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(54) **OUTRIGGER MOUNT ASSEMBLY**

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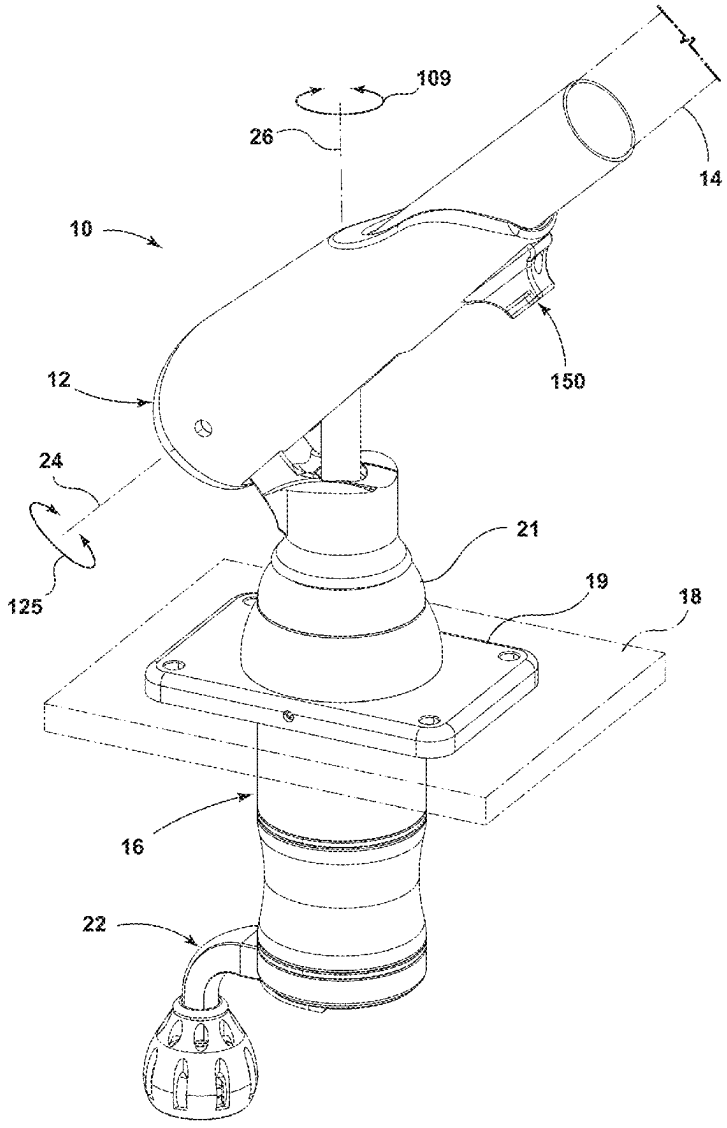
(57) **ABSTRACT**

An outrigger mount assembly includes a support member configured to receive an outrigger therein, wherein the support member is pivotable about a substantially horizonal axis between first and second positions, and wherein the support member is pivotable about a substantially vertical axis between third and fourth positions, an actuator assembly movable between a first configuration where the support member is movable between the first and second positions and is prevented from moving between the third and fourth positions, and a second configuration where the support member is movable between the third and fourth positions and is prevented from moving between the first and second positions, and a handle assembly movable between a first extended position causing the actuator assembly to move to the first configuration, a second extended position causing the actuator assembly to move to the second configuration, and a retracted position.



