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(72) Inventeur/Inventor:
CHOI, MYUNG PYO, KR

(73) Propriétaire/Owner:
CHOI, MYUNG PYO, KR

(74) Agent: GOUDREAU GAGE DUBUC

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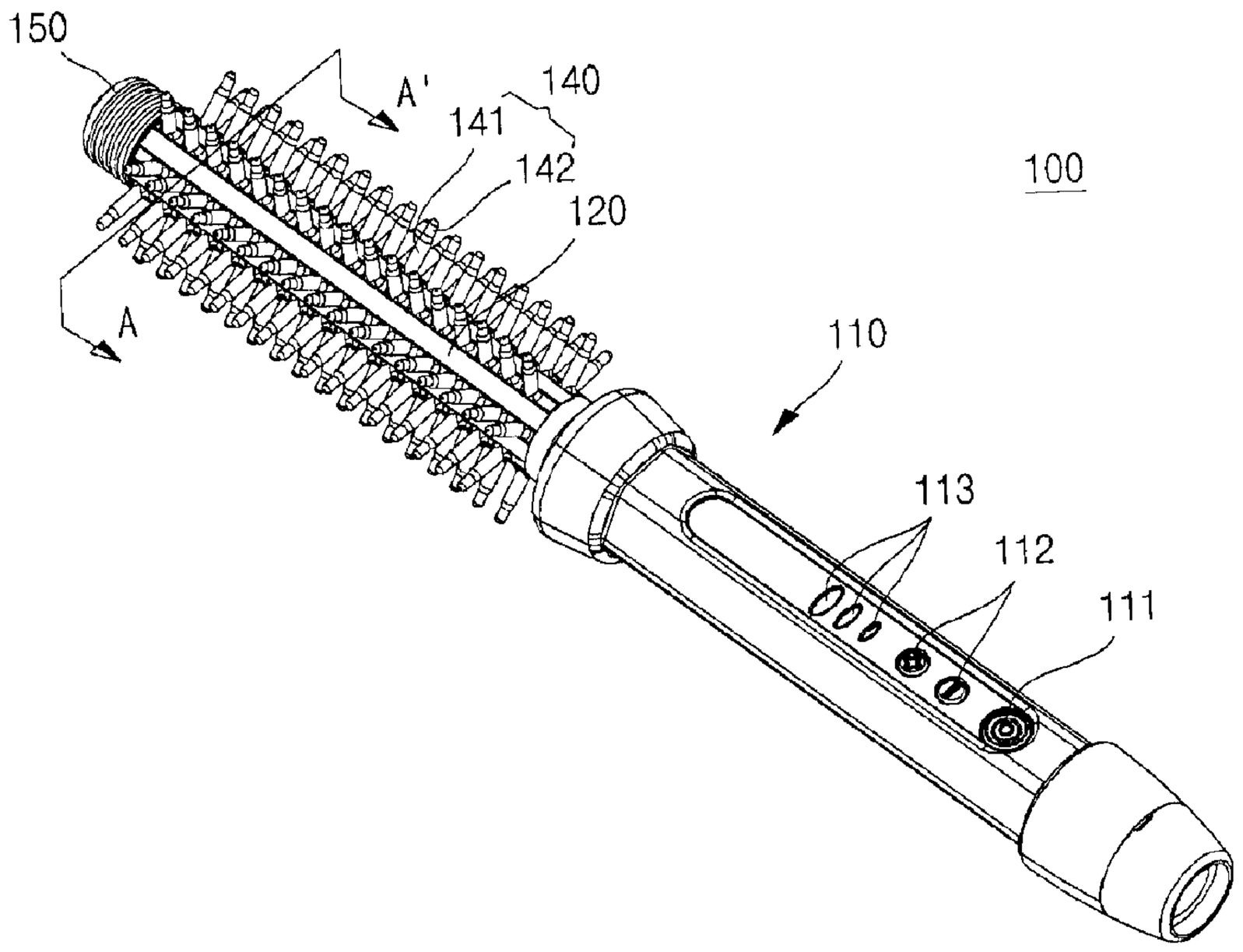
(54) Title: HAIRSTYLING BRUSH IRON



(57) Abrégé/Abstract:
A brush iron device which enables a user to set a desired hair style by applying heat to the user's hair and can protect the scalp of user from heat, is provided. The brush iron device includes an iron roll heated at a high temperature and including a plurality of perforations formed lengthwise along its outer peripheral surface, and brushes having lower portions engaged with the perforations of the iron roll to then be combined with the iron roll, wherein the brushes include one or more heat transfer units engaged with the perforations of the iron roll, and one or more heat blocking units coupled to hollows of the one or more heat transfer units and exposed toward top portions of the one or more heat transfer units.

Abstract

A brush iron device which enables a user to set a desired hair style by applying heat to the user's hair and can protect the scalp of user from heat, is provided. The brush iron device includes an iron roll heated at a high temperature and including a plurality of perforations formed lengthwise along its outer peripheral surface, and brushes having lower portions engaged with the perforations of the iron roll to then be combined with the iron roll, wherein the brushes include one or more heat transfer units engaged with the perforations of the iron roll, and one or more heat blocking units coupled to hollows of the one or more heat transfer units and exposed toward top portions of the one or more heat transfer units.

HAIRSTYLING BRUSH IRON

BACKGROUND OF THE INVENTION

1. Field of the Invention

An aspect of the present invention relates to a brush iron device.

2. Description of the Related Art

In general, when people, particularly women, design their desired hair styles by trimming strands of hair, the desired hair style is first set with a comb such as a roll brush and then fixed using heat applied from a hairdryer. In the conventional hair styling method, however, the comb and the hairdryer need to be used at the same time, which is cumbersome and inconvenient in use. In addition, a force should be applied to the strands of hair using the comb and the hairdryer in order to transform the strands of hair in a desired manner, which is a laborious work for a user. Further, hair professionals, such as hairdressers, perform such a laborious work repeatedly for a long time, which is quite an exhausting work.

SUMMARY OF THE INVENTION

An embodiment of the present invention provides a brush iron device which can set a user's desired hair style by applying heat to strands of hair and can protect the user's scalp against the heat.

According to an embodiment of the present invention, a brush iron device is provided, including an iron roll heated at a high temperature and including one or more perforations formed lengthwise along its outer peripheral surface; and a brush having

lower portions engaged with the perforations of the iron roll to then be combined with the iron roll, wherein the brush includes one or more heat transfer units engaged with the perforations of the iron roll along a lengthwise direction, and one or more heat blocking units coupled to hollows of the one or more heat transfer units and exposed toward top portions of the one or more heat transfer units.

Each of the one or more heat transfer units may be formed of a metal.

Each of the one or more heat transfer units may be formed such that a diameter of its lower portion is greater than that of its upper portion so as to allow the lower portion to be engaged with each of the perforations of the iron roll.

The one or more heat transfer units may include a plurality of heat transfer units of the same shape and protrude in a direction in which the lower portions thereof are engaged with the perforations of the iron roll so that adjacent ones of the plurality of heat transfer units are spaced apart from each other.

Each of the one or more heat blocking units may be formed of a plastic material.

The one or more heat blocking units may include as many heat blocking units as the heat transfer units and have heights greater than those of the one or more heat transfer units so that they protrude further than top portions of the heat transfer units.

The one or more heat blocking units may be formed as discrete units coupled to hollows of the one or more heat transfer units, respectively, and may protrude further than top portions of the heat transfer units.

Each of the brushes may further include a protection unit formed in at least one

of front and rear ends of the heat transfer unit using the same material as the heat blocking unit.

The brush iron device may further include heater provided within the iron roll to apply heat to the iron roll.

The iron roll may be shaped of a cylinder and may include the perforations formed in a lenghthwise direction of its lateral surface.

The iron roll may be substantially plate-shaped and may include the perforations formed in a lenghthwise direction of its top surface.

According to another embodiment of the present invention, a brush iron device is provided, including an iron roll heated at a high temperature and including a plurality of perforations formed lengthwise along its outer peripheral surface; and brushes having lower portions engaged with the perforations of the iron roll and combined with the iron roll, wherein each of the brushes is formed of a plastic material and has diameter of its lower portion greater than that of its upper portion so that the lower portion is engaged with each of the perforations of the iron roll and the upper portion is exposed toward an upper portion of the iron roll.

The brushes may include a plurality of brushes integrally formed in an array of rows and brushes in each row may be coupled to the perforations of the iron roll.

The brushes may have lower portions integrally formed in each row.

The brushes may be formed in each row such that upper portions of adjacent brushes protruding from the iron roll are spaced apart from each other.

The brushes may include a plurality of discrete brushes separated from each other to then be engaged with the perforations of the iron roll.

The iron roll may be shaped of a cylinder and may include the perforations formed in a lenghthwise direction of its lateral surface.

The iron roll may be substantially plate-shaped and may include the perforations formed in a lenghthwise direction of its top surface.

As described above, the brush iron device according to the present invention includes perforations formed lengthwise on the lateral surface of an iron roll and heat transfer units coupled to the perforations to allow the heat transfer units to contact user's hair, thereby facilitating hair style setting.

