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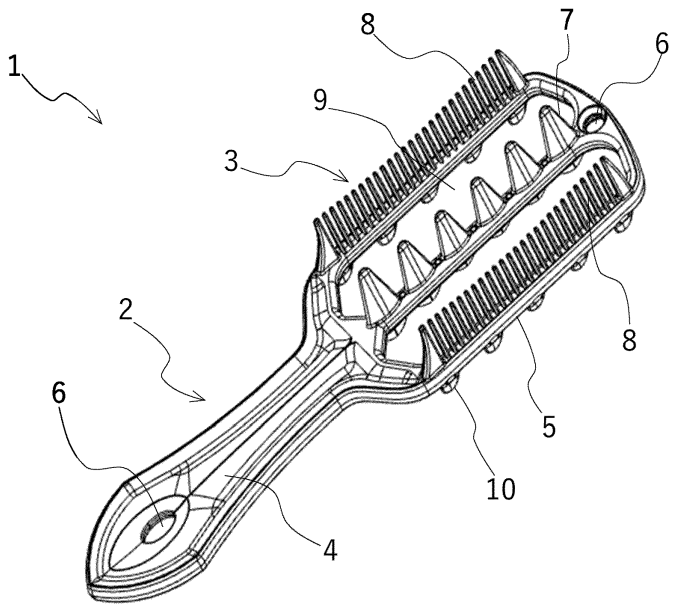
(54) **COMB**

(57) A comb (1) comprises a comb body (2), in which a plating treatment is applied to a surface, the comb body (2) having a grip part (4) to be gripped by a user, a base part (5) continuous with the grip part (4), and a plurality of comb teeth (3) formed protruding from the base part (5), the comb teeth (3) having at least one row of main teeth (7) arranged at intervals along a central axis line of the comb body (2) and at least one row of sub teeth (8) arranged on both sides parallel to the main teeth (7), wherein the height of the main teeth (7) is higher than the height of the sub teeth (8) adjacent thereto in the horizontal direction of the comb body (2), and the number of the main teeth (7) is less than the number of the sub teeth (8).

fig.1



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Description

Technical Field

[0001] The present invention relates to a comb having a surface that is applied with a plating treatment.

Background Art

[0002] When a surface of a comb is applied with a plating treatment, the surface becomes smooth and contact friction with hair is reduced. It has been found that such comb has an effect of discharging static electricity accumulated in the hair using the human body as a ground (see, for example, Patent Literature 1). As shown in Patent Literature 1, applying the plating treatment causes non-plated part at a contact part with an electrode part. There is a problem of peeling starting from the non-plated part, and even if the part is coated, the coating may dissolve due to hair-dyeing agents or the like, and it is therefore necessary to cover this non-plated part with a plated component. In Patent Literature 1, the non-plated part is covered by caps that are mated with each other. Such plating treatment enables smooth combing of the hair and prevents clogging of the hair.

[0003] On the other hand, as a hair brush for combing the hair, each tooth is formed of a flexible material regardless of the plating treatment to prevent clogging of the hair (see, for example, Patent Literature 2).

Citation List

Patent Literature

[0004]

Patent Literature 1: WO2017/123021A1
Patent Literature 2: JP3092847U

Summary of Invention

Technical Problem

[0005] However, in the case of the comb instead of the hairbrush, all components including teeth and a grip part are formed of a rigid material such as a resin. Therefore, in the case of the comb, it is not common to form only the teeth part with a different material, which makes it difficult to manufacture. In addition, when combing the hair, it is more preferable to use the teeth made of the rigid material that is extremely smooth and has less friction on the part that comes in contact with the hair. This is because it takes time to comb the hair with soft teeth, especially when the hair is complicatedly entangled.

[0006] In addition, to prevent the hair from entangling with the teeth, conventionally, the hair is first combed with the comb having widely spaced teeth to form a flow to some degree, and then combed with the comb having closely spaced teeth to adjust the hair. However, this method requires two combs, and requires switching the combs, which is laborious and burdensome.

[0007] The present invention takes into account the above prior art and has an objective of providing a comb that can smoothly comb hair with a single comb without entangling hair, even if the comb is made of the rigid material.

