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(54) **HAIR STYLING DEVICE**

HAARSTYLINGVORRICHTUNG

DISPOSITIF DE COIFFURE

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Description

FIELD OF THE INVENTION

[0001] The invention relates to a hair styling device. More particularly, the invention relates to a hair styling device containing different configurations of stable mechanical shapes, such that the hair styling device is capable of physical transformation to hold and retain a bundle of received hair in a desired style.

BACKGROUND OF THE INVENTION

[0002] US Patent No. 6,116,251 (hereafter '251 patent), which is entitled "Spring Strip Hair Clip", comprises a carbon spring steel strip 1001 and an elastic strip 1002, as shown in FIG. 1A. The elastic strip 1002 is to hold hair against the carbon spring steel strip 1001 when the carbon spring steel strip 1001 coils into a closed position. The elastic strip 1002 can be stretched away from the carbon spring steel strip 1001 to allow space for hair to be placed between the carbon spring steel strip 1001 and the elastic strip 1002. However, the elastic strip 1002 can also extend too far from the carbon spring steel strip 1001 and not remain in alignment when hair weighs the device down, such that the hair clip does not hold the entered hair securely while rolling it up and snapping it into a top knot, low bun or updo hair style.

[0003] In another embodiment described in the '251 patent, wherein a flexible attachment member 1003 connects an end of the first strip to an end of the second strip as shown in FIG. 1B, the problem is that the flexible attachment of the two strips allows movement of the strips relative to each other in all three axis of motion making the securing of the bundle of hair while maintaining the alignment of the two strips cumbersome for the user.

[0004] US Patent No. 8,757,176 B2 (i.e. hereafter '176 patent), which is entitled "Hair Accessory and Method Styling Hair" comprises two pieces of metallic members 1004 and 1005 as shown in FIG. 1C. Those two pieces of metallic members 1004 and 1005 are fixedly attached to each other at one longitudinal end via a rivet 1006, and are free and unattached to each other at the other longitudinal end for receiving a bundle of hair from the opening 1007. To use the hair accessory, the two pieces of metallic members 1004 and 1005 must be lined up and manually closed at the unattached end after hair inserted for styling. It is cumbersome to insert hair, manually close and then compel both strips to simultaneously snap to a stable state.

SUMMARY OF THE INVENTION

[0005] According to the present invention, a hair styling device, comprises a base member, a holding member and an attaching member. The base member has two mechanical shapes stabilized by different curvature axis in a first stable state and a second stable state, wherein

in the first stable state, the base member has a linear structure including a concave surface, a convex surface and two longitudinal ends, and having a curved ridge around a longitudinal axis connecting the two longitudinal ends, and in the second stable state, the base member has at least one wrap-around cylindrical structure and coiled around a lateral axis substantially perpendicular to the longitudinal axis. The holding member 20 is made of a pliable material, and being longer than the base member 10 in the longitudinal axis. The attaching member 30 is provided for connecting each of two ends of the holding member 20 to a corresponding one of the longitudinal ends 11, 12 on the convex surface 13, wherein the holding member 20 wraps over and secures onto the longitudinal ends 11, 12 of the base member 10 on the concave surface 14 by way of the attaching member 30, such that the entire longitudinal length of the base member 10 is available to hold hair. The hair is styled by being inserted between the base member 10 and the holding member 20 while the base member 10 is in the first stable state, then being rolled together with the base member 10 and the holding member 20 until a desired configuration is achieved, and then being fixed in response to an external force applied to the convex surface 13 of the base member 10 to transform the base member 10 into the second stable state.

[0006] According to the invention, the hair is styled by being inserted between the base member and the holding member while the base member is in the first stable state, then being rolled together with the base member and the holding member until a desired configuration is achieved, and then being fixed in response to an external force applied to the convex surface of the base member to transform the base member into the second stable state.

[0007] A hair styling device comprising one thin bistable strip and one pliable strip where each end of the pliable strip is connected to at, or near, each corresponding the end of the bistable strip and the pliable strip is capable of physical transformation to accommodate the transition of the bistable strip to, and from, its first and the second stable states. Such that the pliable strip forms a closed loop with the bistable strip, such that the pliable strip faces the concave side of the bistable strip, for receiving and restraining a bundle of hair and further styling into a top knot, low bun, updo, ponytail or other ponytail or other.

[0008] The attachment to form the closed loop can be a physical affixing with glue, sewing, rivet, bolt and nut, clamp, staple, welding, soldering, heat staking, dipping, injection molding, stamping or other similar. A hook, eye, tab, or other device on either the bistable strip or the pliable strip in concert with each other may also form the requisite closed loop.

[0009] Shapes, such as combs or teeth, may be added to either, or both, the bistable and pliable strips to improve the positioning and retention of hair. Likewise, materials with properties suitable to improve the positioning and holding of hair, such as silicone, rubber, synthetic wig or anti-slippage material may be affixed, or otherwise add-

ed, to either, or both, the bistable or pliable strips.

[0010] Decorative materials such as fabric, leather, moldings or other may be added to either the bistable or the pliable strips for aesthetic considerations to improve the visual attractiveness for the user or 'feel' of the device when touched by the user.

[0011] When the bistable strip is made of metal, or similar material with the potential of 'sharp' edges, a protective barrier may be employed to prevent potential injury to a user from such edges. This barrier may be a coating of plastic, or similar, or covering of fabric, leather or similar.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

FIG. 1A is a schematic diagram illustrating a hair styling device according to a prior art;

FIG. 1B is a schematic diagram illustrating a hair styling device according to another prior art;

FIG. 1C is a schematic diagram illustrating a hair styling device according to a further prior art;

FIG. 2A is a perspective view schematically illustrating a structure of a base member included in a hair styling device according to the invention, wherein the base member is in a linear structure in a first stable state;

FIG. 2B is another perspective view schematically showing the base member illustrated in FIG. 2A in the first stable state;

FIG. 2C is a perspective view schematically illustrating a structure of a base member included in a hair styling device according to the invention, wherein the base member is in a two-cylindrical structure in a second stable state;

FIG. 2D is a perspective view schematically illustrating a structure of a base member included in a hair styling device according to the invention, wherein the base member is in a wraparound structure in the second stable state;

FIG. 3A is a perspective view schematically depicting a first embodiment of a hair styling device according to the invention;

FIG. 3B is a perspective view schematically depicting a second embodiment of the hair styling device according to the invention;

FIG. 4A is a perspective view schematically depicting a third embodiment of the hair styling device according to the invention;

FIG. 4B is a schematic side view of the hair styling device shown in FIG. 4A;

FIG. 4C is a perspective view schematically depicting a fourth embodiment of the hair styling device according to the invention;

FIG. 4D is a schematic side view of the hair styling device shown in FIG. 4C;

FIG. 5 is a perspective view schematically illustrating

a first example of an attaching member included in the hair styling device not being part of the present invention, which is implemented with a pair of fasteners attached at a base member on the concave surface;

FIG. 6A is a perspective view schematically illustrating a second example of an attaching member included in the hair styling device not being part of the present invention, which is implemented with a pair of hooks stamped, punched or cut out of the base member;

FIG. 6B is a perspective view schematically illustrating a third example of an attaching member included in the hair styling device not being part of the present invention, which is implemented with a pair of tabs stamped, punched or cut out of the base member;

FIG. 6C is a perspective view schematically illustrating an example of an attaching member included in the hair styling device according to the present invention, which is implemented with a pair of loops stamped, punched or cut out of the base member;

FIG. 6D is a perspective view schematically illustrating a further example of an attaching member included in the hair styling device according to the present invention, which is implemented with a pair of eye-hole stamped, punched or cut out of the base member; and

FIG. 6E is a perspective view schematically depicting a fifth embodiment of the hair styling device according to the invention, wherein the hair styling device includes an attaching member as shown in FIG. 6D, and a string, lace or ribbon serving as a holding member and inserted and knotted on the opposite sides of a base member.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] A hair styling device that easily and securely maintains a wearer's hair in a decorative and/or functional configuration is provided. The presently disclosed technology comprises the hair styling device for receiving and retaining a bundle of hair into a desired style, like a bun, ponytail or other.