In addition, the brush iron device according to the present invention includes heat blocking units formed in the heat transfer units and further protruding than the heat transfer units, to allow the heat blocking units to contact user's scalp, thereby protecting the user's scalp from the heat transfer units of high temperature.

Further, the brush iron device according to the present invention includes brushes integrally formed by row to allow the brushes to be combined with the perforations of the iron roll all at once, thereby increasing the productivity.

According to yet another embodiment of the present invention, a brush iron device is provided, comprising: an iron roll heated at a high temperature and including one or more perforations formed lengthwise along its outer peripheral surface; and a brush having lower portions engaged with the perforations of the iron roll to then be combined with the iron roll, wherein the brush includes one or more heat transfer units engaged with the perforations of the iron roll along a lengthwise direction, and one or more heat blocking units coupled to hollows of the one or more heat transfer units and exposed toward top portions of the one or more heat transfer units, and wherein the one

or more heat transfer units are formed such that a diameter of itstheir lower portions is greater than a diameter of itstheir upper portions so as to allow the lower portions to be secured within the perforations.

Additional aspects and/or advantages of the invention will be set forth in part in the description which follows and, in part, will be obvious from the description, or may be learned by practice of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The objects, features and advantages of the present invention will be more apparent from the following detailed description in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of a brush iron device according to an embodiment of the present invention;

FIG. 2 is a cross-sectional view of the line A-A' of FIG. 1;

FIG. 3 is a perspective view of an iron roll of the brush iron device shown in FIG. 1;

FIG. 4 is a cross-sectional view of the iron roll of the brush iron device shown in FIG. 1;

FIG. 5 is a cross-sectional view illustrating a brush of the brush iron device shown in FIG. 1;

FIG. 6A is a cross-sectional view illustrating a heat blocking unit of the brush iron device shown in FIG. 1;

FIG. 6B is a cross-sectional view of a heat transfer unit of the brush iron device shown in FIG. 1;

FIG. 7 is a cross-sectional view illustrating an iron roll and a brush are combined with each other in a brush iron device according to another embodiment of the present invention;

FIG. 8 is a perspective view of an iron roll of the brush iron device shown in FIG. 7;

FIG. 9 is a front view of the brush of the brush iron device shown in FIG. 7;

FIG. 10 is a side view of the brush of the brush iron device shown in FIG. 7;

FIG. 11 is a plan view of the brush of the brush iron device shown in FIG. 7;

FIG. 12 is a perspective view of a brush iron device according to still another embodiment of the present invention;

FIG. 13 is a side view illustrating brushes of the brush iron device shown in FIG. 12;

FIG. 14 is a front view of an iron roll of the brush iron device shown in FIG. 12;

FIG. 15 is a plan view of the iron roll of the brush iron device shown in FIG. 12;

FIG. 16A is a side view illustrating heat transfer units of the brush iron device shown in FIG. 12;

FIG. 16B is a side view illustrating protection units of the brush iron device shown in FIG. 12; and

FIG. 16C is a side view illustrating a state in which the heat blocking units and the protection units are combined with the heat transfer units in the brush iron device shown in FIG. 12.

DETAILED DESCRIPTION OF THE INVENTION

Hereinafter, embodiments of the present invention will be described in detail with reference to the accompanying drawings so that those skilled in the art to which the present invention pertains can realize the present invention.

A configuration of a brush iron device according to an embodiment of the present invention will now be described.

FIG. 1 is a perspective view of a brush iron device according to an embodiment of the present invention, FIG. 2 is a cross-sectional view of the line A-A' of FIG. 1, FIG. 3 is a perspective view of an iron roll of the brush iron device shown in FIG. 1, FIG. 4 is

a cross-sectional view of the iron roll of the brush iron device shown in FIG. 1, FIG. 5 is a cross-sectional view of a brush of the brush iron device shown in FIG. 1, FIG. 6A is a cross-sectional view illustrating a heat blocking unit of the brush iron device shown in FIG. 1, and FIG. 6B is a cross-sectional view illustrating a heat transfer unit of the brush iron device shown in FIG. 1.

Referring to FIGS. 1 to 6B, the brush iron device 100 includes a handle 110, an iron roll 120, heaters 130, brushes 140, and a fixing unit 150.

The handle 110 is gripped by a user's hand when the brush iron device 100 is used. In order to apply power to the heaters 130 formed at one end of the handle 110, a power supply (not shown) is connected to the other end of the handle 110. Here, the outer portion of the handle 110 is formed of an electrical, thermal insulator for ensuring user's safety.

The handle 110 may include a switch 111 for controlling power on/off, a thermostat button 112 for adjusting the temperature of the brushes 140, and a display 113 indicating the current temperature of the brushes 140 through a light emitting diode (LED).

The iron roll 120 is coupled to an end of the handle 110. The iron roll 120 extends lengthwise from the handle 110 and is formed of a metal. The iron roll 120 receives heat from the heaters 130 formed therein and transmits the heat to the brushes 140.

The iron roll 120 has a hole 121 lengthwise formed therein. In addition, since the heaters 130 are coupled to the hole 121, the heaters 130 are formed in a lengthwise direction of the iron roll 120, thereby uniformly applying heat to the iron roll 120.

The iron roll 120 has a substantially cylindrical shape, and includes first perforations 122 formed on its outer peripheral surface to be combined with the brushes 140. The first perforations 122 are lengthwise formed along the lateral surface of the iron roll 120. In addition, the first perforations 122 have lower portions disposed within the iron roll 120 having larger diameters than upper portions disposed outside the iron roll 120, thereby preventing the brushes 140 combined with the first perforations 122 from being dislodged. The first perforations 122 are radially formed along the periphery of the iron roll 120. This allows the brushes 140 coupled to the first perforations 122 to have a shape of a general roll brush.

A second perforation 123 is formed at an end of the iron roll 120, and the fixing unit 150 is coupled to the second perforation 123. The fixing unit 150 seals side portions of the first perforations 122, thereby fixing the brushes 140 combined with the first perforations 122.

The heaters130 are formed within the hole 121 of the iron roll 120. Since the heaters 130 are arranged lengthwise within the iron roll 120, they may apply a uniform amount of heat to the iron roll 120. The heaters 130 may be general heaters, for example, ceramic heaters, but not limited thereto.

The brushes 140 are formed in plurality to be engaged with the first perforations 122 of the iron roll 120. The brushes 140 are engaged with the first perforations 122 in a row. In addition, as many brushes 140 as the first perforations 122 are formed to then be engaged with the first perforations 122, respectively. Alternatively, fewer brushes 140 than the first perforations 22 may be formed, so that the brushes 140 may be formed only in some selected first perforations 122.

The brushes 140 receive heat from the iron roll 120 and transfer the heat to user's hair, thereby setting a hair style.

Each of the brushes 140 includes a heat transfer unit 141 coupled to each of the first perforations 122 of the iron roll 120, and a heat blocking unit 142 formed within the heat transfer unit 141.

The heat transfer unit 141 is formed such that a diameter of its lower portion is greater than that of its upper portion so as to allow the lower portion to be engaged with the first perforation 122 of the iron roll 120. Since the heat transfer unit 141 receives heat from the iron roll 120 and transfers the same to the user's hair, it may be formed of a highly conductive metal. In addition, the heat transfer unit 141 has a hollow that vertically extends through the inside of the heat transfer unit 141. An upper portion of the heat blocking unit 142 may be exposed through the hollow. In addition, the hollow of the heat transfer unit 141 may have a lower diameter greater than an upper diameter, which provides a stepped part 141a. Therefore, if the heat blocking unit 142 is combined with the stepped part 141a, it is possible to prevent the heat transfer unit 141 from being dislodged. In addition, the heat transfer unit 141 has a lower outer peripheral surface having a predetermined thickness (d). Thus, the thickness (d) of the heat transfer unit 141 makes adjacent heat transfer units141 spaced apart from each other.

The heat blocking unit 142 is positioned in the hollow of the heat transfer unit 141. In addition, the heat blocking unit 142 is formed such that its lower diameter is greater than its upper diameter, providing for a stepped part 142a. The stepped part 142a of the heat blocking unit 142 is coupled to the stepped part 141a of the heat transfer unit 141. The thickness (d) of the heat transfer unit 141 makes adjacent heat blocking units

142 spaced apart from each other. Since a height of the heat blocking unit 142 is greater than that of the heat transfer unit 141, the heat blocking unit 142 protrudes further than a top portion of the heat transfer unit 141. In order to suppress heat transfer of the heat blocking unit 141 and the iron roll 120, the heat blocking unit 142 may be formed of a plastic material having low thermal conductivity. Specifically, the heat blocking unit 142 may be formed of nylon or polybutylenterephthalate (PBT) having high thermal resistance. Therefore, it is possible to prevent the heat transfer unit 141 of high temperature from contacting user's scalp when the brush iron device 100 is used by the user, while allowing the heat blocking unit 142 having relatively low heat conductivity to contact the user's scalp, thereby protecting the user's scalp.

The fixing unit 150 is coupled with the second perforation 123 of the iron roll 120. A diameter of the fixing unit 150 is larger than that of the iron roll 120, thereby sealing side portions of the first perforations 122. Therefore, the fixing unit 150 prevents the brushes 140 of the iron roll 120 from being dislodged from the first perforations 122.

