US011286693B2

(12) **United States Patent**
Heiney et al.

(10) **Patent No.: US 11,286,693 B2**
(45) **Date of Patent: Mar. 29, 2022**

(54) **RESTRAINT DEVICES**

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(73) Assignee: **SCIP LLP**, Ludlow, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 287 days.

(21) Appl. No.: **16/606,862**

(22) PCT Filed: **May 16, 2018**

(86) PCT No.: **PCT/US2018/033024**
§ 371 (c)(1),
(2) Date: **Oct. 21, 2019**

(87) PCT Pub. No.: **WO2018/213488**
PCT Pub. Date: **Nov. 22, 2018**

(65) **Prior Publication Data**

US 2020/0131807 A1 Apr. 30, 2020

Related U.S. Application Data

(60) Provisional application No. 62/507,331, filed on May 17, 2017, provisional application No. 62/597,153, filed on Dec. 11, 2017.

(51) **Int. Cl.**
E05B 75/00 (2006.01)

(52) **U.S. Cl.**
CPC ***E05B 75/00*** (2013.01)

(58) **Field of Classification Search**
CPC E05B 75/00; E05B 75/005; A61F 5/37
(Continued)

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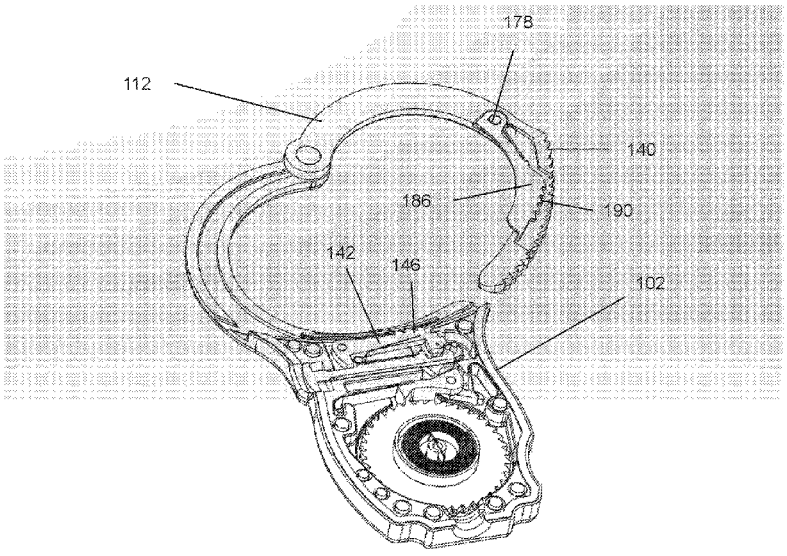
Assistant Examiner — Suzanne D Barrett
(74) *Attorney, Agent, or Firm* — Dentons US LLP

(57) **ABSTRACT**

This disclosure discloses a restraint device including a pair of bracelets that are adjustable in distance therebetween, while at least one of the bracelets can be dually engaged during a restraint and dually disengaged not during the restraint. Further, this disclosure discloses a sleeve to enable a restraint device to be converted from a "chain style" into a "hinge style" and vice versa. Additionally, this disclosure discloses a restraint device including a first arm and a second arm, where the second arm is elastically coupled to the first arm in order to avoid overtightening when restraining.

20 Claims, 34 Drawing Sheets



(58) **Field of Classification Search**
USPC 70/14–19
See application file for complete search history.

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FIG. 1

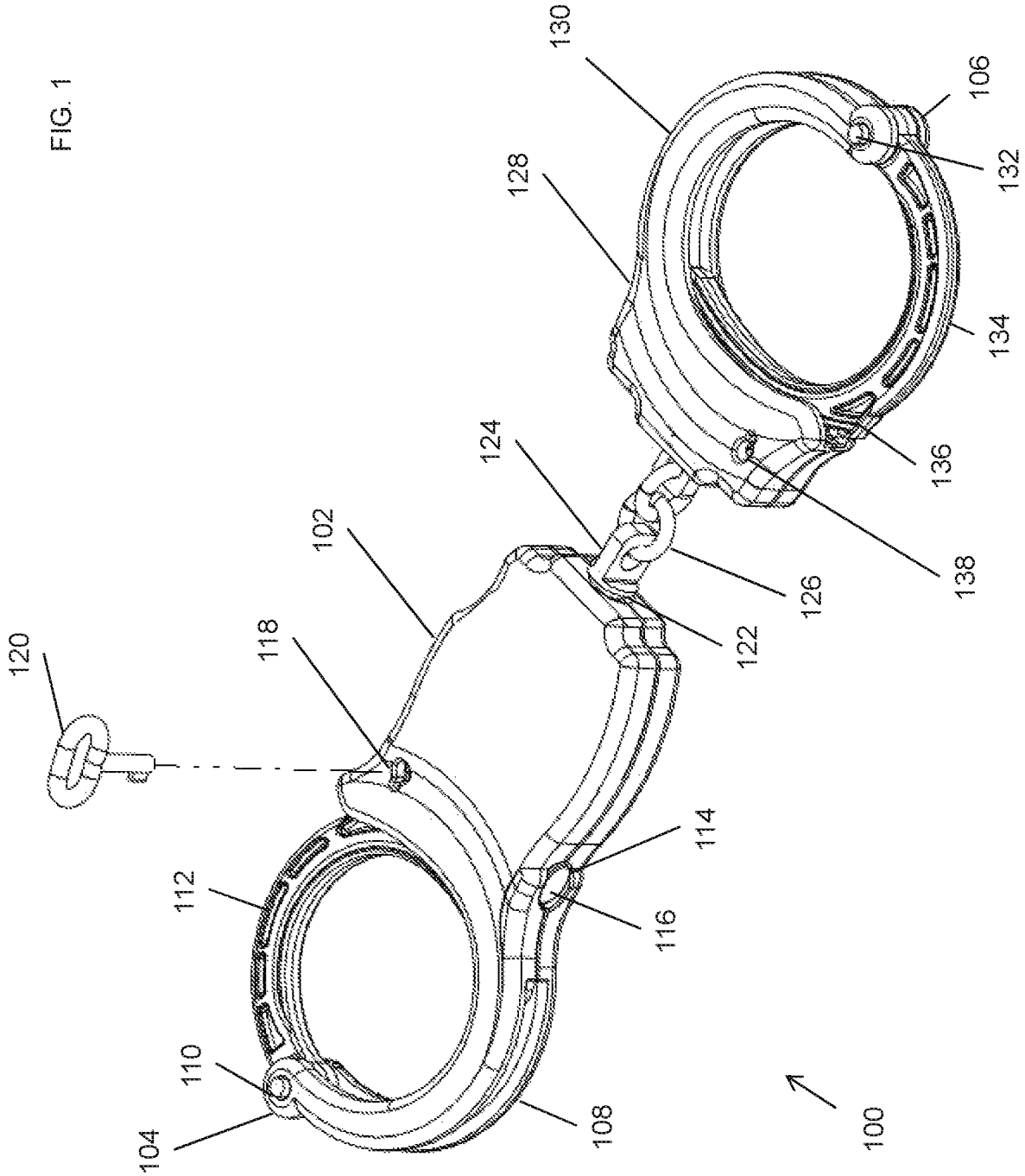
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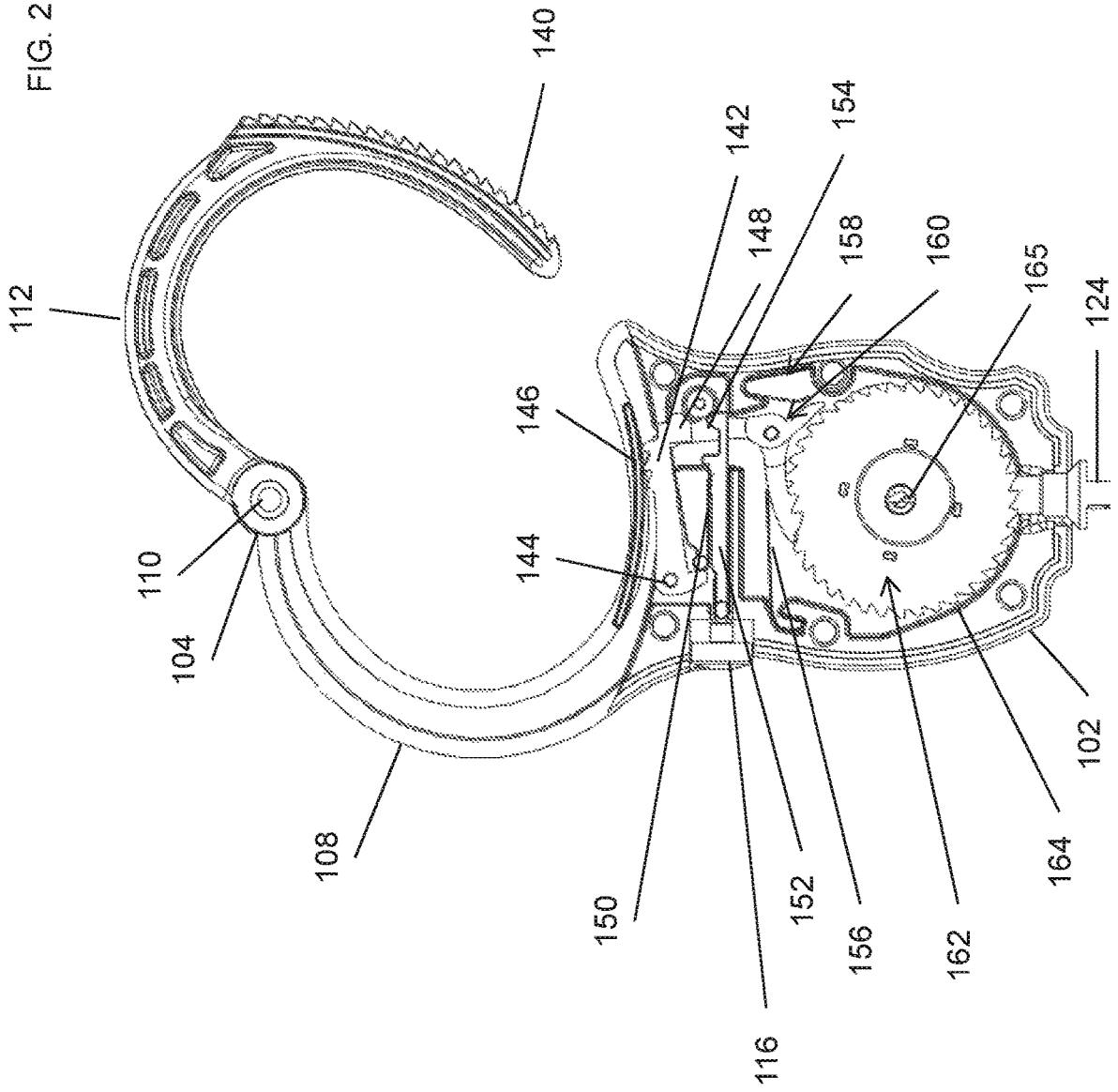
FIG. 2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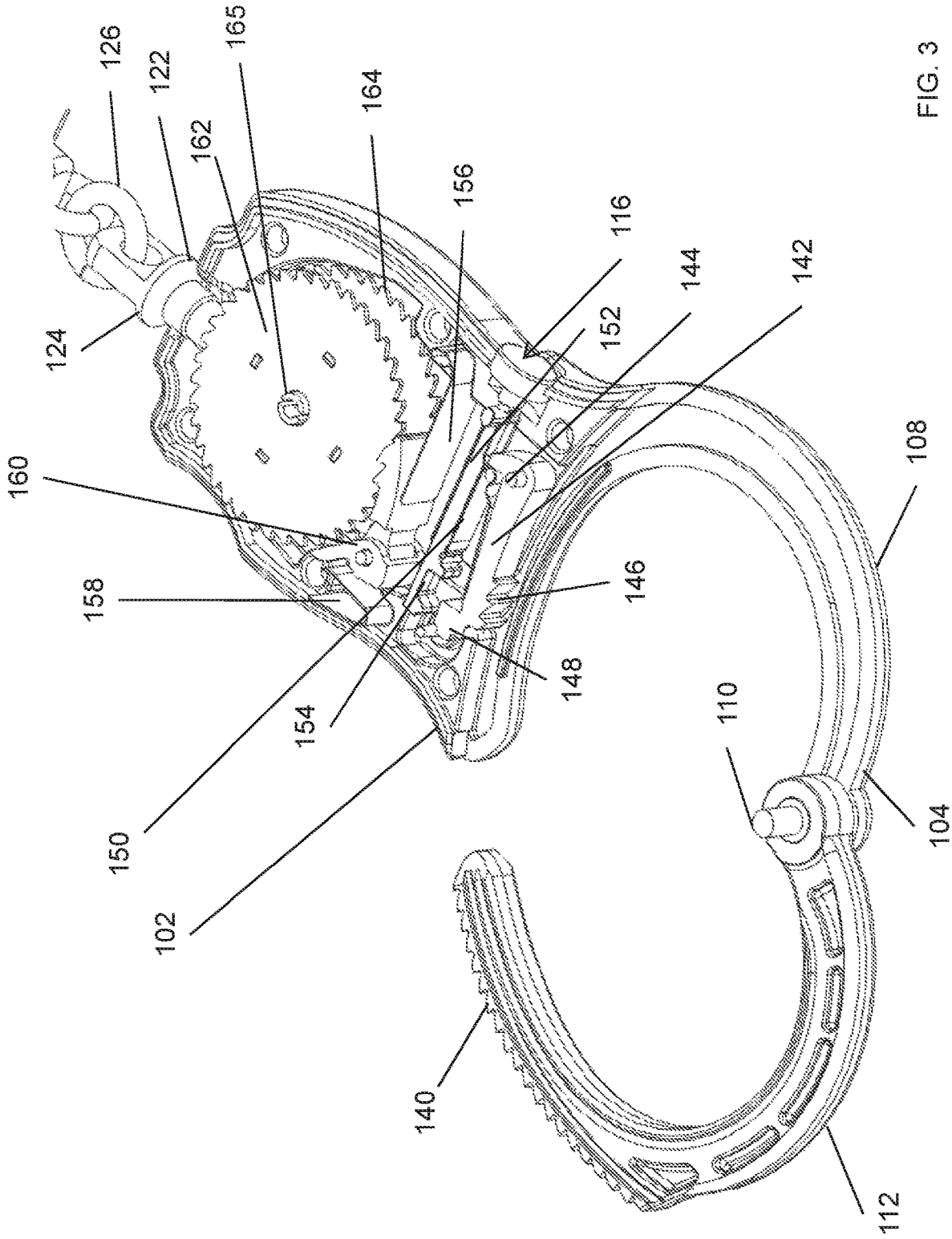
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FIG. 3

FIG. 4

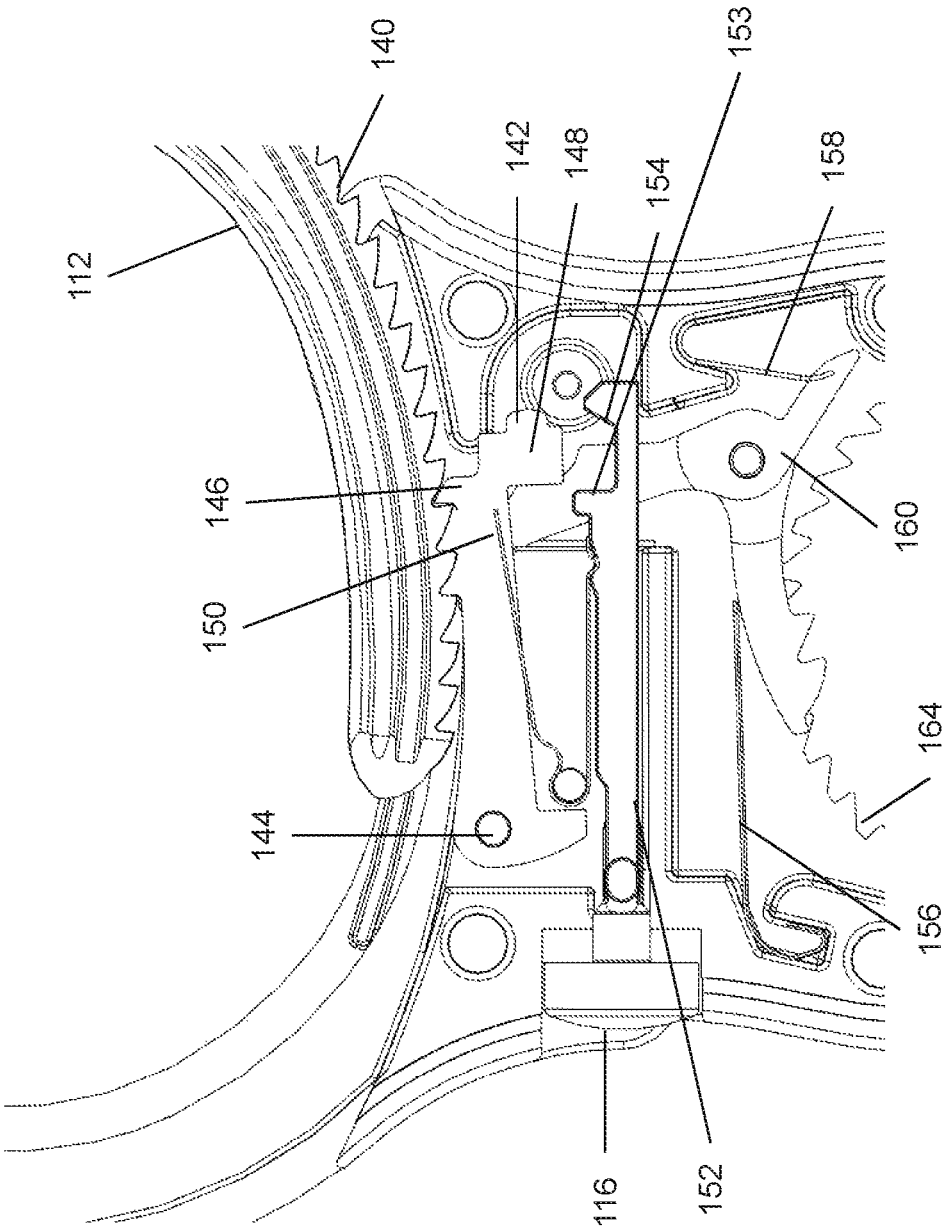
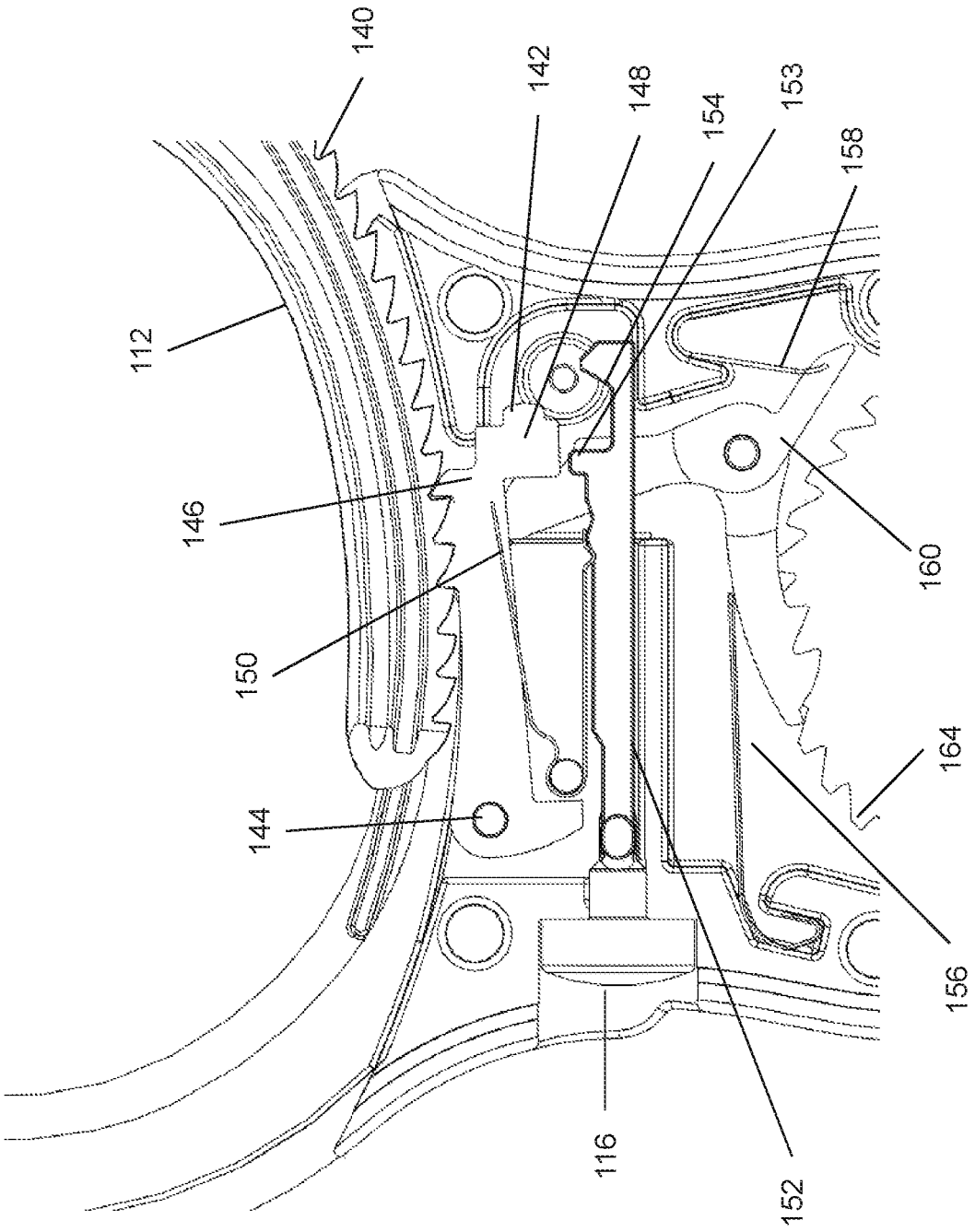


