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(54) **ROLL BRUSH**

(57) A roll brush. Slits extend longitudinally from a bottom distal end of a body so as to be equally distanced from each other. A folded portion is provided by folding a portion of the body, in which the slits are provided, inward of a bottom end of the body. Coupling protrusions are provided on outer portions of a cylindrical member provided on the top end of a handle so as to be fitted into the slits of the folded portion. Adhesive is disposed in the fitting recesses provided in an inner central portion of the top end of the top cap and in an inner central portion of the cylindrical member of the handle, such that the top and bottom ends of the bristle support member fitted into the fitting recesses are fixed by the cured adhesive. Hair is not caught during the use of the brush.

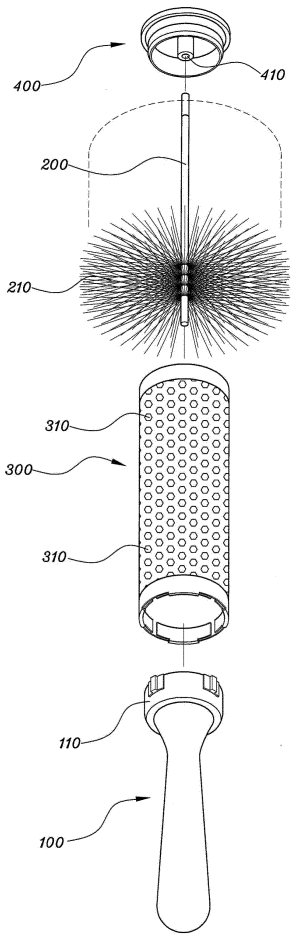

Fig.2

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Description

Technical Field

[0001] The present invention relates to a roll brush and, more particularly, to a roll brush having a structure by which the fixed state of a connecting portion between a brush body and a handle can be firmly maintained.

Background Art

[0002] A hair brush is a cosmetic tool used in hairdressing to comb or roll hair. Types of hair brushes may be divided according to the type of hair and the purpose of use. For example, different types of brushes may be used to comb untreated hair and permanently waved hair.

[0003] In addition, brushes are divided into, for example, a type of brush used to comb hair and a type of brush used when drying hair. In this manner, various types of brushes are selectively used depending on the state of hair of the user, the type of use of brushes, and the like.

[0004] According to the types of use, a hair brush typically used to comb untreated hair mostly includes a plate-shaped member and bristles provided on the plate-shaped member. When waving or drying hair, a hair brush including a cylindrical body and a plurality of bristles protruding from the outer surface of the cylindrical body is used.

[0005] Such hair brushes may be used to comb long or permanently waved hair of women at home or hair salons. As typical structure, such a hair brush includes a handle configured to be held with a handle by a user such that combing is easily performed, a cylindrical body to which the handle is fixed, with a number of through-holes being formed in the cylindrical body, and a bristle support member provided in the body and having the shape of twisted wires, with a plurality of bristles extending from the bristle support member to the through-holes.

[0006] In addition, the hair brush is finished by a top cap covering the top end of the body. FIG. 1 is a view illustrating such a hair brush of the related art.

[0007] As illustrated in the drawing, the body is fitted around the top end portion of the handle and is fixed to the handle by penetrating a bolt or the like through a top cylindrical member of the handle and the body or by press-fitting the body around the handle. The body is fixedly covered with the top cap provided on an outer portion of a top cylindrical member of the body. Both ends of the bristle support member having the shape of twisted wires are fixedly fitted into seating recesses provided in the inner portion of the top cylindrical member of the handle and the inner portion of the top surface of the top cap.

[0008] In such a brush of the related art, the top cylindrical member of the handle surrounds the bottom portion of the body. When the brush is used, hair may be caught in the boundary between the top cylindrical member of the handle and the body to be rooted up from the scalp. This may cause the user to feel unpleasant during the use of the brush.

[0009] In addition, after the cylindrical body is press-fitted over the top cylindrical member of the handle, the top cylindrical member of the handle and the bottom end portion of the body must be fixed using separate fastening means, such as a bolt, a rivet, or pin. Such a fixing process may cause complexity in fabrication as a factor lowering productivity.

[0010] For example, when the above-described fastening means, such as a bolt, a rivet, or pin, are not used, the body may be dislodged from the top cylindrical member of the handle. The above-described fastening means may be provided as an essential component to obtain the reliability of a product. However, the fastening means may cause the problem of significantly lowering the productivity, as described above.

[0011] In addition, in the bristle support member having the shape of twisted wires located in the central portion of the cylindrical body and supporting the bristles to extend through the through-holes, the top and bottom end portions of the bristle support member are seated in and fixed by the seating recesses in the inner portions of the top cap and the top cylindrical member of the handle, respectively. When the user users the brush, a phenomenon, in which the bristle support member moves laterally, inevitably occurs. This may cause the user to feel the use of the brush unreliable and unstable and make it difficult for the user to minutely brush the hair into an intended style.

Disclosure

Technical Problem

[0012] Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and the present invention has the following objectives.

[0013] First, a structure fixing a body of a brush to a top cylindrical member of a handle is modified such that the bottom end portion of the body is fixed while covering outer portions of the top cylindrical member of the handle. It is possible to prevent hair from being caught in the boundary between the top cylindrical member of the handle and the body during the use of the brush, so that the user may not feel unpleasant and may feel the brush soft when using the brush.

[0014] Second, due to a configuration in which the cylindrical body is fixed to the top cylindrical member of the handle while covering the outer portions of the top cylindrical member, a fixed position can be reliably maintained without the use of the related-art fastening means, such as a bolt, a rivet, or pin. Accordingly, the fixing process using the fastening means may be unnecessary, thereby improving the productivity and reliability of a product.

[0015] Third, adhesive is disposed in a seating recess in the inner portion of the top surface of a top cap and a seating recess in the inner portion of the top cylindrical

member of the handle to fix the top and bottom ends of a bristle support member having the shape of twisted wires, so that the top and bottom ends of a bristle support member are fixed by bonding. It is possible to completely prevent a phenomenon in which the bristle support member moves laterally during the use of the brush, thereby causing the user to feel the brush is reliable, allowing the user to minutely brush the hair into a variety of intended styles, and improving the satisfaction of the user in using the brush.

Technical Solution

[0016] In order to accomplish the above object, the present invention may provide the following embodiments.

[0017] Provided is a roll brush having a roll brush structure comprising: a bristle support member (200) holding radially-extending bristles (210), a cylindrical body (300) having a plurality of through-holes (310), through which the bristles (210) are exposed externally, and allowing the bristle support member (200) to be inserted thereinto in a penetrating manner, and a top cap (400) covering a top end of the body (300), with fitting recesses (111, 410) being provided in a portion of a cylindrical member (110) corresponding to a top portion of a handle and in a central portion of a bottom surface of the top cap (400), respectively, such that top and bottom ends of the bristle support member (200) are fitted into the fitting recesses (111, 410).

[0018] Slits (321) extend in a longitudinal direction from a distal end of a bottom extension of the body (300) so as to be equally distanced from each other, and a folded portion (320) is provided by folding a portion of the body (300), in which the slits (321) are provided, inward of a bottom end of the body (300).

[0019] Coupling protrusions (112) are provided on outer portions of the cylindrical member (110) provided on the top end of the handle (100) so as to be fitted into the slits (321) of the folded portion (320).

[0020] Adhesive is disposed in the fitting recesses (410, 111) provided in an inner central portion of the top end of the top cap (400) and in an inner central portion of the cylindrical member (110) of the handle (100), such that the top and bottom ends of the bristle support member (200) fitted into the fitting recesses (410, 111) are fixed by the cured adhesive.

Advantageous Effects

[0021] According to the present invention, the bottom end portion of the body, from which the bristles protrude, are fixed to the top cylindrical member of the handle while surrounding the top cylindrical member. It is possible to prevent hair from being caught during the use of the brush and cause the user to feel the brush soft when using the brush.

[0022] In addition, according to the present invention, a separate fastening means, such as a bolt, a rivet, or pin, is not necessary in the process of fixing and fastening the top cylindrical member of the handle and the body. This may simplify the fixing process, thereby significantly improving productivity.

[0023] In addition, according to the present invention, the adhesive is disposed in the seating recess in the inner portion of the top surface of the top cap and the seating recess in the inner portion of the top cylindrical member of the handle to fix the top and bottom ends of the bristle support member having the shape of twisted wires and fixing the bristles. It is possible to completely prevent a phenomenon in which the bristle support member moves laterally during the use of the brush, to cause the user to feel the brush is reliable, and to allow the user to minutely brush the hair into a variety of intended styles, thereby improving the satisfaction and reliability of a product.

Description of Drawings

[0024]

FIG. 1 illustrates a configuration of a roll brush according to a first embodiment of the present invention;

FIG. 2 is an exploded perspective view illustrating the roll brush illustrated in FIG. 1;

FIG. 3 is an enlarged view illustrating portions of the roll brush illustrated in FIGS. 1 and 2, in which the body and the handle are detached from each other;

FIG. 4 is a cross-sectional view illustrating a disassembled state of key portions of the body and the handle illustrated in FIG. 3;

FIG. 5 is a cross-sectional view schematically illustrating an assembled configuration of the roll brush according to the first embodiment of the present invention illustrated in FIG. 1;

FIG. 6 is a cross-sectional view schematically illustrating a second embodiment of the present invention, in which a double folded portion is provided by folding the extension of the body two times and the handle corresponding to the body is detached therefrom;

FIG. 7 is a cross-sectional view schematically illustrating an assembled state of the body and the handle illustrated in FIG. 6;

FIG. 8 is a cross-sectional view schematically illustrating a third embodiment of the present invention, in which a pipe portion provided on the bottom end portion of the body and the handle detached from the pipe portion;

FIG. 9 is a cross-sectional view schematically illustrating an assembled state of the body and the handle illustrated in FIG. 8;

FIG. 10 is a cross-sectional view schematically illustrating an embodiment of an adjustor applicable to the first to third embodiments of the present invention, the adjustor having a structure providing tension

to the bristle support member fixedly coupled by the cylindrical member of the handle to which the bottom end portion of the body is coupled and preventing the bristle support member from moving laterally;

FIG. 11 is an exploded perspective view illustrating an example of the adjustor illustrated in FIG. 10; and

FIG. 12 is an enlarged cross-sectional view illustrating the top cap to which the adjustor illustrated in FIG. 10 is coupled.