[0014] The hair styling device according to the present invention includes a base member, a holding member and an attaching member, which will be respectively described hereinafter by way of a variety of embodiments and examples with reference to the accompanying drawings. Referring to FIG. 2A and FIG. 2B, a thin strip 10 is used as an embodiment of the base member, and has two mechanical shapes stabilized by different curvature axes. A first stable state where the base member 10 is a linear structure with a curved ridge around longitudinal axis, such that the base member 10 has a concave surface 14, a convex surface 13 and two longitudinal ends 11 and 12. A second stable state where the base member has at least one wrap-around cylindrical structure coiled

around lateral axis where the curved ridge disappears, as shown in FIG. 2C and FIG. 2D. The first stable state transforms into the second stable state when at least one point of pressure is applied on the convex surface 13 of the base member 10. The base member 10 can be reconfigured from the second stable state back to the first stable state by physically unraveling and straightening the base member 10. The base member 10 is made of any material with at least two stable physical states including one selected from the group consisting of engineering materials, steel, alloy, iron, aluminum, tin, foam skin, plastic and carbon fiber and similar.

[0015] The base member 10 may be of varying thickness, width and length to both adapt to the specific material of which it is made and to accommodate different volumes or textures of hair.

[0016] An embodiment of the holding member 20 is pliable as shown in FIG. 3A and FIG. 3B. When in use with the base member 10 in the first stable state, the holding member 20 has a pair of ends 201 and 202. In this position, the holding member 20 is opposed to the concave surface 14 of the base member 10 and is capable of physical transformation to accommodate the transition of the base member 10 to, and from, the first and the second stable states. The material of the holding member 20 is non-metallic and includes at least one selected from the group consisting of fabric (e.g. mesh, legging material, vinyl, nylon and spandex), silicone, plastic, rubber, flannel woven, plush, sequin, velvet, silk, polyester, nylon, satin, PVC prismatic reflective sheet, vinyl, polyethylene, polythene, leather and other similar material.

[0017] An embodiment of the attaching member 30 is schematically illustrated in FIG. 3A, which includes two opposite parts 301 and 302, each of which connects each the end 201, 202 of the holding member 20 with recesses 3010 and 3020 at, or near, each corresponding the longitudinal end 101, 102 of the base member 10 such that the holding member 20 is opposed to the concave surface 14 of the base member 10. The essential element of the attaching member 30 is that it forms a closed loop for the base member 10 and the holding member 20, such that the base member's concave surface 14 faces the inside of the loop 97 and the entire longitudinal length of the base member 10 is available to hold hair.

[0018] The base member 10 further comprises a gripping portion 98 to improve the positioning and retention of hair. Materials with properties suitable to improve the positioning and holding of hair, such as silicone, rubber, synthetic wig or anti-slippage material may be affixed, or otherwise added, to either, or both, the base member or holding member.

[0019] The holding member further comprises a gripping portion 99 to improve the positioning and retention of hair. Materials with properties suitable to improve the positioning and holding of hair, such as silicone, rubber, synthetic wig or anti-slippage material may be affixed, or otherwise added, to either, or both, the base member 10

or holding member 20.

[0020] Decorative materials such as fabric, leather, flannel woven, plush, sequin, velvet, silk, polyester, Polyester, nylon, satin, PVC prismatic reflective sheet, vinyl, polyethylene, polythene or other may be added to either the base member 10 or the holding member 20 for aesthetic considerations to improve the visual attractiveness for the user or 'feel' of the device when touched by the user.

[0021] When the base member 10 is made of materials with a potential of 'sharp' edges, a protective barrier may be employed to prevent potential injury to a user from such edges. This barrier may be a coating of plastic, or similar, or covering of fabric, leather or similar.

[0022] The attachment to form this closed loop can be a physical affixing with glue, rivet, bolt and nut, clamp, staple, welding, soldering, heat staking, dipping, injection molding, stamping or other similar. A hook, eye, tab, or other device on either the base member 10 or the holding member 20 in concert with each other may also form the requisite closed loop 97.

[0023] An example of the attaching member 30 is schematically illustrated in FIG. 3B, which the attaching member 30 functions for connecting each the end 201, 202 of the holding member 20 to corresponding each the longitudinal end 101, 102 of the base member 10 on the convex surface, wherein the holding member 20 wraps over the longitudinal end 101, 102 and along a longitudinal length of the concave surface 14, such that the entire longitudinal length of the base member 101 is available to hold hair, whereby the holding member forms the closed loop 97 with the base member 10 for receiving and restraining a bundle of hair.

[0024] In the embodiment illustrated in FIG. 4B and FIG. 4D, the attaching member 30 is surrounding and encasing at least the longitudinal ends 101, 102 of the base member 10, includes at least one selected from the group consisting of fabric, silicone, plastic, polyester, Synthetic Wig and rubber, such that the attaching member 30 integrates the holding member 20 to the base member 10 by including at least one of the group consisting of glue, tape, sewing or injection molding. For example, an injection molded holding member may include 'caps' at either end to securely slide over the ends of the base member and retaining the base and holding members in the required loop relationship (see FIG. 4C and FIG. 4D). In an alternative example, the base member 10 may be inserted into a fabric or similar, tube. The ends of the fabric tube would then be attached to each other by sewing, glue or other similar method (see FIG. 4A and FIG. 4B). The fabric tube then serves as both the holding member 20 and attaching member 30 with the base member 10 retained within it. In a further example, the base member 10 is cloth fitted into a synthetic wig or similar. The holding member 20 would then be attached to each the longitudinal end 101, 102 of encased base member 10 by sewing, glue, tape or other similar method.

[0025] In the embodiment illustrated in FIG. 5, the at-

taching member 30 is at least one pair of fasteners 39 and 40 such as a rivet, bolt and nut, clamp, staple, glue, welding, soldering, heat staking, dipping or a combination of any two of these for affixing the holding member to the base member. The holding member 20 is generally affixed at both the longitudinal ends 101 and 102 of the base member 10 but that can be affected in any of several ways. For example, the fasteners 39 and 40 may be attached at the longitudinal ends 101 and 102 of the base member 10 on the concave surface 14 not according to the present invention. Alternatively, the fasteners 39 and 40 may be implemented with bolts, screws or any other fixing members 301 and 302 attached at the longitudinal ends 101 and 102 of the base member 10 on the convex surface 13 as exemplified in FIG. 3B and according to the present invention. The holding member 20 may wrap over the longitudinal ends 101 and 102 of the base member 10 from the concave side 14 and be affixed to the opposite convex side 13 so as to have the holding member 20 cover the entire length of the base member 10 and allowing the maximum volume of hair between the base and holding members 10 and 20.

[0026] The attaching member 30 can be integrated with the base member 10 as a part of the base member and/or integrated with the holding member 20 as a part of the holding member to provide an attaching effect. In the embodiment illustrated in FIG. 6A, the attaching member is a pair of hooks 31 and 32; in the embodiment illustrated in FIG. 6B, the attaching member is a pair of tabs 33 and 34; in the embodiment illustrated in FIG. 6C, the attaching member is a pair of loops 35 and 36; and in the embodiment illustrated in FIG. 6D, the attaching member is a pair of eyeholes 37 and 38. It is understood that a combination of any two of these can also be used as the attaching member. FIG. 6E schematically illustrates a hair styling device including an attaching member as shown in FIG. 6D. For example, the implementation would be the base member 10 cut with the pair of holes 37 and 38 punched at the longitudinal ends 101 and 102 into which a string, lace or ribbon is inserted and knotted, or similarly stopped on the opposite side of the base member 10 so that the length of the holding member 10 string or lace rest on the concave surface 14 of the base member 10. The attaching member 30 can be integrated with the base member 10 as punched holes and integrated with the holding member 20 as knots to provide attaching method. In another example where the attaching member 30 integrates on both the base member 10 and the holding member 20, eyeholes or loops are used as the portion of the attaching member 30 on the base member 10, then hooks on the string, lace or ribbon holding member are hooked into the eye holes or loops to complete the attaching member.