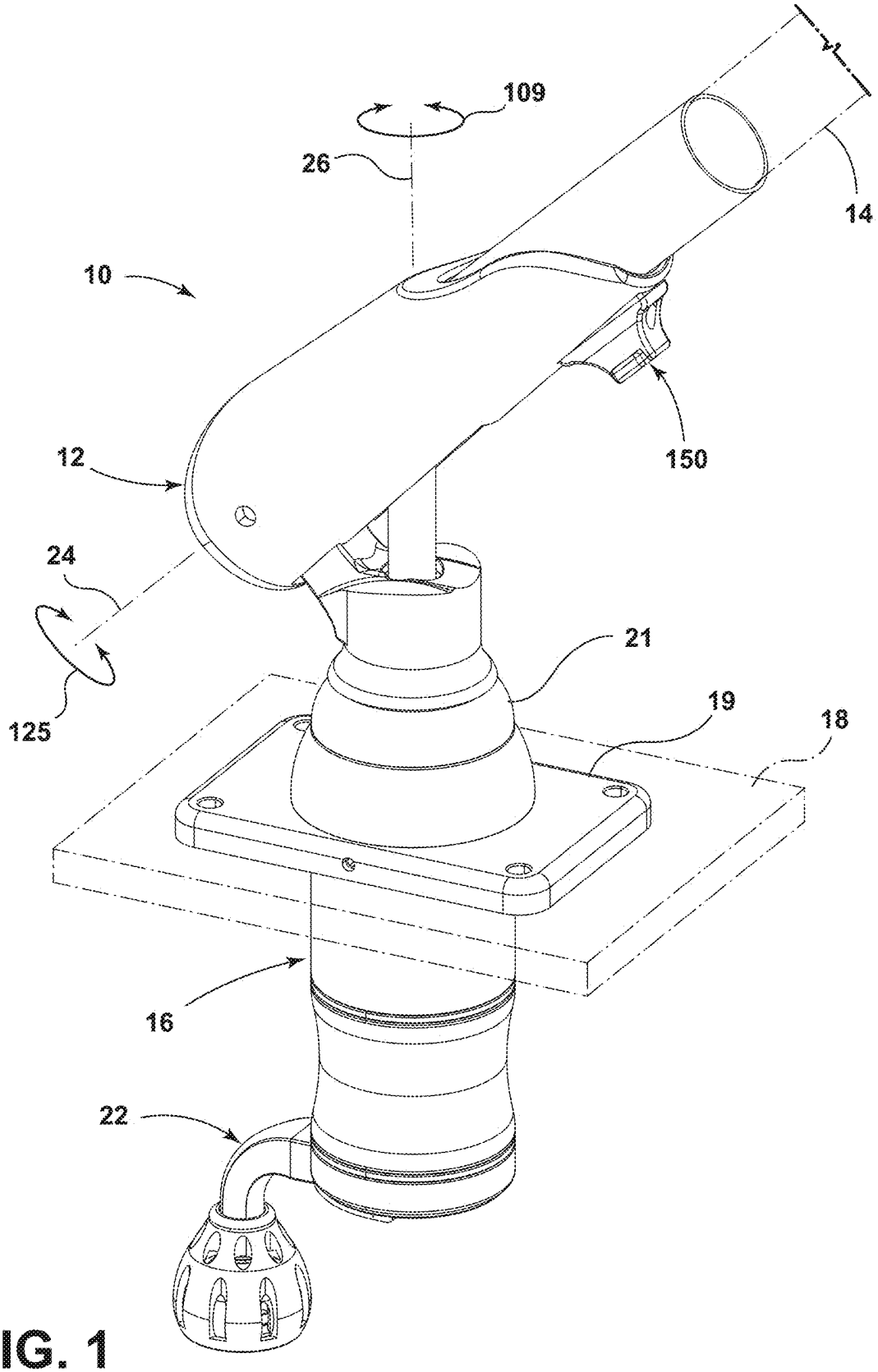


FIG. 1

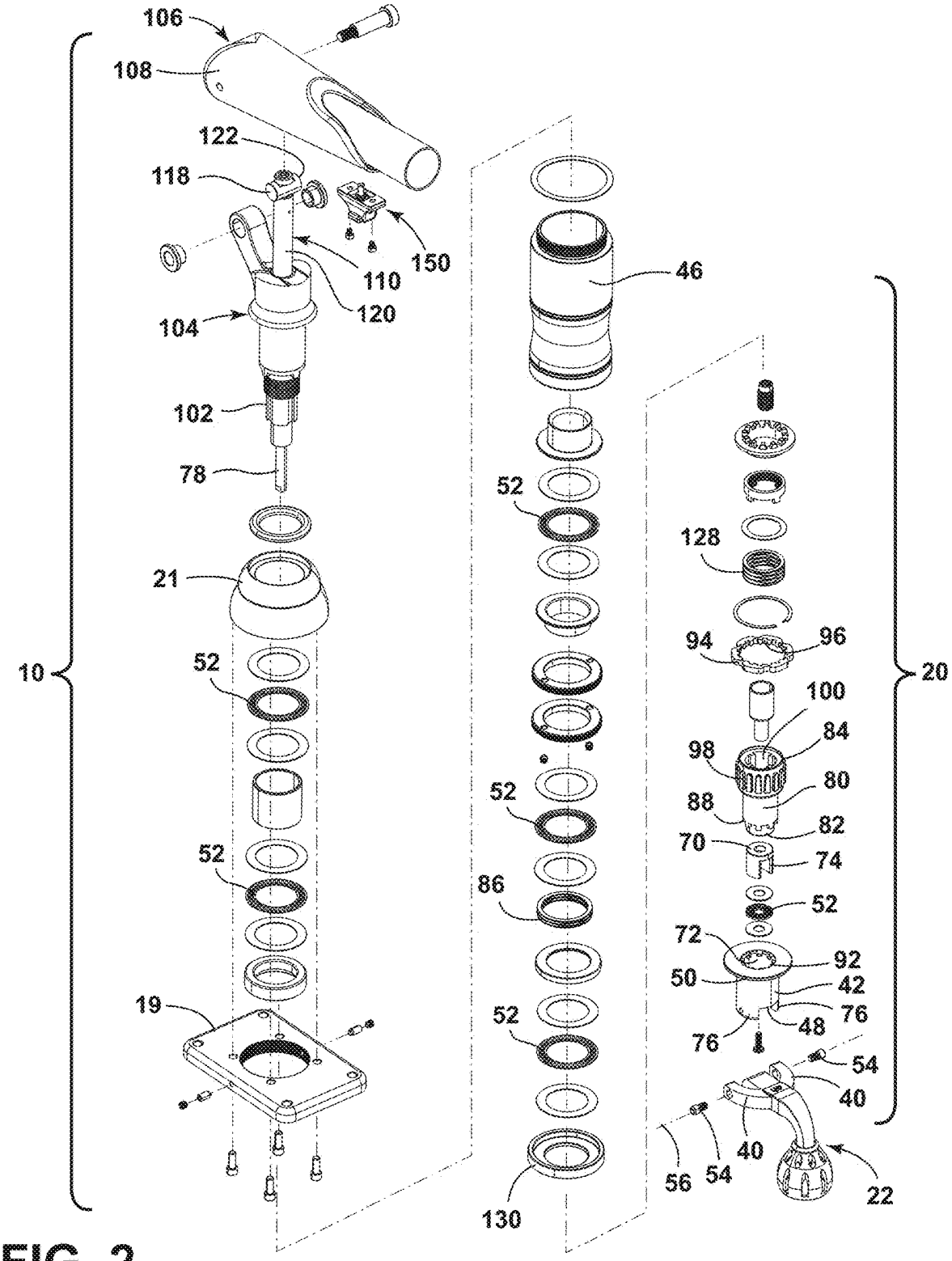

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FIG. 2

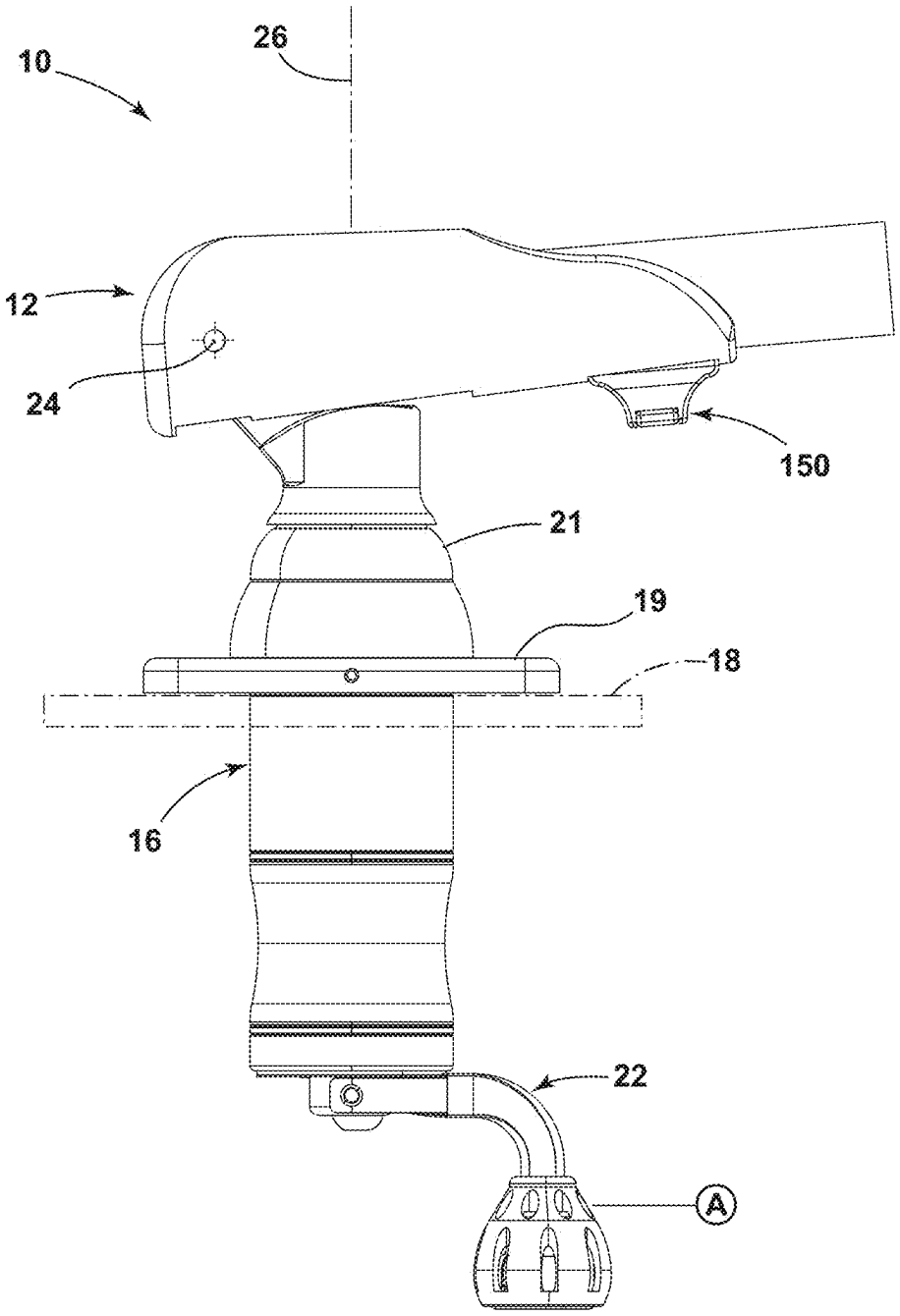

FIG. 3

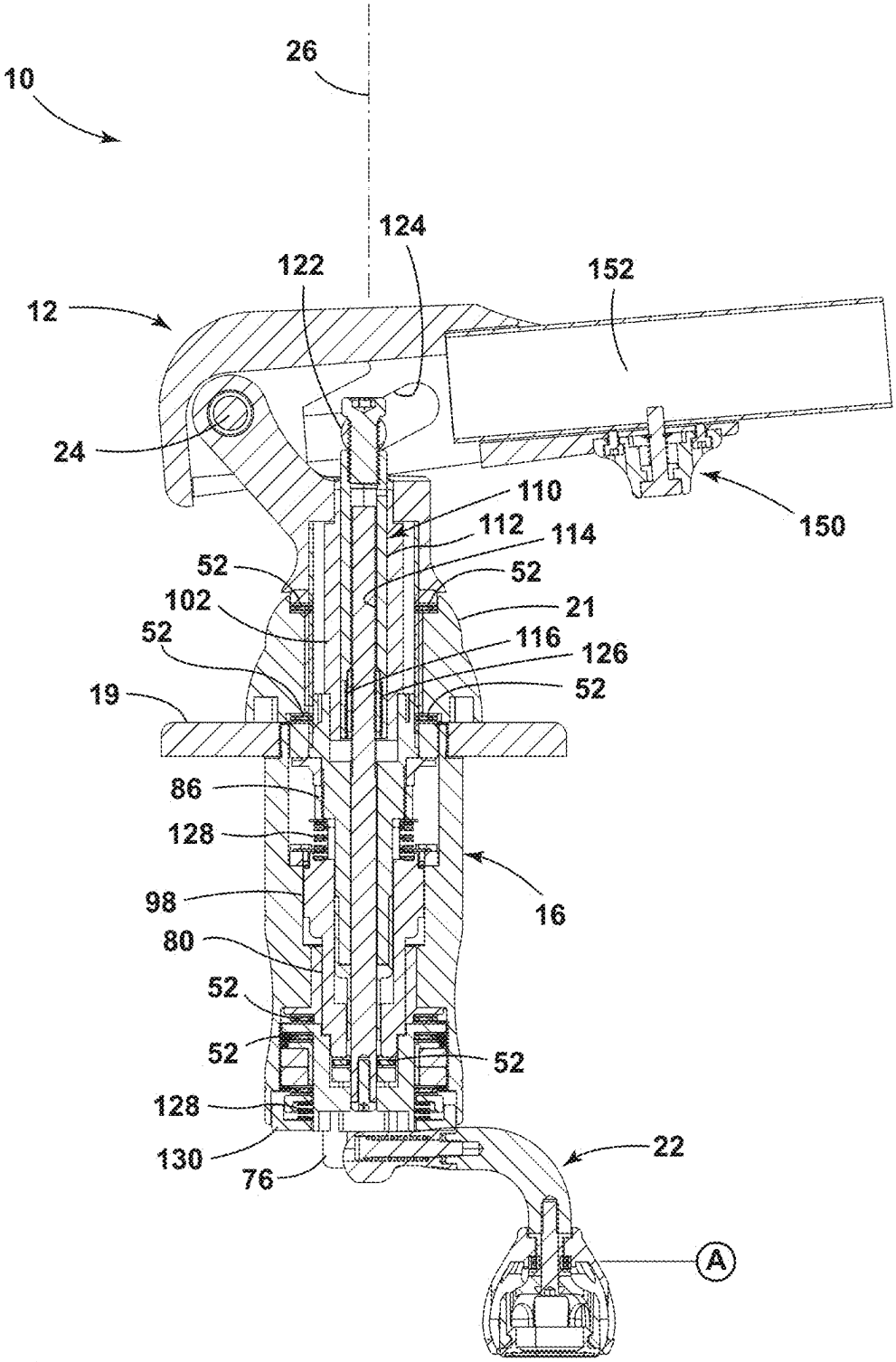