As described above, the brush iron device 100 according to the embodiment of the present invention includes the first perforations 122 formed lengthwise on the lateral surface of the iron roll 120, and the heat transfer units 141 coupled to the first perforations 122 to make the heat transfer units 141 contact user's hair, thereby facilitating hair style setting. In addition, the brush iron device 100 according to the embodiment of the present invention includes heat blocking units 142 formed within the heat transfer units 141 and protruding further than top portions of the heat transfer units 141 to allow the heat blocking units 142, rather than the heat transfer units 141, to

contact the user's scalp, thereby protecting the user's scalp against heat of the heat transfer units 141.

Hereinafter, a configuration of a brush iron device according to another embodiment of the present invention will be described.

FIG. 7 is a cross-sectional view illustrating an iron roll and a brush are combined with each other in a brush iron device according to another embodiment of the present invention, FIG. 8 is a perspective view of an iron roll of the brush iron device shown in FIG. 7, FIG. 9 is a front view of the brush of the brush iron device shown in FIG. 7, FIG. 10 is a side view of the brush of the brush iron device shown in FIG. 7, and FIG. 11 is a plan view of the brush of the brush iron device shown in FIG. 7. The same functional components as those of the previous embodiment will be denoted by the same reference numerals, and the following description will focus on differences between the present and previous embodiments.

Referring to FIGS. 7 to 11, the brush iron device 200 according to the embodiment of the present invention includes a handle (not shown), an iron roll 120, heaters 130, brushes 240, and a fixing unit (not shown).

The brushes 240 are coupled to the inside of the iron roll 120. The brushes 240 are coupled to first perforations 122 of the iron roll 120, thereby transferring heat to user's hair. In addition, upper portions of the brushes 240 contact user's scalp. Therefore, each of the brushes 240 is formed of a plastic material having low thermal conductivity, preferably nylon or PBT having high thermal resistance, thereby protecting the user's scalp against heat.

The brushes 240 include a plurality of brushes integrally formed in an array of

rows. That is to say, each row of the integrally formed brushes 240 is coupled to each of the first perforations 122 of the iron roll 120. In addition, each of the brushes 240 includes the stepped part 240a formed at its lower portion, so that the stepped part 240a is coupled to each of the first perforations 122, thereby preventing the brushes 240 from being dislodged once they are coupled to the first perforations 122. Further, the brushes 240 may be coupled to the first perforations 122 all at once from one end of the iron roll 120 where a second perforation 123 is formed. Therefore, the productivity of the brush iron device 200 can be increased.

As described above, the brush iron device 200 according to the embodiment of the present invention includes the brushes 240 integrally formed for each row to allow the brushes 240 to be coupled to the perforations 121 of the iron roll 120 all at once, thereby increasing the productivity. In addition, in the brush iron device 200 according to the embodiment of the present invention, each of the brushes 240 is formed of nylon or polybutylenterephthalate (PBT) having high thermal resistance to reduce heat transfer, thereby protecting the user's scalp against heat of high temperature.

Hereinafter, a configuration of a brush iron device according to still another embodiment of the present invention will be described.

FIG. 12 is a perspective view of a brush iron device according to still another embodiment of the present invention, FIG. 13 is a side view illustrating a brush of the brush iron device shown in FIG. 12, FIG. 14 is a front view of an iron roll of the brush iron device shown in FIG. 12, and FIG. 15 is a plan view of the iron roll of the brush iron device shown in FIG. 12.

Referring to FIGS. 12 to 15, the brush iron device 300 according to the

embodiment of the present invention includes a handle 310, an iron roll 320, heaters (not shown), brushes 140, and a fixing unit 350.

The handle 310 is gripped by a user's hand and includes a power supply 11, a thermostat button 112, and a display 113. The handle 310 wraps around a surface of the iron roll 320, opposite to a surface to which the brushes 140 are coupled to thus prevent the iron roll 320 from being exposed, thereby protecting the user from the iron roll 320 of high temperature when the user uses the brush iron device 300.

The iron roll 320 is substantially plate-shaped and includes perforations 321 formed in a lenghthwise direction of its one surface. Of course, the number of the perforations 321 formed in the iron roll 320 may vary according to the area of the iron roll 320. The brushes 140 are coupled to the perforations 321 and protrude toward the one surface of the iron roll 320. The iron roll 320 forms the brushes 140 in a shape of a general cushion brush.

The fixing unit 350 is coupled to an end of the iron roll 320. The fixing unit 350 seals the perforations 321 of the iron roll 320, thereby preventing the brushes 140 from being dislodged from the iron roll 320.

As described above, the brush iron device 300 according to the embodiment of the present invention includes heat transfer units 141 of the brushes 140 coupled to one surface of the plate-shaped iron roll 320, forming a cushion brush, thereby allowing the heat transfer units 141 to contact user's hair, which enables the user to easily set a hair style. In addition, the brush iron device 300 according to the embodiment of the present invention includes heat blocking units 142 upwardly protruding from the brushes 140, thereby protecting the user's scalp against heat of the heat transfer units 141. In addition,

although not shown, the brush iron device 300 according to the embodiment of the present invention may also include the brushes 240 used in the brush iron device 200, instead of the brushes 140. In this case, the productivity can further be increased.

Hereinafter, a configuration of a brush iron device according to still another embodiment of the present invention will be described.

FIG. 16A is a side view illustrating heat transfer units of the brush iron device shown in FIG. 12, FIG. 16B is a side view illustrating protection units of the brush iron device shown in FIG. 12, and FIG. 16C is a side view illustrating a state in which the heat blocking units and the protection units are combined with the heat transfer units in the brush iron device shown in FIG. 12.

Referring to FIG. 16A, each of the heat transfer units 441 used in the brush iron device according to the embodiment of the present invention is shorter than each of the heat transfer units 141 of the previous embodiments. However, the heat transfer units 441 include perforations 441a formed therein to be coupled to heat blocking units to be described later.

Referring to FIG. 16B, the protection units 443 used in the brush iron device according to the embodiment of the present invention are positioned at opposing ends in a lengthwise direction of the heat transfer units 441. The protection units 443 and the heat transfer units 441 are coupled to the perforations of an iron roll. The protection units 443 prevent the heat transfer units 441 from being positioned at the opposing ends, thereby protecting user's hand against heat.

Referring to FIG. 16C, in the brushes 440 used in the brush iron device according to the embodiment of the present invention, heat blocking units 442 are

coupled to the heat transfer units 441, and the protection units 443 are positioned at opposing ends of the heat transfer units 441. Here, the heat blocking units 442 include a plurality of discrete heat blocking units separated from each other. The plurality of discrete heat blocking units 442 are independently coupled to insides of the heat transfer units 441, respectively. Therefore, the heat blocking units 442 are formed, irrespective of lengths of the heat transfer units 441 and are coupled to the heat transfer units 441 having various lengths, thereby increasing the productivity of the brushes 440.

While certain embodiments and details have been shown for purposes of illustrating the present invention, it will be apparent to those skilled in the art that various changes in the brush iron device disclosed herein may be made without departing from the scope of the invention, which is defined in the appended claims.

CLAIMS:

1. A brush iron device comprising:

an iron roll heated at a high temperature and including one or more perforations formed lengthwise along its outer peripheral surface; and

a brush having lower portions engaged with the perforations of the iron roll to then be combined with the iron roll,

wherein the brush includes one or more heat transfer units engaged with the perforations of the iron roll along a lengthwise direction, and one or more heat blocking units coupled to hollows of the one or more heat transfer units and exposed toward top portions of the one or more heat transfer units,

and wherein the one or more heat transfer units are formed such that a diameter of their lower portions is greater than a diameter of their upper portions so as to allow the lower portions to be secured within the perforations.

2. The brush iron device of claim 1, wherein each of the one or more heat transfer units is formed of a metal.

3. The brush iron device of claim 1, wherein the one or more heat transfer units include a plurality of heat transfer units of the same shape and protrude in a direction in which lower portions thereof are engaged with the perforations of the iron roll so that adjacent ones of the plurality of heat transfer units are spaced apart from each other.

4. The brush iron device of claim 1, wherein the one or more heat blocking units are formed of a plastic material.

5. The brush iron device of claim 1, wherein the one or more heat blocking units include as many heat blocking units as the heat transfer units and have heights greater than those of the one or more heat transfer units so that they protrude further than top portions of the heat transfer units.

6. The brush iron device of claim 1, wherein the one or more heat blocking units are formed as discrete units coupled to hollows of the one or more heat transfer units, respectively, and protrude further than top portions of the heat transfer units.

7. The brush iron device of claim 1, wherein each of the brushes further comprises a protection unit formed in at least one of front and rear ends of the heat transfer unit using the same material as the heat blocking unit.

8. The brush iron device of claim 1, further comprising heaters provided within the iron roll to apply heat to the iron roll.

9. The brush iron device of claim 1, wherein the iron roll is shaped as a cylinder and includes the perforations formed in a lenghthwise direction of its lateral surface.

10. The brush iron device of claim 1, wherein the iron roll is substantially plate-shaped and includes the perforations formed in a lenghthwise direction of its top surface.