[0027] There are number of ways to use the hair styling device. Two simple methods of usage are provided below as examples of how the hair styling device can be employed to achieve top-knot, low bun, updo, ponytail or other type hair styles.

[0028] Uncoil the hair styling device as it is in the first state of the base member where the hair styling device stays straight. Put a bundle of hair through the closed loop of the hair styling device where the base member is on the bottom facing wearer's nape. Spread the hair out evenly across the concave surface. Slide the hair device toward to the tip of the hair. Further, roll away from the neck from the bottom of the device and fold the hair styling device with restraining hair by flipping them along the hair upward to the root of the hair until desired length of the hair with the concave surface of the base member facing upward. Applying force to at least one point of the base member to bend the ends of the convex side of the base member downward to snap and capture the bundle of hair into the second state of the base member. The hair device will form a circle or two small circles. The wearer can adjust the hair to cover the exposing portion of the hair styling device to make perfect style.

[0029] A second styling method begins by positioning the device identically to above. In this example, the bottom of the device is rolled towards the neck (opposite direction of rolling in the first example). Hair is rolled and folded by the rolling of the hair styling device which restrains hair as the device is rolled toward the root of the hair until the desired length of the hair is achieved with the concave surface of the base member facing downward, rather than upward as in the first example. Applying force to at least one point of the base member to bend the ends of the convex side of the base member upward to snap and capture the bundle of hair into the second state of the base member. The hair styling device will form a circle or two small circles. The wearer can adjust the hair to cover the exposed portion of the hair styling device to make a perfect style.

[0030] Compared with the '251 patent, the hair styling device according to the invention improves the usage when replacing the elastic strip with a strip made of inelastic, yet pliable, material. In addition, an inflexible attachment may be used. Optionally, when the hair styling device according to the invention comprises a single bistable strip, and a single inelastic strip disposed in an end-to-end configuration, the styling function can be accomplished better. The inelastic material provides a tighter hold of hair against the bistable strip than the elastic material. The inelastic strip may also be designed to be longer than the bistable strip to assure that the entire length of the bistable strip is available to hold hair. Varying lengths of the bistable strip, and therefore the entire device, can be used to accommodate varying volumes of hair. Further, the attachment between the bistable strip and the inelastic strip is not flexible. The bistable strip and the inelastic strip are designed to remain securely in alignment restricting movement of the base member and the holding member relative to each other. Furthermore, the benefits of using inelastic material (e.g. fabric, ribbon, vinyl, leather or similar) are aesthetic and tactile. The hair accessory can look good and have a variety of 'feels'.

[0031] Furthermore, compared with the '176 patent,

the invention creates a closed holding space. It always uses only a single bistable strip of metal, plastic, silicone or similar which has the requisite bistable states. Instead of a second bistable strip, the second strip of this design is a non-metallic pliable material fabric, ribbon, vinyl, leather or similar. The second strip is attached at both longitudinal ends with to the first bistable strip to create a closed holding space. Such that the device prevents the hair from slipping out and reduces the users' effort to manipulate two bistable strips simultaneously while styling, particularly during the transition of the bistable strips from their first to second state. When a non-metallic bistable strip is used, the invention further provides a safety improvement and additional convenience for the user to wear anywhere that security officials at airports or in similar security situations, might refuse to allow a metal strip, particularly such a strip which is already relatively sharp with the potential to be further sharpened. In addition to being easier to use and holding hair better, the instant design is simpler to produce. It requires less effort to produce and the single bistable strip on this device is less material than previous devices, which use two such strips.

Claims

1. A hair styling device, comprising a base member (10), a holding member (20) and an attaching member (30), wherein the base member (10) has two mechanical shapes stabilized by different curvature axis in a first stable state and a second stable state, wherein in the first stable state, the base member (10) has a linear structure including a concave surface (14), a convex surface (13) and two longitudinal ends (11, 12), and having a curved ridge around a longitudinal axis connecting the two longitudinal ends (11, 12), and in the second stable state, the base member (10) has at least one wrap-around cylindrical structure and coiled around a lateral axis substantially perpendicular to the longitudinal axis; the holding member (20) is made of a pliable material, and being longer than the base member (10) in the longitudinal axis; and the attaching member (30) is provided for connecting each of two ends of the holding member (20) to a corresponding one of the longitudinal ends (11, 12) on the convex surface (13), wherein the holding member (20) wraps over and secures onto the longitudinal ends (11, 12) of the base member (10) on the concave surface (14) by way of the attaching member (30), such that the entire longitudinal length of the base member (10) is available to hold hair; whereby the hair is styled by being inserted between the base member (10) and the holding member (20) while the base member (10) is in the first stable state, then being rolled together with the base member (10) and the holding member (20) until a desired configuration is achieved, and then being fixed in response to an external force applied to the convex surface (13) of the base member (10) to transform the base member (10) into the second stable state.
2. The hair styling device as recited in claim 1, **characterized in that** the base member (10) is made of a non-metallic material.
3. The hair styling device as recited in claim 2, **characterized in that** the base member (10) is selected from a group consisting of foam skin, plastic, PVC, rubber, silicone, and a combination thereof.
4. The hair styling device as recited in claim 1, **characterized in that** the base member (10) is made of a metallic material selected from a group consisting of flexible stainless steel, alloy, iron, aluminum, tin and a combination thereof.
5. The hair styling device as recited in claim 1, **characterized in that** the holding member (20) is made of an inelastic material.
6. The hair styling device as recited in claim 5, **characterized in that** the holding member (20) is selected from a group consisting of fabric, silicone, plastic, rubber, flannel woven, plush, sequin, velvet, silk, polyester, nylon, satin, PVC (polyvinyl chloride) prismatic reflective sheet, vinyl, polyethylene, polythene, leather and a combination thereof.
7. The hair styling device as recited in claim 1, **characterized in that** the attaching member (30) surrounds and encases at least the longitudinal ends (11, 12) of the base member (10), and is made of a material selected from a group consisting of fabric, silicone, plastic, polyester, Synthetic Wig, rubber and a combination thereof;
8. The hair styling device as recited in claim 1, **characterized in that** the attaching member (30) integrates the holding member (20) to the base member (10) and is means selected from a group consisting of glue, tape, sewing, injection molding, knotting and a combination thereof.
9. The hair styling device as recited in claim 1, **characterized in that** the attaching member (30) includes at least a pair of fasteners (39, 40), which are means selected from a group consisting of a rivet, bolt and nut, clamp, staple, glue, sewing, welding, soldering, heat staking, dipping and a combination thereof, for affixing the holding member to the base member.
10. The hair styling device as recited in claim 1, **characterized in that** the base member (10) further com-

prises a gripping portion (98) and the gripping portion (98) is made of a material selected from a group consisting of fabric texture, silicone, rubber, synthetic wig, anti-slippage material, and a combination thereof for a secure hold.

11. The hair styling device as recited in claim 1, **characterized in that** the holding member (20) further comprises a gripping portion (99) and the gripping portion (99) is made of a material selected from a group consisting of fabric texture, silicone, rubber, anti-slippage material, and a combination thereof for a secure hold.

