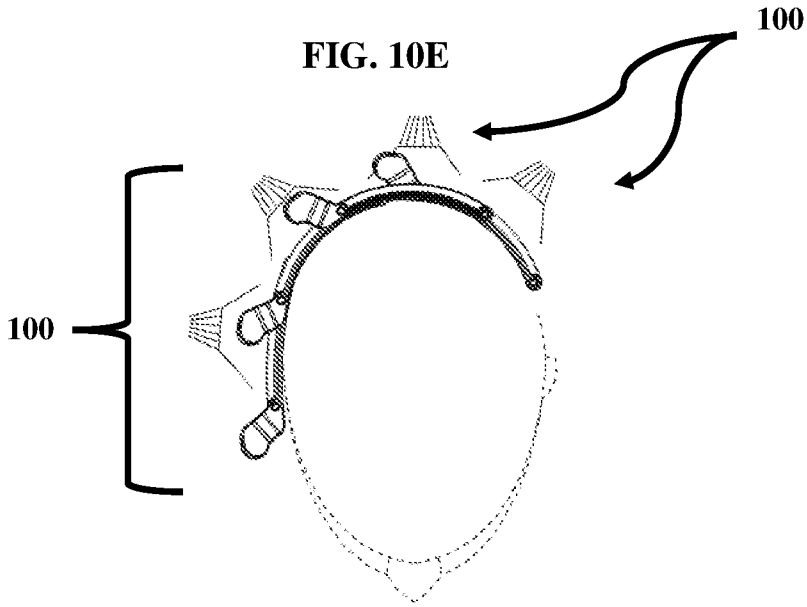
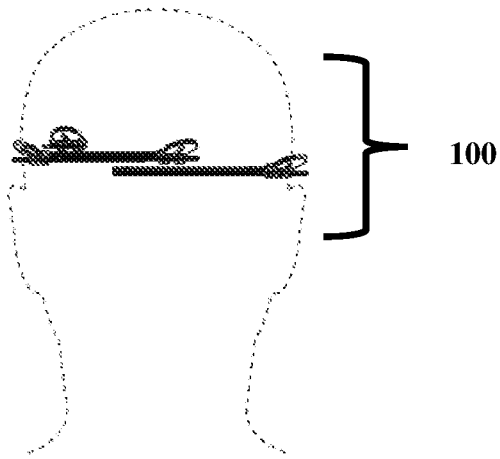


