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(71) Applicant: **Kao Germany GmbH
64297 Darmstadt (DE)**

(72) Inventors:

- **Zeiter, Frank
Darmstadt (DE)**
- **Gehring, Harald
Darmstadt (DE)**

(74) Representative: **Miller, Tobias
Kao Germany GmbH
Pfungstädter Straße 98-100
64297 Darmstadt (DE)**

(54) **HAIR CLIPPER**

(57) A hair clipper for a hair trimmer includes a body including a clamp structure and having a first longitudinal end and a second longitudinal end, a first wall arranged proximate to the first longitudinal end of the clamp structure and extending substantially perpendicularly from the clamp structure, and a second wall arranged substantially parallel to and spaced apart from the first wall defining a gap therebetween. The hair clipper includes a guide structure pivotally coupled to the body and

adapted to move in an open position and a closed position relative to the body. The guide structure includes a base and a plate extending substantially perpendicularly from the base towards the clamp structure, and a reservoir defining a chamber with a conditioner disposed inside the chamber. In the closed position of the guide structure, the plate is arranged between the first wall and the second wall.

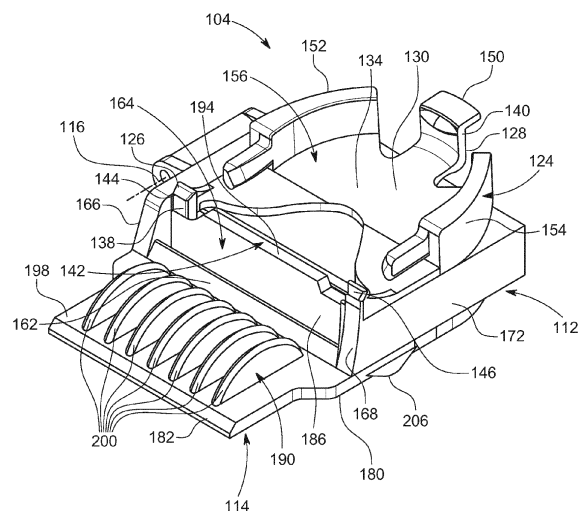


FIG. 4

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Description

TECHNICAL FIELD

[0001] The present disclosure relates, generally, to a hair trimmer assembly, and more particularly to a hair clipper for a hair trimmer to remove split ends of hairs.

BACKGROUND

[0002] Split ends spoil the impression of hairs, making hairstyle dull and untidy. Traditionally, split ends of the hairs are by using scissors. For so doing, hairs are pulled using the hand, a comb, or a combination of hand and comb. However, cutting split ends using scissors and comb is a time-consuming and laborious activity.

SUMMARY

[0003] One aspect of the disclosure is to provide a hair clipper that can be easily coupled/attached to and decoupled from a hair trimmer to facilitate a quick and an accurate cutting of split ends of hairs.

[0004] Another aspect of the disclosure is to provide a hair clipper that facilitates conditioning of the hairs while performing cutting of the split ends of the hairs.

[0005] One more aspect of the disclosure is to provide a hair clipper that enables a person to cut off their own split ends and damaged hair tips.

[0006] The above and other aspects of the disclosure are provided by a hair clipper for a hair trimmer of claim 1. The hair clipper includes a body including a clamp structure configured to removably clamp/couple to a blade section of the hair trimmer and having a first longitudinal end and a second longitudinal end. The body also includes a first wall arranged proximate to the first longitudinal end of the clamp structure and extending substantially perpendicularly from the clamp structure. The first wall extends in a lateral direction. The body further includes a second wall arranged substantially parallel to and spaced apart from the first wall defining a gap therebetween. The second wall is arranged forwardly of the first longitudinal end and is coupled to the clamp structure. The hair clipper further includes a guide structure pivotally coupled to the body and adapted to move in an open position and a closed position relative to the body. The guide structure includes a base having a front end and a rear end and a plate extending substantially perpendicularly from the base towards the clamp structure. The plate is arranged between the first wall and the second wall in the closed position of the guide structure. Moreover, the guide structure further includes a reservoir that defines a chamber arranged between the plate and the rear end of the base with a conditioner disposed inside the chamber. In the closed position of the guide structure, the first wall of the body pushes plurality of hairs inside the chamber and the plate of the guide structure guides the plurality of hairs towards trimmer blades to

remove split end of one or more of the plurality of hairs. In this manner, the plurality of hairs gets conditioned in the reservoir, making the plurality of hairs soft and easy to manage. Additionally, the conditioning of the hairs protects the hairs from any damage during the cutting of the split ends of the hairs.

[0007] In some embodiments, the hair clipper includes a biasing member arranged between the body and the guide structure and biasing the guide structure to the open position. The biasing member provides a necessary compression force to bias the guide structure to the open position and allows a movement towards the closed position when desired.

[0008] In some embodiments, the clamp structure includes a bottom having a first surface arranged facing the base of the guide structure and a second surface arranged opposite to the first surface and configured to abut at least a portion of the blade section of the hair trimmer. This provides enough support to the hair trimmer to achieve a firm fitting of the hair clipper with the hair trimmer.

[0009] In some embodiments, the clamp structure includes a stopper arranged at the first longitudinal end of the clamp structure and extending vertically from the second surface of the bottom and defining a cavity. The stopper and the cavity defined by the stopper enables an accurate positioning of the trimmer blades inside the gap to cut the split ends of the hairs protruding upwardly of the plate.

[0010] In some embodiments, the clamp structure also includes a clip arranged at the second longitudinal end and extending vertically from the second surface and adapted to be pivoted between a forward position and a rearward position relative to the bottom to enable a clamping and removal of the hair clipper with the blade section of the hair trimmer.

[0011] In some embodiments, the blade section is arranged between the stopper and the clip such that trimmer blades extend forwardly of the stopper through the cavity in an assembly of the hair trimmer with the clamp structure.

[0012] In some embodiments, the clamp structure includes a pair of sidewalls extending vertically outwardly from the first surface of the bottom and arranged space apart from each other defining a space for containing the plurality of hairs. The first wall is disposed perpendicularly to the pair of sidewalls. The space defined between the pair of sidewalls and the bottom contains the hair in the closed position of the guide structure.

[0013] In some embodiments, the guide structure includes a first comb structure having a plurality of first teeth extending vertically from the base and arrayed in the lateral direction. The first teeth are arranged proximate to the rear end of the base and are disposed rearwardly of the clamp structure. The first comb structure guides the hairs and prevents the entanglement of the hairs during hair cutting operation.

[0014] In some embodiments, the guide structure in-

cludes a second comb structure having a plurality of second teeth extending vertically from the base and arrayed in the lateral direction. The second teeth are arranged proximately to the front end of the base and are disposed forwardly of the clamp structure. The second comb structure separates and guides the plurality of hairs during hair cutting.

[0015] In some embodiments, the reservoir includes a sponge arranged inside the chamber with the conditioner absorbed inside the sponge. The sponge restricts the spilling of the conditioner and ensures a proper coating of the conditioner on the hairs.

