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(54) **EXERCISE APPARATUSES**

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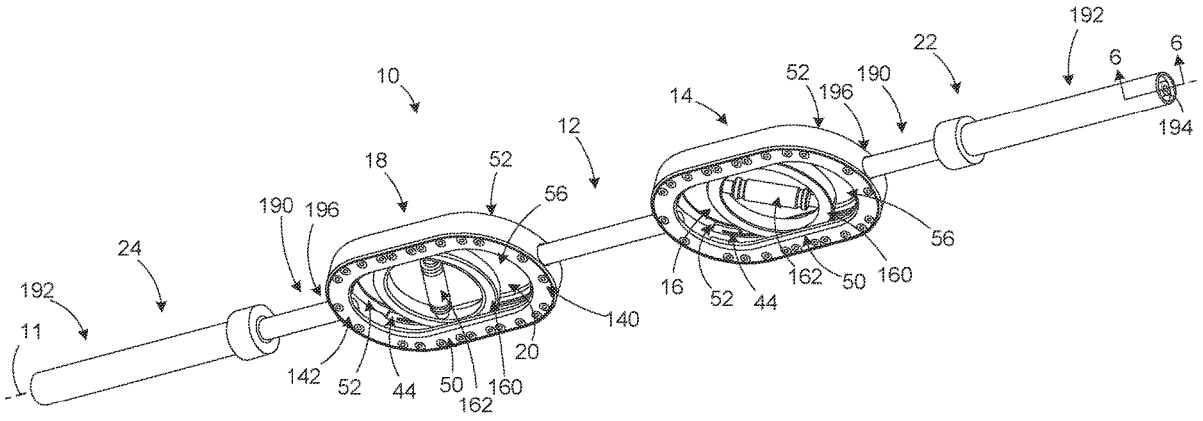
(52) **U.S. Cl.**
CPC ***A63B 21/4035*** (2015.10); ***A63B 21/0125*** (2013.01); ***A63B 21/4049*** (2015.10)

(57) **ABSTRACT**

Exercise apparatuses are described. An example exercise apparatus has a lengthwise axis and includes a first shaft, a first frame, a first handle, a second frame, and a second handle. The first shaft has a first shaft first end and a first shaft second end. The first frame is attached to the first shaft first end and defines a first frame passageway. The first handle is disposed within the first frame passageway such that the first handle can translate along the lengthwise axis and rotate within the first frame passageway. The second frame is attached to the first shaft second end and defines a second frame passageway. The second handle is disposed within the second frame passageway such that the second handle can translate along the lengthwise axis and rotate within the second frame passageway.



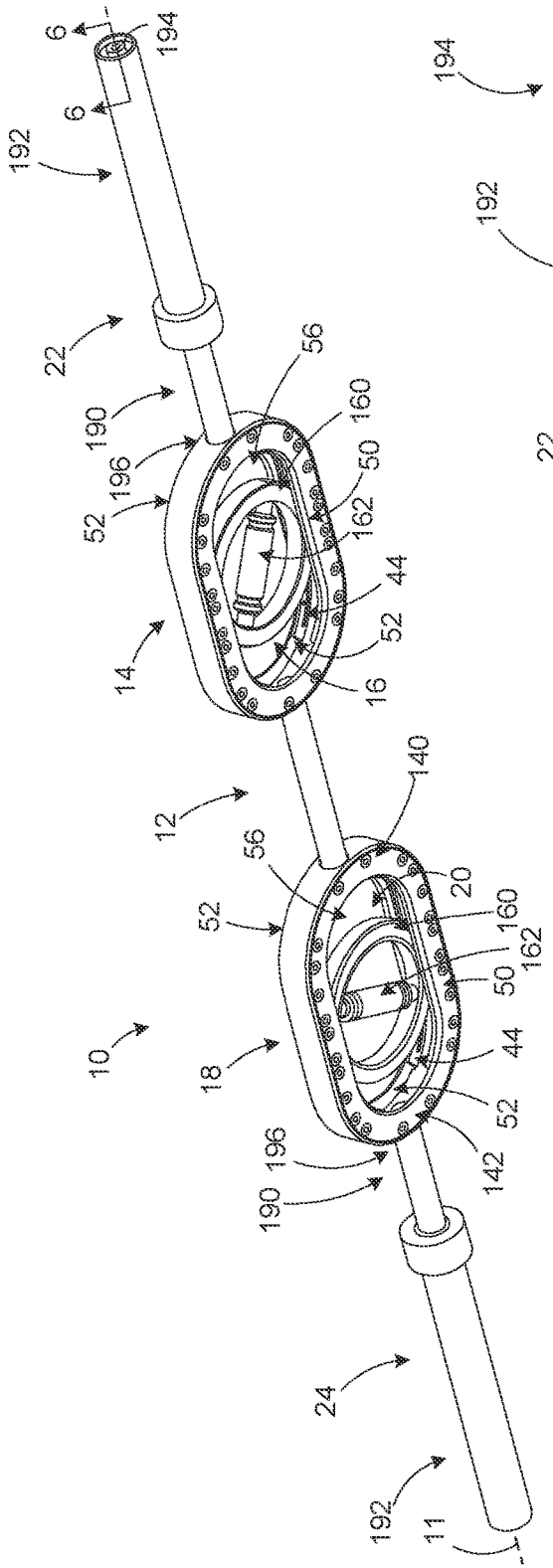

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FIG.1

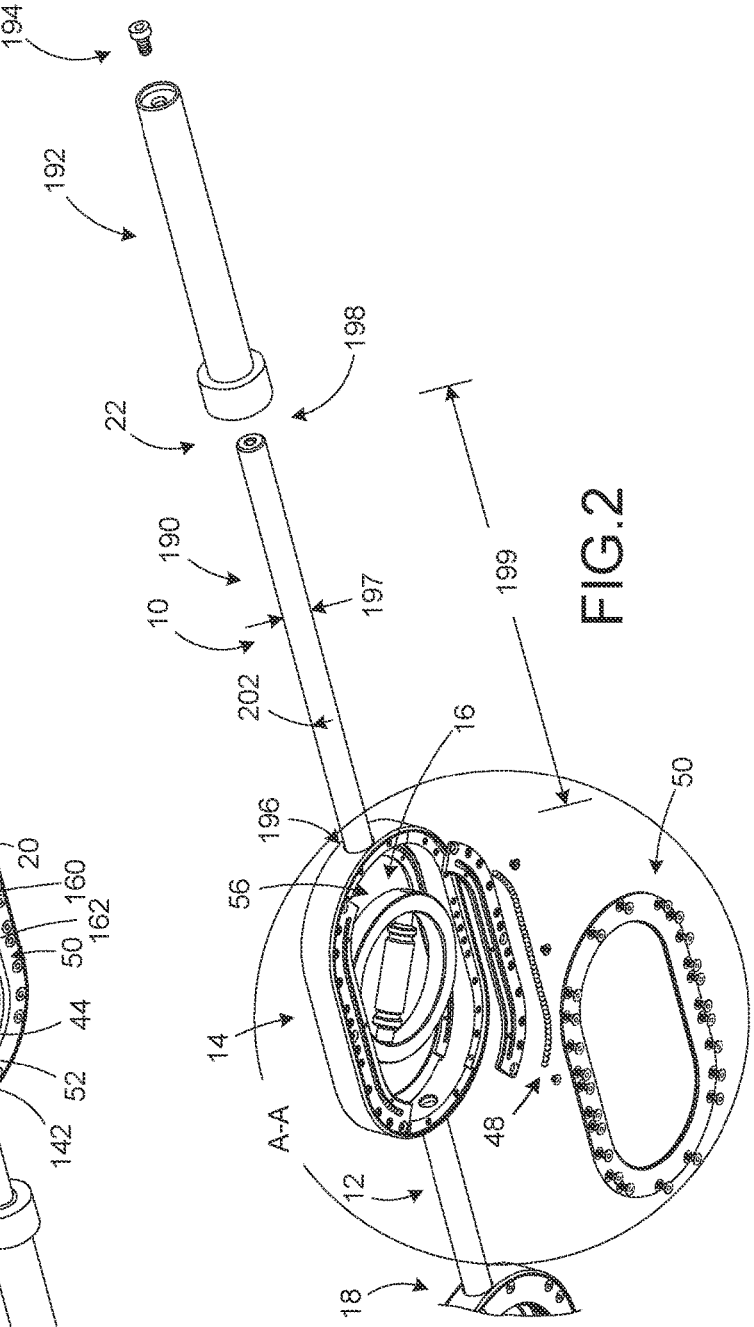
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FIG.2

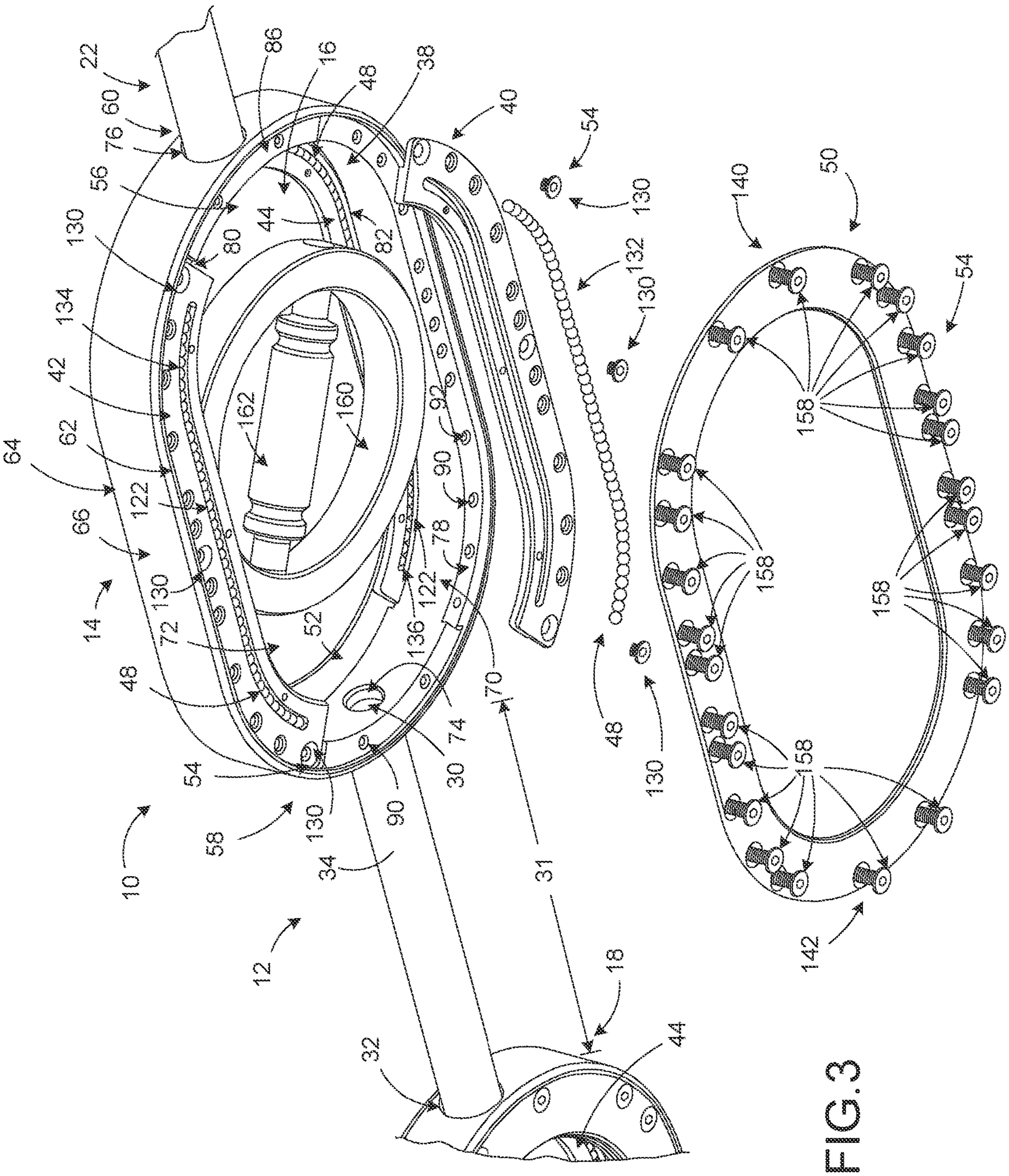
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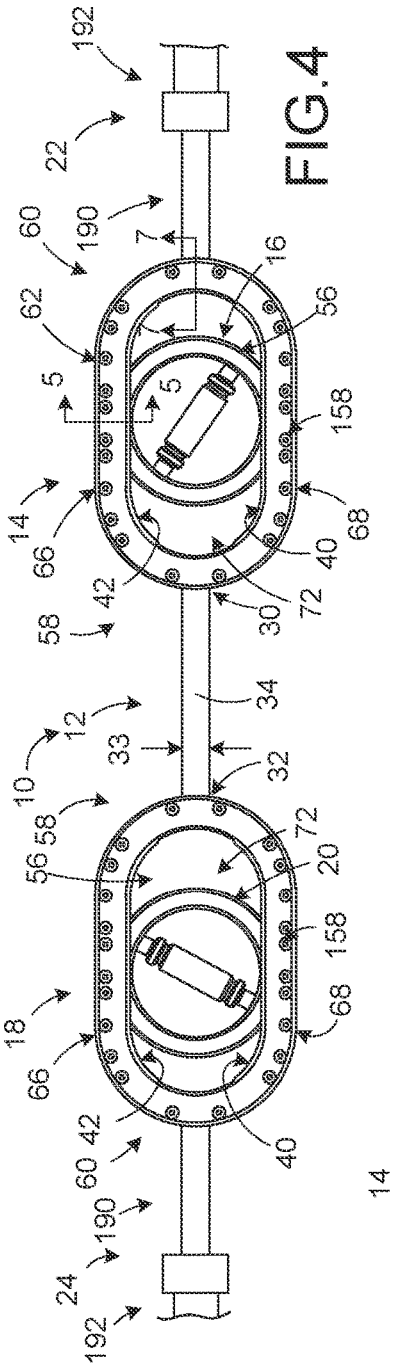
FIG.3



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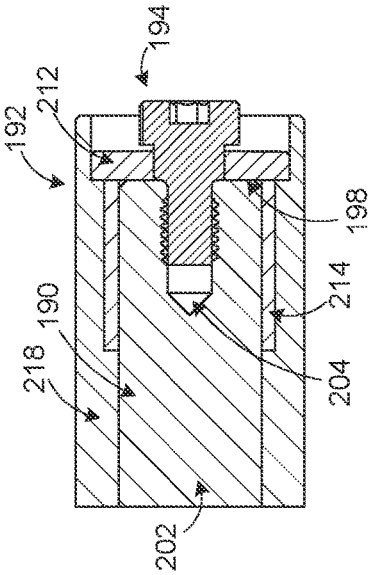

