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(54) **HUNTING STAND ACCESSORY HOLDER AND METHOD OF USE THEREOF**

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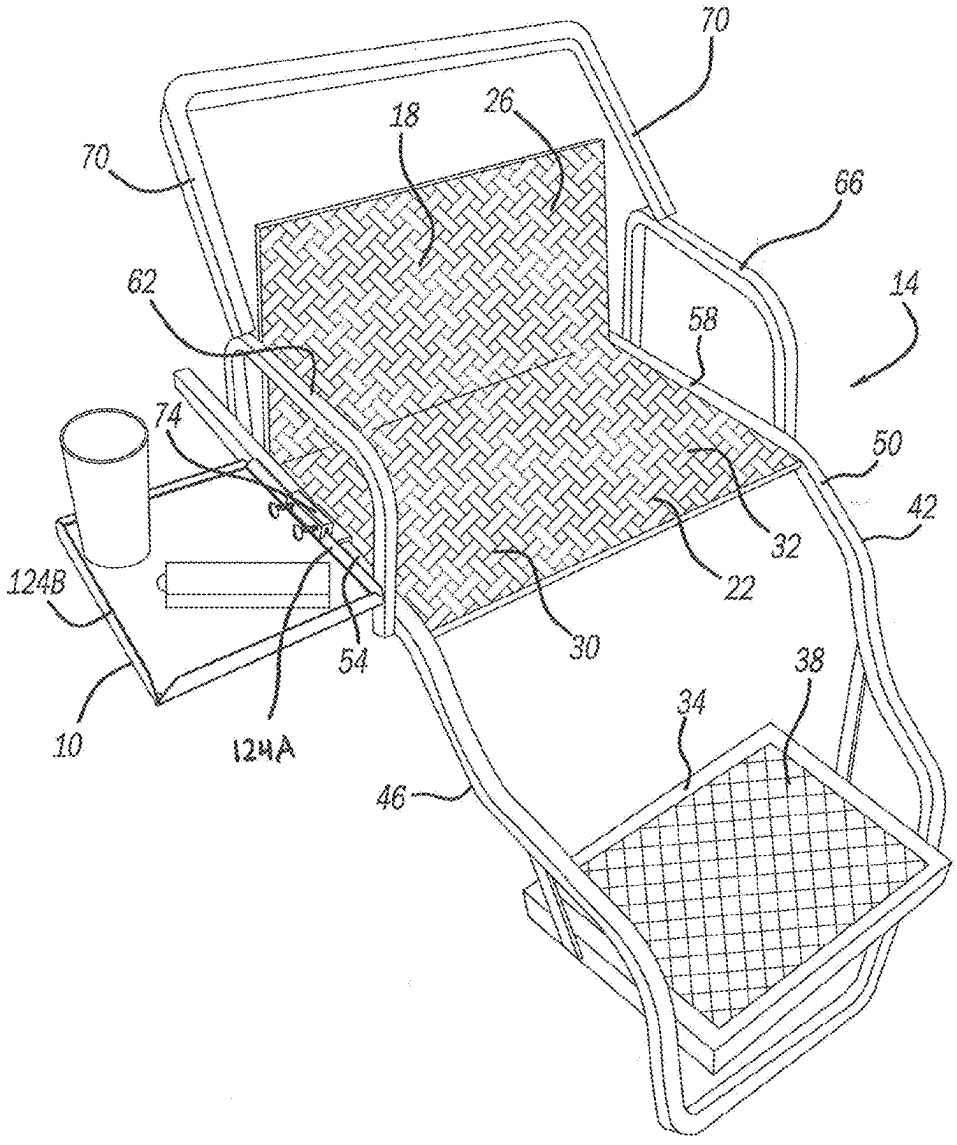
(57) **ABSTRACT**

A tray system for use by hunters includes a tray and a clamp. The clamp defines a channel into which a frame member on a hunting stand is insertable to attach the clamp to the hunting stand. The clamp also defines a groove and a tray support portion. A flange on the tray is insertable into the groove, and the tray support portion is positioned to support the tray when the flange is in the groove. The tray system enables a hunter to quickly install a tray to support hunting accessories in close proximity to an occupant of the stand. The tray system may also include a mobile telephone holder attachable to the tray to support a mobile telephone in a generally vertical position so that the screen of the telephone is readily viewable by the hunter.