Solution to Problem

[0008] In order to achieve the above object, the present invention provides a comb comprising a comb body in which a plating treatment is applied to a surface, the comb body having a grip part to be gripped by a user, a base part continuous with the grip part, and a plurality of comb teeth formed protruding from the base part, and the comb teeth having at least one row of main teeth arranged at intervals along a central axis line in the longitudinal direction of the comb body and at least one row of sub teeth arranged on both sides parallel to the main teeth, wherein the height of the main teeth is higher than the height of the sub teeth adjacent thereto in the horizontal direction of the comb body, and the number of the main teeth is less than the number of the sub teeth.

[0009] Preferably, the base part has a through hole that penetrates between the main teeth and the sub teeth.

[0010] Preferably, the main teeth are formed widening toward a base.

[0011] Preferably, the base part is formed wider than the grip part, and the sub teeth are formed along left and right peripheral edges of the base part.

[0012] Preferably, the main teeth and the sub teeth form a curved shape with a concave center when an entire row is viewed from the side.

Advantageous Effects of Invention

[0013] According to the invention, the comb has the main teeth and the sub teeth as the comb teeth, and the height of the main teeth located along the central axis line is higher than that of the sub teeth adjacent thereto (located on the left and right of the main teeth). The number of the main teeth is less than the number of the sub teeth. Therefore, the main teeth first contact the head of a user, and hair is first combed by the main teeth. Since the number of the main teeth is small, the hair is first combed roughly by these main teeth. Then, by tilting the comb body, the hair that has been combed with the main teeth can be combed with the sub teeth. Since the number of the sub teeth is large, the hair that has been roughly combed with the main teeth can be combed more finely. The hair is combed in a somewhat aligned state with the main teeth, which prevents the hair from entangling with the sub teeth when the hair is combed with the sub teeth having a large number of teeth. This allows combing the hair with only one comb body, even if the comb body is made of a rigid material, without entangling

of the hair. In other words, the hair can be roughly combed and then finely combed in a single motion.

[0014] In addition, the through hole is formed in the base part, allowing plating solution to flow through the through hole when applying the plating treatment to the comb body, which improves the reliability of the adhesion of plating to the comb body. Also, when combing the hair, the hair can pass through the through hole, further preventing the hair from entangling.

[0015] In addition, the main teeth are formed widening toward the base of the teeth, thereby ensuring high rigidity, allowing the hair to be combed roughly at first, and further enabling to reduce entangling of the hair.

[0016] In addition, since the base part is wider than the grip part and the sub teeth are formed along the left and right peripheral edges of the base part, a certain distance is created between the main teeth and the sub teeth. Therefore, it is possible to comb the hair with the sub teeth after combing the hair roughly for the certain distance with the main teeth. This allows the hair to be combed more smoothly by roughly combing the hair with the main teeth to some degree to form the flow of the hair and then combing the hair with the sub teeth. Since better results can be obtained by combing the hair with the sub teeth after combing the hair with the main teeth for the certain degree than by combing the hair with the sub teeth immediately after combing the hair with the main teeth, the certain distance is created between the main teeth and the sub teeth.

[0017] In addition, when viewed from the side, the entire row of the main teeth and the sub teeth have the curved shape with the concave center, so tips of the main teeth and the sub teeth are in contact with and along a human head, which reduces damage to a scalp and makes it possible to comb hair smoothly.

Brief Description of Drawings

[0018]

FIG. 1 is a diagram of a comb according to the present invention.

FIG. 2 is a diagram of the comb according to the present invention when viewed from a different angle.

FIG. 3 is a diagram of the comb according to the present invention when viewed from another different angle.

FIG. 4 is a diagram of the comb according to the present invention when viewed from still another different angle.

FIG. 5 is a diagrammatic plan view of the comb according to the present invention.

FIG. 6 is a diagrammatic bottom view of the comb according to the present invention.

FIG. 7 is a diagrammatic side view of the comb according to the present invention.