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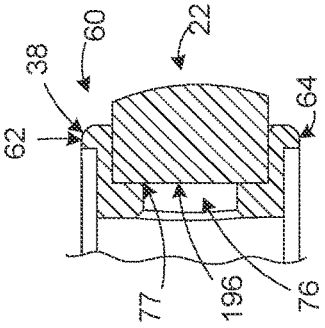
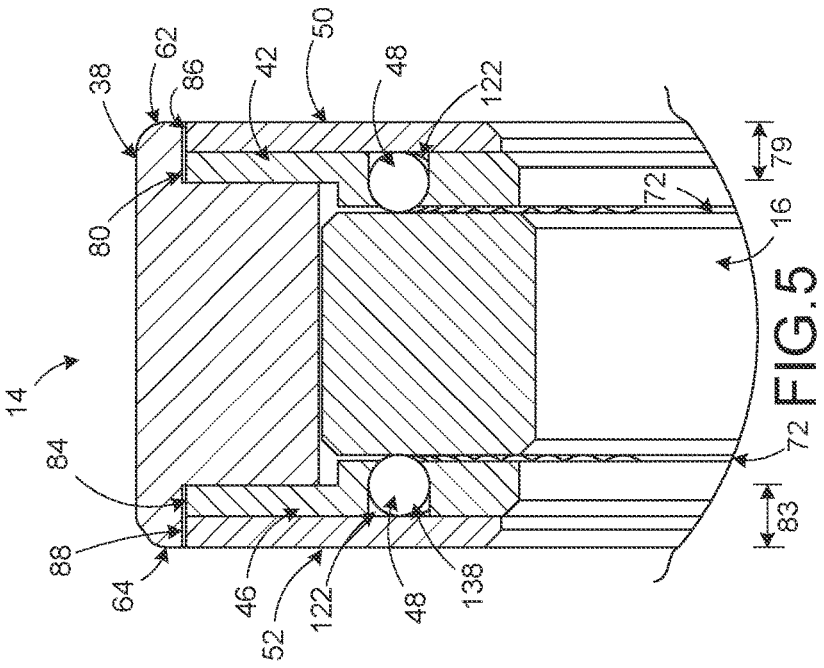


FIG.7



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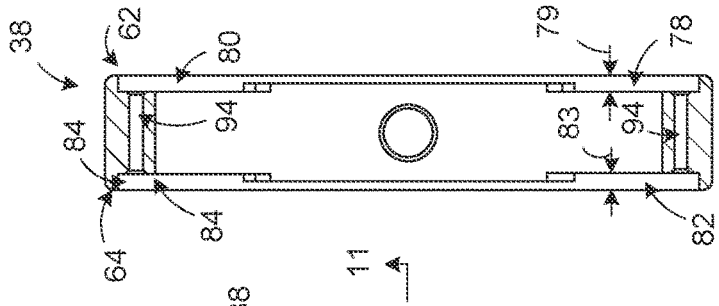

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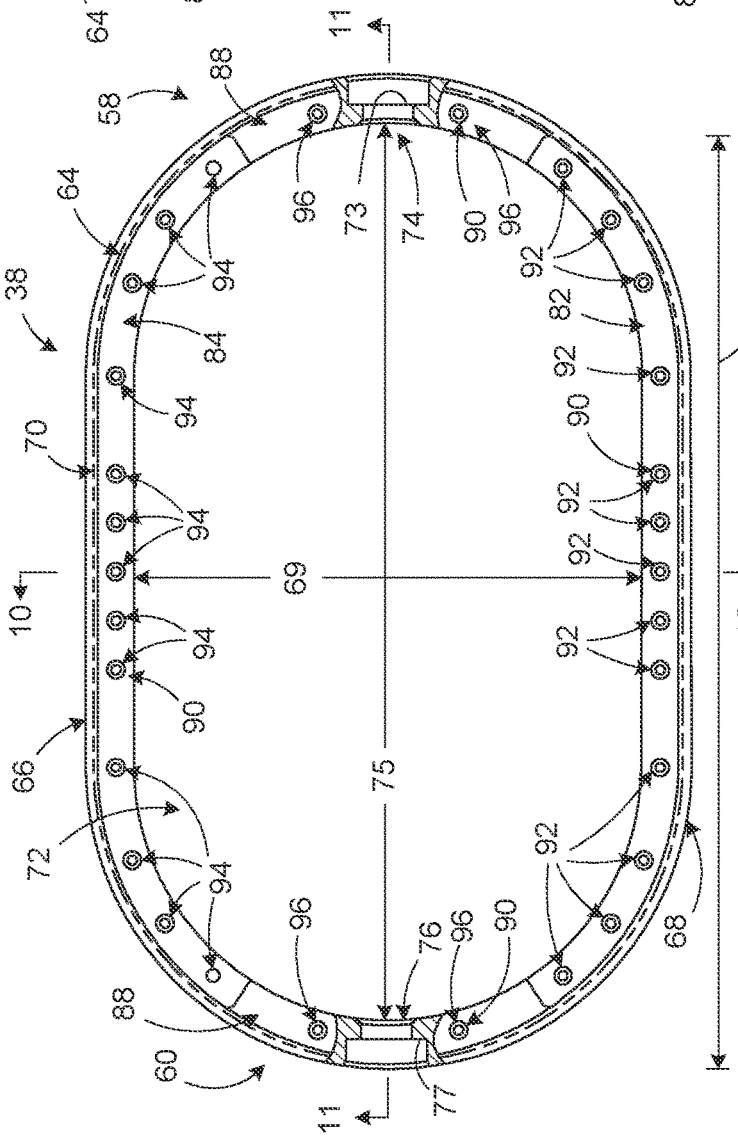

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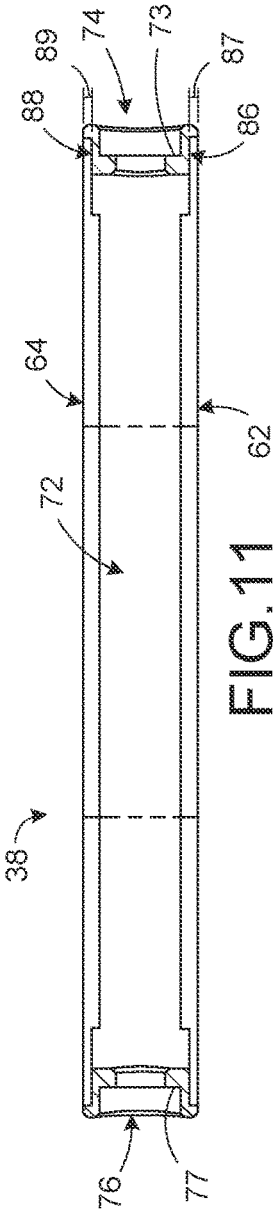

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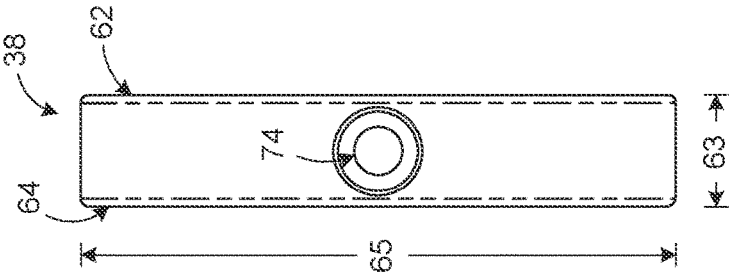

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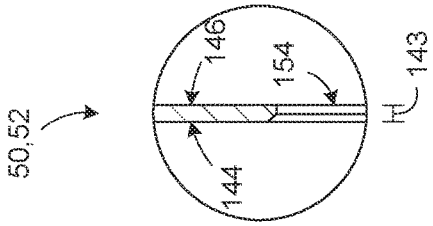

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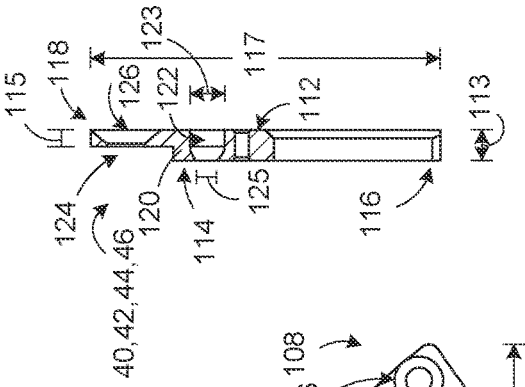

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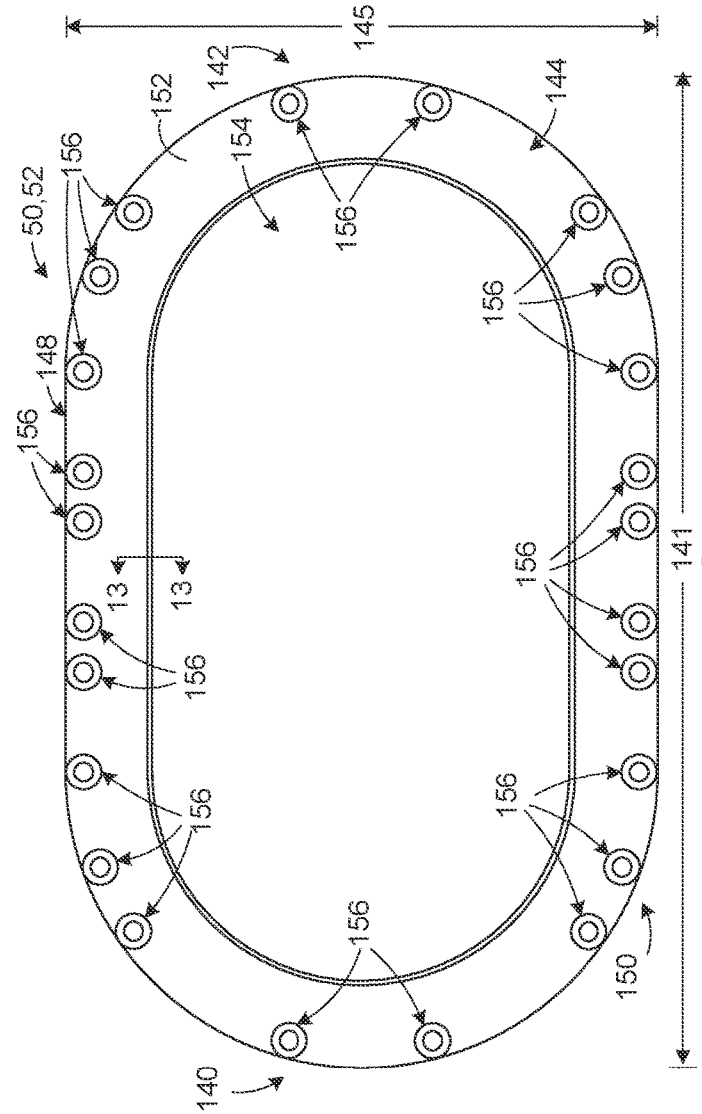
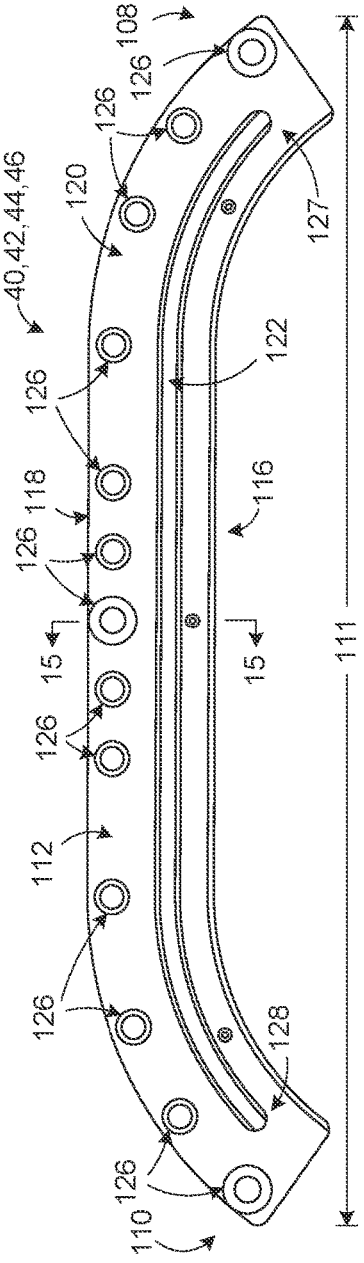


FIG. 12



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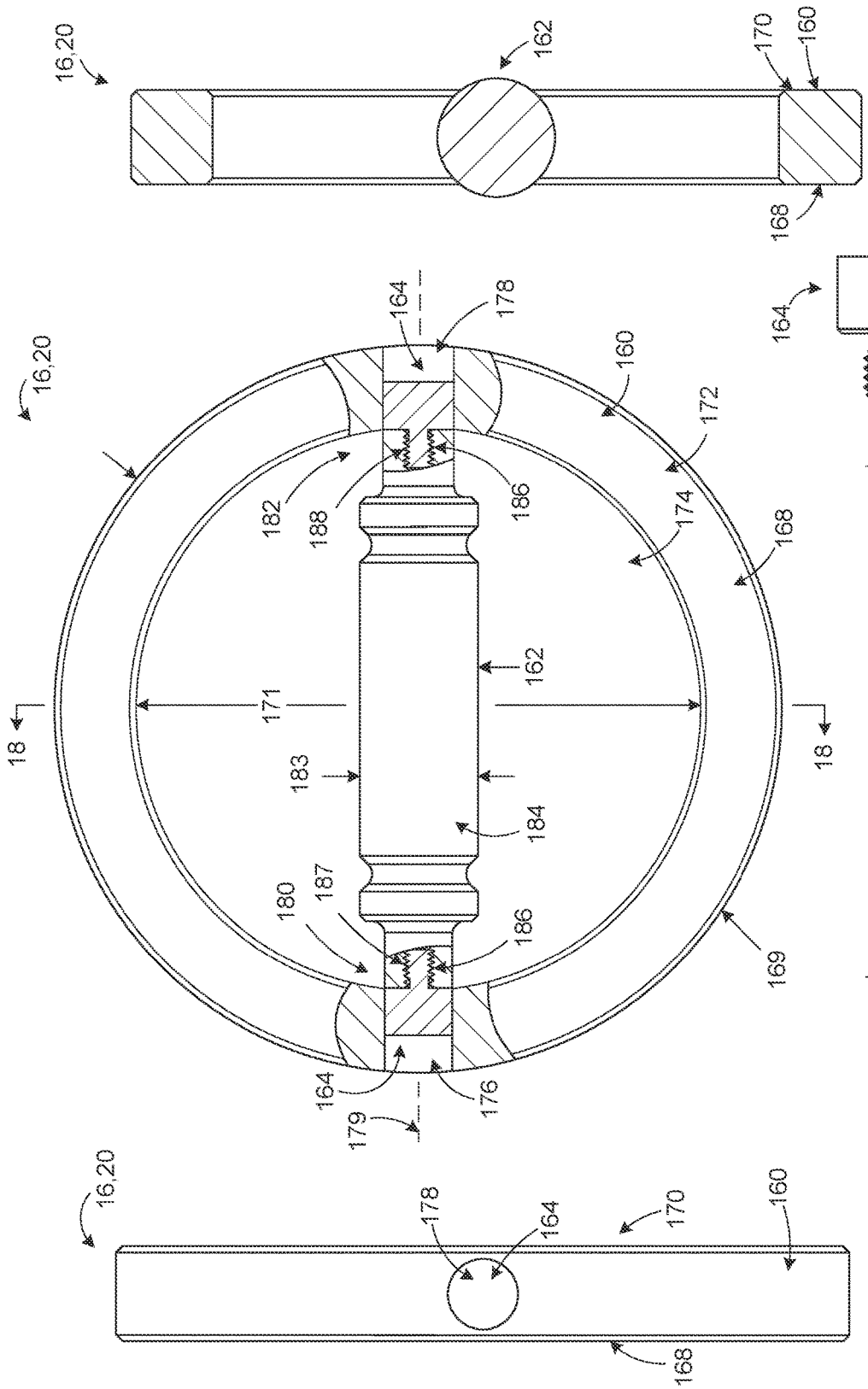