FIG. 5



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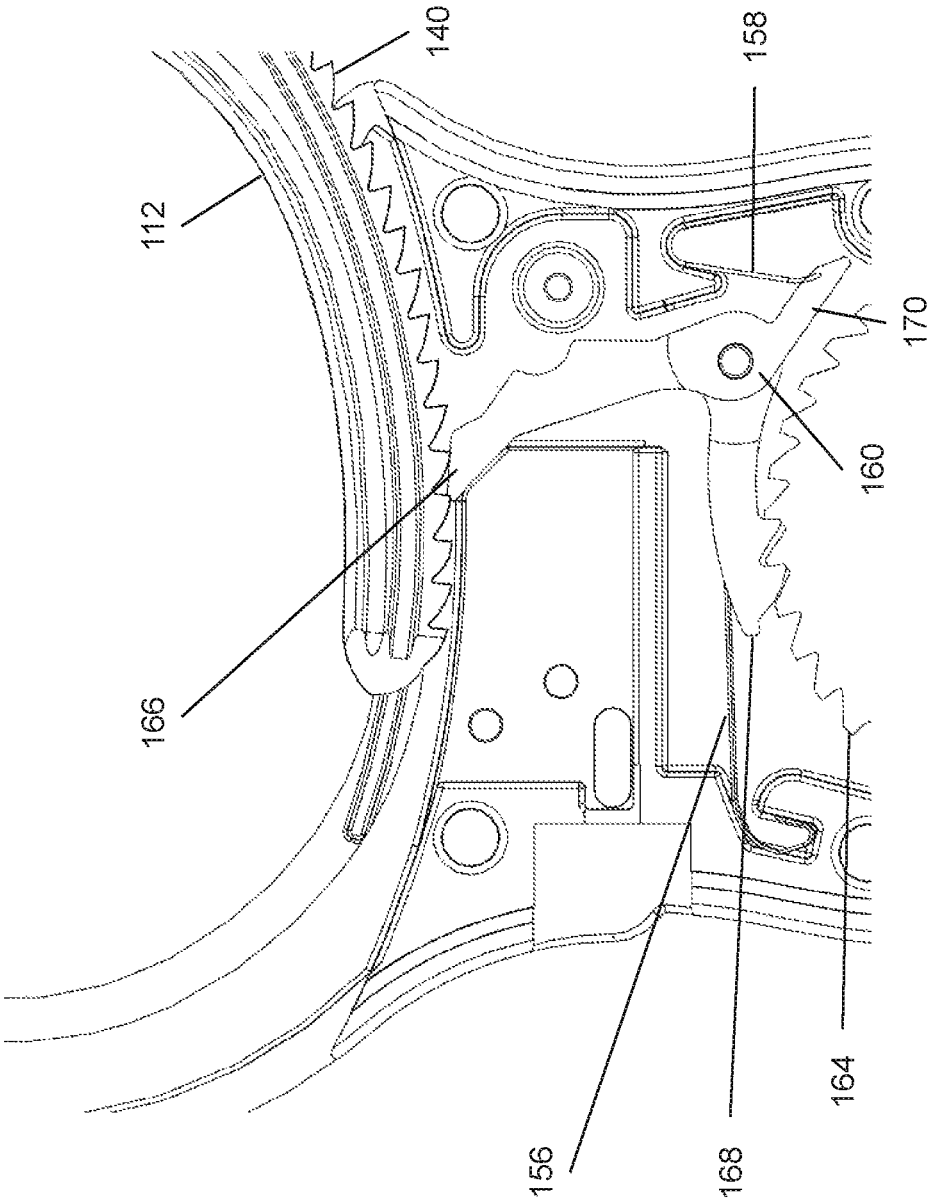
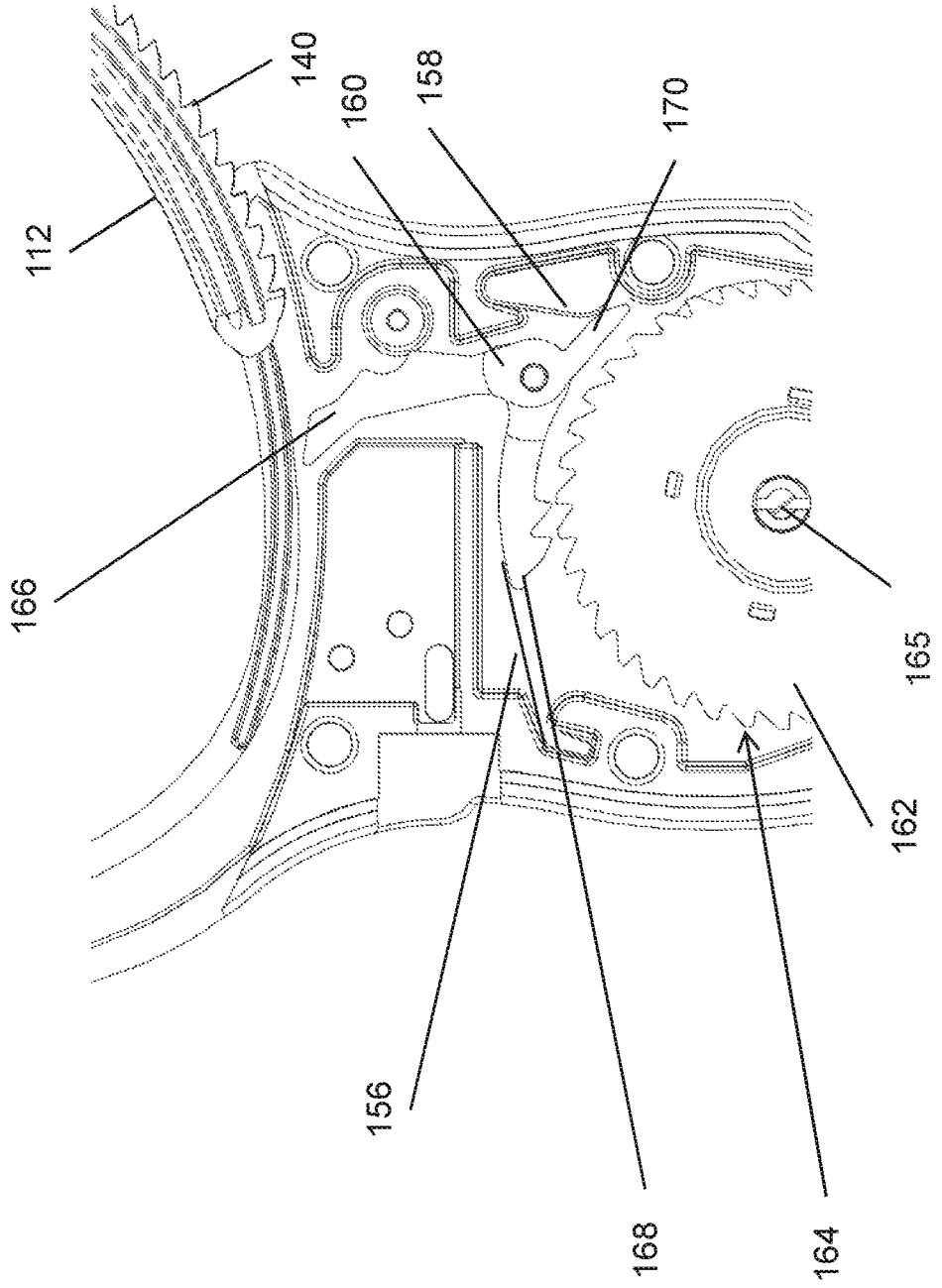


FIG. 7



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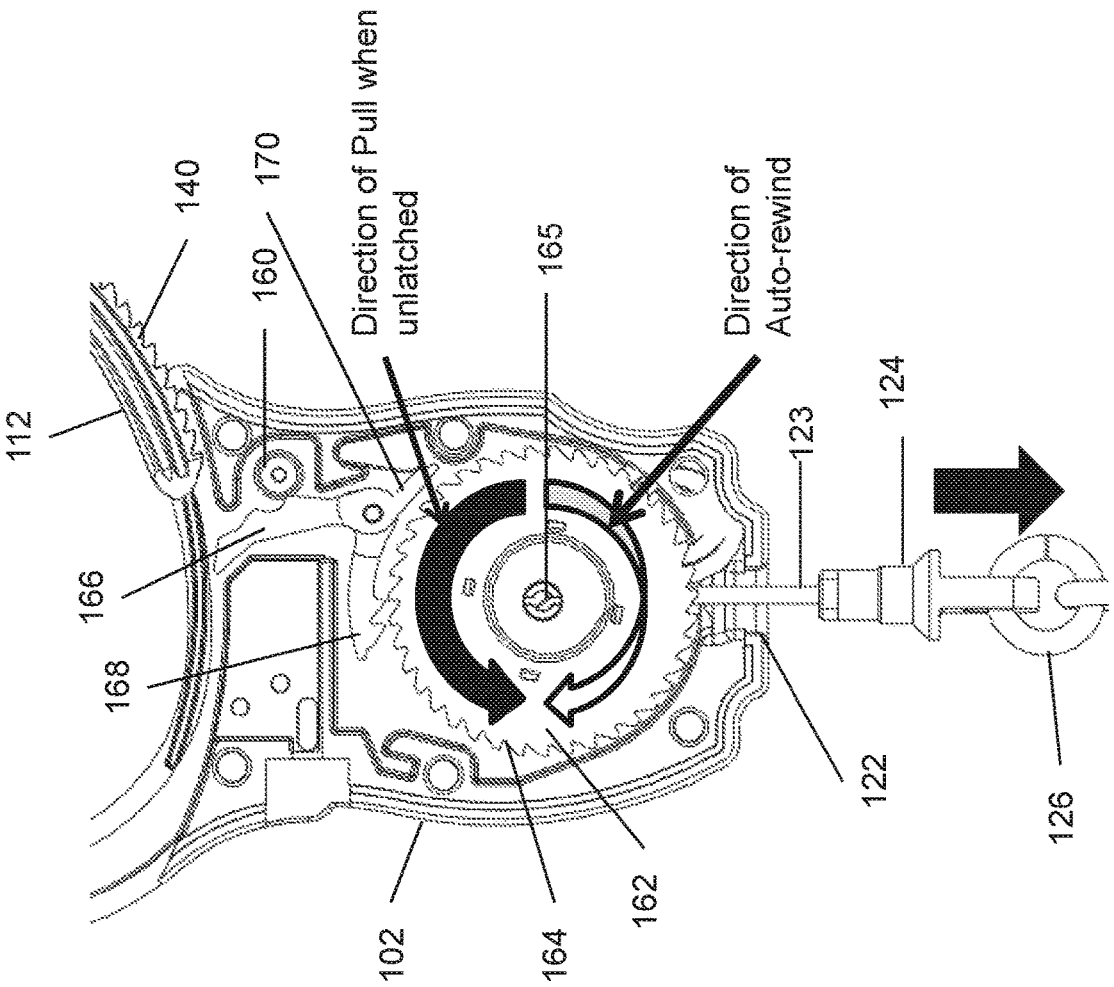
112
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Direction of Pull when unlatched
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Direction of Auto-rewind
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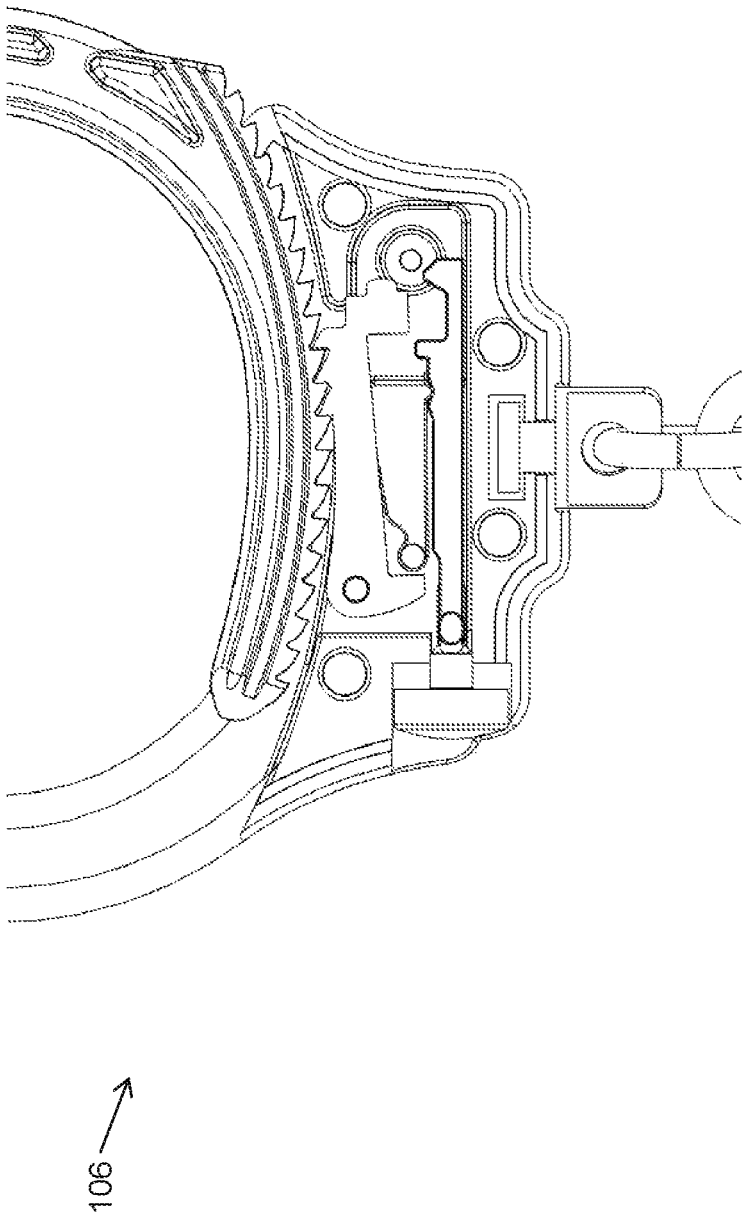
FIG. 9



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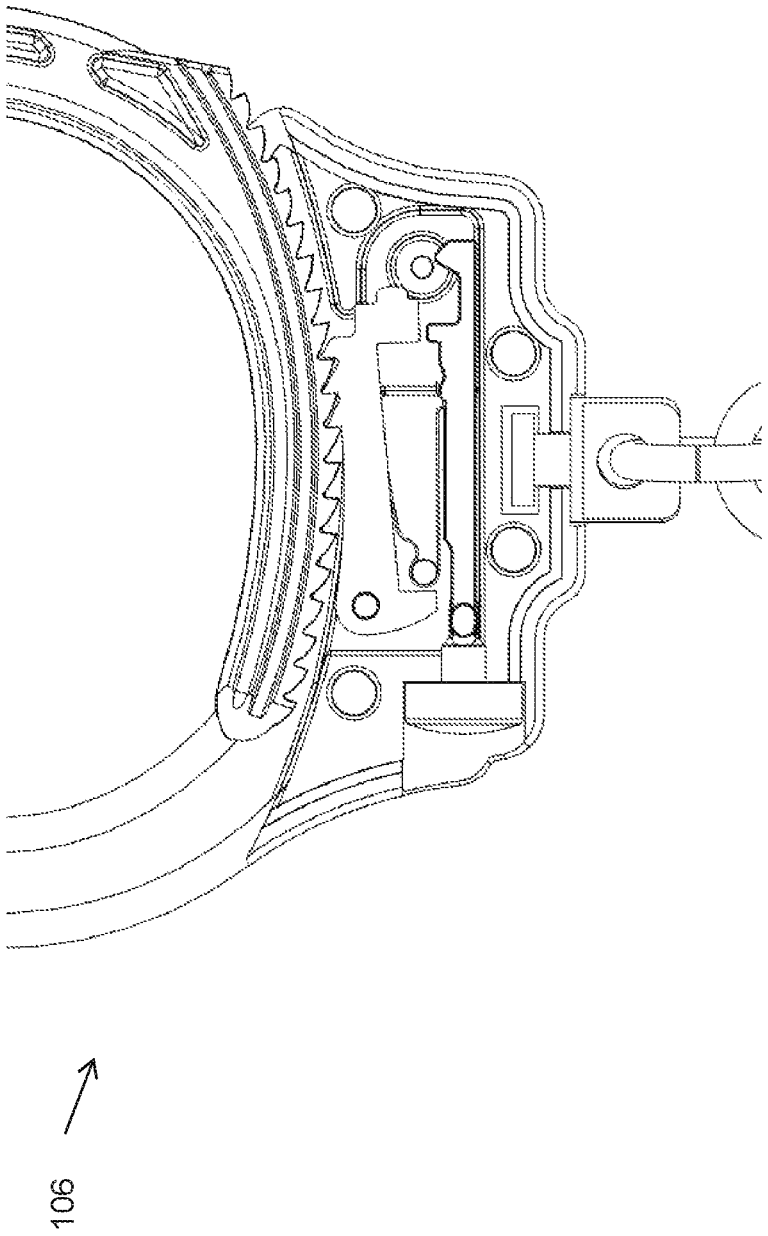
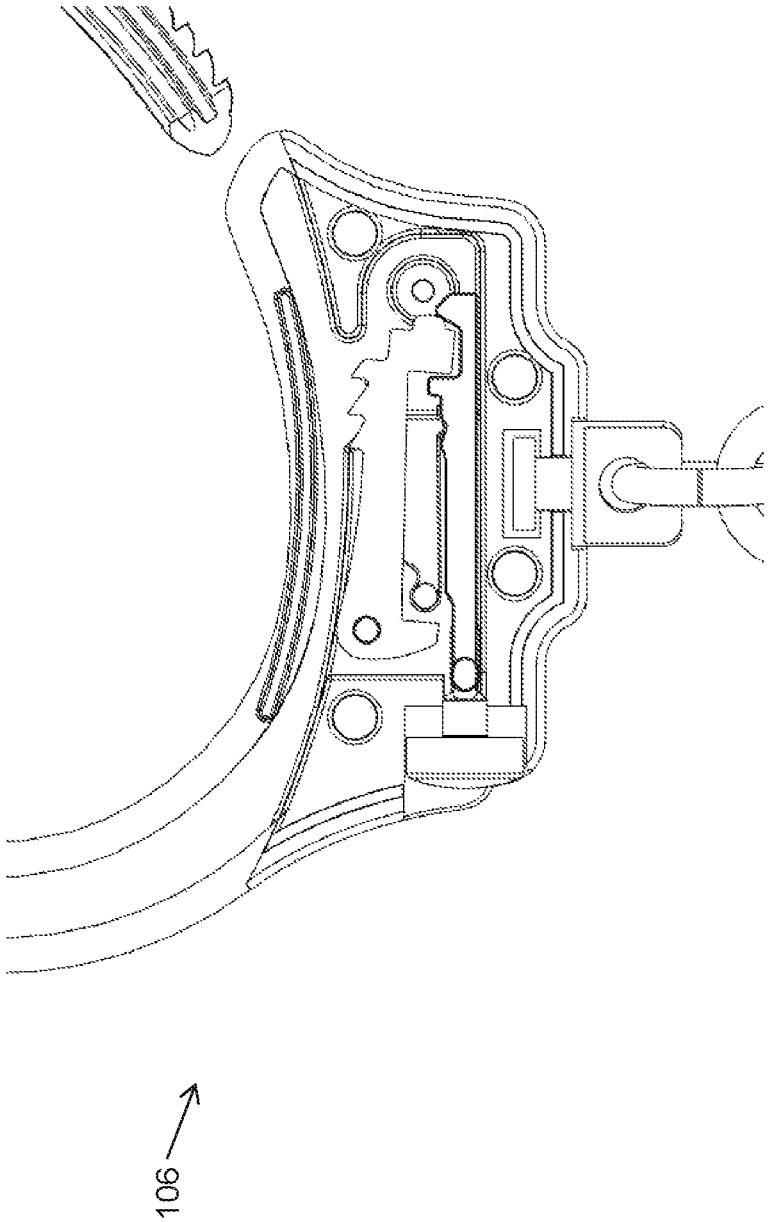