FIG. 1

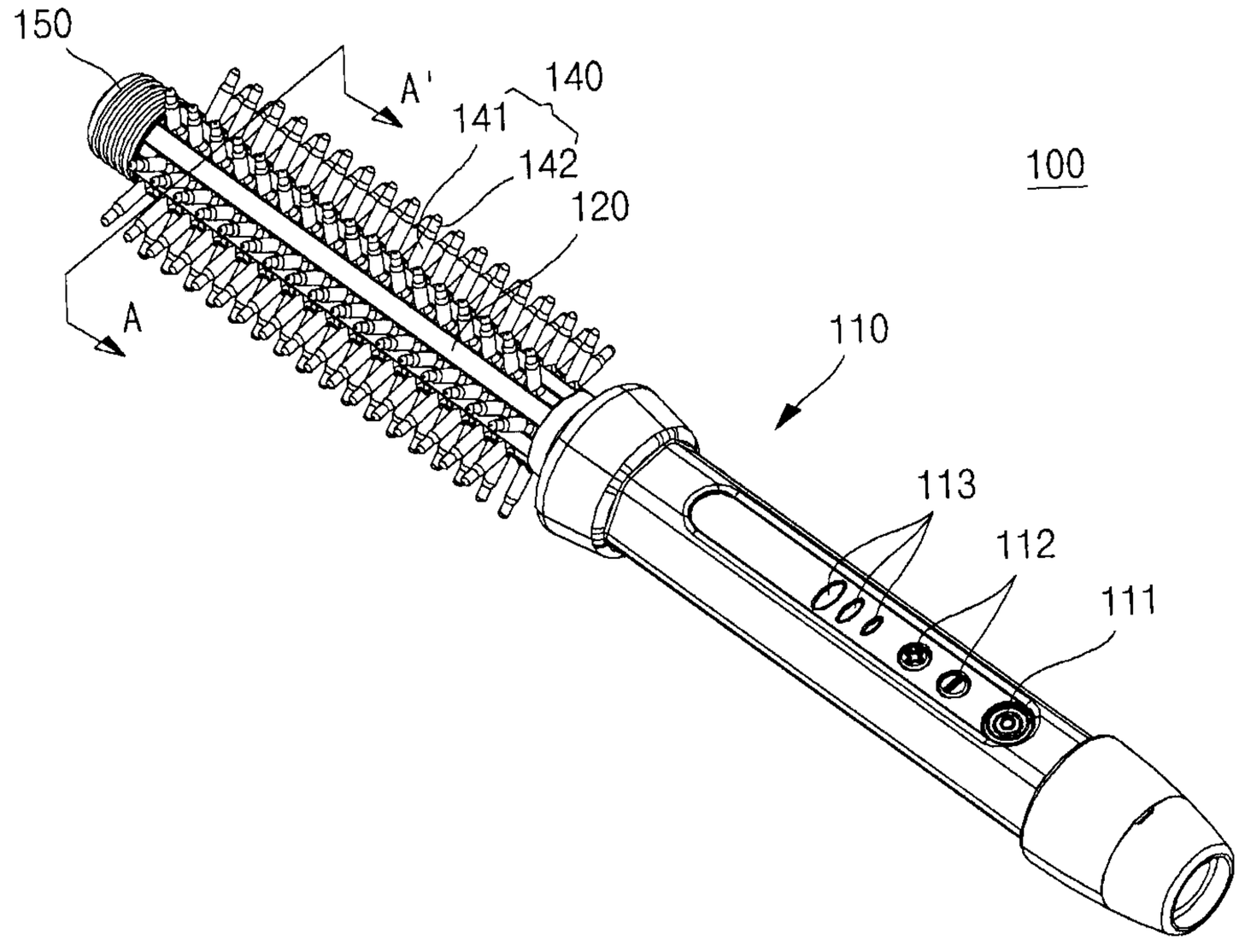


FIG. 2

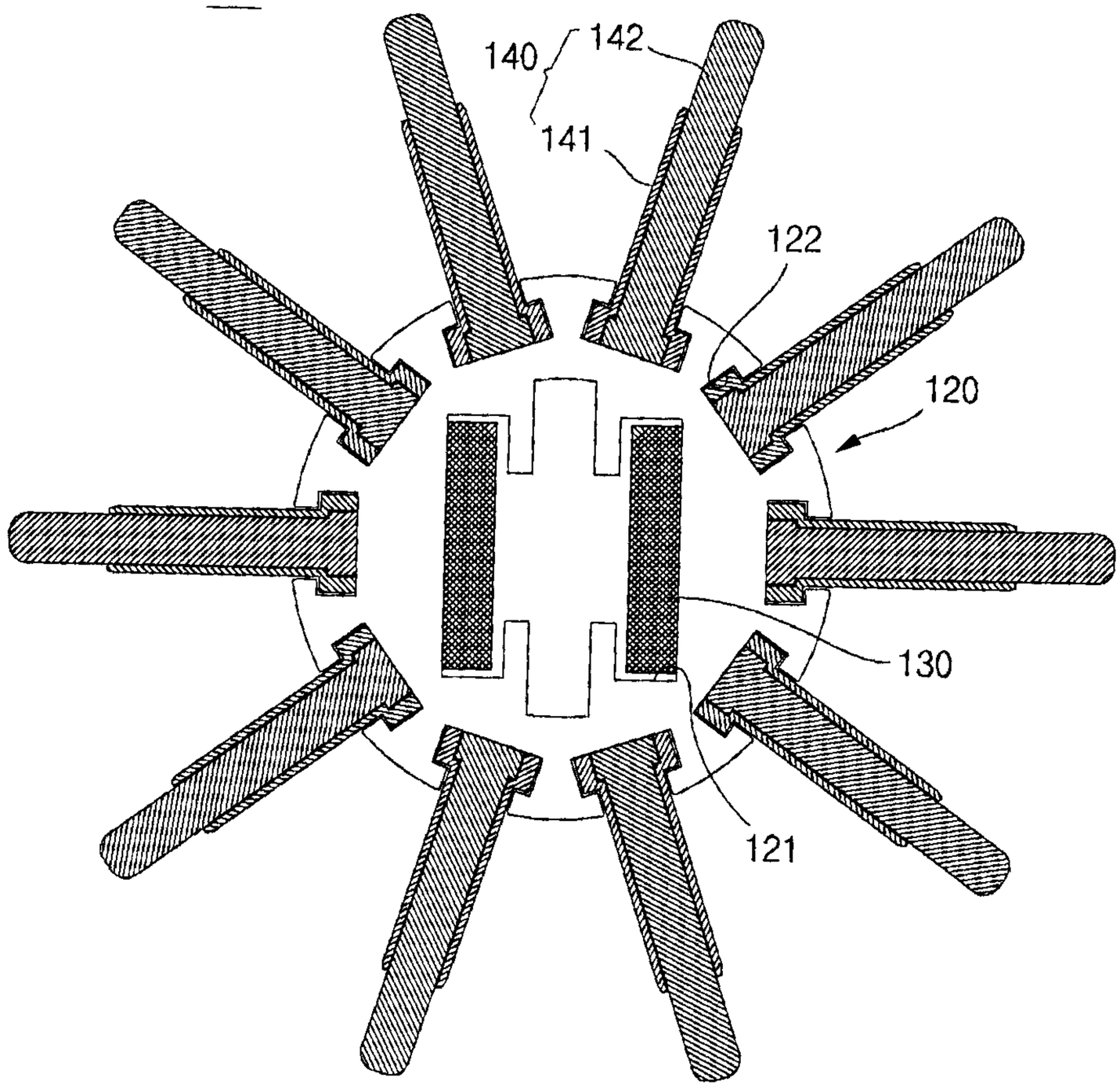


FIG. 3

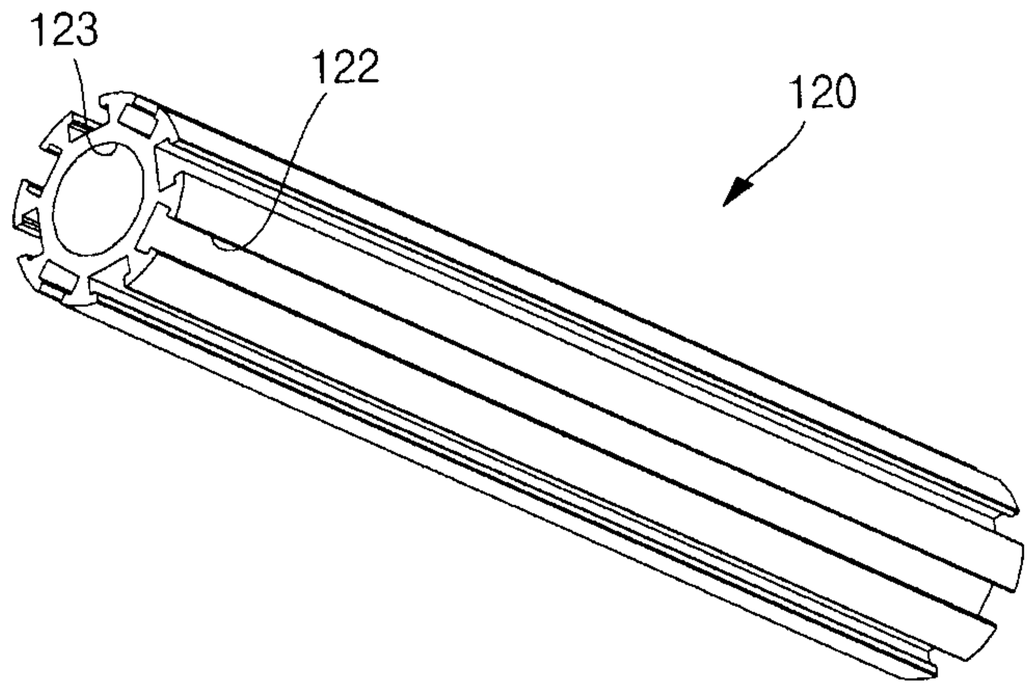


FIG. 4

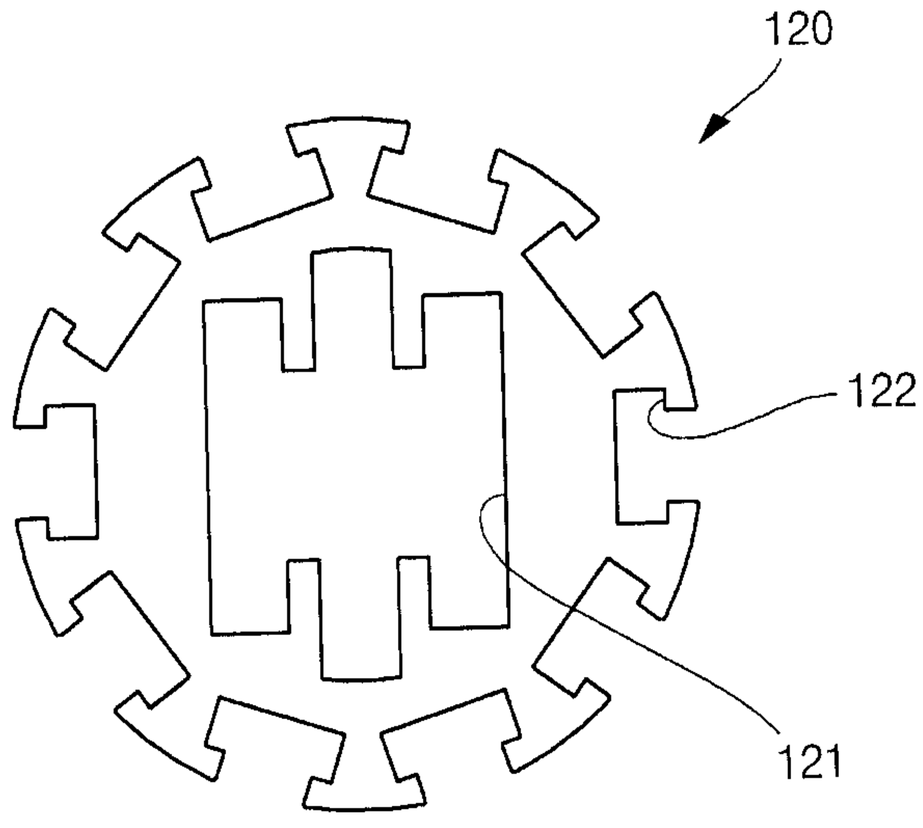


FIG. 5