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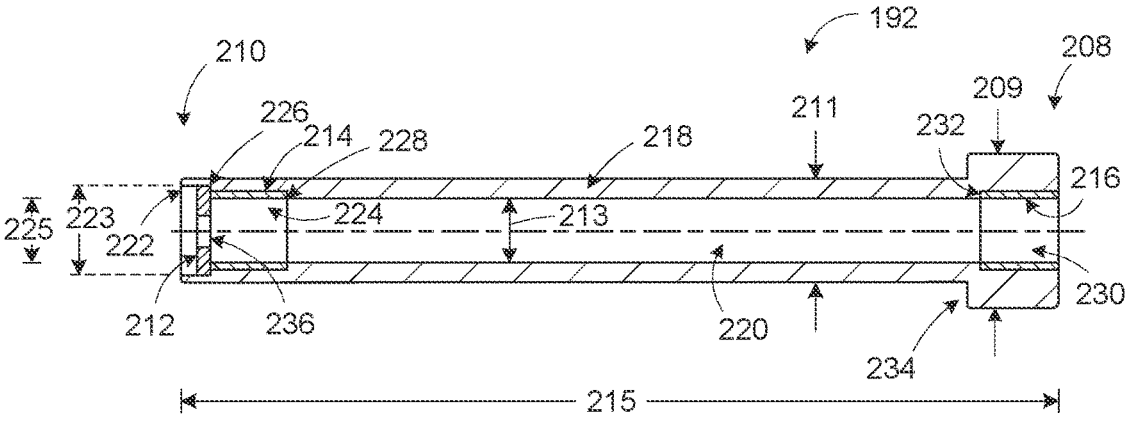

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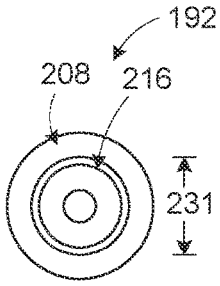

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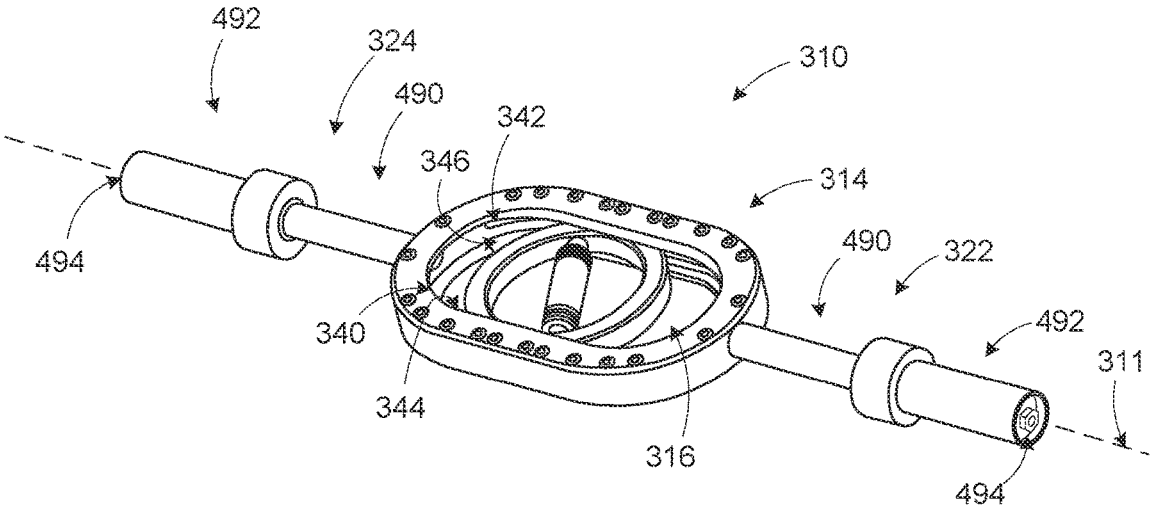

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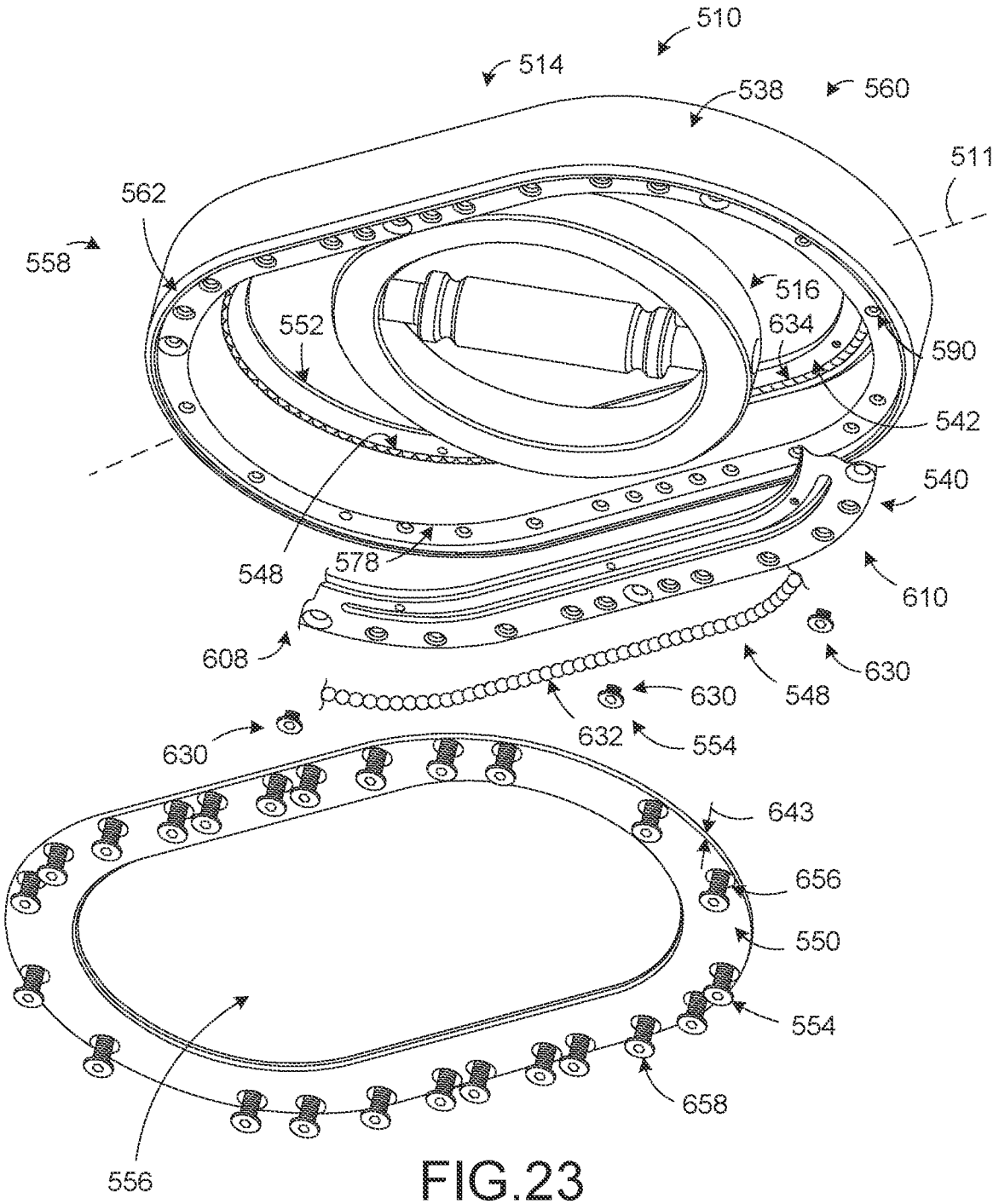
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FIG.23

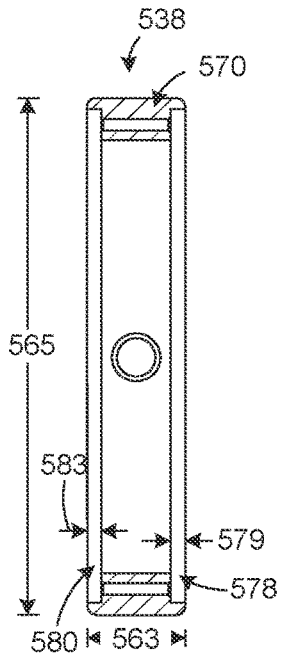
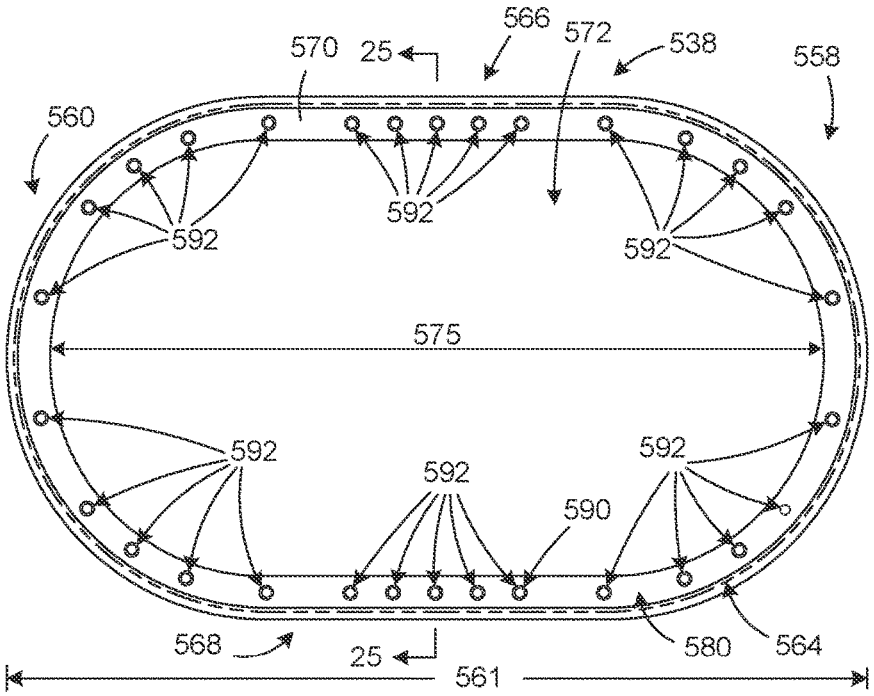


FIG.25



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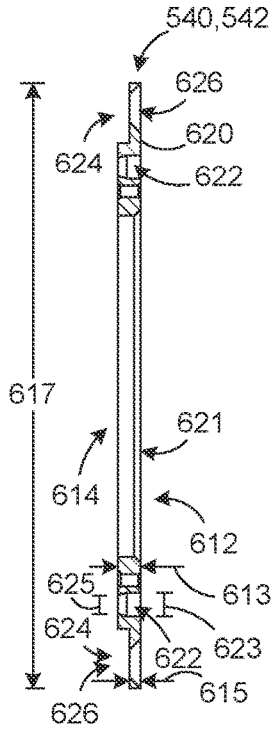

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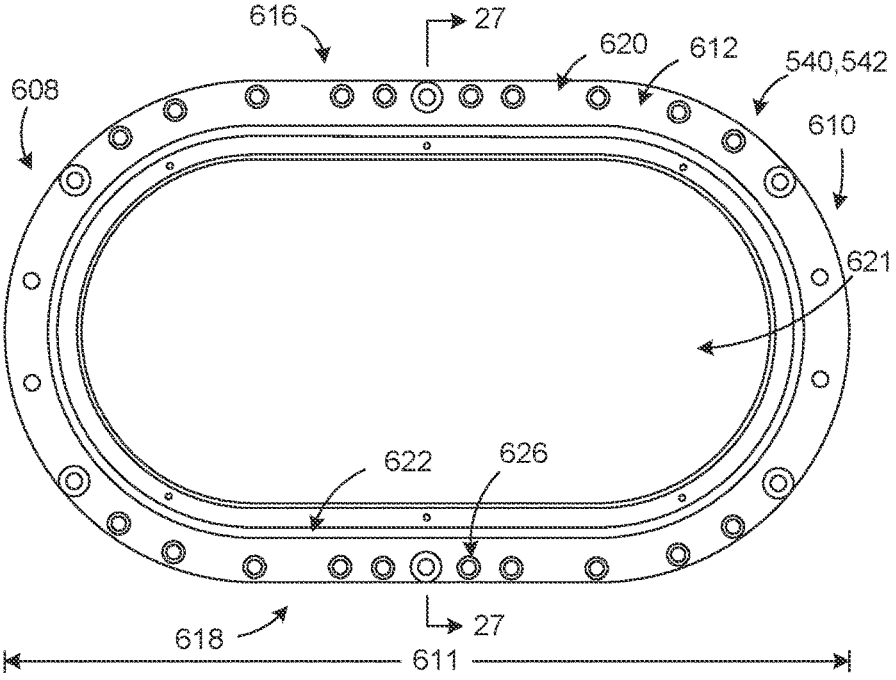

FIG.26

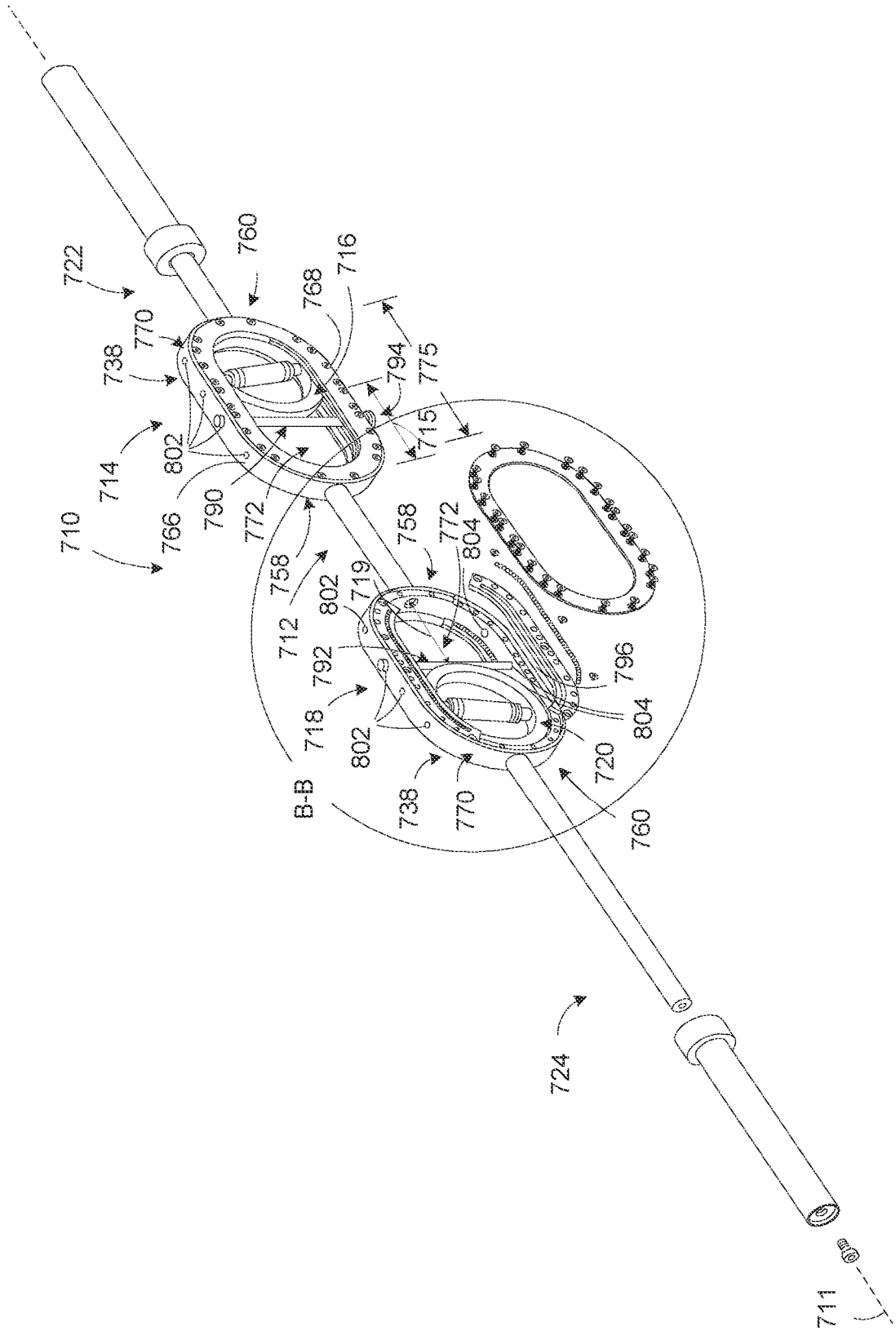
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FIG. 28