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FIG. 4

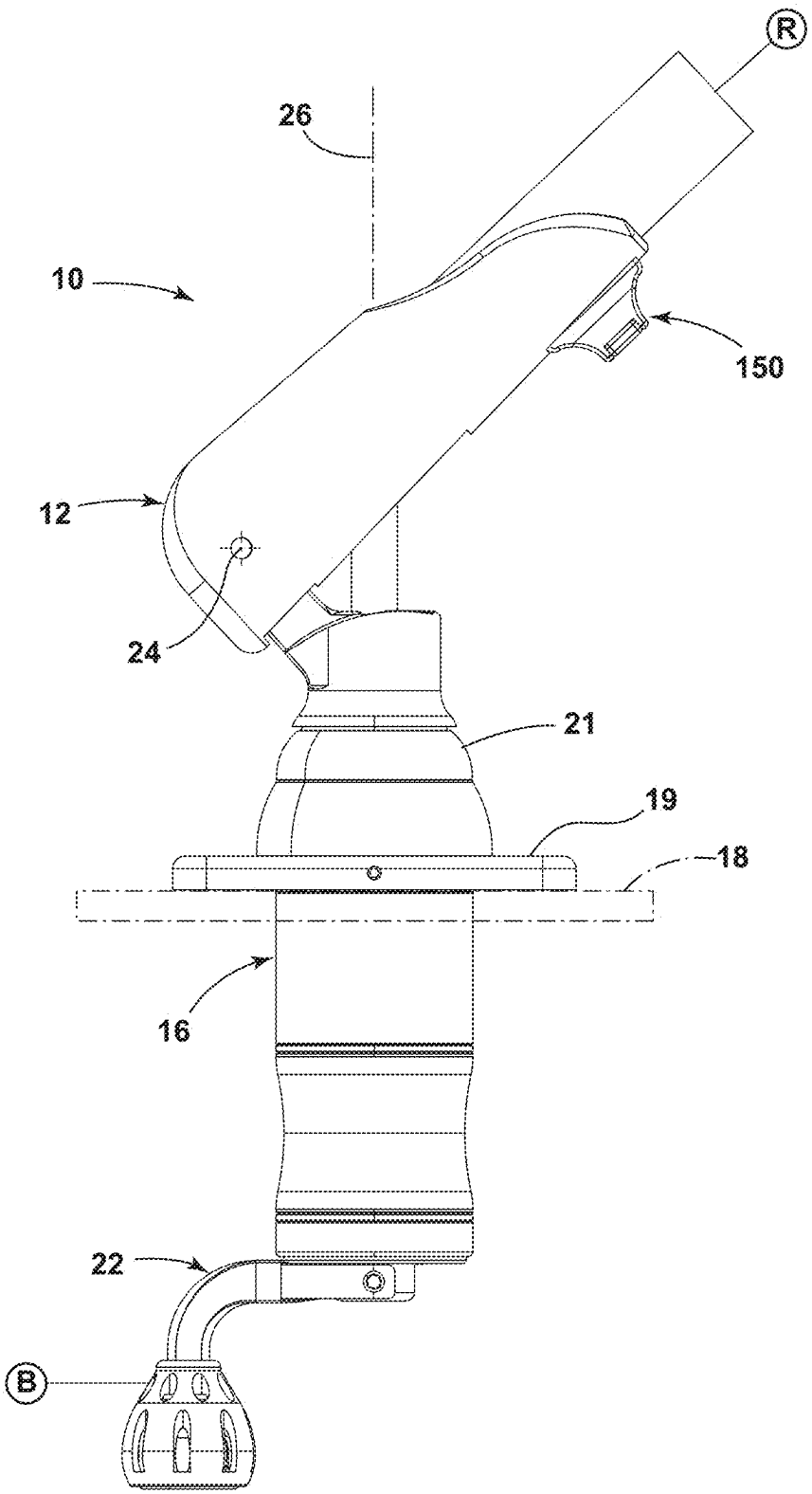

FIG. 5

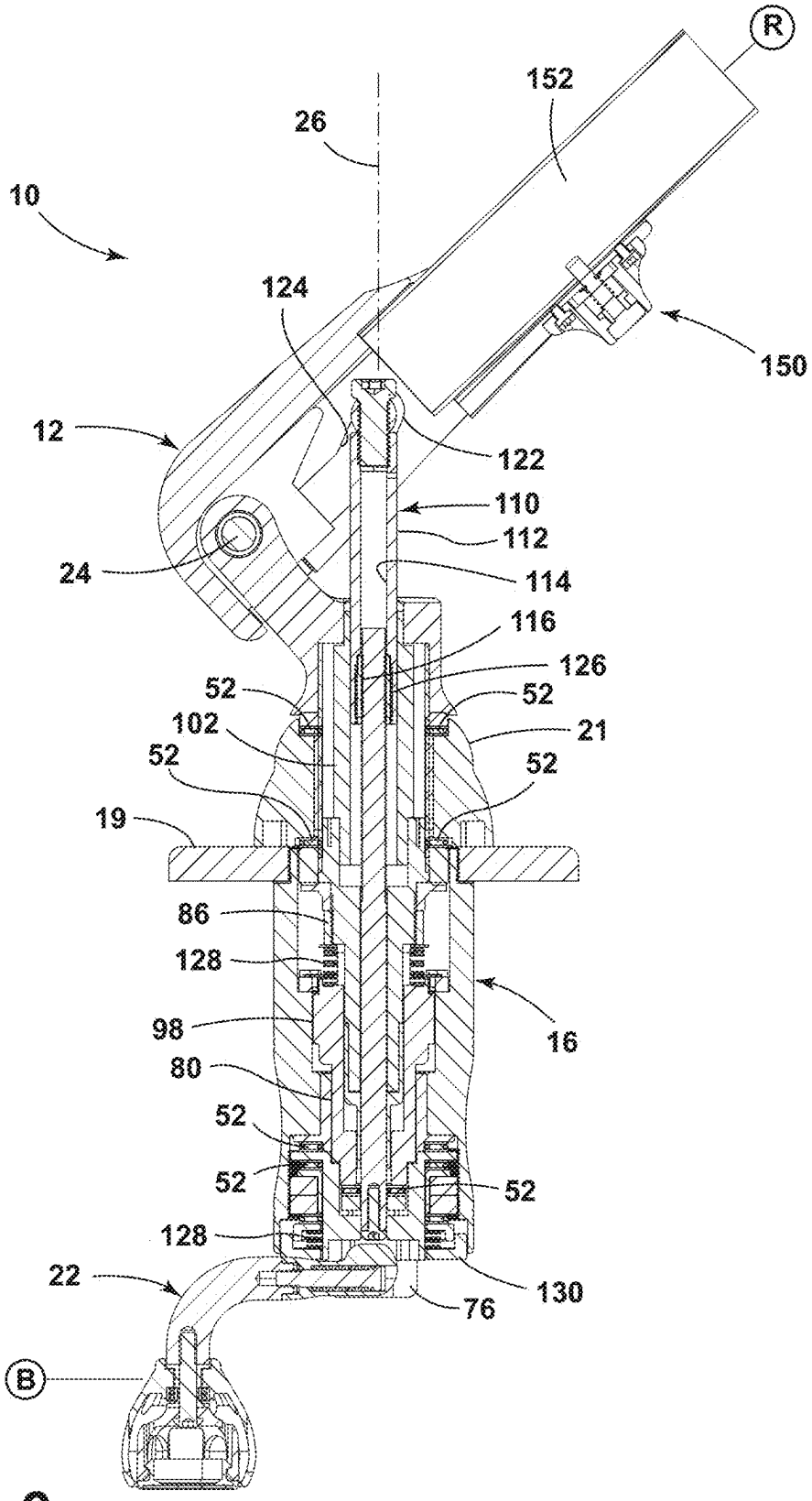
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FIG. 6

