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(54) **HAIRPIN APPARATUS AND METHODS**

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(57) **ABSTRACT**

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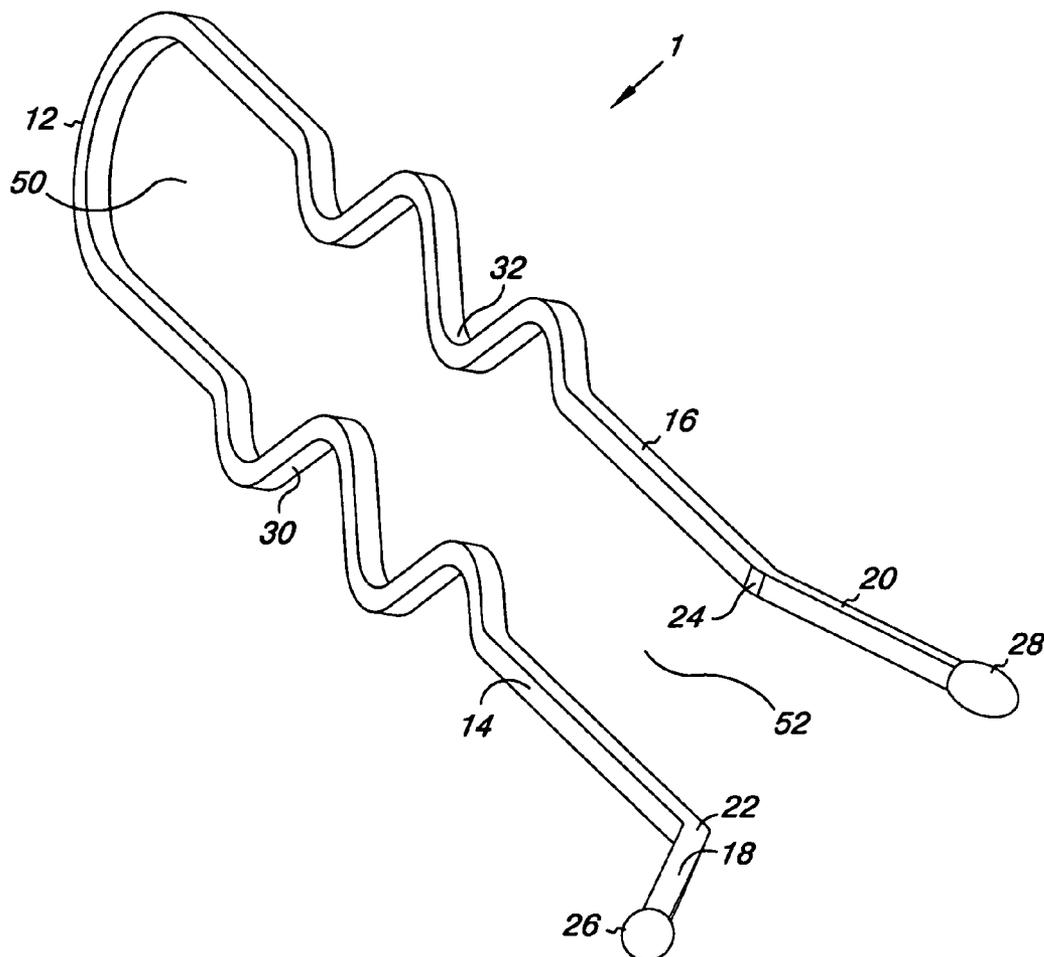
Apparatus and methods for securing hair are disclosed. The apparatus may include a first arm, a second arm, a first locking member, and a second locking member interconnected to one another to form a space for receiving hair and to secure the hair within the space. The first locking member and the second locking member may be overlapped to close an opening and secure the hair within the space. A coating may be provided on one or more of the first arm, the second arm, the first locking member, and the second locking member. The coating may be a high friction material and may assist in retaining hair within the space and retaining the first locking member and the second locking member in an overlapped and locked position.