FIG. 11



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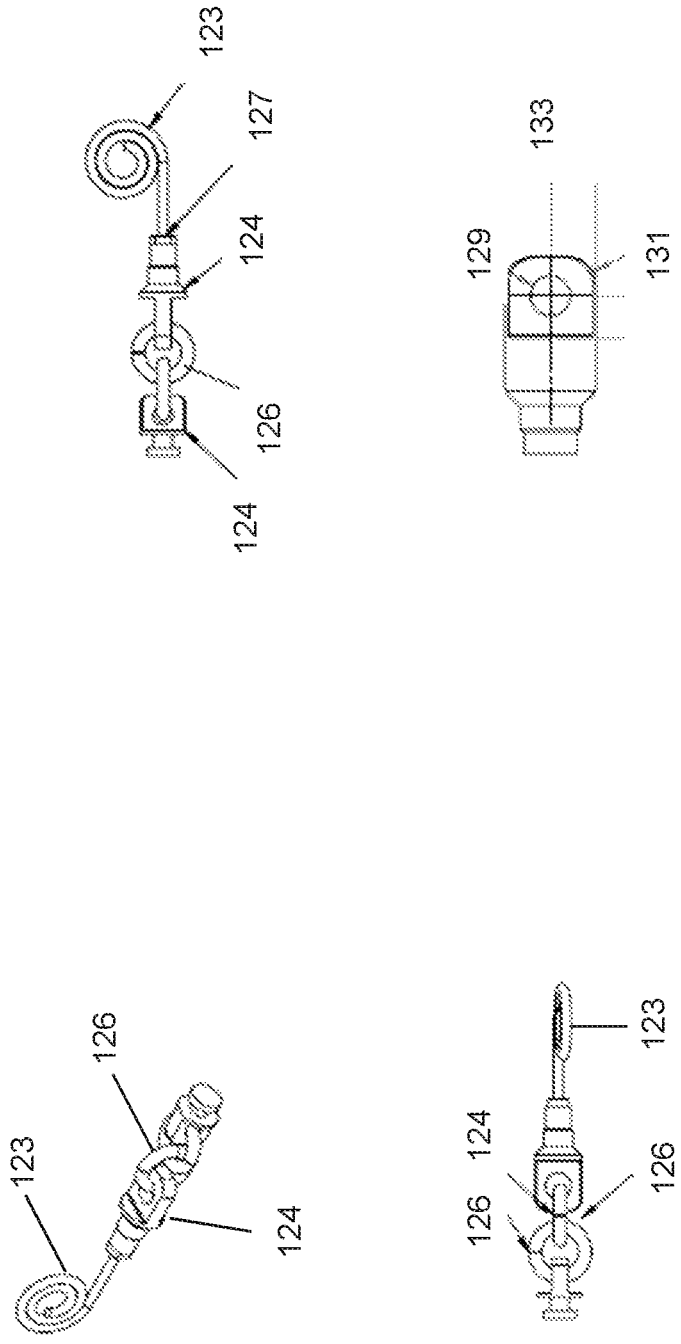
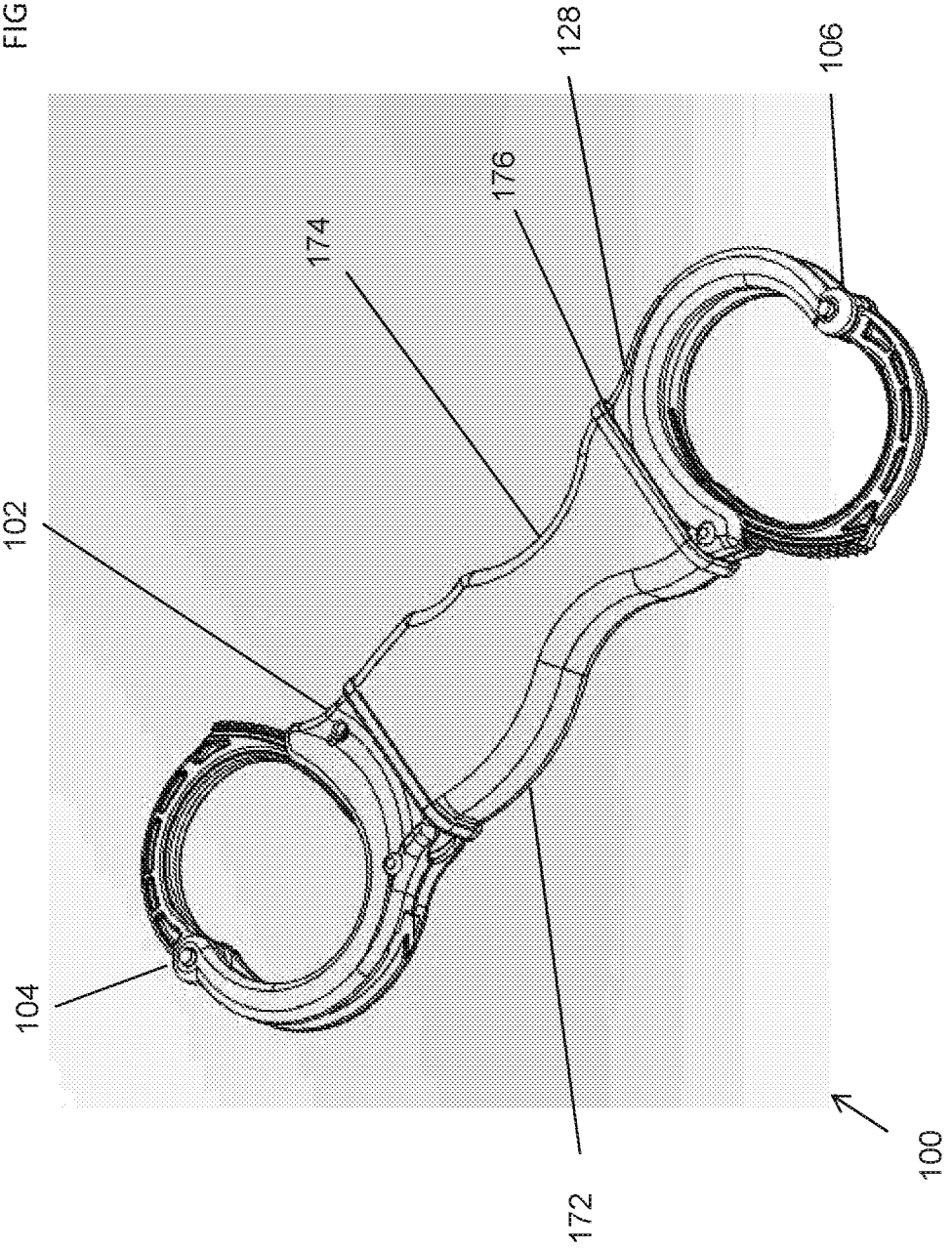


FIG. 13



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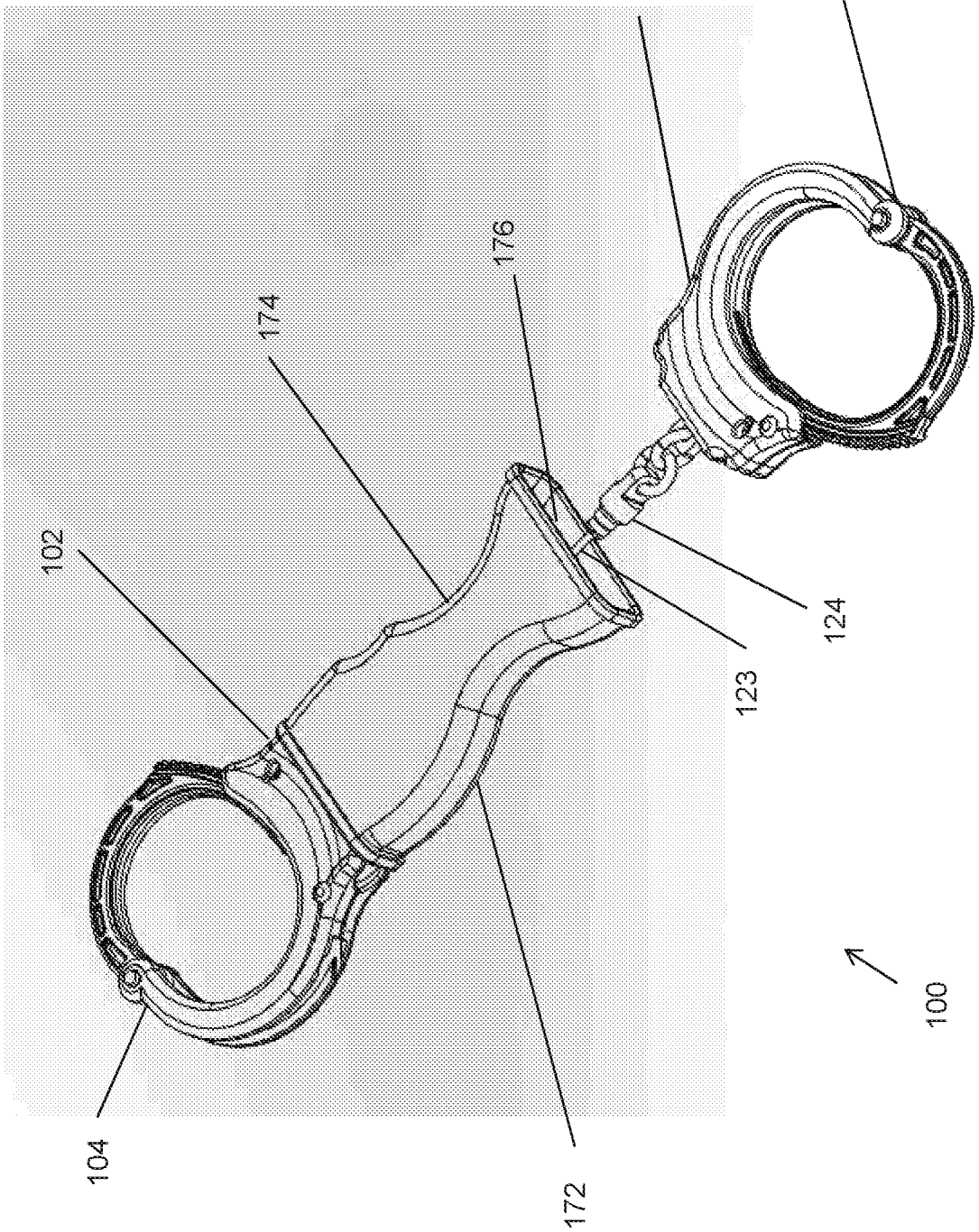