[0016] One aspect of the disclosure is to provide a hair trimmer assembly including a hair trimmer and a hair clipper coupled to the hair trimmer to facilitate a quick and an accurate cutting of split ends of hairs.

[0017] Another aspect of the disclosure is to provide a hair trimmer assembly that facilitates conditioning of the hairs while performing cutting of the split ends of the hairs.

[0018] The hair trimmer assembly includes a hair trimmer including a blade section and a hair clipper removably coupled to the blade section of the hair trimmer. The hair clipper includes a body including a clamp structure configured to removably clamp/couple to a blade section of the hair trimmer and having a first longitudinal end and a second longitudinal end. The body further includes a first wall arranged proximate to the first longitudinal end of the clamp structure and extending substantially perpendicularly from the clamp structure. The first wall extends in a lateral direction. The body also includes a second wall arranged substantially parallel to and spaced apart from the first wall defining a gap therebetween. The second wall is arranged forwardly of the first longitudinal end and is coupled to the clamp structure. The hair clipper further includes a guide structure pivotally coupled to the body and adapted to move in an open position and a closed position relative to the body. The guide structure includes a base having a front end and a rear end and a plate extending substantially perpendicularly from the base towards the clamp structure. The plate is arranged between the first wall and the second wall in the closed position of the guide structure. Moreover, the guide structure includes a reservoir that defines a chamber arranged between the plate and the rear end of the base with a conditioner disposed inside the chamber. In the closed position of the guide structure, the first wall of the body pushes plurality of hairs inside the chamber and the plate of the guide structure guides the plurality of hairs towards trimmer blades to remove split end of one or more of the plurality of hairs. In this manner, the plurality of hairs gets conditioned in the reservoir, making the plurality of hairs soft and easy to manage. Additionally, conditioning of the hairs protects the hairs from any damage during the cutting of the split ends of the hairs.

[0019] In some embodiments, the hair clipper includes a biasing member arranged between the body and the guide structure and biasing the guide structure to the

open position. The biasing member provides a necessary compression force to bias the guide structure to the open position and allows a movement towards the closed position when desired.

[0020] In some embodiments, the clamp structure includes a bottom having a first surface arranged facing the base of the guide structure and a second surface arranged opposite to the first surface and configured to abut at least a portion of the blade section of the hair trimmer. This provides enough support to the hair trimmer to achieve a firm fitting of the hair clipper with the hair trimmer.

[0021] In some embodiments, the clamp structure includes a stopper arranged at the first longitudinal end of the clamp structure and extending vertically from the second surface of the bottom and defining a cavity. The stopper and the cavity defined by the stopper enables an accurate positioning of the trimmer blades inside the gap to cut the split ends of the hairs protruding upwardly of the plate.

[0022] In some embodiments, the clamp structure also includes a clip arranged at the second longitudinal end and extending vertically from the second surface and adapted to be pivoted between a forward position and a rearward position relative to the bottom to enable a clamping and removal of the hair clipper with the blade section of the hair trimmer.

[0023] In some embodiments, the blade section is arranged between the stopper and the clip such that trimmer blades extend forwardly of the stopper through the cavity in an assembly of the hair trimmer with the clamp structure.

[0024] In some embodiments, the clamp structure includes a pair of sidewalls extending vertically outwardly from the first surface of the bottom and arranged space apart from each other defining a space for containing the plurality of hairs. The first wall is disposed perpendicularly to the pair of sidewalls. The space defined between the pair of sidewalls and the bottom contains the hair in the closed position of the guide structure.

[0025] In some embodiments, the guide structure includes a first comb structure having a plurality of first teeth extending vertically from the base and arrayed in the lateral direction. The first teeth are arranged proximate to the rear end of the base and are disposed rearwardly of the clamp structure. The first comb structure guides the hairs and prevents the entanglement of the hairs during hair cutting operation.

[0026] In some embodiments, the guide structure includes a second comb structure having a plurality of second teeth extending vertically from the base and arrayed in the lateral direction. The second teeth are arranged proximately to the front end of the base and are disposed forwardly of the clamp structure. The second comb structure separates and guides the plurality of hairs during hair cutting.

[0027] In some embodiments, the reservoir includes a sponge arranged inside the chamber with the conditioner

absorbed inside the sponge. The sponge restricts the spilling of the conditioner and ensures a proper coating of the conditioner on the hairs.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

[0028] Having thus described example embodiments of the present disclosure in general terms, reference will now be made to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

FIG. 1 illustrates a top perspective view of a hair trimmer assembly depicting a portion of a hair trimmer and a hair clipper coupled to the hair trimmer, in accordance with an embodiment of the disclosure;

FIG. 2 illustrates a side perspective view of the hair trimmer assembly of FIG. 1, in accordance with an embodiment of the disclosure;

FIG. 3 illustrates a rear perspective view of the hair trimmer assembly of FIG. 1, in accordance with an embodiment of the disclosure;

FIG. 4 illustrates a perspective view of the hair clipper including a body and a guide structure arranged in closed position, in accordance with an embodiment of the disclosure;

FIG. 5 illustrates a perspective view of the hair clipper of FIG. 4 depicting the guide structure in an open position, in accordance with an embodiment of the disclosure; and

FIG. 6 illustrates a sectional view of the hair clipper showing a hair inside the hair clipper with a split end of the hair extending vertically from a free end of a plate of the guide structure, in accordance with an embodiment of the disclosure.

DETAILED DESCRIPTION

[0029] In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the present disclosure. It will be apparent, however, to one skilled in the art that the present disclosure can be practiced without these specific details. In other instances, apparatus and methods are shown in block diagram form only in order to avoid obscuring the present disclosure.

[0030] Reference in this specification to "one embodiment" or "an embodiment" means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present disclosure. The appearance of the phrase "in one embodiment" in various places in the specification are not necessarily all referring to the same

embodiment, nor are separate or alternative embodiments mutually exclusive of other embodiments. Further, the terms "a" and "an" herein do not denote a limitation of quantity, but rather denote the presence of at least one of the referenced items. Moreover, various features are described which may be exhibited by some embodiments and not by others. Similarly, various requirements are described which may be requirements for some embodiments but not for other embodiments.

[0031] Some embodiments of the present disclosure will now be described more fully hereinafter with reference to the accompanying drawings, in which some, but not all, embodiments of the disclosure are shown. Indeed, various embodiments of the disclosure may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Like reference numerals refer to like elements throughout. The use of any term should not be taken to limit the spirit and scope of embodiments of the present disclosure.

[0032] The embodiments are described herein for illustrative purposes and are subject to many variations. It is understood that various omissions and substitutions of equivalents are contemplated as circumstances may suggest or render expedient but are intended to cover the application or implementation without departing from the spirit or the scope of the present disclosure. Further, it is to be understood that the phraseology and terminology employed herein are for the purpose of the description and should not be regarded as limiting. Any heading utilized within this description is for convenience only and has no legal or limiting effect.