Best Mode

[0025] The present invention provides a roll brush having roll brush structure. A bristle support member holds radially-extending bristles. A cylindrical body has a plurality of through-holes, through which the bristles are exposed externally, and allow the bristle support member to be inserted thereinto in a penetrating manner. A top cap covers a top end of the body. Fitting recesses are provided in a portion of a cylindrical member corresponding to a top portion of a handle and in a central portion of a bottom surface of the top cap, respectively. Top and bottom ends of the bristle support member are fitted into the fitting recesses. Slits extend in a longitudinal direction from a distal end of a bottom extension of the body so as to be equally distanced from each other, and a folded portion is provided by folding a portion of the body, in which the slits are provided, inward of a bottom end of the body. Coupling protrusions are provided on outer portions of the cylindrical member provided on the top end of the handle so as to be fitted into the slits of the folded portion. Adhesive is disposed in the fitting recesses provided in an inner central portion of the top end of the top cap and in an inner central portion of the cylindrical member of the handle, such that the top and bottom ends of the bristle support member fitted into the fitting recesses are fixed by the cured adhesive. Hair is not caught during the use of the brush.

Mode for Invention

[0026] Specific structural and functional descriptions of embodiments of the present invention disclosed herein are only for illustrative purposes of the embodiments of the present invention. The present invention may be embodied in a variety of different forms or modifications without departing from the spirit and significant characteristics of the present invention. Therefore, the present invention is intended to cover all alterations, equivalents, or substitutions that may be included within the spirit and technical idea of the present invention. Terms and words used in the specification and the appended claims should not be interpreted as having meanings defined in commonly used and dictionaries, but should be interpreted as having meanings and concepts consistent with the technical spirit of the inventive concept on the principle that the inventor can properly define the concept of a term to describe its invention in the best mode. Therefore, the configurations shown in the description and drawings in the present specification are merely exemplary embodiments of the inventive concept and do not represent all the technical ideas of the inventive concept. Accordingly, it should be understood that various equivalents and modifications are present at the filing time of the subject application.

[0027] Unless otherwise defined, all terms including technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and the present disclosure, and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

[0028] Hereinafter, exemplary embodiments of the present invention will be described with reference to the accompanying drawings.

-First Embodiment-

[0029] The present invention provides a hair roll brush as illustrated in the accompanying drawings.

[0030] In the present invention, reference numeral 100 indicates a handle.

[0031] The handle 100 is a portion held by a user. A cylindrical member 110 is provided contiguous with the top end portion of the handle 100.

[0032] The cylindrical member 110 has a fitting recess 111 provided in an inner central portion thereof, such that the bottom end portion of a bristle support member 200 is fitted into the fitting recess 111. Adhesive is disposed in the fitting recess 111, such that, when the adhesive is cured, the bristle support member 200 can be firmly and fixedly held.

[0033] In addition, a plurality of coupling protrusions 112 protrudes from the outer circumferential surface of the cylindrical member 110 of the handle 100, at positions equally spaced apart from each other.

[0034] Each of the coupling protrusions 112 has a base protrusion 112a, the entirety of which protrudes from an outer circumferential portion of the cylindrical member 110, and a central protrusion 111b further protruding from the central portion of the base protrusion 112a, such that the cross-section thereof is generally "T"-shaped when viewed in a plan view.

[0035] Each of the coupling protrusions 112 is comprised of the base protrusion 112a and the central protrusion 111b further protruding from the central portion of the base protrusion 112a as described above so as to be fitted into an inwardly bent and folded portion of the bottom end portion of a body 300 of the cylindrical member, which will be described later. The central protrusion 111b is configured to support inner surface portions of the folded portion of the body 300, while the base protrusion 112a is configured to support inner surface por-

tions of the folded portion.

[0036] In addition, the bristle support member 200 is an iron core in the shape of a cylinder, with bristles 210 radially extending from outer circumferential portions thereof.

[0037] The body 300 may be finished with the cylindrical member 110 of the handle 100 and a top cap 400. A number of through-holes 310 is formed in circumferential portions of the body 300, allowing the bristles 210 of the bristle support member 200 to extend therethrough. The bottom end portion of the body 300 forms the inwardly bent and folded portion 320.

[0038] As illustrated in the drawing, the folded portion 320 is formed by bending the middle portion of a bottom extension 330 of the body 300. A plurality of "T"-shaped slits 321 extends from the terminal end of the extension 330 to positions equally spaced apart.

[0039] Each of the "T"-shaped slits 321 is comprised of a first slit 321a and a second slit 321b. The first slit 321a is formed by linearly cutting the bottom extension 330 of the body 300 from the terminal end thereof in a longitudinal direction. The second slit 321b is formed by cutting the bottom extension 330 from the terminal end of the first slit 321a in a direction perpendicular to the first slit 321a, i.e. in a lateral direction of the bottom extension 330.

[0040] As described above, the slits 321 are "T"-shaped, as illustrated in the drawing. After the first slit 321a is formed by linearly cutting the bottom extension 330 of the body 300 from the terminal end thereof in a longitudinal direction, the second slit 321b is formed by cutting the bottom extension 330 from the terminal end of the first slit 321a in the direction perpendicular to the first slit 321a.

[0041] The second slits 321b are provided in positions corresponding to the central portions of the extension 330, such that the extension 330 is bent inward of the bottom end portion of the body 300 with respect to the second slits 321b.

[0042] Due to the folded portion 320 being folded along the second slits 321b, when the body 300 is viewed from below, the second slits 321b are disposed along the end surface of the body 300 to have a visually recognizable configuration.

[0043] The second slits 321b are provided as described above to facilitate the folding machining of the folded portion 320. The first slits 321a may be coupled to the central protrusions 111b of the above-described coupling protrusions 112 protruding from the outer circumferential portions of the cylindrical member 110 of the handle 100 at equal distances. These features will be described in more detail as follows.

[0044] As described above, the "T"-shaped slits 321 is recognizable when the body 300 is viewed from below. When the cylindrical member 110 of the handle 100 is press-fitted into the body 300, the base protrusions 112a of the coupling protrusions 112 protruding from the outer circumferential portions of the cylindrical member 110 push the extension 330, in which the folded portion 320 is provided, into the bottom end portion of the body 300. During this processing, the central protrusions 111b further protruding from the front central portions of the base protrusions 112a are guided and fitted into the first slits 321a.

[0045] According to this configuration, the base protrusions 112a provide pressure to press the folded portion 320 toward the bottom inner surface of the body 300, as described above. At the same time, the central protrusions 111b are fitted into the first slits 321a of the slits 321 while pressing and supporting the inner surface of the body 300. Accordingly, the body 300 can be completely prevented from rotating laterally.

[0046] In the roll brush having the above-described structure, the body 300 is completely coupled to the cylindrical member 110 of the handle 100. Both ends of the bristle support member 200 provided within the body 300 are fitted into the fitting recesses 111 of the cylindrical member 110 of the handle 100 and a fitting recess 410 of the top cap 400. Here, adhesive disposed in the fitting recesses 111 and 410 can completely hold the bristle support member 200 from moving.

[0047] In the roll brush as described above, the bottom end portion of the body 300 surrounds the outer portions of the cylindrical member 110 of the handle 100. This configuration can prevent the hair of the user from being caught when the user uses the roll brush, firmly hold and support the fixed position between the cylindrical member 110 and the body 300 without a separate fixing means, and prevent the body 300 from moving laterally. The reliability of use can be provided, and the user can expect the effect of producing charming waves, so that the satisfaction and reliability of the product can be improved.

-Second Embodiment-

[0048] A second embodiment of the present invention is illustrated in FIGS. 6 and 7.

[0049] The second embodiment is similar to the first embodiment in which the folded portion 320 is provided by folding the bottom end portion of the body 300. In addition, the second embodiment is characterized in that a double folded portion 340 is provided by folding the bottom end portion of the body 300 at two folding lines, and slits 341 are linearly cut in the double folded portion 340 in a longitudinal direction.

[0050] Due to the double folded portion 340, the cylindrical member 110 of the handle 100 has a shape conforming to the bottom end portion of the body 300 as illustrated in FIG. 7, differently from the case of the first embodiment.

[0051] In addition, linear coupling protrusions 112' protrude from outer circumferential portions of the cylindrical member 110 of the handle 100, differently from the "T"-shaped coupling protrusions 112 according to the first embodiment.

[0052] When the cylindrical member 110 of the handle 100 are fitted into the bottom end portion of the body 300, the coupling protrusions 112' protruding from the outer circumferential portions of the cylindrical member 110 to be equally spaced apart from each other are guided and fitted into the slits 341 of the double folded portion 340 of the body 300.

[0053] The position of the handle 100 is set by the coupling protrusions 112' fitted into the slits 341 of the double folded portion 340, so that the handle 100 is prevented from moving. The front surfaces of the coupling protrusions 112' are shaped to press and support the inner surface of the body 300, so that the tight contact between the body 300 and the cylindrical member 110 of the handle 100 can be maintained.

[0054] In addition, the fitting recess 111 is provided in the inner central portion of the cylindrical member 110, and the bottom end portion of the bristle support member 200 is fitted into the fitting recess 111. When adhesive disposed in the fitting recess 111 is cured, the bristle support member 200 can be maintained in a firmly fixed position. This configuration can prevent the bristle support member 200 from moving laterally, as in the case of the first embodiment.