FIG. 15

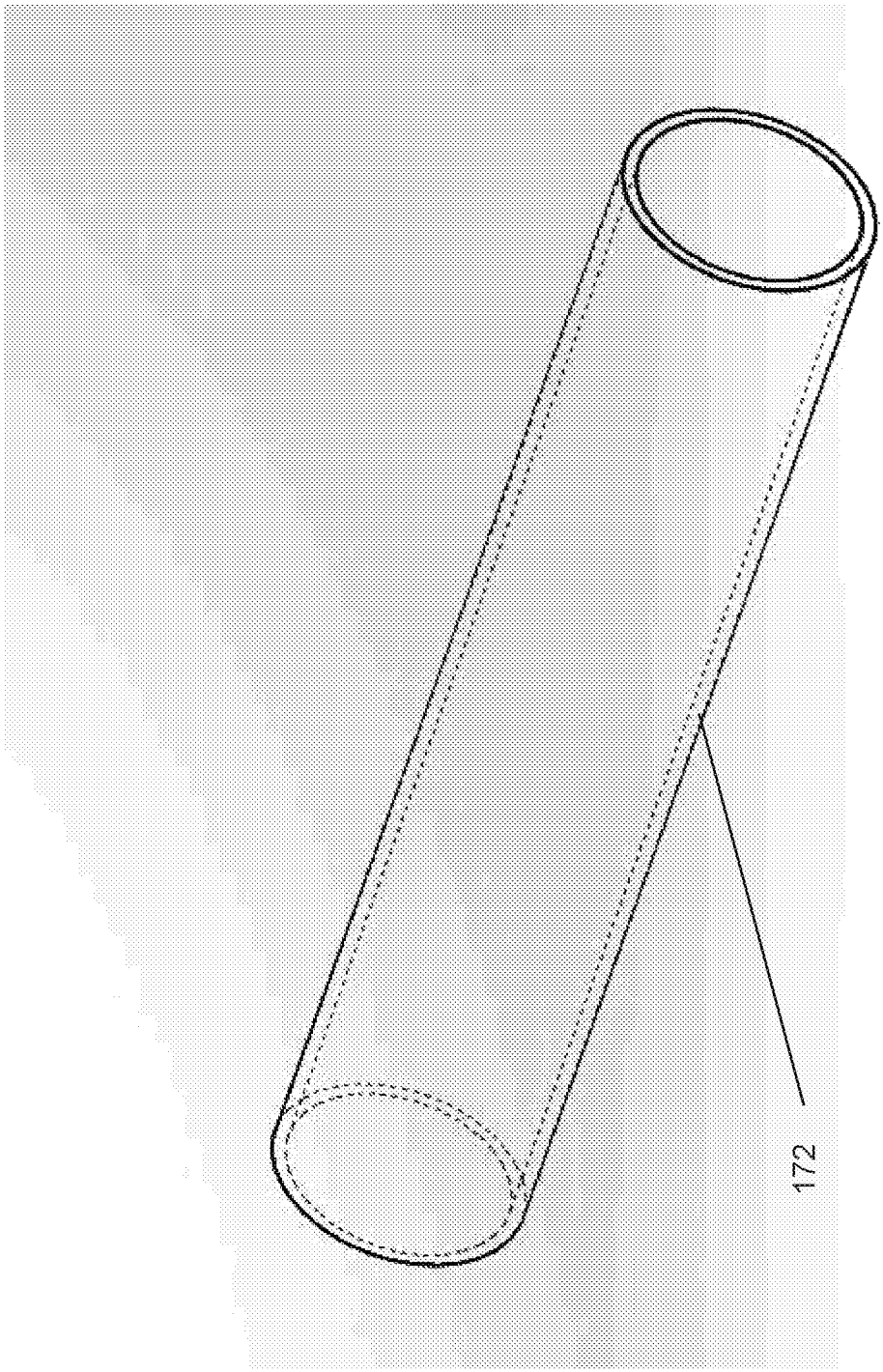


FIG. 16

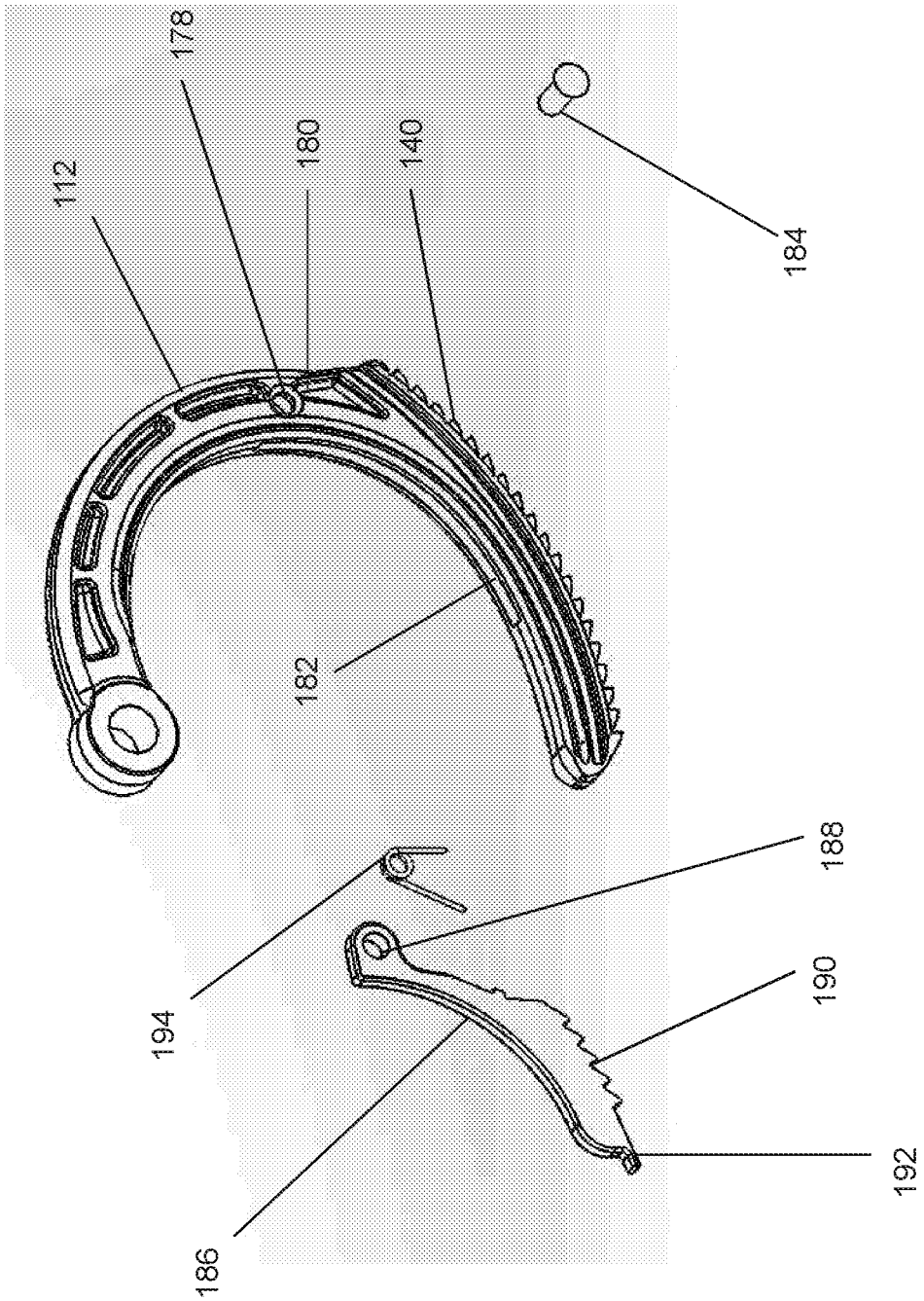


FIG. 17

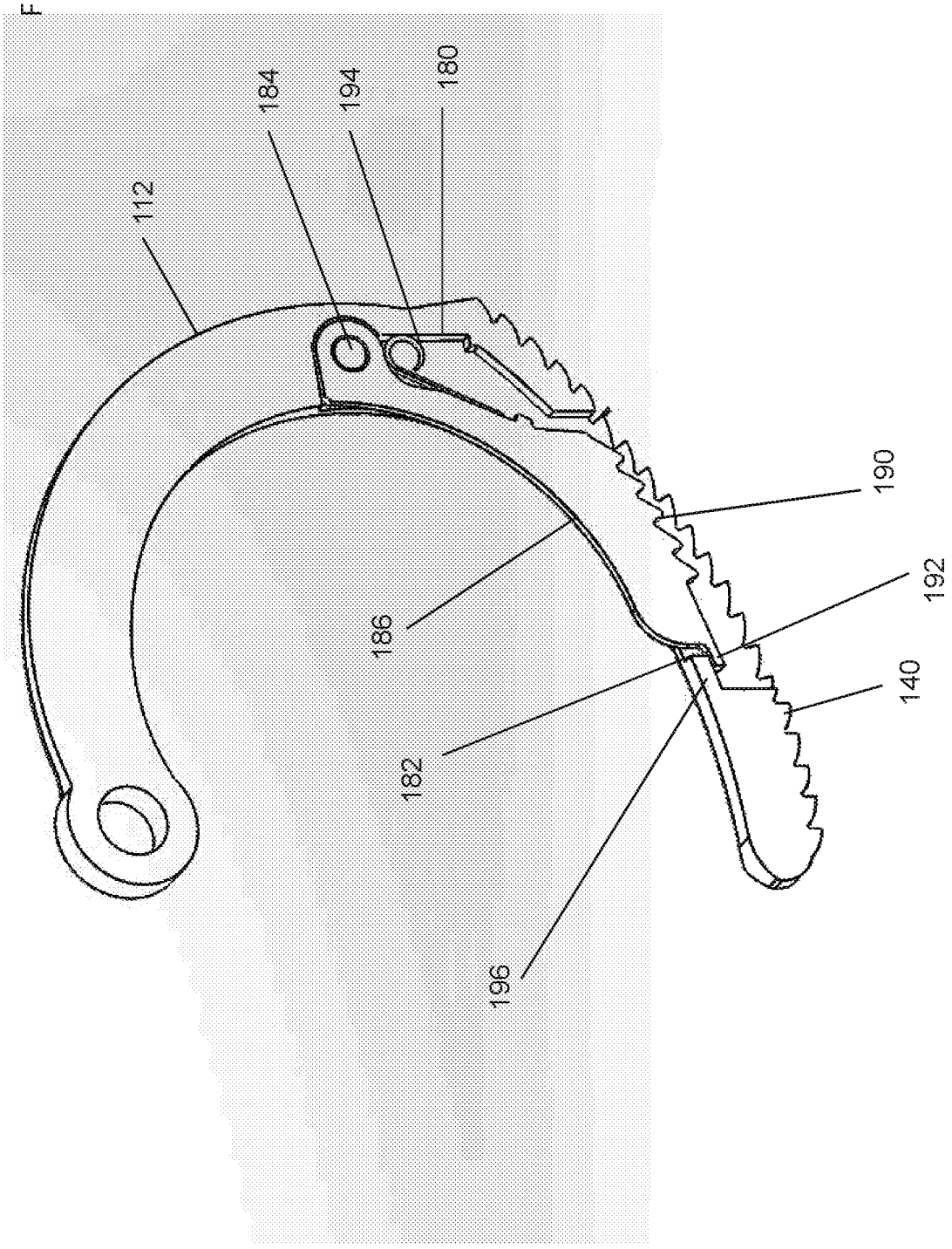


FIG. 18

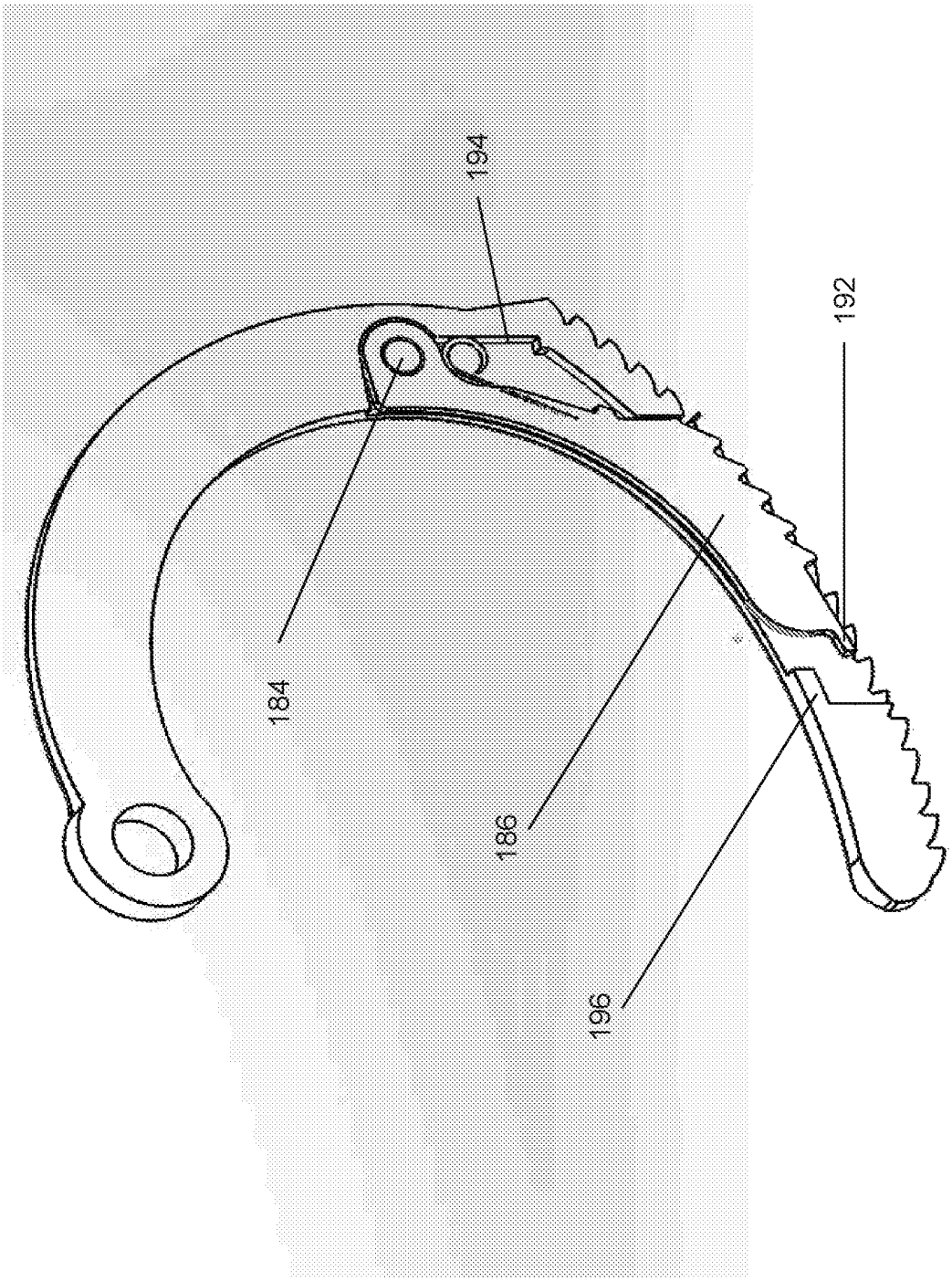
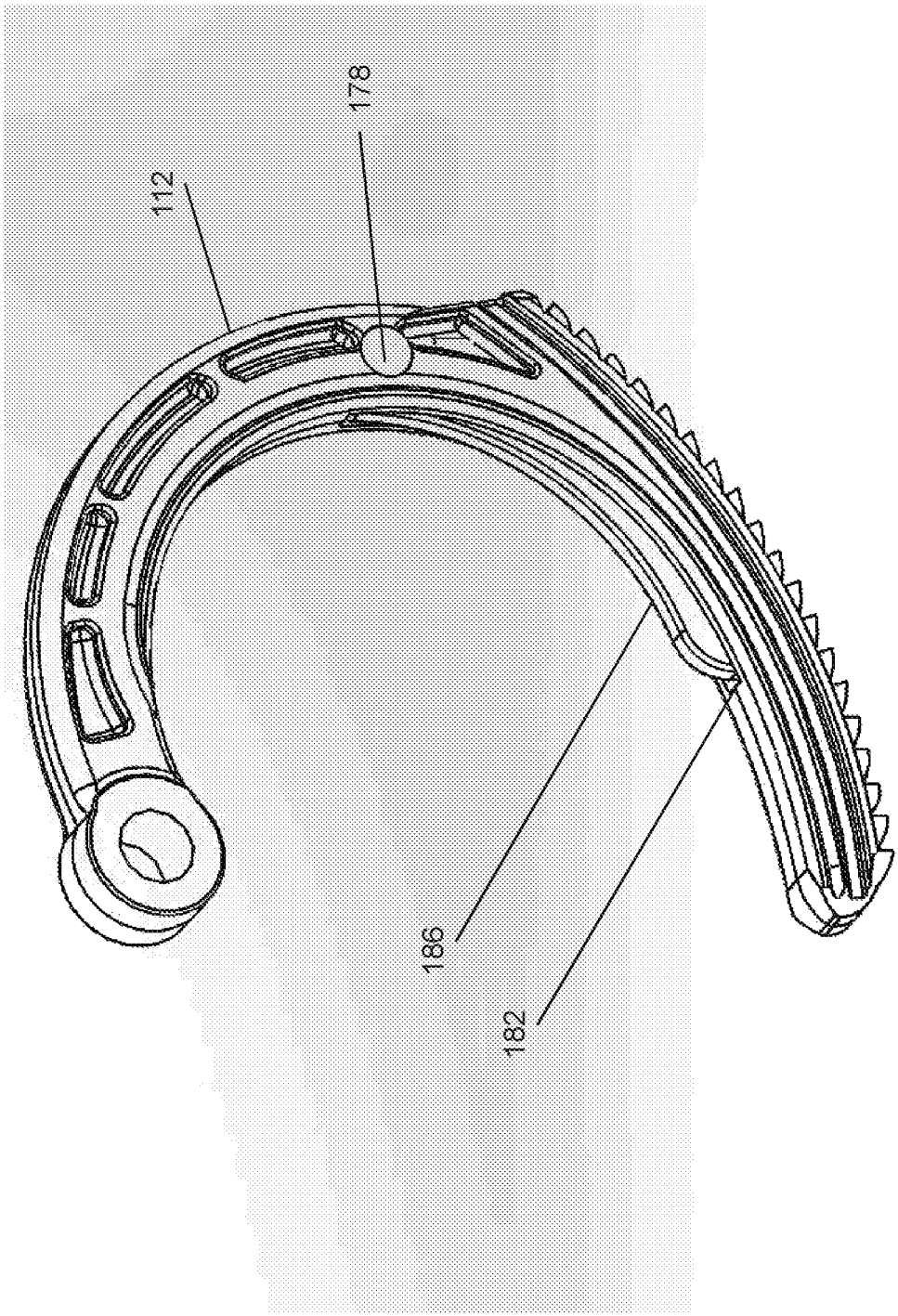


FIG. 19



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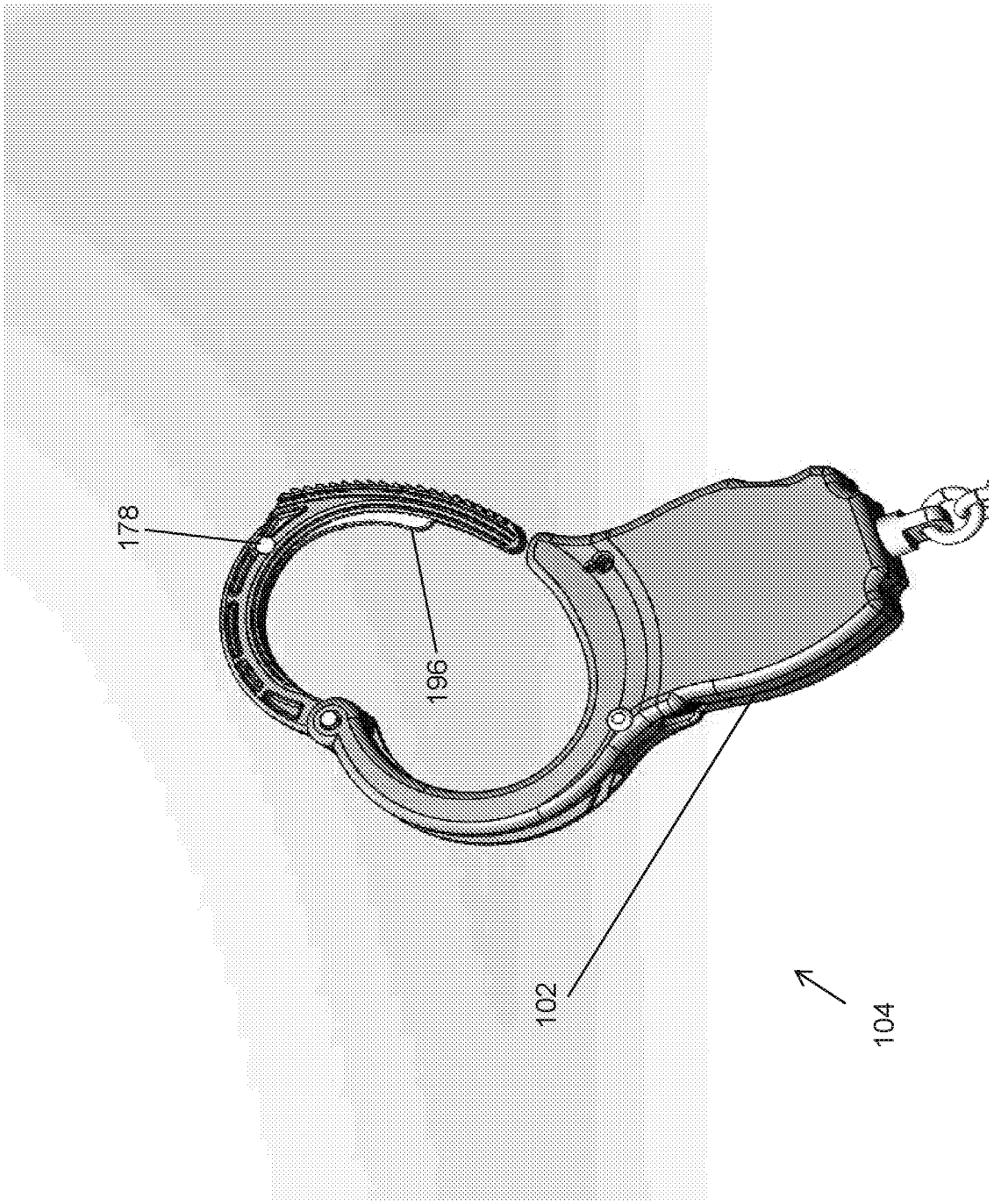


FIG. 21

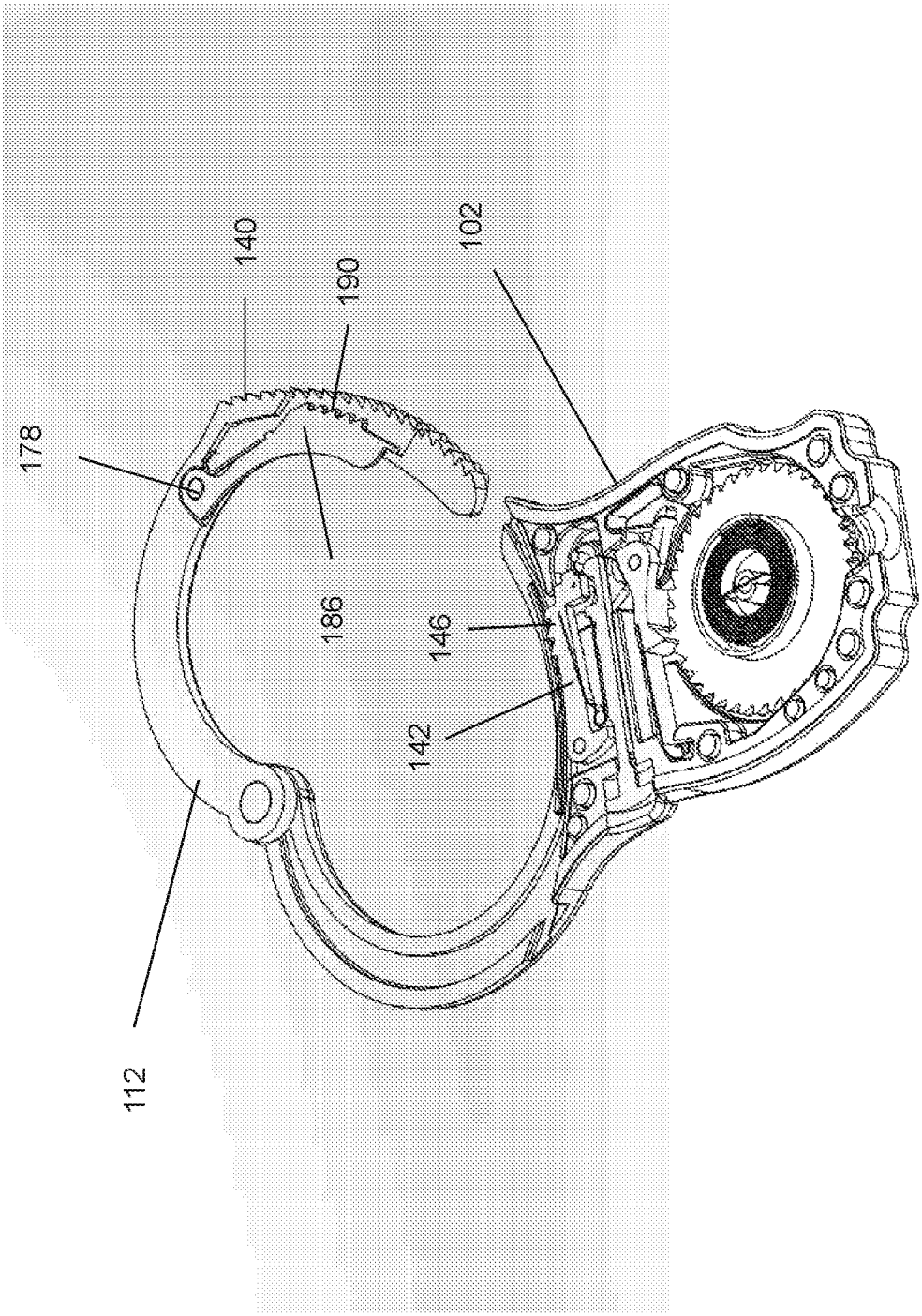


FIG. 22

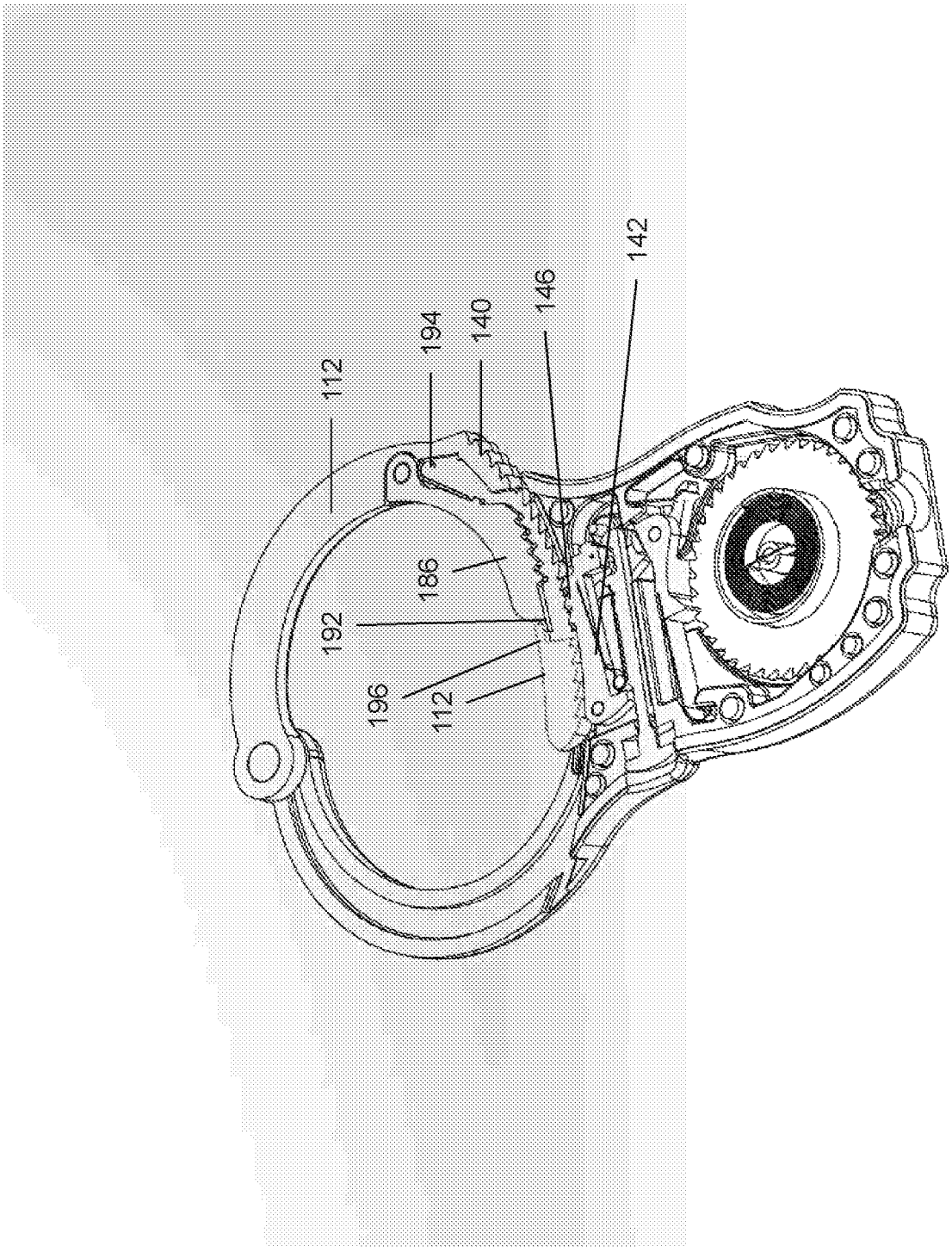


FIG. 23

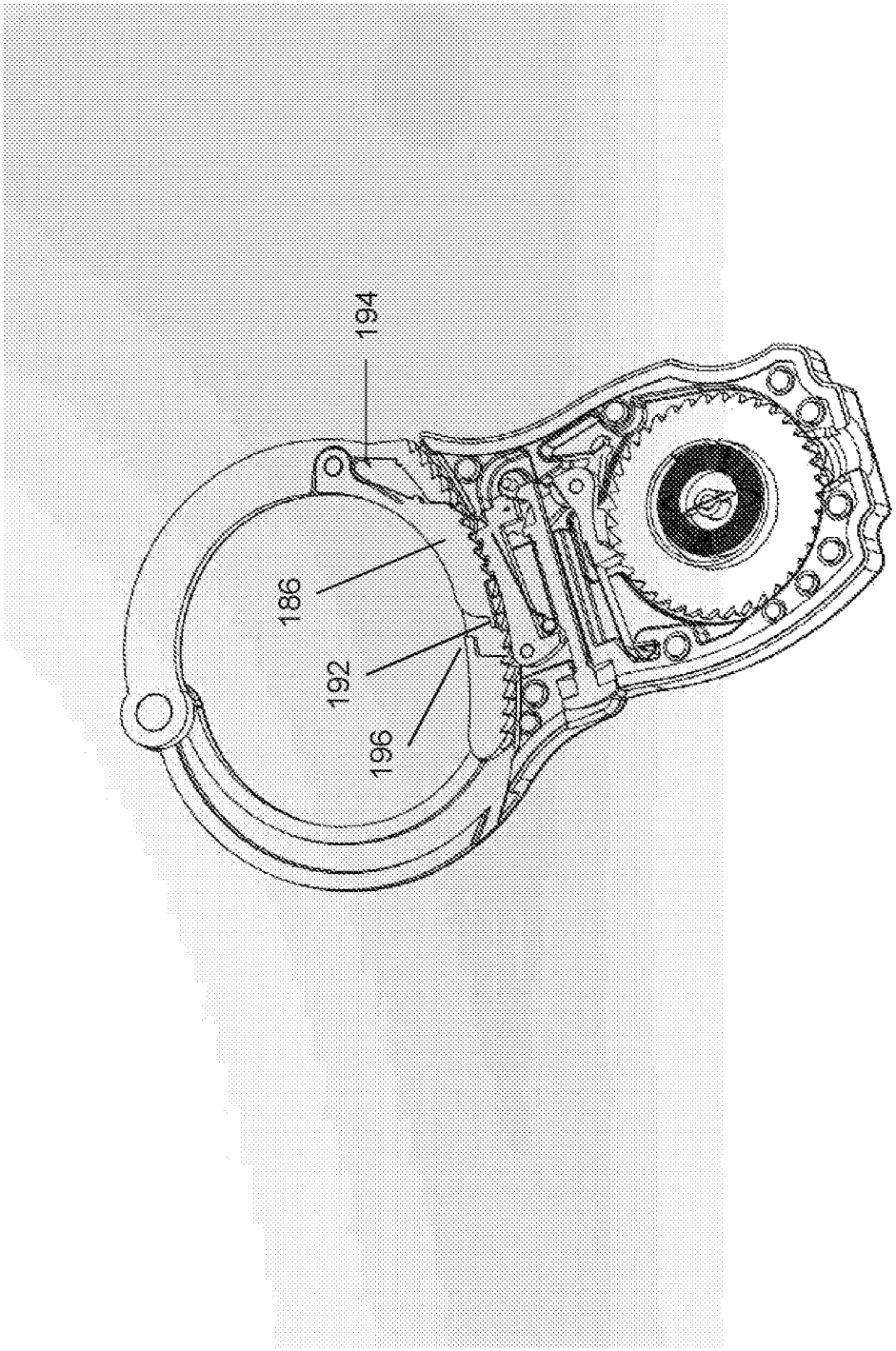
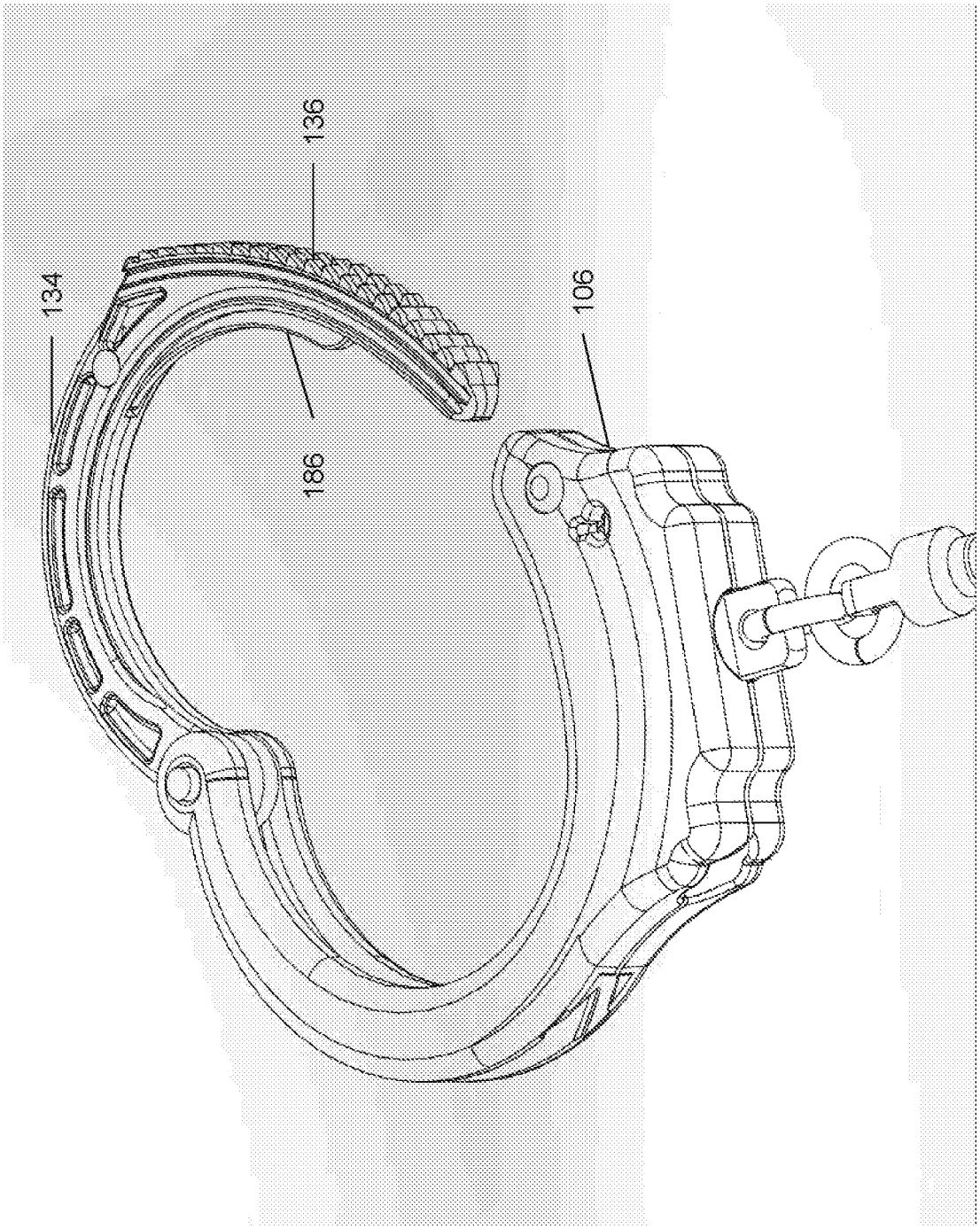