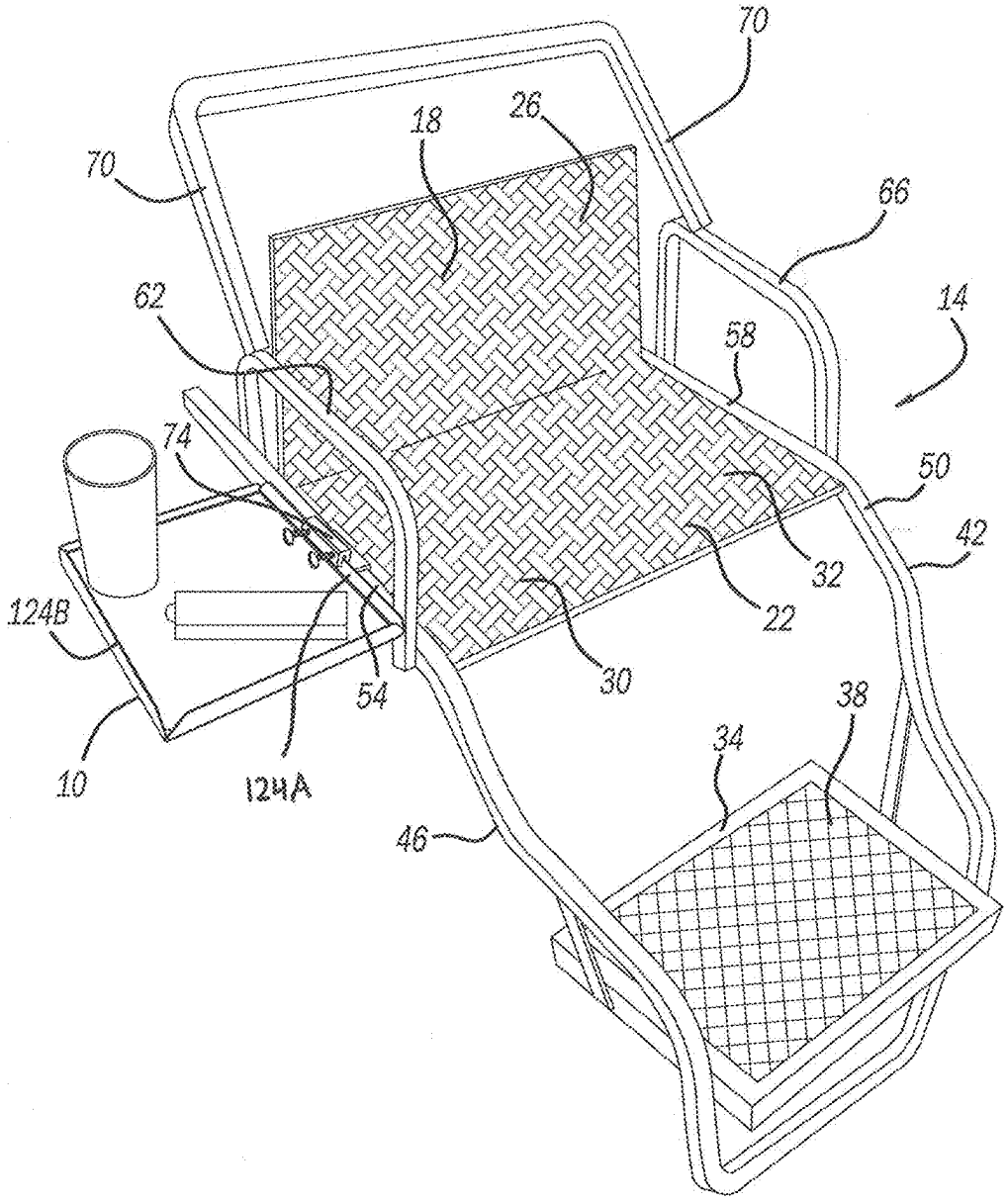


FIG. 1

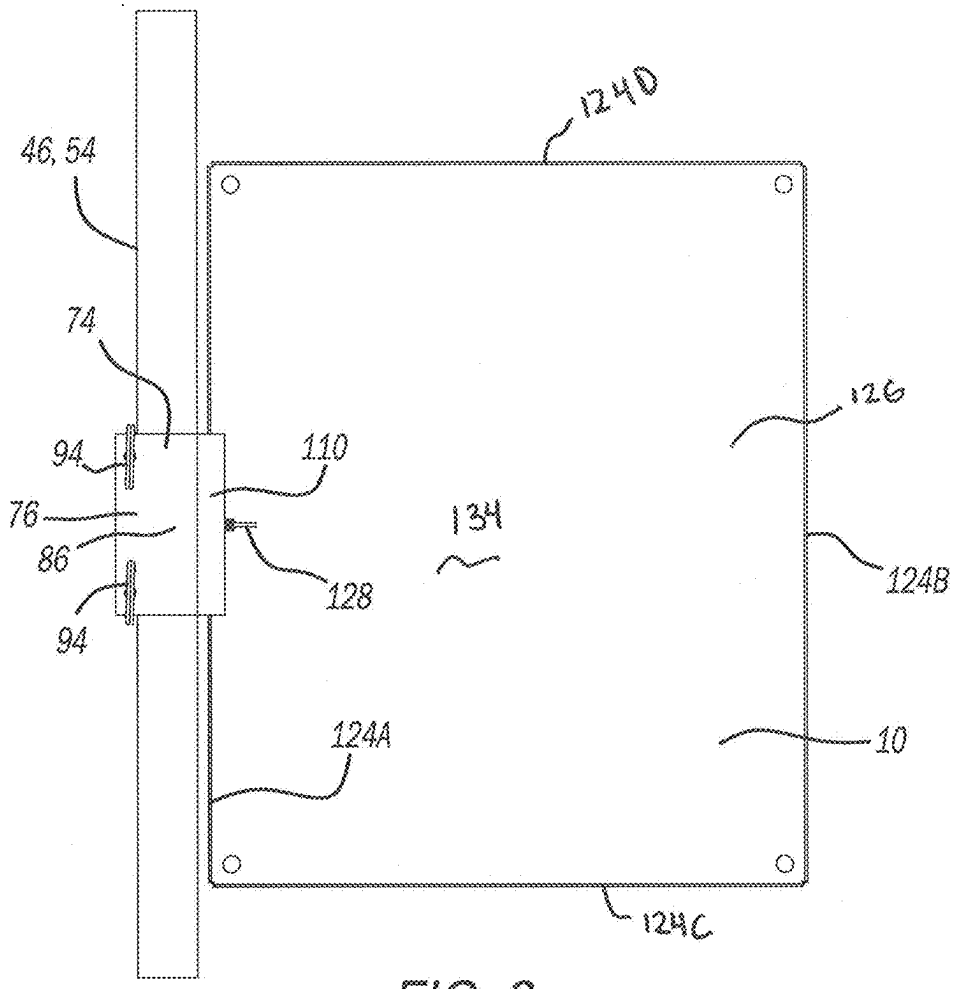

124D
46, 54
74
126
94
110
76
134
86
124B
128
94
124A
10
124C

FIG. 2

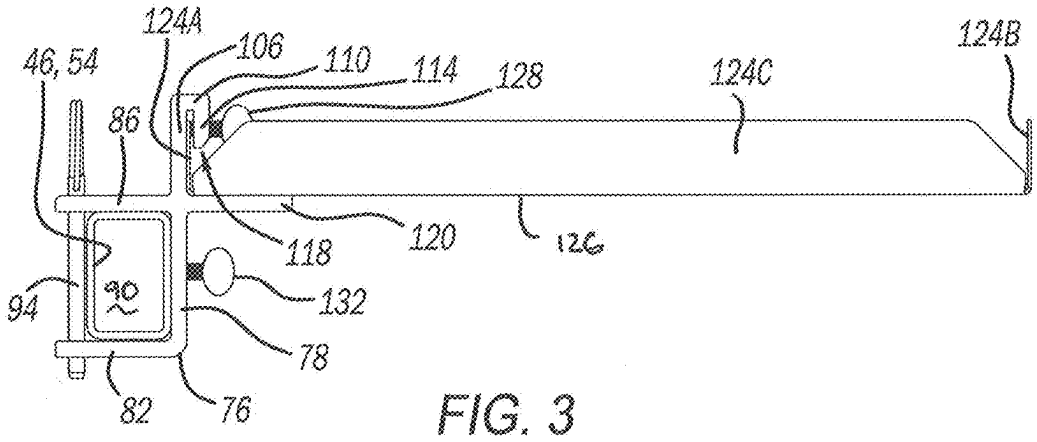

124A
124B
46, 54
106
110
114
128
124C
86
120
118
126
94
90
132
78
82
76

FIG. 3

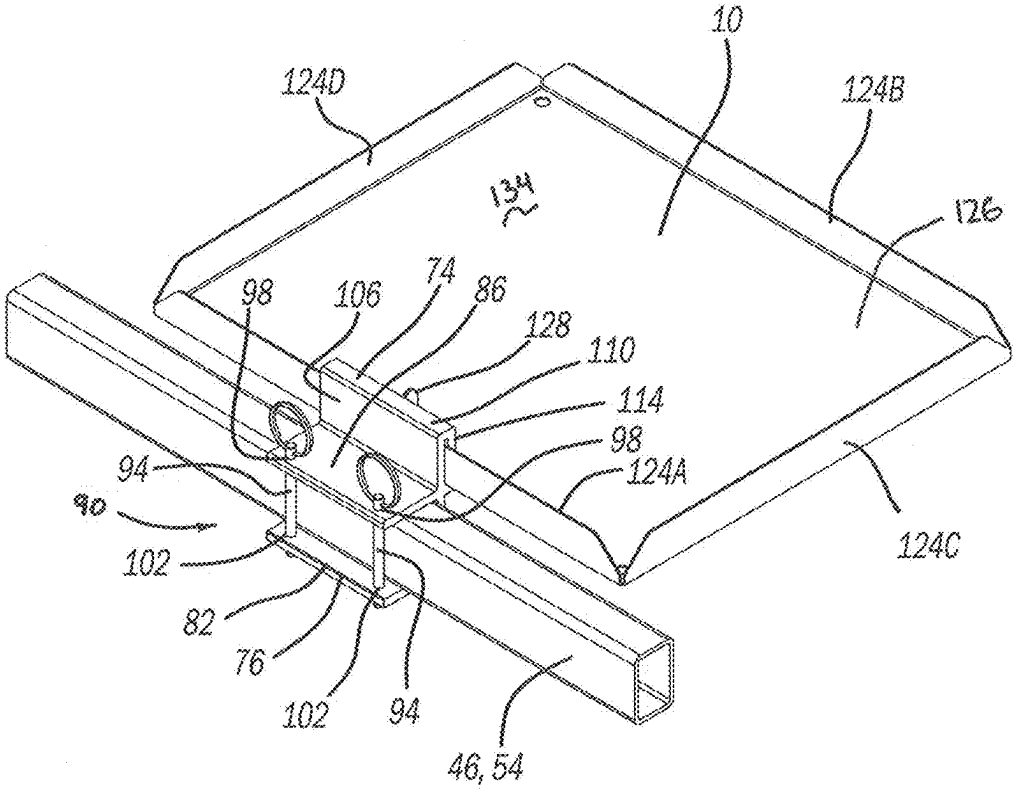

10
124D
124B
134
126
98
106
74
86
128
110
114
98
124A
94
90
102
82
76
102
94
46, 54
124C

FIG. 4

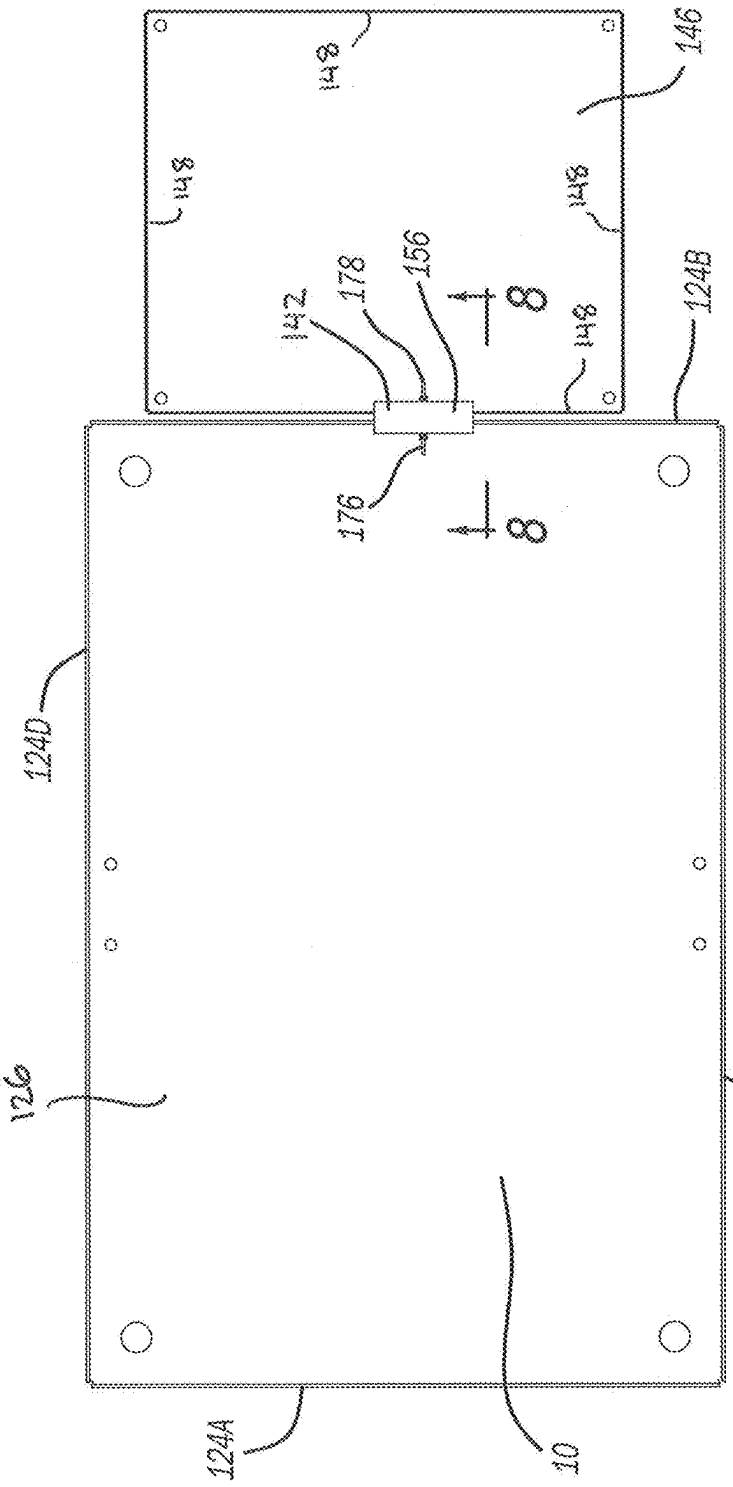

148
146
148
148
156
178
142
8
148
124B
176
8
124D
126
124C
124A
10

FIG. 5

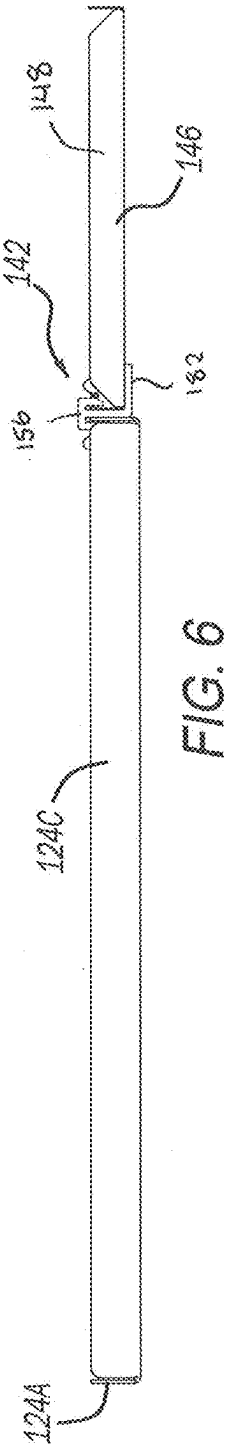

148
146
142
182
150
124C
124A

FIG. 6

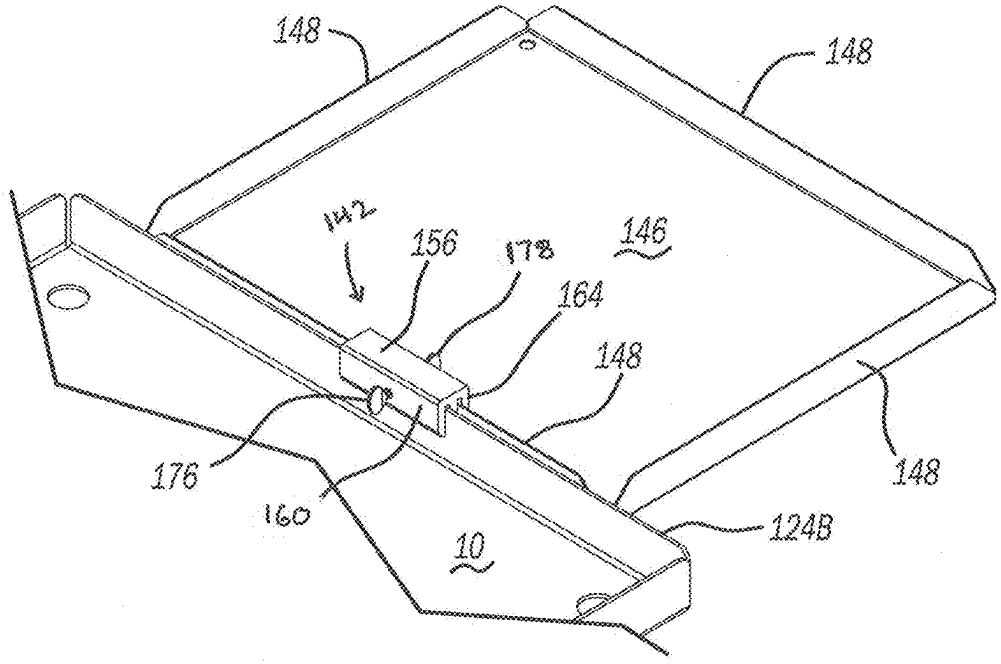

148
148
142
156
178
146
164
148
176
160
148
124B
10

FIG. 7

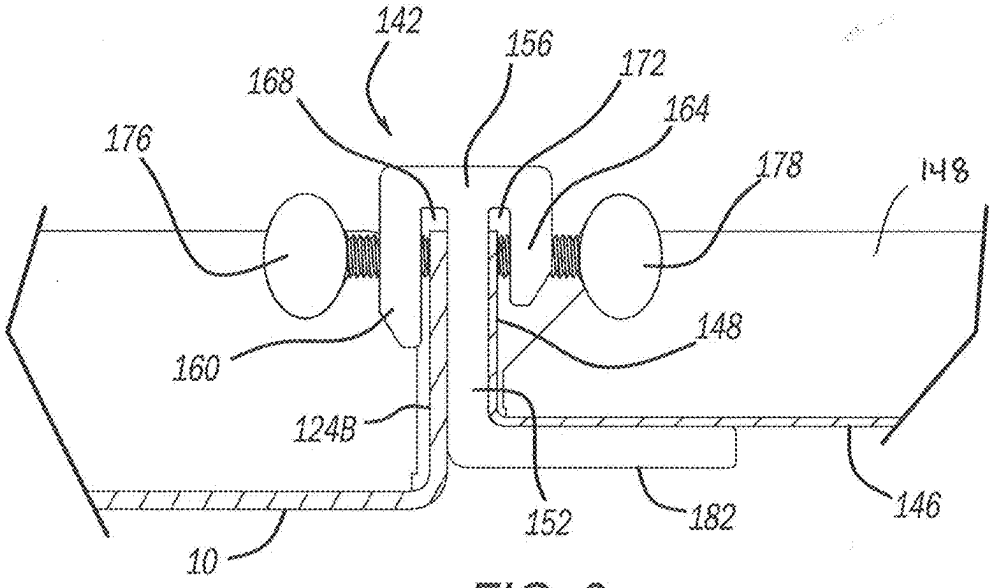

142
156
172
168
164
176
178
148
148
160
124B
146
152
182
10

FIG. 8

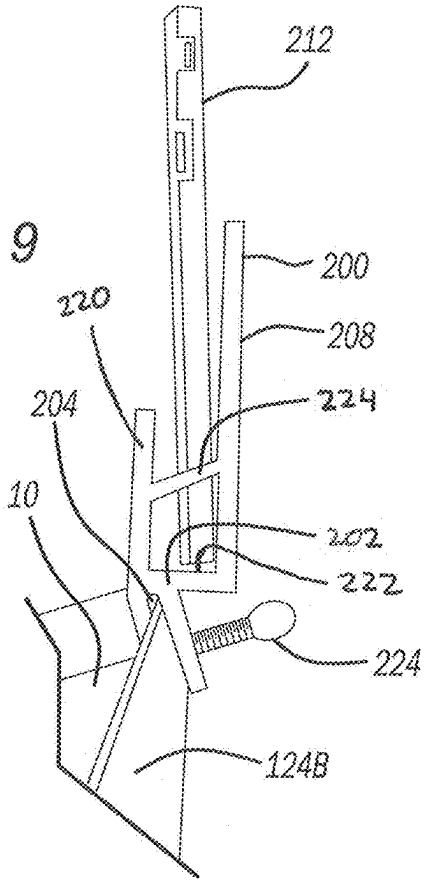

212
200
220
208
204
224
10
202
222
224
124B

FIG. 9

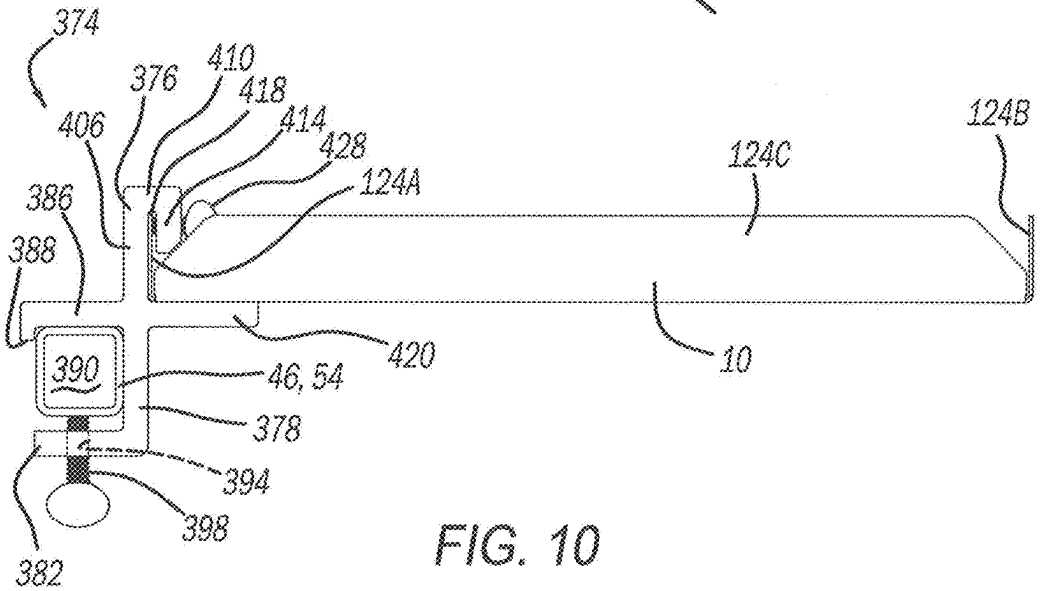

374
376
410
418
406
414
428
124A
124C
124B
386
388
420
10
390
46, 54
378
394
398
382

FIG. 10

HUNTING STAND ACCESSORY HOLDER AND METHOD OF USE THEREOF