[0033] Referring to FIGS. 1 to 3, a hair trimmer assembly 100 having a hair trimmer 102 and a hair clipper 104 coupled to the hair trimmer 102 is shown. The hair trimmer 102 is suitable to cut hairs of a person and includes a body structure 106 adapted to house a plurality of components of the hair trimmer 102 and configured to act as a handle to be held by user while performing a hair cutting operation, and a blade section 108 coupled to an end of the body structure 106 and includes trimmer blades 110 for cutting the hairs. To facilitate cutting of split ends of the hairs, the hair clipper 104 is removably attached to the blade section 108 of the hair trimmer 102.

[0034] As shown in FIGS. 1 to 6, the hair clipper 104 includes a body 112 adapted to be removably coupled to the blade section 108 of the hair trimmer 102 and a guide structure 114 pivotally coupled to the body 112 and adapted to pivot between an open position and a closed position relative to the body 112 about a pivot axis 116 extending in a longitudinal direction. The hair clipper 104 further includes a biasing member 118 arranged between the body 112 and the guide structure 114, biasing the guide structure 114 in the open position. The guide structure is moved to the closed position by applying a force against the biasing force of the biasing member 118. In the illustrated embodiment, the biasing member

118 is a spring 120.

[0035] To facilitate the coupling of the hair clipper 104 with hair trimmer 102, as best shown in FIGS. 4 and 5, the body 112 includes a clamp structure 124 adapted to be clamped/mounted to the hair trimmer 102 and includes a first longitudinal end 126 and a second longitudinal end 128 disposed opposite to the first longitudinal end 126. As shown, the clamp structure 124 includes a bottom 130 extending from the first longitudinal end 126 to the second longitudinal end 128 and having a first surface 132 arranged facing the guide structure 114 and a second surface 134 arranged opposite to the first surface 132. The second surface 134 may abut the blade section 108 of the hair trimmer 102 in the assembly of the hair clipper 104 with the hair trimmer 102.

[0036] Further, the clamp structure 124 includes a stopper 138 arranged at the first longitudinal end 126 and extends substantially perpendicularly (i.e., vertically) from the second surface 134 of the bottom 130, and a clip 140 arranged at the second longitudinal end 126 and extending substantially perpendicularly (vertically) from the second surface 134 of the bottom 130. As shown in FIGS. 4 and 5, the stopper 138 and the clip 140 are arranged spaced apart and facing each other. Also, the stopper 138 defines a cavity 142 such a first stopper structure 144 is defined at a first side of the cavity 142 and a second stopper structure 146 is defined at a second side of the cavity 142. In an assembly of the hair clipper 104 with the hair trimmer 102, the blade section 108 is arranged between the clip 140 and the stopper 138 such that the trimmer blades 110 of the blade section 108 extend forwardly of the stopper 138 through the cavity 142, as shown in FIG. 1. Further, the clip 140 is a flexible clip configured to pivot/flex relative to the bottom in a longitudinal direction between a forward position and a rearward position. The clip 140 abuts the body structure 106 of the hair trimmer 102 and hold the hair clipper 104 with the hair trimmer 102 when arranged in the forward position. Accordingly, the clip 140 is flexed/pivoted rearwardly relative to the bottom 130 to the rearward position to disengage the clamp structure 124 (i.e., the hair clipper 104) from the hair trimmer 102. To facilitate the flexing of the clip 140 by a user, the clip 140 includes a tab 150 arranged proximate to a free end of the clip 140 and adapted to be held by a user.

[0037] Moreover, the clamp structure 124 includes a first longitudinal wall 152 and a second longitudinal wall 154 extending in a longitudinal direction between the stopper 138 and the clip 140. As shown, the first longitudinal wall 152 and the second longitudinal wall 154 are arranged spaced apart from each other and extend vertically from the second surface 134 of the bottom 130. Accordingly, a space 156 is defined between the longitudinal walls 152, 154, the stopper 138 and the clip 140 to receive an end portion of the hair trimmer 102 including the blade section 108. Further, the longitudinal walls 152, 154, the stopper 138 and the clip 140 are arranged such that the longitudinal walls 152, 154, the stopper 138, and

the clip 140 engage with the hair trimmer 102 in an assembly of the hair clipper 104 with the hair trimmer 102.

[0038] Additionally, the body 112 includes a first wall 160 (best shown in FIG. 6) extending in the lateral direction and arranged proximate to the stopper 138. As shown, the first wall 160 extends vertically and outwardly from the first surface 132 of the bottom 130. Accordingly, the first wall 160 extends in a direction opposite to the extension of the stopper 138 from the bottom 130 of the clamp structure 124. The first wall 160 is configured to push the hairs towards the guide structure 114 when the guide structure 114 is arranged in the closed position. Further, the body 112 includes a second wall 162 extending substantially parallel to the first wall 160 and arranged spaced apart from the first wall 160 and forwardly of the first wall 160 as well as the first longitudinal end 126 of the clamp structure 124. Accordingly, a gap 164 is defined between the first wall 160 and the second wall 162, and the second wall 162 is coupled to the clamp structure 124 via a pair of arms 166, 168. The arms 166, 168 extend forwardly in the longitudinal direction from the clamp structure 124 and are arranged spaced apart from each other. Additionally, a height of the second wall 162 is smaller than a height of the first wall 160.

[0039] Further, as best shown in FIG. 3, the clamp structure 124 includes a pair of sidewalls 170, 172 extending vertically and outwardly from the first surface 132 of the bottom 130 and arranged spaced apart and facing each other. The sidewalls 170, 172 extend rearwardly from the first wall 160 to the second longitudinal end 128 of the clamp structure 124. Accordingly, a space 176 is defined between the sidewalls 170, 172, the bottom 130, and the first wall 160. Further, an opening 178 of the space 176 is defined at the second longitudinal end 128 and between the sidewalls 170, 172 to enable an entry of hairs inside the space 176. The hairs enter the space 176 through the opening 178, moves in the longitudinal direction through the space 176, and is pushed towards the guide structure 114 by the first wall 160.

[0040] Referring to FIG. 5, the guide structure 114 includes a base 180 having a first longitudinal end 182 (i.e., front end 182) disposed forwardly of the second wall 162 of the body 112 and a second longitudinal end 184 (i.e., rear end 184). The guide structure 114 further includes a plate 186, a first comb structure 188, a second comb structure 190, and a reservoir 192. The plate 186 extends substantially perpendicularly from the base 180 towards the bottom 130 of the clamp structure 124 and is disposed between the front end 182 and the rear end 184. Moreover, a location of the plate 186 is selected such that the plate 186 is arranged inside the gap 164 defined between the first wall 160 and the second wall 162 when the guide structure 114 is disposed/arranged in the closed position, as shown in FIG. 4. The plate 186 extends in the lateral direction and is configured to push the hairs upwardly towards the trimmer blades 110 of the hair trimmer. Further, as shown in FIG. 6, during the hair cutting process, the hair extends over a free end 194

of the plate 186 such that the split end of a hair extends upwardly of the free end 194 and thereby facilitating the cutting of the split end of the hair by the trimmer blades 110.