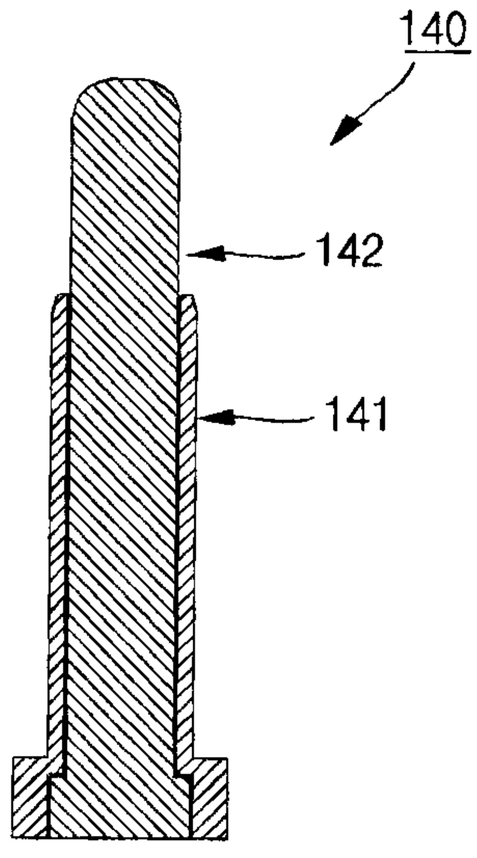


FIG. 6A

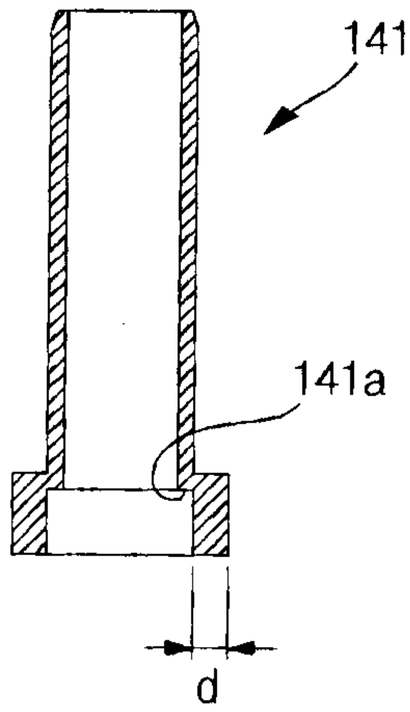


FIG. 6B

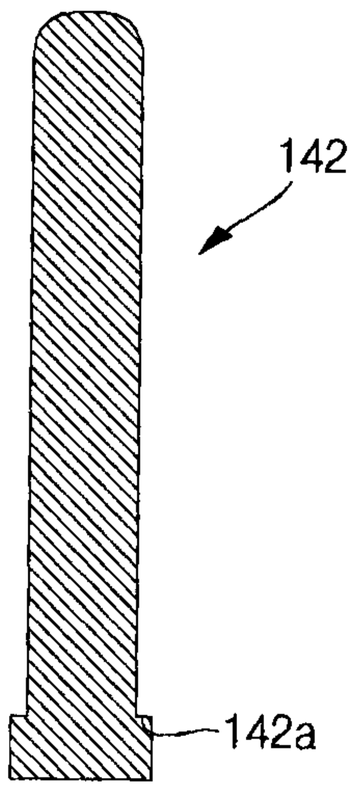


FIG. 7

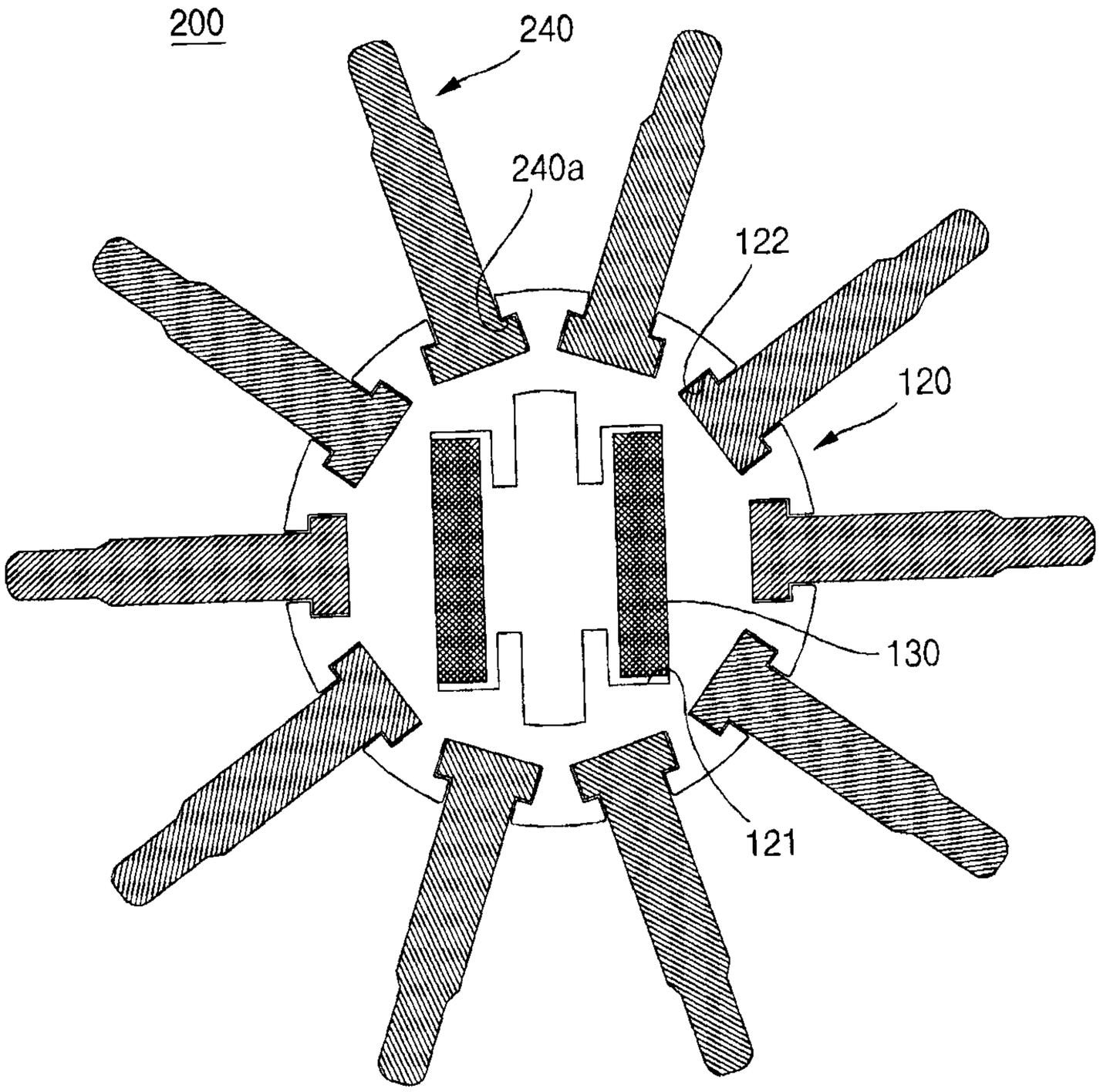


FIG. 8