[0055] In the present second embodiment, as illustrated in the drawings, the cylindrical member 110 of the handle 100 and the bottom end portion of the body 300 having the conforming shapes are coupled to each other. The coupling between the slits 341 of the double folded portion 340 and the coupling protrusions 112' of the cylindrical member 110 prevents the body 300 from moving laterally while maintaining the bristle support member 200 in the firmly fixed state.

[0056] In addition, since the cylindrical member 110 of the handle 100 and the bottom end portion of the body 300 have the conforming shapes, the hair of the user can be prevented from being caught when the user uses the roll brush.

-Third Embodiment-

[0057] A third embodiment of the present invention is illustrated in FIGS. 8 and 9.

[0058] According to the third embodiment, differently from either the first or second embodiment in which the both end portions of the body 300 are folded inward, a pipe portion 350 having a smaller diameter than the body 300 is provided on the bottom end portion of the body 300, such that the pipe portion 350 is fitted into the cylindrical member 110 of the handle 100. A plurality of slits 351 is formed by cutting the outer circumferential surface of the pipe portion 350, such that the slits 351 linearly extend in a top-bottom direction and are equally spaced apart from each other.

[0059] Due to the pipe portion 350, a stepped surface 352 extending from the bottom end portion of the body 300 to the pipe portion 350 is formed.

[0060] The stepped surface 352 cannot have a precise rectangular shape but may be formed to have a similar horizontal surface by a piping process. Due to this feature, the stepped surface 352 is in contact with and aligned with the top surface of the cylindrical member 110 of the handle 100.

[0061] As the stepped surface 352 is aligned with the top surface of the cylindrical member 110, the outer side surface of the body 300 and the outer side surface of the cylindrical member 110 may be coplanar, so that the hair of the user can be prevented from being caught between the body 300 and the cylindrical member 110 when the roll brush according to the present invention is used.

[0062] In addition, linear coupling protrusions 112" protrude from outer circumferential portions of the cylindrical member 110 of the handle 100, in positions equally spaced apart from each other, as in the case of the second embodiment.

[0063] The coupling protrusions 112" are formed on the inner circumferential portions of the cylindrical member 110, instead of being provided on the outer surface of the cylindrical member 110 in either the first or second embodiment. The coupling protrusions 112" serve to prevent the body 300 from moving laterally, as in the case of either the first or second embodiment.

[0064] In addition, as described above, the first to third embodiments can completely fix the above-described bristle support member 200 while preventing or reducing the bristle support member 200 from moving laterally, so that the user can minutely brush the hair into an intended style using the roll brush. In addition, as a solution to remove the unpleasant feeling, a gripping sensation, or the like, caused by the movement of the bristle support member 200, the adhesive is disposed in the fitting recess 111 in the central portion of the cylindrical member 110 of the handle 100 and in the seating recess 410 in the central portion of the bottom surface of the top cap 400, such that the bristle support member 200 can be firmly fixed.

[0065] In contrast, another embodiment for maintaining the firmly fixed state of the bristle support member 200 may be provided as illustrated in FIGS. 10 to 12.

[0066] That is, as illustrated in the drawings, a hook-shaped fixing member 113 is fixed to the fitting recess 111 provided in the central portion of the cylindrical member 110 of the handle 100, a through-hole 420 is provided in the central portion of the top cap 400 covering the top end of the body 300, with a female thread being provided in the through-hole 420, and an adjustor 430 is screw-engaged into the through-hole 420. A hook-shaped top fixing member 440 is provided on the bottom surface of the adjustor 430 so as to freely pivot.

[0067] An insertion hole 431 is formed to extend through the central portion of the bottom end of the adjustor 430 and the adjustor 430 is configured hollow, such that the top fixing member 440 having a catching portion 441 on the top end portion thereof is inserted into the insertion hole 431 to freely pivot within the adjustor 430. Accordingly, the top fixing member 440 can freely pivot.

[0068] The above-described configuration in which the adjustor 430 has a hollow structure, the insertion hole 431 is provided in the central portion of the bottom end portion, and the top fixing member 440 having the catching portion 441 on the top end portion thereof is inserted into the insertion hole 431 to freely pivot can be provided by an insert injection method or the like.

[0069] Thus, the top and bottom ends of the bristle support member 200 are fitted into the fixing member 113 of the fitting recess 111 in the central portion of the cylindrical member 110 of the handle 100 and the hook-shaped top fixing member 440, respectively, and the adjustor 430 is screw-engaged into the through-hole 420 of the top cap 400.

[0070] When the bristle support member 200 is tensed by screw-adjusting the adjustor 430 through the through-hole 420, the bristle support member 200 maintains a firmly-fixed state without being played laterally by the top fixing members 440 freely pivoting in the adjustors 430 of the cylindrical member 110 of the handle 100 and the top cap 400.

[0071] Even though the adjustors 430 are screw-adjusted, the top fixing member 440 freely pivots, and thus, torque is not transferred to the bristle support member 200.

[0072] Accordingly, the bristle support member 200 can be used while maintaining the tightly-tensed state, thereby completely removing inconvenience, i.e. a feel of difference due to dislodgement during use. In addition, it is possible to minutely curl hair into any style as intended.

[0073] Although the present invention has been described with respect to the specific embodiments and drawings, the present invention is not limited thereto. Those skilled in the art will appreciate that various modifications and alterations are possible without departing from the foregoing description.

[0074] Accordingly, the technical idea of the present invention shall be construed on the basis of the accompanying Claims in such a manner that all such modifications or alterations equivalent thereto belong to the present invention.

Industrial Applicability

[0075] The present invention relates to a roll brush having a structure by which the fixed state of a connecting portion between a brush body and a handle can be firmly maintained, and thus, has industrial applicability.

Claims

1. A roll brush having a roll brush structure comprising:
a bristle support member (200) holding radially-extending bristles (210), a cylindrical body (300) having a plurality of through-holes (310), through which the bristles (210) are exposed externally, and allowing the bristle support member (200) to be inserted thereinto in a penetrating manner, and a top cap (400) covering a top end of the body (300), with fitting recesses (111, 410) being provided in a portion of a cylindrical member (110) corresponding to a top portion of a handle and in a central portion of a bottom surface of the top cap (400), respectively, such that top and bottom ends of the bristle support member (200) are fitted into the fitting recesses (111, 410),
wherein slits (321) extend in a longitudinal direction from a distal end of a bottom extension of the body (300) so as to be equally distanced from each other, and a folded portion (320) is provided by folding a portion of the body (300), in which the slits (321) are provided, inward of a bottom end of the body (300),
coupling protrusions (112) are provided on outer portions of the cylindrical member (110) provided on the top end of the handle (100) so as to be fitted into the slits (321) of the folded portion (320), and
adhesive is disposed in the fitting recesses (410, 111) provided in an inner central portion of the top end of the top cap (400) and in an inner central portion of the cylindrical member (110) of the handle (100), such that the top and bottom ends of the bristle support member (200) fitted into the fitting recesses (410, 111) are fixed by the cured adhesive.

2. A roll brush having a roll brush structure comprising:
a bristle support member (200) holding radially-extending bristles (210), a cylindrical body (300) having a plurality of through-holes (310), through which the bristles (210) are exposed externally, and allowing the bristle support member (200) to be inserted thereinto in a penetrating manner, and a top cap (400) covering a top end of the body (300), with fitting recesses (111, 410) being provided in a portion of a cylindrical member (110) corresponding to a top portion of a handle and in a central portion of a bottom surface of the top cap (400), respectively, such that top and bottom ends of the bristle support member (200) are fitted into the fitting recesses (111, 410),
wherein linear slits (321) extend in a longitudinal direction from a distal end of a bottom extension of the body (300) so as to be equally distanced from each other, and a double folded portion (320) is provided by folding a portion of the body (300), in which the slits (321) are provided, inward of a bottom end of the body (300) along two folding lines,
coupling protrusions (112') are provided on outer portions of the cylindrical member (110) provided on the top end of the handle (100) so as to be fitted into the slits (321) of the folded portion (320), and
adhesive is disposed in the fitting recesses (410, 111) provided in an inner central portion of the top end of the top cap (400) and in an inner central portion of the cylindrical member (110) of the handle (100), such that the top and bottom ends of the bristle support member (200) fitted into the fitting recesses

(410, 111) are fixed by the cured adhesive.

3. A roll brush having a roll brush structure comprising: a bristle support member (200) holding radially-extending bristles (210), a cylindrical body (300) having a plurality of through-holes (310), through which the bristles (210) are exposed externally, and allowing the bristle support member (200) to be inserted thereinto in a penetrating manner, and a top cap (400) covering a top end of the body (300), with fitting recesses (111, 410) being provided in a portion of a cylindrical member (110) corresponding to a top portion of a handle and in a central portion of a bottom surface of the top cap (400), respectively, such that top and bottom ends of the bristle support member (200) are fitted into the fitting recesses (111, 410),
wherein a pipe portion (350) having a smaller diameter than the body (300) is provided on a bottom end portion of the body (300), such that the pipe portion (350) is fitted into the cylindrical member (110) of the handle (100), with a plurality of slits (351) being provided by cutting an outer circumferential surface of the pipe portion (350), such that the slits (351) linearly extend in a top-bottom direction and are equally spaced apart from each other,
linear coupling protrusions (112") protrude from outer circumferential portions of the cylindrical member (110) of the handle (100), in positions equally spaced apart from each other, and
adhesive is disposed in the fitting recesses (410, 111) provided in an inner central portion of the top end of the top cap (400) and in an inner central portion of the cylindrical member (110) of the handle (100), such that the top and bottom ends of the bristle support member (200) fitted into the fitting recesses (410, 111) are fixed by the cured adhesive.