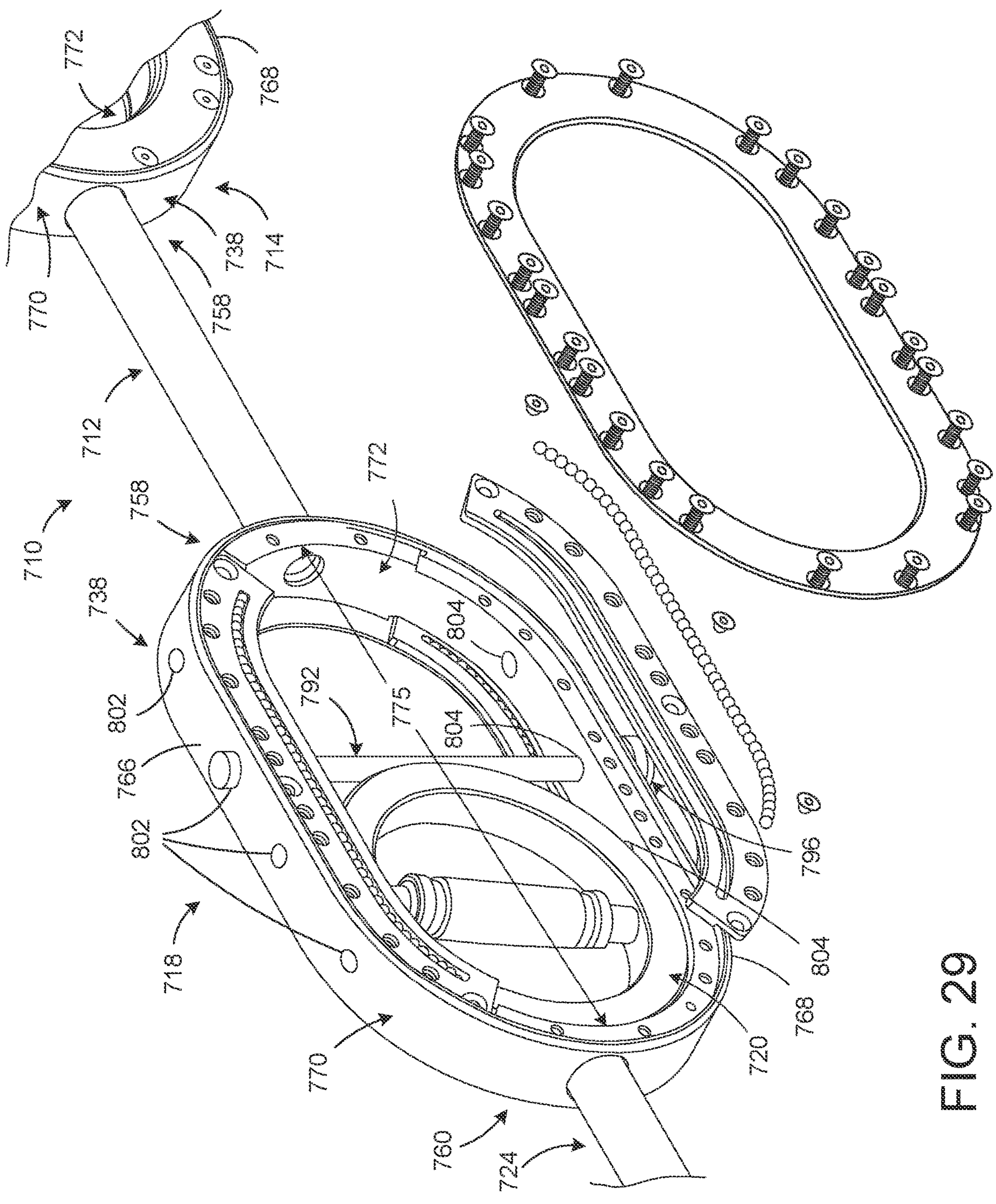
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FIG. 29

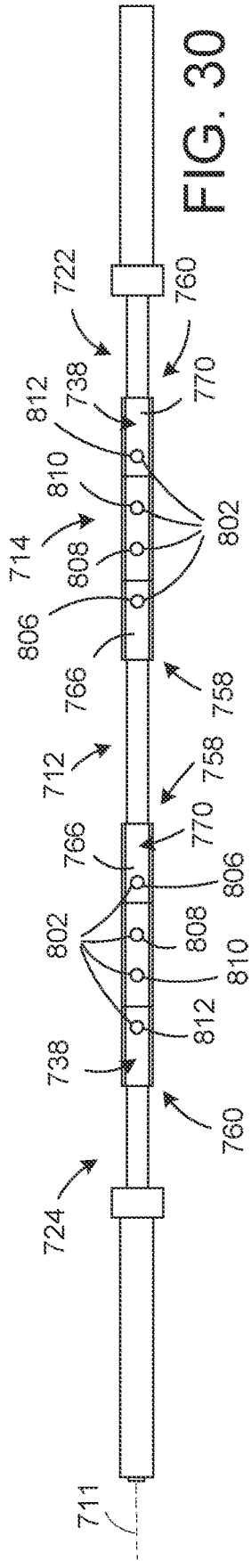
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FIG. 30

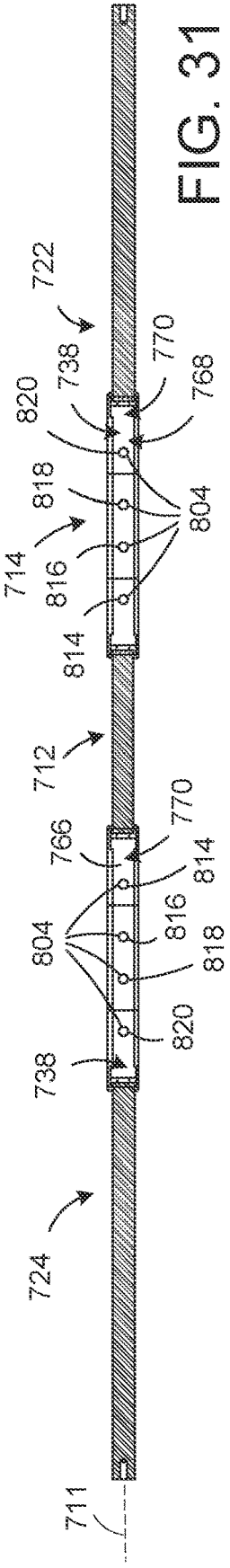
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FIG. 31

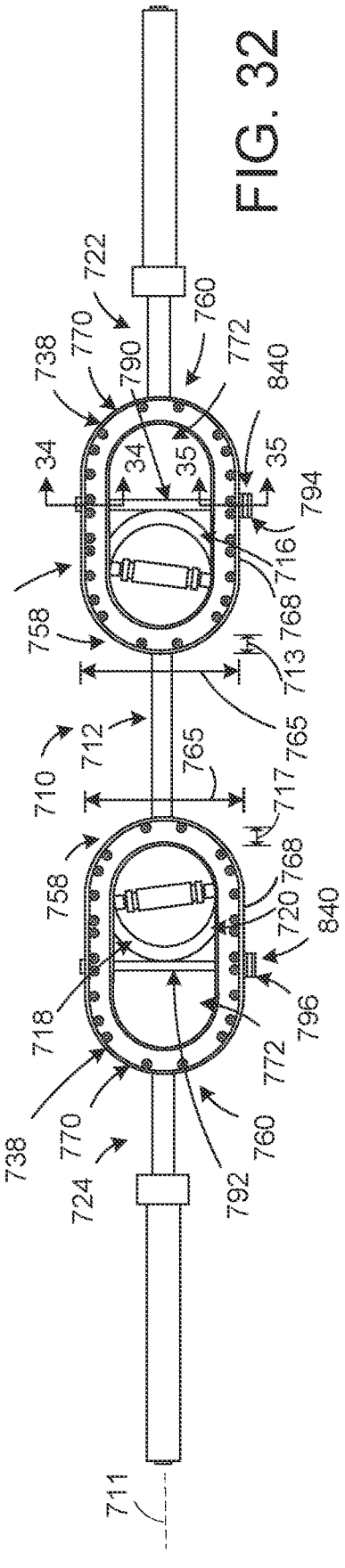
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FIG. 32

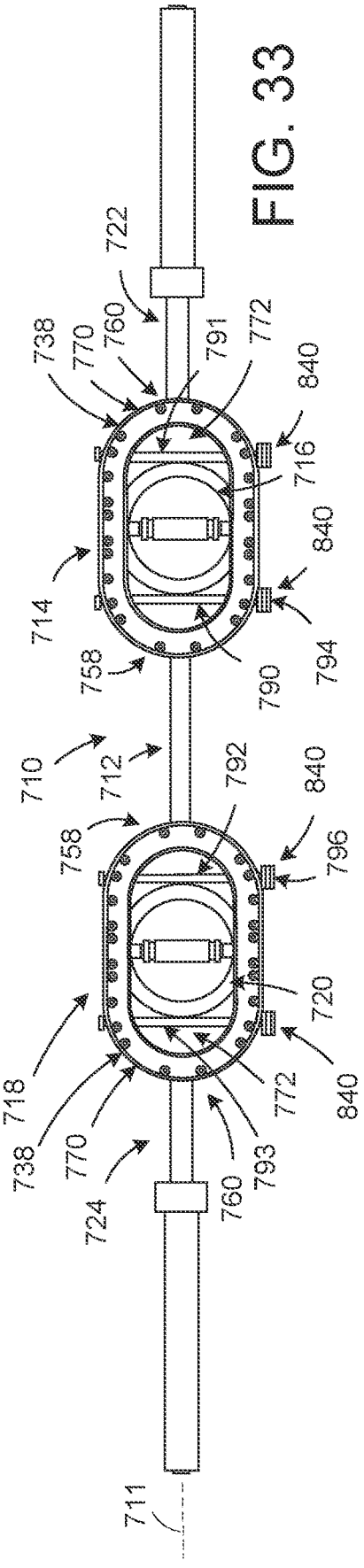
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FIG. 33

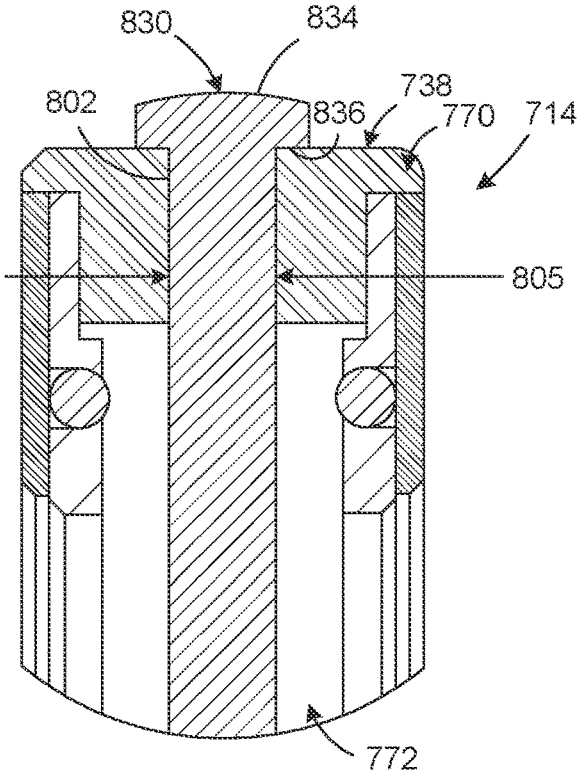
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FIG. 34

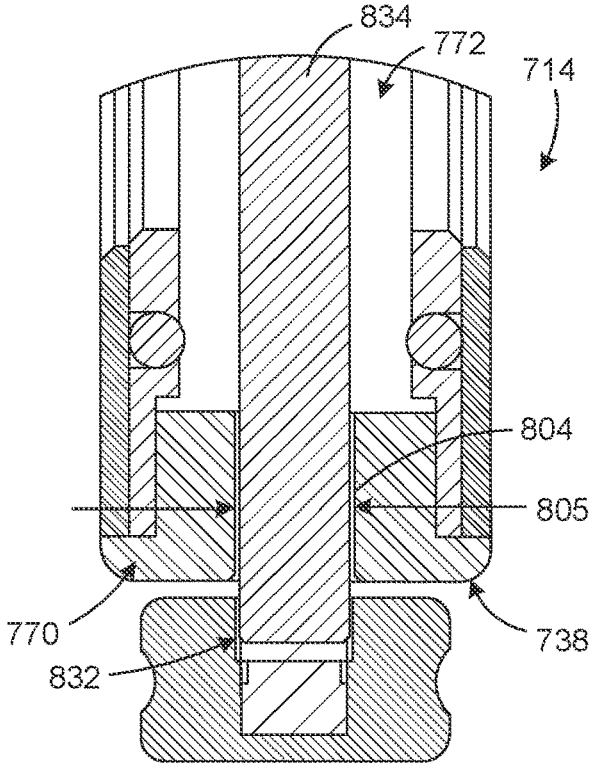
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FIG. 35

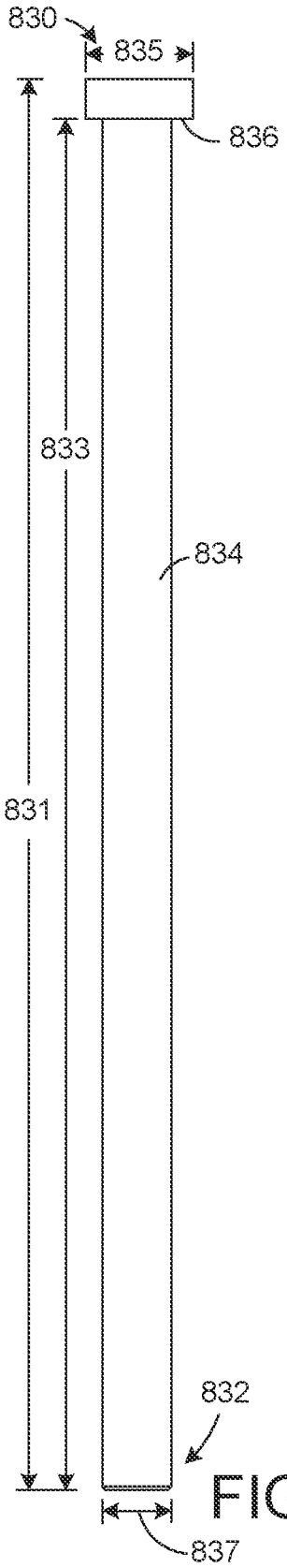

FIG. 36

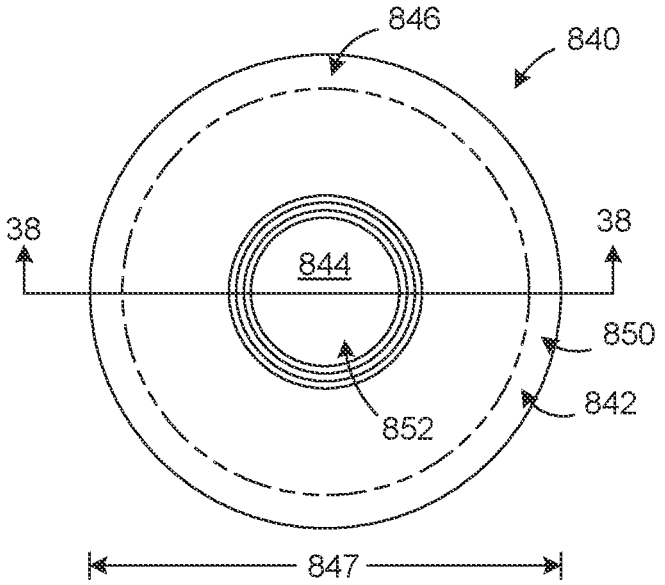

FIG. 37

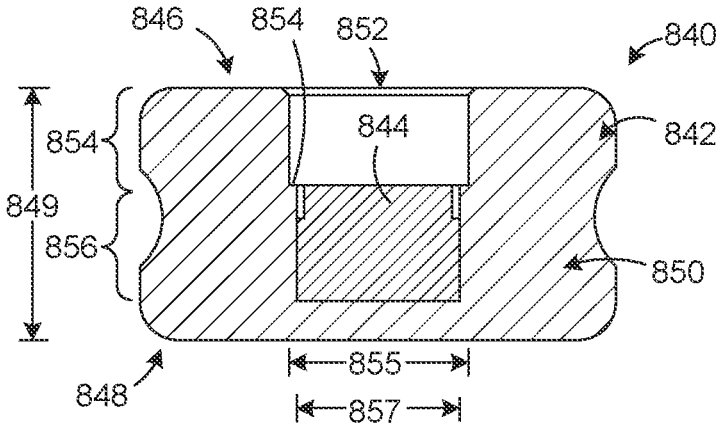

FIG. 38

EXERCISE APPARATUSES

RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 63/286,320, which was filed on Dec. 6, 2021, and claims the benefit of U.S. Provisional Application No. 63/392,649, which was filed on Jul. 27, 2022. The entire disclosure of each of these related applications is hereby incorporated by reference into this disclosure.