12. The hair styling device as recited in claim 1, **characterized in that** the attaching member (30) integrates with the base member (10) stamped, punched or cut into the base member (10) and are selected from a group consisting of hooks, caps, knots, and a combination thereof.

Patentansprüche

1. Haarformungsvorrichtung, umfassend ein Basiselement (10), ein Halteelement (20) und ein Anbringelement (30), wobei das Basiselement (10) zwei mechanische Formen aufweist, die durch eine unterschiedliche Krümmungsachse in einem ersten stabilen Zustand und einem zweiten stabilen Zustand stabilisiert werden, wobei das Basiselement (10) im ersten stabilen Zustand eine lineare Struktur aufweist, die eine konkave Oberfläche (14), eine konvexe Oberfläche (13) und zwei Längsenden (11, 12) umfasst, und die einen Grat aufweist, der um eine Längsachse gekrümmt ist, welche die zwei Längsenden (11, 12) miteinander verbindet, und wobei das Basiselement (10) im zweiten stabilen Zustand wenigstens eine aufgewickelte zylindrische Struktur aufweist und um eine Seitenachse aufgerollt ist, die im Wesentlichen senkrecht zu der Längsachse ist; wobei das Halteelement (20) aus einem biegsamen Material hergestellt ist und in der Längsachse länger als das Basiselement (10) ist; und wobei das Anbringelement (30) dafür vorgesehen ist, jedes der zwei Enden des Halteelements (20) mit einem entsprechenden Ende der Längsenden (11, 12) an der konvexen Oberfläche (13) zu verbinden, wobei das Halteelement (20) an der konkaven Oberfläche (14) durch das Anbringelement (30) derart über die Längsenden (11, 12) des Basiselements (10) gewickelt ist und an diesen befestigt ist, dass die gesamte longitudinale Länge des Basiselements (10) verfügbar ist, um Haare zu halten; wobei die Haare geformt werden, indem sie zwischen das Basiselement (10) und das Halteelement (20) eingeführt werden, während sich das Basisele-

ment (10) im ersten stabilen Zustand befindet, wobei sie anschließend zusammen mit dem Basiselement (10) und dem Halteelement (20) aufgerollt werden, bis eine gewünschte Konfiguration erreicht ist, und wobei sie anschließend als Reaktion auf eine externe Kraft fixiert werden, welche externe Kraft auf die konvexe Oberfläche (13) des Basiselements (10) ausgeübt wird, um das Basiselement (10) in den zweiten stabilen Zustand zu überführen.

2. Haarformungsvorrichtung nach Anspruch 1, wobei das Basiselement (10) aus einem nichtmetallischen Material hergestellt ist.

3. Haarformungsvorrichtung nach Anspruch 2, wobei das Basiselement (10) aus einer Gruppe ausgewählt ist, die aus Schaumhaut, Kunststoff, PVC, Kautschuk, Silikon und einer Kombination davon besteht.

4. Haarformungsvorrichtung nach Anspruch 1, wobei das Basiselement aus einem metallischen Material hergestellt ist, das aus einer Gruppe ausgewählt ist, die aus flexiblem rostfreiem Stahl, Legierung, Eisen, Aluminium, Zinn und einer Kombination davon besteht.

5. Haarformungsvorrichtung nach Anspruch 1, wobei das Halteelement (20) aus einem unelastischen Material hergestellt ist.

6. Haarformungsvorrichtung nach Anspruch 5, wobei das Halteelement aus einer Gruppe ausgewählt ist, die aus Gewebe, Silikon, Kunststoff, Kautschuk, Flanellstoff, Plüsch, Pailletten, Samt, Seide, Polyester, Nylon, Satin, prismatischer reflektierender Folie aus PVC (Polyvinylchlorid), Vinyl, Polyethylen, Polythen, Leder und einer Kombination davon besteht.

7. Haarformungsvorrichtung nach Anspruch 1, wobei das Anbringelement (30) wenigstens die Längsenden (11, 12) des Basiselements (10) umgibt und einschließt und aus einem Material hergestellt ist, das aus einer Gruppe ausgewählt ist, die aus Gewebe, Silikon, Kunststoff, Polyester, synthetischer Perücke, Kautschuk und einer Kombination davon besteht.

8. Haarformungsvorrichtung nach Anspruch 1, wobei das Anbringelement (30) das Halteelement (20) mit dem Basiselement (10) integriert und ein Mittel ist, das aus einer Gruppe ausgewählt ist, die aus einem Kleber, einem Band, Nähen, Spritzgießen, Knüpfen und einer Kombination davon besteht.

9. Haarformungsvorrichtung nach Anspruch 1, wobei das Anbringelement (30) wenigstens ein Paar von Befestigungsvorrichtungen (39, 40) umfasst, bei denen es sich um Mittel handelt, die aus einer Gruppe

ausgewählt sind, die aus einer Niete, Bolzen und Mutter, einer Klemme, einer Heftklammer, Kleber, Nähen, Schweißen, Löten, Heißenieten, Tauchen und einer Kombination davon besteht, um das Halteelement an dem Basiselement zu befestigen.

10. Haarformungsvorrichtung nach Anspruch 1, wobei das Basiselement (10) ferner einen Greifabschnitt (98) umfasst und der Greifabschnitt (98) für einen sicheren Halt aus einem Material hergestellt ist, das aus einer Gruppe ausgewählt ist, die aus einer Gewebestruktur, Silikon, Kautschuk, synthetischer Perücke, Antirutschmaterial und einer Kombination davon besteht.

11. Haarformungsvorrichtung nach Anspruch 1, wobei das Halteelement (20) ferner einen Greifabschnitt (99) umfasst und der Greifabschnitt (99) für einen sicheren Halt aus einem Material hergestellt ist, das aus einer Gruppe ausgewählt ist, die aus einer Gewebestruktur, Silikon, Kautschuk, Antirutschmaterial und einer Kombination davon besteht.

12. Haarformungsvorrichtung nach Anspruch 1, wobei das Anbringelement (30) mit dem Basiselement (10) integriert ist, indem es in das Basiselement (10) geprägt, gestanzt oder geschnitten ist, und aus einer Gruppe ausgewählt ist, die aus Haken, Kappen, Knoten und einer Kombination davon ausgewählt ist.

Revendications

1. Dispositif de coiffage, comprenant un organe de base (10), un organe de maintien (20) et un organe d'attache (30), dans lequel l'organe de base (10) a deux formes mécaniques stabilisées par des axes de courbure différents dans un premier état stable et un second état stable, dans lequel dans le premier état stable, l'organe de base (10) a une structure linéaire comportant une surface concave (14), une surface convexe (13) et deux extrémités longitudinales (11, 12), et ayant une crête incurvée autour d'un axe longitudinal raccordant les deux extrémités longitudinales (11, 12), et dans le second état stable, l'organe de base (10) a au moins une structure cylindrique enveloppante et enroulée autour d'un axe latéral sensiblement perpendiculaire à l'axe longitudinal ; l'organe de maintien (20) est constitué d'un matériau pliable, et est plus long que l'organe de base (10) dans l'axe longitudinal ; et l'organe d'attache (30) est prévu pour raccorder chacune de deux extrémités de l'organe de maintien (20) à l'une correspondante des extrémités longitudinales (11, 12) sur la surface convexe (13), dans lequel l'organe de maintien (20) s'enveloppe et s'arrime sur les extrémités longitudinales (11, 12) de l'organe de

base (10) sur la surface concave (14) au moyen de l'organe d'attache (30), de sorte que la longueur longitudinale entière de l'organe de base (10) est disponible pour maintenir les cheveux ;

5 moyennant quoi les cheveux sont coiffés en étant insérés entre l'organe de base (10) et l'organe de maintien (20) tandis que l'organe de base (10) se trouve dans le premier état stable, puis enroulés avec l'organe de base (10) et l'organe de maintien (20) jusqu'à l'obtention d'une configuration souhaitée, puis fixés en réponse à une force externe appliquée à la surface convexe (13) de l'organe de base (10) pour transformer l'organe de base (10) dans le second état stable.

