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(54) Title: TOOL SUPPORTING APPARATUS

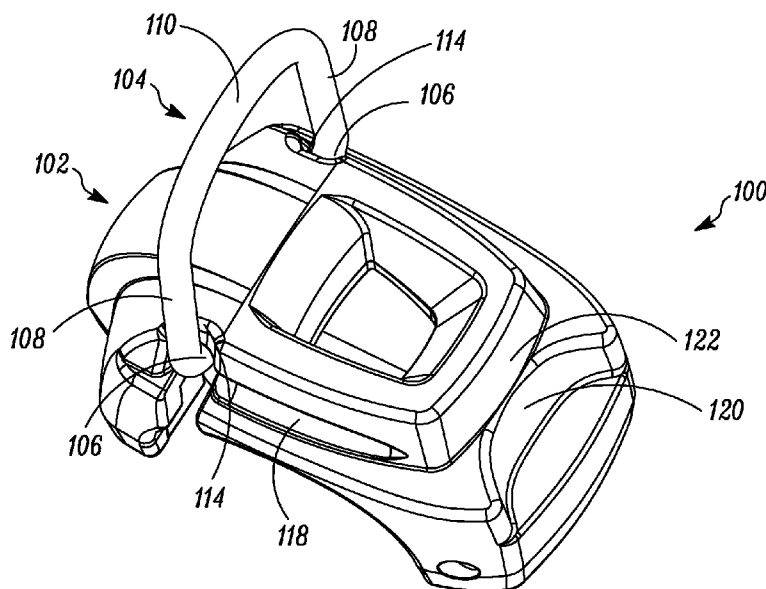


FIG. 2

(57) Abstract: The present invention discloses an apparatus (100) for supporting a tool from a support structure. The apparatus (100) includes a body (102), a clamping member (124) for releasably securing the body (102) to the tool, and a ring member (104) pivotally connected to the body (102). The ring member (104) is movable between an idle position and a working position, the ring member (104) being adapted to engage with the support structure in the working position. Moreover, the ring member (104) is secured in both the idle position and the working position.



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TOOL SUPPORTING APPARATUS

TECHNICAL FIELD

The present invention relates to an apparatus for supporting a tool. In particular, the present invention relates to an apparatus for supporting a tool from a support structure.

BACKGROUND

Hand-held tools, such as, chainsaws, hedge trimmers, or the like are well known in the art. Such tools are typically held by a user via one or more handles provided on the tool. However, on occasions, the user may need to free his hands to perform other tasks. In such instances, securing the tool in a safe way may be a problem, especially if the user is working in an elevated location, for example, up a tree.

Typically, a supporting device is provided to reliably secure the tool to an external support structure, for example, a belt or a harness worn by the user. The supporting device may be attached to or removed from the tool by a complicated and time consuming method. Further, the supporting device may require separate means to attach it to the tool. An attachment portion of the supporting device may also involve multiple components, thereby increasing design complexity and cost of manufacturing of the supporting device. Moreover, the supporting device generally includes a hook or a ring for attachment with the external support structure. The hook or the ring may interfere with the handling of the tool when the tool is in operation.

In light of the foregoing, there is a need for a supporting device for a tool that addresses one or more of the aforementioned problems.

SUMMARY

In view of the above, it is an objective of the present invention to solve or at least reduce the problems discussed above. In particular, the objective is to provide an improved apparatus for supporting a tool from a support structure.

The objective is at least partially achieved according to a novel apparatus, for supporting a tool from a support structure, described in claim 1. The apparatus includes a body, a clamping member for releasably securing the body to the tool, and a ring member pivotably connected to the body.

5 Further, the ring member is movable between an idle position and a working position, the ring member being adapted to engage with the support structure in the working position. Moreover, the ring member is secured in the idle position. Since the ring member is reliably secured in the idle position, the ring member does not interfere with an operation of tool. Moreover, according

10 to claim 2 the ring member is also secured in the working position and reliably support the tool from a support structure since a relative position between the ring member and the body does not change in the working position.

According to claim 3, the body includes two first indent sections. The two first indent sections releasably engage with the ring member to secure the

15 ring member in the working position. Further, according to claim 4, the body includes two second indent sections. The two second indent sections releasably engage with the ring member to secure the ring member in the idle position. According to claim 5, the body includes two angled portions adjacent to the first indent sections to move back the ring member to the working

20 position. According to claim 6, the body includes a third indent section for manual handling of the ring member to move the ring member to the working position. According to claim 7, the body comprises a raised portion to prevent accidental movement of the ring member from the idle position. The first indent sections and the second indent sections are integral parts of the body.

25 Thus, no additional part (E.g. a spring) may be required for securing the ring member in the working position or the idle position. This may simplify the design and manufacture of the apparatus, thereby reducing cost and improving reliability. Further, the third indent section, which is also an integral part of the body, also improves manual handling of the ring member.

30 According to claim 8, the ring member includes at least one attachment portion, the at least one attachment portion being attached to the body.

According to claim 9, the ring member is substantially horizontal in the idle position and substantially vertical in the working position relative to the body.

According to claim 10, the ring member is mounted on a top portion of the body. Further, according to claim 11, the clamping member is mounted on the
5 bottom portion of the body.

According to claim 12, the body further includes a tool engaging portion. Further, according to claim 13, the tool engaging portion is located at a bottom portion of the body. According to claim 14, wherein the tool engaging portion and the clamping member form a loop attachable to the tool.
10 Moreover, according to claim 15, the loop formed by the tool engaging portion and the clamping member is substantially non-circular. The non-circular shape of the loop substantially reduces twisting and sliding of the apparatus along a part of the tool to which the apparatus is attached. Thus, the apparatus may be reliably fixed to the tool with lower clamping force. This
15 may reduce deformation of and/or damage to various components, such as, the clamping member and the tool engaging portion, thereby increasing their working life. Lower clamping force may also prevent damage to the part of the tool.