FIG. 10F



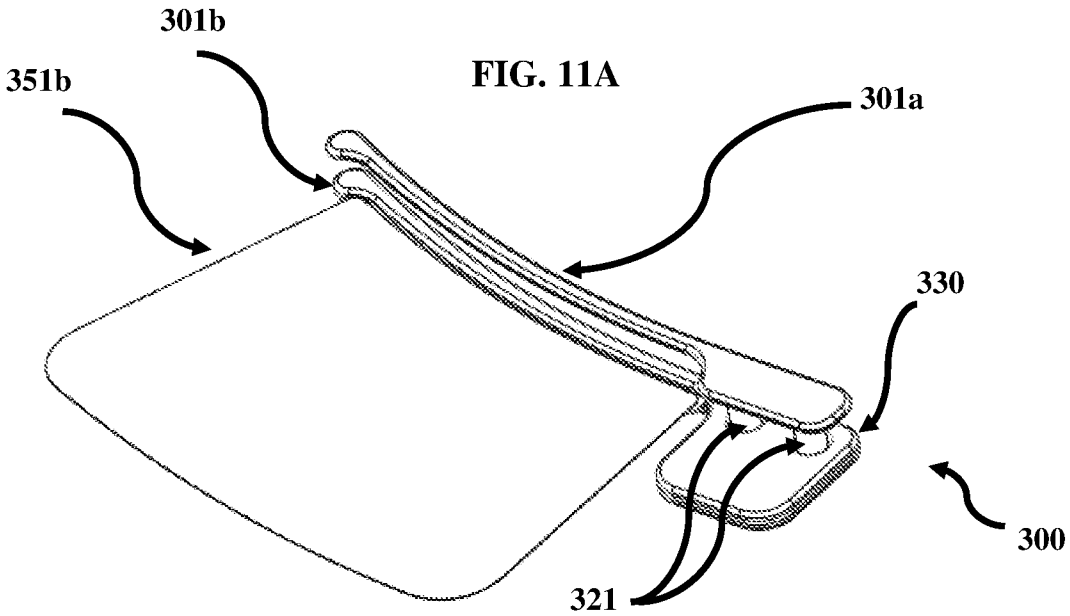


FIG. 11A

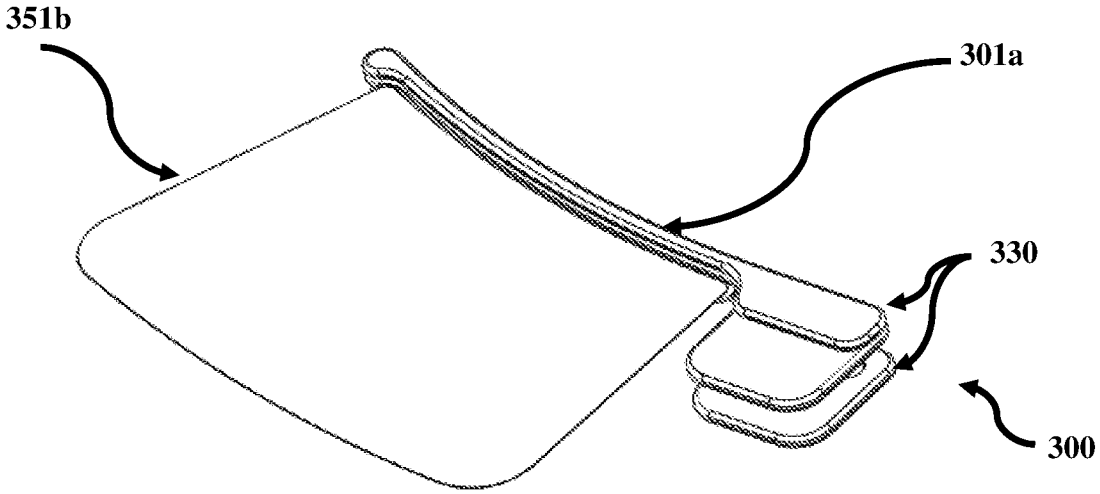


FIG. 11B

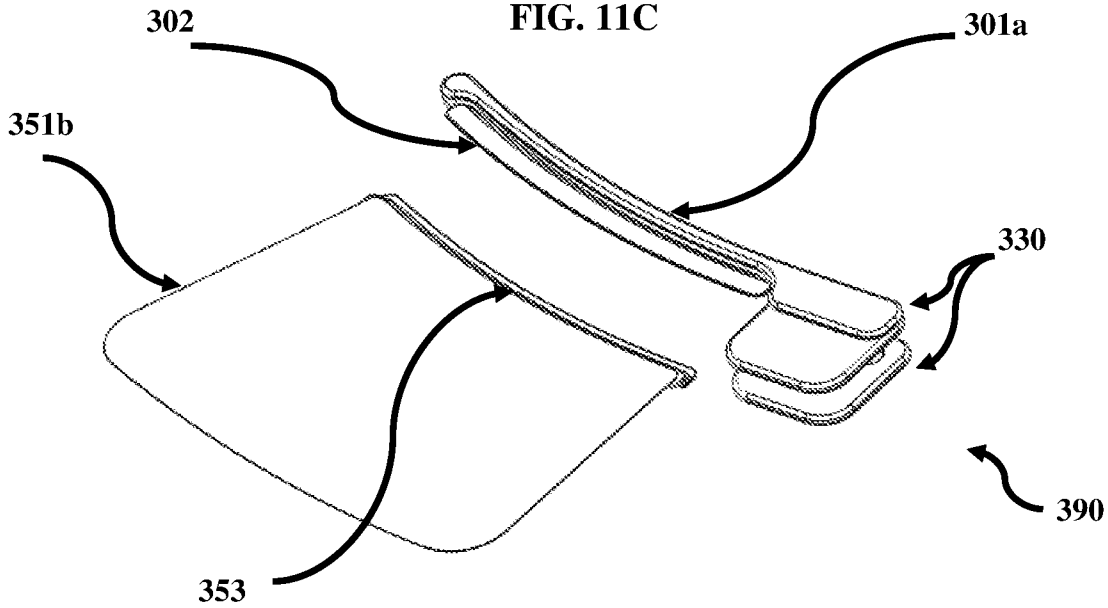


FIG. 11C

FIG. 12A

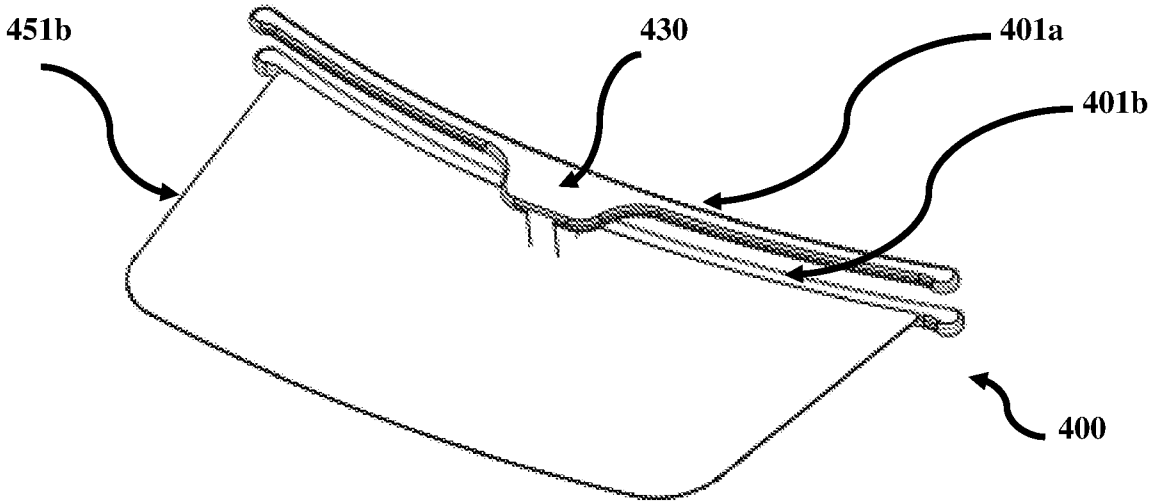


FIG. 12B

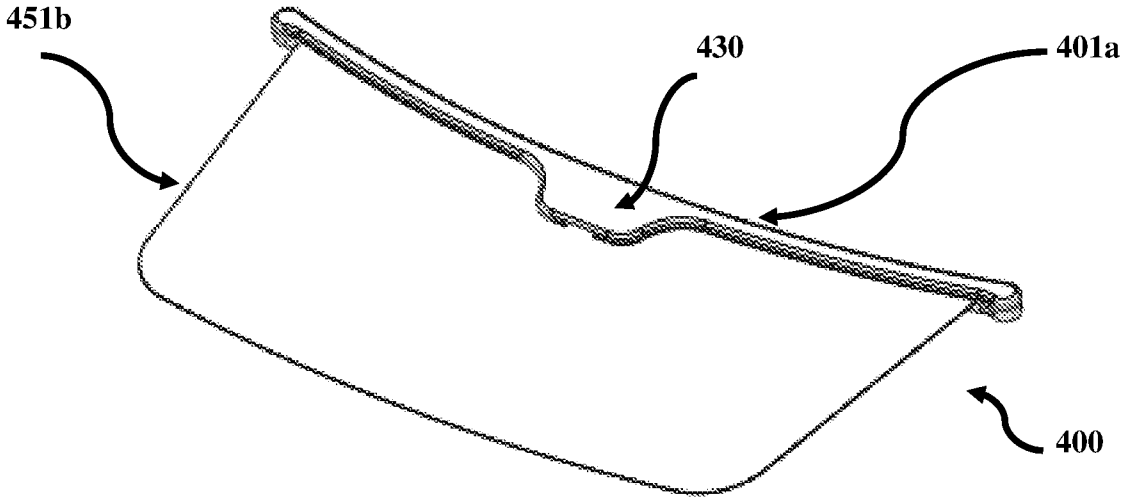


FIG. 12C