FIELD

[0002] The disclosure relates generally to the field of exercise apparatuses. More particularly, the disclosure relates to exercise apparatuses that include a translatable and rotatable handle.

BACKGROUND

[0003] A common exercise performed by weightlifters is the bench press, which exercises the chest, triceps, and shoulders. To perform a bench press, the back is positioned flat on a bench at an angle relative to the floor on which the feet are positioned. Subsequently, the hands are positioned on a bar and a lift is performed. The placement of the hands on the bar is generally based on a specific distance from the center of the bar or markings incorporated into the bar, which are not customized to a specific weightlifter and can result in a less efficient lift. In addition, during a lift, the position of the hands is prevented from being altered since they are axially and rotationally fixed relative to the bar throughout the lift, which can increase stress on the shoulders and the surrounding tissues. Other exercises have similar drawbacks due to the fixed position of the hands relative to the lifting device during use.

[0004] A need exists, therefore, for new and useful exercise apparatuses.

SUMMARY OF SELECTED EXAMPLE EMBODIMENTS

[0005] Various exercise apparatuses are described herein.

[0006] An example exercise apparatus has a lengthwise axis and includes a first shaft, a first frame, a first handle, a second frame, and a second handle. The first shaft has a first shaft first end and a first shaft second end. The first frame is attached to the first shaft first end. The first frame defines a first frame passageway. The first handle is rotatably attached to the first frame and is disposed within the first frame passageway. The first handle is rotatable within the first frame passageway and is moveable along the lengthwise axis between a first position in which the first handle is disposed a first distance from the first shaft and a second position in which the first handle is disposed a second distance from the first shaft. The second distance is greater than the first distance. The second frame is attached to the first shaft second end. The second frame defines a second frame passageway. The second handle is rotatably attached to the second frame and is disposed within the second frame passageway. The second handle is rotatable within the second frame passageway and is moveable along the lengthwise axis between a third position in which the second handle is disposed a third distance from the first shaft and a fourth position in which the second handle is disposed a fourth distance from the first shaft. The fourth distance is greater than the third distance.

[0007] Another example exercise apparatus has a lengthwise axis and includes a first frame and a first handle. The first frame has a housing and defines a first frame passageway. The housing has a first end and a second end. The first handle is rotatably attached to the first frame and is disposed within the first frame passageway. The first handle is rotatable within the first frame passageway and is moveable along the lengthwise axis between a first position in which the first handle is disposed a first distance from the first end of the housing and a second position in which the first handle is disposed a second distance from the first end of the housing. The second distance is greater than the first distance.

[0008] Another example exercise apparatus has a lengthwise axis and includes a first frame and a first handle. The first frame defines a first frame passageway and has a housing, a first track member, a second track member, a plurality of ball bearings, a first cover, and a second cover. The housing has a first end, a second end, and defines a housing passageway. Each of the first and second track members is attached to the housing. A first set of ball bearings of the plurality of ball bearings is disposed between the first track member and the first cover. A second set of ball bearings of the plurality of ball bearings is disposed between the second track member and the second cover. A portion of each ball bearing of the plurality of ball bearings disposed within the handle passageway. Each of the first and second covers attached to the housing. The first handle is rotatably attached to the first frame and is disposed within the first frame passageway. The first handle is rotatable within the first frame passageway and has 360 degrees of rotation within the first frame passageway. The first handle is moveable along the lengthwise axis between a first position in which the first handle is disposed a first distance from the first end of the housing and a second position in which the first handle is disposed a second distance from the first end of the housing. The second distance is greater than the first distance.

[0009] Additional understanding of the example exercise apparatuses can be obtained by review of the detailed description, below, and the appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. **1** is a perspective view of an example exercise apparatus.

[0011] FIG. **2** is a partially exploded partial perspective view of the exercise apparatus illustrated in FIG. **1**.

[0012] FIG. **3** is a magnified view of area A-A in FIG. **2**.

[0013] FIG. **4** is a partial front view of the exercise apparatus illustrated in FIG. **1**.

[0014] FIG. **5** is a partial cross-sectional view of the exercise apparatus illustrated in FIG. **4** taken along line **5-5**.

[0015] FIG. **6** is a cross-sectional view of the exercise apparatus illustrated in FIG. **1** taken along line **6-6**.

[0016] FIG. **7** is a partial cross-sectional view of the exercise apparatus illustrated in FIG. **4** taken along line **7-7**.

[0017] FIG. **8** is a partially broken away rear view of a housing of the frame of the exercise apparatus illustrated in FIG. **1**.

[0018] FIG. **9** is a side view of the housing illustrated in FIG. **8**.

[0019] FIG. **10** is a cross-sectional view of the housing illustrated in FIG. **8** taken along line **10-10**.

[0020] FIG. **11** is a cross-sectional view of the housing illustrated in FIG. **8** taken along line **11-11**.

[0021] FIG. **12** is a front view of a cover of the frame of the exercise apparatus illustrated in FIG. **1**.

[0022] FIG. **13** is a cross-sectional view of the cover illustrated in FIG. **12** taken along line **13-13**.

[0023] FIG. **14** is a front view of a track member of the frame of the exercise apparatus illustrated in FIG. **1**.

[0024] FIG. **15** is a cross-sectional view of the track member illustrated in FIG. **14** taken along line **15-15**.

[0025] FIG. **16** is a partially broken away front view of a handle of the exercise apparatus illustrated in FIG. **1**.

[0026] FIG. **17** is a side view of the handle illustrated in FIG. **16**.

[0027] FIG. **18** is a cross-sectional view of the handle illustrated in FIG. **16** taken along line **18- 18**.

[0028] FIG. **19** is a side view of an anchor member of the handle illustrated in FIG. **16**.

[0029] FIG. **20** is a sectional view of a shaft of the exercise apparatus illustrated in FIG. **1**.

[0030] FIG. **21** is an end view of a shaft of the exercise apparatus illustrated in FIG. **1**.

[0031] FIG. **22** is a perspective view of another example exercise apparatus.

[0032] FIG. **23** is an exploded partial perspective view of another example exercise apparatus.

[0033] FIG. **24** is a rear view of a housing of the frame of the exercise apparatus illustrated in FIG. **23**.

[0034] FIG. **25** is a cross-sectional view of the housing illustrated in FIG. **24** taken along line **25-25**.

[0035] FIG. **26** is a front view of a track member of the frame of the exercise apparatus illustrated in FIG. **23**.

[0036] FIG. **27** is a cross-sectional view of the track member illustrated in FIG. **26** taken along line **27-27**.

[0037] FIG. **28** is a partially exploded perspective view of another exercise apparatus. The first elongate bar is in the second position and the second elongate bar is in the second position.

[0038] FIG. **29** is a magnified view of area B-B in FIG. **28**.

[0039] FIG. **30** is a top view of the first shaft, the first frame, the second frame, the second shaft, and the third shaft of the exercise apparatus illustrated in FIG. **28**. The first and second elongate bars have been omitted for clarity.

[0040] FIG. **31** is a cross-sectional view of the first shaft, the first frame, the second frame, the second shaft, and the third shaft of the exercise apparatus illustrated in FIG. **28** taken along the lengthwise axis of the exercise apparatus.

[0041] FIG. **32** is a front view of the exercise apparatus illustrated in FIG. **28**. The first elongate bar is in the third position and the second elongate bar is in the third position.

[0042] FIG. **33** is a front view of the exercise apparatus illustrated in FIG. **28**. The first elongate bar is in the first position, the second elongate bar is in the first position, the third elongate bar is in the fourth position, and the fourth elongate bar is in the fourth position.

[0043] FIG. **34** is a cross-sectional view of the first frame shown in FIG. **32** taken along line **34-34**.

[0044] FIG. **35** is a cross-sectional view of the first frame shown in FIG. **32** taken along line **35-35**.

[0045] FIG. **36** is a front view of an elongate bar of the exercise apparatus illustrated in FIG. **28**.

[0046] FIG. **37** is a top view of a locking member of the exercise apparatus illustrated in FIG. **28**.

[0047] FIG. **38** is a cross-sectional view of the locking member shown in FIG. **37** taken along line **38-38**.

DETAILED DESCRIPTION

[0048] The following detailed description and the appended drawings describe and illustrate various example embodiments of exercise apparatuses. The description and illustration of these examples are provided to enable one skilled in the art to make and use an exercise apparatus. They are not intended to limit the scope of the claims in any manner. The invention is capable of being practiced or carried out in various ways and the examples described and illustrated herein are merely selected examples of the various ways of practicing or carrying out the invention and are not considered exhaustive.

[0049] FIGS. **1** through **21** illustrate an example exercise apparatus **10**. The exercise apparatus **10** has a lengthwise axis **11** and includes a first shaft **12**, a first frame **14** attached to the first shaft **12**, a first handle **16** attached, and moveable relative, to the first frame **14**, a second frame **18** attached to the first shaft **12**, a second handle **20** attached, and moveable relative, to the second frame **18**, a second shaft **22** attached to the first frame **14**, and a third shaft **24** attached to the second frame **18**.

[0050] The first shaft **12** is disposed between and attached to the first frame **14** and the second frame **18**. In the illustrated embodiment, and as best shown in FIGS. **1** through **4**, the first shaft **12** has a first shaft first end **30**, a first shaft second end **32**, a first shaft length **31** that extends from the first shaft first end **30** to the first shaft second end **32**, a first shaft outside diameter **33**, and a first shaft main body **34**. In the embodiment illustrated, the first shaft **12** is an elongate rod that provides structural support between the first and second frames **14**, **18**.

[0051] The first frame **14** is attached to the first shaft first end **30** and the second shaft **22** and is disposed between the first shaft **12** and the second shaft **22**. The second frame **18** is attached to the first shaft second end **32** and the third shaft **24** and is disposed between the first shaft **12** and the third shaft **24**. As best shown in FIGS. **1** through **5** and **7** through **15**, each of the first frame **14** and the second frame **18** includes a housing **38**, a first track member **40**, a second track member **42**, a third track member **44**, a fourth track member **46**, a plurality of ball bearings **48**, a first cover **50**, a second cover **52**, a plurality of attachment members **54**, and defines a frame passageway **56**. The first and second track members **40**, **42** are disposed between the first cover **50** and the housing **38** and the third and fourth track members **44**, **46** are disposed between the second cover **52** and the housing **38**.

[0052] The housing **38** of the first frame **14** is attached to the first shaft **12** and the second shaft **22**. The housing **38** of the second frame **18** is attached to the first shaft **12** and the third shaft **24**. As shown in FIGS. **3** through **5**, **7**, and **8** through **11**, the housing **38** has a first end **58**, a second end **60**, a front side **62**, a rear side **64**, a top **66**, a bottom **68**, a length **61**, a width **63**, and a height **65**, and a main body **70** that defines a handle passageway **72**, a first passageway **74**, a second passageway **76**, a first track member recess **78**, a second track member recess **80**, a third track member recess **82**, a fourth track member recess **84**, a first cover recess **86**, a second cover recess **88**, and a plurality of attachment member passageways **90**.

[0053] The length **61** extends from the first end **58** to the second end **60**. The width **63** extends from the front side **62** to the rear side **64**. The height **65** extends from the top **66** to the bottom **68**. In the embodiment illustrated, the length **61** is greater than the height **65** such that the housing **38** is elongated and can provide translation and rotation of a handle along the lengthwise axis of the exercise apparatus **10**, as described herein. The handle passageway **72** extends from the front side **62** to the rear side **64**, has a height **69** and a length **75**, and is sized to receive a handle. The first passageway **74** extends from the first end **58** to the handle passageway **72**. A shoulder **73** is defined within the first passageway **74** and provides a mechanical stop to advancement of the first shaft **12** into the first passageway **74**. The first passageway **74** is sized to receive a portion of the first shaft **12** such that the first shaft **12** contacts the shoulder **73** and attachment between the first shaft **12** and the housing **38** can be accomplished (e.g., by welding the two components to one another). The second passageway **76** extends from the second end **60** to the handle passageway **72**. A shoulder **77** is defined within the second passageway **76** and provides a mechanical stop to advancement of a second shaft **22** into the second passageway **76** of the housing **38** of the first frame **14** and advancement of a third shaft **24** into the second passageway **76** of the housing **38** of the second frame **18**. The second passageway **76** of the housing **38** of the first frame **14** is sized to receive a portion of the second shaft **22** such that the second shaft **22** contacts the shoulder **77** and attachment between the second shaft **22** and the housing **38** can be accomplished (e.g., by welding the two components to one another). The second passageway **76** of the housing **38** of the second frame **18** is sized to receive a portion of the third shaft **24** such that the third shaft **24** contacts the shoulder **77** and attachment between the third shaft **24** and the housing **38** can be accomplished (e.g., by welding the two components to one another).

[0054] Each of the first track member recess **78** and the second track member recess **80** extends from the front side **62** toward the rear side **64** a depth **79** and along a portion of the enclosed boundary of the handle passageway **72**. Each of the third track member recess **82** and the fourth track member recess **84** extends from the rear side **64** toward the front side **62** a depth **83** and along a portion of the enclosed boundary of the handle passageway **72**. The depth **79** of each of the first and second track member recesses **78**, **80** and the depth **83** of the third and fourth track member recesses **82**, **84** is greater than the second width **115** of a track member and sized to receive a track member, as described in more detail herein. In the illustrated embodiment, the depth **79** of each of the first and second track member recesses **78**, **80** and the depth **83** of each of the third and fourth track member recesses **82**, **84** is substantially equal to the sum of the second width **115** of a track member and the width **143** of a cover. Alternative embodiments can define a track member recess that extends along the entire enclosed boundary of a handle passageway.

[0055] The first cover recess **86** extends from the front side **62** toward the rear side **64** a depth **87** and along the entire enclosed boundary of the handle passageway **72**. The second cover recess **88** extends from the rear side **64** toward the front side **62** a depth **89** and along the entire enclosed boundary of the handle passageway **72**. The depth **87** of each of the first cover recess **86** and the depth **89** of the second cover recess **88** is substantially equal to the width **143** of a cover and sized to receive a cover, as described in more detail herein.

[0056] In the illustrated embodiment, the main body **70** defines threads within each passageway of the plurality of attachment member passageways **90** that mate with an attachment member of the plurality of attachment members **54**. However, in alternative embodiments, and depending on the type of attachment member being used, a main body can define any suitable structure within a passageway, or recess, defined by the main body that is sized to receive an attachment member. Each passageway of the plurality of attachment member passageways **90** is sized to receive an attachment member of the plurality of attachment members **54**. A first set of passageways **92** of the plurality of attachment member passageways **90** extend from the first track member recess **78** to the third track member recess **82**. A second set of passageways **94** of the plurality of attachment member passageways **90** extend from the second track member recess **80** to the fourth track member recess **84**. A third set of passageways **96** of the plurality of attachment member passageways **90** extend from the first cover recess **86** to the second cover recess **88**. While a plurality of attachment member passageways have been described, alternative embodiments can include recesses that extend through a portion of the width of a housing to achieve attachment of the various components, as described herein.