Description of Embodiments

[0019] As is apparent by referring to FIGs. 1 to 7, a comb 1 according to the present invention has a comb body 2. The comb body 2 has a surface applied with a plating treatment. Specifically, the comb body 2 is a resin molded product (for example, an ABS resin molded product) that has been applied with the plating treatment, which makes the surface smooth and reduces contact friction with hair. The plating treatment has also been found to have an effect of discharging static electricity accumulated in the hair using a human body as a ground. During applying this plating treatment, an electrode and the comb body 2 are in contact with each other, and the comb body 2 is held by the electrode. To ensure that the electrode holds the comb body 2, the comb body 2 has an insertion hole 6 for inserting the electrode for the plating treatment. This insertion hole 6 is closed by a cap or the like, which is not shown in the figure, when the comb body 2 is productized as the comb 1.

[0020] The comb body 2 is composed of comb teeth 3, a grip part 4, and a base part 5. The grip part 4 is the part that is gripped by a user for combing the hair of the user using the comb 1. The base part 5 is formed continuously from one end of the grip part 4. Additionally, a plurality of the comb teeth 3 are formed protruding from the base part 5.

[0021] The comb teeth 3 have at least one row of main teeth 7 (one row in the figure) and at least one row of sub teeth 8 each on both the left and right sides of the main teeth 7 (one row on each side in the figure). Specifically, a plurality of the main teeth 7 are arranged at intervals along the central axis line in the longitudinal direction of the comb body 2 (six main teeth 7 in the figure). To be parallel to the main teeth 7, the sub teeth 8 are arranged at intervals on both the left and right sides of the main teeth 7. As is apparent by referring to the figure, the number of the main teeth 7 per row is less than the number of the sub teeth 8. In addition, as is apparent by referring to FIG. 7, the height of the main teeth 7 is higher than that of the sub teeth 8 adjacent thereto in the horizontal direction of the comb body 2 (a direction orthogonal to the central axis line of the comb body 2).

[0022] That is, the main teeth 7 and the sub teeth 8 are provided as the comb teeth 3, and the height of the main teeth 7 arranged along the central axial line of the comb body 2 is higher than that of the sub teeth 8 adjacent thereto (located on the left and right sides of the main teeth 7). In addition, the number of the main teeth 7 is smaller than that of the sub teeth 8. Therefore, when the user grips the grip part 4 and brings the comb teeth 3 into contact with the user's head, the main teeth 7 first contact the user's head. Then, the hair is first combed by the main teeth 7. Since the number of main teeth 7 is small, the hair is first combed roughly by the main teeth 7. Then, by tilting the comb body 2, the hair that has been combed with the main teeth 7 can be combed with the sub teeth 8. Since the number of the sub teeth 8 is large, the hair that has

been roughly combed with the main teeth 7 can be combed more finely. The hair is combed in a somewhat aligned state by the main teeth 7, which prevents the hair from entangling with the sub teeth 8 when the hair is combed by the sub teeth 8 having a large number of teeth. This allows combing the hair with only one comb body 2, even if the comb body 2 is made of a rigid material, while preventing the hair from entangling. In other words, the hair can be roughly combed with the main teeth 7 and then finely combed with the sub teeth 8, in a single motion.

[0023] The main teeth 7 are formed widening toward the base thereof. This allows the main teeth 7 to ensure high rigidity. Because of its high rigidity, even entangled hair can be first combed roughly. This reduces hair entangling. It is preferable that the tips of the main teeth 7 and the sub teeth 8 are spherical in shape. This is to reduce damage caused by contact with a scalp.

[0024] Here, the base part 5 has a through hole 9 that penetrates between the main teeth 7 and the sub teeth 8. In other words, the main teeth 7 and the sub teeth 8 are separated by a certain distance, and the through hole 9 penetrates through the base part 5 in the area where the distance is created. The through hole 9 allows plating solution to flow through the through hole 9 when applying the plating treatment to the comb body 2, which improves the reliability of the adhesion of plating to the comb body 2. Also, when combing the hair, the hair can pass through the through hole 9, further preventing the hair from entangling. In other words, if the base part 5 is simply a plate shape, the hair is gathered at the bottom of the comb teeth 3 while combing the hair with the comb 1, and the hair is more likely to be entangled with the comb teeth 3. In contrast, providing the through hole 9 allows the hair to slip through the through hole 9 of the base part 5, preventing the hair from gathering and entangling at the bottom of the comb teeth 3.