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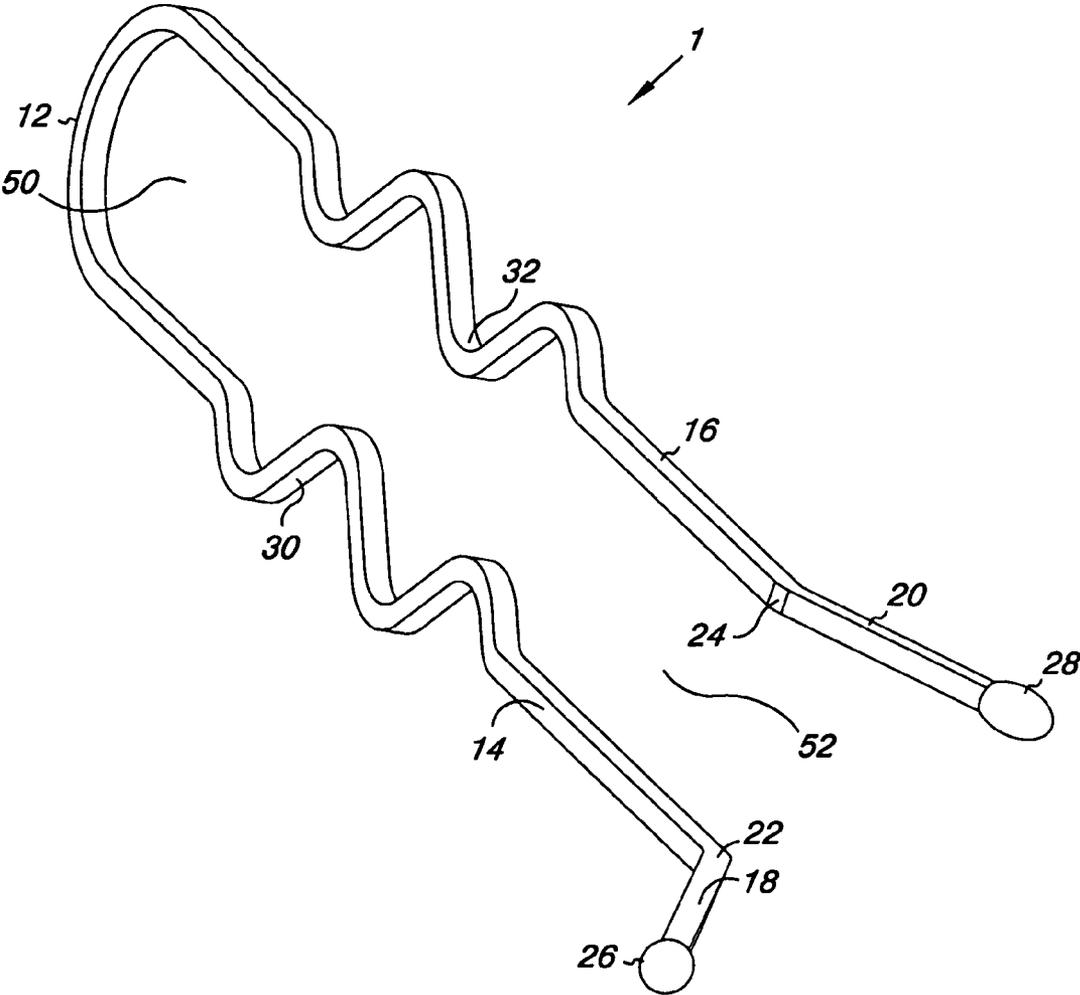