[0057] In the illustrated embodiment, and as shown in FIGS. **14** and **15**, each of the first track member **40**, the second track member **42**, the third track member **44**, and the fourth track member **46** has a first end **108**, a second end **110**, a front side **112**, a rear side **114**, a top **116**, a bottom **118**, a length **111**, a first width **113**, a second width **115**, a height **117**, and a main body **120** that defines a ball bearing passageway **122**, a housing recess **124**, a plurality of attachment member passageways **126**. As shown in FIG. **14**, each of the first track member **40**, the second track member **42**, the third track member **44**, and the fourth track member **46** is a u-shaped member that partially surrounds the frame passageway **56**. However, alternative embodiments can include one or more track members that define any suitable shape (e.g., completely surrounds a frame passageway) that mates with a recess defined by a housing.

[0058] The length **111** extends from the first end **108** to the second end **110**. The first width **113** extends from the front side **112** to the rear side **114** between the top **116** and the housing recess **124**. The second width **115** extends from the front side **112** to the rear side **114** along the housing recess **124**. The height **117** extends from the top **116** to the bottom **118**. In the embodiment illustrated, the length **111** is greater than the height **117** such that each of the track members **40**, **42**, **44**, **46** is elongated and can provide translation and rotation of a handle along the lengthwise axis of the exercise apparatus **10**, as described herein.

[0059] The ball bearing passageway **122** extends from the front side **112** to the rear side **114**, has a first end **127**, a second end **128**, and is disposed between the top **116** and the housing recess **124** such that it has direct access to the handle passageway **72** defined by the housing **38** when the exercise apparatus **10** is assembled. The ball bearing passageway **122** is sized to receive a set of ball bearings of the plurality of ball bearings **48**, as described herein. The ball bearing passageway **122** has a first width **123** at the front side **112** and a second width **125** at the rear side **114** that is

less than the first width **123**. This structural configuration provides a mechanism for maintaining a set of ball bearings of the plurality of ball bearings **48** between a track member and a cover such that a portion of each ball bearing of the set of ball bearings is partially disposed outside of the ball bearing passageway **122**, within the handle passageway **72**, and can contact a handle.

[0060] The housing recess **124** extends from the rear side **114** toward the front side **112** and extends from the bottom **118** toward the top **116** such that it terminates between the ball bearing passageway **122** and the bottom **118**. The housing recess **124** is sized to receive a portion of the housing **38** such that the ball bearing passageway **122** has direct access to the handle passageway **72** when the exercise apparatus **10** is assembled (e.g., an axis extending through the center of the ball bearing passageway **122** extends into the handle passageway **72**).

[0061] Each passageway of the plurality of attachment member passageways **126** is sized to receive a portion of an attachment member of the plurality of attachment members **54**. Each passageway of the plurality of attachment member passageways **126** extends from the front side **112** to the housing recess **124**. When assembled, the plurality of attachment member passageways **126** of the first track member **40** are coaxial with the first set of passageways **92** of the plurality of attachment member passageways **90** defined by the housing **38**. When assembled, the plurality of attachment member passageways **126** of the second track member **42** are coaxial with the second set of passageways **94** of the plurality of attachment member passageways **90** defined by the housing **38**. When assembled, the plurality of attachment member passageways **126** of the third track member **44** are coaxial with the first set of passageways **92** of the plurality of attachment member passageways **90** defined by the housing **38**. When assembled, the plurality of attachment member passageways **126** of the fourth track member **46** are coaxial with the second set of passageways **94** of the plurality of attachment member passageways **90** defined by the housing **38**.

[0062] A set of attachment members **130** of the plurality of attachment members **54** is used to attach each of the track members **40**, **42**, **44**, **46** to the housing **38**. Each attachment member of the set of attachment members **130** extends through a passageway of the plurality of attachment member passageways **126** and is disposed within a passageway of the plurality of attachment member passageways **90** to accomplish attachment of a track to the housing **38**.

[0063] A first set of ball bearings **132** of the plurality of ball bearings **48** is moveably disposed within the ball bearing passageway **122** of the first track member **40** and between the first track member **40** and the first cover **50**. A second set of ball bearings **134** of the plurality of ball bearings **48** is moveably disposed within the ball bearing passageway **122** of the second track member **42** and between the second track member **42** and the first cover **50**. A third set of ball bearings **136** of the plurality of ball bearings **48** is moveably disposed within the ball bearing passageway **122** of the third track member **44** and between the third track member **44** and the second cover **52**. A fourth set of ball bearings **138** of the plurality of ball bearings **48** is moveably disposed within the ball bearing passageway **122** of the fourth track member **46** and between the fourth track member **46** and the second cover **52**. Each ball bearing of the plurality of ball bearings **48** is sized such that a portion of each ball bearing of the set of ball bearings is partially disposed outside of the ball bearing passageway **122**, within the handle passageway **72**, and can contact a handle during use.

[0064] As shown in FIGS. **12** and **13**, each of the first cover **50** and the second cover **52** has a first end **140**, a second end **142**, a front side **144**, a rear side **146**, a top **148**, a bottom **150**, a length **141**, a width **143**, and a height **145**, and a main body **152** that defines a passageway **154**, and a plurality of attachment member passageways **156**.

[0065] The length **141** extends from the first end **140** to the second end **142**. The width **143** extends from the front side **144** to the rear side **146** and is substantially equal to the depth **87** of the first cover recess **86** and the depth **89** of the second cover recess **88**. The height **145** extends from the top **148** to the bottom **150**. In the embodiment illustrated, the length **141** is greater than the height **145** such that each of the covers **50**, **52** is elongated and allows a handle to translate and rotate relative to the lengthwise axis of the exercise apparatus **10**, as described herein. The passageway **154** extends from the front side **144** to the rear side **146** and is sized to receive a portion of a user's hand during use.

[0066] A set of attachment members **158** of the plurality of attachment members **54** is used to attach each of the covers **50**, **52** to the housing **38**. Each attachment member of the set of attachment members **158** extends through a passageway of the plurality of attachment member passageways **156** defined by a cover, in some instances through a passageway of the plurality of attachment member passageways **126** defined by a track, and is disposed within a passageway of the plurality of attachment member passageways **90** to accomplish attachment of a cover to the housing **38**.

[0067] The frame passageway **56** is cooperatively defined by the housing **38**, the first track member **40**, the second track member **42**, the third track member **44**, the fourth track member **46**, the first cover **50**, and the second cover **52**. The first handle **16** is disposed within the frame passageway **56** of the first frame **14** and can translate along the lengthwise axis **11** and rotate within the frame passageway **56**. The second handle **20** is disposed within the frame passageway **56** of the second frame **18** and can translate along the lengthwise axis **11** and rotate within the frame passageway **56**.

[0068] The first handle **16** is disposed within the first frame **14** between the first track member **40** (e.g., first set of ball bearings **132**) and the third track member **44** (e.g., third set of ball bearings **136**) and between the second track member **42** (e.g., second set of ball bearings **134**) and the fourth track member **46** (e.g., fourth set of ball bearings **138**). The second handle **20** is disposed within the second frame **18** between the first track member **40** (e.g., first set of ball bearings **132**) and the third track member **44** (e.g., third set of ball bearings **136**) and between the second track member **42** (e.g., second set of ball bearings **134**) and the fourth track member **46** (e.g., fourth set of ball bearings **138**). During use, the first handle **16** can translate along the length **75** of the handle passageway **72** and rotate within the handle passageway **72** of the first frame **14** and contact each ball bearing of the plurality of ball bearings **48**. During use, the second handle **20** can translate along the length **75** of the handle passageway **72** and rotate within the handle passageway **72** of the second frame **18** and contact each ball bearing of the plurality of ball bearings **48**.

[0069] As shown in FIGS. **16** through **19**, each of the first handle **16** and the second handle **20** has a ring member **160**, a handle shaft **162**, and attachment members **164**. The ring member **160** has a front side **168**, a rear side **170**, an outside diameter **169**, and inside diameter **171**, and a main body **172** that defines a handle shaft passageway **174**, a first attachment member passageway **176**, and a second attachment member passageway **178**. The outside diameter **169** is less than the height **69** of the handle passageway **72** defined by the housing **38** such that the ring member **160** can be disposed, and move, within the handle passageway **72**. The inside diameter **171** is sized to receive the handle shaft **162**. The first and second attachment member passageways **176**, **178** are coaxial with each other and each is sized to receive an attachment member **164**.

[0070] The handle shaft **162** is disposed within the handle shaft passageway **174**, is attached to the ring member **160**, and has a handle shaft lengthwise axis **179**, a handle shaft first end **180**, a handle shaft second end **182**, a handle shaft length **181** that extends from the handle shaft first end **180** to the handle shaft second end **182**, a handle shaft outside diameter **183**, and a handle shaft main body **184** that defines attachment members recesses **186**. A first attachment member recess **187** extends from the handle shaft first end **180** and into the handle shaft main body **184**. A second attachment member recess **188** extends from the handle shaft second end **182** and into the handle shaft main body **184**. Each of the attachment member recesses **186** is sized to receive an attachment member **164** to accomplish attachment of a handle shaft **162** to a ring member **160**. While the handle shaft **162** has been illustrated as extending across the entire handle shaft passageway **174**, alternative embodiments can include a handle shaft that only partially extends across a handle shaft passageway.

[0071] An attachment member **164** is disposed within the first attachment member passageway **176**, within the first attachment member recess **187**, and is attached to the handle shaft first end **180**. An attachment member **164** is disposed within the second attachment member passageway **178**, within the second attachment member recess **188**, and is attached to the handle shaft second end **182**.

[0072] The first handle **16** is moveably attached to the first frame **14** and the second handle **20** is moveably attached to the second frame **18**. In the illustrated embodiment, the first handle **16** is rotatably attached to the first frame **14** such that the first handle **16** can rotate (e.g., 360 degrees) within the frame passageway **56** of the first frame **14** and translate (e.g., along the length **75** of the handle passageway **72**) relative to the first frame **14** and the lengthwise axis **11** of the exercise apparatus **10**. In addition the second handle **20** is rotatably attached to the second frame **18** such that the second handle **20** can rotate (e.g., 360 degrees) within the frame passageway **56** of the second frame **18** and translate (e.g., along the length **75** of the handle passageway **72**) relative to the second frame **18** and the lengthwise axis **11** of the exercise apparatus **10**. However, alternative embodiments can include handles that can only partially rotate relative to a frame or a lengthwise axis of an exercise apparatus (e.g., less than 360 degrees, between 45 degrees and 315 degrees).

[0073] To assemble a frame, the first track member **40** is positioned within the first track member recess **78** such that the portion of the first track member **40** that defines the second width **115** is disposed within the first track member recess **78** and the second track member **42** is positioned within the second track member recess **80** such that the portion of the second track member **42** that defines the second width **115** is disposed within the second track member recess **80**. The set of attachment members **130** is then used to attach each of the first and second track members **40**, **42** to the housing **38**. The first set of ball bearings **132** is then positioned within the ball bearing passageway **122** of the first track member **40** and the second set of ball bearings **134** is then positioned within the ball bearing passageway **122** of the second track member **42**. Subsequently, the first cover **50** is positioned within the first cover recess **86** and the set of attachment members **158** is used to attach the first cover **50** to the housing **38** and secure the first set of ball bearings **132** between the first cover **50** and the first track member **40** and the second set of ball bearings **134** between the first cover **50** and the second track member **42**.

[0074] Subsequently, a handle is positioned within the handle passageway **72**. Then the third track member **44** is positioned within the third track member recess **82** such that the portion of the third track member **44** that defines the second width **115** is disposed within the third track member recess **82** and the fourth track member **46** is positioned within the fourth track member recess **84** such that the portion of the fourth track member **46** that defines the second width **115** is disposed within the fourth track member recess **84**. The set of attachment members **130** is then used to attach each of the third and fourth track members **44**, **46** to the housing **38**. The third set of ball bearings **136** is then positioned within the ball bearing passageway **122** of the third track member **44** and the fourth set of ball bearings **138** is then positioned within the ball bearing passageway **122** of the fourth track member **46**. Subsequently, the second cover **52** is positioned within the second cover recess **88** and the set of attachment members **158** is used to attach the second cover **52** to the housing **38** and secure the third set of ball bearings **136** between the second cover **52** and the third track member **44** and the fourth set of ball bearings **138** between the second cover **52** and the fourth track member **46**.

[0075] In the embodiment illustrated, the second shaft **22** is attached to the first frame **14** and the third shaft **24** is attached to the second frame **18**. As best shown in FIGS. **1**, **2**, **6**, **20**, and **21**, each of the second shaft **22** and the third shaft **24** has an elongate member **190**, a support member **192** rotatably attached to the elongate member **190**, and an attachment member **194**. The support member **192** is rotatably attached to the elongate member **190** such that the support member **192** can rotate relative to the elongate member **190** during use. However, alternative embodiments can include a support member that is fixedly attached to an elongate member such that it cannot rotate relative to the elongate member during use.

[0076] The elongate member **190** has a first end **196**, a second end **198**, an outside diameter **197**, a length **199**, and a main body **202** that defines an attachment member recess **204**. The attachment member recess **204** extends from the second end **198** toward the first end **196** and is sized to receive a portion of the attachment member **194**.

[0077] In the illustrated embodiment, as shown in FIGS. **20** and **21**, the support member **192** has a first end **208**, a second end **210**, a first outside diameter **209**, a second outside diameter **211**, a length **215**, a plate member **212**, a first bearing **214** (e.g., sleeve bearing), a second bearing **216** (e.g., sleeve bearing), and a main body **218** that defines a

passageway **220**, a first recess **222**, a second recess **224**, a first shoulder **226**, a second shoulder **228**, a third recess **230**, a third shoulder **232**, and a fourth shoulder **234**. The passageway **220** extends from the first end **208** to the second end **210** and has an inside diameter **213**. The inside diameter **213** of the support member **192** is greater than the outside diameter **197** of the elongate member **190** such that the elongate member **190** can be partially disposed within the passageway **214**. The length **215** of the support member **192** is less than the length **199** of the elongate member **190**.

[0078] The first recess **222** extends from the second end **210** toward the first end **208** and has an inside diameter **223** that is greater than the inside diameter **213** of the passageway **220**. The second recess **224** extends from the first recess **222** toward the first end **208** and has an inside diameter **225** that is less than the inside diameter **223** of the first recess **222** and greater than the inside diameter **213** of the passageway **220**. The first shoulder **226** is defined at the transition between the inside diameter **223** of the first recess **222** and the inside diameter **225** of the second recess **224**. The second shoulder **228** is defined at the transition between the inside diameter **225** of the second recess **224** and the inside diameter **213** of the passageway **220**. The third recess **230** extends from the first end **208** toward the second end **210** and has an inside diameter **231** that is greater than the inside diameter **213** of the passageway **220**. The third shoulder **232** is defined at the transition between the inside diameter **231** of the third recess **230** and the inside diameter **213** of the passageway **220**. The fourth shoulder **234** is defined at the transition between the first outside diameter **209** and the second outside diameter **211**. The fourth shoulder **234** provides a mechanical stop to advancement of a weight (e.g., barbell weight) onto the support member **192**.