According to claim 16, the clamping member includes two connecting
20 portions and two intermediate portions, the two connecting portions being inserted into two apertures on the body. Further, according to claim 17, the body includes two first ribs to bias the intermediate portions of the clamping member apart from each other.

According to claim 18, the clamping member includes an end portion, the
25 end portion of the clamping member being fixed to the body via a fastening member. Further, according to claim 19, the body further includes two second ribs to limit the movement of the connecting portions further within the apertures during tightening of the fastening member. Thus, the clamping member may be easily assembled with the body by simply loosening and
30 tightening of the fastening member via a screwdriver.

According to claim 20, the support structure includes a belt or a harness of a user. According to claim 21, the apparatus is removably attached to a handle of the tool. Further, according to claim 22, the tool is a chainsaw. Based on the requirement and application of the apparatus, according to claim 23, the ring portion includes a hook portion to facilitate a quick hanging of the tool on the support structure.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will in the following be described in more detail with reference to the enclosed drawings, wherein:

FIG. 1 illustrates a perspective view of an apparatus for supporting a tool with a ring member in an idle position, according to an embodiment of the present invention;

FIG. 2 illustrates a perspective view of the apparatus with the ring member in a working position, according to the embodiment of FIG. 1;

FIG. 3 illustrates a top view of the apparatus with the ring member in the idle position, according to the embodiment of FIG. 1;

FIG. 4 illustrates a top view of the apparatus with the ring member in the working position, according to the embodiment of FIG. 1;

FIG. 5 illustrates a front view of the apparatus with the ring member in the working position, according to the embodiment of FIG. 1;

FIG. 6 illustrates a side view of the apparatus with the ring member in the idle position, according to the embodiment of FIG. 1;

FIG. 7 illustrates a bottom view of the apparatus, according to the embodiment of FIG. 1;

FIG. 8 illustrates a perspective view of the apparatus with the clamping member in an open position, according to the embodiment of FIG. 1;

FIG. 9 illustrates the apparatus attached to a handle with the ring member in the idle position, according to an embodiment of present invention;

FIG. **10** illustrates the apparatus attached to the handle with the ring member in the working position, according to the embodiment of FIG. **9**;

FIG. **11** illustrates perspective view of a ring member, according to an embodiment of present invention;

5 FIG. **12** illustrates plane view of an ring member, according to another embodiment of present invention; and

FIG. **13** illustrates perspective view of a ring member, according to yet another embodiment of present invention.

10 DESCRIPTION OF EMBODIMENTS

The present invention will be described more fully hereinafter with reference to the accompanying drawings, in which example embodiments of the invention incorporating one or more aspects of the present invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. For example, one or more aspects of the present invention can be utilized in other embodiments and even other types of devices. In the drawings, like numbers refer to like elements.

20 FIGS. **1- 8** illustrate various views of an apparatus **100** for supporting a tool, according to an embodiment of the present invention. The apparatus **100** may be used with any type of tool, for example, but not limited to, a chainsaw, a hedge trimmer, a power drill, or the like. Moreover, the apparatus **100** may be attached to any part of the tool, such as, a handle, a body etc..

25 The apparatus **100** includes a body **102** and a ring member **104** which is pivotably mounted on a top portion of the body **102**. According to an embodiment of the present invention the body **102** and the ring member **104** are separately manufactured using different materials, for example, plastic and metal respectively.

30 Further, as illustrated in FIGS. **1, 2, 3** and **5**, the ring member **104** includes two attachment portions **106**, two arm portions **108** and a curved portion **110** attached to the arm portions **108**. The attachment portions **106**

are inserted into corresponding apertures **112** (illustrated in FIG. **1**) on the body **102**. The apertures **112** may be a through aperture, or two separate apertures. In an alternative embodiment of the present invention, the ring member **104** may include two apertures whereas the body **102** includes two corresponding projections which are inserted into the two apertures of the ring member **104**.

Further, the ring member **104** is movable between an idle position (as illustrated in FIGS. **1**, **3** and **5**) and a working position (as illustrated in FIG. **2**, **4** and **6**). In the idle position, the ring member **104** is substantially horizontal relative to the body **102**. However, in the working position, the ring member **104** is substantially vertical relative to the body **102**. As illustrated in FIGS. **1-3**, the body **102** includes two first indent sections **114** which are configured to releasably engage with the arm portions **108** of the ring member **104** and secure the ring member **104** in the working position. As illustrated in FIG. **5**, the arm portions **108** are angled from the attachment portions **106** to the curved portion **110** such that a distance between the arm portions **108** is lower than a distance between ends of the first indent sections **114**. This enables the ring member **104** to be secured by the first indent sections **114** in the working position. Moreover, the ring member **104** may elastically deform and move past the ends of the first indent sections **114**. Further, as illustrated in FIG. **3**, the body **102** includes two angled portions **116** adjacent to the first indent portions **114**. The angled portions **116** moves back the ring member **104** to the working position in case the ring member **104** moves beyond the working position.

As illustrated in FIGS. **2** and **4**, the body **102** further includes two second indent sections **118** which releasably engage the arm portions **108** of the ring member **104** to secure the ring member **104** in the idle position. The indent sections **118** extend substantially horizontally to conform to the idle position of the ring member **104**. Moreover, the distance between the arm portions **108** is lower than the ends of the second indent sections **118**, thereby enabling the ring member **104** to be secured by the second indent sections **118** in the idle position. Further, as illustrated in FIGS. **2** and **4**, the body **102** includes a third indent section **120** for manual handling of the ring

member **104** to move the ring member **104** from the idle position to the working position. Additionally, as illustrated in FIGS. **1**, **2** and **6**, the body **102** includes a raised portion **122** to prevent accidental movement of the ring member **104** from the idle position to the working position.