[0041] Additionally, the first comb structure 188 is arranged proximate to the rear end 184 of the base 180, while the second comb structure 190 is disposed proximate to the front end 182 of the base 180. Moreover, the first comb structure 188 is arranged between the reservoir 192 and the rear end 184 of the base and is arranged inside the space 176 in the closed position of the guide structure 114, while the second comb structure 190 is disposed forwardly of the body 112 i.e., the second wall 162 of the body 112. As shown, the first comb structure 188 includes a plurality of teeth 196 (i.e., first teeth 196) arranged spaced apart from each other and arrayed in the lateral direction along a width of the base 180 of the guide structure 114. The teeth 196 extend upwardly from a surface 198 of the base 180. Similar to the first comb structure 188, the second comb structure 190 includes a plurality of teeth 200 (i.e., second teeth 200) arranged spaced apart from each other and arrayed in the lateral direction along a width of the base 180 of the guide structure 114. The teeth 200 extend upwardly from the surface of the base 180 and are arranged proximate to the front end 182 of the base 180 and forwardly of the body 112.

[0042] Referring to FIGS. 4 to 6, the reservoir 192 defines a chamber 202 that is disposed between the plate 186 and the first comb structure 188 (i.e., rear end 184 of the base 180) and is arranged adjacent to the plate 186 such that the hairs pushed by the first wall 160 towards the base 180, in the closed position of the guide structure 114, extends inside the chamber 202. A conditioner is disposed inside the chamber 202 to condition the hairs that pass through the chamber 202. In an embodiment, the reservoir 192 includes a sponge 206 arranged inside the chamber 202 with the conditioner absorbed inside the sponge 206. Accordingly, the conditioner sticks to the hair as the hair passes through the chamber 202, contacting the sponge 206. In some embodiments, the conditioner may be in a semi-solid or solid form and the is arranged inside the chamber 202 without using the sponge 206.

[0043] A method for removing or cutting the split ends of the hairs using the hair trimmer assembly 100 is now described. The method includes mounting the hair clipper 104 to the blade section 108 of the hair trimmer 102 by arranging the blade section 108 inside the space 156 of the clamp structure 124 such that the trimmer blades 110 extend forwardly of the first wall 160 and inside the gap 164 defined between the first wall 160 and the second wall 162. Thereafter, the hair clipper 104 is engaged with the hairs such that the rear end 184 of the base 180 of the guide structure 114 is arranged proximate to the roots of the hairs (i.e., scalp of the head of the user), while the front end 182 of the base 180 of the guide structure 180 is arranged relatively distally from the roots of the hairs.

However, a reverse orientation of the hair clipper 104 is also possible for cutting the hairs. The hair clipper 104 is engaged with the hairs such that a portion of the hairs is disposed between the body 112 and the guide structure 114 and front parts of the hair extend forwardly of the hair clipper 104 (i.e., forwardly of the second wall 162 of the body 112) and rear parts (parts relatively closer to roots of the hairs) of hairs extend rearwardly of the hair clipper 104 (i.e. opening 178), as shown in FIG. 6. Moreover, as shown in FIG. 6, the portions of hairs arranged inside the space 176 are arranged underneath the first wall 160 and inside the chamber 202. Moreover, portions of hairs extend vertically between the first wall 160 and the plate 186, and the split ends of the hairs protrude vertically above the free end 194 of the plate 186. Accordingly, as the hair clipper 104 (i.e., hair trimmer assembly 100) is moved towards the free ends of the hairs, protruding split ends of the hairs are cut by the trimmer blades 110, at first. Thereafter, the cut hairs move downwardly and underneath the first wall 160 that pushes the cut hairs inside the chamber 202, coating the cut hairs with the conditioner. Subsequently, the hairs move through the teeth 196 of the first comb structure 190 to prevent any entanglement of the hairs.

[0044] In an embodiment in which the hair clipper 104 is engaged with the hairs in the reverse orientation to cut the split ends of the hairs. In such an orientation, as the hair clipper 104 (i.e., hair trimmer assembly 100) is moved towards the free ends of the hairs, the hairs pass through the chamber 202, gets coated with the conditioner, and move vertically towards the free end 194 of the plate 186. At the free end 194 of the plate 186, the protruding split ends of the hairs are cut by the trimmer blades 110. Thereafter, the cut hairs move downwardly and underneath the second wall 162 and out of the body 112. Subsequently, the hairs move through the teeth 200 of the second comb structure 190 to prevent any entanglement of the hairs. In this manner, the hair clipper 104 facilitates easy cutting of the split ends of the hairs along with the conditioning of the hairs.

[0045] Many modifications and other embodiments of the disclosures set forth herein will come to mind to one skilled in the art to which these disclosures pertain having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the disclosures are not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. Moreover, although the foregoing descriptions and the associated drawings describe example embodiments in the context of certain example combinations of elements and/or functions, it should be appreciated that different combinations of elements and/or functions may be provided by alternative embodiments without departing from the scope of the appended claims. In this regard, for example, different combinations of elements and/or functions than those explicitly described above are also contemplated.

plated as may be set forth in some of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

Claims

1. A hair clipper (104) for a hair trimmer (102), comprising:

a body (112) including

a clamp structure (124) configured to removably clamp to a blade section (108) of the hair trimmer (102) and having a first longitudinal end (126) and a second longitudinal end (128),

a first wall (160) arranged proximate to the first longitudinal end (126) of the clamp structure (124) and extending substantially perpendicularly from the clamp structure (124), wherein the first wall (160) extends in a lateral direction, and

a second wall (162) arranged substantially parallel to and spaced apart from the first wall (160) defining a gap (164) therebetween, the second wall (162) being arranged forwardly of the first longitudinal end (126) and is coupled to the clamp structure (124); and

a guide structure (114) pivotally coupled to the body (112) and adapted to move between an open position and a closed position relative to the body (112), the guide structure (114) includes

a base (180) having a front end (182) and a rear end (184),

a plate (186) extending substantially perpendicularly from the base (180) towards the clamp structure (124), wherein the plate (186) is arranged between the first wall (160) and the second wall (162) in the closed position of the guide structure (114), and

characterized in that

a reservoir (192) defining a chamber (202) arranged between the plate (186) and the rear end (184) of the base (180) with a conditioner disposed inside the chamber (202), wherein in the closed position of the guide structure (114), the first wall (160) of the body (112) pushes a plurality of hairs inside the chamber (202) and the plate (186) of the guide structure

(114) guides the plurality of hairs towards trimmer blades (110) to remove split end of one or more of the plurality of hairs.

2. The hair clipper (104) of claim 1 further comprises a biasing member (118) arranged between the body (112) and the guide structure (114) and biasing the guide structure (114) to the open position.