[0079] The plate member **212** is attached to the support member **192** and is disposed within the first recess **222** adjacent to the first shoulder **226**. The plate member **212** provides structure for accomplishing attachment of the support member **192** to the elongate member **190**. The plate member **212** defines a passageway **236** that is sized to receive a portion of the attachment member **194**. The first bearing **214** is disposed within the second recess **224** between the plate member **212** and the second shoulder **228** and provides a mechanism for maintaining rotational movement of the support member **192** relative to the elongate member **190**. The second bearing **216** is disposed within the third recess **230** adjacent to the third shoulder **232** and provides a mechanism for maintaining rotational movement of the support member **192** relative to the elongate member **190**. Any suitable type of bearing can be used in an exercise apparatus. To accomplish attachment of a support member **192** to an elongate member **190**, the elongate member **190** is passed into the passageway **220** defined by the support member **192** from the first end **208** of the support member **192** until the elongate member **190** contacts the plate member **212**. Subsequently, the attachment member **194** is passed through the passageway **236** defined by the plate member **212** and into the attachment member recess **204** of the elongate member **190**.

[0080] The exercise apparatuses described herein allow for dynamic movement of the handles **16**, **20** relative to the frames **14**, **18** and/or provide for rotation of the handles **16**, **20** relative to the fames **14**, **18** while the exercise apparatus is being used to relieve excessive stresses on a user's shoulders and surrounding soft tissues. For example, the exercise apparatuses described herein allow for a bench press maneuver to be performed in a more physiological motion in regards to shoulder joint mechanics as opposed to current exercise apparatuses (e.g., bench press bars that are fixed and don't allow for translation or rotation, as described herein), which can diminish the risk of shoulder injury from excessive repetitions. The exercise apparatuses described herein can be used not only in standard weight training activities but also for shoulder and/or pectoral rehabilitation following non-surgical injuries and/or for rehabilitation following shoulder and/or pectoral ligament repair and/or reconstruction.

[0081] The first shaft **12**, the first frame **14**, the first handle **16**, the second frame **18**, the second handle **20**, the second shaft **22**, and the third shaft **24** included in an exercise apparatus **10** can be formed of any suitable material and manufactured using any suitable technique or method of manufacture. Selection of a suitable material and technique or method of manufacture can be based on various considerations, including the structural arrangement of the exercise apparatus of which the feature is a component. Examples of materials considered suitable to form a first shaft, a first frame, a first handle, a second frame, a second handle, a second shaft, a third shaft, and the components thereof include wood, polymers, plastics, metals, steel, stainless steel, carbon steel, aluminum, combinations of the materials described herein, and any other material considered suitable for a particular embodiment. Examples of techniques and methods of manufacture considered suitable to form a first shaft, a first frame, a first handle, a second frame, a second handle, a second shaft, a third shaft, and the components thereof include injection molding, casting, cold rolling, laser cutting, finish machining, punching, and any other technique or method considered suitable for a particular embodiment. While the exercise apparatus **10** has been illustrated as including a particular number of shafts, frames, handles, covers, track members, and attachment members and being assembled such that a shaft, frame, and handle is disposed on a lengthwise axis of an exercise apparatus, an exercise apparatus can include any suitable number of shafts, frames, handles, covers, track members, and/or attachment members disposed at any suitable location relative to one another (e.g., offset relative to a lengthwise axis of an exercise apparatus).

[0082] Any suitable technique or method of attaching the components described herein as being attached can be utilized and selection of a suitable technique or method can be based on various considerations, including the material that forms the components intended to be attached to one another. For example, while the various attachment members described herein have been illustrated as threaded members, other types of attachment members can be utilized. Examples of techniques and methods of attachment considered suitable between two components of an exercise apparatus include using snap-fit connections, using threaded members, adhesives, fusing, welding, and any other technique or method considered suitable for a particular embodiment. Alternative embodiments can optionally include releasable attachments between components described as attached to one another herein. For example, a first frame and/or second frame can be releasably attached to a first shaft, a second shaft, and/or a third shaft and/or include an

attachment that allows for movement of a first frame and/or a second frame relative to a first shaft, a second shaft, and/or a third shaft.

[0083] While the first shaft **12**, the first frame **14**, the first handle **16**, the second frame **18**, the second handle **20**, the second shaft **22**, and the third shaft **24** have been illustrated as having a particular structural arrangement, a first shaft, a first frame, a first handle, a second frame, a second handle, a second shaft, and a third shaft included in an exercise apparatus can have any suitable structural arrangement and selection of a suitable structural arrangement can be based on various considerations, including the intended use of the exercise apparatus. For example, an exercise apparatus can have a structural arrangement that allows for an Olympic sized bench press barbell to be positioned on a second shaft and/or a third shaft. In addition, an exercise apparatus can be utilized with a fixed handle hammer strength or Nautilus piece of equipment.

[0084] FIG. **22** illustrates another example exercise apparatus **310**. The exercise apparatus **310** is similar to the exercise apparatus **10** illustrated in FIGS. **1** through **21** described above, except as detailed below. In the illustrated embodiment, the exercise apparatus **310** has a lengthwise axis **311** and includes a first frame **314**, a first handle **316** attached, and moveable relative, to the first frame **314**, a first shaft **322** attached to the first frame **314**, and a second shaft **324** attached to the first frame **314**.

[0085] In the embodiment illustrated, the first frame **314** is disposed between, and attached to, the first shaft **322** and the second shaft **324**. The first handle **316** is disposed within the first frame **314** between the first track member **340** and the third track member **344** and between the second track member **342** and the fourth track member **346**. The first handle **316** is attached to the first frame **314** such that the first handle **316** can partially rotate (e.g., 180 degrees) and translate (e.g., along the length of the handle passageway **372**) relative to the first frame **314** and the lengthwise axis **311** of the exercise apparatus **310**. However, alternative embodiments can include handles that can only partially rotate relative to a frame or a lengthwise axis of an exercise apparatus within a range between about 45 degrees and about 180 degrees.

[0086] The first shaft **322** is attached to the first frame **314** and the second shaft **324** is attached to the first frame **314**. Each of the first shaft **322** and the second shaft **324** has an elongate member **490**, a support member **492** attached to the elongate member **490**, and an attachment member **494**. The support member **492** is fixedly attached to the elongate member **490** such that the support member **492** is unable to rotate relative to the elongate member **490** during use.

[0087] FIGS. **23** through **27** illustrate another example exercise apparatus **510**. The exercise apparatus **510** has a lengthwise axis **511** and includes a first frame **514** and a first handle **516** attached, and moveable relative, to the first frame **514**.

[0088] The first frame **514** includes a housing **538**, a first track member **540**, a second track member **542**, a plurality of ball bearings **548**, a first cover **550**, a second cover **552**, a plurality of attachment members **554**, and defines a frame passageways **556**. The first track member **540** is disposed between the first cover **550** and the housing **538** and the second track member **542** is disposed between the second cover **552** and the housing **538**.

[0089] As shown in FIGS. **23** through **25**, the housing **538** has a first end **558**, a second end **560**, a front side **562**, a rear side **564**, a top **566**, a bottom **568**, a length **561**, a width **563**, and a height **565**, and a main body **570** that defines a handle passageway **572**, a first track member recess **578**, a second track member recess **580**, and a plurality of attachment member passageways **590**.

[0090] The first track member recess **578** extends from the front side **562** toward the rear side **564** a depth **579** and along the entire enclosed boundary of the handle passageway **572**. The second track member recess **580** extends from the rear side **564** toward the front side **562** a depth **583** and along the entire enclosed boundary of the handle passageway **572**. The depth **579** of the first track member recess **578** and the depth **583** of the second track member recess **580** is greater than a second width **615** of a track member and sized to receive a track member and a cover, as described in more detail herein. In the illustrated embodiment, the depth **579** of each of the first track member recess **578** and the depth **583** of the second track member recess **580** is substantially equal to the sum of the second width **615** of a track member and the width **643** of a cover. Each attachment member passageway of the plurality of attachment member passageways **590** extends from the first track member recess **578** to the second track member recess **580**.

[0091] In the illustrated embodiment, and as shown in FIGS. **23**, **26**, and **27**, each of the first track member **540** and the second track member **542** has a first end **608**, a second end **610**, a front side **612**, a rear side **614**, a top **616**, a bottom **618**, a length **611**, a first width **613**, a second width **615**, a height **617**, and a main body **620** that defines a central passageway **621**, a ball bearing passageway **622**, a housing recess **624**, and a plurality of attachment member passageways **626**. As shown in FIG. **26**, each of the first track member **540** and the second track member **542** is an oval member.

[0092] The ball bearing passageway **622** extends from the front side **612** to the rear side **614**, has an oval shape, and is disposed between the central passageway **621** and the housing recess **624** such that it has direct access to the handle passageway **572** defined by the housing **538** when the exercise apparatus **510** is assembled. The ball bearing passageway **622** is sized to receive a set of ball bearings of the plurality of ball bearings **548**, as described herein. The ball bearing passageway **622** has a first width **623** at the front side **612** and a second width **625** at the rear side **614** that is less than the first width **623**. This structural configuration provides a mechanism for maintaining a set of ball bearings of the plurality of ball bearings **548** between a track member and a cover such that a portion of each ball bearing of the set of ball bearings is partially disposed outside of the ball bearing passageway **622**, within the handle passageway **572**, and can contact a handle.

[0093] The housing recess **624** extends from the rear side **614** toward the front side **612** and extends from an outer surface toward an inner surface such that it terminates prior to the ball bearing passageway **622**. The housing recess **624** is sized to receive a portion of the housing **538** such that the ball bearing passageway **622** has direct access to the handle passageway **572** when the exercise apparatus **510** is assembled (e.g., an axis extending through the center of the ball bearing passageway **622** extends into the handle passageway **572**).

[0094] Each passageway of the plurality of attachment member passageways **626** is sized to receive a portion of an attachment member of the plurality of attachment members **554**. Each passageway of the plurality of attachment member passageways **626** extends from the front side **612** to the housing recess **624**. When assembled, the plurality of attachment member passageways **626** of the first track member **540** are coaxial with the first set of passageways **592** of the plurality of attachment member passageways **590** defined by the housing **538**. When assembled, the plurality of attachment member passageways **626** of the second track member **542** are coaxial with the first set of passageways **592** of the plurality of attachment member passageways **590** defined by the housing **38**.

[0095] A set of attachment members **630** of the plurality of attachment members **554** is used to attach each of the track members **540**, **542** to the housing **538**. Each attachment member of the set of attachment members **630** extends through a passageway of the plurality of attachment member passageways **626** and is disposed within a passageway of the plurality of attachment member passageways **590** to accomplish attachment of a track to the housing **538**.

[0096] A first set of ball bearings **632** of the plurality of ball bearings **548** is moveably disposed within the ball bearing passageway **622** of the first track member **540** and between the first track member **540** and the first cover **550**. A second set of ball bearings **634** of the plurality of ball bearings **548** is moveably disposed within the ball bearing passageway **622** of the second track member **542** and between the second track member **542** and the second cover **552**. Each ball bearing of the plurality of ball bearings **548** is sized such that a portion of each ball is partially disposed outside of the ball bearing passageway **622**, within the handle passageway **572**, and can contact a handle during use.

[0097] A set of attachment members **658** of the plurality of attachment members **554** is used to attach each of the covers **550**, **552** to the housing **538**. Each attachment member of the set of attachment members **658** extends through a passageway of the plurality of attachment member passageways **656** defined by a cover, through a passageway of the plurality of attachment member passageways **626** defined by a track, and is disposed within a passageway of the plurality of attachment member passageways **590** to accomplish attachment of a cover to the housing **538**.

[0098] The frame passageway **556** is cooperatively defined by the housing **538**, the first track member **540**, the second track member **542**, the first cover **550**, and the second cover **552**. The first handle **516** is disposed within the frame passageway **556** of the first frame **514** and can translate along the lengthwise axis **511** and rotate within the frame passageway **556**. The first handle **516** is disposed within the first frame **514** between the first track member **540** (e.g., first set of ball bearings **632**) and the second track member **542** (e.g., second set of ball bearings **634**). During use, the first handle **516** can translate along the length **575** of the handle passageway **572** and rotate within the handle passageway **572** of the first frame **514** and contact each ball bearing of the plurality of ball bearings **548**. In the illustrated embodiment, the first handle **516** is moveably attached to the first frame **514** such that the first handle **516** can rotate (e.g., 360 degrees) and translate relative to the first frame **514** and the lengthwise axis **511** of the exercise apparatus **510**.

[0099] To assemble a frame, the first track member **540** is positioned within the first track member recess **578** such that the portion of the first track member **540** that defines the second width **615** is disposed within the first track member recess **578**. The set of attachment members **630** is then used to attach the first track member **540** to the housing **538**. The first set of ball bearings **632** is then positioned within the ball bearing passageway **622** of the first track member **540**. Subsequently, the first cover **550** is positioned within the first track member recess **578** and the set of attachment members **658** is used to attach the first cover **550** to the housing **538** and secure the first set of ball bearings **632** between the first cover **550** and the first track member **540**.

[0100] Subsequently, the handle **516** is positioned within the handle passageway **572**. Then the second track member **542** is positioned within the second track member recess **580** such that the portion of the second track member **542** that defines the second width **615** is disposed within the second track member recess **580**. The set of attachment members **630** is then used to attach the second track member **542** to the housing **538**. The second set of ball bearings **634** is then positioned within the ball bearing passageway **622** of the second track member **542**. Subsequently, the second cover **552** is positioned within the second track member recess **580** and the set of attachment members **658** is used to attach the second cover **552** to the housing **538** and secure the second set of ball bearings **634** between the second cover **552** and the second track member **542**.

[0101] The exercise apparatus **510** illustrated in FIGS. **23** through **27** can include additional weight such that it can be used independent of any other exercise apparatus. Alternatively, an exercise apparatus, such as the exercise apparatus **510** illustrated in FIGS. **23** through **27**, can include an eyelet or other structure (e.g., on the top of a housing) such that the first frame can be releasably attached to a separate component (e.g., wire of a wire lift machine).

[0102] FIGS. **28** through **38** illustrate another example exercise apparatus **710**. The exercise apparatus **710** is similar to the exercise apparatus **10** illustrated in FIGS. **1** through **21** described above, except as detailed below. The exercise apparatus **710** has a lengthwise axis **711** and includes a first shaft **712**, a first frame **714** attached to the first shaft **712**, a first handle **716** attached, and moveable relative, to the first frame **714**, a second frame **718** attached to the first shaft **712**, a second handle **720** attached, and moveable relative, to the second frame **718**, a second shaft **722** attached to the first frame **714**, a third shaft **724** attached to the second frame **718**, a first elongate bar **790**, a second elongate bar **792**, a first locking member **794**, and a second locking member **796**.

[0103] As best shown in FIGS. **28** through **31**, the housing **738** of each of the first frame **714** and the second frame **718** has a main body **770** that defines a handle passageway **772**, a first set of bar passageways **802**, and a second set of bar passageways **804**. Each passageway in the first set of bar passageways **802** extends from the top **766** to the handle passageway **772**. Each passageway in the second set of bar passageways **804** extends from the bottom **768** to the handle passageway **772**. In the illustrated embodiment, the first set of bar passageways **802** includes a first bar passageway **806**, a second bar passageway **808**, a third bar passageway **810**, and a fourth bar passageway **812** and the second set of bar passageways **804** includes a first bar passageway **814**, a second bar passageway **816**, a third bar passageway **818**, and

a fourth bar passageway **820**. However, alternative embodiments of a frame can include any suitable number of bar passageways. The first bar passageway **806** in the first set of bar passageways **802** is coaxial with the first bar passageway **814** in the second set of bar passageways **804**. The second bar passageway **808** in the first set of bar passageways **802** is coaxial with the second bar passageway **816** in the second set of bar passageways **804**. The third bar passageway **810** in the first set of bar passageways **802** is coaxial with the third bar passageway **818** in the second set of bar passageways **804**. The fourth bar passageway **812** in the first set of bar passageways **802** is coaxial with the fourth bar passageway **820** in the second set of bar passageways **804**. Each bar passageway in the first set of bar passageways **802** and the second set of bar passageways **804** has a diameter **805**, as shown in FIG. **34**, and is sized to receive an elongate bar, as described in more detail herein.