5 As illustrated in FIG. **6**, a clamping member **124** is mounted on a bottom portion of the body **102**. The clamping member **124** may be also made of metal. Furthermore, as illustrated in FIG. **7**, the clamping member **124** includes two connecting portions **126**, an end portion **128** and two intermediate portions **130**. The connecting portions **126** are inserted into two
10 apertures **132** provided on the body **102**. The apertures **132** may be through apertures for ease of manufacturing. Moreover, as illustrated in FIG. **8** in conjunction with FIG. **7**, the clamping member **124** may fold out about the apertures **132** and the end portion **128**, which is curved, is affixed to the body **102** via a fastening member **136**. The fastening member **136** may be a screw
15 which enters a fastening aperture (not illustrated in the figures) on the body **102**.

Referring back to FIG. **7**, in the assembled state the intermediate portions **130** of the clamping member **124** are biased to space apart by two first ribs **134** provided on the body **102**. The first ribs **134** prevent any
20 unintentional release of the connecting portions **126** out from the apertures **132**. Further, two second ribs **138** are also provided on the body **102** to limit the movement of the connecting portions **126** further within the apertures **132**. Particularly, during the tightening of the fastening member **136** to the body **102**, the two second ribs **138** prevent the connecting portions **126** from a
25 further movement into the apertures **132**.

As illustrated in FIGS. **6** and **8**, a tool engaging portion **140** is also provided at the bottom portion of the body **102** such that the tool engaging portion **140** and the two intermediate portions **130** of the clamping member **124** form a loop **142** which is configured to attach with a tool. As illustrated in
30 FIG. **6**, the loop **142** is substantially non-circular. The non-circular shape of the loop **142** prevents any rotation and/or slipping of the apparatus **100** along a part (E.g., a handle as illustrated in FIGS. **9** and **10**) of the tool to which the apparatus **100** is attached. Thus, the apparatus **100** may be reliably fixed to

the tool with lower clamping force, as opposed to a conventional circular shape loop. This may further reduce deformation of and/or damage to various components, such as, the clamping member **124** and the tool engaging portion **140**, thereby increasing their working life. The lower clamping force, as required by the apparatus **100**, may also prevent damage to the part of the tool.

To attach the apparatus **100** with the tool, the fastening member **136** is removed, with the help of a small screwdriver, and the end portion **128** of the clamping member **124** is folded out about the apertures **132**. The tool engaging portion **140** is mounted on a part of the tool. Subsequently, the end portion **128** is folded back to a fixing position adjacent to the fastening aperture provided on the body **102**. Finally, the fastening member **136** is tightened to secure the apparatus **100** with the tool. Thus, the apparatus **100** may be easily connected to and removed from the tool with the help of an only small tool (E.g., a screwdriver). Further, as described above the first and second ribs **134** and **138** helps to hold the clamping member **124** in the fixing position while tightening the fastening member **136**.

Since the ring member **104** is reliably secured in the idle position, the ring member **104** does not interfere with an operation of the tool. Moreover, the ring member **104** also reliably supports the tool from a support structure since a relative position between the ring member **104** and the body **102** does not change in the working position. Additionally, the first indent sections **114** and the second indent sections **118** are integral parts of the body **102**. Thus, no additional part (E.g. a spring) may be required for securing the ring member **104** in the working position or the idle position. This may simplify the design and manufacture of the apparatus **100**, thereby reducing cost and improving reliability. Further, the third indent section **120**, which is also an integral part of the body **102**, also improves manual handling of the ring member **104**. In addition, the ring member **104** and the clamping member **124** may be easily attached to the body **102**, simplifying the assembly of the apparatus **100**. The apparatus **100** also includes only four separate components, namely, the body **102**, the ring member **104**, the clamping

member **124** and the fastening member **136**. This may further reduce the cost and simplify the design of the apparatus **100**.

FIGS. **9** and **10** illustrate the apparatus **100** attached to a handle **202** of a tool. The handle **202** may be a rear handle of the tool. The ring member **104** is in the idle position in FIG. **8**, whereas the ring member **104** is in the working position in FIG. **9**. The ring member **104** may be attachable with any type of support structure, for example, but not limited to, a belt or a harness of a user. Thus, the apparatus **100** may securely fasten the tool to any part of clothing worn by the user, thereby improving portability of the tool. The apparatus **100** may also aid in storage of the tool by engaging with a storage structure, for example, a wall mounted hook. Further, the apparatus **100** may also used to hold the tool at a desired height on a tree and also easily move the tool to various positions by fastening the ring member **104** to a rope or any suitable support mechanism.

Various other possible embodiments of the apparatus **100** are possible by selecting a suitable type of ring member. FIGS. **11 - 13** illustrates few exemplary embodiments of the ring member which can be used with the apparatus **100** and provide addition hook shaped portions (**144**) to facilitate a quick hanging of the tool with a support structure. As illustrated in FIGS. **11** and **13**, the curved portion **110** of the ring member **104** is extended to a hook portion (**144**) in a lateral plane. Moreover, as illustrated in the FIG. **12**, the hook portion (**144**) is coplanar with the ring member **104**. Based on the requirements and application of the apparatus **100** various other modifications to the shape of the ring member **104** are possible.

In the drawings and specification, there have been disclosed preferred embodiments and examples of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for the purpose of limitation, the scope of the invention being set forth in the following claims.

30

CLAIMS

1. An apparatus (100) for supporting a tool from a support structure, the apparatus (100) comprising;
a body (102);
5 a clamping member (124) for releasably securing the body (102) to the tool; and
a ring member (104) pivotably connected to the body (102) and movable between an idle position and a working position, the ring member (104) being adapted to engage with the support structure in
10 the working position;
characterized in that,
the ring member (104) is secured in the idle position.
- 15 2. An apparatus (100) according to claim 1, the ring member (104) is secured in the working position.
3. An apparatus (100) according to claim 2, wherein the body (102) comprises two first indent sections (114), the two first indent sections (114) releasably engaging with the ring member (104) to secure the
20 ring member (104) in the working position.
4. An apparatus (100) according to claims 1 or 3, wherein the body (102) further comprises two second indent sections (118), the two second indent sections (118) releasably engaging with the ring member (104)
25 to secure the ring member (104) in the idle position.
5. An apparatus (100) according to claim 3, wherein the body (102) further comprises two angled portions (116) adjacent to the first indent

sections (114) to move back the ring member (104) to the working position.