Fig. 1

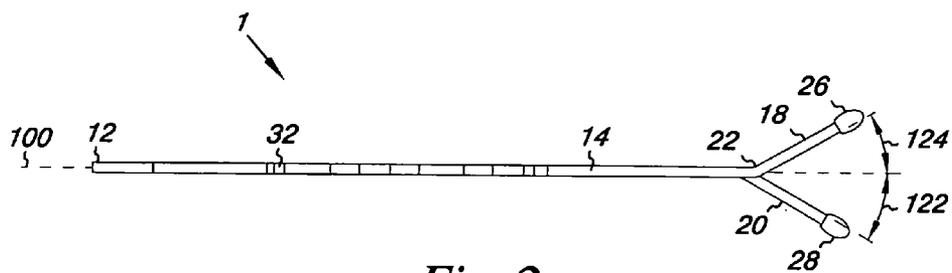


Fig. 2

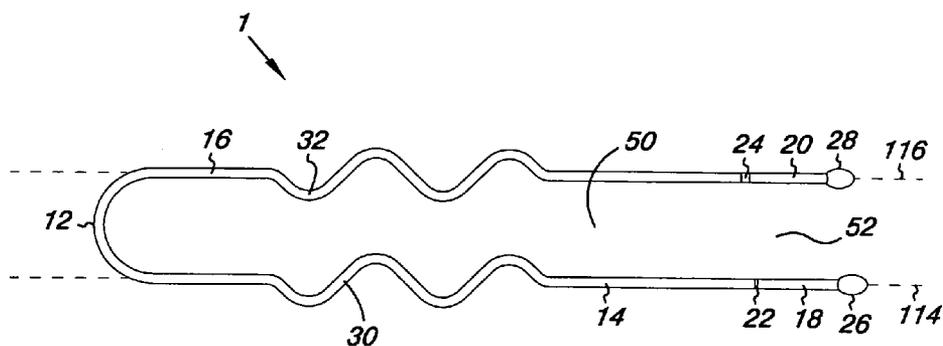


Fig. 3

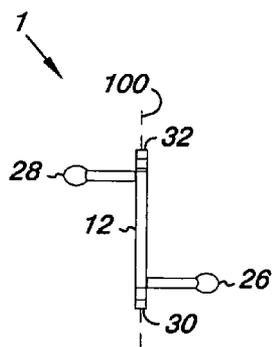


Fig. 4

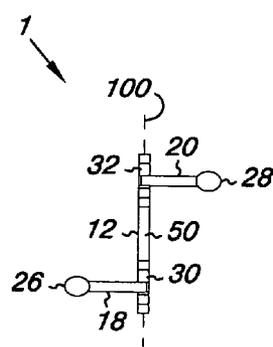


Fig. 5

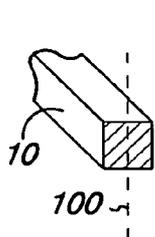


Fig. 6A

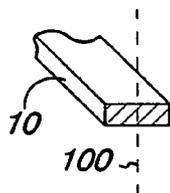


Fig. 6B

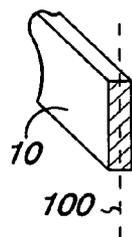


Fig. 6C

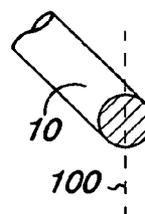


Fig. 6D

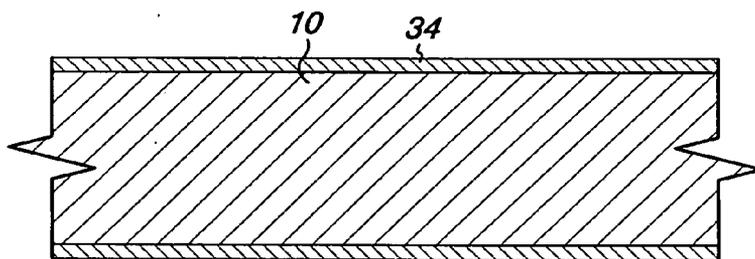


Fig. 7

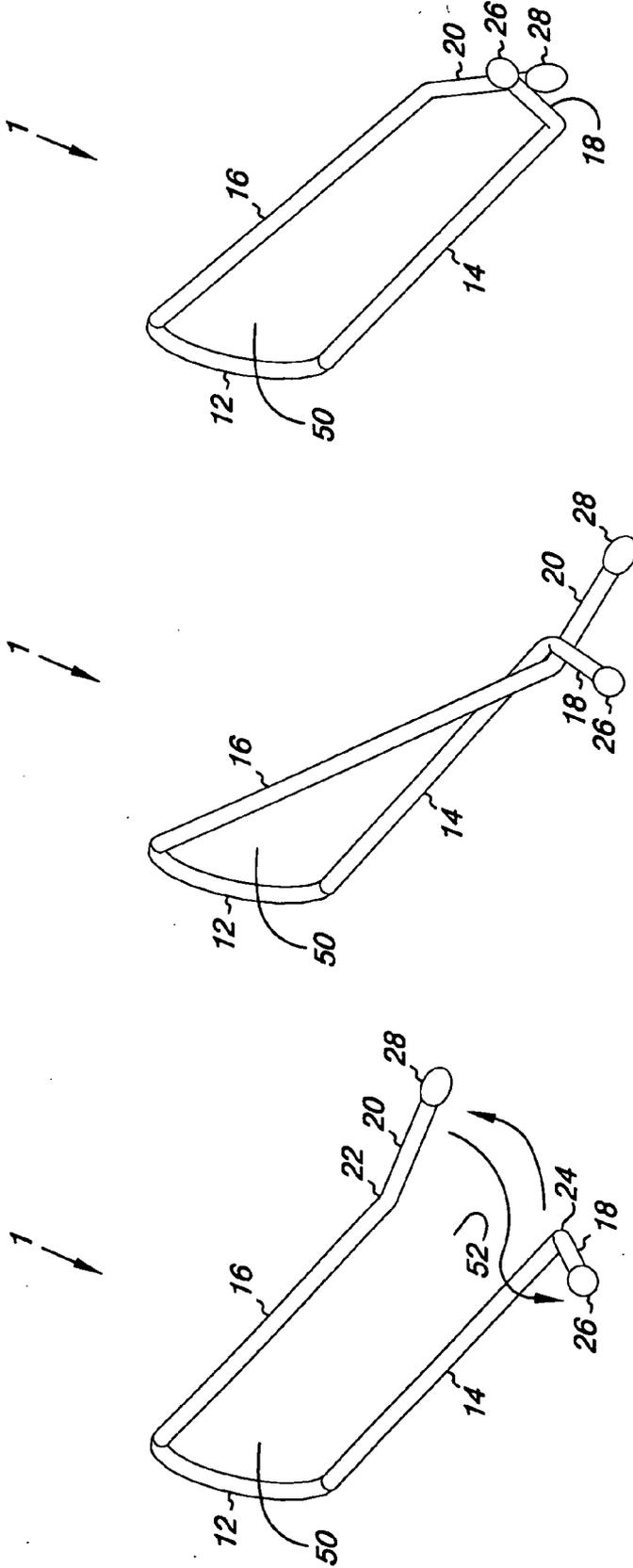


Fig. 8C

Fig. 8B

Fig. 8A

HAIRPIN APPARATUS AND METHODS

BACKGROUND OF THE INVENTION

[0001] 1. Summary of the Invention

[0002] The present invention relates to hair care and styling and, more particularly, to hairpins and methods for securing the hair of a user.

[0003] 2. Description of the Related Art

[0004] Historically, a wide range of hair pins, bobby pins, and barrettes have been used to secure and form hair. Hair pins have typically been formed with a permanent opening to receive hair and two or more arms positioned a set distance from one another. Once positioned within the hair, the arms generally remain at the set distance from one another. To hold the pin in place, typical hair pins have primarily relied on the frictional forces between the arms of the hair pin and the hair. However, typically hair pins have a tendency to be easily dislodged from hair because the hair pins are not capable of being closed. Bobby pins have typically been formed with two arms biased against one another. Bobby pins typically have an angled opening that funnels hair between the first and second arms. The hair biases the first and second arms apart and is held in place by the resilient nature of the arms biasing them toward one another. Although bobby pins are not as easily dislodged from hair as hair pins, bobby pins cannot typically receive the volume of hair between their arms because the arms of the bobby pin are biased together and the opening for receiving hair is typically limited by design to being relatively small. Barrettes are typically more ornamental in nature and are held in the hair with a wide range of clasps, arms, rods and hooks. Barrettes may also be configured to hold and/or position hair. With many barrettes, an arm is hinged to an ornamental body and engages a clasp to secure the barrette in the hair of a user. With other barrettes, an ornamental body defines two holes to receive a rod which secures a users hair between the ornamental body and the rod. Although barrettes may be constructed to securely hold a relatively large volume of hair, barrettes are frequently large and expensive to manufacture.

SUMMARY OF THE INVENTION

[0005] The present inventions provide hairpins and methods for securing hair that meet the problems and shortcomings of the related art and provide additional improvements and advantages that will be recognized by those skilled in the art upon review of the present disclosure.