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 63/552,992, filed Feb. 13, 2023, and which is hereby incorporated by reference in its entirety.

TECHNICAL FIELD

[0002] This disclosure relates to trays for holding accessories during various outdoor sports such as hunting.

BACKGROUND

[0003] Hunters often hunt from an elevated position above the ground, which reduces the likelihood that they will be detected by game animals while also providing the hunter with an enhanced field of view for spotting and shooting game animals. Some hunters may use a tree stand having a seat and a foot platform mounted to a tree in an elevated position. Often, the seat and platform are connected to a ladder so that a hunter can climb to the seat.

[0004] Hunters may also employ elevated blinds or stands that are supported by poles, and which may be enclosed. While in a stand or blind, a hunter may employ various accessories including, but not limited to, a cell phone or electronic tablet, binoculars, a game call, etc.

SUMMARY

[0005] A tray system for use by hunters includes a tray and a clamp. The clamp defines a channel into which a frame member on a hunting stand is insertable to attach the clamp to the hunting stand. The clamp also defines a groove and a tray support portion. A flange on the tray is insertable into the groove, and the tray support portion is positioned to support the tray when the flange is in the groove. The tray system enables a hunter to quickly install a tray to support hunting accessories in close proximity to an occupant of the stand. The tray system may also include a mobile telephone holder attachable to the tray to support a mobile telephone in a generally vertical position so that the screen of the telephone is readily viewable by the hunter.

[0006] The above features and advantages and other features and advantages of the present disclosure are readily apparent from the following detailed description of the best modes for carrying out the disclosure when taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. **1** is a schematic, perspective view of a tree stand assembly with a tray attached thereto;

[0008] FIG. **2** is a schematic, top view of the tray and a mounting clamp assembly that interconnects the tray and the tree stand assembly;

[0009] FIG. **3** is a schematic, front view of the tray and the mounting clamp assembly;