3. The hair clipper (104) of claim 1 or claim 2, wherein the clamp structure (124) includes a bottom (130) having a first surface (132) arranged facing the base (180) of the guide structure (114) and a second surface (134) arranged opposite to the first surface (132) and configured to abut at least a portion of the blade section (108) of the hair trimmer (102).

4. The hair clipper (104) of claim 3, wherein the clamp structure (124) includes

a stopper (138) arranged at the first longitudinal end (126) of the clamp structure (124) and extending vertically from the second surface (134) of the bottom (130) and defining a cavity (142), a clip (140) arranged at the second longitudinal end (128) and extending vertically from the second surface (134) and adapted to be pivoted between a forward position and a rearward position relative to the bottom (130) to enable a clamping and removal of the hair clipper (104) with the blade section (108) of the hair trimmer (102), wherein the blade section (108) is arranged between the stopper (138) and the clip (140) such that the trimmer blades (110) extend forwardly of the stopper (138) through the cavity (142) in an assembly of the hair trimmer (102) with the clamp structure (124).

5. The hair clipper (104) of claim 3 or claim 4, wherein the clamp structure (124) includes a pair of sidewalls (170, 172) extending vertically outwardly from the first surface (132) of the bottom (130) and arranged space apart from each other defining a space (176) for containing the plurality of hairs, wherein the first wall (160) is disposed perpendicularly to the pair of sidewalls (170, 172).

6. The hair clipper (104) of any one of preceding claims, wherein the guide structure (114) includes a first comb structure (188) having a plurality of first teeth (196) extending vertically from the base (180) and arrayed in the lateral direction, wherein the first teeth (196) are arranged proximate to the rear end (184) of the base (180).

7. The hair clipper (104) of any one of preceding claims, wherein the guide structure (114) includes a second

comb structure (190) having a plurality of second teeth (200) extending vertically from the base (180) and arrayed in the lateral direction, wherein the second teeth (200) are arranged proximate to the front end (182) of the base (180) and are disposed forwardly of the clamp structure (124).

8. The hair clipper (104) of any one of preceding claims, wherein the reservoir (192) includes a sponge (206) arranged inside the chamber (202) with the conditioner absorbed inside the sponge (206).

9. A hair trimmer assembly (100), comprising:

a hair trimmer (102) including a blade section (108); and
a hair clipper (104) removably coupled to the blade section (108) of the hair trimmer (102) and having

a body (112) including

a clamp structure (124) removably clamped to the blade section (108) of the hair trimmer (102) and having a first longitudinal end (126) and a second longitudinal end (128),
a first wall (160) arranged proximate to the first longitudinal end (126) of the clamp structure (124) and extending substantially perpendicularly from the clamp structure (124), wherein the first wall (160) extends in a lateral direction, and
a second wall (162) arranged substantially parallel to and spaced apart from the first wall (160) defining a gap (164) therebetween, the second wall (162) being arranged forwardly of the first longitudinal end (126) and is coupled to the clamp structure (124), and

a guide structure (114) pivotally coupled to the body (112) and adapted to move between an open position and a closed position relative to the body (112), the guide structure (114) includes

a base (180) having a front end (182) and a rear end (184),
a plate (186) extending substantially perpendicularly from the base (180) towards the clamp structure (124), wherein the plate (186) is arranged between the first wall (160) and the second wall (162) in the closed position of the guide structure (114), and

characterized in that

a reservoir (192) defining a chamber (202) arranged between the plate (186) and the rear end (184) of the base (180) with a conditioner disposed inside the chamber (202), wherein in the closed position of the guide structure (114), the first wall (160) of the body (112) pushes a plurality of hairs inside the chamber (202) and the plate (186) of the guide structure (114) guides the plurality of hairs towards trimmer blades (110) to remove split end of one or more of the plurality of hairs.

10. The hair trimmer assembly (100) of claim 9 further comprises a biasing member (118) arranged between the body (112) and the guide structure (114) and biasing the guide structure (114) to the open position.

11. The hair trimmer assembly (100) of claim 9 or claim 10, wherein the clamp structure (124) includes a bottom (130) having a first surface (132) arranged facing the base (180) of the guide structure (114) and a second surface (134) arranged opposite to the first surface (132) and configured to abut at least a portion of the blade section (108) of the hair trimmer (102).

12. The hair trimmer assembly (100) of claim 11, wherein the clamp structure (124) includes

a stopper (138) arranged at the first longitudinal end (126) of the clamp structure (124) and extending vertically from the second surface (134) of the bottom (130) and defining a cavity (142), a clip (140) arranged at the second longitudinal end (128) and extending vertically from the second surface (134) and adapted to be pivoted between a forward position and a rearward position relative to the bottom (130) to enable a clamping and removal of the hair clipper (104) with the blade section (108) of the hair trimmer (102), wherein the blade section (108) is arranged between the stopper (138) and the clip (140) such that the trimmer blades (110) extend forwardly of the stopper (138) through the cavity (142) in an assembly of the hair trimmer (102) with the clamp structure (124).

13. The hair trimmer assembly (100) of claim 11 or claim 12, wherein the clamp structure (124) includes a pair of sidewalls (170, 172) extending vertically outwardly from the first surface (132) of the bottom (130) and arranged space apart from each other defining a space (176) for containing the plurality of hairs, wherein the first wall (160) is disposed perpendicu-

larly to the pair of sidewalls (170, 172).

- 14.** The hair trimmer assembly (100) of any one of claims 9 to 13, wherein the guide structure (114) includes

a first comb structure (188) having a plurality of first teeth (196) extending vertically from the base (180) and arrayed in the lateral direction, wherein the first teeth (196) are arranged proximate to the rear end (184) of the base (180), and a second comb structure (190) having a plurality of second teeth (200) extending vertically from the base (180) and arrayed in the lateral direction, wherein the second teeth (200) are arranged proximate to the front end (182) of the base (180) and are disposed forwardly of the clamp structure (124).

- 15.** The hair trimmer assembly (100) of any one of claims 9 to 14, wherein the reservoir (192) includes a sponge (206) arranged inside the chamber (202) with the conditioner absorbed inside the sponge (206).