[0006] In one aspect, the present invention may provide an apparatus for securing hair. The apparatus for securing hair may comprise a first arm, a second arm, a first locking member, and a second locking member. Each of the first arm, the second arm, the first locking member, and the second locking member may be formed from one or more elongated bodies. The elongated bodies may be secured to one another or integral such that they form a contiguous elongated body. In one aspect, the second arm, the first locking member and the second locking member may be integrally formed from a contiguous elongated body shaped to define the first arm, the second arm, the first locking member and the second locking member. In another aspect, two or more of the first arm, the second arm, the first locking

member and the second locking member may be formed from a contiguous elongated body shaped to define the first arm, the second arm, the first locking member and the second locking member. The first end of the second arm may be connected to a first end of the first arm. The first arm and the second arm may define a space between the first arm and the second arm configured to receive hair. The first locking member may be secured at a first end of to a second end of the first arm to form a first bend. The second locking member may be secured at a first end to a second end of the second arm to form a second bend. The first locking member and the second locking member may be movable relative to one another between an open position and a closed position. The first locking member and the second locking member, in a relative open positions, may define an opening to the space between the first arm and the second arm. In a closed position, the first locking member may overlap the second locking extension to position the first arm and the second arm in the closed position. A first end cap may be secured to a second end of the first locking member and a second end cap secured to a second end of the second locking member.

[0007] A coating may be provided over at least a portion of the apparatus. The coating may comprise a high friction material. In one aspect, the coating may be provided on at least one of the first arm, the second arm, the first locking member and the second locking member. In another aspect, the coating may be provided on each of the first arm, the second arm, the first locking member and the second locking member.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 illustrates a perspective view of an embodiment of an apparatus in accordance with the present invention in an open position;

[0009] FIG. 2 illustrates a top view of an embodiment of an apparatus in accordance with the present invention in an open position;

[0010] FIG. 3 illustrates a side view of an embodiment of an apparatus in accordance with the present invention in an open position;

[0011] FIG. 4 illustrates an end view from the closed end of an embodiment of an apparatus in accordance with the present invention in an open position;

[0012] FIG. 5 illustrates an end view from the open end of an embodiment of an apparatus in accordance with the present invention in an open position;

[0013] FIGS. 6A, 6B, 6C, and 6D illustrate exemplary transverse cross-sectional shapes for the wire which will form an embodiment of an apparatus in accordance with the present invention;

[0014] FIG. 7 illustrates a partial longitudinal cross-section through a wire showing an exterior coating on the wire;

[0015] FIG. 8A illustrates a perspective view of another embodiment of an embodiment of an apparatus in accordance with the present invention in an open position;

[0016] FIG. 8B illustrates a perspective view of another embodiment of an apparatus in accordance with the present invention in a closed position; and

[0017] FIG. 8C illustrates a perspective view of another embodiment of an apparatus in accordance with the present invention in an alternative closed position.

DETAILED DESCRIPTION OF THE INVENTION

[0018] Embodiments of apparatus 1 in accordance with the present inventions are generally illustrated throughout the figures for exemplary purposes. The particular illustrated embodiments of the apparatus 1 have been generally chosen for ease of explanation and understanding of various aspects of the present inventions. These illustrated embodiments are not meant to limit the scope of coverage but instead to assist in defining the language as generally set forth in this specification and used in the claims to describe and define the various aspects of the present inventions. Accordingly, substantial variations from the illustrated embodiments may still encompass one or more of the present inventions as defined by the following claims.

[0019] Apparatus 1 in accordance with the present inventions are typically configured to secure hair for decorative, styling and/or other utilitarian purposes. Apparatus 1 generally includes a first arm 14, a second arm 16, a first locking extension 18 and a second locking extension 20. Components of apparatus 1 may be formed from a flexible and resilient material such as for example a metal or a plastic. In one aspect, apparatus 1 is comprised of a unitary elongated body 10 defining each of the first arm 14, the second arm 16, the first locking extension 18 and the second locking extension 20. In other aspects, one or more of the first arm 14, the second arm 16, the first locking extension 18 and the second locking extension 20 may be formed from distinct components interconnected to form an apparatus 1 in accordance with the present inventions. When they are distinct components, the first arm 14 and the second arm 16 are typically secured at or adjacent to each of their respective first ends. When they are integral components, the first arm 14 and the second arm 16 may be inter-connected by a U-shaped member 12 as is generally illustrated throughout the figures for exemplary purposes.