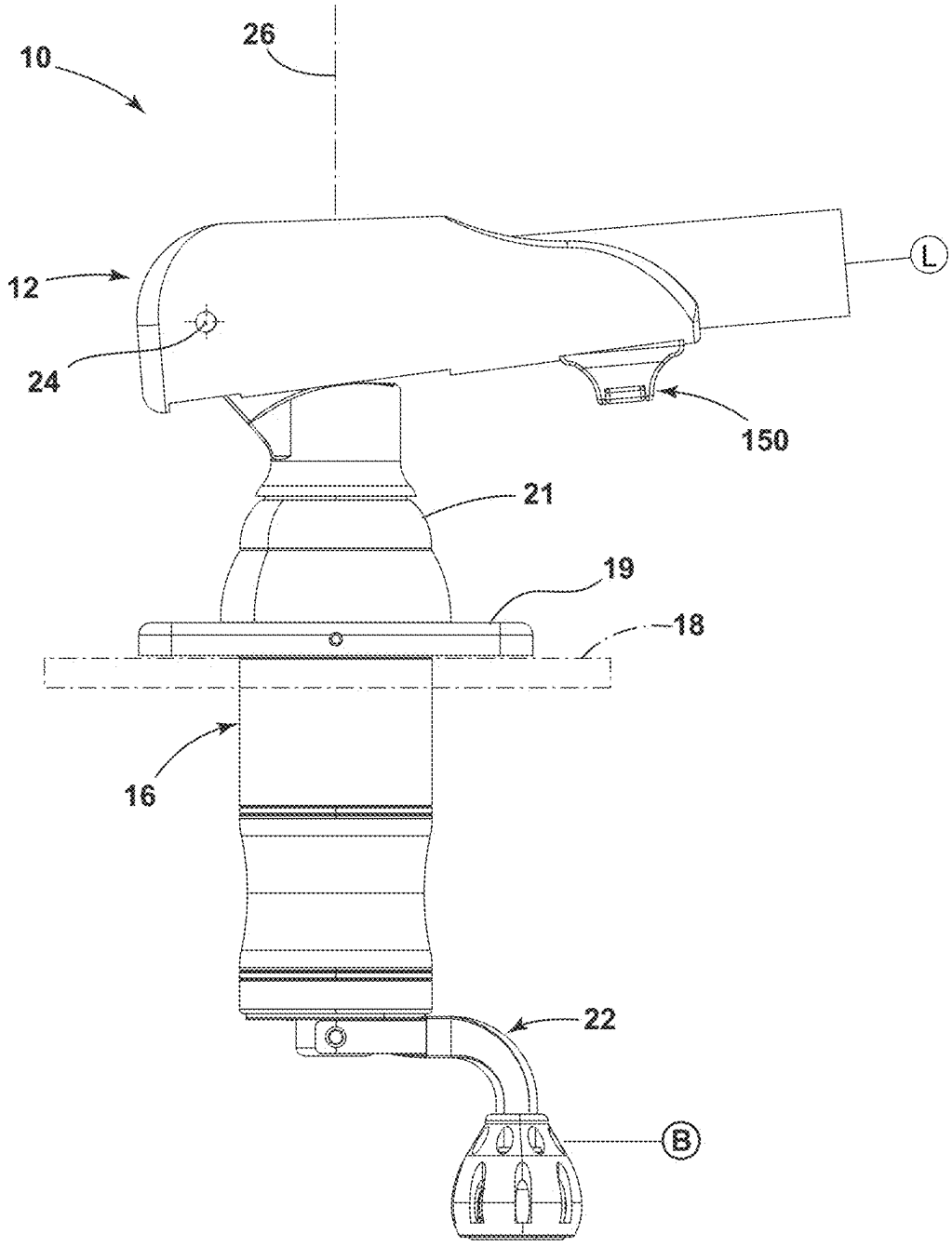

FIG. 7

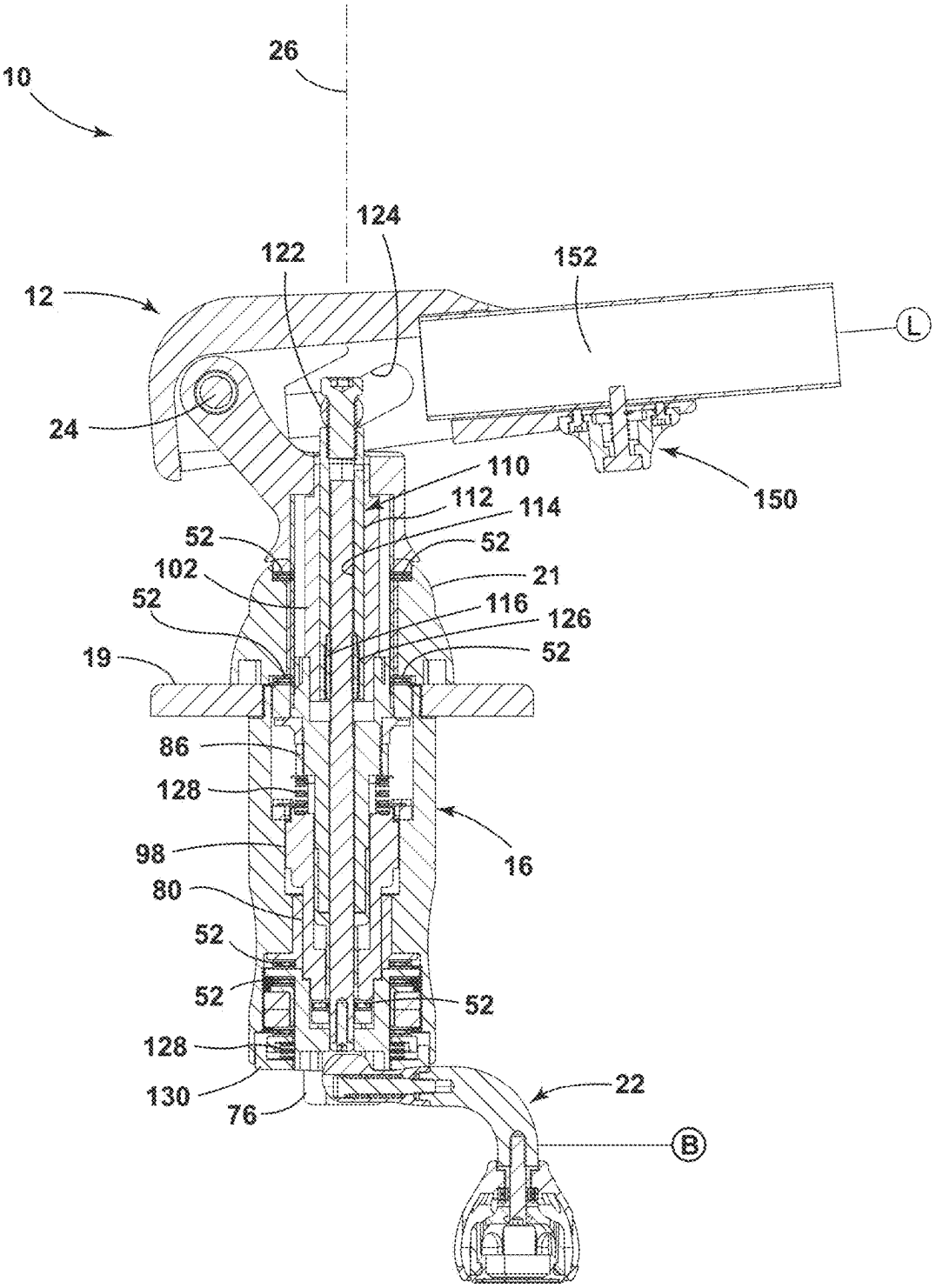
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FIG. 8