[0010] FIG. **4** is a schematic, perspective view of the tray and the mounting clamp assembly;

[0011] FIG. **5** is a schematic, top view of the tray of FIGS. **1-4** with a tray extension mounted thereto via yet another clamp assembly;

[0012] FIG. **6** is a schematic, front view of the tray and tray extension;

[0013] FIG. **7** is a schematic, perspective view of the tray and tray extension;

[0014] FIG. **8** is a schematic, cross-sectional front view of the tray extension clamp assembly interconnecting the tray and the tray extension;

[0015] FIG. **9** is a schematic, cross-sectional side view of a mobile phone holder installed on the tray; and

[0016] FIG. **10** is a schematic, front view of the tray attached to the tree stand assembly with an alternative mounting clamp assembly.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] Referring to the Figures, wherein like reference numbers refer to like components throughout, a tray **10** for attachment to a tree stand assembly **14** is schematically depicted. The tree stand assembly **14** includes a seat **18** for supporting a hunter. In the embodiment depicted, the seat **18** includes a flexible member **22** having a seatback portion **26** and a seat portion **30**. The seat **18** is positioned such that, when the tree stand assembly **14** is mounted to a tree, the seatback portion **26** is generally vertical to support the back of the hunter, and the seat portion **30** is generally horizontal with an upwardly-facing surface **32** on which the hunter sits.

[0018] The flexible member **22** may, for example, be fabric or mesh. In other embodiments, and within the scope of the claimed invention, the seat **18** may comprise multiple members that cooperate to define a seat portion and seatback portion. Furthermore, and within the scope of the claimed invention, the seat portion and/or seatback portion may be comprised of rigid members, such as expanded metal.

[0019] The tree stand assembly **14** also includes foot rest platform **34** that, when the tree stand assembly is mounted to a tree, is generally horizontally oriented and provides an upwardly-facing surface **38** positioned below the seat portion **30**; as understood by those skilled in the art, the upwardly-facing surface **38** is positioned to support the feet of the hunter when the hunter is occupying the seat **18**.