FIG. 24



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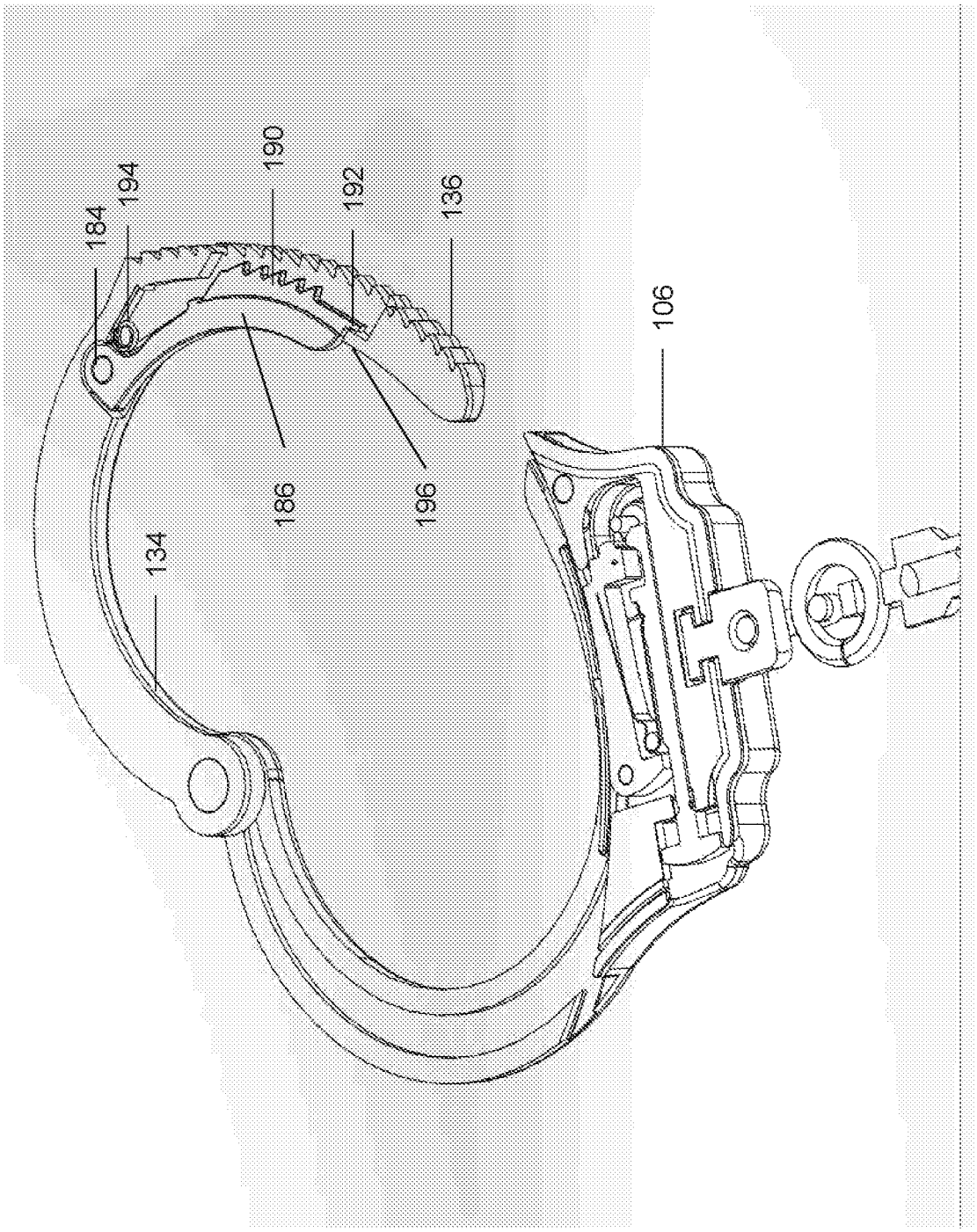