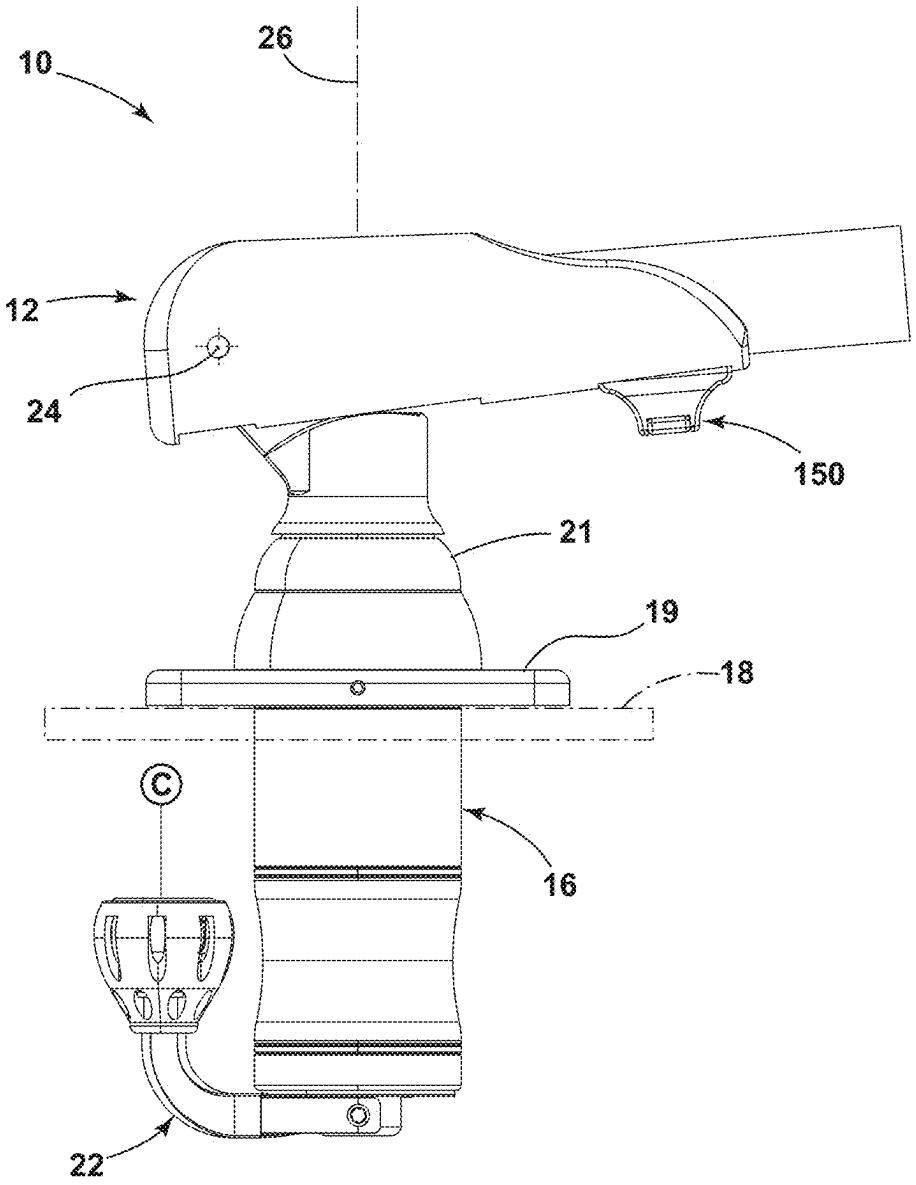

FIG. 9

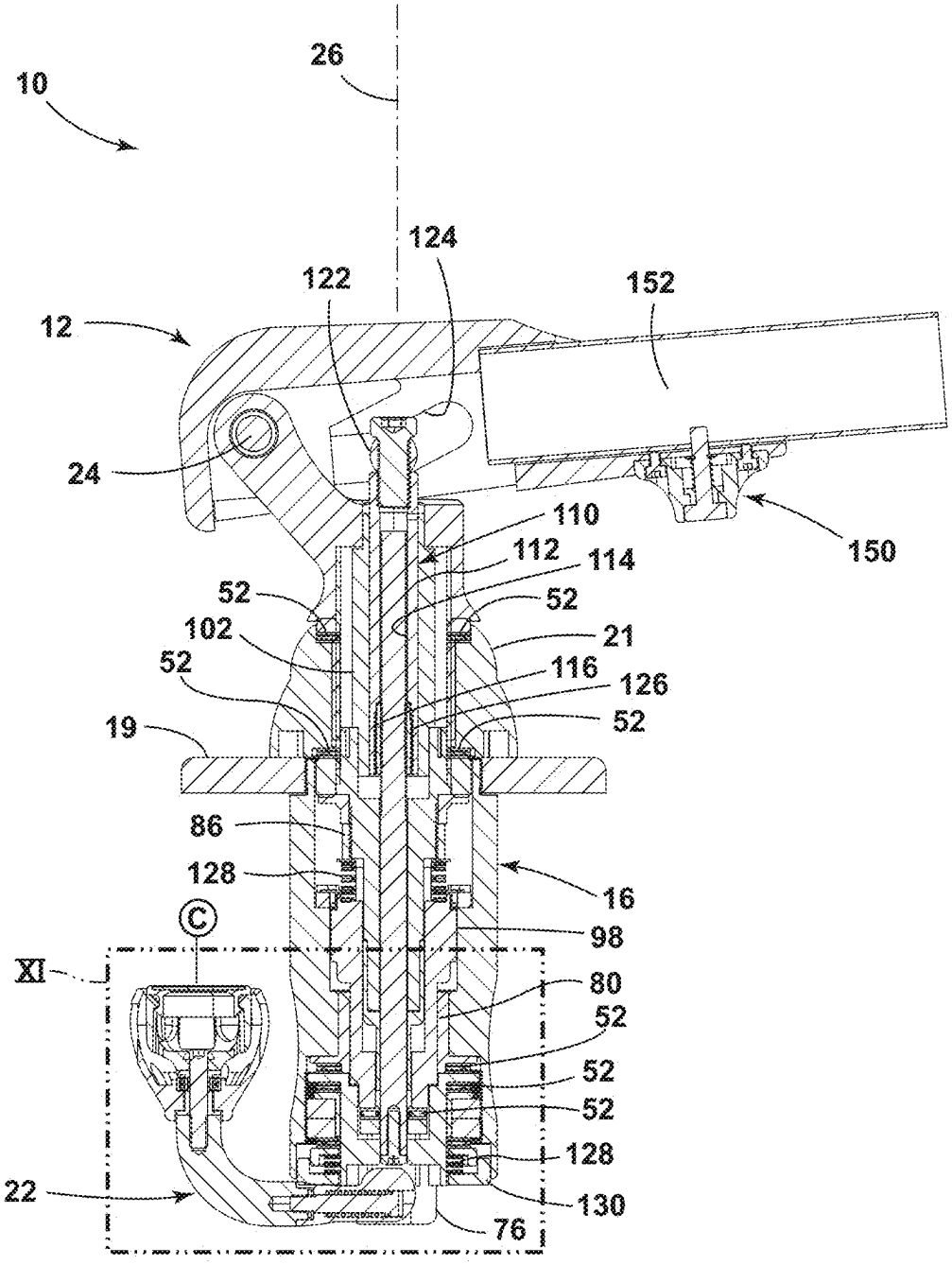
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FIG. 10