2. Dispositif de coiffage selon la revendication 1, **caractérisé en ce que** l'organe de base (10) est constitué d'un matériau non métallique.

3. Dispositif de coiffage selon la revendication 2, **caractérisé en ce que** l'organe de base (10) est sélectionné dans un groupe constitué par une peau en mousse, le plastique, le PVC, le caoutchouc, la silicone, et une combinaison de ceux-ci.

4. Dispositif de coiffage selon la revendication 1, **caractérisé en ce que** l'organe de base (10) est constitué d'un matériau métallique sélectionné dans un groupe constitué par l'acier inoxydable souple, un alliage, le fer, l'aluminium, l'étain et une combinaison de ceux-ci.

5. Dispositif de coiffage selon la revendication 1, **caractérisé en ce que** l'organe de maintien (20) est constitué d'un matériau inélastique.

6. Dispositif de coiffage selon la revendication 5, **caractérisé en ce que** l'organe de maintien (20) est sélectionné dans un groupe constitué par une étoffe, la silicone, le plastique, le caoutchouc, un tissu de flanelle, une peluche, une paillette, le velours, la soie, le polyester, le nylon, le satin, une feuille réfléchissante prismatique en PVC (polychlorure de vinyle), le vinyle, le polyéthylène, le polythène, le cuir et une combinaison de ceux-ci.

7. Dispositif de coiffage selon la revendication 1, **caractérisé en ce que** l'organe d'attache (30) entoure et enserre au moins les extrémités longitudinales (11, 12) de l'organe de base (10), et est constitué d'un matériau sélectionné dans un groupe constitué par une étoffe, la silicone, le plastique, le polyester, une perruque synthétique, le caoutchouc et une combinaison de ceux-ci.

8. Dispositif de coiffage selon la revendication 1, **caractérisé en ce que** l'organe d'attache (30) intègre l'organe de maintien (20) à l'organe de base (10) et

est un moyen sélectionné dans un groupe constitué par la colle, une bande, une couture, le moulage par injection, le nouage et une combinaison de ceux-ci.

9. Dispositif de coiffage selon la revendication 1, **caractérisé en ce que** l'organe d'attache (30) comprend au moins une paire d'éléments de fixation (39, 40), qui sont des moyens sélectionnés dans un groupe constitué par un rivet, un boulon et un écrou, une pince, une agrafe, de la colle, une couture, un soudage, un brasage, un assemblage thermique, un trempage et une combinaison de ceux-ci, pour apposer l'organe de maintien sur l'organe de base. 5
10
10. Dispositif de coiffage selon la revendication 1, **caractérisé en ce que** l'organe de base (10) comprend en outre une portion de préhension (98) et la portion de préhension (98) est constituée d'un matériau sélectionné dans un groupe constitué par une armature d'étoffe, de la silicone, du caoutchouc, une perruque synthétique, un matériau antidérapant, et une combinaison de ceux-ci pour une prise sûre. 15
20
11. Dispositif de coiffage selon la revendication 1, **caractérisé en ce que** l'organe de maintien (20) comprend en outre une portion de préhension (99) et la portion de préhension (99) est constituée d'un matériau sélectionné dans un groupe constitué par une armature d'étoffe, de la silicone, du caoutchouc, un matériau antidérapant, et une combinaison de ceux-ci pour une prise sûre. 25
30
12. Dispositif de coiffage selon la revendication 1, **caractérisé en ce que** l'organe d'attache (30) s'intègre avec l'organe de base (10) embouti, poinçonné ou découpé dans l'organe de base (10) et est sélectionné dans un groupe constitué par des crochets, des bouchons, des nœuds, et une combinaison de ceux-ci. 35
40

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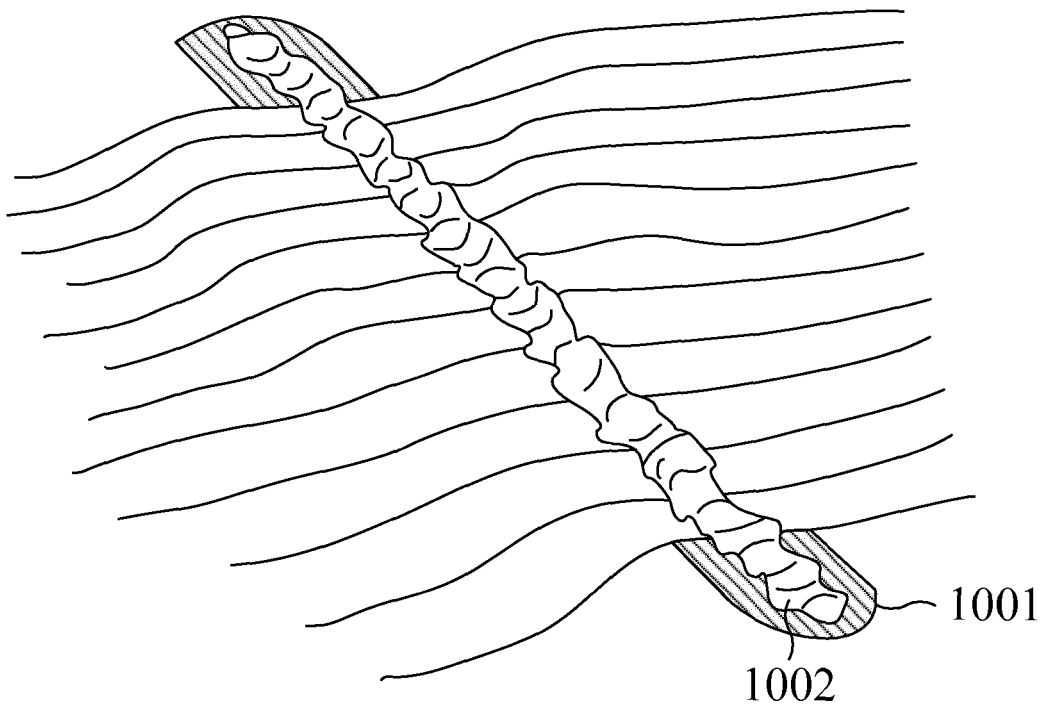