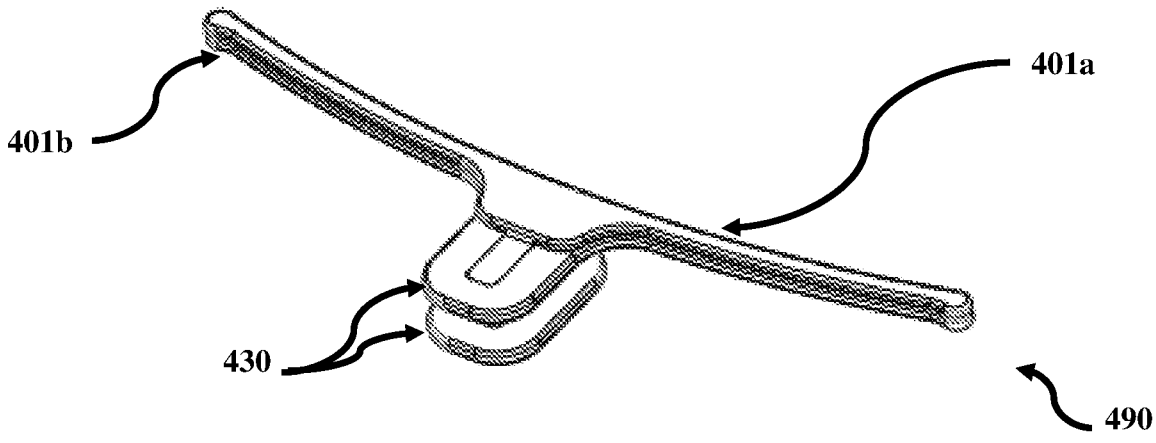


FIG. 13A

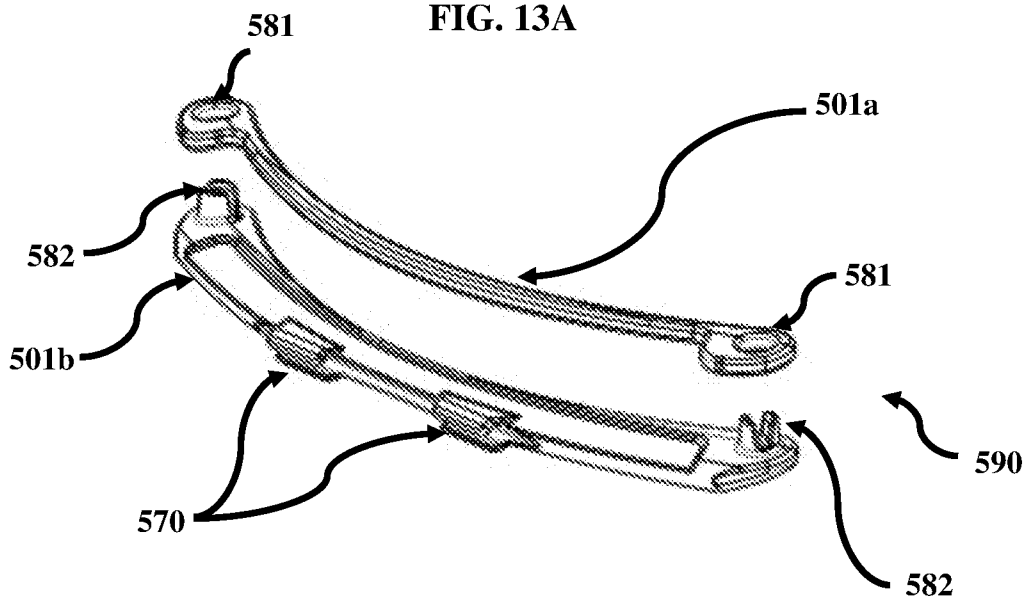


FIG. 13B

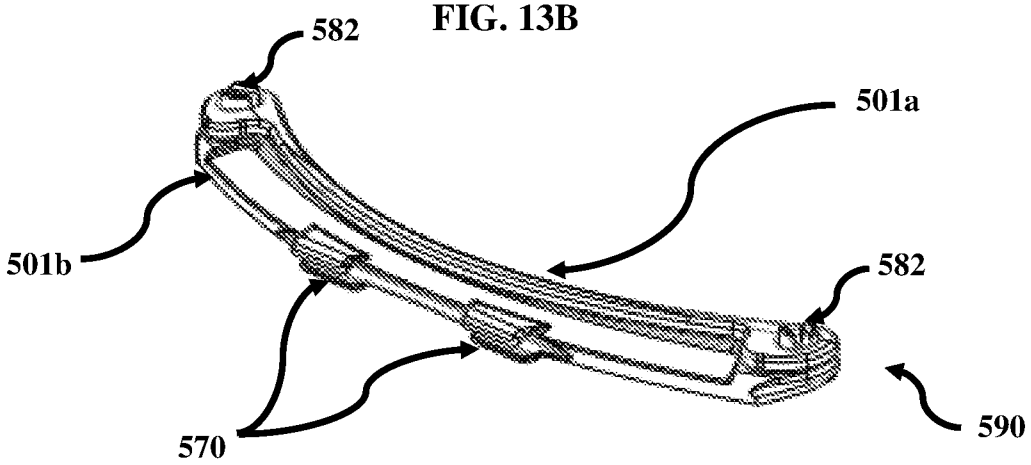


FIG. 13C

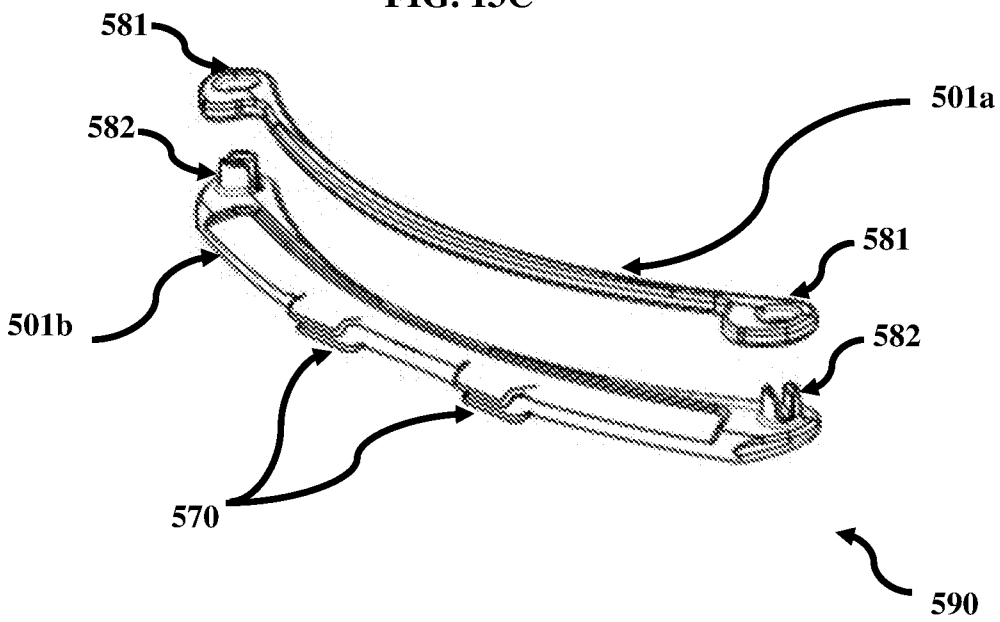
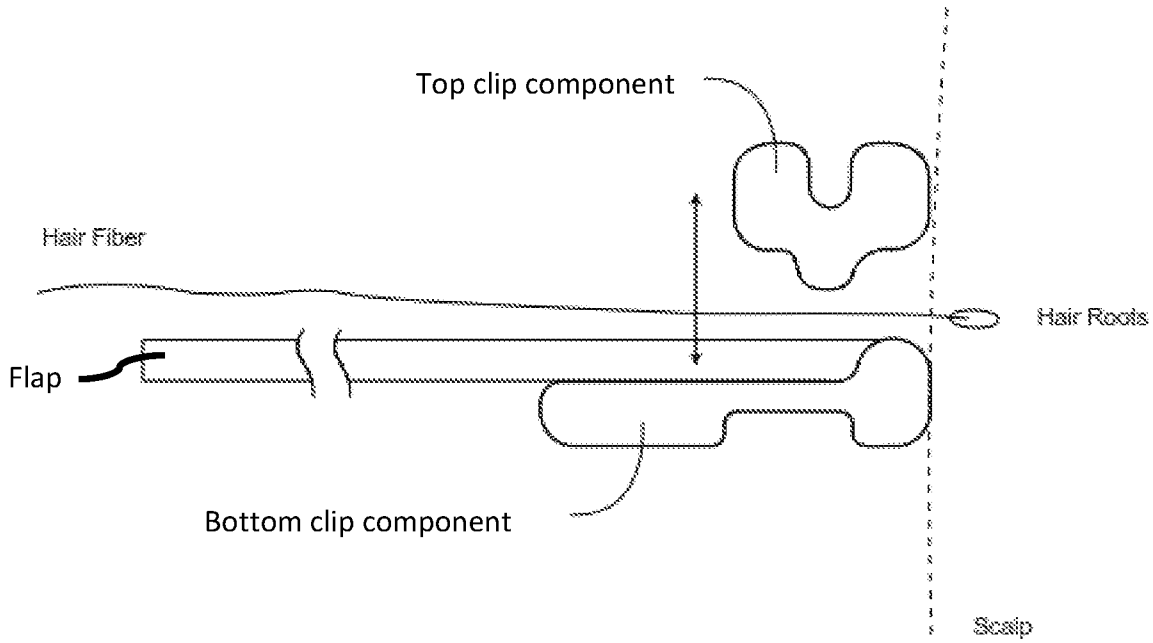
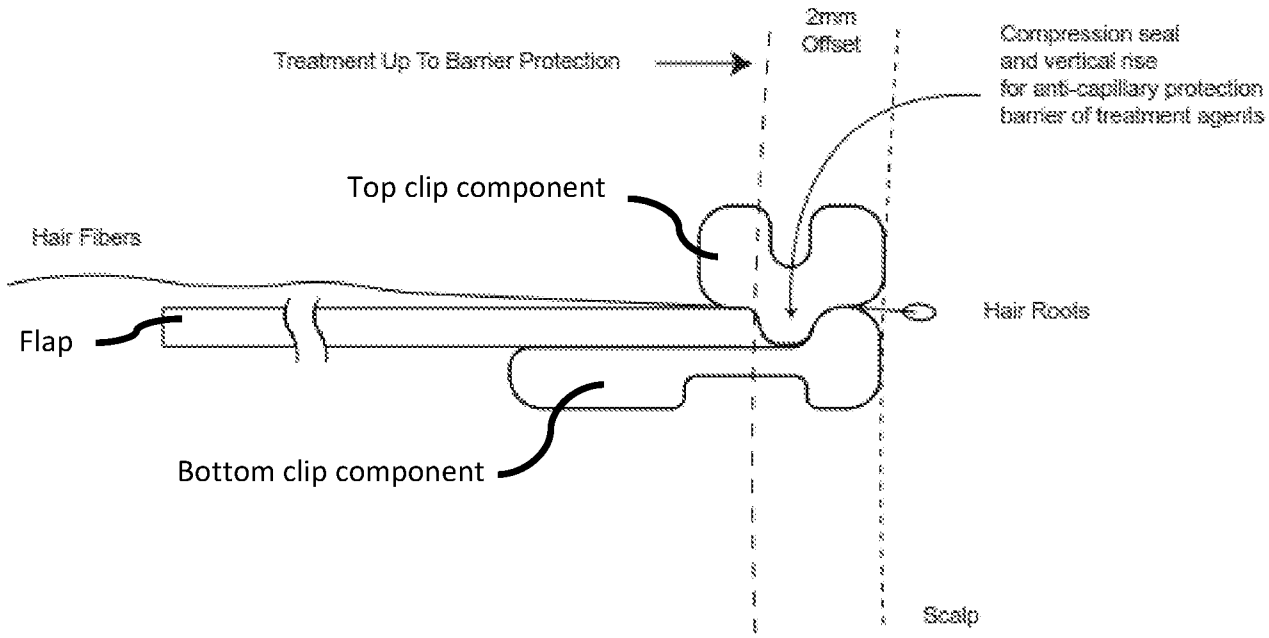