[0020] As illustrated throughout the figures, apparatus 1 generally includes a first arm 14, a second arm 16, a first locking extension 18 and a second locking extension 20. The first arm 14 and the second arm 16 are generally configured and oriented relative one another to define a space 50 between the first arm 14 and the second arm 16. The first arm 14 and the second arm 16 typically define an opening 52 to permit hair to be easily positioned within space 50. Opening 52 is generally sized and otherwise configured to receive a desired amount of hair. First arm 14 and the second arm 16 may be configured to be positioned in either an open or a closed position. When first arm 14 and second arm 16 are in the open position, opening 52 is open and may receive hair. When first arm 14 and second arm 16 are in the closed position, opening 52 is closed and hair is retained in space 50. In some aspects, opening 52 may be eliminated when arm 14 and second arm 16 are in the closed position. In some aspects, the first arm 14 and second arm 16 may have a coating 34 on an outer surface of at least a portion of the elongated body 10. The coating 34 may be localized to a particular portion of the elongated body 10 or it may be generally applied over the outer surface of the elongated body 10 and/or one or more other components of apparatus

1. The coating 34 may be a high friction material. In one aspect, the coating may assist in maintaining the first arm 14 and the second arm 16 in a closed position. In another aspect, the coating may maintain or assist in retaining hair in space 50. The coating 34 may also provide an atraumatic surface which may function as a cushion over a relatively rigid elongated body 10. The coating 34 may be a wide range of materials as will be recognized by those skilled in the art, including, for example, chloroprene, polyisoprene, polybutadiene, polyurethanes, styrene-ethylene-butadiene, styrene-butadiene-styrene or other natural or synthetic thermoset or thermoplastic elastomers.

[0021] First arm 14 and second arm 16 are typically formed from a flexible and resilient material and are typically configured such that the opening 52 is in an open position when first arm 14 and second arm 16 are in a relaxed position. In a flexed and locked position, the first locking extension 18 can cooperate with the second locking extension 20 to close opening 52 and to secure hair between at least a portion of the first arm 14 and the second arm 16. In one aspect of the locked position, the first locking extension 18 and the second locking extension 20 are biased against one another by the flexing of one or more of a resilient first arm 14, a resilient second arm 16, the first locking extension 18 and the second locking extension 20. In one aspect, the first locking extension 18 and the second locking member 20 may have a coating 34. The coating 34 may be applied from along at least a portion of at least one of the first locking extension 18 and the second locking member 20. The coating 34 may enhance the ability of the first locking extension 18 and the second locking member 20 to be relatively secured to one another.

[0022] First arm 14 may define first longitudinal axis 114 and second arm 16 may define second longitudinal axis 116. Typically, first arm 14 is coextensive over at least a portion of its length with first longitudinal axis 114. Similarly, second arm 16 may be coextensive over at least a portion of its length with second longitudinal axis 116. In another aspect, first arm 14 and second arm 16 lie a plane 100 along at least a portion of their length when apparatus 1 is in a relaxed position. In still another aspect, first arm 14 may define first longitudinal axis 114 and second arm 16 may define second longitudinal axis 116 and the first longitudinal axis 114 and the second longitudinal axis 116 may define a plane 100.

[0023] First locking extension 18 and second locking extension 20 are typically secured, respectively, to the second ends of first arm 14 and second arm 16. In one aspect, first locking extension 18 and second locking extension 20 are linear along their length. In another aspect, the first locking extension 18 and second locking extension 20 are curved along at least a portion of their length. First locking extension 18 and second locking extension 20 are generally configured to interlock with one another to hold first arm 14 and second arm 16 in a closed position which closes opening 52 to secure hair between at least first arm 14 and second arm 16. The junction between the first arm 14 and the first locking extension 18 may form a first bend 22 which directs first locking extension away from the first longitudinal axis 114. The junction between the second arm 16 and the second locking extension 20 may form a second bend 24 which directs first locking extension away from the second longitudinal axis 116. The first bend 22 and the second bend 24

may be in the form of a sharp angle, as illustrated, or a curve. In either case, the directing of first locking extension 18 and second locking extension 20 away from the first longitudinal axis 114 and second longitudinal axis 116 by the first bend 22 and second bend 24, respectively, may permit the first locking extension 18 and second locking extension 20 to engage one another and hold opening 52 closed position.