4. A roll brush having a roll brush structure comprising: a bristle support member (200) holding radially-extending bristles (210), a cylindrical body (300) having a plurality of through-holes (310), through which the bristles (210) are exposed externally, and allowing the bristle support member (200) to be inserted thereinto in a penetrating manner, and a top cap (400) covering a top end of the body (300), with fitting recesses (111, 410) being provided in a portion of a cylindrical member (110) corresponding to a top portion of a handle and in a central portion of a bottom surface of the top cap (400), respectively, such that top and bottom ends of the bristle support member (200) are fitted into the fitting recesses (111, 410),
wherein a hook-shaped fixing member (113) is fixedly supported to the fitting recess (111) provided in a central portion of the cylindrical member (110) of the handle (100), a through-hole (420) is provided in a central portion of the top cap (400) covering the top end of the body (300), with a female thread being provided in the through-hole (420), an adjustor (430) is screw-engaged into the through-hole (420), and a hook-shaped top fixing member (440) is provided on a bottom surface of the adjustor (430) so as to freely pivot.

5. The roll brush according to claim 4, wherein an insertion hole (431) extends through a central portion of the bottom end of the adjustor (430), and the adjustor (430) has a hollow structure, allowing the top fixing member (440) having a catching portion (441) on the top end portion thereof to be inserted into the insertion hole (431) and freely pivot within the adjustor (430).

6. The roll brush according to claim 4, wherein slits (321) extend in a longitudinal direction from a distal end of a bottom extension of the body (300) so as to be equally distanced from each other, and a folded portion (320) is provided by folding a portion of the body (300), in which the slits (321) are provided, inward of a bottom end of the body (300), and
coupling protrusions (112) are provided on outer portions of the cylindrical member (110) provided on the top end of the handle (100) so as to be fitted into the slits (321) of the folded portion (320)

7. The roll brush according to claim 4, wherein linear slits (321) extend in a longitudinal direction from a distal end of a bottom extension of the body (300) so as to be equally distanced from each other, and a double folded portion (320) is provided by folding a portion of the body (300), in which the slits (321) are provided, inward of a bottom end of the body (300) along two folding lines, and
coupling protrusions (112') are provided on outer portions of the cylindrical member (110) provided on the top end of the handle (100) so as to be fitted into the slits (321) of the folded portion (320).

8. The roll brush according to claim 4, wherein a pipe portion (350) having a smaller diameter than the body (300) is provided on a bottom end portion of the body (300), such that the pipe portion (350) is fitted into the cylindrical member (110) of the handle (100), with a plurality of slits (351) being provided by cutting an outer circumferential surface of the pipe portion (350), such that the slits (351) linearly extend in a top-bottom direction and are equally spaced apart from each other, and
linear coupling protrusions (112") protrude from outer circumferential portions of the cylindrical member (110) of the handle (100), in positions equally spaced apart from each other.

9. The roll brush according to claim 1 or 6, wherein each of the "T"-shaped slits (321) comprises a first slit (321a) provided linearly cutting the bottom extension (330) of the body (300) from a terminal end of

the bottom extension (330) in a longitudinal direction and a second slit (321b) provided by cutting the bottom extension (330) from a terminal end of the first slit (321a) in a lateral direction perpendicular to the first slit (321a),

each of the coupling protrusions (112) has a base protrusion (112a) protruding from an outer circumferential portion of the cylindrical member (110) and a central protrusion (111b) further protruding from a central portion of the base protrusion (112a), and

the base protrusions (112a) provide pressure to press the folded portion (320) toward a bottom inner surface of the body (300), and the central protrusions (111b) are fitted into the first slits (321a) of the slits (321) while pressing and supporting an inner surface of the body (300), so that the body (300) is prevented from rotating laterally.