FIG. 26

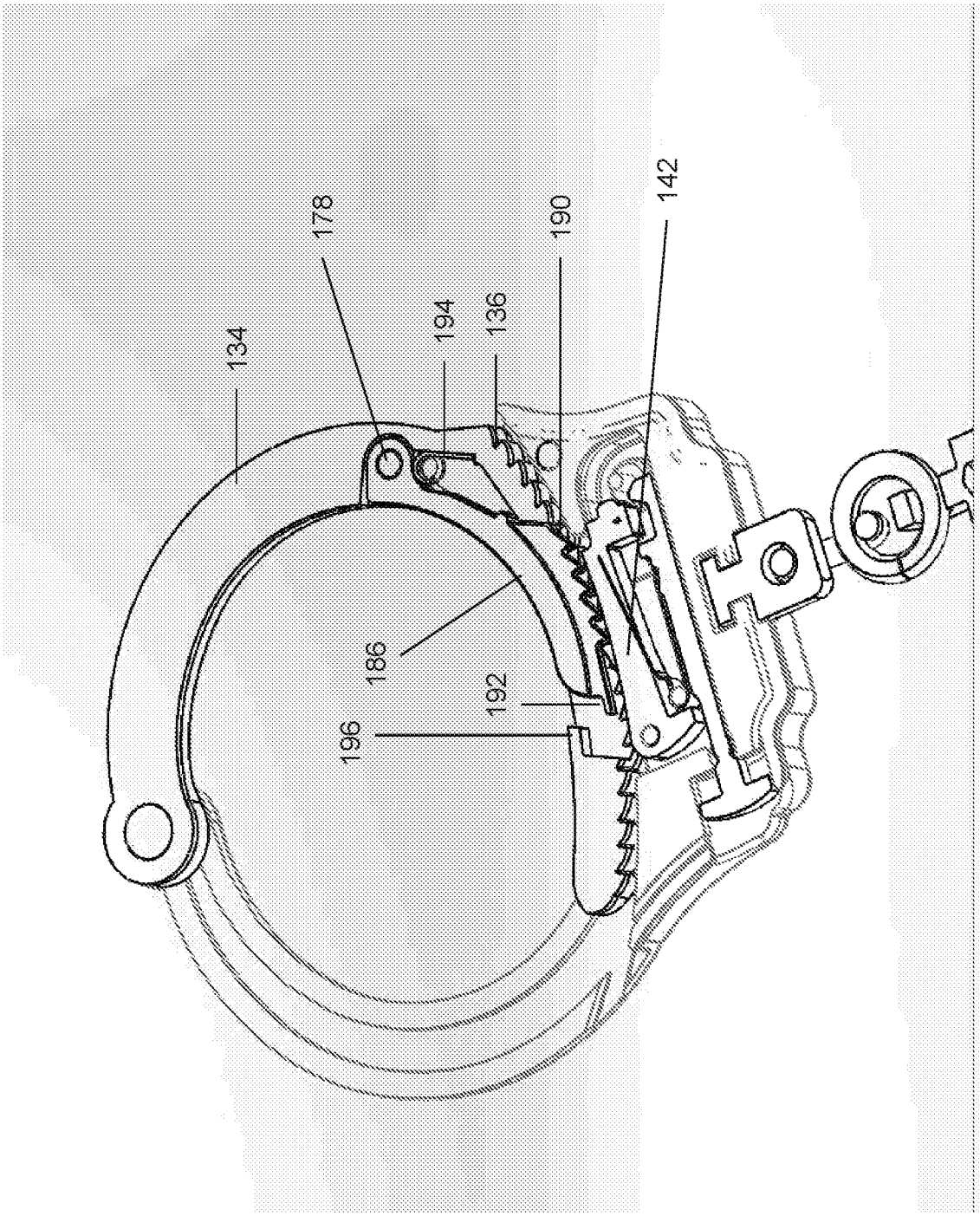


FIG. 27

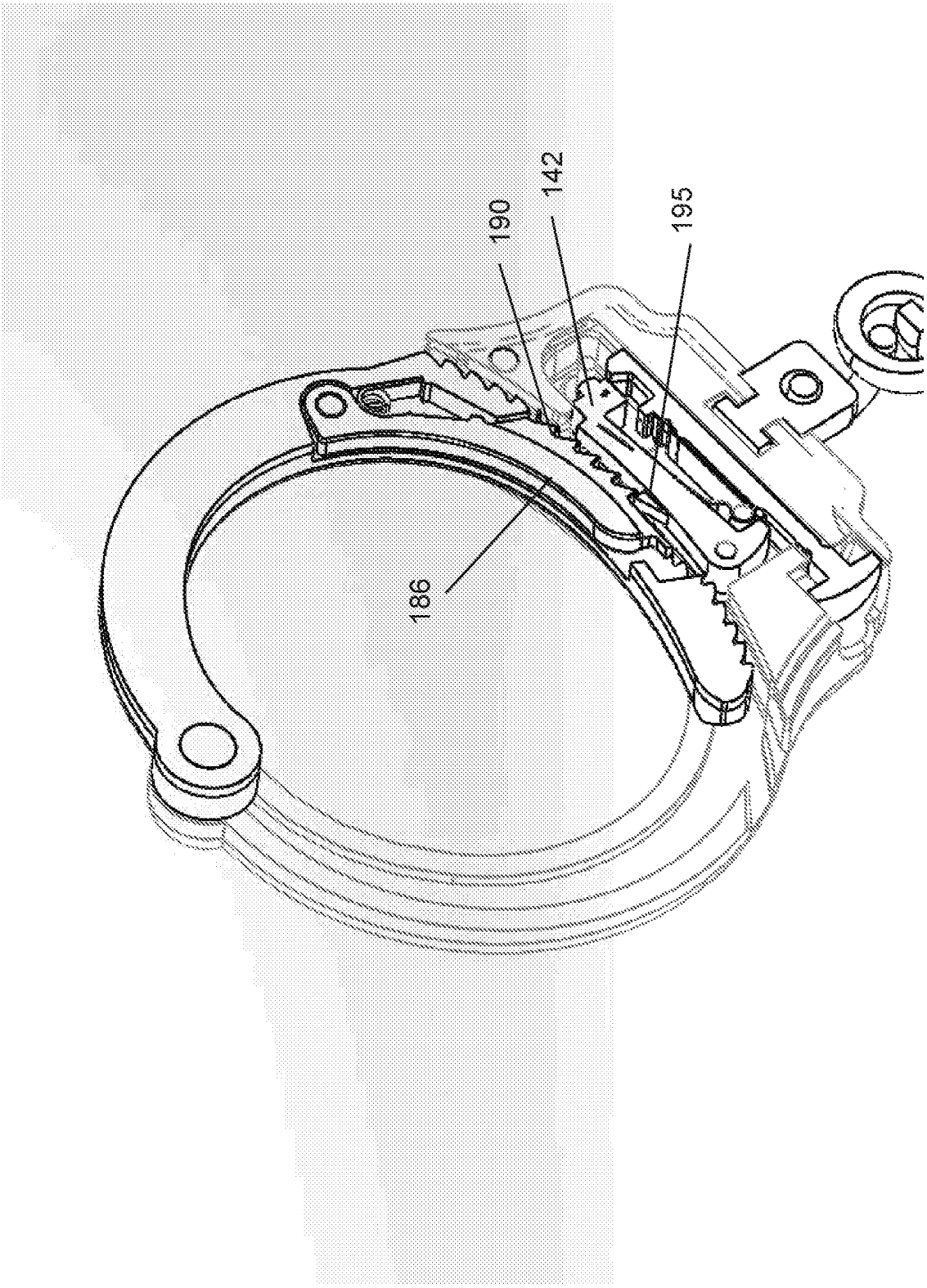


FIG. 28

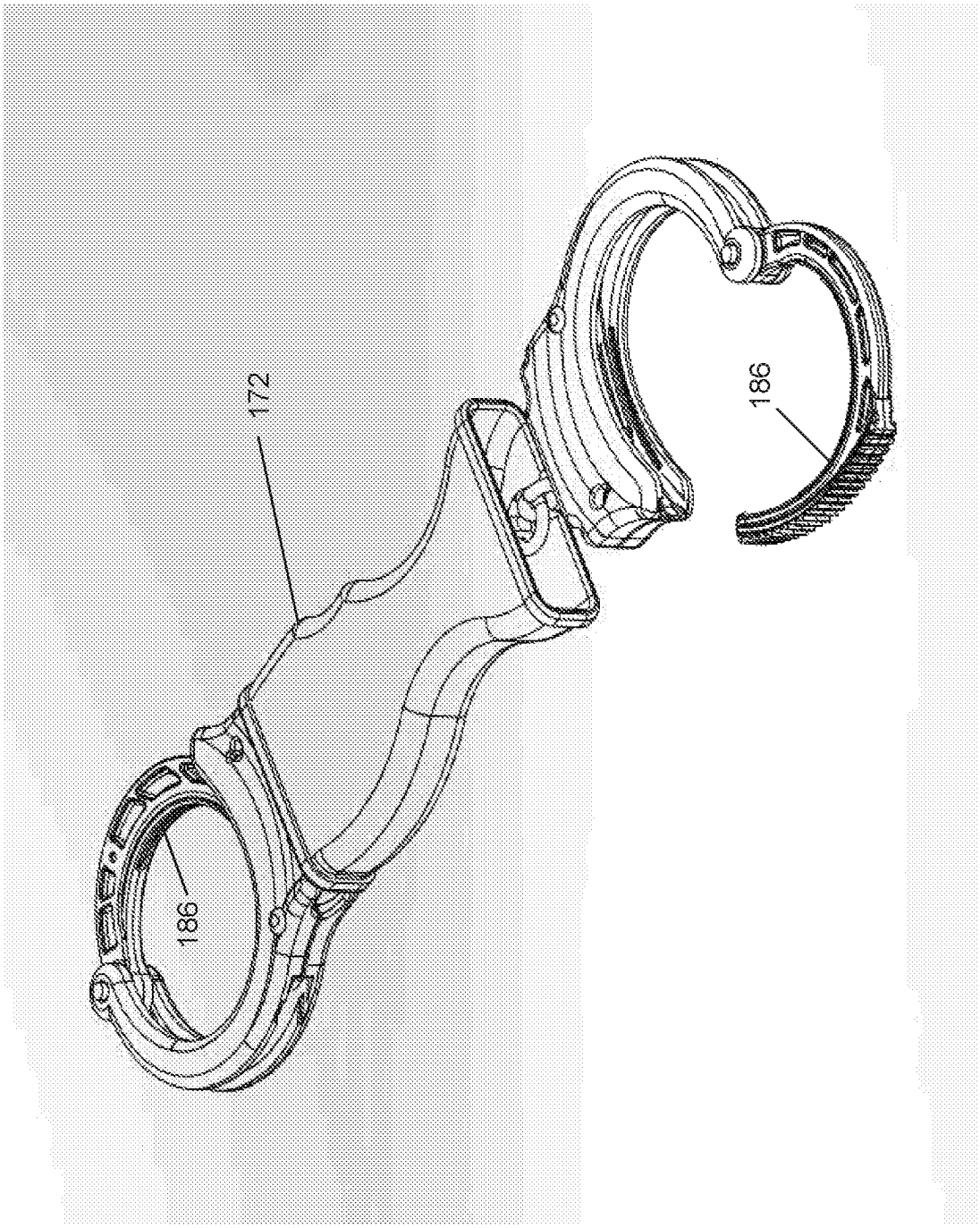


FIG. 29

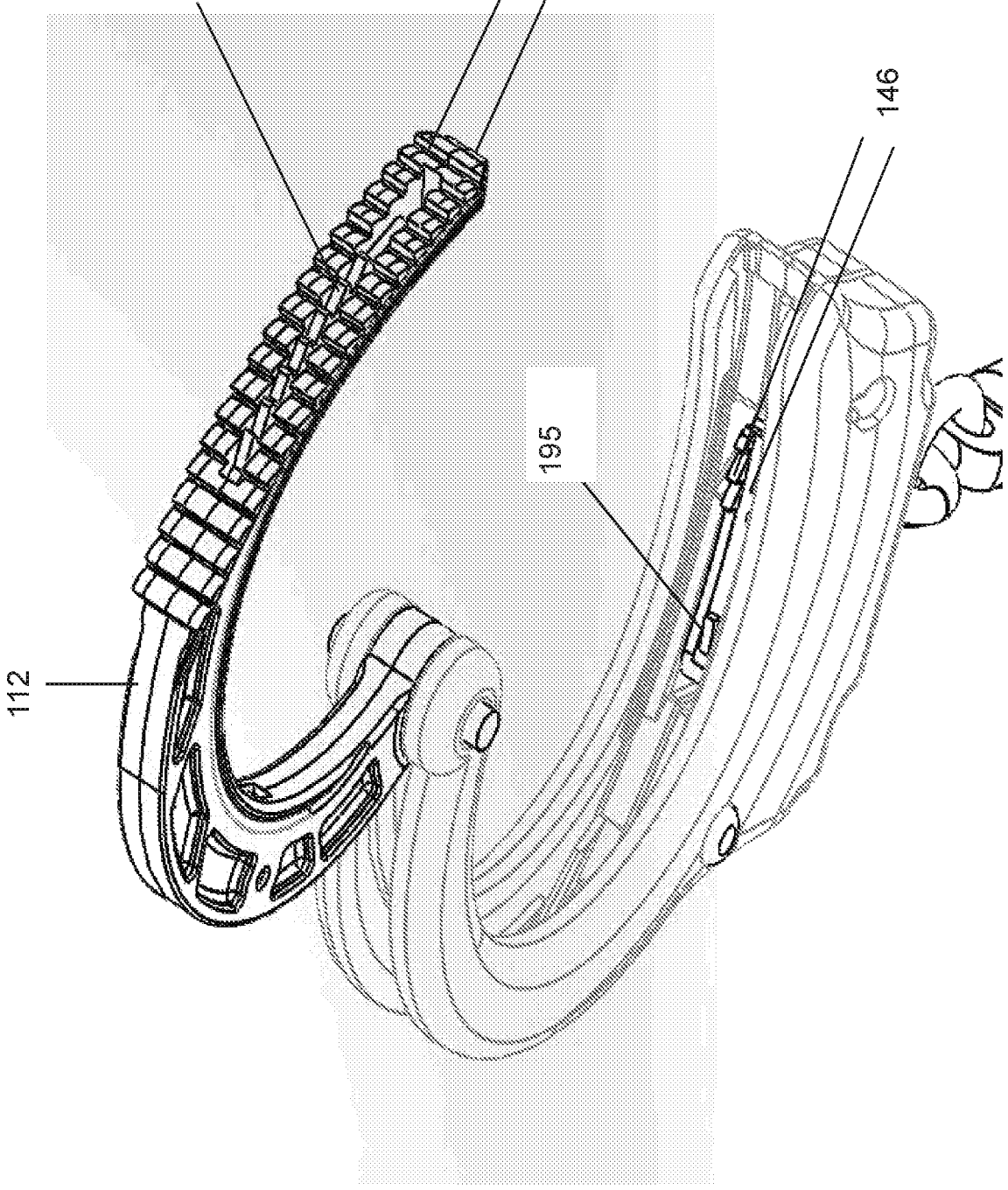


FIG. 30

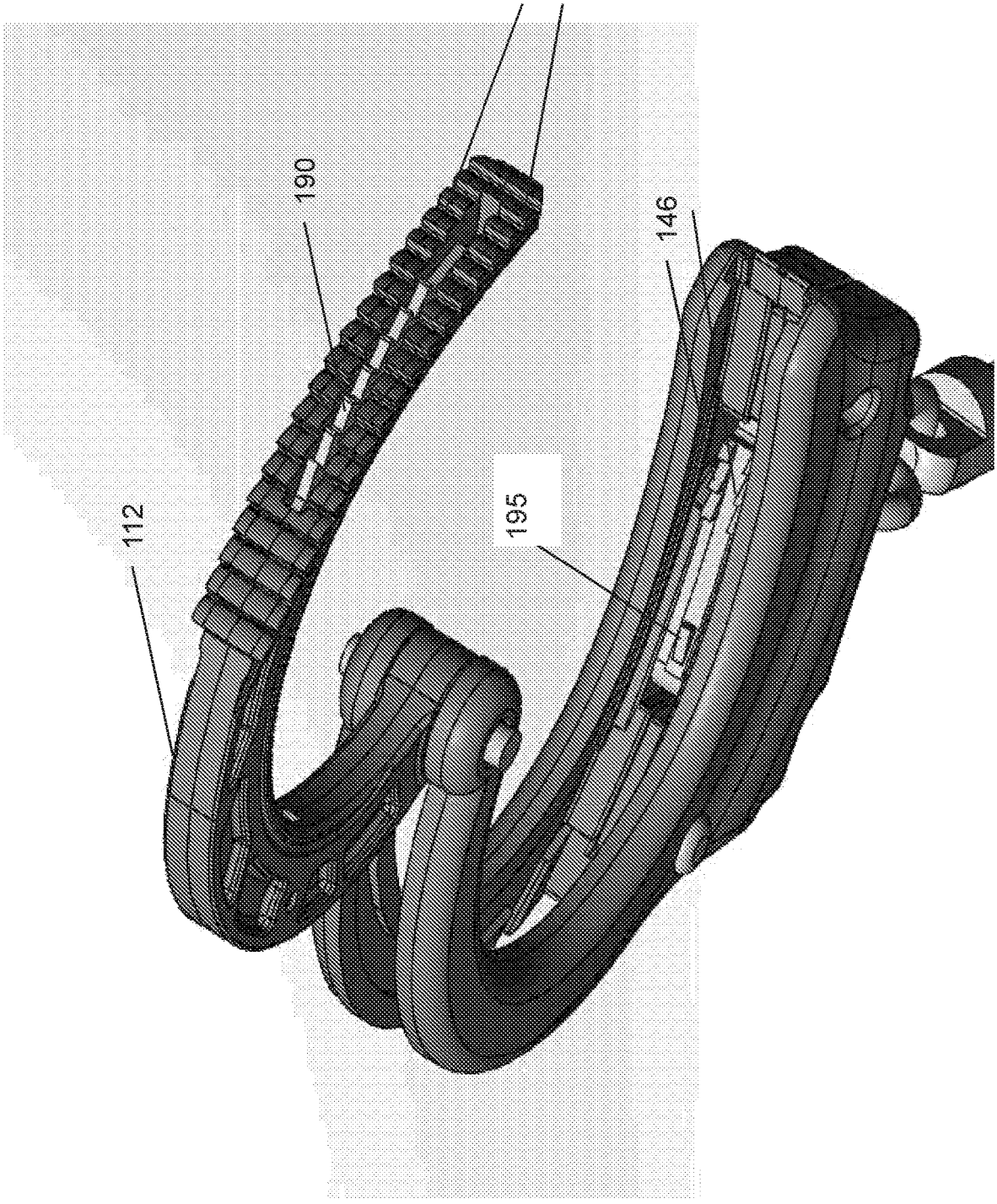


FIG. 31

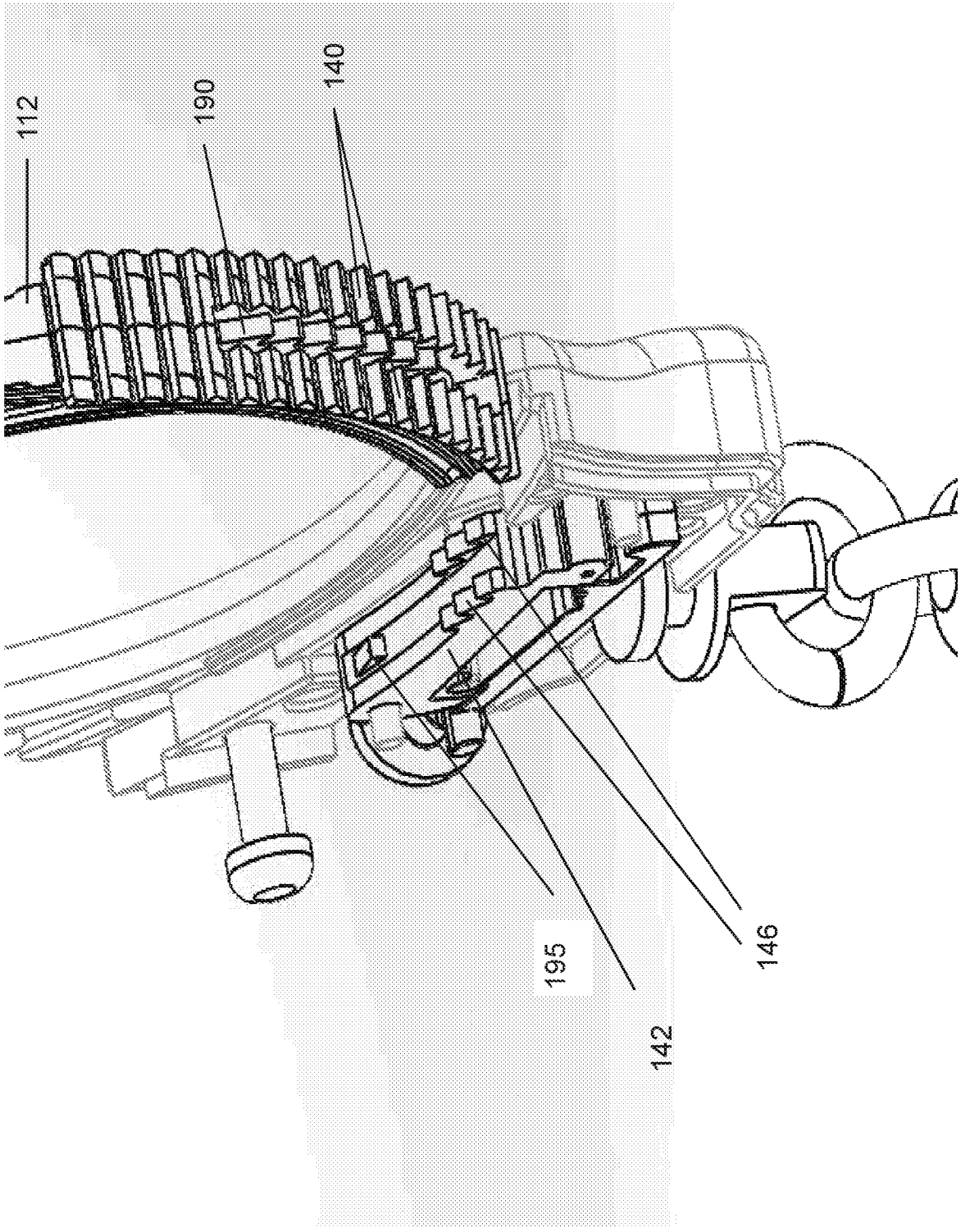


FIG. 32

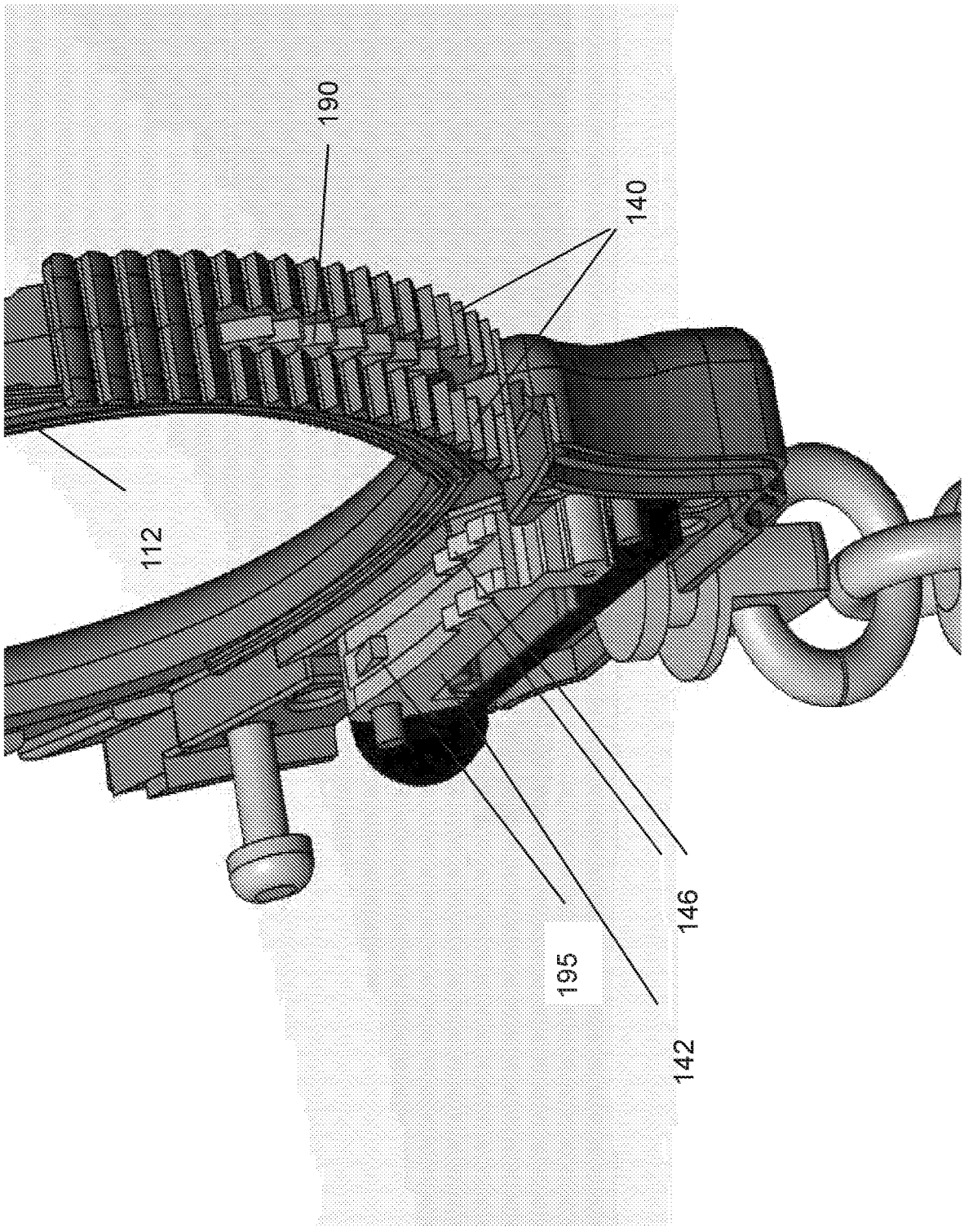


FIG. 33

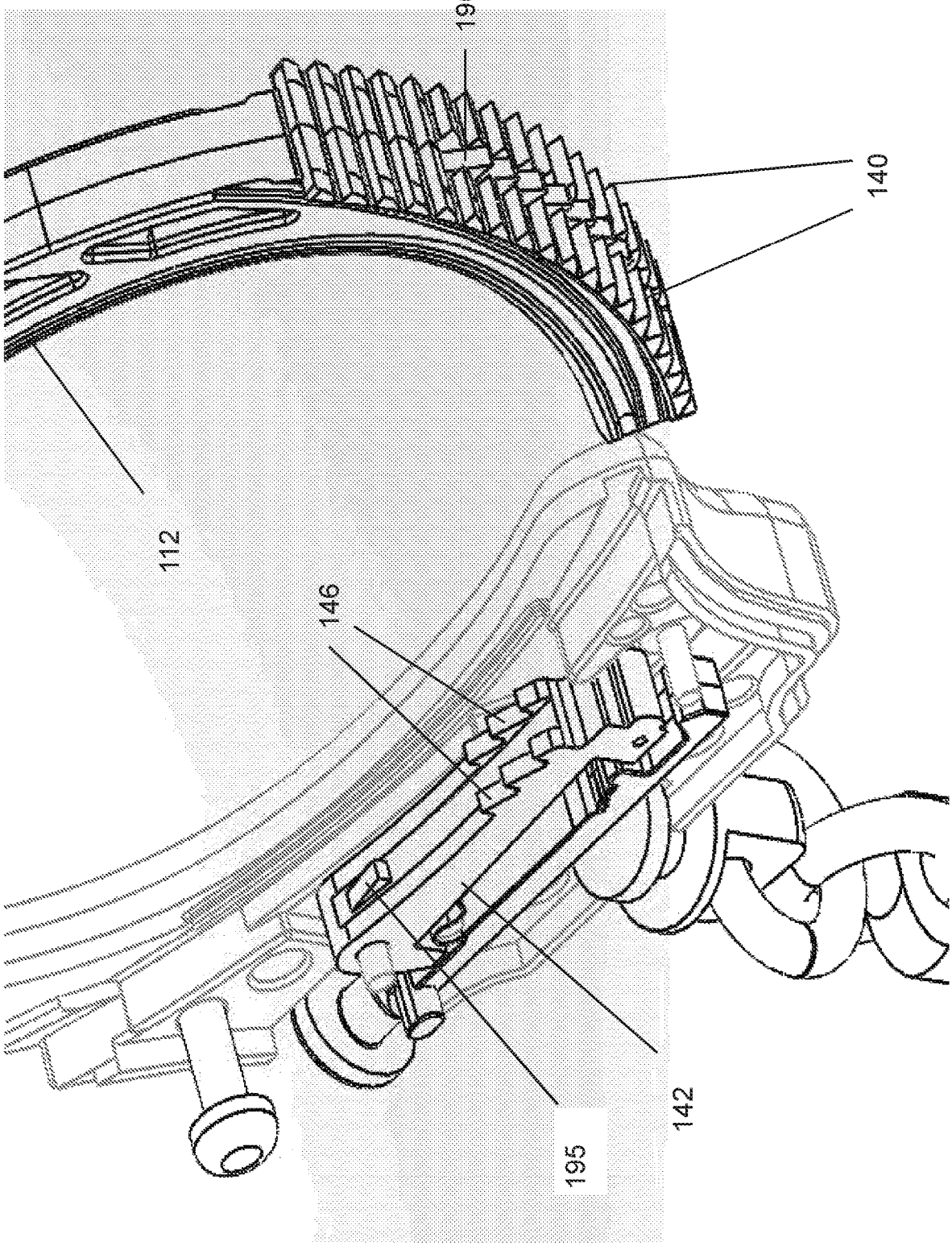
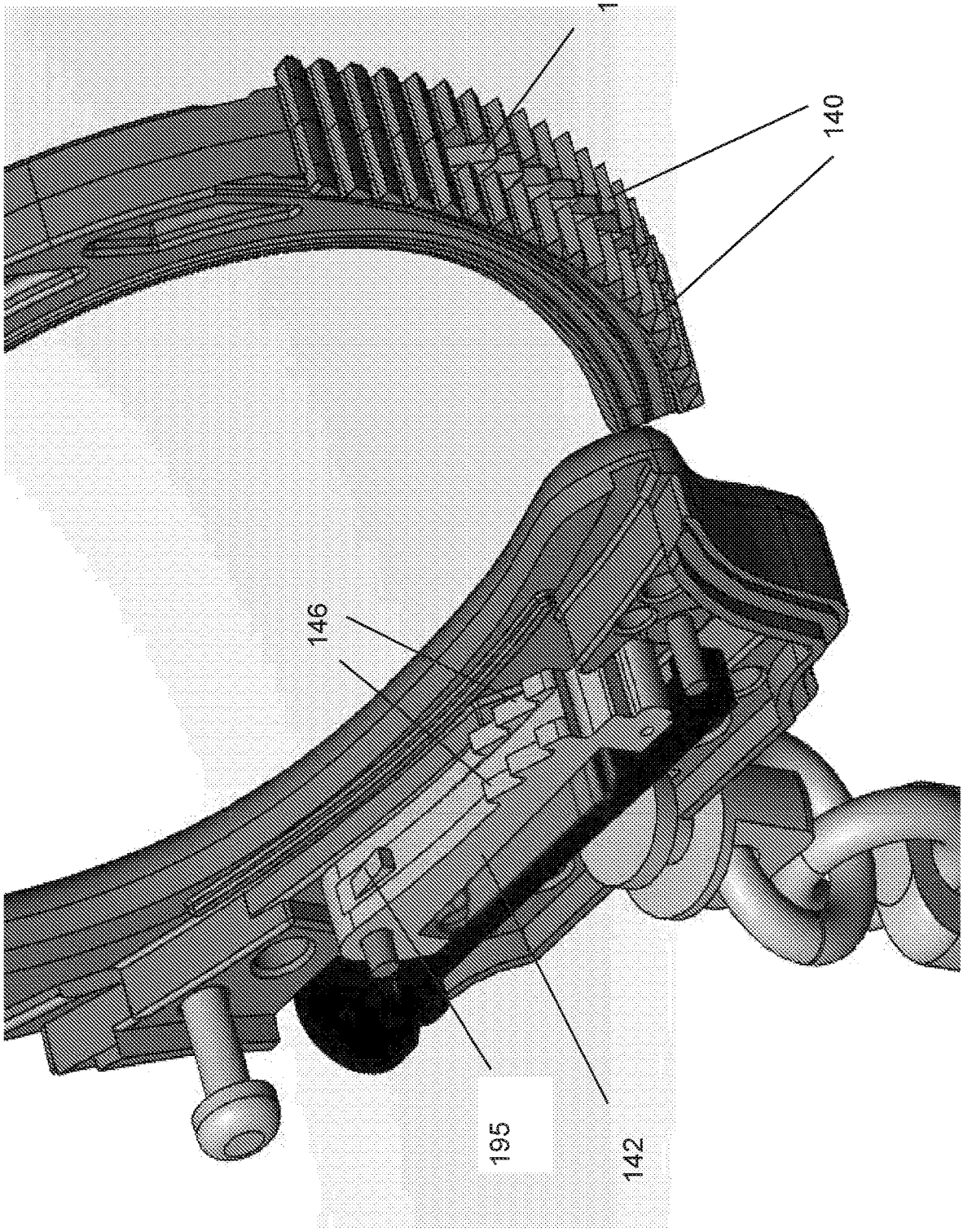


FIG. 34



RESTRAINT DEVICES

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of priority to International Patent Application PCT/US18/033024 filed 16 May 2018; which claims the benefit of U.S. Provisional Application 62/597,153 filed 11 Dec. 2017 and U.S. Provisional Application 62/507,331 filed 17 May 2017, each of which is incorporated by reference herein for all purposes.

TECHNICAL FIELD

This disclosure relates to restraint devices.

BACKGROUND

There is a desire for a technology to enable a restraint device, which includes a pair of bracelets that can adjust in distance therebetween, while at least one of the bracelets can be dually engaged during a restraint and dually disengaged not during the restraint. Further, there is a desire for a technology to enable a restraint device to be converted from a "chain style" into a "hinge style" and vice versa. Additionally, there is a desire for a technology to enable a restraint device to avoid overtightening when restraining. However, such technologies do not exist. Therefore, this disclosure enables such technologies.

SUMMARY

In an embodiment, a restraint device comprises: a housing; an arm coupled to the housing pivotally, wherein the arm includes a first set of teeth; a first bar housed within the housing pivotally, wherein the first bar includes a second set of teeth and a projection; a second bar housed within the housing such that the second bar travels between a first position and a second position, wherein the second bar includes a depression configured to enclose the projection as the second bar is in the first position such that the second set of teeth disengages the first set of teeth, wherein the depression is configured not to enclose the projection as the second bar is in the second position such that the second set of teeth engages the first set of teeth; a first spring housed within the housing, wherein the first spring engages the first bar and the second bar; a reel housed within the housing, wherein the reel includes a third set of teeth; a second spring housed within the housing; and a pivot housed within the housing such that the pivot rotates between a third position and a fourth position, wherein the pivot hosts a first extension, a second extension, and a third extension, wherein the first extension engages at least one tooth of the first set of teeth as the second set of teeth engages the first set of teeth and the second extension engages at least one tooth of the third set of teeth when the pivot is in the third position, wherein the first extension avoids engaging the first set of teeth as the second set of teeth avoid engaging the first set of teeth and the second extension avoids engaging the third set of teeth when the pivot is in the fourth position, wherein the second spring engages the third extension.

In an embodiment, a restraint device comprises: a first bracelet including a first housing and a reel, wherein the reel hosts a cable; a second bracelet including a second housing, wherein the cable is coupled to the second housing; and a sleeve mounted onto the first housing and the second housing such that the cable extends through the sleeve.

In an embodiment, a restraint device comprises: a housing; a bar housed within the housing pivotally, wherein the bar hosts a first set of teeth and a second set of teeth, wherein the first set of teeth and the second set of teeth are configured to mesh in opposing directions; a first arm coupled to the housing pivotally, wherein the first arm hosts a third set of teeth, wherein the first set of teeth is configured to mesh with the third set of teeth; a spring hosted within the first arm and engaging the first arm; and a second arm coupled to the first arm pivotally and engaging the spring, wherein the second arm hosts a fourth set of teeth, wherein the fourth set of teeth is configured to mesh with the second set of teeth when the spring is compressed, wherein the fourth set of teeth is configured to avoid meshing with the second set of teeth when the spring is not compressed.

DESCRIPTION OF DRAWINGS

FIG. **1** shows a perspective view of an embodiment of a restraint device according to this disclosure.

FIG. **2** shows a side view of an embodiment of a housing with a cover plate removed according to this disclosure.

FIG. **3** shows a perspective view of an embodiment of a housing with a cover plate removed according to this disclosure.

FIG. **4** shows a side view of an embodiment of a housing with a cover plate removed and a safety lock being disengaged according to this disclosure.

FIG. **5** shows a side view of an embodiment of a housing with a cover plate removed and a safety lock being engaged according to this disclosure.

FIG. **6** shows a side view of an embodiment of a housing with a cover plate removed and a pivot engaging an arm and a spool according to this disclosure.

FIG. **7** shows a side view of an embodiment of a housing with a cover plate removed and a pivot not engaging an arm and a spool according to this disclosure.

FIG. **8** shows a side view of an embodiment of a housing with a cover plate removed and a pair of rotary directions of a spool according to this disclosure.

FIG. **9** shows a side view of an embodiment of a housing with a cover plate removed and a safety lock being disengaged according to this disclosure.

FIG. **10** shows a side view of an embodiment of a housing with a cover plate removed and a safety lock being engaged according to this disclosure.

FIG. **11** shows a side view of an embodiment of a housing with a cover plate removed and a projection of a first bar being enclosed via a depression of a second bar according to this disclosure.

FIG. **12** shows a plurality of views of an embodiment of a cable configuration for spanning between a pair of bracelets according to this disclosure.

FIG. **13** shows a perspective view of a sleeve engaging a restraint device according to this disclosure.

FIG. **14** shows a perspective view of a cable of a restraint device extending through a sleeve according to this disclosure.

FIG. **15** shows a perspective view of a sleeve according to this disclosure.