- 5 6. An apparatus (100) according to claim 2, wherein the body (102) further comprises a third indent section (120) for manual handling of the ring member (104) to move the ring member (104) to the working position.
- 10 7. An apparatus (100) according to claim 1, the body (102) comprises a raised portion (122) to prevent accidental movement of the ring member (104) from the idle position.
- 15 8. An apparatus (100) according to claim 1, wherein the ring member (104) comprises at least one attachment portion (106), the at least one attachment portion (106) being attached to the body (102).
- 20 9. An apparatus (100) according to claim 1, wherein the ring member (104) is substantially horizontal in the idle position and substantially vertical in the working position relative to the body (102).
- 25 10. An apparatus (100) according to claim 1, wherein the ring member (104) is mounted on a top portion of the body (102).
11. An apparatus (100) according to claim 10, wherein the clamping member (124) is mounted on the bottom portion of the body (102).
12. An apparatus (100) according to claim 1, wherein the body (102) further comprises a tool engaging portion (140).

13. An apparatus (100) according to claim 12, the tool engaging portion (140) is located at a bottom portion of the body (102).
- 5 14. An apparatus (100) according to claim 12, wherein the tool engaging portion (140) and the clamping member (124) form a loop (142) attachable to the tool.
- 10 15. An apparatus (100) according to claim 14, wherein the loop (142) formed by the tool engaging portion (140) and the clamping member (124) is substantially non-circular.
- 15 16. An apparatus (100) according to claim 1, wherein the clamping member (124) comprises two connecting portions (126) and two intermediate portions (130), the two connecting portions (126) being inserted into two apertures (132) on the body (102).
- 20 17. An apparatus (100) according to claim 16, wherein the body (102) further comprises two first ribs (134) to bias the intermediate portions (130) of the clamping member (124) apart from each other.
- 25 18. An apparatus (100) according to claim 16, wherein clamping member (124) further comprises an end portion (128), the end portion (128) of the clamping member (124) being fixed to the body (102) via a fastening member (136).
19. An apparatus (100) according to claim 18, wherein the body (102) further comprises two second ribs (138) to limit the movement of the

connecting portions (**126**) further within the apertures (**132**) during tightening of the fastening member (**136**).

5 20. An apparatus (**100**) according to any of the preceding claims, wherein the support structure comprises a belt or a harness of a user.

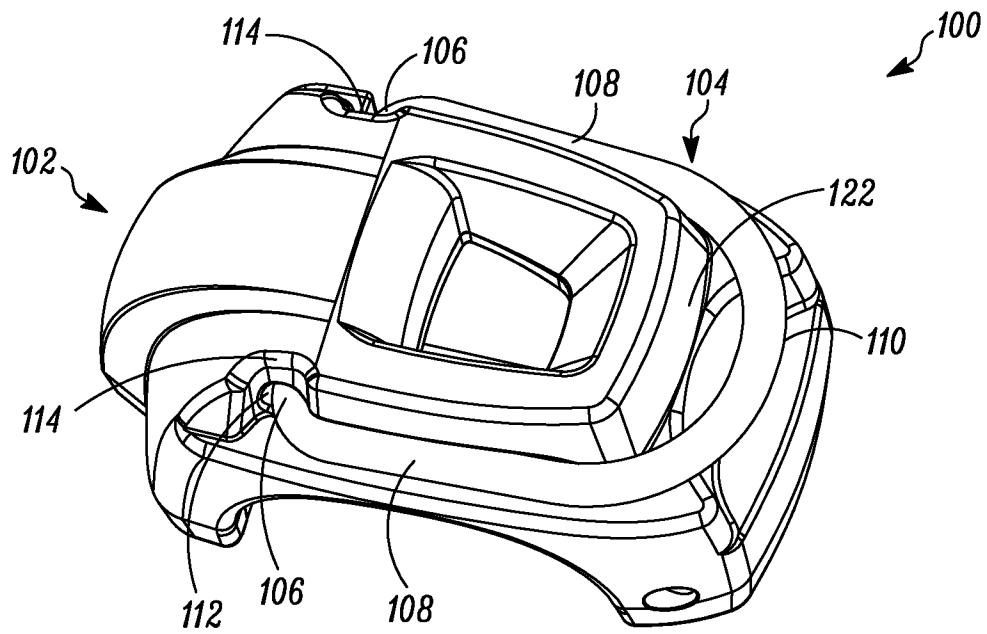
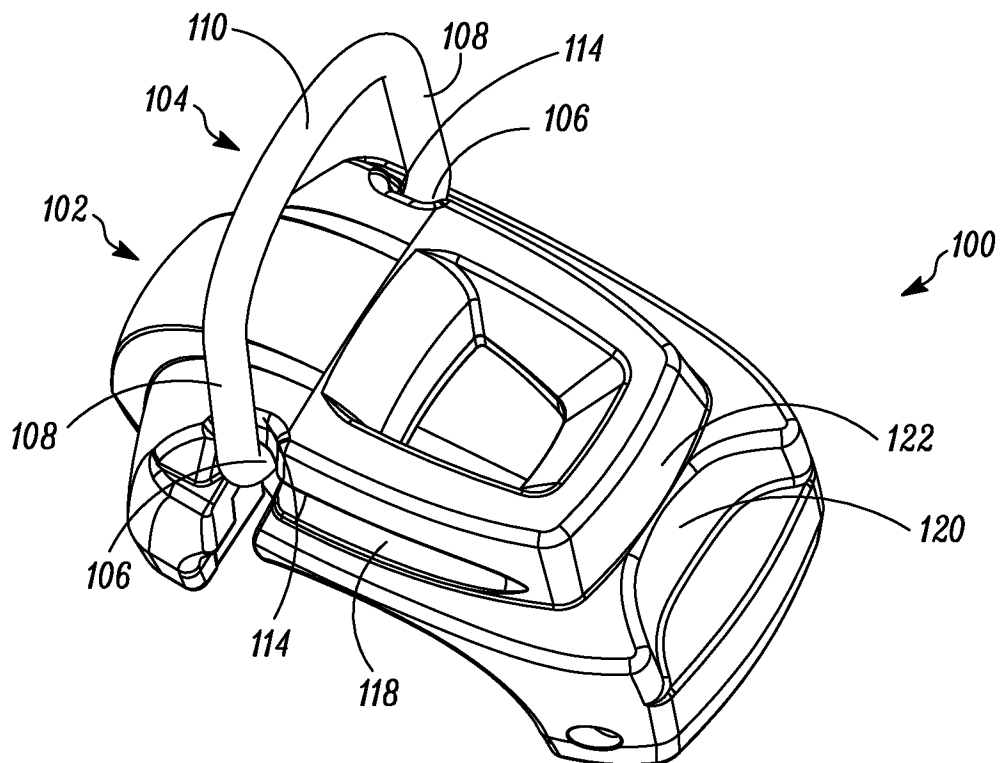
 21. An apparatus (**100**) according to any of the preceding claims, wherein the apparatus (**100**) is removably attached to a handle (**202**) of the tool.