FIG. 14A



Open Clip - Sectional View

FIG. 14B



Closed Clip - Sectional View

FIG. 15A

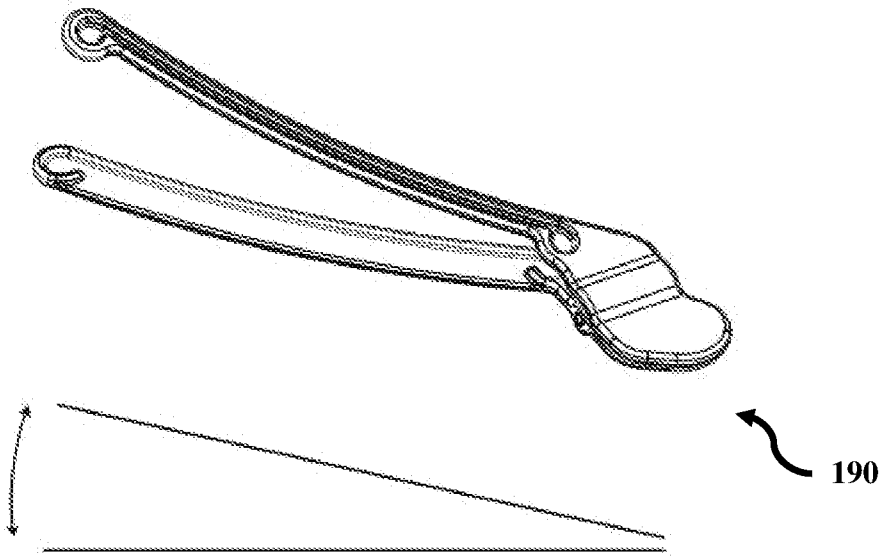


FIG. 15B

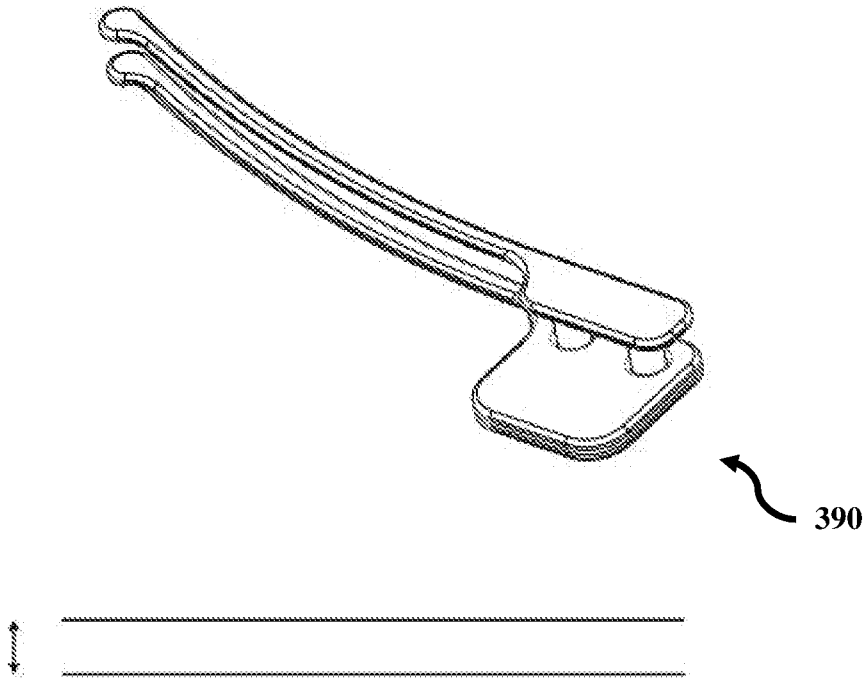


FIG. 16C

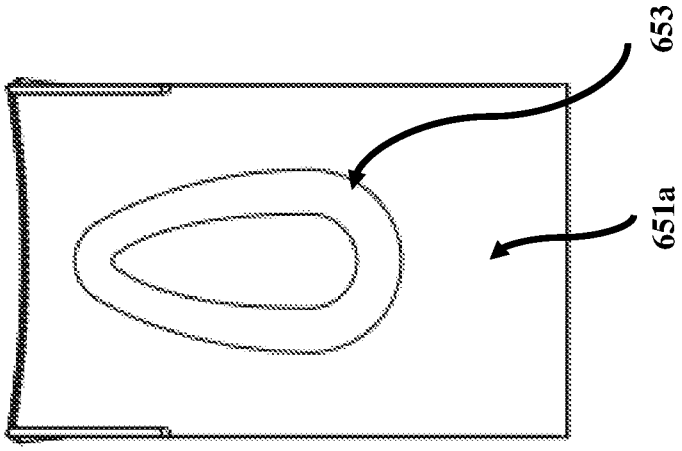


FIG. 16B

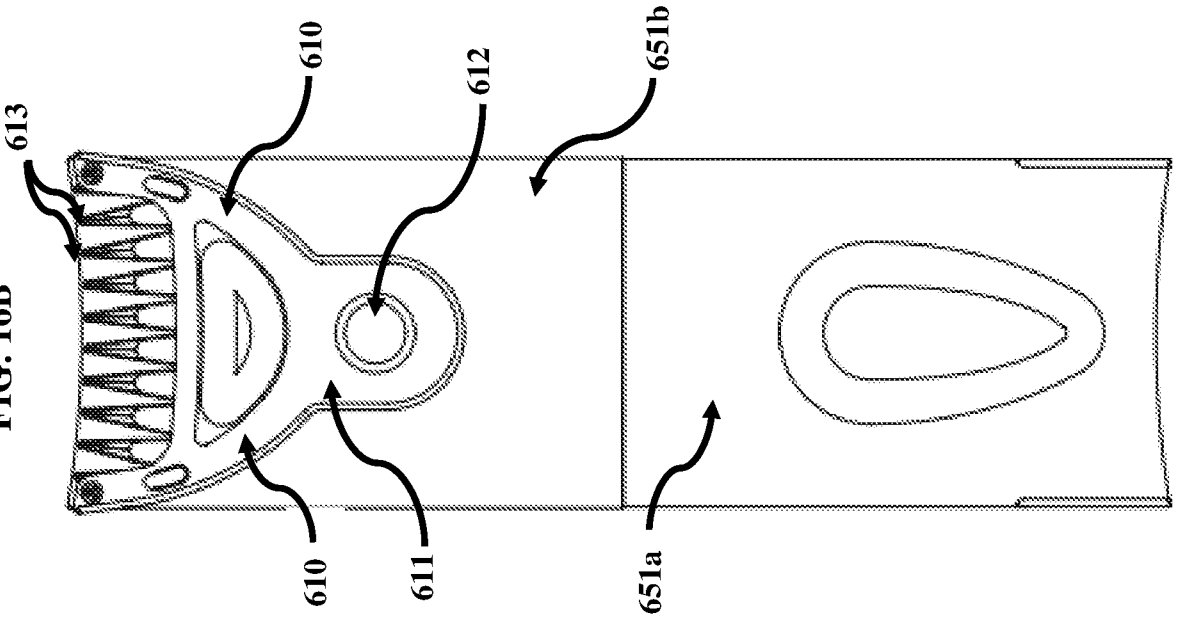


FIG. 16A

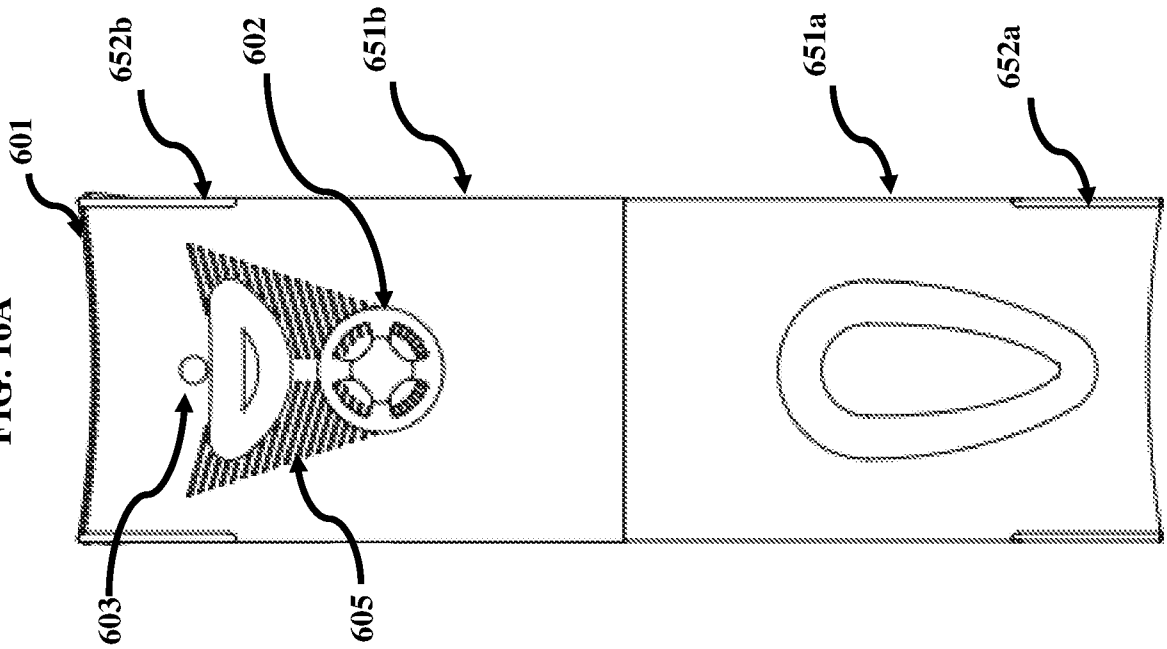


FIG. 17A

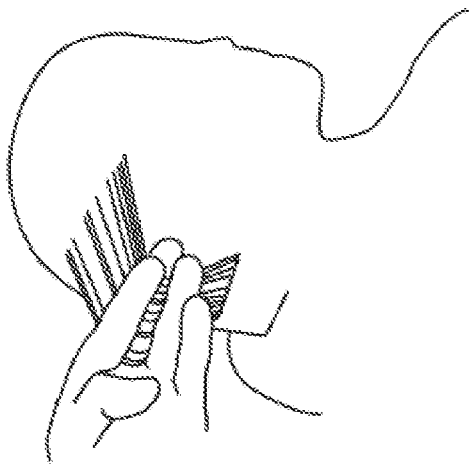


FIG. 17B

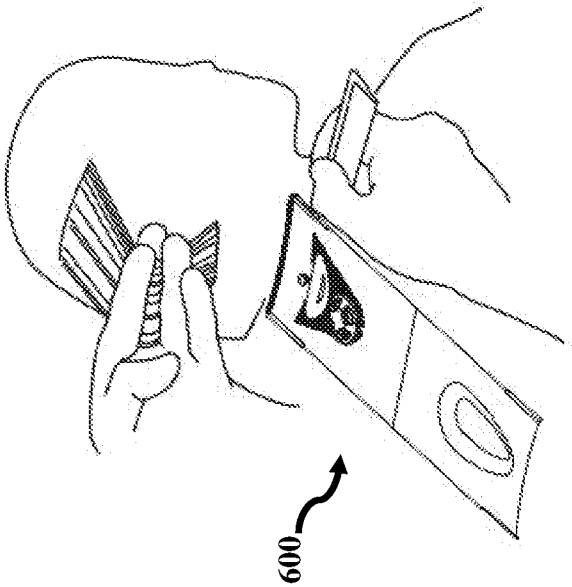


FIG. 17C

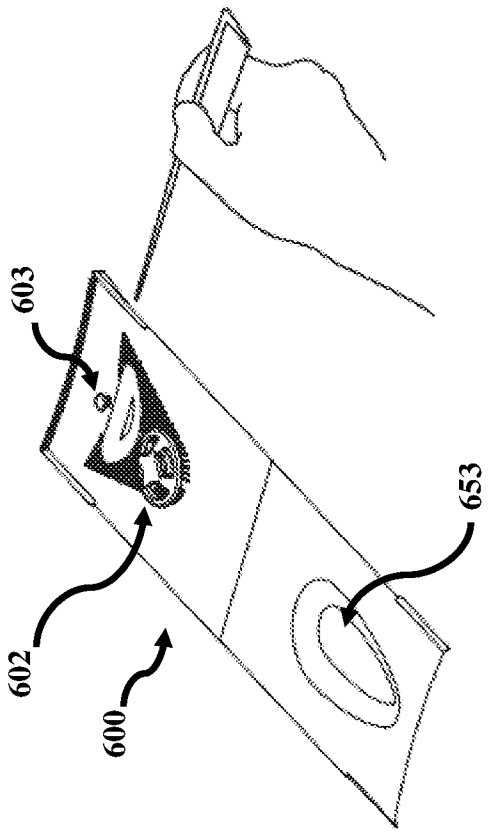


FIG. 17D

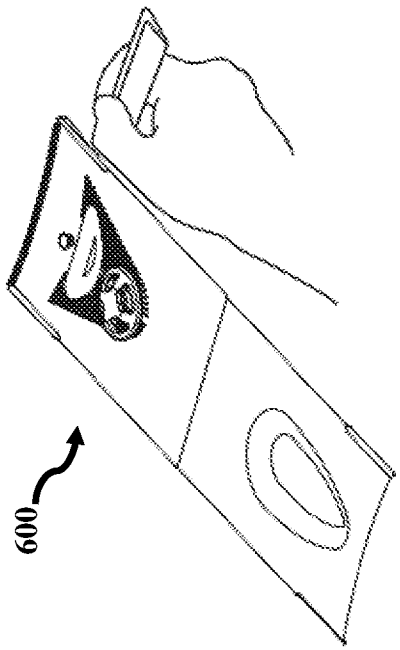


FIG. 17E