FIG. 1A

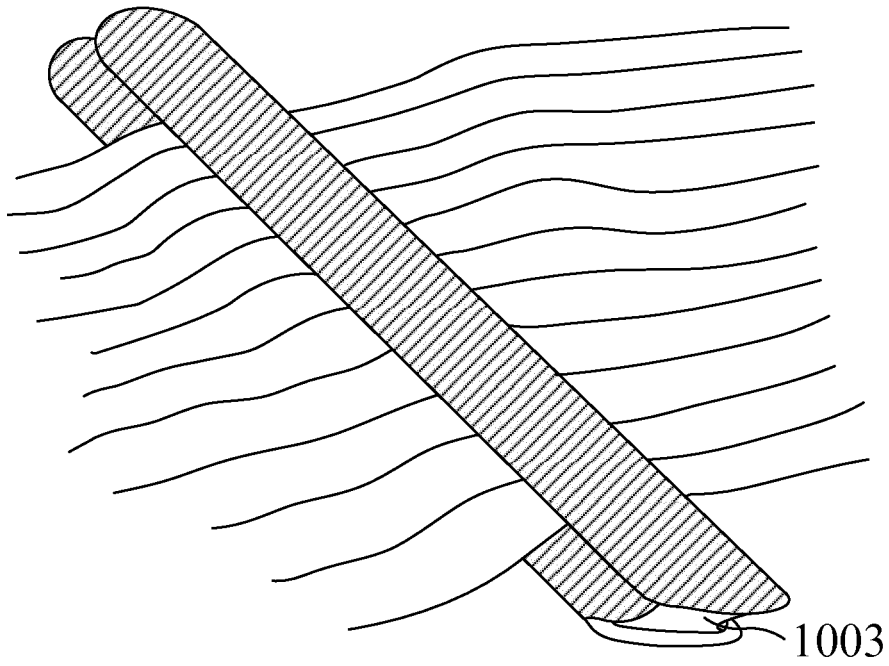


FIG. 1B

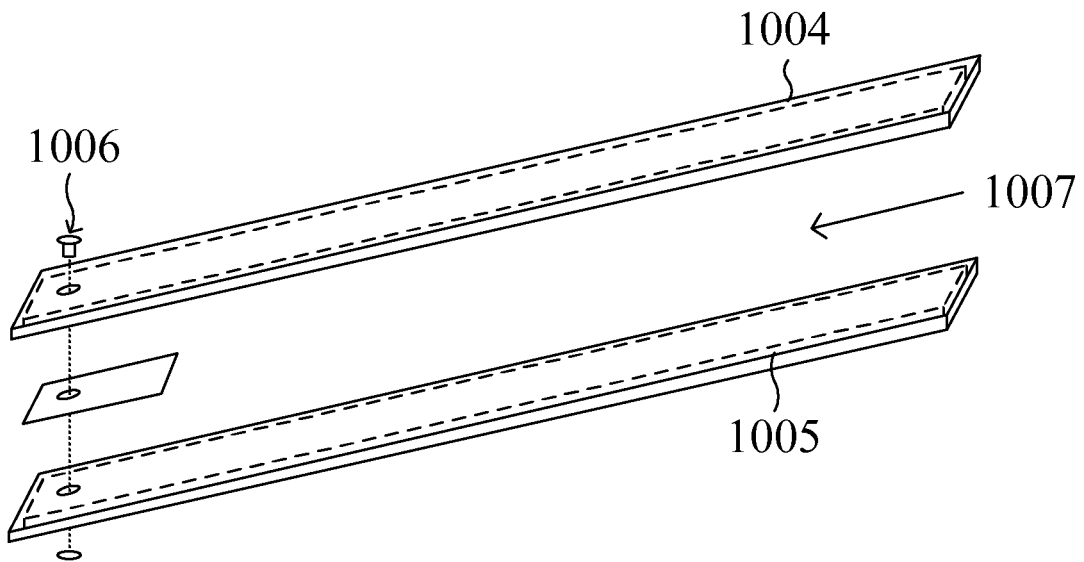


FIG. 1C

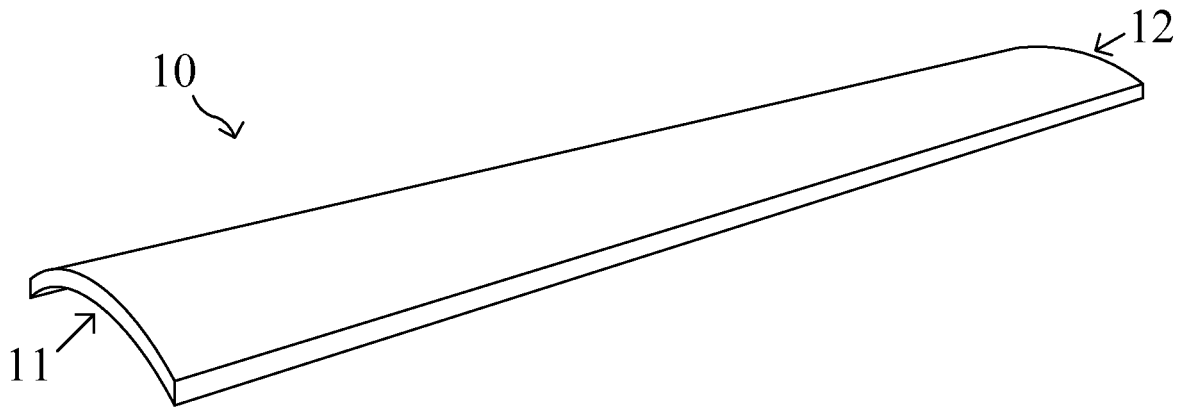


FIG. 2A

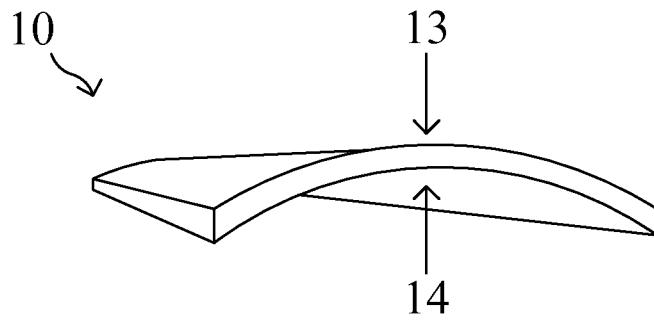


FIG. 2B

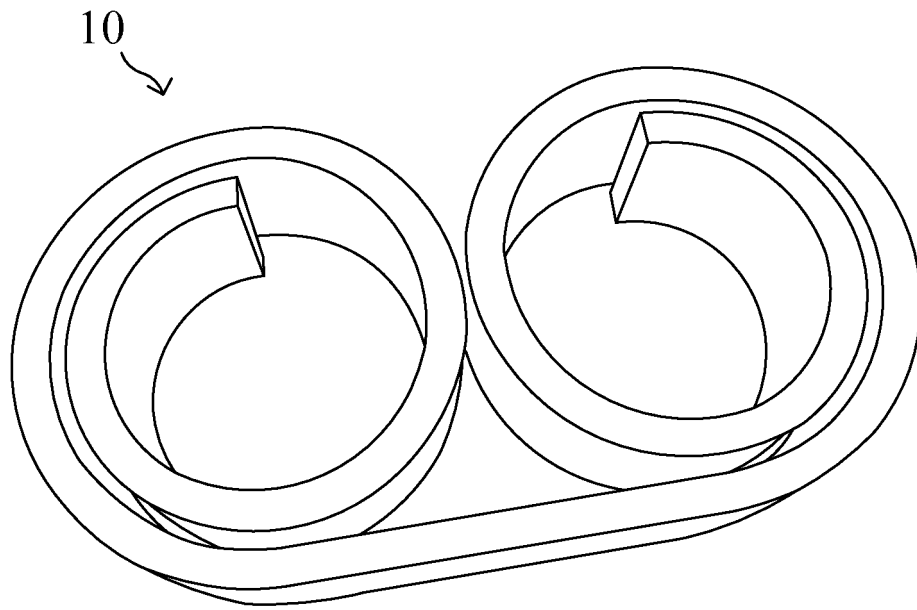


FIG. 2C

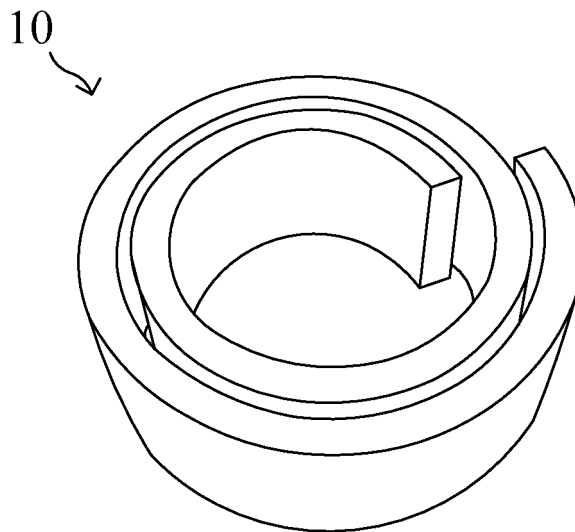


FIG. 2D

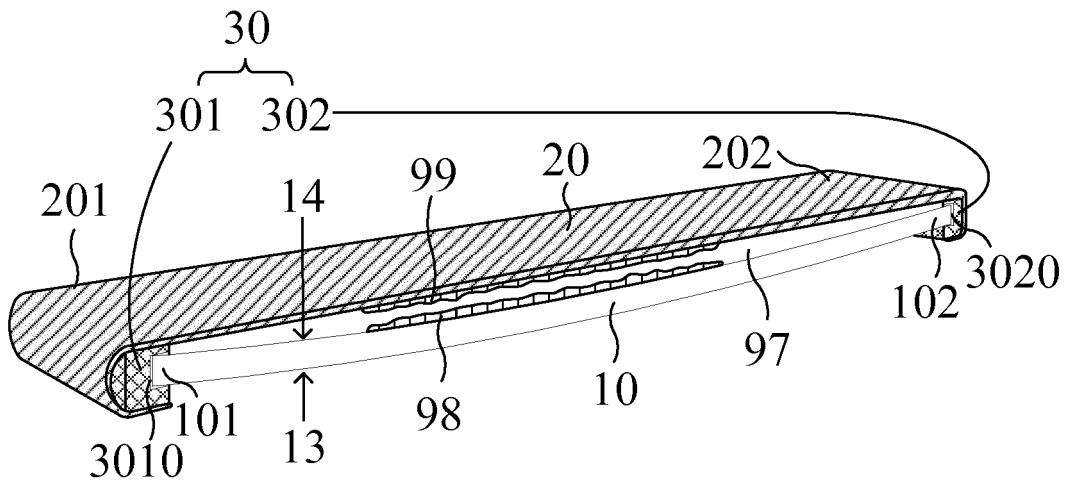