[0020] A frame **42** interconnects the seat **18**, and the platform **38**. The frame **42** in the embodiment depicted includes tubes **46**, **50**. Tube **46** includes a first segment **54** that is substantially linear and horizontal when the tree stand assembly **14** is mounted to the tree. Tube **50** includes a second segment **58** that is parallel to the first segment **54**. In the embodiment depicted, the seat portion **30** extends between, and is supported by, the segments **54**, **58**. In the embodiment depicted, the tree stand assembly **14** includes armrests **62**, **66** that are attached to respective segments **54**, **58**, and a safety rail **70** that is pivotably attached to armrests **62**, **66**.

[0021] The tray **10** is mounted to segment **54** with a clamp assembly **74**. The clamp assembly **74** includes an extruded member **76** having a first segment **78**, a second segment **82**, and a third segment **86**. The extruded member **76** has substantially the same cross-sectional shape (shown in FIG. **3**) in any plane taken along its length. The second segment **82** extends from, and is perpendicular to, the first segment **78**. The third segment **86** extends from, and is perpendicular to, the first segment **78**. The third segment **86** is also parallel to the second segment **82** such that the first segment **78**, the second segment **82**, and the third segment **86** cooperate to define a U-shaped channel **90**.

[0022] Segment **54** of tube **46** extends into channel **90** and is retained therein by two pull pins **94**. More specifically, segment **86** defines two holes **98** and segment **82** defines two holes **102**. With the segment **54** of tube **46** extending through the channel **90**, each pin **94** extends through one of holes **98** and one of holes **102** to prevent removal of the segment **54** from the channel **90**. More specifically, the tube **46** is captured between segments **78**, **82**, **86** and the pins **94**. Thus, interaction between the tube **46** and segments **82** and **86** prevent the clamp assembly **74** from moving vertically relative to the tube **46**. Interaction between the tube **46** and segment **78** and the pins **94** prevents the clamp assembly **74** from moving laterally relative to the tube **46**.

[0023] The member **76** also includes a fourth segment **106** that is coplanar with segment **78**, a fifth segment **110** that extends from, and is perpendicular to, segment **106**, and a sixth segment **114** that extends from, and is perpendicular to, segment **110**. Segment **114** is parallel to segment **106**. Accordingly, segments **106**, **110**, **114** cooperate to define another channel or groove **118**. The member also defines a seventh segment **120** that is coplanar with segment **86**.

[0024] The tray **10** includes a plurality of flanges **124**A, **124**B, **124**C, **124**D that extend upwardly from respective edges of the tray **10**. One of the flanges **124**A extends into the groove **118** while the base **126** of the tray **10** rests on segment **120**, as shown in FIG. **3**. A thumb screw **128** extends through segment **114** and into the groove **118** to selectively press against the flange **124**A and assist in retaining the flange **124**A within the groove **118**. Similarly, a thumb screw **132** extends through segment **78** and into channel **90** to selectively press against segment **54** and press segment **54** against the pins **94**. As understood by those skilled in the art, the thumb screws **128** are selectively rotatable by a user to vary the compressive force exerted by the thumb screws **128** on the flange **124**A or the segment **54**.

[0025] A method of attaching the tray **10** to the tree stand assembly **14** includes positioning the member **76** of the clamp assembly **74** such that the segment **54** is within the channel **90**, and then inserting pins **94** through holes **98**, **102**, as shown in the Figures. The method may also include rotating the thumb screw **132** that extends through segment **78** so that the thumb screw **132** and the pins **94** exerts a compressive load on the segment **54**, thereby minimizing relative movement of the member **76** relative to the tube **46**.

[0026] The method also includes inserting the flange **124**A of the tray **10** into the groove **118** such that the base **126** of the tray **10** rests on segment **120**, as shown in the drawings. The method may also include rotating the thumb screw **128** so that the thumb screw **128** and the segment **106** exert a compressive load on the flange **124**A, thereby securing the tray **10** to the clamp assembly **74** and the tube **46** of the tree stand assembly **14**.

[0027] The tray **10** is positioned laterally with respect to the seat **18**, and thus the tray **10** provides a support for various objects and accessories that may be desired by a hunter, as shown in FIG. **1**. For example, FIG. **1** shows a beverage container, binoculars, and a game call positioned on the tray **10**. More specifically, the base **126** defines a substantially planar surface **134** that faces upward when the tray **10** is attached to the tree stand assembly **14** as shown. The surface **134** supports any accessories that a user may want to retain in close proximity when the user occupies the seat **18**, and the flanges **124**A-D prevent the accessories from sliding off the surface **134**. The clamp assembly **74** provides a secure attachment of the tray **10** to the tree stand assembly **14** and is easily and quickly installed.

[0028] FIGS. **5-8** depict yet another clamp assembly **142** that connects an extension tray **146** to tray **10**. Tray **146** includes flanges **148** that extend around its periphery. Clamp **142** includes segments **152** and **156**. Segment **156** is connected to, and perpendicular to segment **152**. Segment **160** extends perpendicularly from one end of segment **156**, and segment **164** extends perpendicularly from the other end of segment **156**. Segments **152**, **156**, and **160** cooperate to define a first groove or channel **168**, and segments **152**, **156**, and **164** cooperate to define a second groove or channel **172**.

[0029] Flange **124**B of tray **10** is inserted into the channel **168** and tightened by thumb screw **176**, which extends through segment **160**. Flange **148** of tray **146** extends into channel **172** and tightened by thumb screw **178**, which extends through segment **164**. Segment **182** of clamp **142** extends perpendicularly from segment **152** and is positioned to support the base of tray **146** as shown in FIG. **8**. The clamp assembly **142** enables a user to quickly and easily increase the surface area for supporting accessories by enabling an additional tray **146** to be attached to tray **10**.