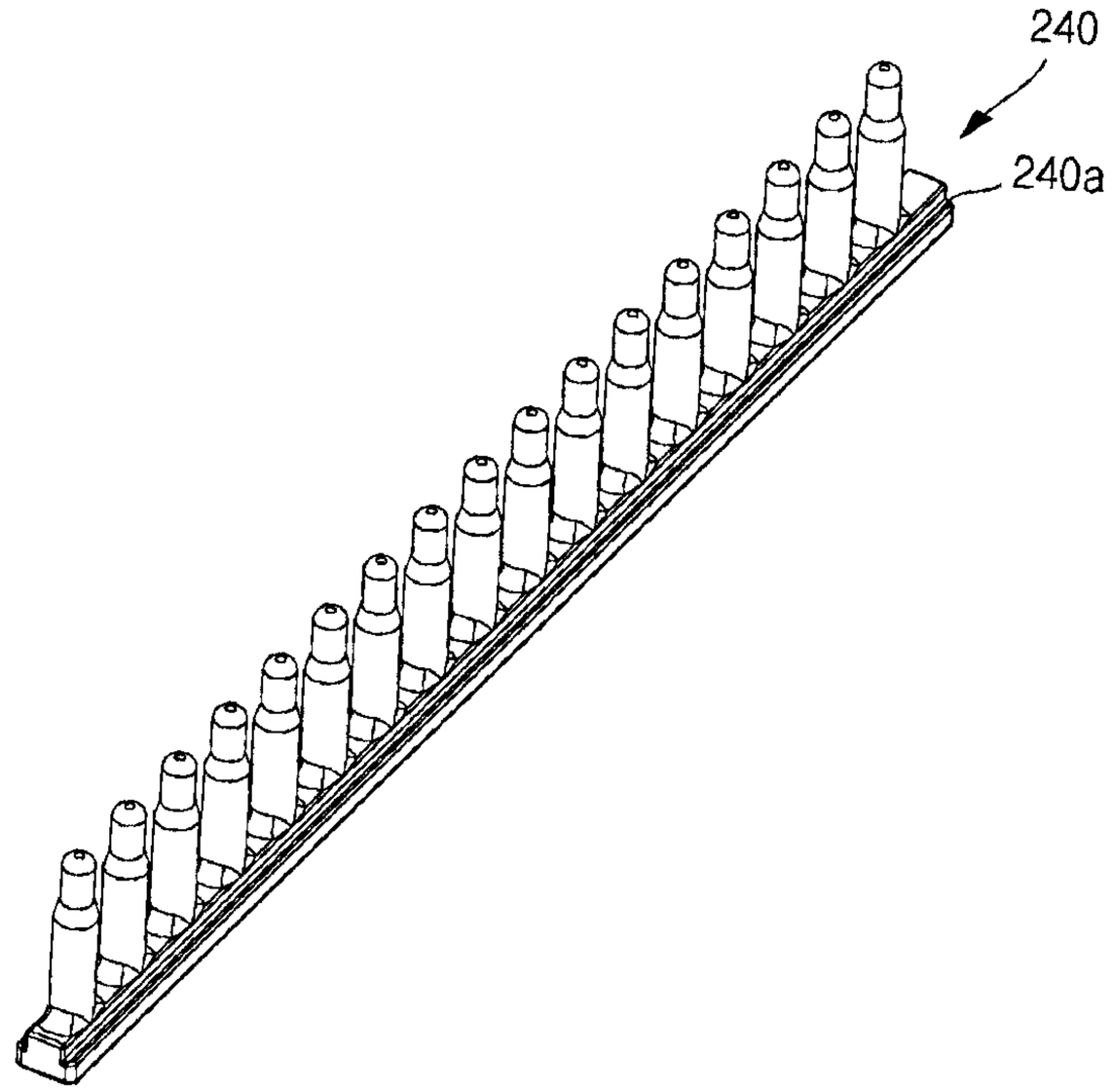


FIG. 9

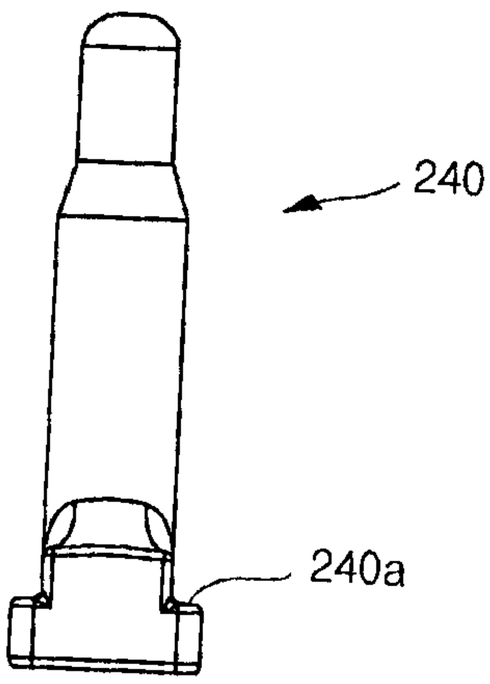


FIG. 10

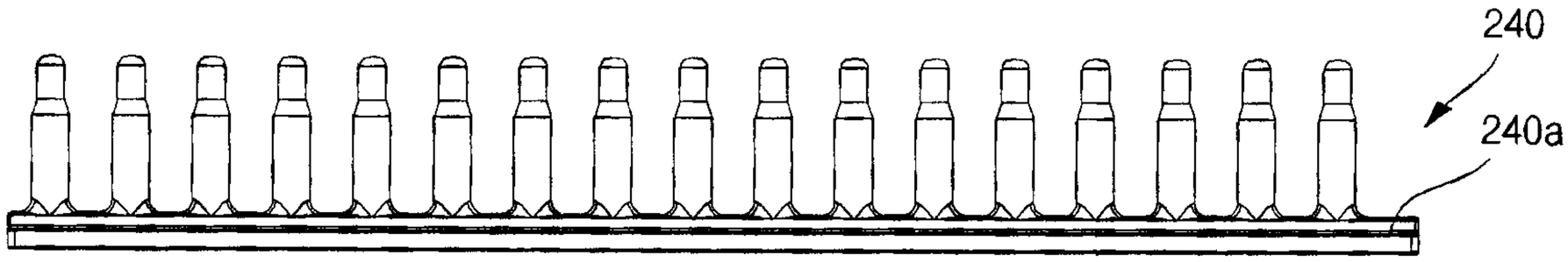


FIG. 11

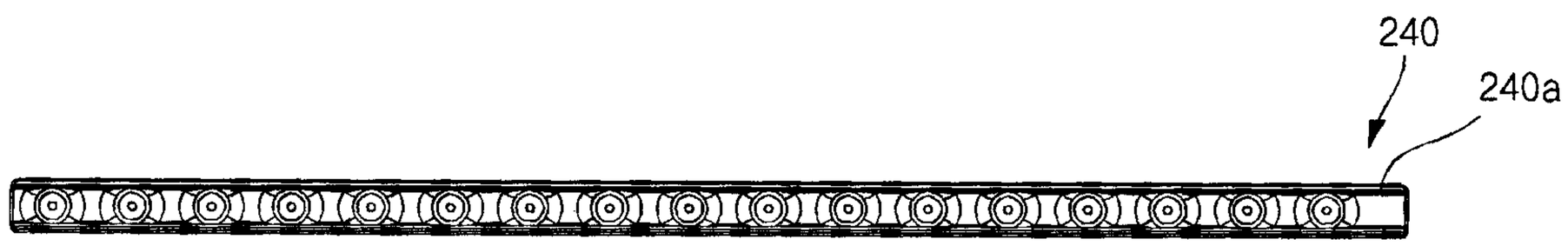


FIG. 12