[0025] In addition, the base part 5 is formed wider than the grip part 4. Furthermore, the sub teeth 8 are formed along the left and right peripheral edges of the base part 5. As a result, the certain distance is created between the main teeth 7 and the sub teeth 8. Therefore, it is possible to comb the hair with the sub teeth 8 after combing the hair roughly for the certain distance with the main teeth 7. This allows the hair to be combed more smoothly by roughly combing the hair with the main teeth 7 to some degree to form the flow of the hair and then combing the hair with the sub teeth 8. Since better results can be obtained by combing the hair with the sub teeth 8 after combing the hair with the main teeth 7 for the certain degree than by combing the hair with the sub teeth 8 immediately after combing the hair with the main teeth 7, the certain distance is to be created between the main teeth 7 and the sub teeth 8.

[0026] In addition, when viewed from the side, the entire row of the main teeth 7 and the sub teeth 8 have a curved shape with the concave center. Thus, tips of the main teeth 7 and the sub teeth 8 are in contact with and along a human head, which reduces damage to a scalp and makes it possible to comb hair smoothly.

[0027] Protrusions 10 are formed extending from the opposite side of the base part 5 from which the comb teeth 3 protrude. Specifically, the protrusions 10 are formed along the main teeth 7 and the sub teeth 8, and are arranged at intervals along the back side thereof. The user may massage the scalp or other skin by rubbing the scalp or other skin using the protrusions 10. In particular, when the protrusions 10 are formed so that they are located directly behind the main teeth 7, they can be used as reinforcement for the main teeth 7, so that the rigidity of the main teeth 7 can be further increased.

Reference Signs List

[0028] 1: comb, 2: comb body, 3: comb teeth, 4: grip part, 5: base part, 6: insertion hole, 7: main teeth, 8: sub teeth, 9: through hole, 10: protrusion

Claims

1. A comb comprising

a comb body, in which a plating treatment is applied to a surface, the comb body having
a grip part to be gripped by a user,
a base part continuous with the grip part, and
a plurality of comb teeth formed protruding from the base part, the comb teeth having

at least one row of main teeth arranged at intervals along a central axis line in the longitudinal direction of the comb body and at least one row of sub teeth arranged on both sides parallel to the main teeth, wherein

the height of the main teeth is higher than the height of the sub teeth adjacent thereto in the horizontal direction of the comb body, and
the number of the main teeth is less than the number of the sub teeth.

2. The comb according to claim 1, wherein the base part has a through hole that penetrates between the main teeth and the sub teeth.

3. The comb according to claim 1, wherein the main teeth are formed widening toward a base.

4. The comb according to claim 1, wherein the base part is formed wider than the grip part, and the sub teeth are formed along left and right peripheral edges of the base part.

5. The comb according to claim 1, wherein the main

teeth and the sub teeth form a curved shape with a concave center when an entire row is viewed from the side.