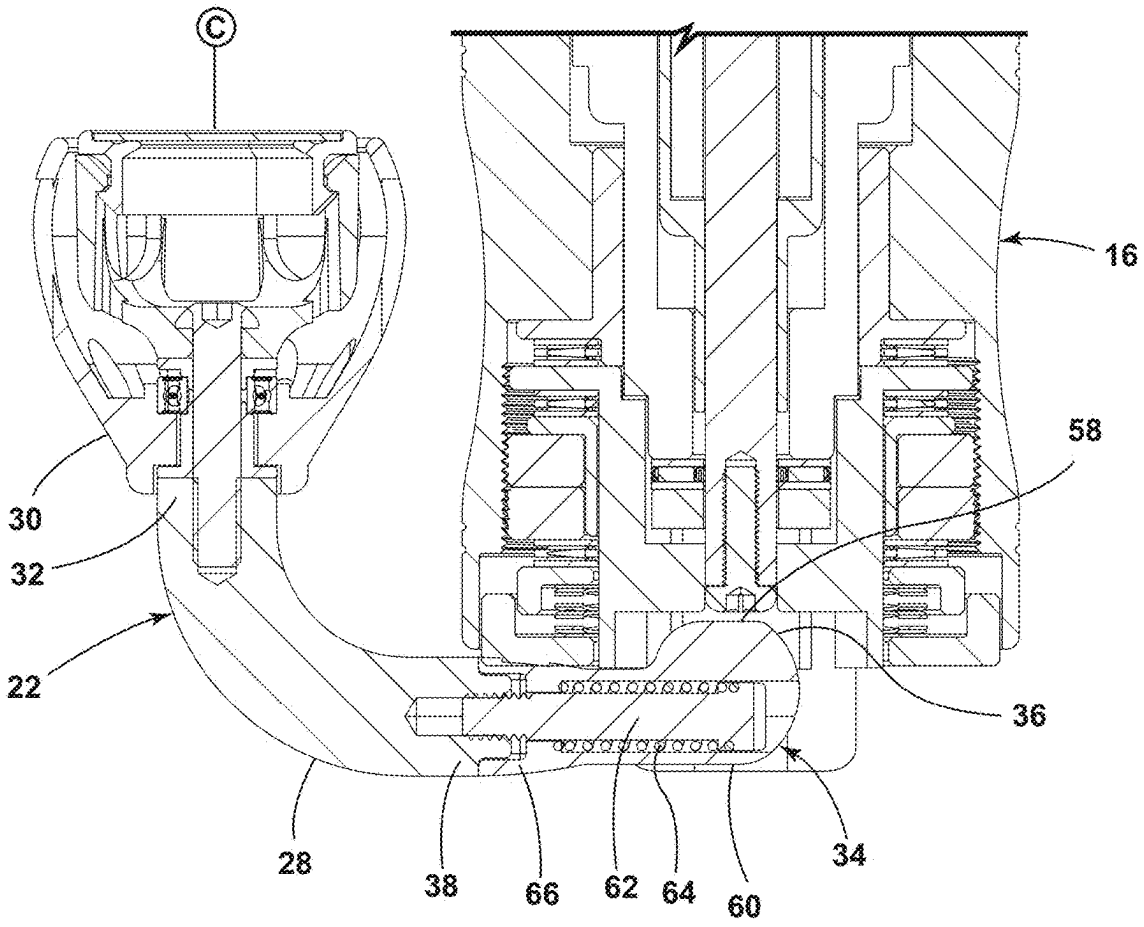

FIG. 11

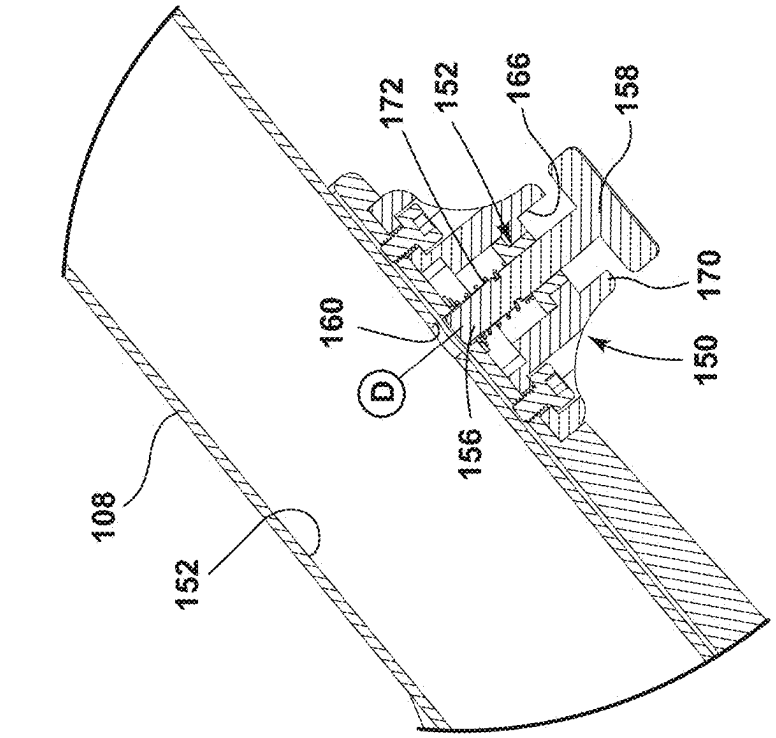
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FIG. 13

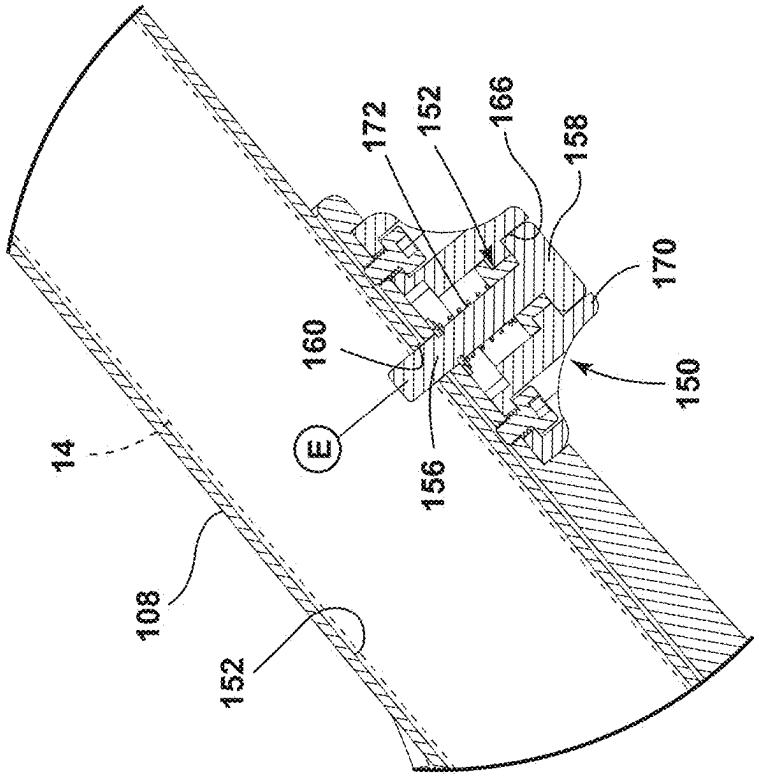
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FIG. 12

OUTRIGGER MOUNT ASSEMBLY

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims benefit to U.S. Provisional Patent Application No. 63/551,808, filed Feb. 9, 2024, entitled "OUTRIGGER MOUNT," the entire disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to an outrigger mount assembly, and in particular to an outrigger mount assembly configured to provide rotational and tilting adjustment of a supported outrigger via a highly adjustable and compact multiple-splined engagement arrangement, and additionally that provides locking of a supported outrigger within the outrigger mount assembly.

SUMMARY OF THE INVENTION

[0003] One embodiment of the invention as shown and described herein includes an outrigger mount assembly that may include a support member configured to receive an outrigger therein, wherein the support member is pivotable about a substantially horizonal axis between first and second positions, and wherein the support member is pivotable about a substantially vertical axis between third and fourth positions, an actuator assembly movable between a first configuration where the support member is movable between the first and second positions and is prevented from moving between the third and fourth positions, and a second configuration where the support member is movable between the third and fourth positions and is prevented from moving between the first and second positions, and a handle assembly movable between a first extended position causing the actuator assembly to move to the first configuration, a second extended position causing the actuator assembly to move to the second configuration, and a retracted position.

[0004] Another embodiment as shown and described herein may further or alternatively include an outrigger mount assembly that may include a support member configured to receive an outrigger therein, wherein the support member is pivotable about a substantially horizonal axis between first and second positions, and wherein the support member is pivotable about a substantially vertical axis between third and fourth positions, and an actuator assembly movable between a first configuration where the support member is movable between the first and second positions and is prevented from moving between the third and fourth positions, and a second configuration where the support member is movable between the third and fourth positions and is prevented from moving between the first and second positions, wherein the actuator assembly includes a first spline arrangement that is engaged when the actuator assembly is in the first configuration and disengaged when the actuator assembly is in the second configuration.