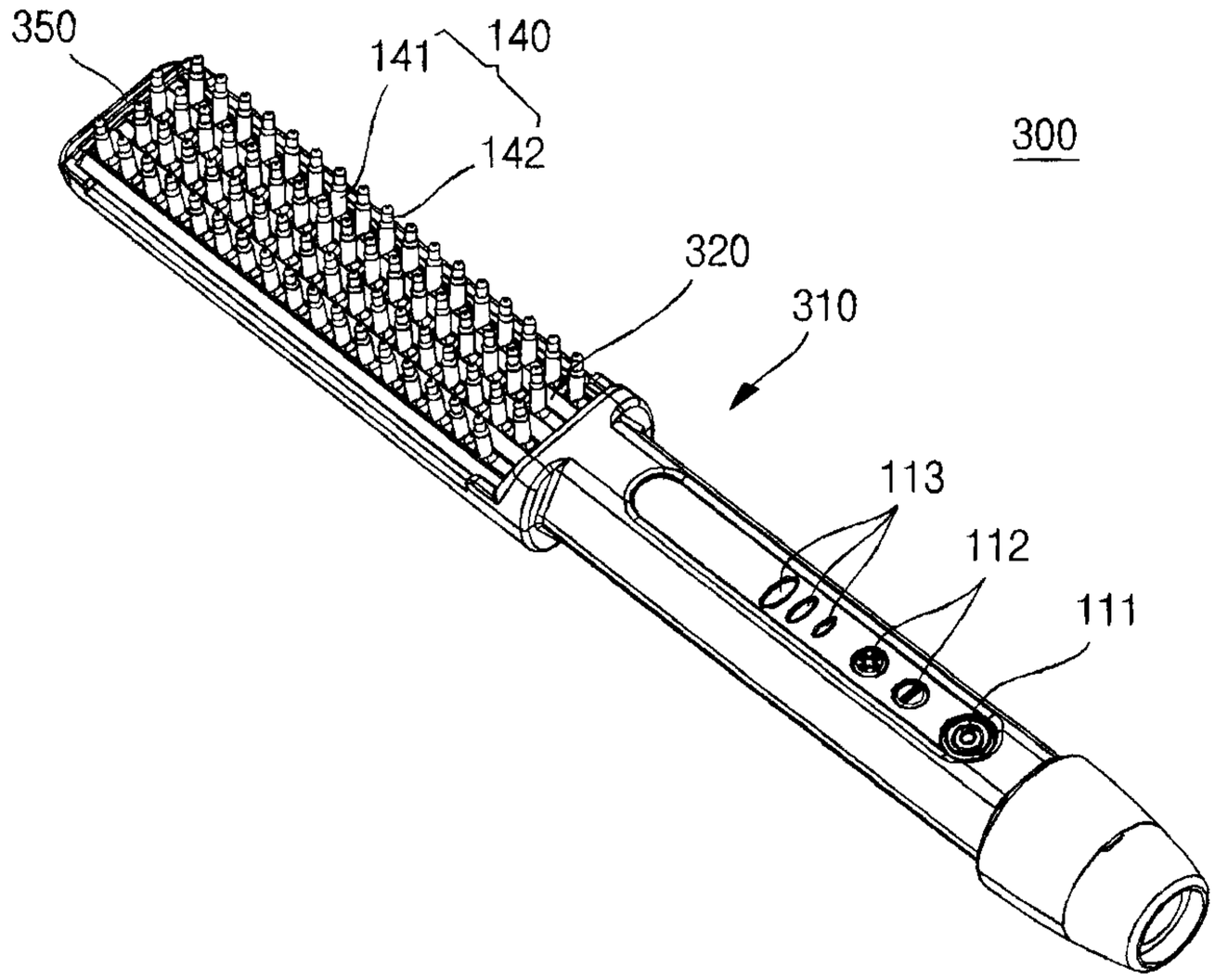


FIG. 13

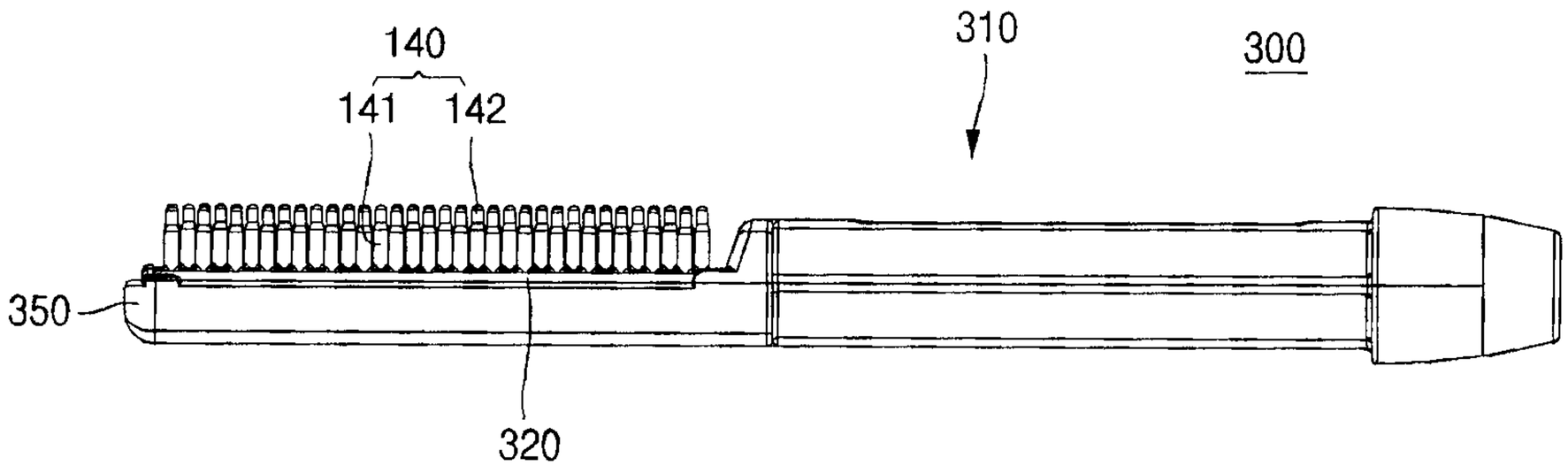


FIG. 14

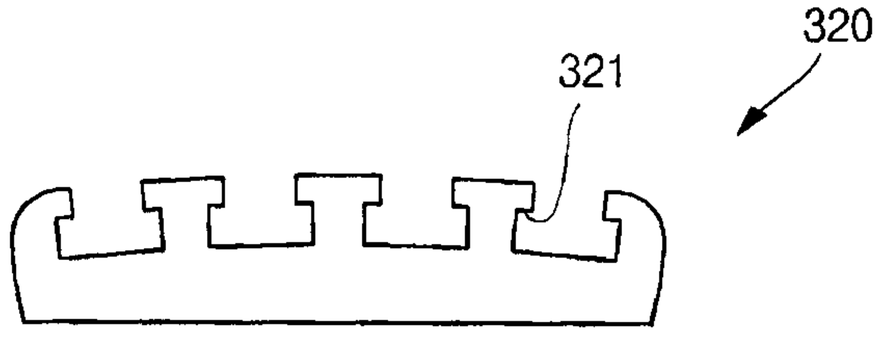


FIG. 15

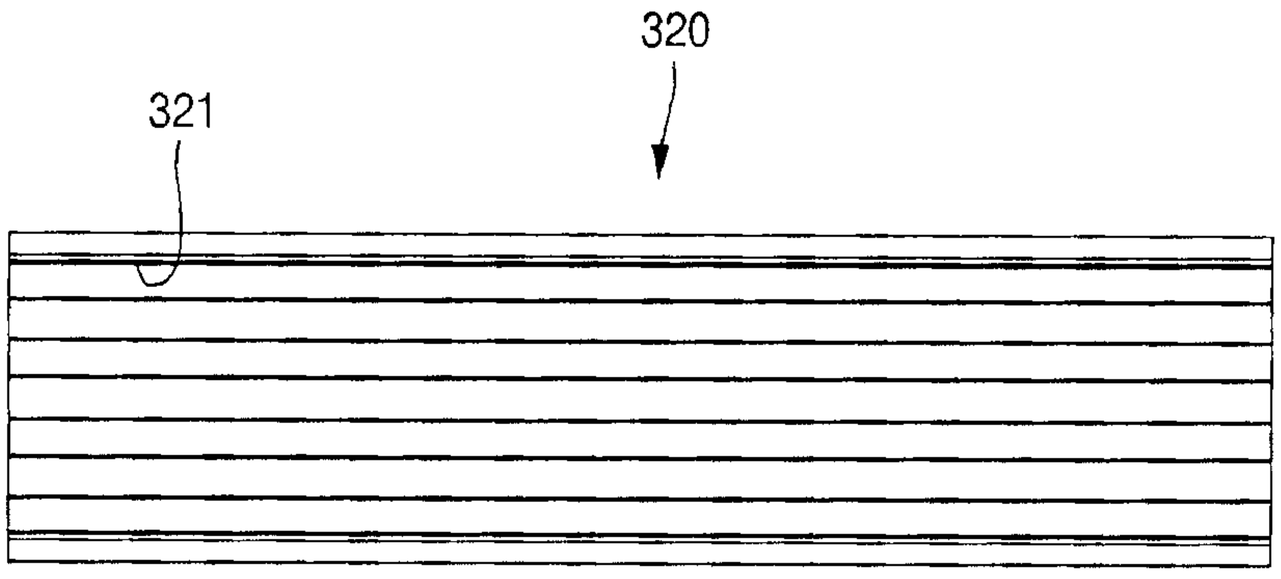


FIG. 16A

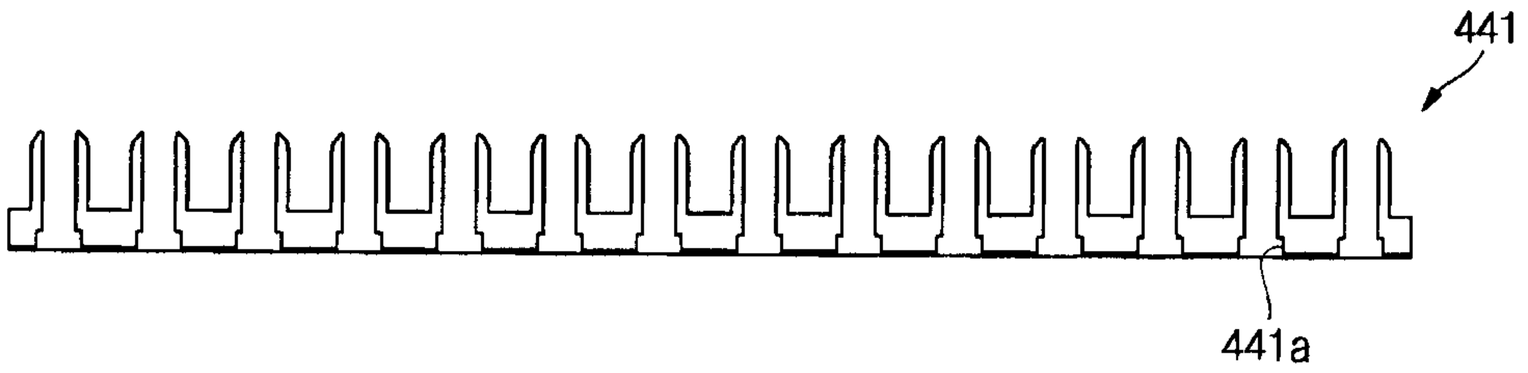