[0030] FIG. **9** schematically depicts a mobile phone holder **200** that is attachable to the tray **10**. The mobile phone holder **200** securely supports a mobile telephone or other electronic device in an orientation such that the screen of the device is generally vertical and therefore readily viewable by an occupant of the seat **18**. Referring to FIG. **9**, the mobile phone holder **200** includes a base **202** that defines a groove **204** for receiving one of the flanges of the tray **10**, such as flange **124**B. A phone support portion **208** extends generally upwardly from base **202**. A front support portion **220**, which is shorter than portion **208**, extends from the base **216** substantially parallel to portion **208**. Side reinforcements **224** may interconnect portions **208** and **220**. The upper surface **222** of the base **202** cooperates with portions **208** and **220** to define a channel into which a mobile telephone **212** or other device is insertable.

[0031] The surface **222** off the base **202** supports the mobile telephone **212**, which will lean against portion **208**. Portion **220** prevents the mobile telephone **212** from sliding off of the base surface **222**. To use the mobile phone holder **200**, the holder **200** is positioned relative to the tray **10** so that one of the flanges **124**B extends into the groove **204**. A thumb screw **224** extends though a hole in the base **202** and into the groove **204**. The thumb screw is rotatable to selectively press against the flange **124**B within the groove **204** to secure the flange **124**B within the groove **204**. The mobile telephone is then placed on surface **222** and leans against portion **208**.

[0032] FIG. **10** schematically depicts an alternative clamp assembly **374** that may be used to connect the tray **10** to the segment **54** of frame member **46** in place of clamp assembly **74**. Referring to FIG. **10**, wherein like reference numbers refer to like components from FIGS. **1-9**, the clamp assembly **374** includes an extruded member **376** having a first segment **378**, a second segment **382**, and a third segment **386**. The second segment **382** extends from, and is perpendicular to, the first segment **378**. The third segment **386** extends from, and is perpendicular to, the first segment **378**. The third segment **386** is also parallel to the second segment **382** such that the first segment **378**, the second segment **382**, and the third segment **386** cooperate to define a channel **390**.

[0033] Segment **54** of tube **46** extends into channel **390**. More specifically, a lip **388** descends perpendicularly from segment **386**; lip **388** also cooperates with segments **378**, **382**, and **386** to define channel **390**. Segment **382** defines two holes (only one of which is shown at **394**), each having a respective thumb screw (only one of which is shown at **398**) extending therethough and into the channel **390**. By turning the thumb screws **398**, the thumbscrews urge the segment **54** of tube **46** against segment **386** to retain the segment **54** within the channel **390**. Lip **388** also prevents removal of the tube **46** from the channel **390** by physical part interference, as shown in FIG. **10**.

[0034] The member **376** also includes a fourth segment **406** that is coplanar with segment **378**, a fifth segment **410** that extends from, and is perpendicular to, segment **406**, and a sixth segment **414** that extends from, and is perpendicular to, segment **410**. Segment **414** is parallel to segment **406**. Accordingly, segments **406**, **410**, **414** cooperate to define another channel or groove **418**. The member also defines a seventh segment **420** that is coplanar with segment **386**.

[0035] The tray **10** includes a plurality of flanges **124**A, **124**B, **124**C, **124**D that extend upwardly from respective edges of the tray **10**. One of the flanges **124**A extends into the groove **418** while the base of the tray **10** rests on segment **420**, as shown in FIG. **3**. A thumb screw **428** extends through a hole in segment **414** and into the groove **418** to selectively press against the flange **124**A and assist in retaining the flange **124**A within the groove **118**

[0036] While the best modes for carrying out the invention have been described in detail, those familiar with the art to which this invention relates will recognize various alternative designs and embodiments for practicing the invention within the scope of the appended claims.

1. A tray system for attachment to a hunting stand having a frame with a tube, the tray system comprising:

a tray having a base defining a substantially planar surface and a flange extending from the substantially planar surface;

a clamp assembly including a clamp member having a first segment, a second segment, a third segment, a fourth segment, a fifth segment, a sixth segment, and a seventh segment;

wherein the second segment extends from, and is perpendicular to, the first segment;

wherein the third segment extends from, and is perpendicular to, the first segment and is also parallel to the second segment such that the first segment, the second segment, and the third segment cooperate to define a channel having a size and shape sufficient for the tube to extend through the channel;

wherein the fourth segment is coplanar with the first segment;

wherein the fifth segment extends from, and is perpendicular to, the fourth segment;

wherein the sixth segment extends from, and is perpendicular to, the fifth segment, and is parallel to the fourth segment such that the fourth, fifth, and sixth segments cooperate to define a groove;

wherein the seventh segment is coplanar with the third segment; and

wherein the flange of the tray is insertable into the groove such that the base of the tray contacts the seventh segment.

2. The tray system of claim **1**, wherein the clamp assembly includes a first screw extending through one of the segments and into the groove, said first screw being selectively rotatable to exert a compressive force on the flange within the groove.

3. The tray system of claim **2**, wherein the clamp assembly includes a second screw extending through one of the segments and into the channel, said second screw being selectively rotatable to exert a compressive force on the tube within the channel.

4. The tray system of claim **3**, further comprising a mobile telephone holder having a base defining a slot, a first portion extending from the base, and a second portion extending from the base;

wherein the mobile telephone holder is positionable such that the flange extends into the slot.

5. The tray system of claim **4**, further comprising a third screw extending through the base and into the slot, said third screw being selectively rotatable to exert a compressive force on the flange within the slot.

* * * * *