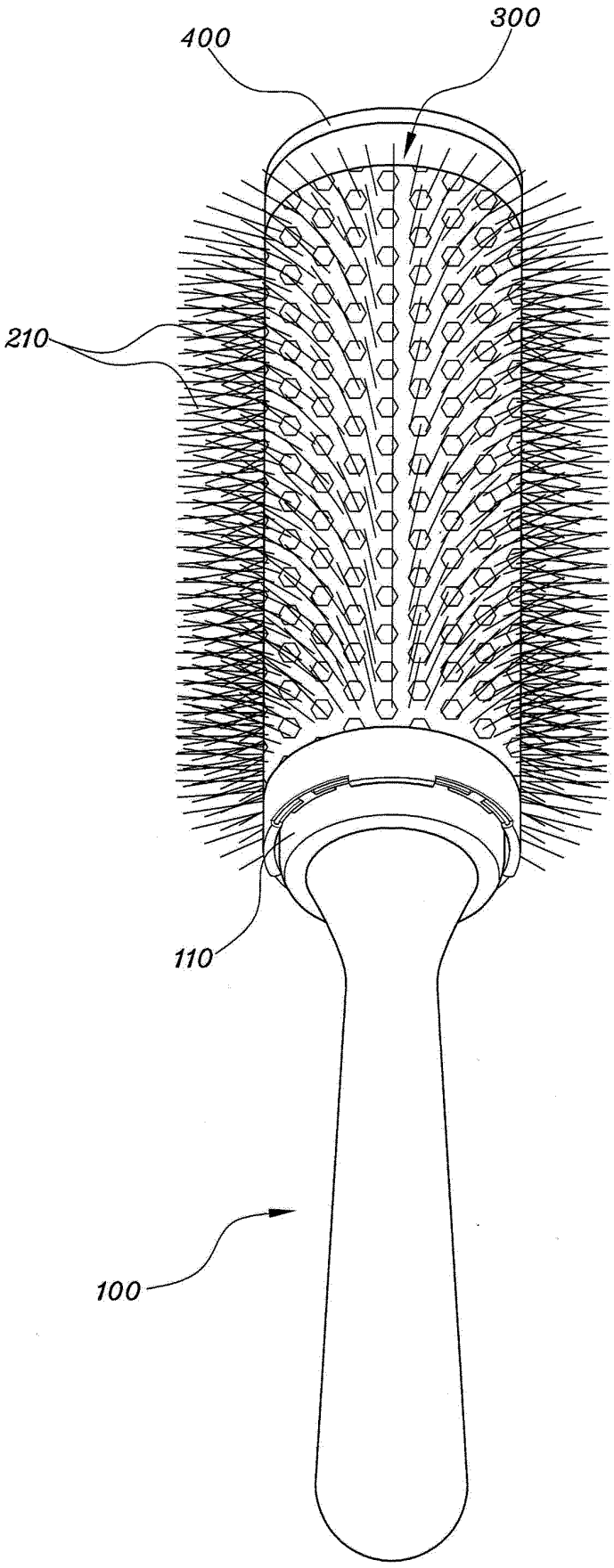

Fig.1

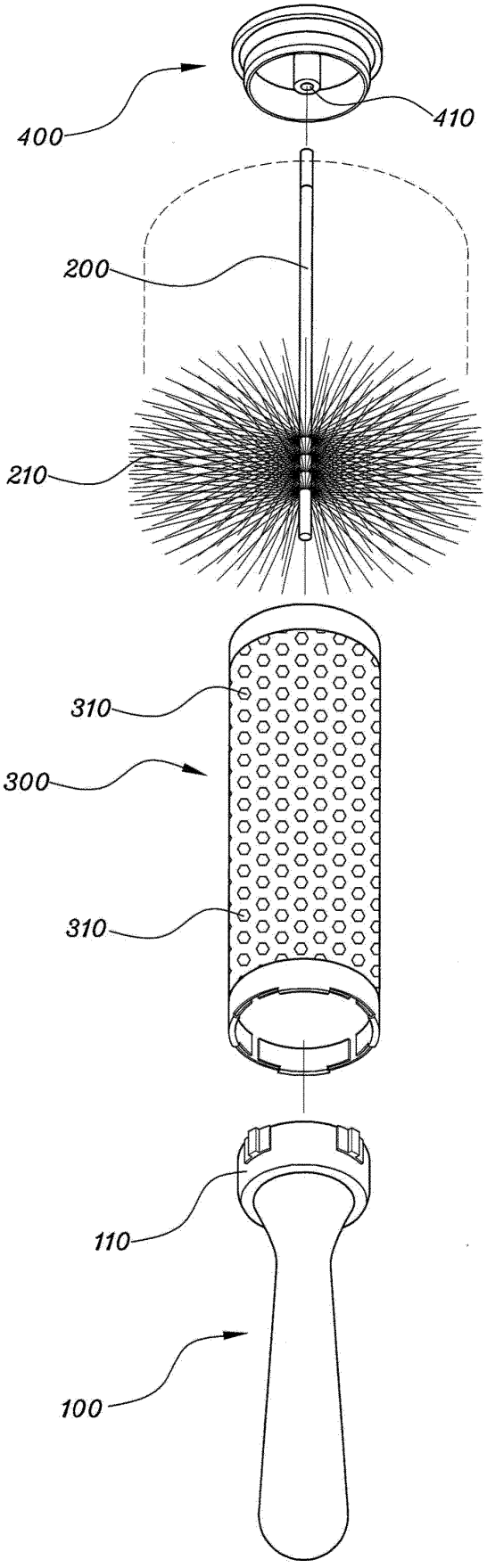

Fig.2

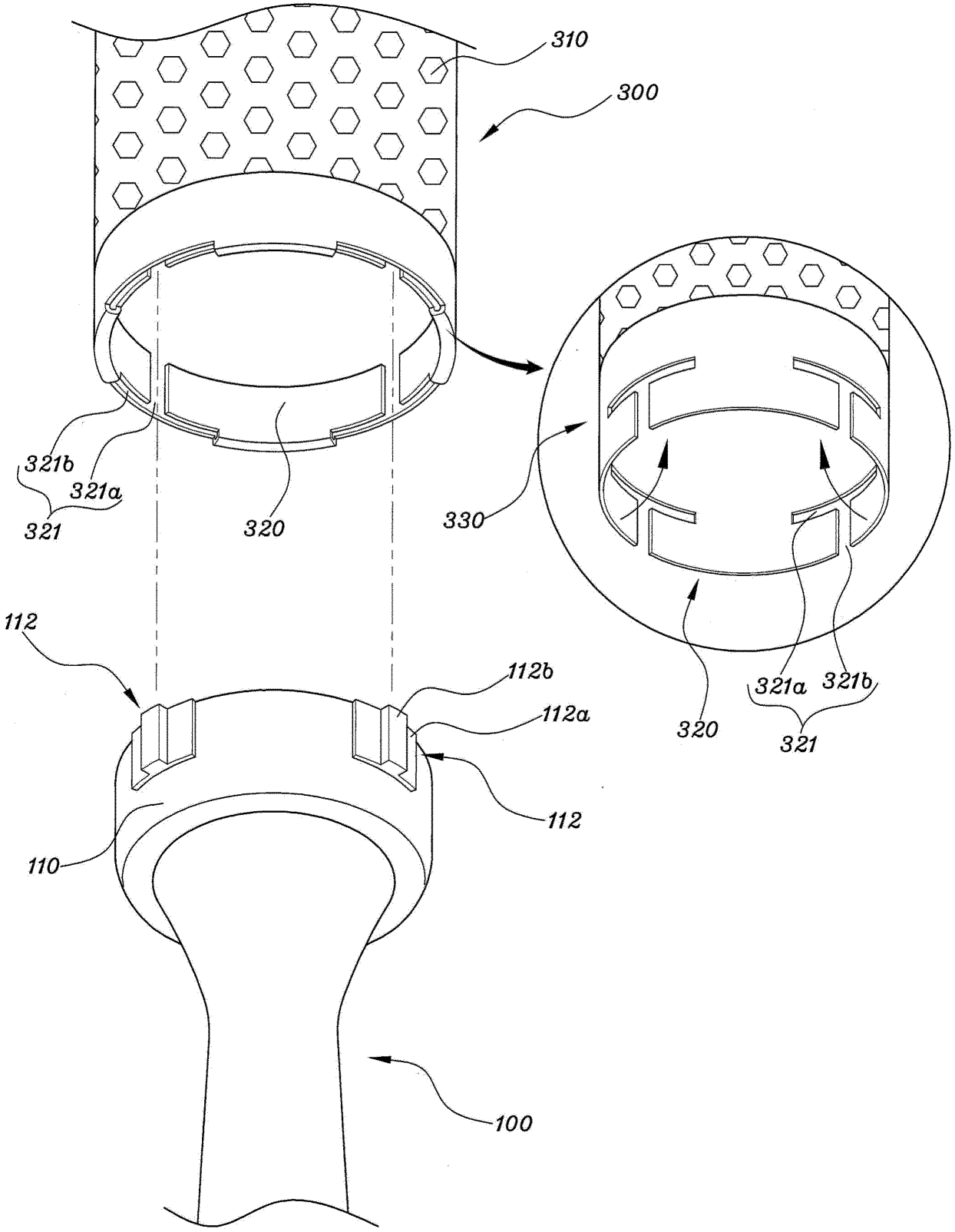
310
300
321b
321a
321
320
330
112
112b
112a
112
110
100
320
321a
321b
321

Fig.3

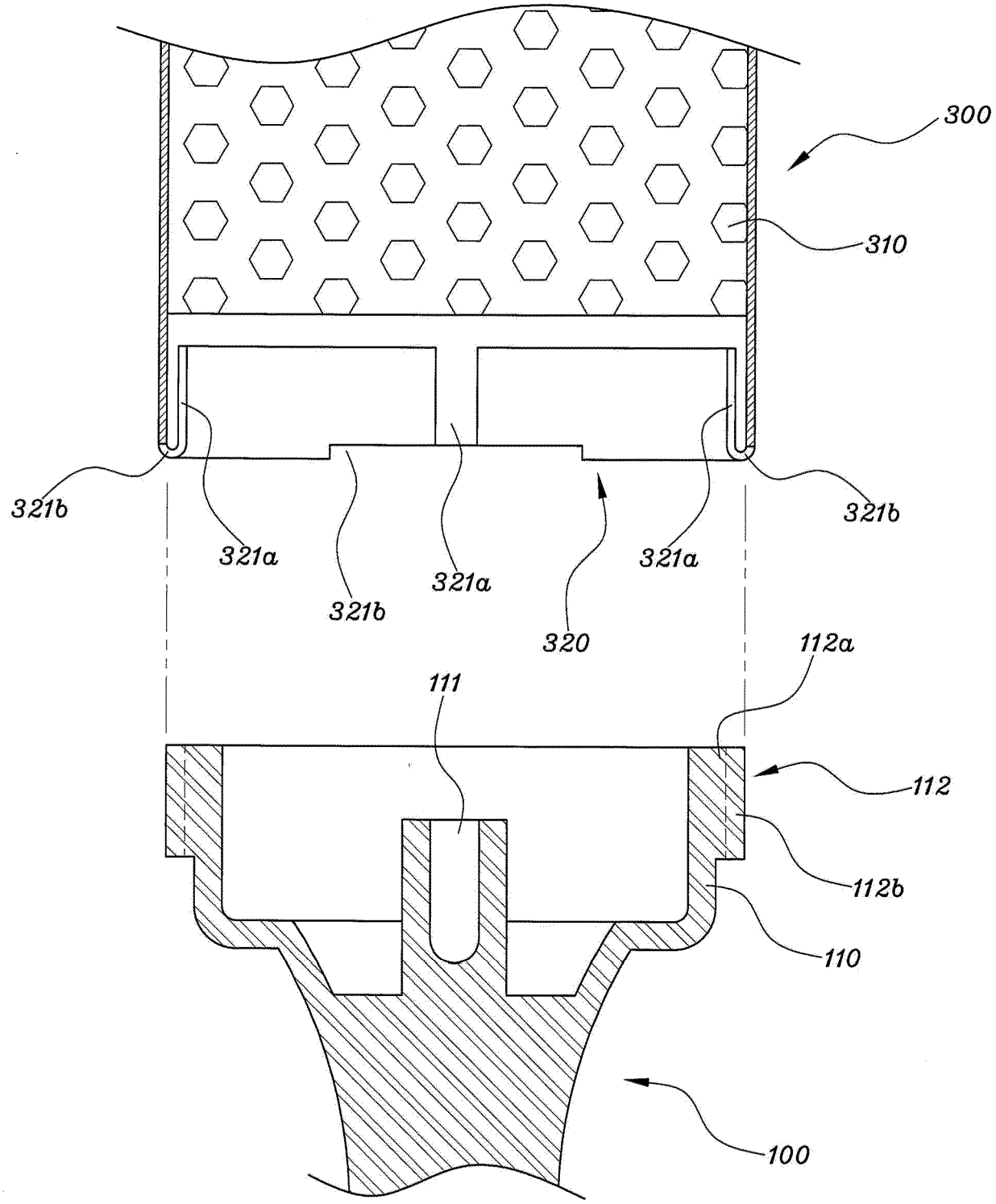
300
310
321b
321a
321b
321a
321a
321b
320
112a
111
112
112b
110
100