[0005] Yet another embodiment as shown and described herein may further or alternatively include an outrigger mount assembly that may include a support member configured to receive an outrigger in an interior space of the support member, an engagement member movable between an engaged position where the engagement member is configured to prevent the outrigger from being removed from within the interior space of the support member, a disengaged position that allows the outrigger to be removed from the interior space of the support member, a locked position that prevents the engagement member from being moved from the second position to the first position, and an unlocked position that allows the engagement member to move from the disengaged position to the engaged position, and a biasing member that biases the engagement member from the second position toward the first position.

[0006] The embodiments of the outrigger mount assembly as shown and described herein provide a highly adjustable, compact and durable arrangement that can be easily operated and quickly adjusted by a single person, and is capable of a long operating life, and is particularly well adapted for the proposed use.

[0007] These and other advantages of the invention will be further understood and appreciated by those skilled in the art by reference to the following written specification, claims and appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. **1** is a perspective view of an outrigger mount assembly embodying the present invention;

[0009] FIG. **2** is an exploded perspective view of the outrigger mount assembly;

[0010] FIG. **3** is a side elevation view of the outrigger mount assembly showing an adjustment handle in a first extended position and a support member in a raised position;

[0011] FIG. **4** is a cross-sectional side elevation view of the outrigger mount assembly in the configuration shown in FIG. **3**;

[0012] FIG. **5** is a side elevation view of the outrigger mount assembly with the adjustment handle in the first extended position and the support member in a lowered position;

[0013] FIG. **6** is a cross-sectional side elevation view of the outrigger mount assembly in the configuration shown in FIG. **5**;

[0014] FIG. **7** is a side elevation view of the outrigger mount assembly showing the adjustment handle in a second extended position;

[0015] FIG. **8** is a cross-sectional side elevation view of the outrigger mount assembly in the configuration shown in FIG. **7**;

[0016] FIG. **9** is a side elevation view of the outrigger mount assembly showing the adjustment handle in a storage or retracted position;

[0017] FIG. **10** is a cross-sectional side elevation view of the outrigger mount assembly in the configuration shown in FIG. **9**;

[0018] FIG. **11** is an enlarged cross-sectional view of the area XI, FIG. **3**;

[0019] FIG. **12** is a cross-sectional elevation view of an outrigger locking arrangement in an engaged position; and

[0020] FIG. **13** is a cross-sectional elevation view of the outrigger locking arrangement in a disengaged position.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0021] For purposes of description herein, the terms "upper," "lower," "right," "left," "rear," "front," "vertical," "horizontal," and derivatives thereof shall relate to the invention as oriented in FIGS. **1** and **2**. However, it is to be understood that the invention may assume various alterna-

tive orientations, except where expressly specified to the contrary. It is also to be understood that the specific devices and processes illustrated in the attached drawings, and described in the following specification are simply exemplary embodiments of the inventive concepts defined in the appended claims. Hence, specific dimensions and other characteristics relating to the embodiments disclosed herein are not to be considered as limiting, unless the claims expressly state otherwise.

[0022] The reference numeral **10** (FIG. **1**) generally designates an outrigger mount assembly embodying the present invention. In the illustrated example, the outrigger mount assembly **10** includes a head assembly **12** configured to removably support an outrigger **14** therein, a support assembly **16** configured to support the outrigger mount assembly **10** from a structure of a boat such as a boat T-top **18**, and including an actuator assembly **20** (FIG. **2**) configured to allow or prevent adjustment of the head assembly **12** about horizontal and vertical axes, and a handle assembly **22** adjustable between various actuation and storage positions. As further described in detail below, the handle assembly **22** is adjustable between: a first extended position A (FIGS. **3** and **4**) such that rotation of the handle assembly **22** actuates the head assembly **12** about a vertical pivot axis **26**; a second extended position B which moves the actuator assembly **20** to a second configuration such that rotation of the handle assembly **22** pivots the head assembly **12** about a horizontal pivot axis **24** between a raised position R (FIGS. **5** and **6**) and a lowered position L (FIGS. **7** and **8**); and a retracted or storage position C (FIGS. **9** and **10**).

[0023] The handle assembly **22** (FIGS. **1**, **2** and **11**) includes a curved arm or lever **28**, a knob/handle **30** rotatably coupled to a distal end **32** of the arm **28**, and a cam member **34** with a cam surface **36** coupled to a proximate end **38** of the arm **28**. The cam surface **36** is disposed between two mounting arms **40** that mount the handle assembly **22** to a race **42** located withing a housing **46** and which includes a slot **48** to receive the cam member **34**. An upper end of the race **42** includes a shoulder **50** upon which one of a plurality of bearing sets **52** within the actuator assembly **20** are provided for rotation of the race **42** and handle assembly **22** where at least this lowermost bearing set **52** includes needle bearings. The mounting arms **40** are affixed to the race **42** by screws **54** that define a pivot axis **56** for the arm **28** and which allows the arm **28** to pivot to set the cam surface **36** on a high side or portion **58** of the cam surface **36** or a low side or portion **60** of the cam surface **60**. As noted above, the handle assembly **22** has a multi-piece construction that allows the knob **30** to pivot into knob down first extended position A (FIGS. **3** and **4**) and the knob down second extended position B (FIGS. **5-8**) when the cam member **34** is pivoted. This arrangement permits the knob **30** to be in a user accessible location when the handle assembly **22** is in either the first extended position A or the second extended position B. As best illustrated in FIG. **11**, the handle assembly **22** includes a screw **62** and a spring **64**, where the proximate end **38** has a rectangular shape and a receiving end **66** of the cam member **34** has a mating rectangularly-shaped receptacle or recess **68** that allows seating of the proximate end **38** of the arm **28** within the recess **68** in positions that are 180° apart to position the knob **30** into the desired position without changing a position of the cam member **34**.

[0024] A cylindrical cam follower **70** is disposed inside of a bore **72** of race **42** and includes a slot **74** formed therein, where the slot **74** defines two lobes **76** that are received in the race **42**. The race **42** includes a segment that spans across an inner diameter thereof and divides the bore **72** into two portions that receive the lobes **76** therein when the cam follower **70** is inserted into the race **42**. The segment has an aperture formed therein in which a lift rod **78** is fastened. The lift rod **78** is fastened to the race **42** and has a mating profile to the aperture profile in the segment of the race **78** and the lift rod **78** is fastened to the race **42** by a screw.

[0025] A rotation lock **80** is disposed coaxially with the cam follower **70** and the race **42**. A first end **82** of the rotation lock **80** abuts against the cam follower **70** and an opposite second end **84** abuts a spring **86** that biases the rotation lock **80** into abutment with the cam follower **70**. Next to the first end **82** of the rotation lock **80** is a shoulder **88** that includes a plurality of teeth **90** facing the race **42** where the race **42** has corresponding teeth **92** that face the rotation lock **80**.

[0026] A locking ring **94** includes a spline **96** that is engaged to an outer spline **98** of rotation lock **80** when the handle assembly is in the first, extended position A and the high portion **58** of the cam surface **36** holds the rotation lock **80** in place, which allows a movement of the lift rod **78** relative to the rotation lock **80**.

[0027] When the cam member **34** is set so the low side or portion **58** of the cam surface **36** is in contact with the cam follower **70** as shown in FIGS. **3** and **4**, the spring **86** presses the teeth **90** of the rotation lock **80** into engagement with the corresponding teeth **92** on the race **42**. The external splines **90** of the rotation lock **80** fall out of engagement with the splines **96** on the locking ring **94** such that the rotation lock **80** can rotate about the vertical axis **26**. In this configuration, rotation of the handle assembly **22** about the vertical axis **26** rotates the race **42** and thus the rotation lock **80**. The rotation lock **80** further includes an inner spline **100** that engages an outer spline **102** of the lower head assembly **104** of the head assembly **12** such that a rotation of the handle assembly **22** about the vertical axis **26** rotates the lower head assembly **104** via the race **42** and the rotation lock **80**. This rotation of the lower head assembly **104** rotates an upper head assembly **106** of the head assembly **12** and thus rotates the outrigger pole **14** mounted within the support member **108** of the support assembly **16** in the directions **109** (FIG. **1**).