10

 22. An apparatus (**100**) according to any of the preceding claims, wherein the tool is a chainsaw.

 23. An apparatus (**100**) according to any of the preceding claims, wherein
15 the ring member (**104**) comprises a hook portion (**144**).

1/7

*FIG. 1**FIG. 2*

2/7

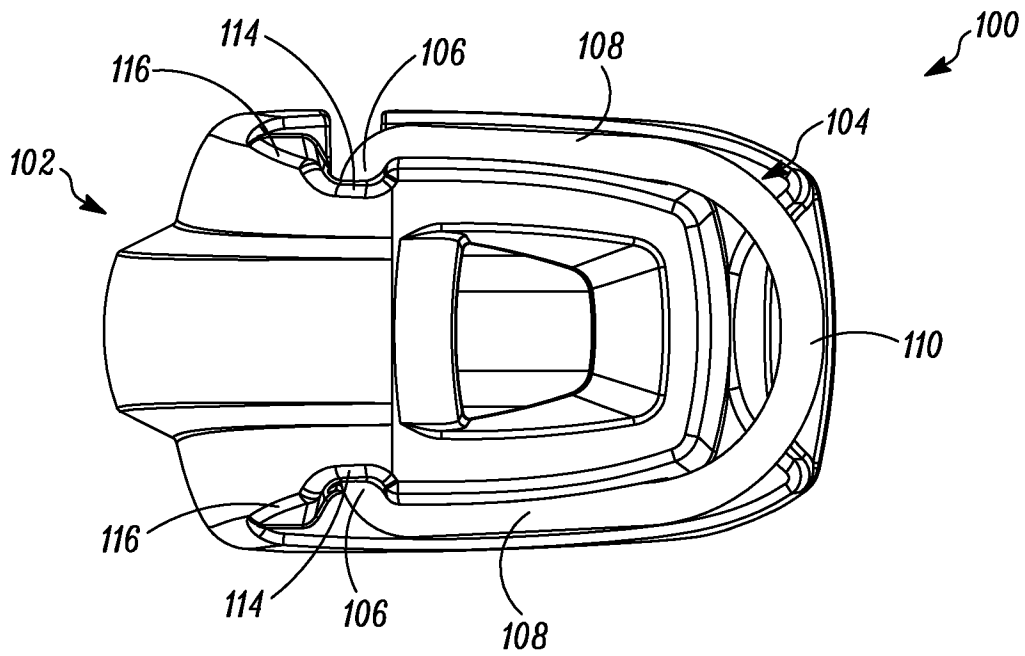


FIG. 3

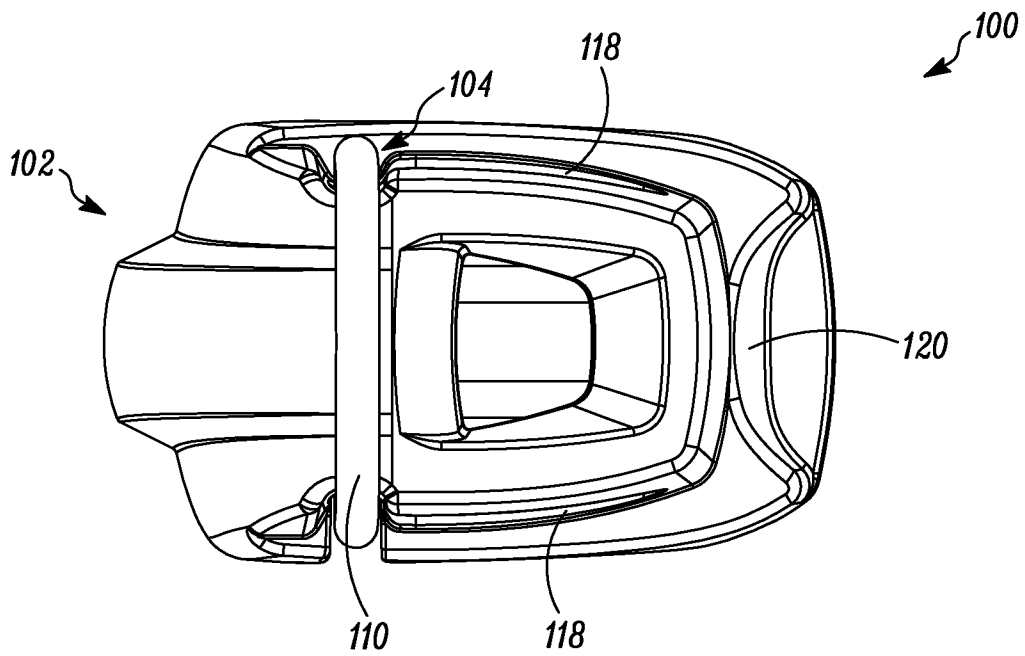


FIG. 4

3/7

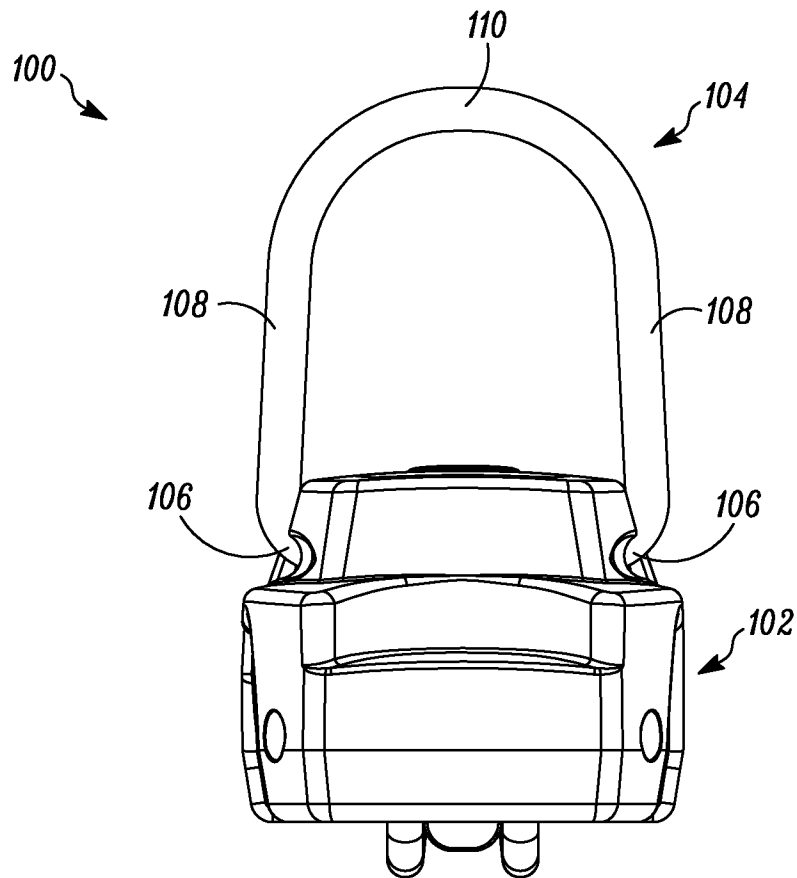