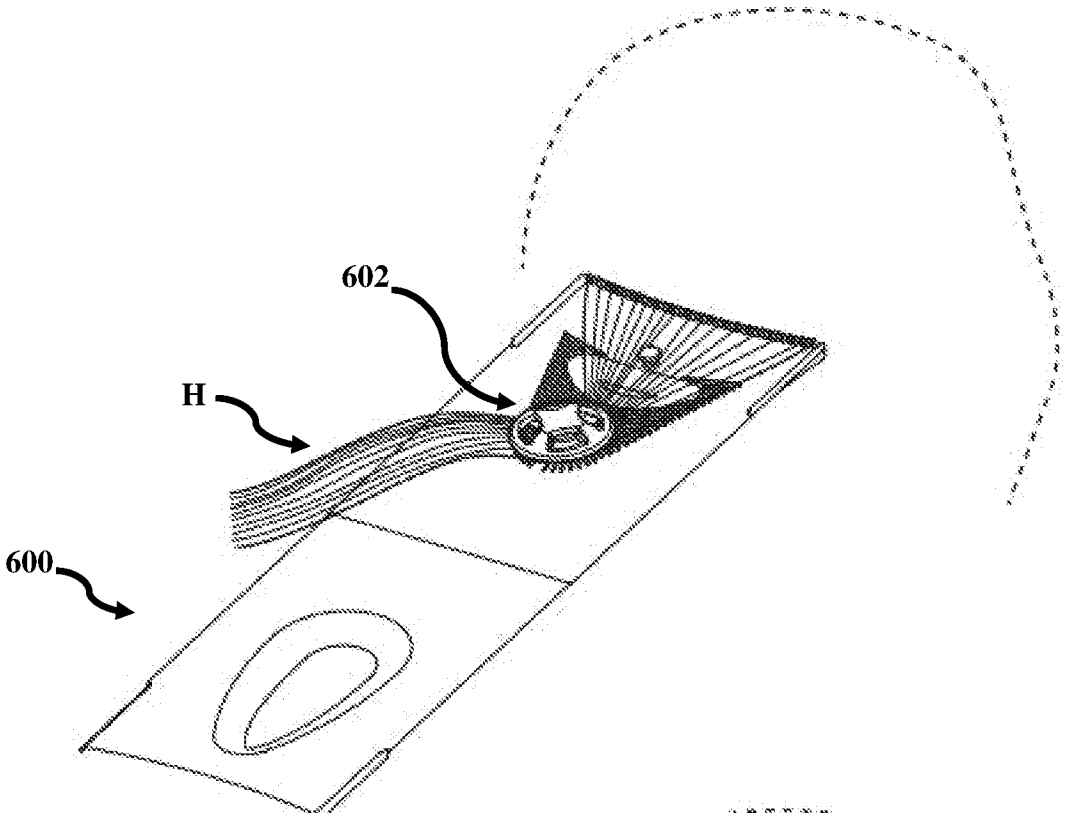


FIG. 17F

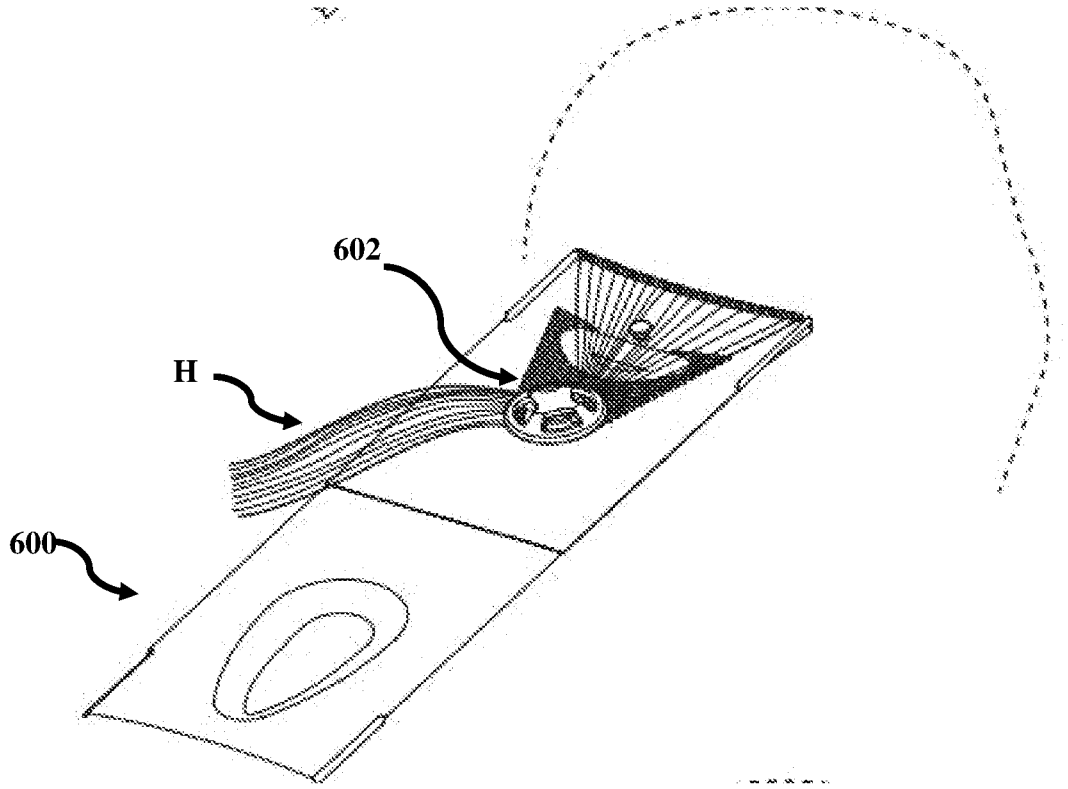


FIG. 17G

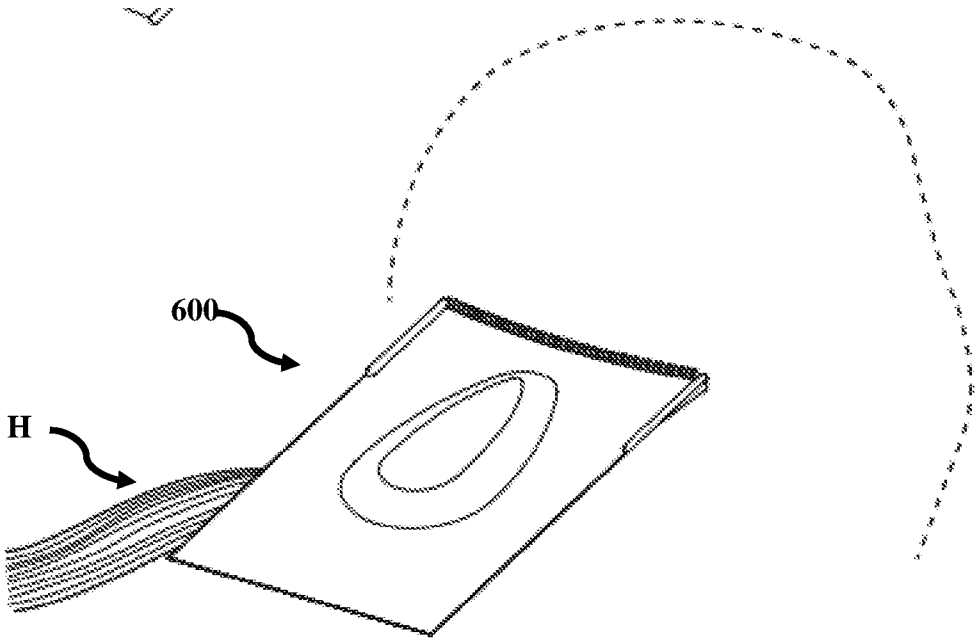


FIG. 17H

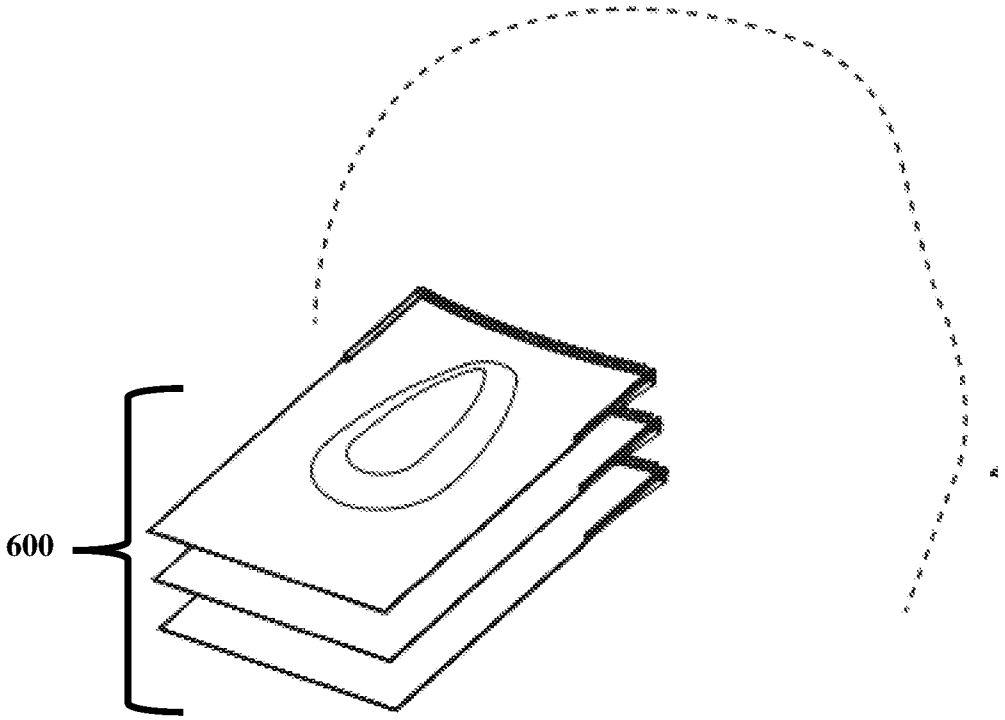


FIG. 17I

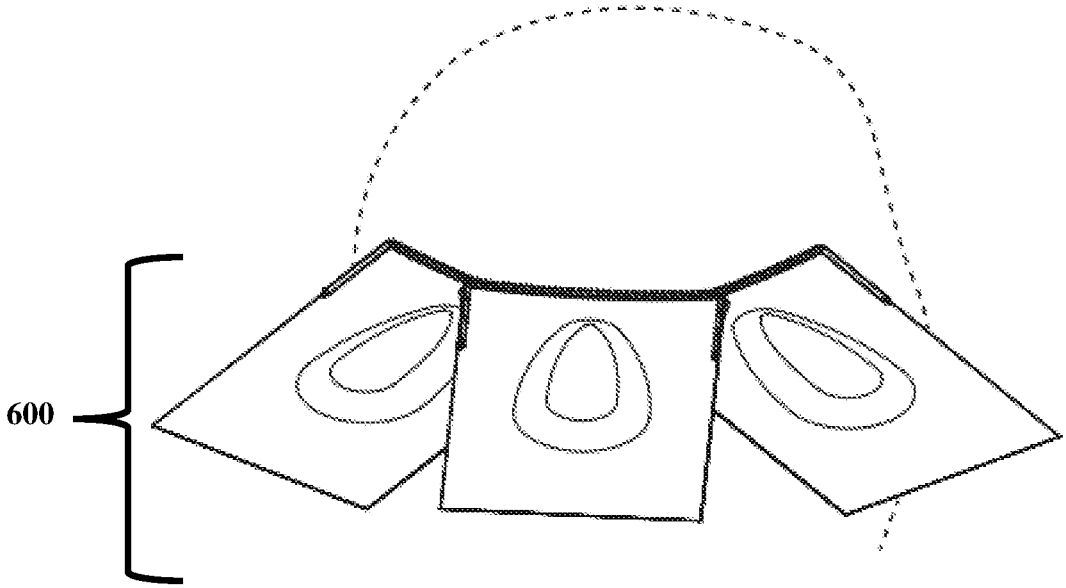


FIG. 17J

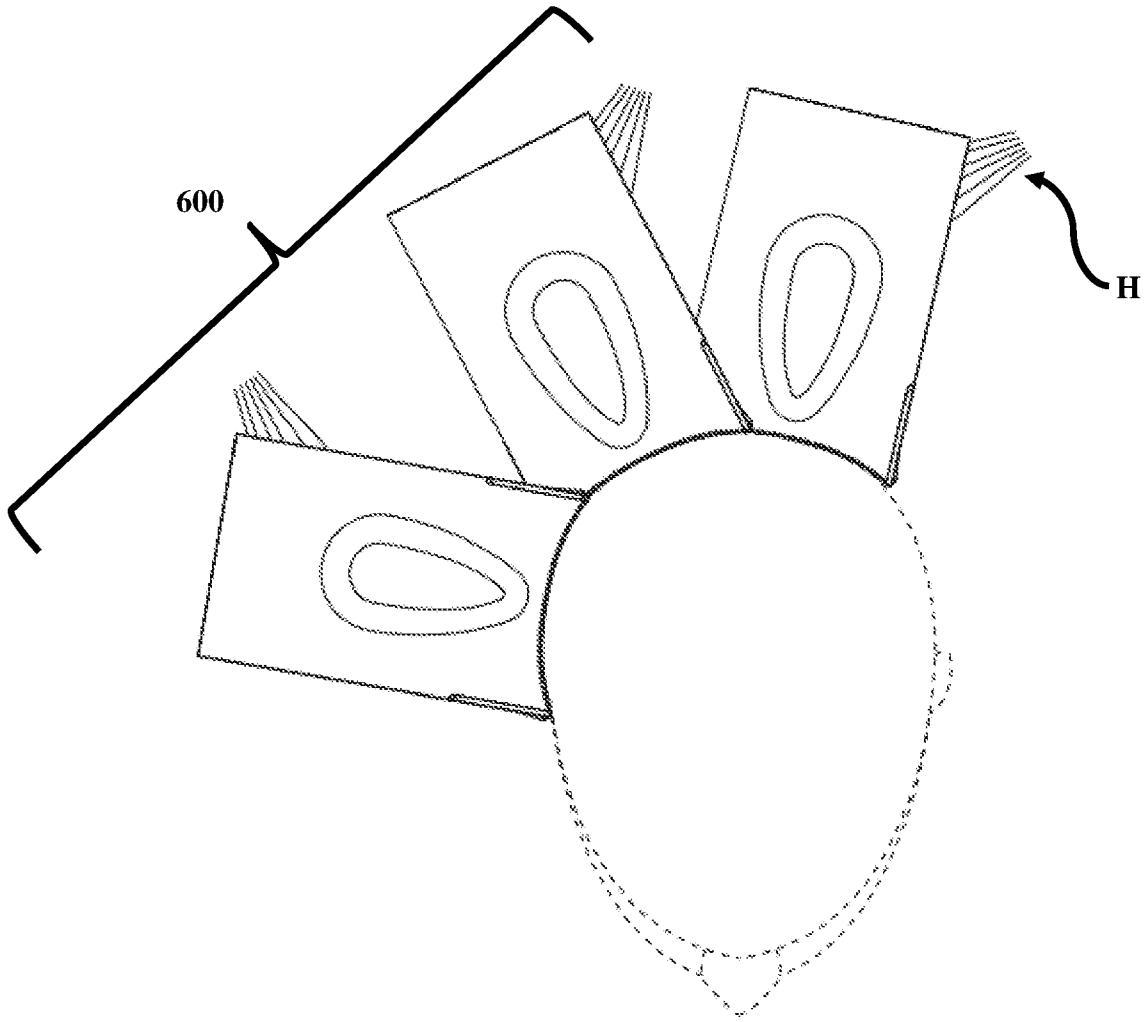


FIG. 18A

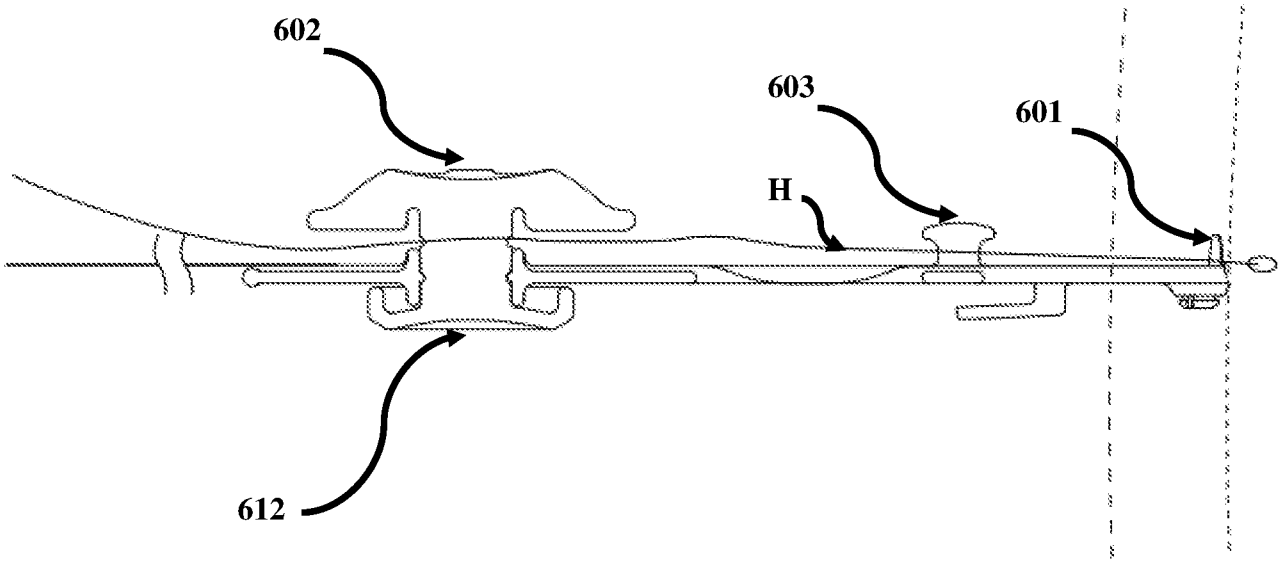
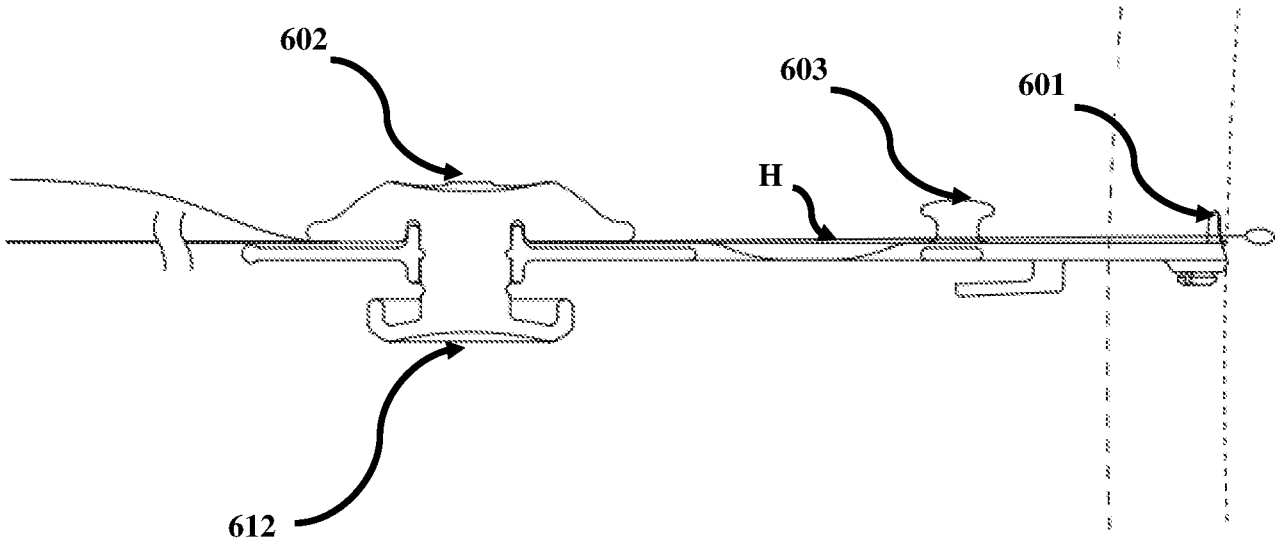


FIG. 18B



INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ2022/050111

A. CLASSIFICATION OF SUBJECT MATTER