FIGS. **16-34** show a plurality of various views of a first arm elastically coupled to a second arm to reduce overtightening according to this disclosure.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Generally, this disclosure discloses a restraint device including a pair of bracelets that are adjustable in distance

therebetween, while at least one of the bracelets can be dually engaged during a restraint and dually disengaged not during the restraint. Further, this disclosure discloses a sleeve to enable a restraint device to be converted from a "chain style" into a "hinge style" and vice versa. Additionally, this disclosure discloses a restraint device including a first arm and a second arm, where the second arm is elastically coupled to the first arm in order to avoid overtightening when restraining. This disclosure is now described more fully with reference to FIGS. **1-34**, in which various example embodiments of this disclosure are shown. This disclosure can be embodied in many different forms and should not be construed as necessarily being limited to the example embodiments disclosed herein. Rather, the example embodiments are provided so that this disclosure is thorough and complete, and fully conveys various concepts of this disclosure to those skilled in a relevant art.

Various terminology used herein can imply direct or indirect, full or partial, temporary or permanent, action or inaction. For example, when an element is referred to as being "on," "connected" or "coupled" to another element, then the element can be directly on, connected or coupled to the other element and/or intervening elements can be present, including indirect and/or direct variants. In contrast, when an element is referred to as being "directly connected" or "directly coupled" to another element, there are no intervening elements present.

Although the terms first, second, etc. can be used herein to describe various elements, components, regions, layers and/or sections, these elements, components, regions, layers and/or sections should not necessarily be limited by such terms. These terms are used to distinguish one element, component, region, layer or section from another element, component, region, layer or section. Thus, a first element, component, region, layer, or section discussed below could be termed a second element, component, region, layer, or section without departing from various teachings of this disclosure.

Various terminology used herein is for describing particular example embodiments and is not intended to be necessarily limiting of this disclosure. As used herein, various singular forms "a," "an" and "the" are intended to include various plural forms as well, unless a context clearly indicates otherwise. Various terms "comprises," "includes" and/or "comprising," "including" when used in this specification, specify a presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence and/or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

As used herein, a term "or" is intended to mean an inclusive "or" rather than an exclusive "or." That is, unless specified otherwise, or clear from context, "X employs A or B" is intended to mean any of a set of natural inclusive permutations. That is, if X employs A; X employs B; or X employs both A and B, then "X employs A or B" is satisfied under any of the foregoing instances.

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

Furthermore, relative terms such as "below," "lower," "above," and "upper" can be used herein to describe one element's relationship to another element as illustrated in the set of accompanying illustrative drawings. Such relative terms are intended to encompass different orientations of illustrated technologies in addition to an orientation depicted in the set of accompanying illustrative drawings. For example, if a device in the set of accompanying illustrative drawings were turned over, then various elements described as being on a "lower" side of other elements would then be oriented on "upper" sides of other elements. Similarly, if a device in one of illustrative figures were turned over, then various elements described as "below" or "beneath" other elements would then be oriented "above" other elements. Therefore, various example terms "below" and "lower" can encompass both an orientation of above and below.

As used herein, a term "about" and/or "substantially" refers to a +/−10% variation from a nominal value/term. Such variation is always included in any given value/term provided herein, whether or not such variation is specifically referred thereto.

FIG. **1** shows a perspective view of an embodiment of a restraint device according to this disclosure. In particular, a restraint device **100** includes a first bracelet **104** and a second bracelet **106**.

The first bracelet **104** includes a first housing **102**. The first housing **102** defines a first interior cavity, a first opening **114**, a second opening **118**, and a third opening **122**, all of which are sized and shaped differently, although variations or non-variations on size and shape are possible. The first opening **114** extends along a width plane of the first housing **102**, whereas the second opening **118** extends along a depth plane of the first housing **102** and the third opening **122** extends along a longitudinal plane of the first housing **102**. The first opening **114** hosts a button **116**, which is further described below. The second opening **118** is dimensioned to receive a key **120**, which is further described below. The third opening **122** is dimensioned to host an anchor **124**, which is further described below. The first housing **102** is metal, but can include plastic, rubber, wood, or others. The first housing **102** can be of a pivotal clamshell type (two pivotally coupled plates) or a sandwich plate type (two mating plates).

The first housing **102** includes a first arm portion **108** extending therefrom in a cantilevered manner. The first arm portion **108** is unitary with the first housing **102**, but can be assembled with the first housing **102**, such as via fastening, mating, adhering, pivoting, or others. The first arm portion **108** is arcuate, but can be shaped differently, such as linear or others. The first arm portion **108** includes metal, but can include plastic, rubber, wood, or others.

The first arm portion **108** hosts a first pin **110** riveted thereto, but other forms of coupling are possible, such as fastening, mating, interlocking, adhering, or others. The first pin **110** is rectilinear and includes metal, but can be shaped differently, such as arcuate or others, or include plastic, rubber, wood, or others.

The first arm portion **108** is coupled to a first arm **112** via the first pin **110** in a cantilevered manner. The first arm **112** is arcuate, but can be shaped differently, such as linear or others. The first arm **112** includes metal, but can include plastic, rubber, wood, or others. Resultantly, the first bracelet **104** is defined via the first housing **102**, the first arm portion **108**, and the first arm **112**.

The second bracelet **106** includes a second housing **128**. The second housing **128** defines a second interior cavity and a fourth opening **138**, all of which are sized and shaped

differently, although variations or non-variations on size and shape are possible. The fourth opening **138** extends along a depth plane of the second housing **128**. The fourth opening **138** is dimensioned to receive the key **120**, which is further described below. The second housing **128** is metal, but can include plastic, rubber, wood, or others.

The second housing **128** includes a second arm portion **130** extending therefrom in a cantilevered manner. The second arm portion **130** is unitary with the second housing **128**, but can be assembled with the second housing **128**, such as via fastening, mating, adhering, pivoting, or others. The second arm portion **130** is arcuate, but can be shaped differently, such as linear or others. The second arm portion **130** includes metal, but can include plastic, rubber, wood, or others.

The second arm portion **130** hosts a second pin **132** riveted thereto, but other forms of coupling are possible, such as fastening, mating, interlocking, adhering, or others. The second pin **130** is rectilinear and includes metal, but can be shaped differently, such as arcuate or others, or include plastic, rubber, wood, or others.

The second arm portion **130** is coupled to a second arm **134** via the second pin **130** in a cantilevered manner. The second arm **134** is arcuate, but can be shaped differently, such as linear or others. The second arm **134** includes metal, but can include plastic, rubber, wood, or others. The second arm **134** hosts a set of teeth **136**, which is further described below. Resultantly, the second bracelet **106** is defined via the second housing **128**, the second arm portion **130**, and the second arm **134**.

The first bracelet **104** and the second bracelet **106** are coupled to each via a chain **126** spanning therebetween. The chain **126** includes at least one link, which is oval, but can be of any shape, such as circular, triangular, or others, and includes metal, but can include plastic, rubber, wood, or others. Note that a cable, a rope, a wire, a string, or other line types can be used, whether additional or alternative to the chain **126**.

FIG. **2** shows a side view of an embodiment of a housing with a cover plate removed according to this disclosure. FIG. **3** shows a perspective view of an embodiment of a housing with a cover plate removed according to this disclosure. In particular, the first arm **112** includes a set of teeth **140**. The first housing **102** hosts a first bar **142** and a first shaft **144** therein. The first bar **142** is pivotally coupled to the first housing **102** via the shaft **144**. The first bar **142** hosts a set of teeth **146** and a projection **148**. The set of teeth **140** is configured to mesh and thereby engage with the set of teeth **146**. The set of teeth **146** opposes the projection **148** on the first bar **142**. The projection **148** is square shaped, but such shaping can vary, such as triangular, pentagonal, oval, circular, or others.

The first housing **102** hosts a second bar **152** therein such that the second bar **152** is able to travel between a first position (locked) and a second position (unlocked) along the width plane of the first housing **102**, which is further described below. The second bar **152** hosts a depression **154** configured to enclose and receive the projection **148** as the second bar **152** is in the second position such that the set of teeth **146** does not securely engage the set of teeth **140**, as further described below. Likewise, the depression **154** is configured not to enclose and not receive the projection **148** as the second bar **152** is positioned in the first position such that the set of teeth **146** securely engage the set of teeth **140**, as further described below. The button **116** is mechanically linked to the second bar **152** such that the button **116** can cause the bar **152** to travel between the first position and the second position along the width plane of the first housing **102**, which is further described below.

The first housing **102** hosts a first spring **150** therein such that the first spring **150** engages the first bar **142** and the second bar **152**. Note that the first spring **150** is not V-shaped, although V-shaping is possible. The first spring **150** extends about a shaft housed within the first housing **102**, with such shaft extending along the depth plane of the first housing **102** and between the first bar **142** and the second bar **152**.

The first housing **102** hosts a second spring **158** and a third spring **156** therein. The second spring **158** is V-shaped, but other shaping is possible, such as U-shape or others. The second spring **158** engages the first housing **102**. The third spring **156** is J-shaped, but other shaping is possible, such as U-shape, V-shape, or others. The third spring **156** engages the first housing **102**.

The first housing **102** hosts a pivot **160** therein such that the pivot rotates about an axis between a third position and a fourth position, which is further described below. The axis extends along the depth plane of the first housing **102**. The axis extends longitudinally between the second spring **158** and the third spring **158**.

The first housing **102** hosts an axle **165** and a reel **162**. The axle **165** extends longitudinally along the depth plane of the first housing **102**. The reel **162** includes a set of teeth **164** and is mounted onto the axle **165** such that the reel **162** can rotate about the axle **165**. Note that the reel **162** can include a spool.

FIG. **4** shows a side view of an embodiment of a housing with a cover plate removed and a safety lock being disengaged according to this disclosure. In particular,

the second bar **152** includes a wall **153**, which partially defines the depression **154**. The button **116** is mechanically linked to the second bar **152** such that the button **116** can cause the second bar **152** to travel between the first position (locked) and the second position (unlocked) along the width plane of the first housing **102** (laterally), which is further described below. As shown here, the button **116** is not pressed such that the second bar **152** is in the second position. When the second bar **152** is in the second position, the first bar **142** can pivot about the first shaft **144**. Such pivoting can cause the depression **154** to enclose the projection **148** and the depression **154** to receive the projection **148** as the set of teeth **146** engage the set of teeth **140**, as urged via the first spring **150**, to enable a clockwise rotation of the first arm **112**. Therefore, the first arm **112** can rotate about the first pin **110** as the set of teeth **146** engage the set of teeth **140** (no restraint).

FIG. **5** shows a side view of an embodiment of a housing with a cover plate removed and a safety lock being engaged according to this disclosure. In particular and in contrast to FIG. **4**, the button **116** is pushed toward the projection **148** such that the second bar **152** travels from the second position (unlocked) to the first position (locked) along the width plane of the first housing **102** (laterally). The button **116** can be pushed in various ways. For example, the button **116** can be pushed via the key **120** forcibly contacting the button **116** through the first opening **114** or a pin sized to fit into first opening **114** and forcibly contacting the button **116**.

When the second bar **152** is positioned in the first position, the first bar **142** can pivot about the first shaft **144**. However, such pivoting is unable to cause the depression **154** to enclose the projection **148** and the depression **154** to receive the projection **148** because the projection **148** engages the wall **153**, which blocks further movement of the projection **148**, away from the set of teeth **140**, as the set of

teeth **146** engage the set of teeth **140**. Therefore, the first arm **112** cannot rotate about the first pin **110** as the set of teeth **146** engage the set of teeth **140** (restraint). Note that the second bar **152** can travel from the first position (locked) to the second position (unlocked) via the key **120** being inserted into the second opening **118** and rotationally engaging the second bar **152** opposite from the button **116**. For example, the key **120** can be rotated clockwise to release the second bar **152** and counterclockwise to release the first bar **142** to release the first arm **112**.

FIG. **6** shows a side view of an embodiment of a housing with a cover plate removed and a pivot engaging an arm and a spool according to this disclosure. In particular, the pivot **160** hosts a first extension **166**, a second extension **168**, and a third extension **170**, any of which may be similar or dissimilar in shape or size or may include metal, plastic, or others or may be unitary or assembled with the pivot **160**, such as via fastening, mating, or others. The pivot **160** can rotate between the second spring **158** and the third spring **156**. The first extension **166** and the second extension **168** are angled therebetween at about ninety degrees or less. The first extension **166** and the third extension **170** are angled therebetween at about one hundred eighty degrees or less. The second extension **168** and the third extension **170** are angled therebetween at about one hundred eighty degrees or less. The first extension **166** extends away from the reel along the first bar **142** and the second bar **152**. Note that the first housing **102** includes a pair of plates (sides) and, as such, the first bar **142**, the second bar **152**, and the first extension **116** are positioned between the pair of sides, where the first extension **166** extends between the first bar **142** or the second bar **152** and one side of the pair of sides. The second spring **158** engages the third extension **170** and the first housing **102**. The third spring **156** engages the second extension **168** and the first housing **102**.

When the second bar **152** is positioned in the first position (locked) and the pivot **160** is rotated to the third position, as urged via the second spring **158** or the third spring **156**, the first extension **166** engages at least one tooth of the set of teeth **140** of the first arm **112** as the set of teeth **146** of the first bar **142** also engages the set of teeth **140** of the first arm **112**, while the second extension **168** engages at least one tooth of the set of teeth **164** of the reel **162**, as urged via the second spring **158** or the third spring **156**. As such, the second extension **168** locks the reel **162** from rotation as the first arm **112** securely engages the first extension **166**. The first extension **166** allows the third spring **156** to push the second extension **168** into the set of teeth **164**, thereby allowing rotation in a single direction, such as counterclockwise or others.

FIG. **7** shows a side view of an embodiment of a housing with a cover plate removed and a pivot not engaging an arm and a spool according to this disclosure. In particular and in contrast to FIG. **6**, when the second bar **152** is positioned in the second position (unlocked) and the pivot **160** is rotated to the fourth position, as urged via the second spring **158** or the third spring **156**, the first extension **166** avoids engaging the set of teeth **140** of the first arm **112** as the set of teeth **146** of the first bar **142** also avoids engaging the set of teeth **140** of the first arm **112**, while the second extension **168** avoids engaging the set of teeth **164** of the reel **162**, as urged via the second spring **158** or the third spring **156**. As such, the second extension **168** unlocks the reel **162** to enable free rotation as the first arm **112** does not securely engage the first extension **166**. The first extension **166** is forced open by the second spring **158**, which forces the second extension **168** to disengage from the reel **162** and thereby let the reel **162** to rotate freely. Therefore, the reel **162** is configured to rotate freely when the set of teeth **140** avoid engaging the set of teeth **146** and the first extension **166**.

FIG. **8** shows a side view of an embodiment of a housing with a cover plate removed and a pair of rotary directions of a spool according to this disclosure. In particular, the reel **162** hosts a constant-force-spring. Further, the reel **162** is coupled to a cable **123**, such as via fastening, mating, or others. The cable **123** is coupled to the anchor **124**, such as via fastening, mating, or others. Note that the cable **123** can include any type of line, such as a rope, a chain, a cord, or others. Therefore, when the set of teeth **140** of the first arm **112** avoid engaging the set of teeth **146** of the first bar **142** and the first extension **166**, the constant-force-spring can rewind the reel **162** and thereby the cable **123** into the first housing **102**. Note that directionality of rotation of the reel **162** can be varied, such as reversed from what is shown in FIG. **8**.

FIG. **9** shows a side view of an embodiment of a housing with a cover plate removed and a safety lock being disengaged according to this disclosure. FIG. **10** shows a side view of an embodiment of a housing with a cover plate removed and a safety lock being engaged according to this disclosure. FIG. **11** shows a side view of an embodiment of a housing with a cover plate removed and a projection of a first bar being enclosed via a depression of a second bar according to this disclosure. In particular, the second bracelet **106** operates similarly to the first bracelet **104**, but without the pivot **160**.

With reference to FIG. **1**, FIG. **9** illustrates the set of teeth **146** of the first bar **142** engaging with the set of teeth **136** of the second arm **134** when the button **116** is not pressed and the second bar **152** is positioned in the second position (unlocked). In particular, the first bar **142** can pivot about the first shaft **144**. Such pivoting can cause the depression **154** to enclose the projection **148** and the depression **154** to receive the projection **148** as the set of teeth **146** engage the set of teeth **136**, as urged via the first spring **150**, to enable a clockwise rotation of the second arm **134**. Therefore, the second arm **134** can rotate about the second pin **132** as the set of teeth **146** engage the set of teeth **136** (no restraint).

With reference to FIG. **1**, FIG. **10** contrasts FIG. **9** and illustrates the button **116** is pushed toward the projection **148** such that the second bar **152** travels from the second position (unlocked) to the first position (locked) along the width plane of the second housing **128** (laterally). The button **116** can be pushed in various ways. For example, the button **116** can be pushed via the key **120** forcibly contacting the button **116** through an opening in the second housing **128** or a pin sized to fit into that opening and forcibly contacting the button **116**.

When the second bar **152** is positioned in the first position, the first bar **142** can pivot about the first shaft **144**. However, such pivoting is unable to cause the depression **154** to enclose the projection **148** and the depression **154** to receive the projection **148** because the projection **148** engages the wall **153**, which blocks further movement of the projection **148**, away from the set of teeth **134**, as the set of teeth **146** engage the set of teeth **134**. Therefore, the second arm **134** cannot rotate about the second pin **132** as the set of teeth **146** engage the set of teeth **134** (restraint). Note that the second bar **152** can travel from the first position (locked) to the second position (unlocked) via the key **120** being inserted into the fourth opening **138** and rotationally engaging the second bar **152** opposite from the button **116**. For example, the key **120** can be rotated clockwise to release the

second bar **152** and counterclockwise to release the first bar **142** to release the second arm **134**.

With reference to FIG. **1**, FIG. **11** contrasts FIG. **10** and illustrates the depression **154** enclosing the projection **148** and the depression **154** receiving the projection **148** as the set of teeth **146** engage the set of teeth **136**, as urged via the first spring **150**, to enable a clockwise rotation of the second arm **134**. Therefore, the second arm **134** can rotate about the second pin **132** as the set of teeth **146** engage the set of teeth **136** (no restraint).

FIG. **12** shows a plurality of views of an embodiment of a cable configuration for spanning between a pair of bracelets according to this disclosure. In particular, with reference to FIG. **1**, the first bracelet **104** and the second bracelet **106** are coupled via an assembly including the cable **123**, the anchor **124**, the chain **126**, and an element **127**, which operates as a rework screw to keep the cable **123** coupled to the anchor **124**. Note that the chain **126** can contain one link or two links or more. Further, note that the anchor **124** includes a D-ring **131** defining an opening **129** therein, which is circular, but can vary in shape, such as triangular, pentagonal, or others. The anchor **124** extends along a central axis **133**. Moreover, note that the anchor **124** includes metal but can include other materials, such as plastic. Additionally, note that the anchor **124** lacks external sharp edges.

In some embodiments, an orientation of any set of teeth can be reversed or a reduction or an increase of a number of teeth from two to one or two to three can occur, such as in order to modify, such as enhance, a ratcheting action of at least one of the first bracelet **104** or the second bracelet **106**.

The restraint device **100** can be used as a handcuff device, a legcuff device, or others to restrain a mammal, such as a human or others, via a first body part thereof, such as via a wrist, an ankle, a neck, a torso, or others, against a second body part thereof, such as via a wrist, an ankle, a neck, a torso, or others, or another mammal, such as a human or others, or an object, such as a pole, a building, a vehicle, or others, whether mobile or stationary. In some embodiments, the restraint device **100** can be configured as a winch, whether manual or powered, or a winch includes at least some components of the restraint device **100**.

FIG. **13** shows a perspective view of a sleeve engaging a restraint device according to this disclosure. FIG. **14** shows a perspective view of a cable of a restraint device extending through a sleeve according to this disclosure. In particular, the restraint device **100** includes a sleeve **172** that is tubular and hour-glass shaped. The sleeve **172** includes a pair of open end portions **176** such that the sleeve **172** tapers away from the pair of open end portions **176** to be hour-glass shaped. As such, the sleeve **172** varies in shape or size longitudinally and laterally, although uniform shape or size is possible as well. For example, the sleeve **172** can be pear shaped, 8-shaped, or shaped in another way, whether rectilinear, sinusoidal, arcuate, pulsating, or others. The sleeve **172** includes a plurality of depressions **174**, such as a plurality of wells, that are configured for an engagement with a human hand. However, note that the sleeve **172** can a plurality of projections, such as a plurality of bumps, that are configured for an engagement with a human hand. Since the sleeve **172** is internally hollow, the pair of open end portions **176** are in fluid communication with each other through the sleeve **172**. Note that at least one of the open end portions **176** can mostly open, such as to accommodate a wide-ranging lateral movement of the cable **123**. For example, at least one of the open end portions **176** can be mostly open via being open at least 51% of an open terminal area of that respective end. However, note that at least one of the open end portions **176** can be mostly non-open or non-mostly open. Further, note that the sleeve **172** can internally host a wall between the open end portions **176** with an opening sized to accommodate the cable **123**. The sleeve **172** includes rubber, but can include plastic, metal, wood, or others. The sleeve **172** is solid, but can be perforated or meshed or include a plurality of scales or a plurality of links. The sleeve **172** is flexible, stretchable, and elastic, but can be rigid. In some embodiments, the sleeve **172** can include an electronic circuit, a sensor, or other form of hardware logic, such as a wireless transceiver or others. For example, the sensor can sense an environmental property, a physical movement, a biometric, or others.

The sleeve **172** spans between the first bracelet **104** and the second bracelet **106**. The sleeve **172** is configured to mount onto the first housing **102** and the second housing **128** via the open end portions **176** such that the sleeve **172** is positioned between the first bracelet **104** and the second bracelet **106**.