[0024] First bend 22 and second bend 24 may form the same or similar angles 122, 124 when the apparatus 1 is in a relaxed and open configuration. In other aspects, first bend 22 and second bend 24 may formed at different angles 122, 124. As illustrated for exemplary purposes in FIG. 2, first angle 122 is about 45 degrees and second angle 124 is about 30 degrees. The first bend 22 and second bend 24 typically form angles 122, 124 which are between 5 degrees and 90 degrees from the respective longitudinal axis 114, 116. In one aspect, the first locking extension 18 and second locking extension 20 are secured at respective angles 122, 124 positioning their terminal ends on opposite sides of apparatus 1 as is generally illustrated throughout the figures. In another aspect, first locking extension 18 extends from first arm 14 at a first angle 122 from the first longitudinal axis 114 and second locking extension 20 extends from second arm 12 at a second angle 124 from the second longitudinal axis 116. In yet another aspect, the first bend 22 may form a first angle 122 that positions at least a portion of first locking extension 18 into a region on a first side of plane 100 and second bend 24 may form a second angle 124 that positions at least a portion of second locking extension 20 into a second region on the opposite side of plane 100. Accordingly, the first locking extension 18 and the second locking extension 20 may be overlapped to hold opening 52 in a closed position. In one aspect, the first bend 22 and the second bend 24 may tend to nest together when first locking extension 18 and the second locking extension 20 overlap.

[0025] End caps 26, 28 may be provided at the terminal ends of first locking extension 18 and second locking extension 20. End caps 26, 28 may be integral with or secured to the locking extensions 18, 20. In one aspect, end caps are formed from a polymeric material. First end cap 26 and second end cap 28 may provide atraumatic tips for first locking extension 18 and second locking extension 20, respectively. In another aspect, first end cap 26 and second end cap 28, independently or cooperatively, may maintain or assist in maintaining first locking extension 18 and second locking extension 20 in a locked position maintain opening 52 in a closed position and secure hair within space 50. In doing so, first end cap 26 may abut one or more of second locking extension 20 and second end cap 28. Similarly, second end cap 28 may abut one or more of first locking extension 18 and first end cap 26. In one aspect, a coating 34 may be applied over one or both of the first end cap 26 and the second end cap 28.

[0026] An exemplary embodiment of an apparatus 1 in accordance with the present invention is illustrated in FIGS. 1 to 5 from a variety of views. The illustrated apparatus 1 includes a first arm 14 and a second arm 16 secured to one another by a U-shaped member 12. The first arm 14 and the second arm 16 extend from the U-shaped member 12 in a substantially parallel orientation in a relaxed and open position. The first arm 14 and the second arm 16 define a space 50 between the first arm 14 and the second arm 16. The first arm 14 and the second arm 16 are illustrated as

linear and substantially coextensive with their respective first longitudinal axis 114 and second longitudinal axis 116. That is, the first arm 14 and the second arm 16 are coextensive with their respective first longitudinal axis 114 and second longitudinal axis 116 except for the illustrated plurality of first undulations 30 and second undulations 32. The exemplary plurality of first undulations 30 are provided in a central region along the length of the first arm 14 and a plurality of second undulations 32 are provided in a central region along the length of the second arm 16. When present, first undulations 30 and/or second undulations 32 may assist in maintaining the position of apparatus 1 at a desired position in the hair of a user. FIGS. 2, 4 and 5 illustrate first locking extension 18 extending at a first angle 122 to a first side of plane 100 and second locking extension 20 extending at a second angle 124 to a second side of plane 100.

[0027] FIGS. 6A to 6D illustrate exemplary cross-sectional shapes for the elongated body 10 of apparatus 1. As disclosed above, apparatus 1 may be formed in a unitary elongated body 10. The elongated body 10 may take the form of a single metal wire bent to form the plurality of elements as set forth above. The elongated body 10 may have one or more cross-sectional shapes along its length. FIG. 6A illustrates a square cross-sectional shape. FIG. 6B illustrates an elongated body 10 having a rectangular cross-sectional shape with its shorter sides parallel to plane 100. FIG. 6C illustrates an elongated body 10 having a rectangular cross-sectional shape with its longer sided parallel to plane 100. FIG. 6D illustrates an elongated body 10 having a round cross-sectional shape. Those skilled in the art will recognize various advantages conferred by different cross-sectional shapes for elongated body 10 upon review of the present disclosure.