[0028] A rod lift assembly **110** includes a shank portion **112** that has a bore **114** with female threads **116**, and a T-shape head **118** defined by a cylindrical piece **120** that is affixed to an end of the shank portion **112**. Ends **122** of cylindrical piece **120** engage in angled slots **124** in the upper head assembly **106** so that an axial motion of the rod lift assembly **110** adjusts a tilt angle of the head assembly **12** between the raised and lowered positions R, L.

[0029] When the cam member **34** is set so the high side or portion **60** of the cam surface **36** is in contact with the cam follower **70** as show in in FIGS. **5-8**, the cam follower **70** presses the rotation lock **80** out of engagement with the race **42** and the outer spline **98** of the rotation lock **80** engages the spline **96** on the locking ring **94** which allows rotation of the cam follower **70** and the lift rod **78** relative to the rotation lock **80**. The head assembly **12** is therefore not rotated during rotation of the handle assembly **22**. The cylindrical piece **120** at the end of the rod lift assembly **110** is thus rotationally held as well. In this configuration, rotation of the

handle assembly **22** about the vertical axis **26** causes the threads **126** of the lift rod **78** to rotate. Since the external threads **126** are engaged with the threads **116** on the rod lift assembly **110**, which has the T-shape head **118** that rotationally holds the rod lift assembly **110**, the threads **116**, **126** move relative to one another. This in turn results in axial motion of the lift rod **78**, which moves the cylindrical piece **120** in the angled slots **124** to tilt the upper head assembly **106** which adjusts an angular position of the upper head assembly **106** by pivoting the support member **108** about the horizontal axis **24** in the direction **125**.

[0030] The handle assembly **22** may further be pivoted into the storage position C (FIGS. **9-11**) where the handle **28** is folded upwardly and the knob **30** and at least a portion of the handle **28** extends upwardly from a lowermost end of the housing **16** and the actuator assembly **20**, thereby reducing the chances of users accidentally contacting or colliding with the handle assembly **22**.

[0031] A spring **128** is disposed within the race **42** and presses against a lower spring housing **120**, which acts against the two arms **40** to hold the handle assembly **22** in place in the selected cam position. The ends of the mounting arms **40** are provided with a radius to allow smooth pivot between the high and low cam positions.

[0032] The outrigger mount assembly **10** may further include an outrigger locking arrangement **150** (FIGS. **12** and **13**) configured to engage the outrigger **14** to prevent the outrigger **14** from being removed from within an interior **152** of the support member **108**. In the illustrated example, the locking arrangement **150** includes a locking member **154** having a shaft portion **156** and a head **158**, movable between an engaged configuration E (FIG. **12**) where the shaft portion **156** extends through an aperture **160** of the support member **108** and the interior **152** and engages the outrigger **14** thereby preventing the outrigger **14** from being removed from the support member **108**, and a disengaged configuration D (FIG. **13**) where the shaft portion is withdrawn from within the interior **152** of the support member **108** and disengages the outrigger **14** thereby allowing the outrigger **14** to be removed from the support member **108**. The locking arrangement **150** further includes a housing **162** secured to the support member **108** via a plurality of screws **164** and including a rectangularly-shaped recess **166** configured to receive the head **158** of the locking member when in the engaged configuration E, and an endwall **170**, which the head **158** abuts when in the disengaged configuration D. A coil spring **172** biases the locking member toward the support member **108**, which allows one-handed operation of the locking arrangement **150** by the user.

[0033] The above description is considered that of the preferred embodiment(s) only. Modifications of the invention will occur to those skilled in the art and to those who make or use the invention. Therefore, it is understood that the embodiment(s) shown in the drawings and described above merely are for illustrative purposes and not intended to limit the scope of the invention, which is defined by the following claims as interpreted according to the principles of patent law, including the doctrine of equivalents.

The invention claimed is:

1. An outrigger mount assembly, comprising:

a support member configured to receive an outrigger therein, wherein the support member is pivotable about a substantially horizonal axis between first and second positions, and wherein the support member is pivotable about a substantially vertical axis between third and fourth positions;

an actuator assembly movable between a first configuration where the support member is movable between the first and second positions and is prevented from moving between the third and fourth positions, and a second configuration where the support member is movable between the third and fourth positions and is prevented from moving between the first and second positions; and

a handle assembly movable between a first extended position causing the actuator assembly to move to the first configuration, a second extended position causing the actuator assembly to move to the second configuration, and a retracted position.

2. The outrigger mount assembly of claim **1**, wherein the handle assembly extends downward from the actuator assembly when in the first and second extended positions, and wherein the handle assembly extends upwardly with respect at least a portion of the actuator assembly when in the retracted position.

3. The outrigger mount assembly of claim **1**, wherein the actuator assembly is linearly actuated between the first and second configurations.

4. The outrigger mount assembly of claim **1**, wherein the actuator assembly includes a first spline arrangement that is engaged when the actuator assembly is in the first configuration and disengaged when the actuator assembly is in the second configuration.

5. The outrigger mount assembly of claim **4**, wherein the actuator assembly includes a second spline arrangement that is disengaged when the actuator assembly is in the first configuration and engaged when the actuator assembly is in the second configuration.

6. The outrigger mount assembly of claim **1**, wherein the handle assembly includes a first cam surface that moves the actuator assembly to the first configuration when engaged, and a second cam surface that moves the actuator assembly to the second configuration when engaged.

7. The outrigger mount assembly of claim **1**, wherein the actuator assembly includes a first biasing member that biases the actuator assembly toward the first configuration when the handle assembly is in the first extended position.

8. The outrigger mount assembly of claim **7**, wherein the actuator assembly includes a second biasing member that biases the actuator assembly toward the second configuration when the handle assembly is in the second extended position.

9. An outrigger mount assembly, comprising:

a support member configured to receive an outrigger therein, wherein the support member is pivotable about a substantially horizonal axis between first and second positions, and wherein the support member is pivotable about a substantially vertical axis between third and fourth positions; and

an actuator assembly movable between a first configuration where the support member is movable between the first and second positions and is prevented from moving between the third and fourth positions, and a second configuration where the support member is movable between the third and fourth positions and is prevented from moving between the first and second positions, wherein the actuator assembly includes a first spline

arrangement that is engaged when the actuator assembly is in the first configuration and disengaged when the actuator assembly is the in second configuration.

10. The outrigger mount assembly of claim **9**, wherein the actuator assembly includes a second spline arrangement that is disengaged when the actuator assembly is in the first configuration and engaged when the actuator assembly is in the second configuration.

11. The outrigger mount assembly of claim **9**, further comprising:

a handle assembly movable between a first extended position causing the actuator assembly to move to the first configuration, and a second extended position causing the actuator assembly to move to the second configuration.

12. The outrigger mount assembly of claim **11**, wherein the handle assembly is further configured to move to a retracted position.

13. The outrigger mount assembly of claim **12**, wherein the handle assembly extends downward from the actuator assembly when in the first and second extended positions, and wherein the handle assembly extends upwardly with respect to at least a portion of the actuator assembly when in the retracted position.

14. The outrigger mount assembly of claim **9**, wherein the handle assembly includes a first cam surface that moves the actuator assembly to the first configuration when engaged, and a second cam surface that moves the actuator assembly to the second configuration when engaged.

15. The outrigger mount assembly of claim **9**, wherein the actuator assembly includes a first biasing member that biases the actuator assembly toward the first configuration when the handle assembly is in the first extended position.

16. The outrigger mount assembly of claim **15**, wherein the actuator assembly includes a second biasing member that biases the actuator assembly toward the second configuration when the handle assembly is in the second extended position.

17. An outrigger mount assembly, comprising:

a support member configured to receive an outrigger in an interior space of the support member;

an engagement member movable between an engaged position where the engagement member is configured to prevent the outrigger from being removed from within the interior space of the support member, a disengaged position that allows the outrigger to be removed from the interior space of the support member, a locked position that prevents the engagement member from being moved from the second position to the first position, and an unlocked position that allows the engagement member to move from the disengaged position to the engaged position; and

a biasing member that biases the engagement member from the second position toward the first position.

18. The outrigger mount assembly of claim **17**, wherein the engagement member is pivotable between the locked and unlocked positions.

19. The outrigger mount assembly of claim **17**, wherein the engagement member extends into the interior space when in the engaged position and is retracted from the interior space when in the disengaged position.

20. The outrigger mount assembly of claim **17**, wherein the biasing member includes a coil spring.

21. The outrigger mount assembly of claim **17**, wherein the engagement member is attached to an underside of the support member.

22. The outrigger mount assembly of claim **17**, wherein the support member is pivotably supported by the support arrangement.

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