[0104] The first elongate bar **790** is disposed through the first frame **714** and prevents the first handle **716** from translating along the length **775** of the handle passageway **772** of the first frame **714**. The second elongate bar **792** is disposed through the second frame **718** and prevents the second handle **720** from translating along the length **775** of the handle passageway **772** of the second frame **718**. As best shown in FIG. **36**, each of the first elongate bar **790** and the second elongate bar **792** has a first end **830**, a second end **832**, a first length **831**, a second length **833**, a first width **835**, a second width **837**, a main body **834** that defines a shoulder **836**, and is formed of a first material. The first length **831** extends from the first end **830** to the second end **832** and is greater than the height **765** of a frame. The second length **833** extends from the shoulder **836** to the second end **832** and is greater than the height **765** of a frame. The first width **833** is greater than the second width **835** and greater than the diameter **805** of a bar passageway. The shoulder **836** is defined between the first end **830** and the second end **832** and provides a mechanical stop to advancement of a bar member through a bar passageway.

[0105] As shown in FIG. **28**, the first elongate bar **790** is disposed in a second position and the second elongate bar **792** is disposed in the second position. In the second position, the first elongate bar **790** extends through the second bar passageway **808** in the first set of bar passageways **802** of the first frame **714** and the second bar passageway **816** in the second set of bar passageways **804** of the first frame **714**. In the second position, the second elongate bar **792** extends through the second bar passageway **808** in the first set of bar passageways **802** of the second frame **718** and the second bar passageway **816** in the second set of bar passageways **804** of the second frame **718**. Positioning the first elongate bar **790** in the second position on the first frame **714** positions the first handle **716** between the first elongate bar **790** and the second end **760** of the housing **738**. Positioning the second elongate bar **792** in the second position on the second frame **718** positions the second handle **720** between the second elongate bar **792** and the second end **760** of the housing **738**.

[0106] While the illustrated embodiment shows a first elongate bar **790** and a second elongate bar **792**, an exercise apparatus can include any suitable number of elongate bars to prevent translation of a handle within a handle passageway. Examples of numbers of elongate bars to include in an exercise apparatus include one, two, three, four, five, six, more than six, and any other number considered suitable for a particular embodiment. While the illustrated embodiment shows the first and second elongate bars **790**, **792** in particular positions, an elongate bar can be located in any suitable position to achieve a desired fitness activity.

[0107] For example, as shown in FIG. **32**, the first elongate bar **790** can be disposed in a third position and the second elongate bar **792** can be disposed in a third position. In the third position, the first elongate bar **790** extends through the third bar passageway **810** in the first set of bar passageways **802** of the first frame **714** and the third bar passageway **818** in the second set of bar passageways **804** of the first frame **714**. In the third position, the second elongate bar **792** extends through the third bar passageway **810** in the first set of bar passageways **802** of the second frame **718** and the third bar passageway **818** in the second set of bar passageways **804** of the second frame **718**. Positioning the first elongate bar **790** in the third position on the first frame **714** positions the first handle **716** between the first elongate bar **790** and the first end **758** of the housing **738**. Positioning the second elongate bar **792** in the third position on the second frame **718** positions the second handle **720** between the second elongate bar **792** and the first end **758** of the housing **738**.

[0108] Furthermore, as shown in FIG. **33**, the first elongate bar **790** can be disposed in a first position, the second elongate bar **792** can be disposed in a first position, a third elongate bar **791** can be disposed in a fourth position, and a fourth elongate bar **793** can be disposed in a fourth position. In the first position, the first elongate bar **790** extends through the first bar passageway **806** in the first set of bar passageways **802** of the first frame **714** and the first bar passageway **814** in the second set of bar passageways **804** of the first frame **714**. In the fourth position, the third elongate bar **791** extends through the fourth bar passageway **812** in the first set of bar passageways **802** of the first frame **712** and the fourth bar passageway **820** in the second set of bar passageways **804** of the first frame **712**. In the first position, the second elongate bar **792** extends through the first bar passageway **806** in the first set of bar passageways **802** of the second frame **718** and the first bar passageway **814** in the second set of bar passageways **804** of the second frame **718**. In the fourth position, the fourth elongate bar **793** extends through the fourth bar passageway **812** in the first set of bar passageways **802** of the second frame **718** and the fourth bar passageway **820** in the second set of bar passageways **804** of the second frame **718**. Positioning the first elongate bar **790** in the first position and the third elongate bar **791** in the fourth position on the first frame **714** positions the first handle **716** between the first elongate bar **790** and the third elongate bar **791**. Positioning the second elongate bar **792** in the first position and the fourth elongate bar in the fourth position on the second frame **718** positions the second handle **720** between the second elongate bar **792** and the fourth elongate bar **793**. Alternative embodiments can also include positioning a first elongate bar in first position or fourth position on a first frame without including a third elongate bar and/or positioning a second elongate bar in a first position or fourth position on a second frame without including a fourth elongate bar such that translation within a handle passageway is reduced relative to embodiments that do not include an elongate bar.

[0109] FIGS. **28** through **38** illustrate movement (e.g., translation) of the first handle **716** and second handle **718** along the lengthwise axis **711**. As shown in FIGS. **28** and **32**,

the first handle **716** is moveable along the lengthwise axis **711** of the exercise apparatus **710** and between a first position, as shown in FIG. **32**, in which the first handle **716** is disposed a first distance **713** from the first shaft **712**, or the first end **758** of the housing **738**, and a second position, as shown in FIG. **28**, in which the first handle **716** is disposed a second distance **715** from the first shaft **712**, or the first end **758** of the housing **738**, that is greater than the first distance **713**. As shown in FIGS. **28** and **32**, the second handle **718** is moveable along the lengthwise axis **711** of the exercise apparatus **710** and between a third position, as shown in FIG. **32**, in which the second handle **718** is disposed a third distance **717** from the first shaft **712**, or the first end **758** of the housing **738**, and a fourth position, as shown in FIG. **28**, in which the second handle **718** is disposed a fourth distance **719** from the first shaft **712**, or the first end **758** of the housing **738**, that is greater than the third distance **717**. In embodiments in which an elongate bar is not disposed through a frame passageway, a handle can move, or translate, along the lengthwise axis of an exercise apparatus an entire length of the handle passageway. Alternatively, in embodiments in which an elongate bar is disposed through a frame passageway, a handle can move, or translate, along the lengthwise axis a portion of a length of the handle passageway, or be fixed along the lengthwise axis and length of the handle passageway (e.g., fixed relative to a frame).

[0110] As shown in FIGS. **28**, **29**, **32**, **33**, and **35**, the first locking member **794** is releasably attached to the second end **832** of the first elongate bar **790** and the second locking member **796** is releasably attached to the second end **832** of the second elongate bar **792**. Each of the first and second locking members **794**, **796** prevent movement of the elongate bar within a bar passageway during use. FIGS. **37** and **38** illustrate an example locking member **840** that can be included in an exercise apparatus (e.g., first locking member **794**, second locking member **796**). The locking member **840** includes a base **842** and a magnetic member **844**. The base **842** has a first end **846**, a second end **848**, a length **847**, a width **849**, and a main body **850** that defines a recess **852** and a shoulder **854**. The recess **852** extends from the first end **846** toward the second end **848**. The recess **852** has a first portion **854** and a second portion **856**. The first portion **854** extends from the first end **846** to the second portion **856**. The second portion **856** extends from the first portion **854** to the main body **850**. The shoulder **854** is defined between the first portion **854** and the second portion **856**. The first portion **854** has a first diameter **855** and the second portion **856** has a second diameter **857** that is less than the first diameter **855**. The first diameter **855** is greater than the second width **837** of an elongate bar such that an elongate bar can be positioned within the first portion **854**. The shoulder **854** provides a mechanical stop to advancement of an elongate bar within the recess **852**. The magnetic member **844** is disposed within the second portion **856** and is formed of a second material that magnetically attracts the first material forming an elongate bar.

[0111] While the elongate bar and locking member have been illustrated as having a particular structural arrangement, an elongate bar and a locking member can have any suitable structural arrangement. For example, an elongate bar can have any suitable structural arrangement that prevents translation of a handle within a handle passageway and/or a locking member can have any suitable structural arrangement that prevents movement of an elongate bar within a bar passageway. While shown, a locking member can be omitted from an exercise apparatus such that only one or more elongate bars are included to prevent translation of a handle within a handle passageway. Selection of a suitable type of magnetic member to include in a locking member can be based on various considerations, including the material that forms an elongate bar. Examples of types of magnetic members considered suitable to include in a locking member include permanent magnets, such as ferrite magnets, neodymiumiron boron magnets, samarium cobalt magnets, alnico magnets, ceramic magnets, and any other magnetic considered suitable for a particular embodiment.

[0112] An elongate bar and/or locking member can be formed of any suitable material and manufactured using any suitable technique or method of manufacture. Selection of a suitable material and technique or method of manufacture can be based on various considerations, including the structural arrangement of the exercise apparatus of which the feature is a component. Examples of materials considered suitable to form an elongate bar and locking member include wood, polymers, plastics, metals, steel, stainless steel, carbon steel, aluminum, combinations of the materials described herein, and any other material considered suitable for a particular embodiment. Examples of techniques and methods of manufacture considered suitable to form an elongate member and locking member include injection molding, casting, cold rolling, laser cutting, finish machining, punching, and any other technique or method considered suitable for a particular embodiment.

[0113] While some of the embodiments illustrated herein relate to various configurations for bench press bars, an exercise apparatus can form any suitable structure. Selection of a suitable structure to incorporate an exercise apparatus, as described herein, can be based on various considerations, including the exercise intended to be accomplished. Examples of suitable structures to incorporate an exercise apparatus, such as those described herein, include barbells (e.g., an exercise apparatus can include a first frame, a first handle, and first and second shafts that can be sized and configured to receive one or more free weights or can include weights that are integral components of the first and second shafts), handles for exercise machines (e.g., an exercise apparatus can include a first frame and a first handle, the first frame include an eyelet attached to a housing such that the first frame can be releasably attached to a separate component (e.g., wired lift machine)), grips for exercise machines, and any other structure considered suitable for a particular embodiment. For example, a frame and/or a handle (e.g., first frame, second frame, first handle, second handle), such as those described herein, can be claimed without any other component and/or can omit any of the components associated with a frame and/or handle.

[0114] Those with ordinary skill in the art will appreciate that various modifications and alternatives for the described and illustrated embodiments can be developed in light of the overall teachings of the disclosure, and that the various elements and features of one example described and illustrated herein can be combined with various elements and features of another example without departing from the scope of the invention. Accordingly, the particular arrangement of elements disclosed herein have been selected by the inventor(s) simply to describe and illustrate examples of the invention and are not intended to limit the scope of the

invention or its protection, which is to be given the full breadth of the appended claims and any and all equivalents thereof.

What is claimed is:

1. An exercise apparatus having a lengthwise axis and comprising:

a first shaft having a first shaft first end and a first shaft second end;

a first frame attached to the first shaft first end, the first frame defining a first frame passageway;

a first handle rotatably attached to the first frame and disposed within the first frame passageway, the first handle rotatable within the first frame passageway and moveable along said lengthwise axis between a first position in which the first handle is disposed a first distance from the first shaft and a second position in which the first handle is disposed a second distance from the first shaft, the second distance being greater than the first distance;

a second frame attached to the first shaft second end, the second frame defining a second frame passageway; and

a second handle rotatably attached to the second frame and disposed within the second frame passageway, the second handle rotatable within the second frame passageway and moveable along said lengthwise axis between a third position in which the second handle is disposed a third distance from the first shaft and a fourth position in which the second handle is disposed a fourth distance from the first shaft, the fourth distance being greater than the third distance.

2. The exercise apparatus of claim **1**, wherein the first frame has a housing, a first track member, a second track member, a plurality of ball bearings, a first cover, and a second cover, each of the first and second track members attached to the housing, a first set of ball bearings of the plurality of ball bearings disposed between the first track member and the first cover, a second set of ball bearings of the plurality of ball bearings disposed between the second track member and the second cover, each of the first and second covers attached to the housing.

3. The exercise apparatus of claim **2**, wherein the housing defines a handle passageway; and

wherein a portion of each ball bearing of the plurality of ball bearings is disposed within the handle passageway.

4. The exercise apparatus of claim **2**, wherein the first track member partially surrounds the first frame passageway.

5. The exercise apparatus of claim **2**, wherein the housing defines a first track member recess and a second track member recess;

wherein the first track member is disposed within the first track member recess; and

wherein the second track member is disposed within the second track member recess.

6. The exercise apparatus of claims **2**, wherein the first handle is disposed between the first and second track members.

7. The exercise apparatus of claim **1**, further comprising a second shaft having a second shaft first end and a second shaft second end, the second shaft first end attached to the first frame; and

further comprising a third shaft having a third shaft first end and a third shaft second end, the third shaft first end attached to the second frame.

8. The exercise apparatus of claim **1**, wherein the first handle has 360 degrees of rotation within the first frame passageway.

9. The exercise apparatus of claim **1**, wherein the second handle has 360 degrees of rotation within the second frame passageway.

10. The exercise apparatus of claim **1**, wherein the first handle comprises a ring member and a handle shaft attached to the ring member.

11. The exercise apparatus of claim **1**, further comprising a first elongate bar disposed through the first frame passageway.

12. The exercise apparatus of claim **11**, further comprising a locking member releasably attached to the first elongate bar.

13. An exercise apparatus having a lengthwise axis and comprising:

a first frame having a housing and defining a first frame passageway, the housing having a first end and a second end; and

a first handle rotatably attached to the first frame and disposed within the first frame passageway, the first handle rotatable within the first frame passageway and moveable along said lengthwise axis between a first position in which the first handle is disposed a first distance from the first end of the housing and a second position in which the first handle is disposed a second distance from the first end of the housing, the second distance being greater than the first distance.

14. The exercise apparatus of claim **13**, wherein the first frame has a first track member, a second track member, a plurality of ball bearings, a first cover, and a second cover, each of the first and second track members attached to the housing, a first set of ball bearings of the plurality of ball bearings disposed between the first track member and the first cover, a second set of ball bearings of the plurality of ball bearings disposed between the second track member and the second cover, each of the first and second covers attached to the housing.

15. The exercise apparatus of claim **14**, wherein the housing defines a handle passageway; and

wherein a portion of each ball bearing of the plurality of ball bearings is disposed within the handle passageway.

16. The exercise apparatus of claim **14**, wherein the first track member partially surrounds the first frame passageway.

17. The exercise apparatus of claim **14**, wherein the housing defines a first track member recess and a second track member recess;

wherein the first track member is disposed within the first track member recess; and

wherein the second track member is disposed within the second track member recess.

18. The exercise apparatus of claims **14**, wherein the first handle is disposed between the first and second track members.

19. The exercise apparatus of claim **13**, wherein the first handle has 360 degrees of rotation within the first frame passageway.

20. An exercise apparatus having a lengthwise axis and comprising:

a first frame defining a first frame passageway and having a housing, a first track member, a second track member, a plurality of ball bearings, a first cover, and a second

cover, the housing having a first end, a second end, and defining a housing passageway, each of the first and second track members attached to the housing, a first set of ball bearings of the plurality of ball bearings disposed between the first track member and the first cover, a second set of ball bearings of the plurality of ball bearings disposed between the second track member and the second cover, a portion of each ball bearing of the plurality of ball bearings disposed within the handle passageway, each of the first and second covers attached to the housing; and

a first handle rotatably attached to the first frame and disposed within the first frame passageway, the first handle rotatable within the first frame passageway and having 360 degrees of rotation within the first frame passageway, the first handle moveable along said lengthwise axis between a first position in which the first handle is disposed a first distance from the first end of the housing and a second position in which the first handle is disposed a second distance from the first end of the housing, the second distance being greater than the first distance.

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