fig.1

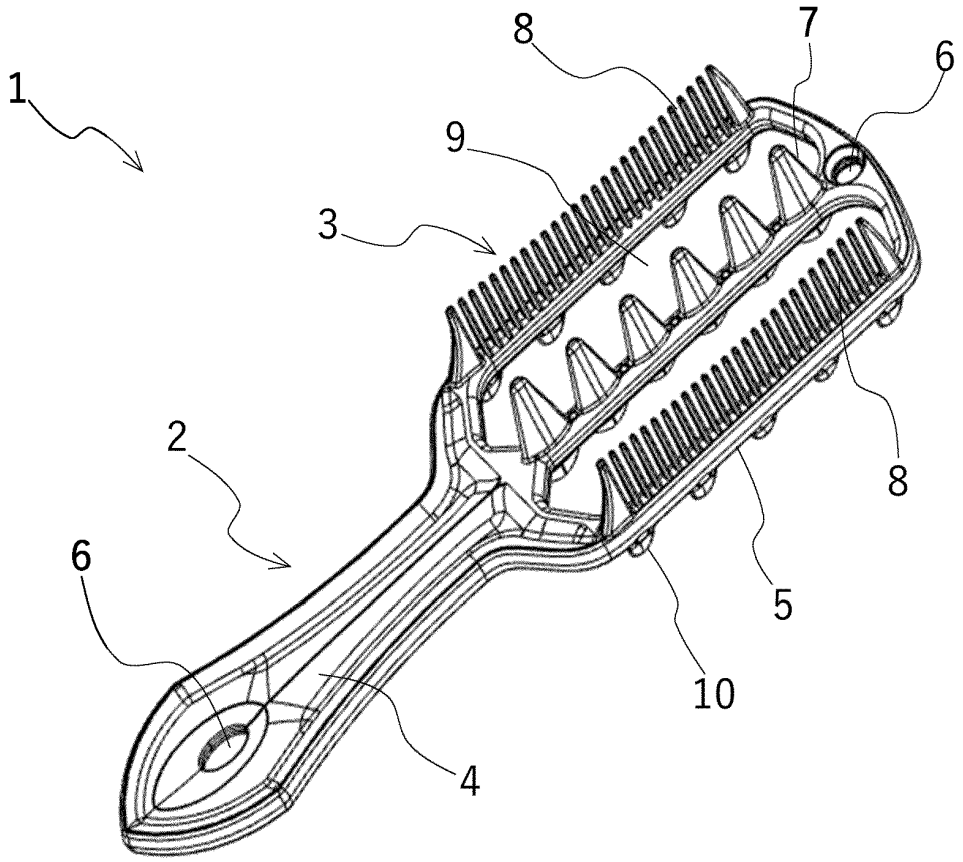


fig.2

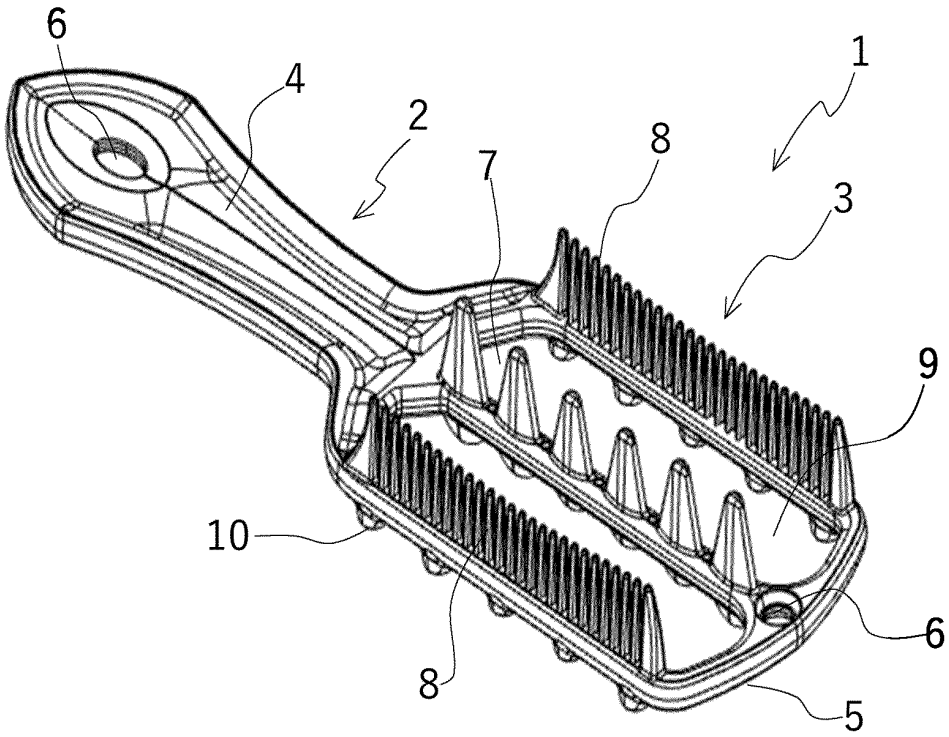


fig.3

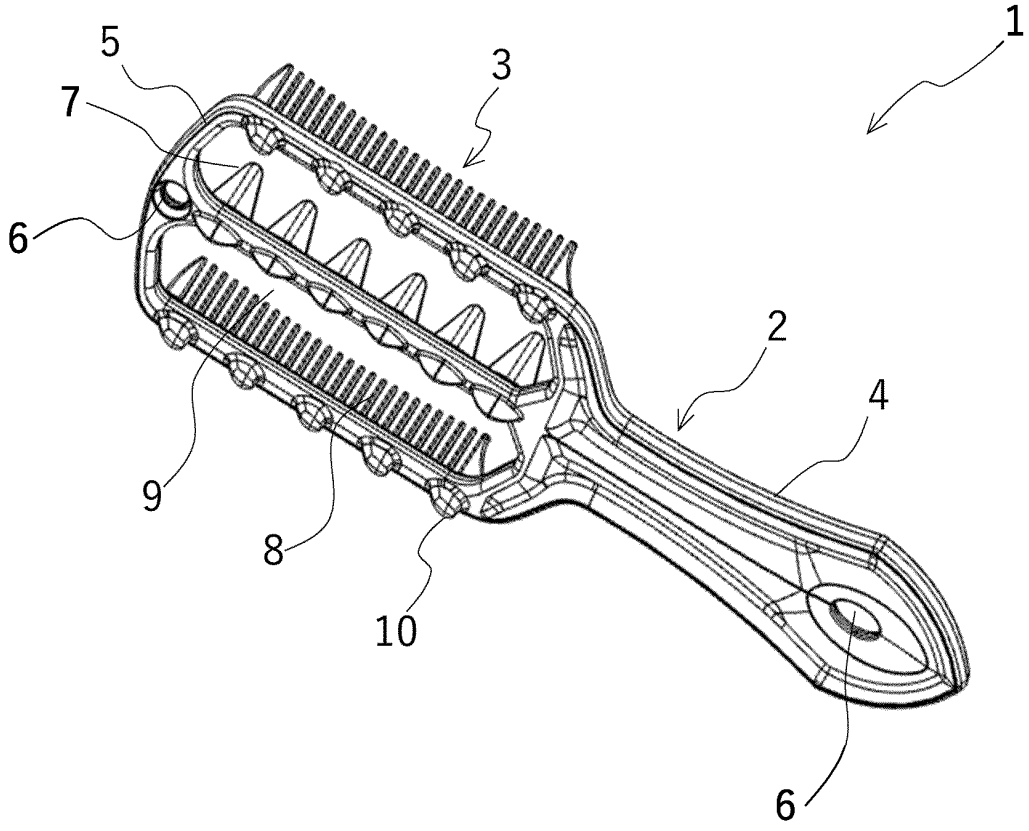


fig.4

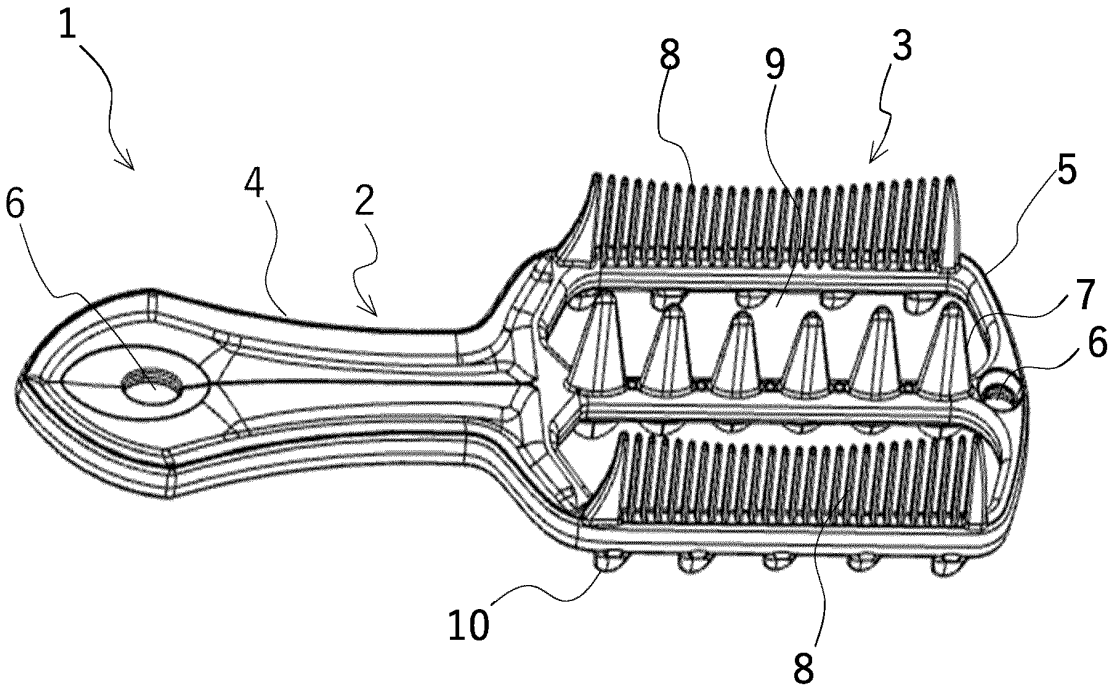


fig.5

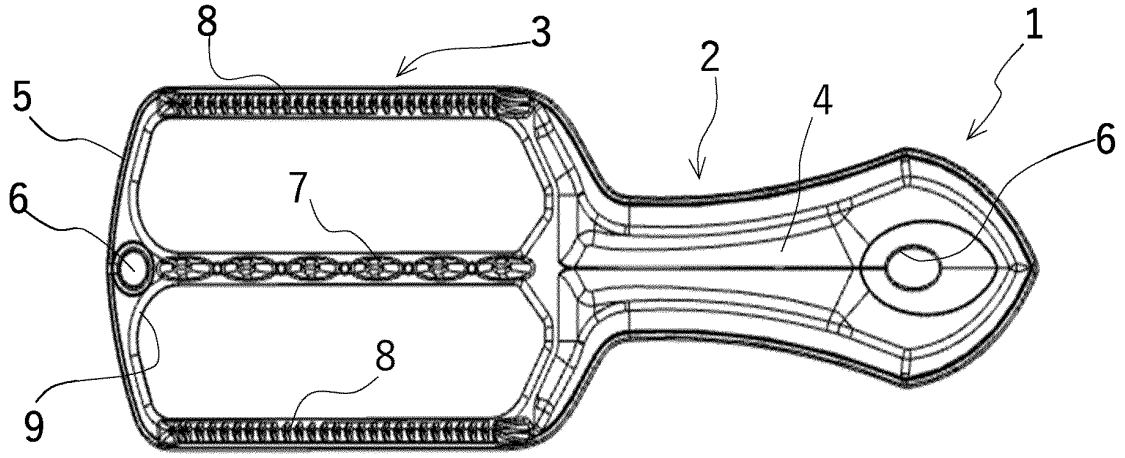


fig.6

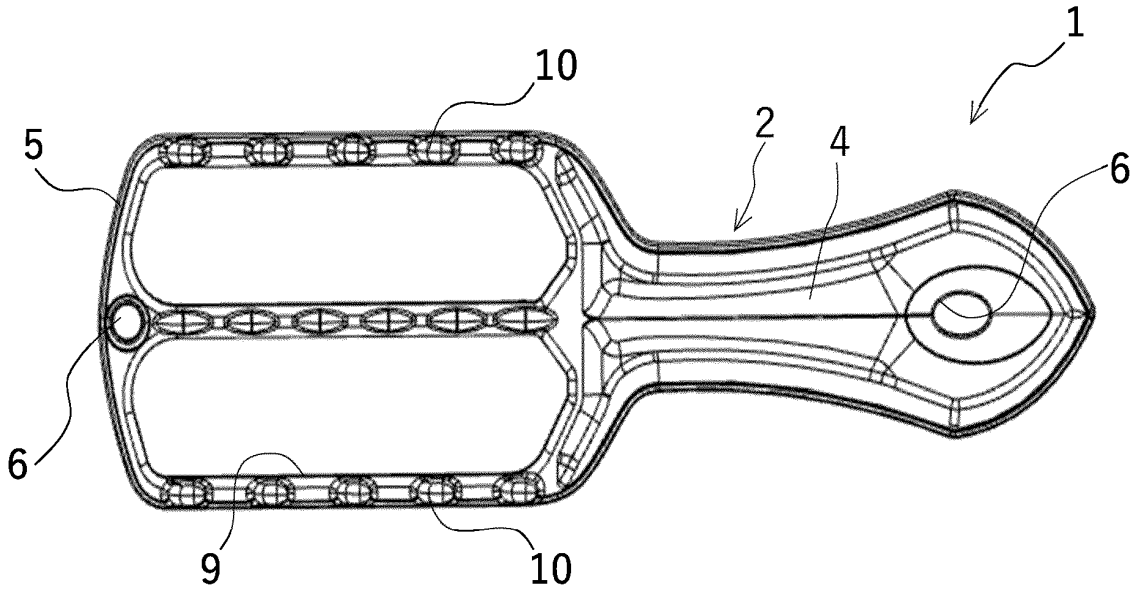
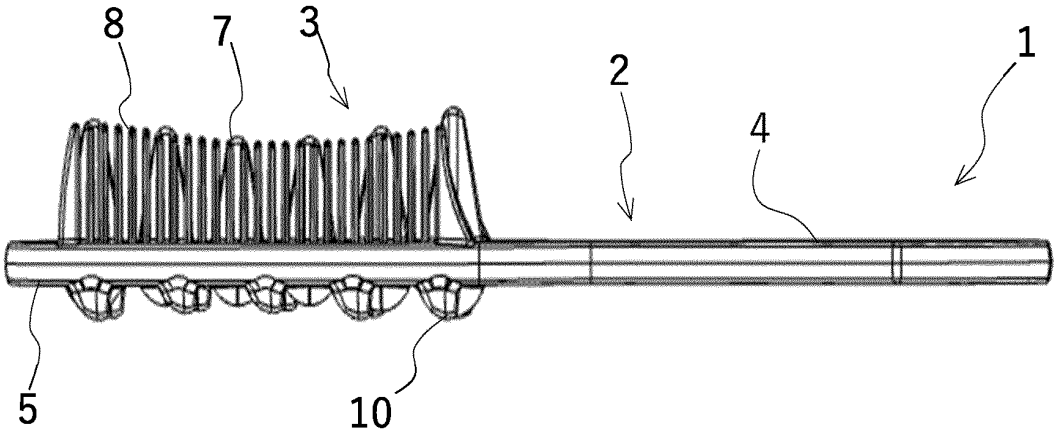


fig.7



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2023/042787

A. CLASSIFICATION OF SUBJECT MATTER

A45D 24/00(2006.01)i
FI: A45D24/00 M

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)

A45D24/00-24/46; A46B1/00-17/08

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

Published examined utility model applications of Japan 1922-1996
Published unexamined utility model applications of Japan 1971-2023
Registered utility model specifications of Japan 1996-2023
Published registered utility model applications of Japan 1994-2023

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2019/0150583 A1 (CONAIR CORPORATION) 23 May 2019 (2019-05-23) paragraphs [0022]-[0034], fig. 1-8	1-4
Y		5
Y	JP 3231989 U (SUNBRIGHT CO., LTD.) 13 May 2021 (2021-05-13) paragraph [0027], fig. 3	5

☐ Further documents are listed in the continuation of Box C.

☑ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
19 December 2023	**16 January 2024**

Name and mailing address of the ISA/JP	Authorized officer
Japan Patent Office (ISA/JP) **3-4-3 Kasumigaseki, Chiyoda-ku, Tokyo 100-8915** **Japan**	Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2023/042787

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
US 2019/0150583 A1	23 May 2019	WO 2019/104032 A1	
JP 3231989 U	13 May 2021	(Family: none)	

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

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2017123021 A1 **[0004]**
- JP 3092847 U **[0004]**