Fig.4

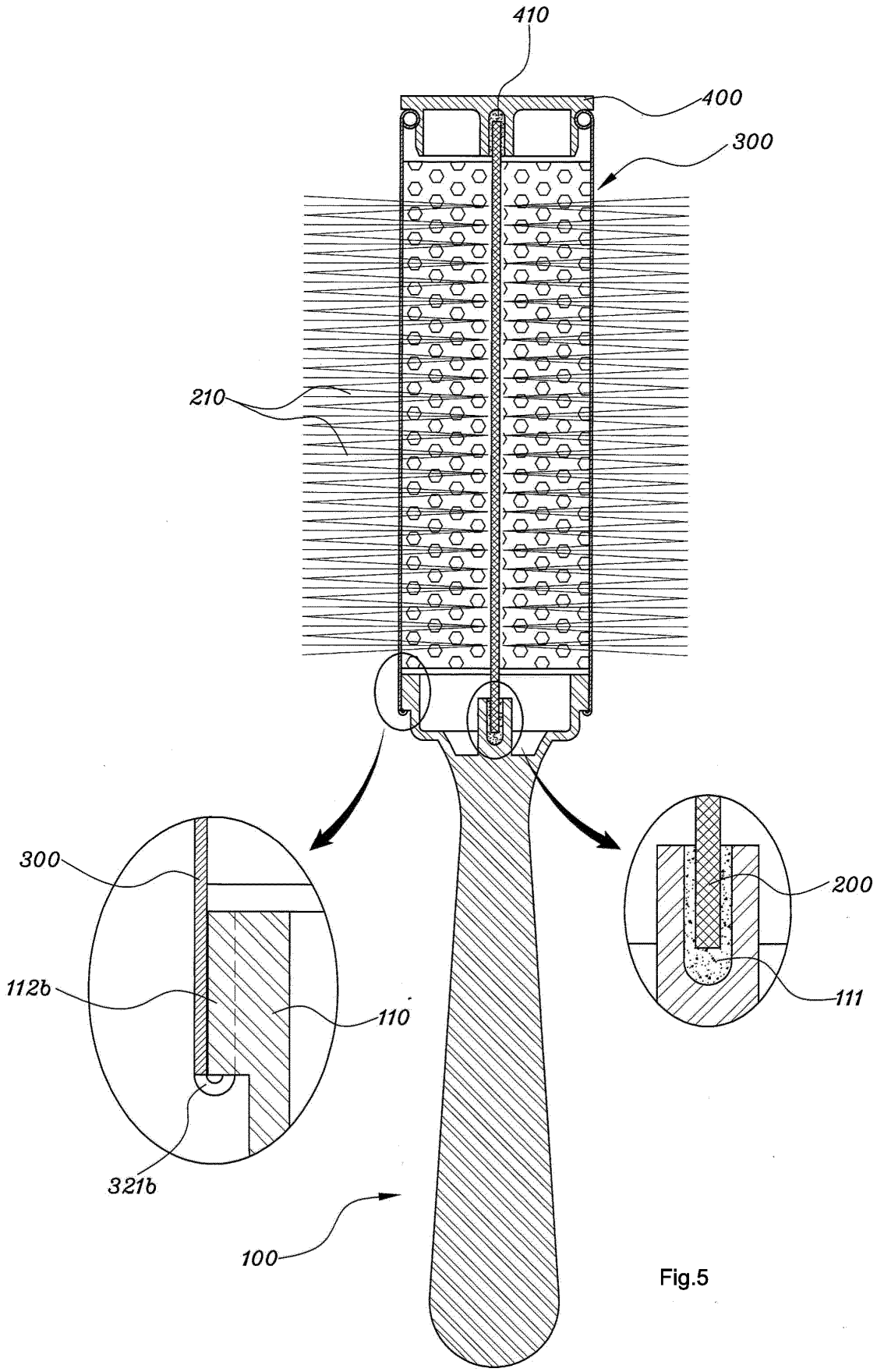

Fig.5

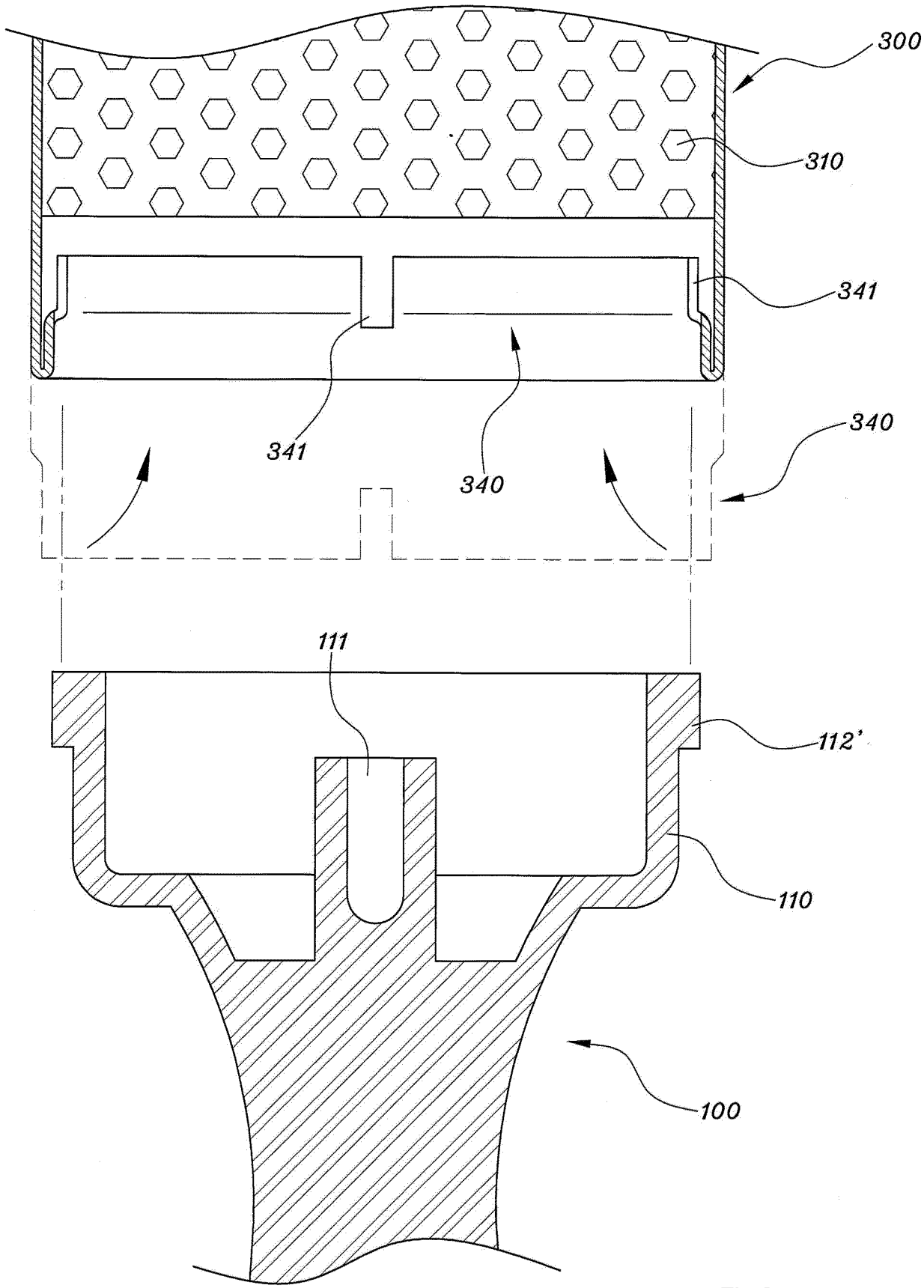

Fig.6

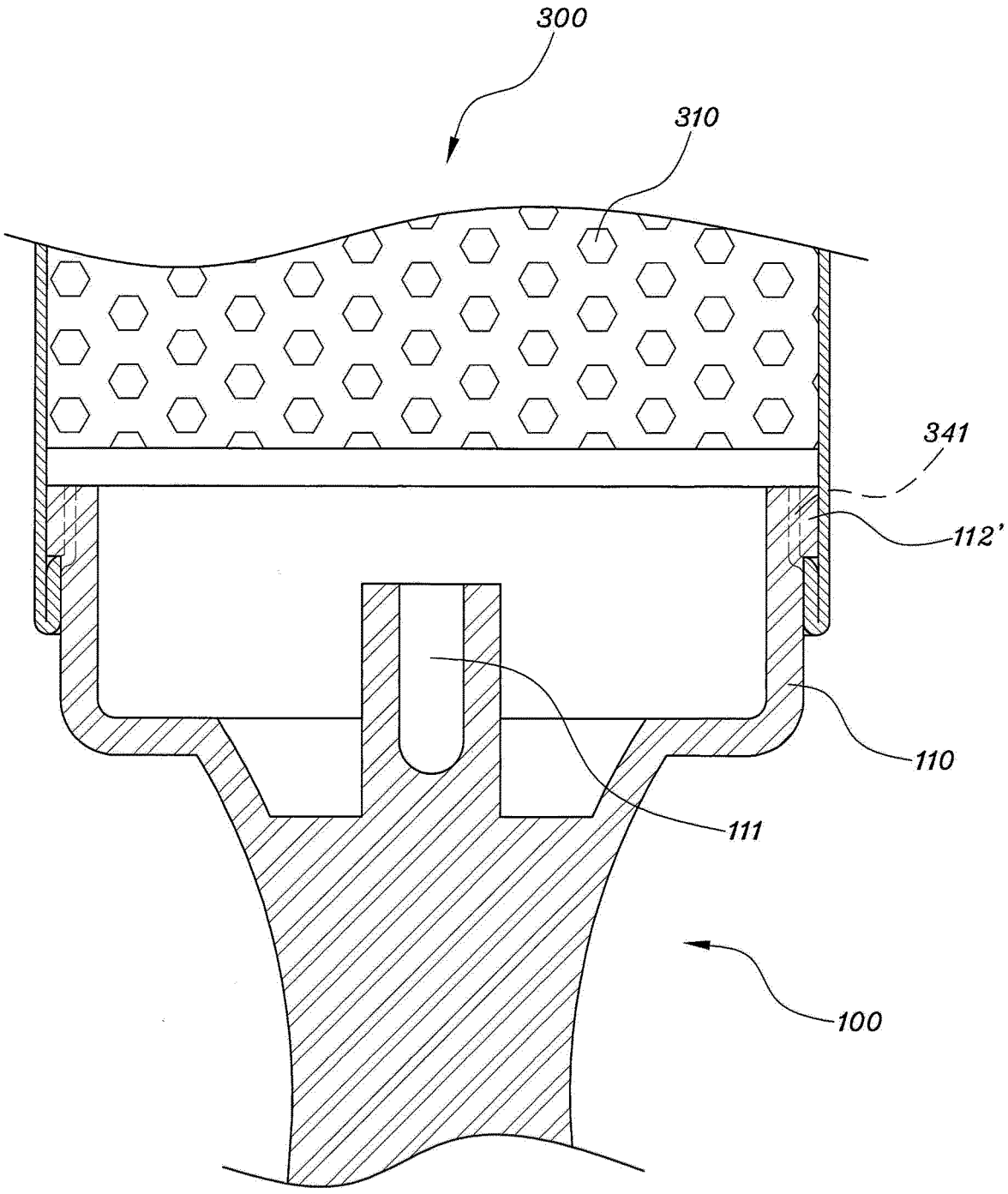

Fig.7

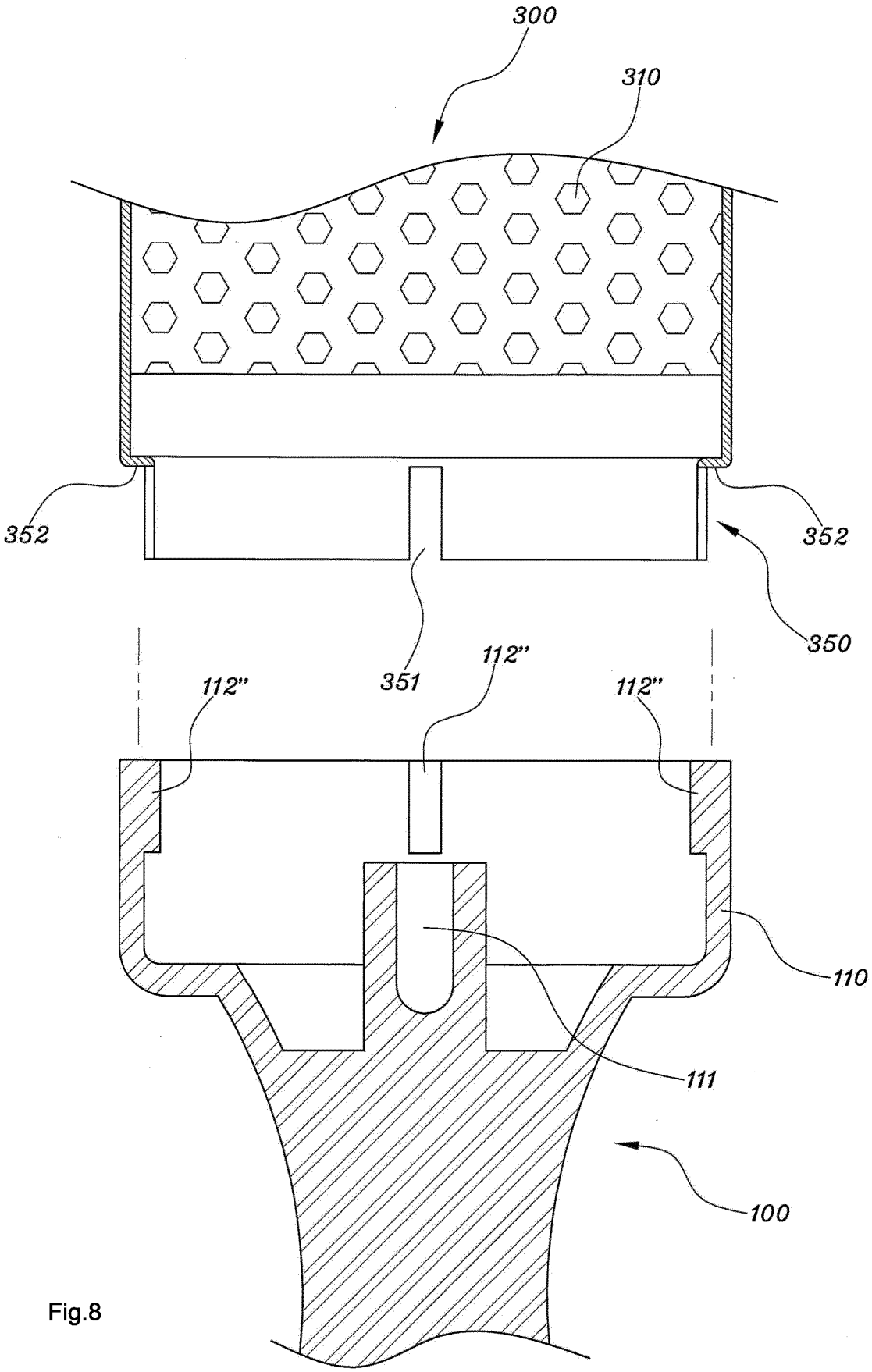

Fig.8

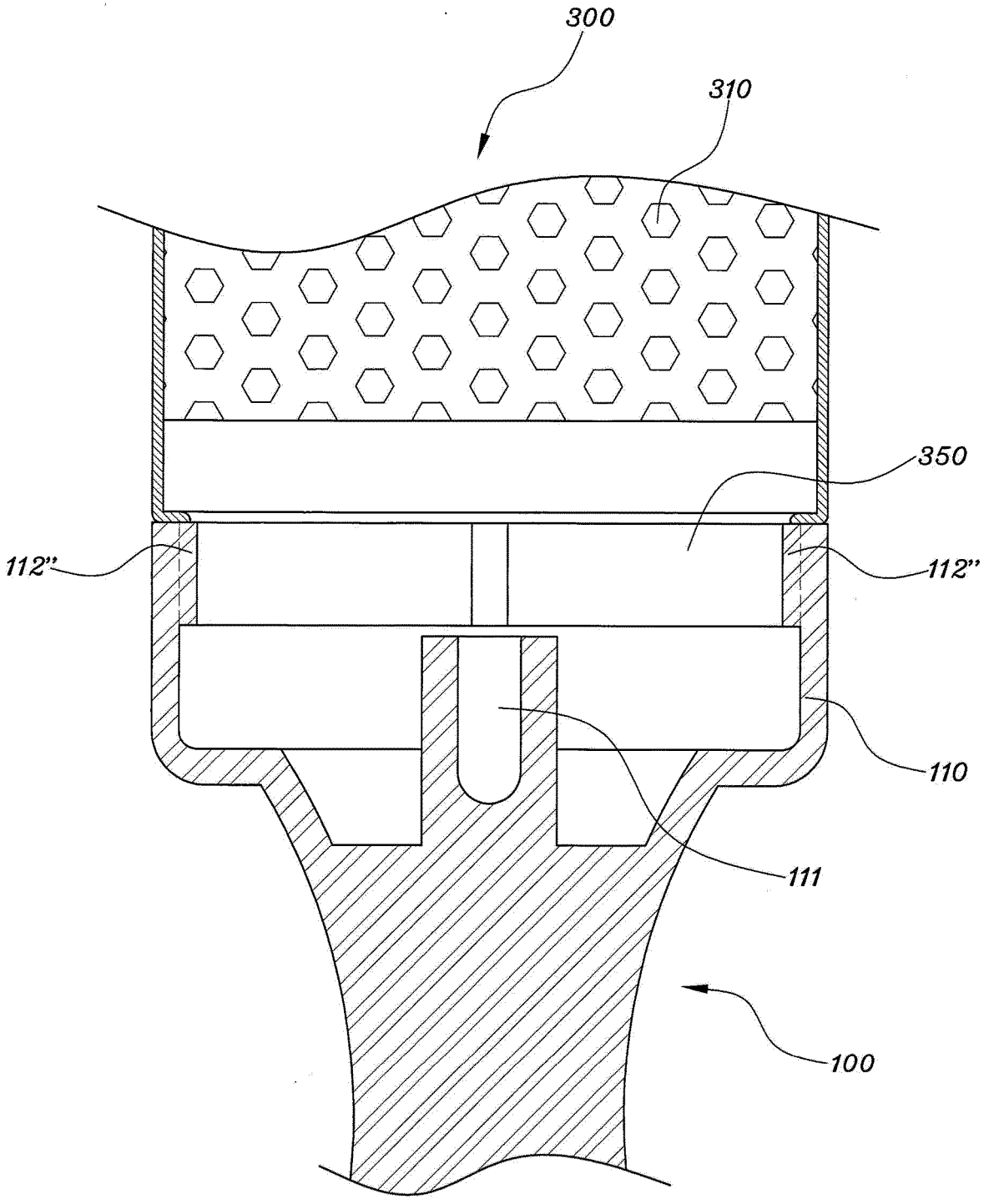

Fig.9

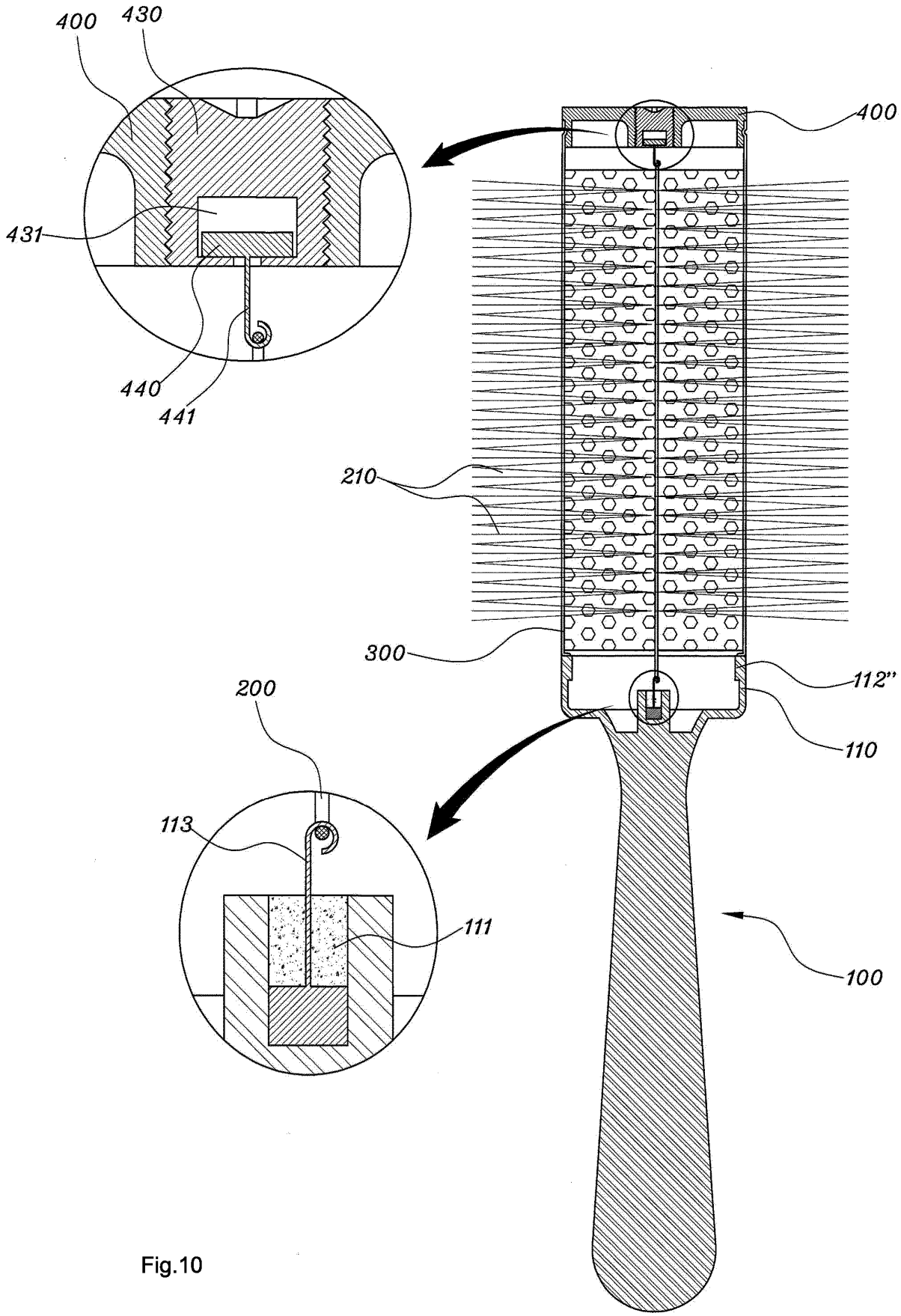

Fig.10

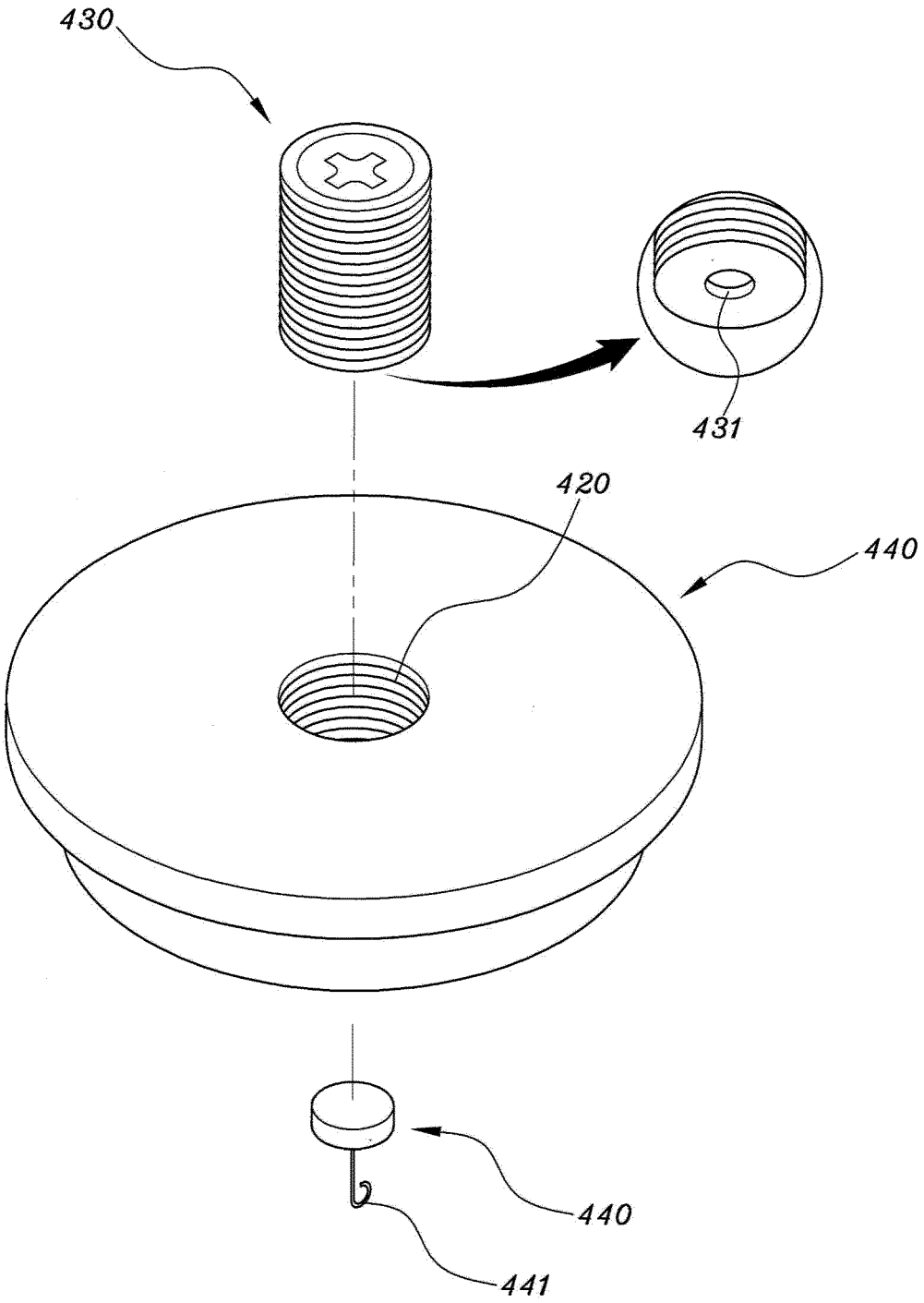

Fig.11

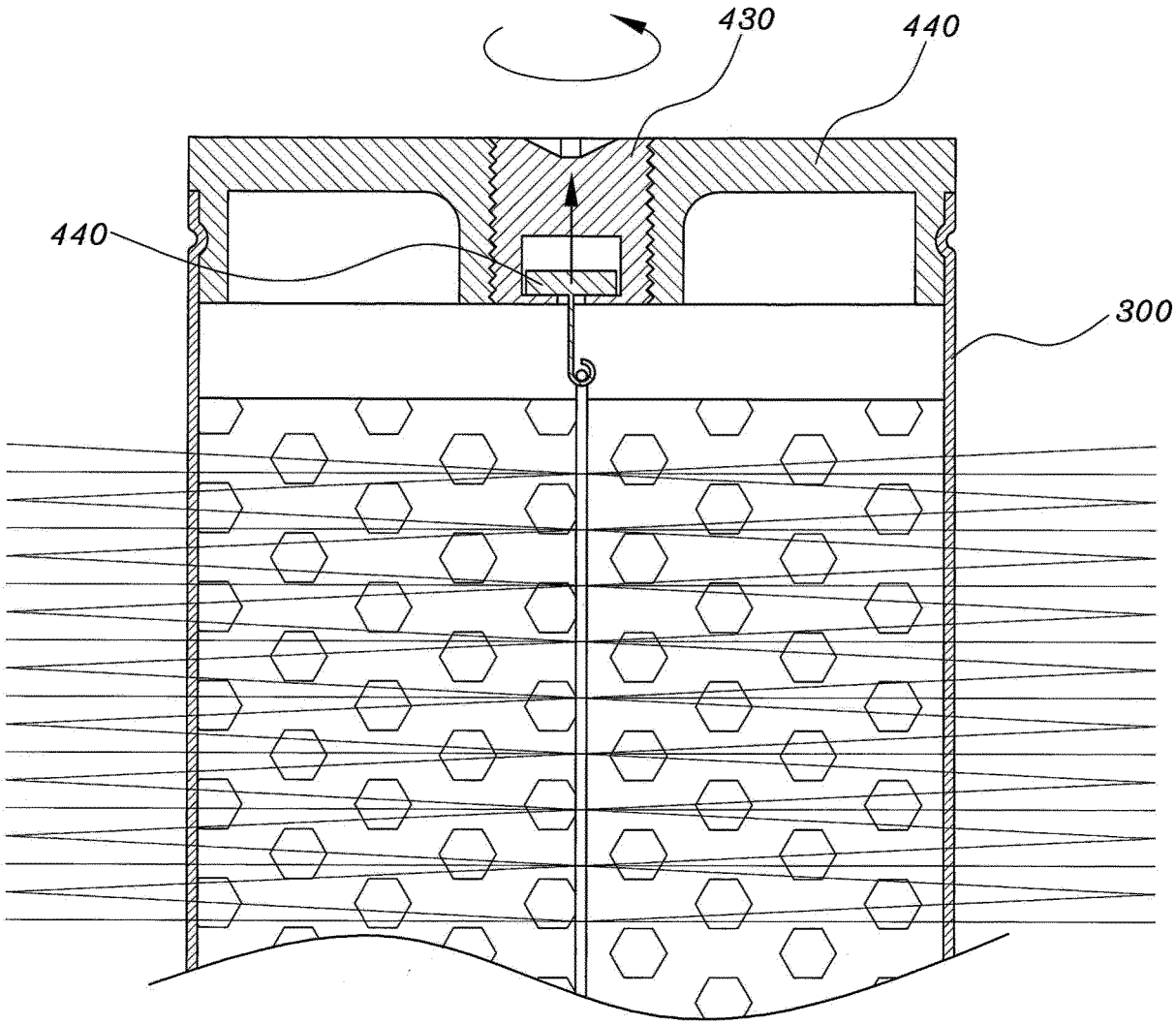

Fig.12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2018/012257

A. CLASSIFICATION OF SUBJECT MATTER

A46B 3/08(2006.01)i, A46B 3/16(2006.01)i, A45D 2/08(2006.01)i, A45D 24/38(2006.01)i

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)

A46B 3/08; A45D 20/52; A45D 24/04; A45D 24/06; A45D 24/10; A45D 24/14; A46B 15/00; A46B 3/16; A45D 2/08; A45D 24/38