Such mounting can be permanent or temporary, whether snug or non-snug. For example, at least one of the end portions **176** can permanently mount to at least one of the first housing **102** or the second housing **104** via welding, thermal bonding, adhering, or others. For example, at least one of the end portions **176** can temporarily mount to at least one of the first housing **102** or the second housing **128** via fastening, mating (male/female), interlocking, adhering, magnetizing, suction cupping, hook-and-looping, hooking, or others. For example, the sleeve **172** can mount onto at least one of the first housing **102** or the second housing **128** via the open end portions **176** such that the sleeve **172** is not able to rotate, such as inclusively less than about 360 degrees, inclusively less than about 270 degrees, inclusively less than about 180 degrees, inclusively less than about 90 degrees, inclusively less than about 45 degrees, inclusively less than about 30 degrees, inclusively less than about 15 degrees, inclusively less than about 10 degrees, inclusively less than about 5 degrees, or others, including intermediate degree values, with respect to at least one of the first housing **102** or the second housing **128** or vice versa, i.e., at least one of the first housing **102** or the second housing **128** with respect to the sleeve **172**. For example, the sleeve **172** can include an about one inch to about two inches of varying diameter butyl rubber tube that is about six inches to about seven inches long. The sleeve **172** is mounted onto the first housing **102** via stretching and onto the second housing **128** when the second bracelet **106** is retracted. When deployed, the sleeve **172** releases the second housing **128** and the cable **123** will pass through one of open end portions **176**. In some embodiments, at least one of the first bracelet **104** or the second bracelet **106** is configured as, structured as, or includes the sleeve **172** as an integral component thereof. For example, the first housing **102** can be configured as or structured as the sleeve **172**, such as via being tubular, hourglass-shaped or others, configured to accommodate the cable **123**, and configured to receive the second housing **128** for mounting thereinto, as disclosed herein.

As such, the sleeve **172** can act as a deterrent for dust and particles to enter the first housing **102** or the second housing **128** when in non-retracted state, as well as an ergonomic comfort grip for a human hand. Further, the sleeve **172** can enable a conversion of the restraint device **100** from being a "chain style" restraint device into a "hinge style" restraint device and vice versa, whether during handcuffing procedure or handcuffing deployment. For example, the sleeve **172** can enable efficient bracelet orientation, without brace-

let rotation, when withdrawing from a pouch/holster. For example, the sleeve **172** can enable a self-alignment of the first bracelet **104** and the second bracelet **106** since the sleeve **172** maintains that alignment. Moreover, the sleeve **172** can provide an ergonomic benefit to the first housing **102** or the second housing **128**. For example, the sleeve **172** can cover the cable **123** and can provide a stretchy, rubber membrane linking an area where the cable **123** joins the first bracelet **104** and the second bracelet **106**. For example, the sleeve **172**, by not being permanently affixed to either of the first bracelet **104** and the second bracelet **106**, can serve its alignment function without a limitation of a rigid hinge that can eliminate rotation that can be provided by the cable **123**. For example, the sleeve **172** can be shaped to provide for alignment without restriction on an orientation of the first bracelet **104** or the second bracelet **106**, which can provide for bracelet alignment in whatever orientation desired. Therefore, the sleeve **172** can provide a benefit of a hinge handcuff (automatic alignment) without their foremost limitation (restriction in angle of engagement and range of motion).

FIG. **15** shows a perspective view of a sleeve according to this disclosure. Unlike the sleeve **172** of FIGS. **13-14**, this sleeve **172** is circularly uniform in lateral cross-section longitudinally. However, note that other shapes are possible, such as triangular, square, pentagonal, rectangular, octagonal, star, crescent, cross, or any other closed shape polygon, whether uniform or non-uniform in lateral cross-section longitudinally.

FIGS. **16-34** show a plurality of various views of a first arm elastically coupled to a second arm to reduce overtightening according to this disclosure. In particular, FIG. **16** shows an exploded view of the first arm **112** that includes the set of teeth **140**. Although the first arm **112** is described in context of the first bracelet **104**, this technology can also be similarly implemented in the second bracelet **106**. The first arm **112** also defines a cavity **178** extending laterally thereinto, a seat **180** extending laterally thereinto, and a cavity **182** laterally extending thereinto. The cavity **178**, the seat **180**, or the cavity **182** can be a well or a channel extending fully therethrough. The cavity **178** is shaped annularly, but can be shaped differently, such as oval, D-shape, or others. The seat **180** is V-shaped, but can be shaped differently, such as W-shaped, M-shaped, N-shaped, O-shaped, X-shaped, U-shaped, or others. The cavity **182** is shaped rectangularly, but can be shaped differently, such as square, oval, triangular, or others. The cavity **178**, the seat **180**, or the cavity **182** can be internally smooth or rough.

The cavity **178** is sized to receive a pin **184**, such as for riveting to the first housing **102** or the second housing **128**. The pin **184** includes a rectilinear stem, although the stem can be non-rectilinear, such as arcuate, sinusoidal, or others. The pin **184** can include a head extending from the stem, with the head being unitary with the stem, such as via casting, molding, or others, or assembled with the stem, such as via fastening, mating, adhering, or others. The pin **184** is smooth, but can be rough or threaded or spiked. The pin **184** includes metal, but can include other materials, such as plastic, rubber, wood, or others.

The first arm **112** is configured to host a third arm **186** that extends in an arcuate manner, such as to conform or accommodate a human wrist or others. However, note that the third arm **186** can extend in other ways, such as rectilinear, sinusoidal, or others. The third arm **186** includes metal, but can include other materials, such as plastic, rubber, wood, or others. The third arm **186** has a first longitudinal end portion and a second longitudinal end portion, with the first longitudinal end portion opposing the second longitudinal end portion. The first longitudinal end portion defines a cavity **188** extending laterally thereinto. The cavity **188** is sized to host the pin **184**. The cavity **188** can be a well or a channel extending fully therethrough. The cavity **188** is shaped annularly, but can be shaped differently, such as oval, D-shape, or others. The cavity **188** can be internally smooth or rough. The second longitudinal end portion defines a tail **192** extending therefrom in a cantilevered manner. The tail **192** is unitary to the third arm **186**, but can be assembled therewith, such as via fastening, mating, adhering, or others. The third arm **186** hosts a set of teeth **190** between the first longitudinal end portion and the second longitudinal end portion and between the cavity **188** and the tail **192**. Note that the set of teeth **140** and the set of teeth **190** are arranged for meshing in opposite directions.

The seat **180** is configured to host a spring **194**, which can include a helical spring, a non-helical spring, a torsion spring, or others. Note that the spring **194** can include or be substituted with a foam member, an elastic plug, a resilient piece, or others. The seat **180** can host the spring **194** snugly, although non-snug hosting is possible. When seated in the seat **180**, the spring **194** engages the first arm **112** and the third arm **186**, such as via contact or others. For example, the spring **194** can engage the third arm **186** between the first longitudinal end portion and the second longitudinal end portion and between the cavity **188** and the tail **192**. For example, the spring **194** can engage against the first longitudinal end portion such that the spring **194** contacts the third arm **186** between the cavity **194** and the tail **192**.

As shown in FIG. **17**, the seat **180** seats the spring **194** such that the spring **194** engages the first arm **112** and the third arm **186**, as the spring **194** is positioned between the pin **184**, as the pin **184** extends through the cavity **178**, and the set of teeth **140**. Note that the set of teeth **140** and the set of teeth **190** are arranged for meshing in opposite directions. The first arm **112** includes a ledge **196** that engages, such as via contact or others, the tail **192** when the spring **194** is not compressed, such via the spring **194** being in a default position, although a vice versa configuration is possible, such as when the spring **194** is compressed.

In contrast, as shown in FIG. **18**, when the spring **194** is compressed, such as into a non-default position, such as via the third arm **186** contacting a human wrist or others and thereby urging the spring **194** to compress, the third arm **186** pivots about the pin **184** such the tail **192** moves away from the ledge **196** and such that an air gap is formed between the ledge **196** and the tail **192**. In some embodiments, the third arm **186** is pivotally coupled to the first arm **112** via a pair of horns, which can be co-aligned, rigid, rectilinear, arcuate, or sinusoidal, extending from the third arm **186** in directions opposite from each other into a pair of cavities, as disclosed above, in the first arm **112**. In some embodiments, the third arm **186** is pivotally coupled to the first arm **112** via a pair of horns, which can be co-aligned, rigid, rectilinear, arcuate, or sinusoidal, extending from the first arm **112** toward each other into a pair of cavities, as disclosed above, in the third arm **186**. In some embodiments, the ledge **196** engages the tail **192** when the spring **194** is in a compressed position and disengages the tail **192** when the spring **194** is in a non-compressed position.

As shown in FIG. **22**, the set of teeth **146** of the first bar **142** meshes with the set of teeth **140** of the first arm **112**, as the tail **192** contacts the ledge **196** based on the spring **194** not being compressed, although a vice versa embodiment is possible, as disclosed above. Note that the third arm **186** extends out of the cavity **182** when the spring **194** is not

compressed, although a vice versa embodiment is possible, as disclosed above. In contrast, as shown in FIG. **23**, the spring **194** is compressed, such when the third arm **186** contacts a human wrist or others and thereby urges the spring **194** to compress or vice versa, and the third arm **186** pivots via the pin **184** with respect to the first arm **112** such that the tail **192** moves away from the ledge **196** and an air gap is formed therebetween and the third arm **186** is pressed into the cavity **182** towards the set of teeth **140**. At that time, the set of teeth **190** engages the first bar **142**, as further explained below.

As shown in FIGS. **27** and **29-34**, the first bar **142** includes a set of teeth **195** that are configured to mesh with the set of teeth **190** on the third arm **186**. Therefore, the first bar **142** includes the set of teeth **146** and the set of teeth **195**. Note that the set of teeth **146** and the set of teeth **195** are arranged for meshing in opposite directions. Resultantly, the set of teeth **146** meshes with the set of teeth **140** and the set of teeth **195** meshes with the set of teeth **190** when the spring **194** is compressed or vice versa, such as via the third arm **186** contacting a human wrist or others and thereby urging the spring **194** to compress or vice versa, and the third arm **186** pivoting about the pin **184** with respect to the first arm **112** such that the tail **192** moves away from the ledge **196** toward the first bar **142** and does not contact the ledge **196** and such that an air gap between the ledge **196** and the tail **192** is formed.

Note that the first arm **112** can host at least one row of the set of teeth **140**, which can be positioned longitudinally along, in parallel, and adjacent to the set of teeth **190** of the third arm **186**, such as when the spring **194** is compressed or non-compressed. For example, as shown in FIGS. **29-34**, the first arm **112** hosts two rows of the set of teeth **140**, both of which mesh with two rows of the set of teeth **146** on the first bar **140**. In some embodiments, more than two rows of the set of teeth **140** and the set of teeth **146** can be used. Likewise, since the third arm **186** is pivotally hosted via the pin **184** on the first arm **112**, the set of teeth **190** is interposed between the two rows of the set of teeth **140**, such as when the spring **194** is compressed or non-compressed. Note that when more than two rows of the set of teeth **140** or the set of teeth **146** are used, then the set of teeth **190** or the set of teeth **195** can be used, such as via alternating between the two rows of the set of teeth **140** or the set of teeth **146**.

As shown in FIG. **28**, the third arm **186** can be used as the sleeve **172** spans between the first bracelet **104** and the second bracelet **106**. The sleeve **172** is configured to mount onto the first housing **102** and the second housing **128** via the open end portions **176** such that the sleeve **172** is positioned between the first bracelet **104** and the second bracelet **106**.

Features described with respect to certain example embodiments can be combined and sub-combined in and/or with various other example embodiments. Also, different aspects and/or elements of example embodiments, as disclosed herein, can be combined and sub-combined in a similar manner as well. Further, some example embodiments, whether individually and/or collectively, can be components of a larger system, wherein other procedures can take precedence over and/or otherwise modify their application. Additionally, a number of steps can be required before, after, and/or concurrently with example embodiments, as disclosed herein. Note that any and/or all methods and/or processes, at least as disclosed herein, can be at least partially performed via at least one entity in any manner.

Example embodiments of this disclosure are described herein with reference to illustrations of idealized embodiments (and intermediate structures) of this disclosure. As such, variations from various illustrated shapes as a result, for example, of manufacturing techniques and/or tolerances, are to be expected. Thus, various example embodiments of this disclosure should not be construed as necessarily limited to various particular shapes of regions illustrated herein, but are to include deviations in shapes that result, for example, from manufacturing.

Any and/or all elements, as disclosed herein, can be formed from a same, structurally continuous piece, such as being unitary, and/or be separately manufactured and/or connected, such as being an assembly and/or modules. Any and/or all elements, as disclosed herein, can be manufactured via any manufacturing processes, whether additive manufacturing, subtractive manufacturing, and/or other any other types of manufacturing. For example, some manufacturing processes include three dimensional (3D) printing, laser cutting, computer numerical control routing, milling, pressing, stamping, vacuum forming, hydroforming, injection molding, lithography, and so forth.

Any and/or all elements, as disclosed herein, can be and/or include, whether partially and/or fully, a solid, including a metal, a mineral, an amorphous material, a ceramic, a glass ceramic, an organic solid, such as wood and/or a polymer, such as rubber, a composite material, a semiconductor, a nanomaterial, a biomaterial and/or any combinations thereof. Any and/or all elements, as disclosed herein, can be and/or include, whether partially and/or fully, a coating, including an informational coating, such as ink, an adhesive coating, a melt-adhesive coating, such as vacuum seal and/or heat seal, a release coating, such as tape liner, a low surface energy coating, an optical coating, such as for tint, color, hue, saturation, tone, shade, transparency, translucency, opaqueness, luminescence, reflection, phosphorescence, anti-reflection and/or holography, a photo-sensitive coating, an electronic and/or thermal property coating, such as for passivity, insulation, resistance or conduction, a magnetic coating, a water-resistant and/or waterproof coating, a scent coating and/or any combinations thereof. Any and/or all elements, as disclosed herein, can be rigid, flexible, and/or any other combinations thereof. Any and/or all elements, as disclosed herein, can be identical and/or different from each other in material, shape, size, color and/or any measurable dimension, such as length, width, height, depth, area, orientation, perimeter, volume, breadth, density, temperature, resistance, and so forth.

Various corresponding structures, materials, acts, and equivalents of all means or step plus function elements in various claims below are intended to include any structure, material, or act for performing the function in combination with other claimed elements as specifically claimed. Various embodiments were chosen and described in order to best explain various principles of this disclosure and various practical applications thereof, and to enable others of ordinary skill in a pertinent art to understand this disclosure for various embodiments with various modifications as are suited to a particular use contemplated.

This detailed description has been presented for various purposes of illustration and description, but is not intended to be fully exhaustive and/or limited to this disclosure in various forms disclosed. Many modifications and variations in techniques and structures will be apparent to those of ordinary skill in an art without departing from a scope and spirit of this disclosure as set forth in various claims that follow. Accordingly, such modifications and variations are contemplated as being a part of this disclosure. A scope of

this disclosure is defined by various claims, which include known equivalents and unforeseeable equivalents at a time of filing of this disclosure.

What is claimed is:

1. A restraint device comprising:

a housing;

an arm coupled to the housing pivotally, wherein the arm includes a first set of teeth;

a first bar housed within the housing pivotally, wherein the first bar includes a second set of teeth and a projection;

a second bar housed within the housing such that the second bar is configured to travel between a first position and a second position, wherein the second bar includes a depression configured to enclose the projection as the second bar is in the first position such that the second set of teeth disengages the first set of teeth, wherein the depression is configured not to enclose the projection as the second bar is in the second position such that the second set of teeth engages the first set of teeth;

a first spring housed within the housing, wherein the first spring engages the first bar and the second bar;

a reel housed within the housing, wherein the reel includes a third set of teeth;

a second spring housed within the housing; and

a pivot housed within the housing such that the pivot rotates between a third position and a fourth position, wherein the pivot hosts a first extension, a second extension, and a third extension, wherein the first extension engages at least one tooth of the first set of teeth as the second set of teeth engages the first set of teeth and the second extension engages at least one tooth of the third set of teeth when the pivot is in the third position, wherein the first extension avoids engaging the first set of teeth as the second set of teeth avoid engaging the first set of teeth and the second extension avoids engaging the third set of teeth when the pivot is in the fourth position, wherein the second spring engages the third extension.

2. The restraint device of claim **1**, wherein the second spring engages the housing.

3. The restraint device of claim **1**, wherein the first extension and the second extension are angled therebetween at about ninety degrees or less, wherein the first extension and the third extension are angled therebetween at about one hundred eighty degrees or less, and wherein the second extension and the third extension are angled therebetween at about one hundred eighty degrees or less.

4. The restraint device of claim **1**, wherein the second extension engages at least two teeth of the third set of teeth when the pivot is in the third position.

5. The restraint device of claim **1**, wherein the first extension extends away from the reel along the first bar and the second bar.

6. The restraint device of claim **1**, wherein the housing includes a pair of sides, wherein the first bar, the second bar, and the first extension are positioned between the pair of sides, wherein the first extension extends between the first bar and one side of the pair of sides.

7. The restraint device of claim **1**, further comprising:

a third spring housed within the housing, wherein the third spring engages the second extension.

8. The restraint device of claim **7**, wherein the pivot rotates between the second spring and the third spring.

9. The restraint device of claim **1**, further comprising:

a sleeve mounted onto the housing over the reel.

10. The restraint device of claim **9**, wherein the sleeve is at least one of hour-glass shaped or flexible.

11. The restraint device of claim **1**, wherein the arm is a first arm, and further comprising:

a second arm coupled to the first arm pivotally and elastically, wherein the second arm includes a fourth set of teeth, wherein the first set of teeth and the fourth set of teeth are arranged for meshing in opposing directions, wherein at least one of:

(a) the first bar includes a fifth set of teeth configured to mesh with the fourth set of teeth,

(b) the first set of teeth extends longitudinally is immediately adjacent to the fourth set of teeth, or

(c) the first set of teeth extends in two rows, wherein the fourth set of teeth is interposed between the two rows.

12. A restraint device comprising:

a first bracelet including a first housing and a reel, wherein the reel hosts a cable;

a second bracelet including a second housing, wherein the cable is coupled to the second housing; and

a sleeve mounted onto the first housing and the second housing such that the cable extends through the sleeve, wherein at least one of:

(a) wherein the reel includes a third set of teeth, wherein the first bracelet includes:

an arm coupled to the first housing pivotally, wherein the arm includes a first set of teeth;

a first bar housed within the first housing pivotally, wherein the first bar includes a second set of teeth and a projection;

a second bar housed within the first housing such that the second bar is configured to travel between a first position and a second position, wherein the second bar includes a depression configured to enclose the projection as the second bar is in the first position such that the second set of teeth disengages the first set of teeth, wherein the depression is configured not to enclose the projection as the second bar is in the second position such that the second set of teeth engages the first set of teeth;

a first spring housed within the first housing, wherein the first spring engages the first bar and the second bar;

a second spring housed within the first housing; and

a pivot housed within the first housing such that the pivot rotates between a third position and a fourth position, wherein the pivot hosts a first extension, a second extension, and a third extension, wherein the first extension engages at least one tooth of the first set of teeth as the second set of teeth engages the first set of teeth and the second extension engages at least one tooth of the third set of teeth when the pivot is in the third position, wherein the first extension avoids engaging the first set of teeth as the second set of teeth avoid engaging the first set of teeth and the second extension avoids engaging the third set of teeth when the pivot is in the fourth position, wherein the second spring engages the third extension,

or

(b) a bar housed within at least one of the first housing or the second housing, wherein the bar hosts a first set of teeth and a second set of teeth, wherein the first set of teeth and the second set of teeth are configured to mesh in opposing directions;

a first arm coupled to the at least one of the first housing or the second housing pivotally, wherein the first arm hosts a third set of teeth, wherein the first set of teeth is configured to mesh with the third set of teeth;

a spring hosted within the first arm and engaging the first arm; and

a second arm coupled to the first arm pivotally and engaging the spring, wherein the second arm hosts a fourth set of teeth, wherein the fourth set of teeth is configured to mesh with the second set of teeth when the spring is compressed, wherein the fourth set of teeth is configured to avoid meshing with the second set of teeth when the spring is not compressed.

13. The restraint device of claim **12**, wherein at least one of:

(a) the second arm is arcuate,

(b) the third set of teeth extends longitudinally immediately adjacent to the fourth set of teeth,

(c) the third set of teeth extends longitudinally in two rows, wherein the fourth set of teeth is positioned between the two rows,

(d) the first set of teeth extends longitudinally in two rows, or

(e) the sleeve is at least one of hour-glass shaped or flexible.

14. A restraint device comprising:

a housing;

a bar housed within the housing, wherein the bar hosts a first set of teeth and a second set of teeth, wherein the first set of teeth and the second set of teeth are configured to mesh in opposing directions;

a first arm coupled to the housing pivotally, wherein the first arm hosts a third set of teeth, wherein the first set of teeth is configured to mesh with the third set of teeth;

a spring hosted within the first arm and engaging the first arm; and

a second arm coupled to the first arm pivotally and engaging the spring, wherein the second arm hosts a fourth set of teeth, wherein the fourth set of teeth is configured to mesh with the second set of teeth when the spring is compressed, wherein the fourth set of teeth is configured to avoid meshing with the second set of teeth when the spring is not compressed.

15. The restraint device of claim **14**, wherein the second arm is arcuate.

16. The restraint device of claim **14**, wherein the third set of teeth extends longitudinally immediately adjacent to the fourth set of teeth.

17. The restraint device of claim **14**, wherein the third set of teeth extends longitudinally in two rows, wherein the fourth set of teeth is positioned between the two rows.

18. The restraint device of claim **14**, wherein the first set of teeth extends longitudinally in two rows.

19. The restraint device of claim **18**, wherein the second set of teeth is positioned between the two rows.

20. The restraint device of claim **14**, wherein the spring is a first spring, and further comprising:

a reel housed within the housing, wherein the reel hosts a cable, wherein the reel hosts a fifth set of teeth, a second spring housed within the housing and engaging the bar;

a third spring within the housing; and

a pivot housed within the housing such that the pivot rotates between a first position and a second position, wherein the pivot hosts a first extension, a second extension, and a third extension,

wherein the first extension engages at least one tooth of the third set of teeth as the first set of teeth engages the third set of teeth and the second extension engages at least one tooth of the fifth set of teeth when the pivot is in the first position, wherein the first extension avoids engaging the third set of teeth as the first set of teeth avoid engaging the third set of teeth and the second extension avoids engaging the fifth set of teeth when the pivot is in the second position, wherein the third spring engages the third extension.

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