FIG. 3A

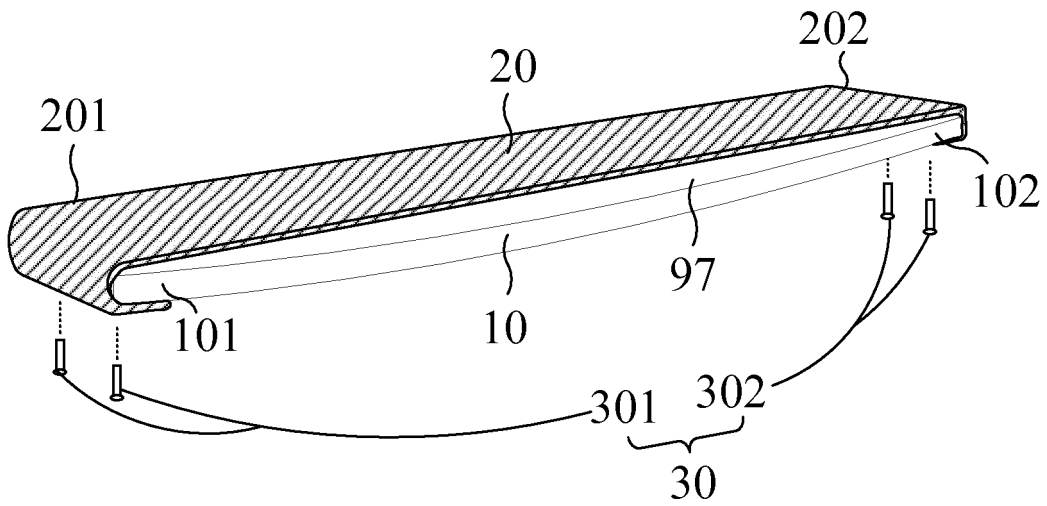


FIG. 3B

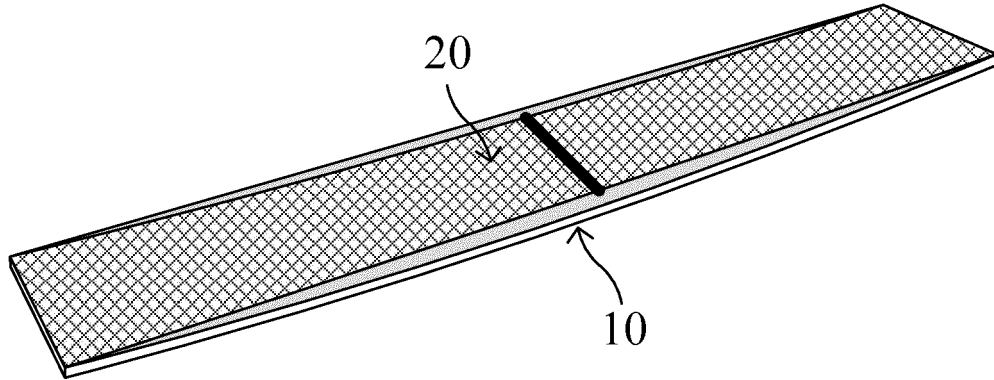


FIG. 4A

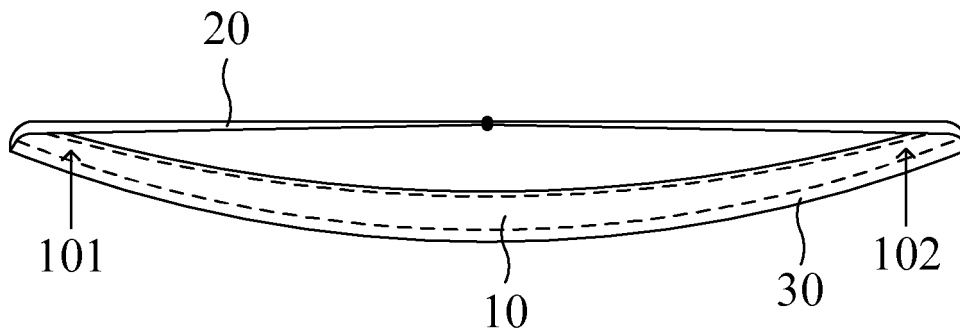


FIG. 4B

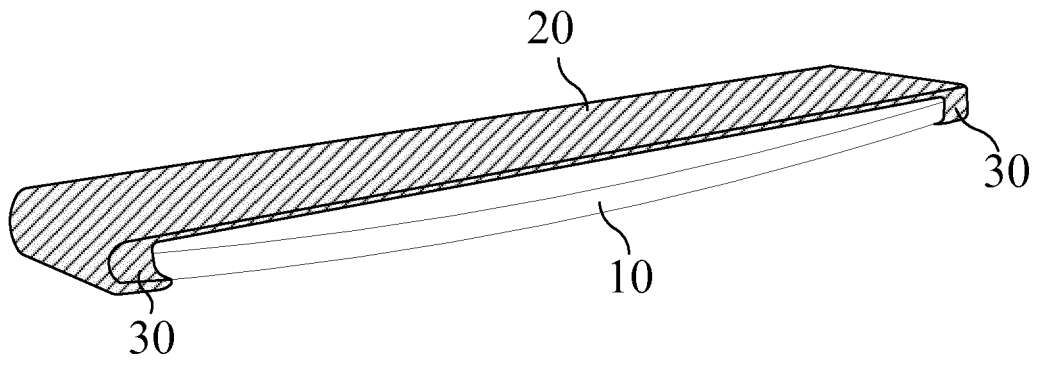


FIG. 4C

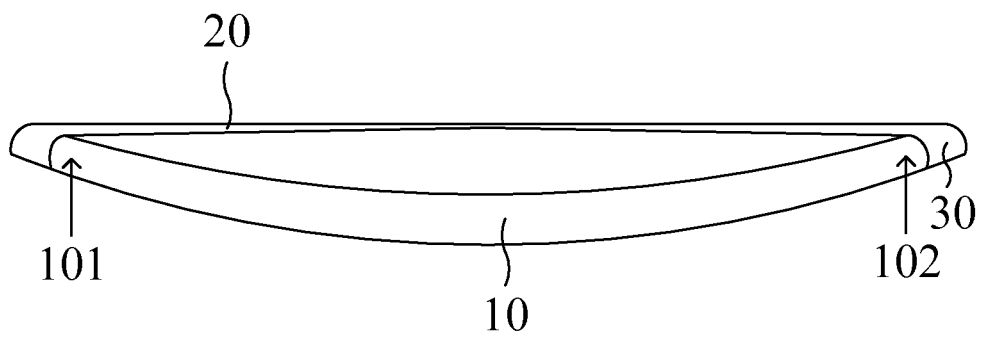


FIG. 4D

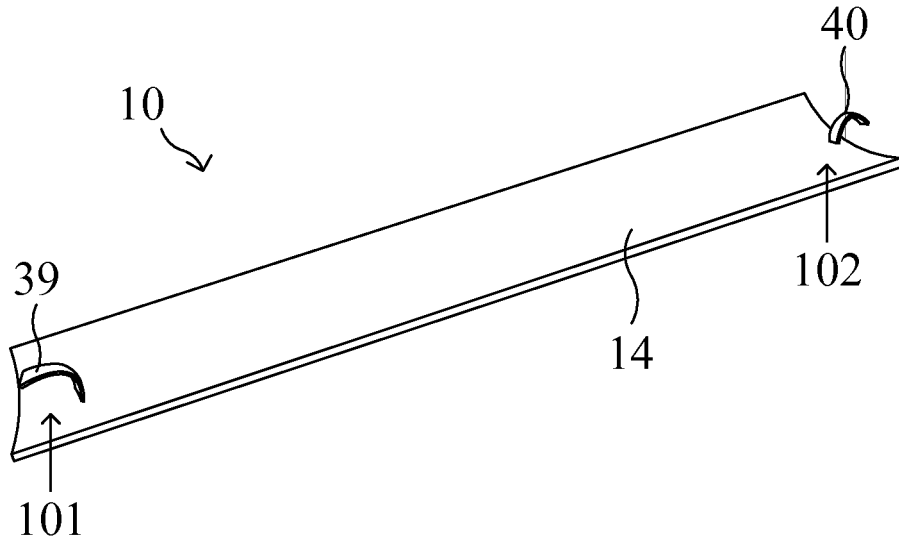


FIG. 5