A45D 19/00 (2006.01) A45D 8/30 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPIAP & EPODOC: IPC & CPC; (A45D19/[018, 016, 024], A45D7/045, A45D2007/001, A45D2200/10): KEYWORDS;(WRAP, FOIL, FLEXIBLE, SHEET, TENSION, PULL, FORMABLE, SHAPEABLE, ARCUATE, CURVED, FRONT, EDGE, SCALP, HEAD, TEMPERATURE, GAUGE, TIME) and like terms in various combinations. GOOGLE INTERNET; KEYWORDS (FENWICK & CO LIMITED, AARRON FENWICK, MATTHEW BACKLER,.BLYTHE REES-JONES, WRAP, FOIL, FLEXIBLE, SHEET, TENSION, PULL, FORMABLE, SHAPEABLE, ARCUATE, CURVED, FRONT, EDGE, SCALP, HEAD, TEMPERATURE, GAUGE, TIME) and like terms in various combinations and AUSPAT & EspaceNet Applicant and Inventor Names. and AUSPAT, EspaceNet and internal databases provided by IP Australia Applicant and Inventor Names.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"D" document cited by the applicant in the international application

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
5 December 2022	05 December 2022

Name and mailing address of the ISA/AU

AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
Email address: pct@ipaustralia.gov.au

Authorised officer

Stefan Ochsenbein
AUSTRALIAN PATENT OFFICE
(ISO 9001 Quality Certified Service)
Telephone No. +61 2 6283 2269

INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation).	DOCUMENTS CONSIDERED TO BE RELEVANT	**PCT/NZ2022/050111**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2447737 A (WAYLEN) 24 September 2008 Figures 1-5 Items 12,14,16, 18, 20, 22, 24, 28 & 32 and ABSTRACT, Page6 Lines 19, 24-26 Page4 Line1, Page7 Lines12-13	1-2, 8,15-21 & 26
X	US 5156172 A (TANCREDI) 20 October 1992 Figures 1-10 & 16 Items 14-16, 18, 22 26, 40, 122, 126, 222, 140 & 180 and Column 4 Lines 40-44, Column 3 Line 10	1-2, 7-8, 15 & 26
X	DE 20314583 U1 (WELLA AG) 18 December 2003 Figures 1-5, 13-15 & 20-23 Items 2-5, 20 & ABSTRACT	1-6, 8-10, 20-21 & 26
X	EP 2839757 A1 (MULTIMECHAS SL) 25 February 2015 Figures 1-5, 13-15 & 20-23 Items 2-5, 20 & ABSTRACT	1-2, 8-12, 16, 20-23 & 26
X	JP 2000253922 A (IINO KATSUHIRO) 19 September 2000 Figures 1-4 Items 1-5, 6-8 and ASTRACT	1-2, 7-8, 12, 15-16, 20-21 & 25-26
X	EP 1714576 A1 (TOJO et al.) 25 October 2006 Figures 1-4, 8 Items 10, 14, 107 & 206 and Paragraphs 26, 32, 40, 49 &63	1-2, 9, 11, 15-16, 20-23 & 26
X	US 20020069890 A1 (Schweickert ET AL.) 13 June 2002 Figures 2-3, 14, 24-27 Items 4-9, 15-18, 30, 36 and Paragraphs 52-52	1-6, 8-13, 15-16, 20-21 & 26
X	US 20100083977 A1 (GORDON-CLARK et al.) 08 April 2010 Figures 1-2 & 5 Items 18, 20, 24, 30, 40, 42, 44, 50 & 54	1-2, 14-21, 24 & 26

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ2022/050111

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
the subject matter listed in Rule 39 on which, under Article 17(2)(a)(i), an international search is not required to be carried out, including

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See Supplemental Box for Details

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

Supplemental Box

Continuation of: **Box III**
Regarding independent Claim 1

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

This Authority has found that there are different inventions based on the following features that separate the claims into distinct groups:

- Claim 1(i) is directed to a device for applying a hair composition to hair comprising at least one flap component comprises a leading edge that is **deformable**. The feature of a device for applying a hair composition to hair comprising at least one flap component comprises a leading edge that is **deformable** is specific to this group of claims.

- Claim 1(ii) is directed to a device for applying a hair composition to hair comprising at least one flap component comprises a leading edge that is **essentially arcuate in shape**. The feature of a device for applying a hair composition to hair comprising at least one flap component comprises a leading edge that is **essentially arcuate in shape** is specific to this group of claims.

- Claim 1(iii) is directed to a device for applying a hair composition to hair comprising at least one flap component comprises a leading edge that generally **follows the contour of the scalp**. The feature of a device for applying a hair composition to hair comprising at least one flap component comprises a leading edge that generally **follows the contour of the scalp** is specific to this group of claims.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

When there is no special technical feature common to all the claimed inventions there is no unity of invention.

In the above groups of claims, the identified features may have the potential to make a contribution over the prior art but are not common to all the claimed inventions and therefore cannot provide the required technical relationship. The only feature common to all of the claimed inventions is a **device** for applying a **hair composition** to hair of a **subject**, the device comprising at least **one flap component**, wherein the at least one flap component comprises a **leading edge** wherein the at least one flap component allows engagement with a section of hair of the subject, wherein the at least one flap component facilitates contact between the section of hair and the composition, and helps to protect the scalp and surrounding hair from contact with the composition and wherein the at least one flap component is adapted to fold on itself or to engage with a further flap component. . However it is considered that this feature is generic in this particular art.

Therefore this common feature cannot be a special technical feature. Hence there is no special technical feature common to all the claimed inventions and the requirements for unity of invention are consequently not satisfied *a priori.*

Regarding appended Claim 2

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

This Authority has found that there are different inventions based on the following features that separate the claims into distinct groups:

Supplemental Box

- Claim 2(a) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more positioning means** to assist in positioning of the at least one flap component onto the section of hair. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more positioning means** to assist in positioning of the at least one flap component onto the section of hair is specific to this group of claims.

- Claim 2(b) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more tensioning means** to assist in keeping the section of hair tensioned against the at least one flap component. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more tensioning means** to assist in keeping the section of hair tensioned against the at least one flap component is specific to this group of claims.

- Claim 2(c) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more locking mechanisms** to assist in locking and unlocking the one or more tensioning means. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more locking mechanisms** to assist in locking and unlocking the one or more tensioning means is specific to this group of claims.

- Claim 2(d) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more supporting means** to assist in shaping the at least one flap component. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more supporting means** to assist in shaping the at least one flap component is specific to this group of claims.

- Claim 2(e) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more raised features** to assist in preventing drips or runs of the hair composition. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more raised features** to assist in preventing drips or runs of the hair composition is specific to this group of claims.

- Claim 2(f) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more impedance means** so as to prevent or reduce contact between the hair composition and the scalp. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more impedance means** so as to prevent or reduce contact between the hair composition and the scalp is specific to this group of claims.

- Claim 2(g) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more reservoirs to assist** in accommodating the section of hair on the flap component. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more reservoirs to assist** in accommodating the section of hair on the flap component is specific to this group of claims.

- Claim 2(h) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more barrier means** for preventing the hair composition from contacting the section of hair until contact is desired. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more barrier means** for preventing the hair composition from contacting the section of hair until contact is desired is specific to this group of claims.

- Claim 2(i) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more coloured sections**, or **one or more clear sections**. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more coloured sections**, or **one or more clear sections** is specific to this group of claims.

- Claim 2(j) is directed to a device for applying a hair composition wherein at least one flap component includes **one or more sensing means**. The feature of a device for applying a hair composition wherein at least one flap component includes **one or more sensing means** is specific to this group of claims.

Supplemental Box

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

When there is no special technical feature common to all the claimed inventions there is no unity of invention.

In the above groups of claims, the identified features may have the potential to make a contribution over the prior art but are not common to all the claimed inventions and therefore cannot provide the required technical relationship. The only feature common to all of the claimed inventions a device for applying a hair composition wherein at least one flap. However it is considered that this feature is generic in this particular art. The use of foils for highlighting would be well known to any person skilled in the art. Foils are a deformable flap that engages hair to protect the scalp when the highlighting composition is applied. It is considered that this feature is generic in this particular art.

Therefore this common feature cannot be a special technical feature. Hence there is no special technical feature common to all the claimed inventions and the requirements for unity of invention are consequently not satisfied *a priori.*

The claims, as currently drafted, are directed toward many different inventions. Many claims feature different options, each representing a different invention. For example claim 1 has 3 options and claim 2 contains 10 options. These options are claimed as comprising one or more of the features. Therefore the claimed invention could feature options 1(i), 1(iii), 2(a), 2(d) and 2(h), each permutation and combination represents a different invention. Each of claims 3-14 are appended to claim 2 and many of these claims also comprise many different options claiming one or more combinations of features from a list of up to 11 items. Each of these items adding to an exponentially increasing number of different inventions.

This international searching office will not search all the exponential number of different inventions. The technical field of devices for applying hair compositions is mature and accordingly the prior art is very extensive. However, as the features are presented as options (or) they will be treated as such. If one of the options is found in a claim, the other options will not be searched. Accordingly fees for each of the different inventions as outlined above have not been invited, however if those further features are found in the search for first found feature, opinion will be provided.

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/NZ2022/050111**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
GB 2447737 A	24 September 2008	GB 2447737 A	24 Sep 2008
		GB 2447737 B	18 Mar 2009
		HK 1123165 A1	12 Jun 2009
		WO 2009109742 A2	11 Sep 2009
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EP 1714576 A1	25 October 2006	EP 1714576 A1	25 Oct 2006

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/NZ2022/050111**

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Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
		JP 2005218734 A	18 Aug 2005
		JP 4301965 B2	22 Jul 2009
		JP 2005218735 A	18 Aug 2005
		US 2007065489 A1	22 Mar 2007
		US 7963291 B2	21 Jun 2011
		WO 2005074742 A1	18 Aug 2005
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		DE 10062132 A1	20 Jun 2002
		EP 1216628 A2	26 Jun 2002
		JP 2002226345 A	14 Aug 2002
US 20100083977 A1	08 April 2010	US 2010083977 A1	08 Apr 2010
		WO 2010042487 A2	15 Apr 2010

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.