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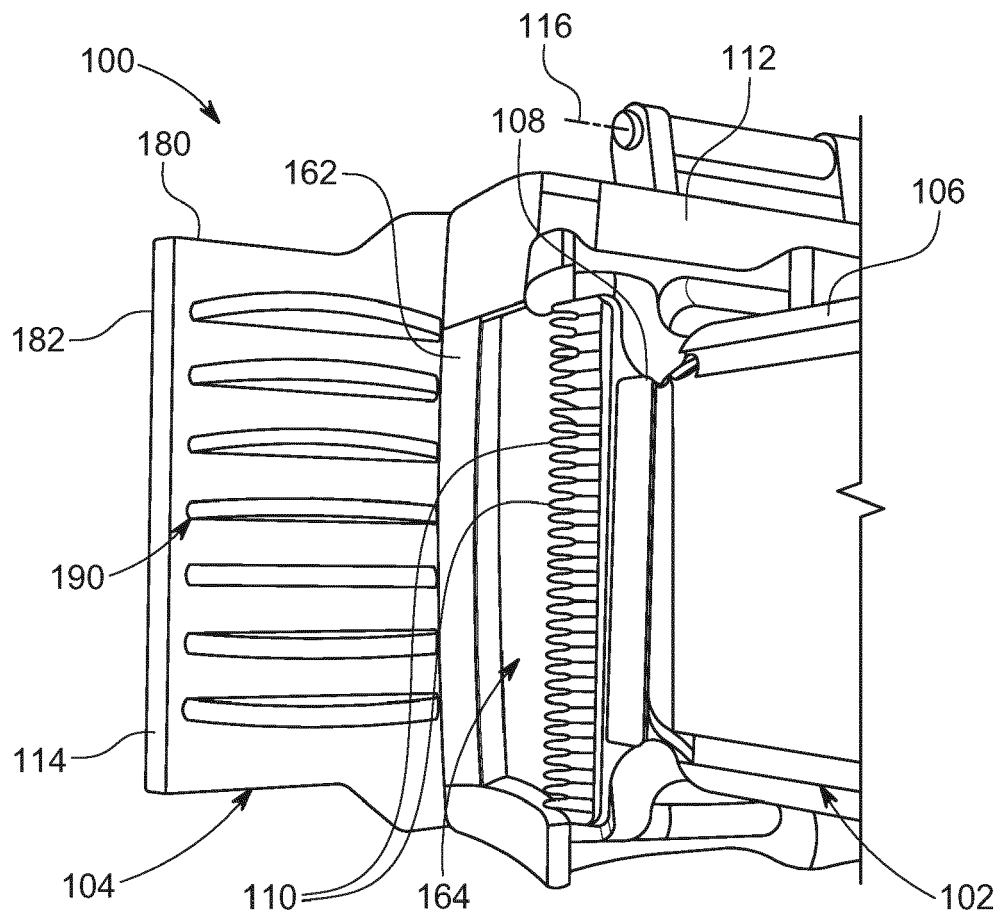