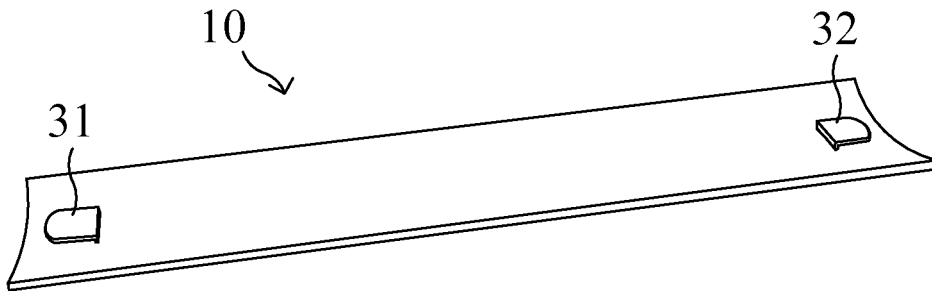


FIG. 6A

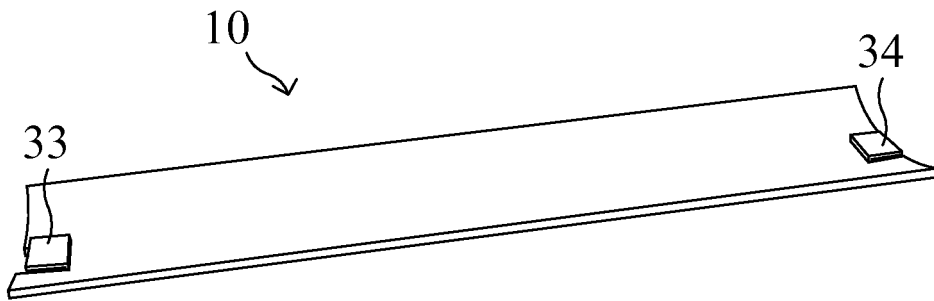


FIG. 6B

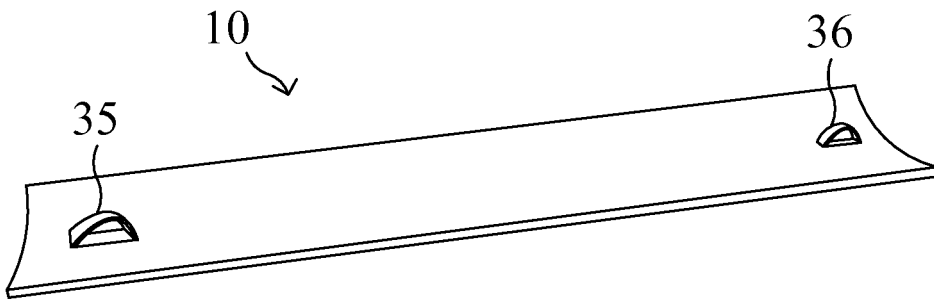


FIG. 6C

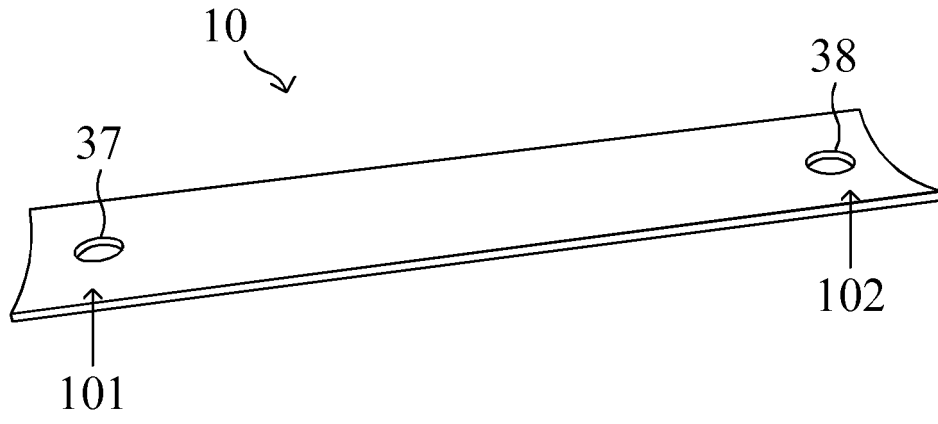


FIG. 6D

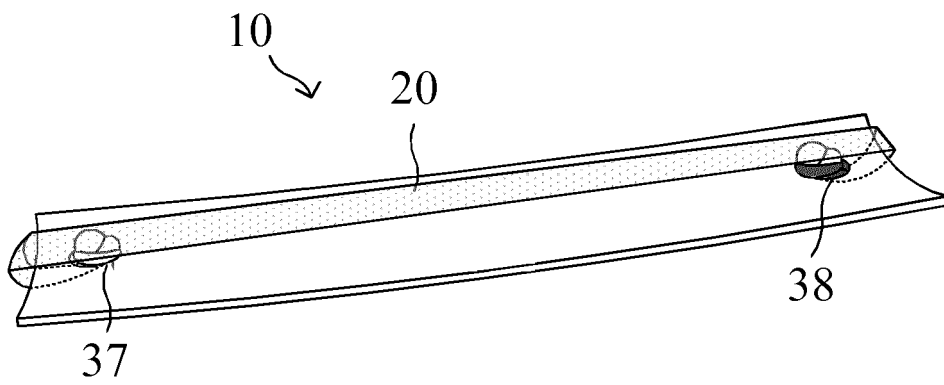


FIG. 6E

REFERENCES CITED IN THE DESCRIPTION

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