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models: IPC as above
Japanese utility models and applications for utility models: IPC as above

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

eKOMPASS (KIPO internal) & Keywords: roll brush, brush, hair brush, fitting, combination, protrusion and hook

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2014-0071748 A (PARK, Ran Kiu) 12 June 2014 See paragraph [0015].	1-3,9
A		4-8
Y	KR 20-0482973 Y1 (KIM, Sang An) 23 March 2017 See paragraph [0011] and figures 1-2.	1-3,9
Y	KR 10-2010-0114355 A (LEE, Jae Sool) 25 October 2010 See paragraphs [0022], [0026] and figure 4.	3
A	KR 20-0483627 Y1 (LEE, Sa Yeon) 07 June 2017 See paragraphs [0010]-[0016] and figures 1-2.	1-9
A	KR 10-1382531 B1 (WHOANG, In Gan et al.) 07 April 2014 See paragraphs [0007]-[0009] and figures 1-2.	1-9

☐ Further documents are listed in the continuation of Box C. ☒ 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
"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
04 APRIL 2019 (04.04.2019)	**04 APRIL 2019 (04.04.2019)**
Name and mailing address of the ISA/KR Korean Intellectual Property Office Government Complex Daejeon Building 4, 189, Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2018/012257

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-2014-0071748 A	12/06/2014	KR 10-1426435 B1	05/08/2014
KR 20-0482973 Y1	23/03/2017	KR 20-2016-0002464 U	14/07/2016
KR 10-2010-0114355 A	25/10/2010	None	
KR 20-0483627 Y1	07/06/2017	None	
KR 10-1382531 B1	07/04/2014	None	

Form PCT/ISA/210 (patent family annex) (January 2015)