FIG. 5

4/7

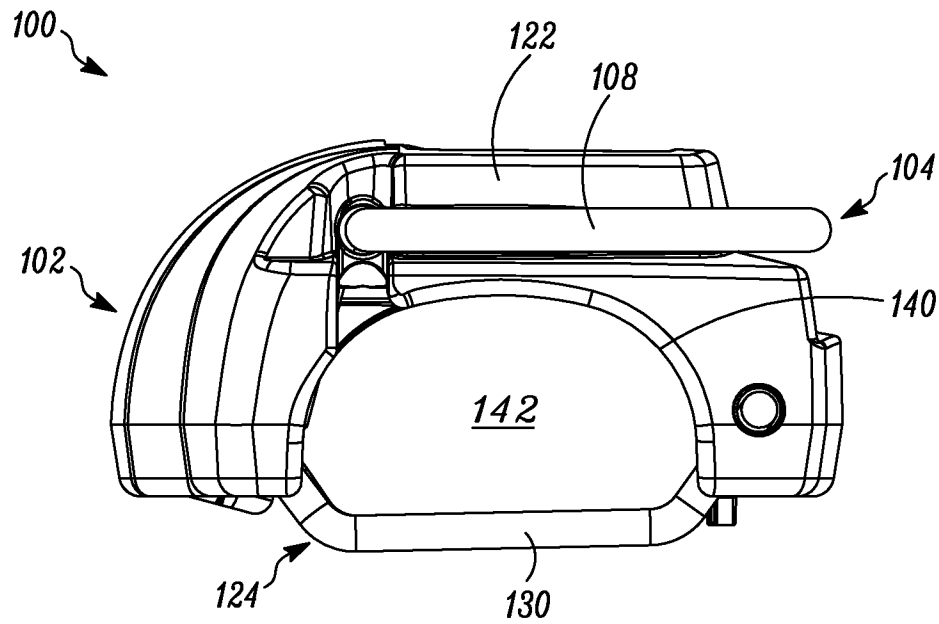


FIG. 6

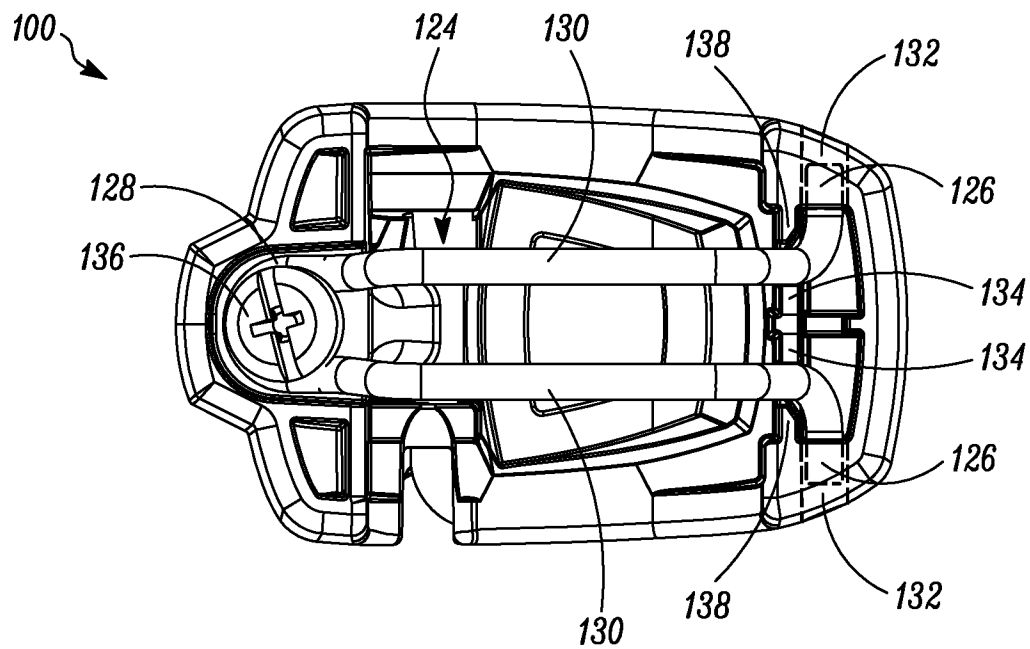


FIG. 7

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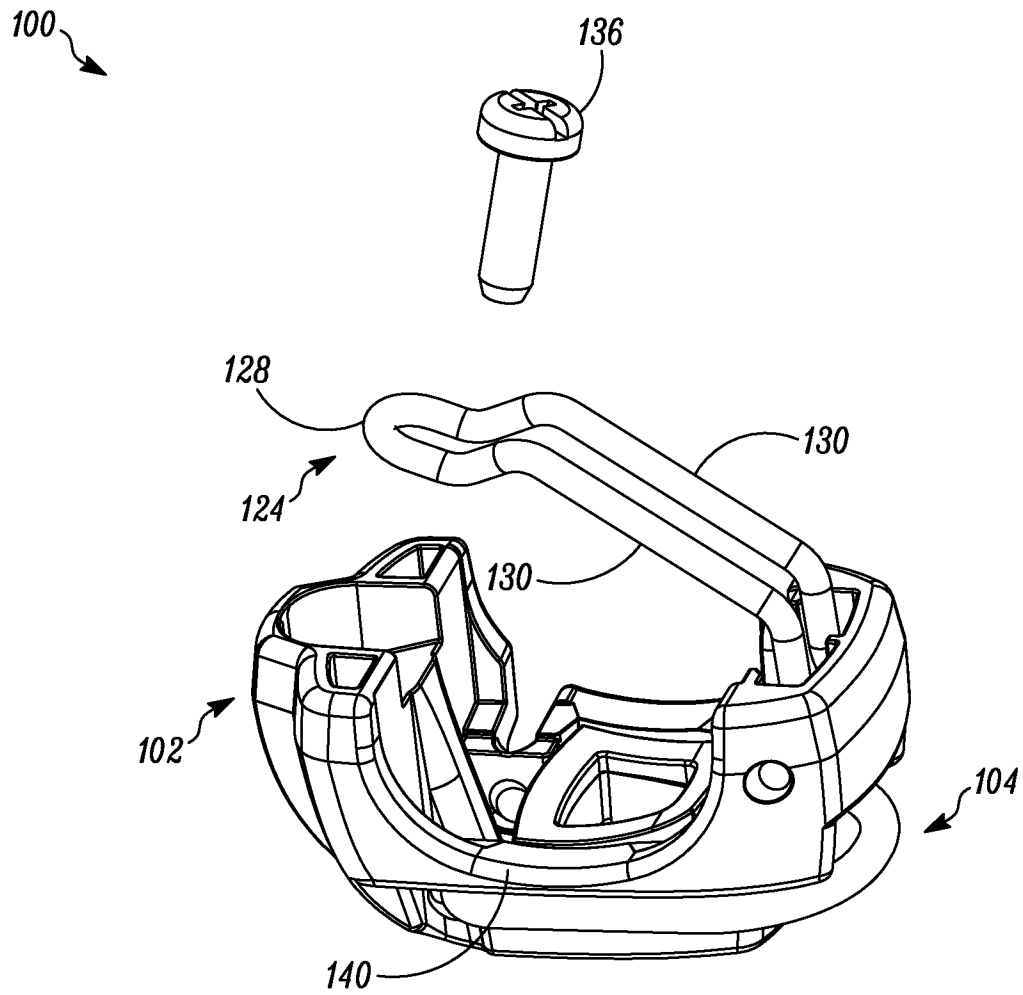