FIG. 16B

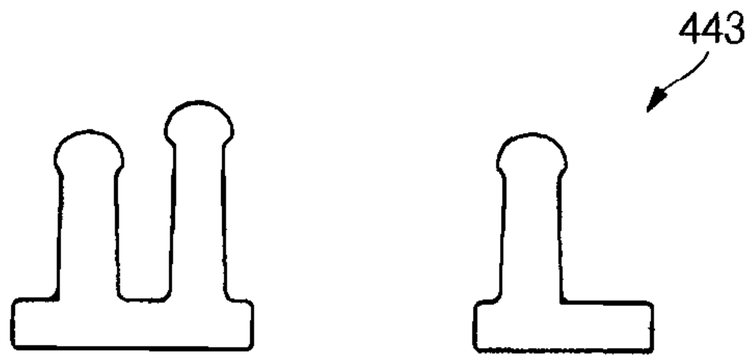
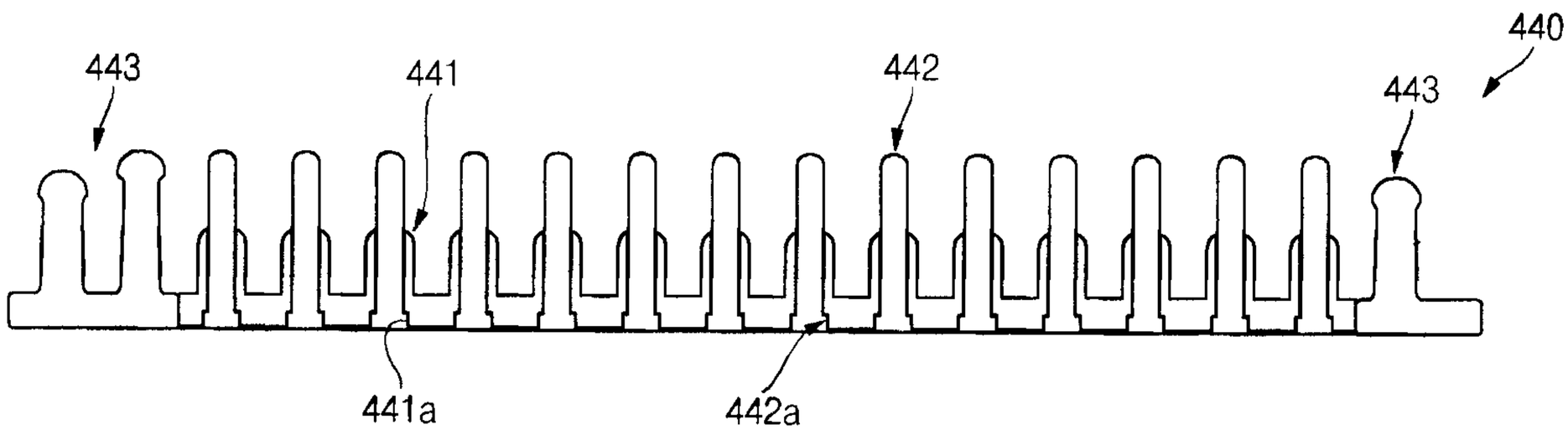
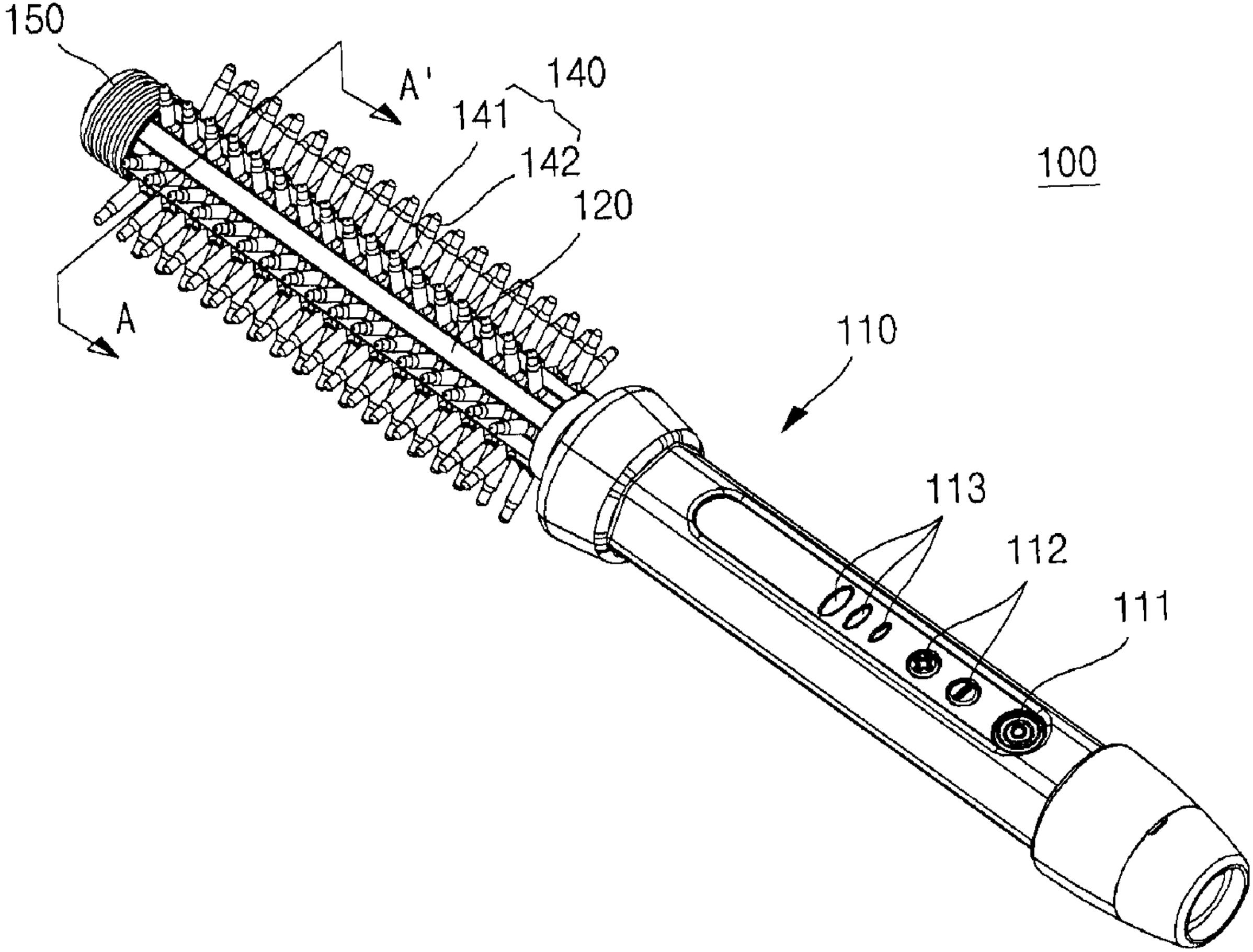


FIG. 16C

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