[0028] FIG. 7 illustrates a cross-section through a portion of elongated body 10 showing a coating 34 on a surface of the elongated body 10. The coating 34 may be a high friction material. In one aspect, the coating may assist in maintaining the first arm 14 and the second arm 16 in a closed position. In another aspect, the coating may maintain or assist in retaining hair in space 50. The coating 34 may also provide an atraumatic surface which may function as a cushion over elongated body 10. The coating 34 may be a wide range of materials as will be recognized by those skilled in the art, including, for example, chloroprene, polyisoprene, polybutadiene, polyurethanes, styrene-ethylene-butadiene, styrene-butadiene-styrene or other natural or synthetic thermoset or thermoplastic elastomers.

In Operation:

[0029] FIGS. 8A to 8C illustrate exemplary methods for twisting and locking an apparatus 1 in a closed position. FIG. 8A illustrates a twisting motion for overlapping and interlocking first locking extension 18 and second locking extension 20. As illustrated, the second ends of one or both of the first locking extension 18 and the second locking extension 20 are moved toward and/or through plane 100 with the first ends of the first locking extension 18 and second locking extension 20 maintaining a substantially constant relative position. Once the second end of at least one of the first locking extension 18 and the second locking extension 20 has cleared the other locking extension, the clearing second end is passed under the other locking extension to overlap and close opening 52 the first locking

extension 18 and the second locking extension 20 as illustrated in exemplary configurations in FIGS. 8B and 8C. The coating 34 may be provided on a surface of at least one of the first locking extension 18 and the second locking extension 20 may maintain or assist in maintaining the first locking extension 18 and the second locking extension 20 in a locked position and, thus, maintain opening 52 in a closed position as illustrated in FIGS. 8B and 8C. In another aspect, the first arm 14 and second arm 16 may have a coating 34 to maintain or assist in retaining hair in space 50. As illustrated in FIG. 8B, the first bend 22 and the second bend 24 may nest together when first locking extension 18 and the second locking extension 20 overlap. As illustrated in FIG. 8C, first end cap 26 and second end cap 28 may also maintain or assist in maintaining first locking extension 18 and second locking extension 20 in a locked position and maintain opening 52 in a closed position. As illustrated, first end cap 26 abuts second locking extension 20 and second end cap 28 and second end cap 28 abuts first locking extension 18 and first end cap 26 to maintain first arm 14 and second arm 16 in a closed position.

What is claimed is:

1. An apparatus for securing hair, comprising:

- a first arm;
- a second arm, a first end of the second arm connected to a first end of the first arm, the first arm and the second arm defining a space between the first arm and the second arm;
- a first locking member, the first locking member secured at a first end of the first locking member to a second end of the first arm to form a first bend; and
- a second locking member, the second locking member secured at a first end of the second locking member to a second end of the second arm to form a second bend;
- the first locking member and the second locking member defining an opening to the space between the first arm and the second arm,

the first locking member and the second locking member movable relative to one another between an open position and a closed position, the first locking member overlapping the second locking extension to position the first arm and the second arm in the closed position.

2. An apparatus, as in claim 1, further comprising a first end cap secured to a second end of the first locking member and a second end cap secured to a second end of the second locking member.

3. An apparatus, as in claim 1, further comprising the first arm, the second arm, the first locking member and the second locking member integrally formed from a contiguous elongated body shaped to define the first arm, the second arm, the first locking member and the second locking member.

4. An apparatus, as in claim 1, further comprising two or more of the first arm, the second arm, the first locking member and the second locking member formed from a contiguous elongated body shaped to define the first arm, the second arm, the first locking member and the second locking member.

5. An apparatus, as in claim 1, further comprising a coating provided on at least one of the first arm, the second arm, the first locking member and the second locking member.

6. An apparatus, as in claim 5, further comprising the coating comprising a high friction material.

7. An apparatus, as in claim 1, further comprising a coating provided on each of the first arm, the second arm, the first locking member and the second locking member.

8. An apparatus, as in claim 7, further comprising the coating comprising a high friction material.

* * * * *