FIG. 8

6/7

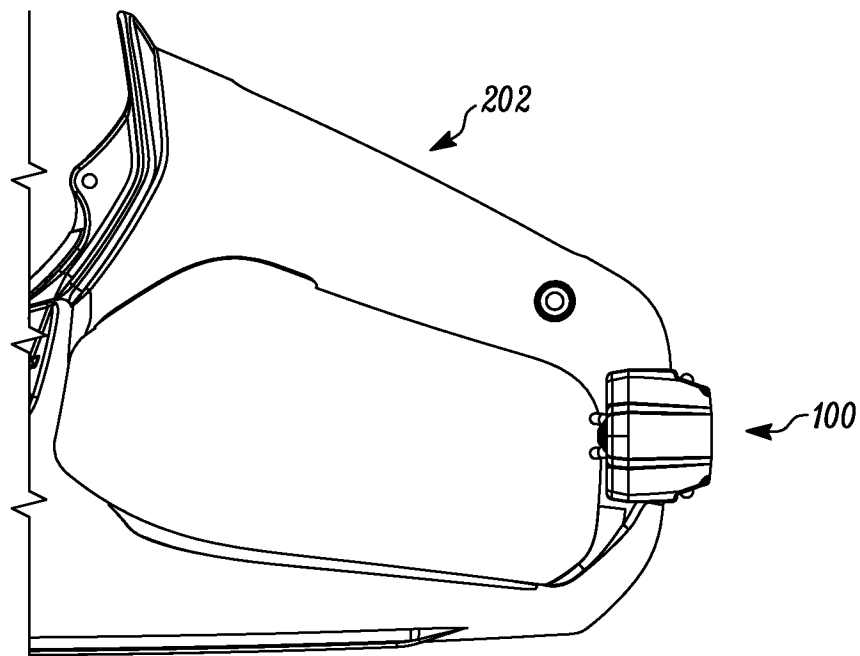


FIG. 9

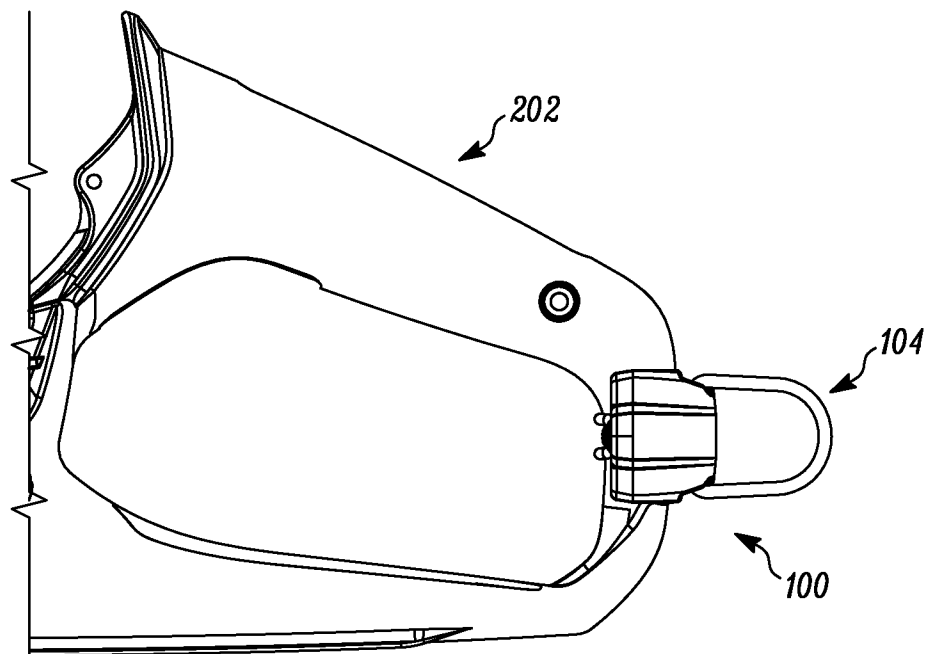


FIG. 10

7/7

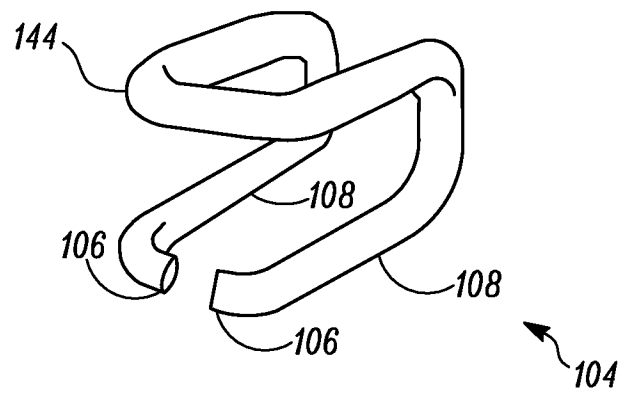


FIG. 11

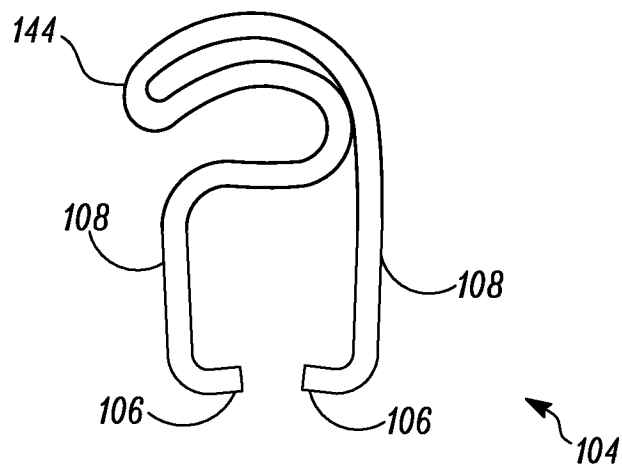


FIG. 12

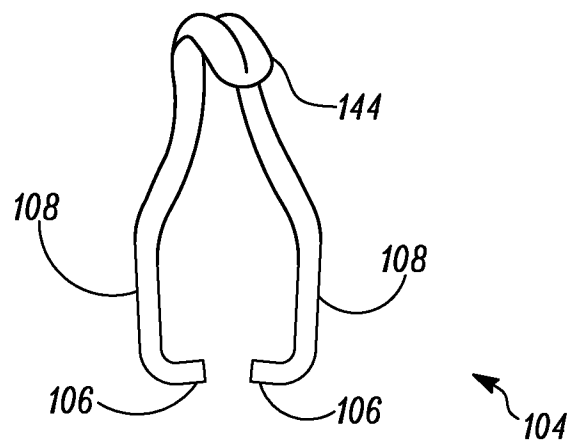


FIG. 13

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2011/052569

A. CLASSIFICATION OF SUBJECT MATTER
INV. B25F5/02
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B25F B25H

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

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

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/160075 A1 (MUSARELLA MICHAEL [US] ET AL) 28 August 2003 (2003-08-28)	1-10, 14-17, 19,22,23
Y	paragraphs [0005], [0039] - [0058], [0068] - [0076]; figures -----	11-13, 18,20,21
Y	US 2005/098691 A1 (YORNS MARK W [US] ET AL) 12 May 2005 (2005-05-12) paragraphs [0013] - [0022]; figures -----	11-13, 18,20,21
A	WO 03/051100 A1 (ELECTROLUX AB [SE]; JONSSON TORE [SE]) 26 June 2003 (2003-06-26) pages 2,3; figures -----	1-22
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INTERNATIONAL SEARCH REPORT

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