FIG. 1

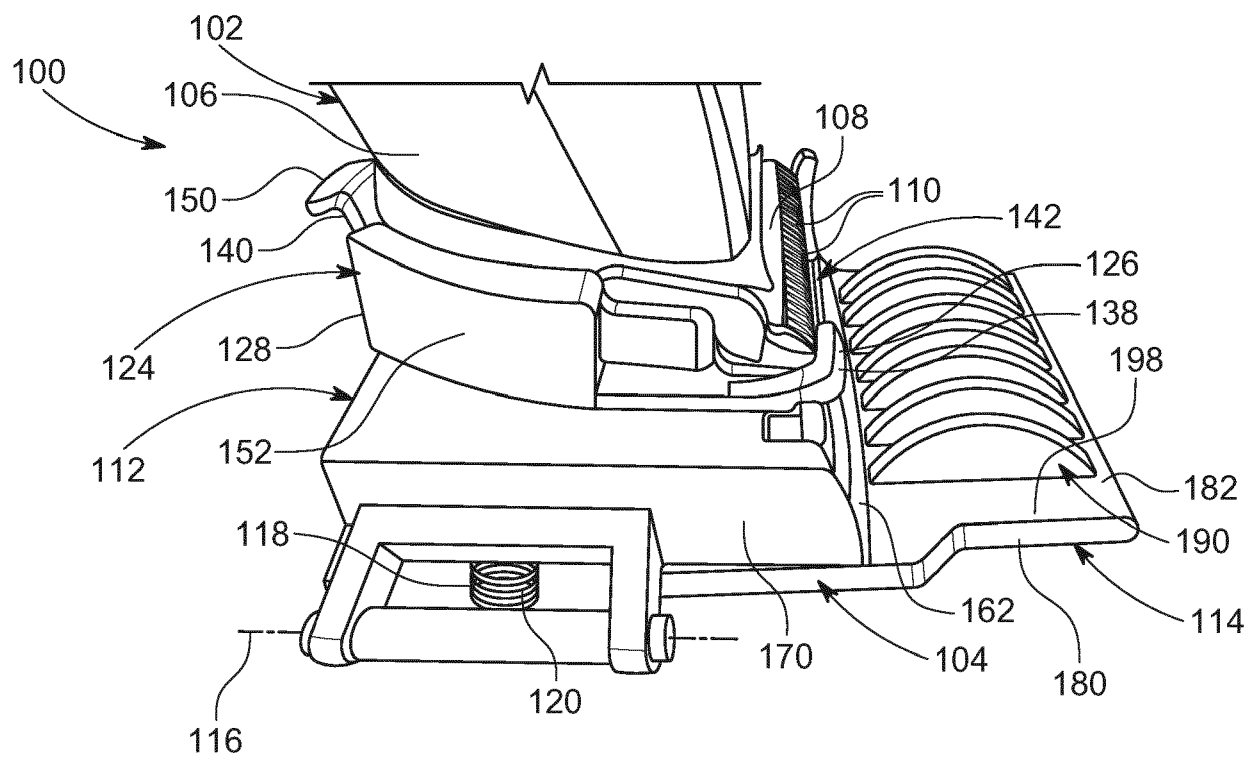


FIG. 2

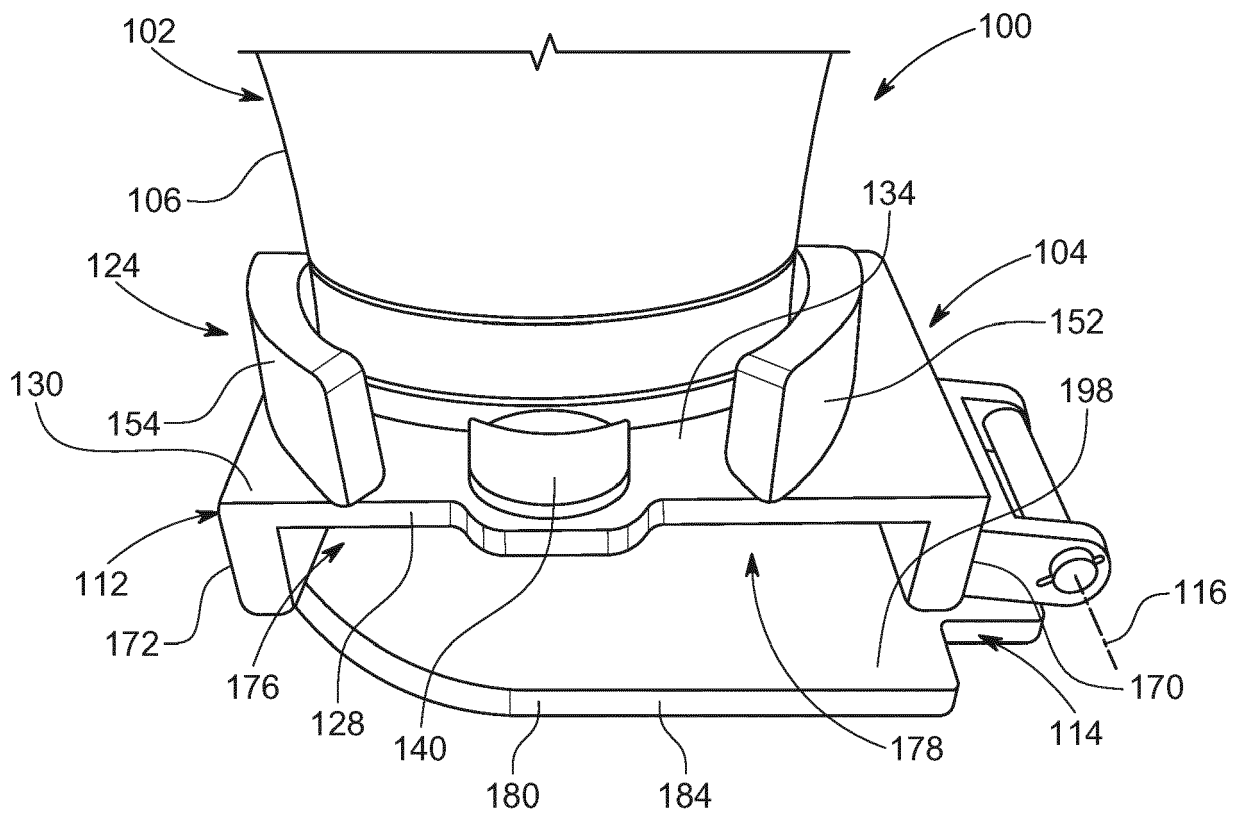


FIG. 3

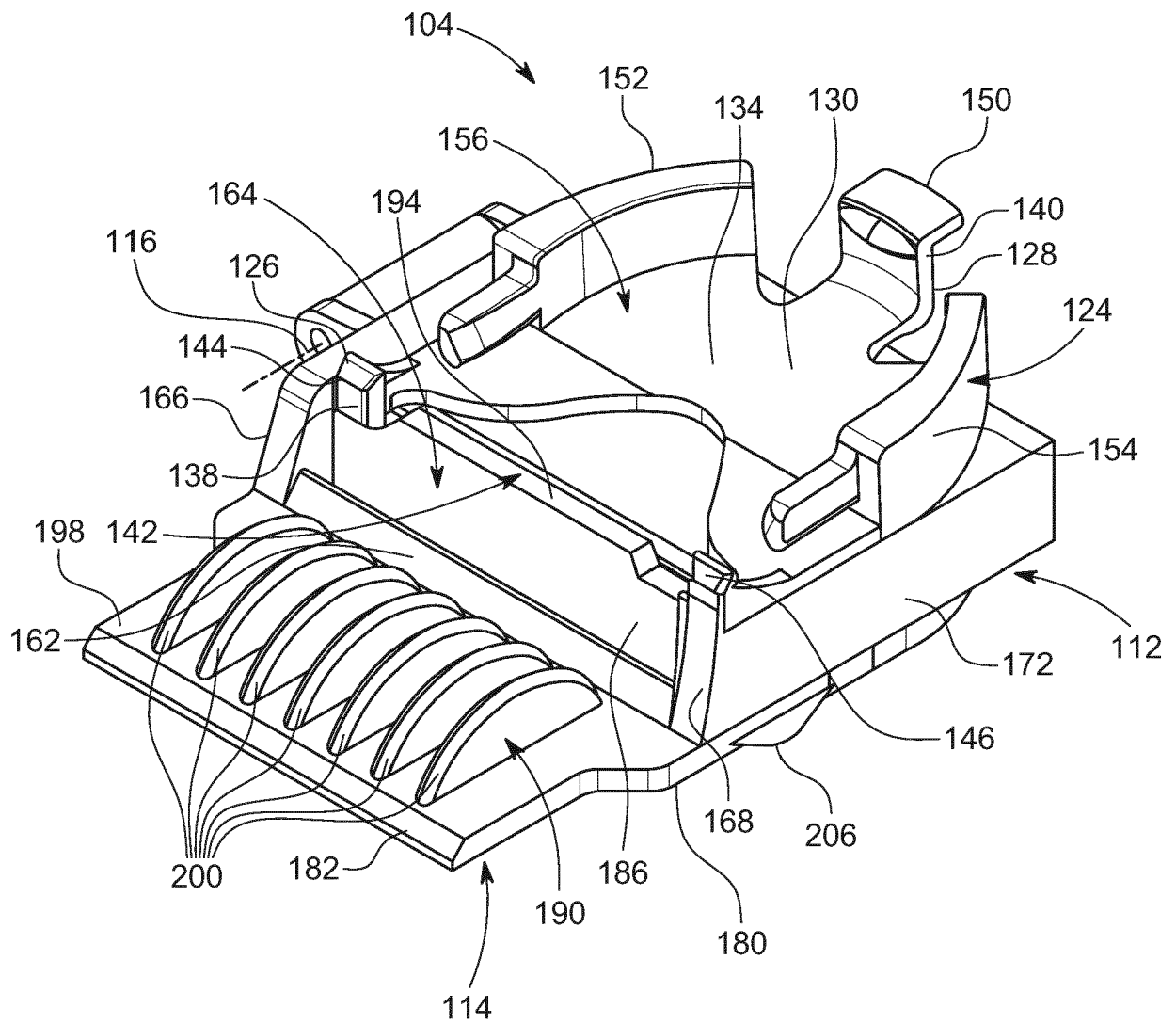


FIG. 4

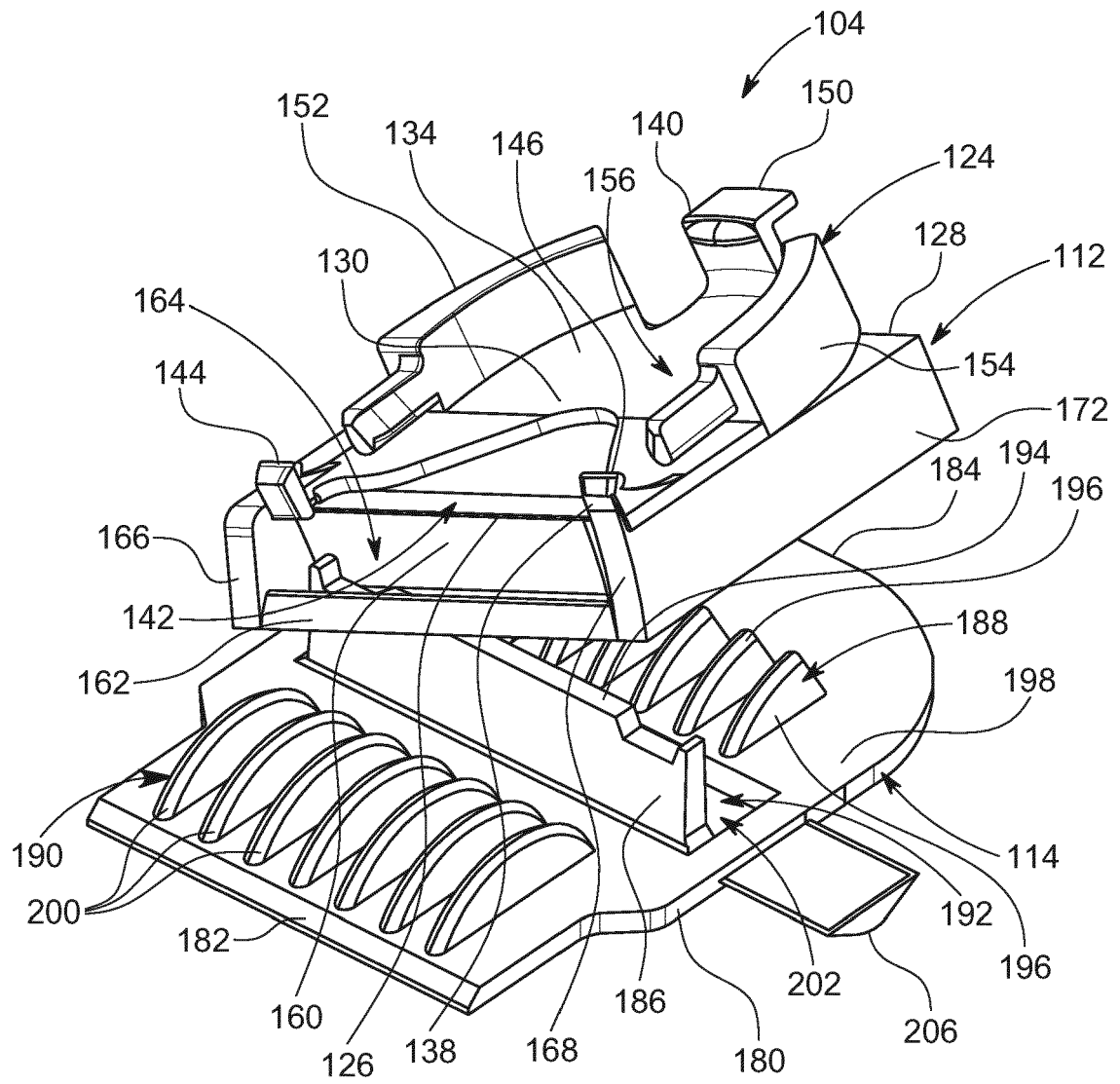


FIG. 5

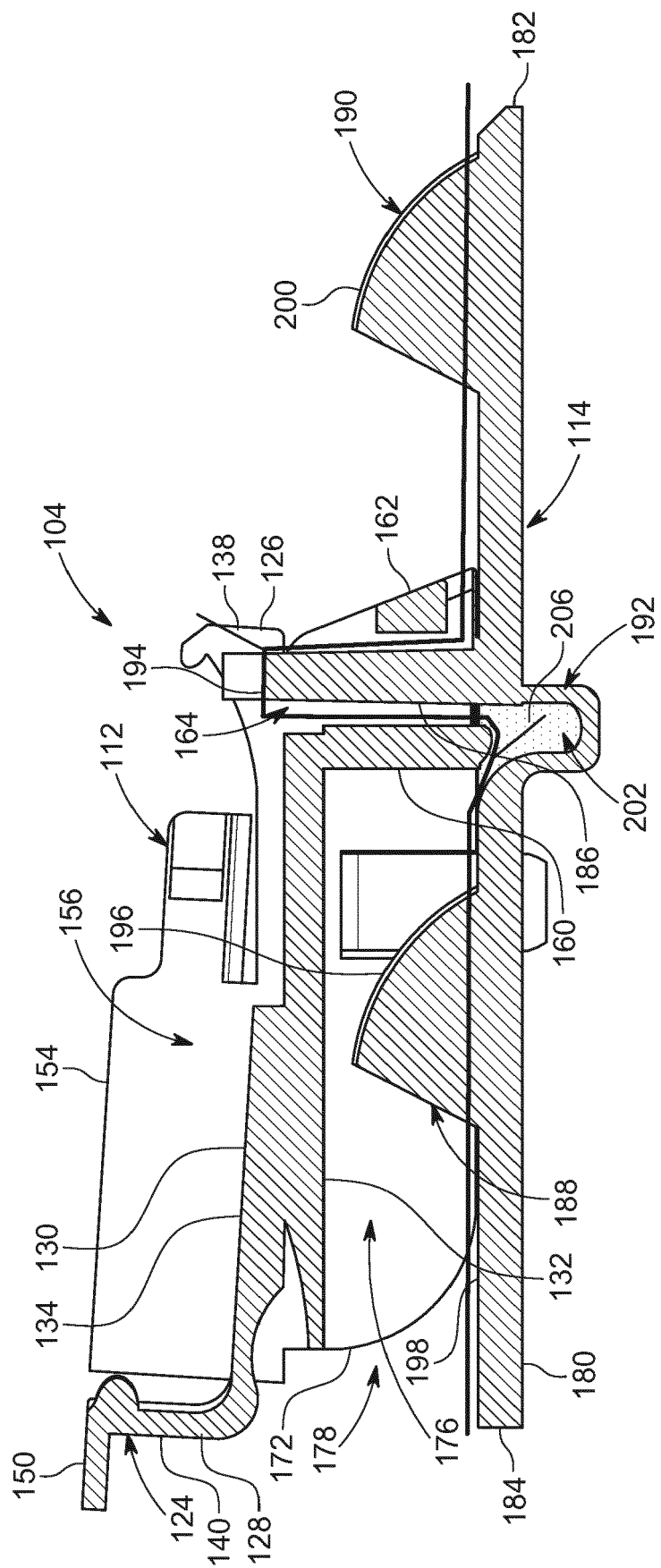


FIG. 6



EUROPEAN SEARCH REPORT

Application Number

EP 23 18 7755

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 2017/217886 A1 (SHMIDT EVGENY VLADIMIROVICH [RU]) 21 December 2017 (2017-12-21) * figures 1-3 * * page 1, line 1 - page 3, line 3 * -----	1-15	INV. B26B19/20 B26B19/22 B26B19/38
A	WO 2016/010462 A1 (SHMIDT EVGENIY VLADIMIROVICH [RU]) 21 January 2016 (2016-01-21) * figures 1-7 * -----	1-15	
A	US 5 237 750 A (NAKANO RYUICHI [JP] ET AL) 24 August 1993 (1993-08-24) * the whole document * -----	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			B26B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		11 January 2024	Calabrese, Nunziante
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11-01-2024

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