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(54) **HIP DISTRACTION**

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A61F 5/00 (2006.01)
A61F 5/37 (2006.01)
(Continued)

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CPC ***A61H 1/0218*** (2013.01); *A61F 5/04* (2013.01)

(58) **Field of Classification Search**
CPC A61H 1/0218; A61F 5/04
USPC 602/32, 33, 36, 38; 128/845, 846, 882; 606/54, 55, 57; 5/600, 612, 619, 621, 5/624, 638, 661
See application file for complete search history.

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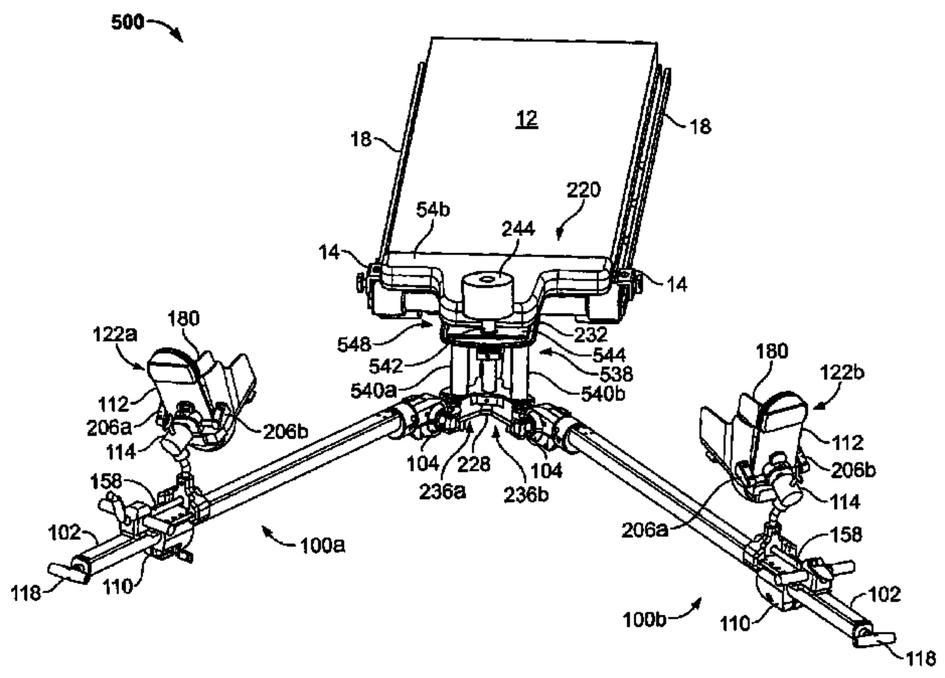
(57) **ABSTRACT**

A hip distractor includes a pair of distractor members and a support configured to be fastened to a surgical table. The support includes at least two mounts for coupling to a pair of joints that couple the distractor members to the support. Another hip distractor includes a pair of distractor assemblies that are configured to apply a distraction load to a patient. Each of the assemblies includes a joint for coupling the corresponding assembly to a surgical table. The joint permits vertical and horizontal angular adjustment of the corresponding assembly. A method of distracting a hip includes coupling a patient's legs to a pair of distractor assemblies and simultaneously adjusting a vertical angle and a horizontal angle of at least one of the distractor assemblies.

14 Claims, 18 Drawing Sheets



(51) **Int. Cl.**

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A47B 7/00	(2006.01)
A47C 17/86	(2006.01)
A61H 1/02	(2006.01)
A61F 5/04	(2006.01)

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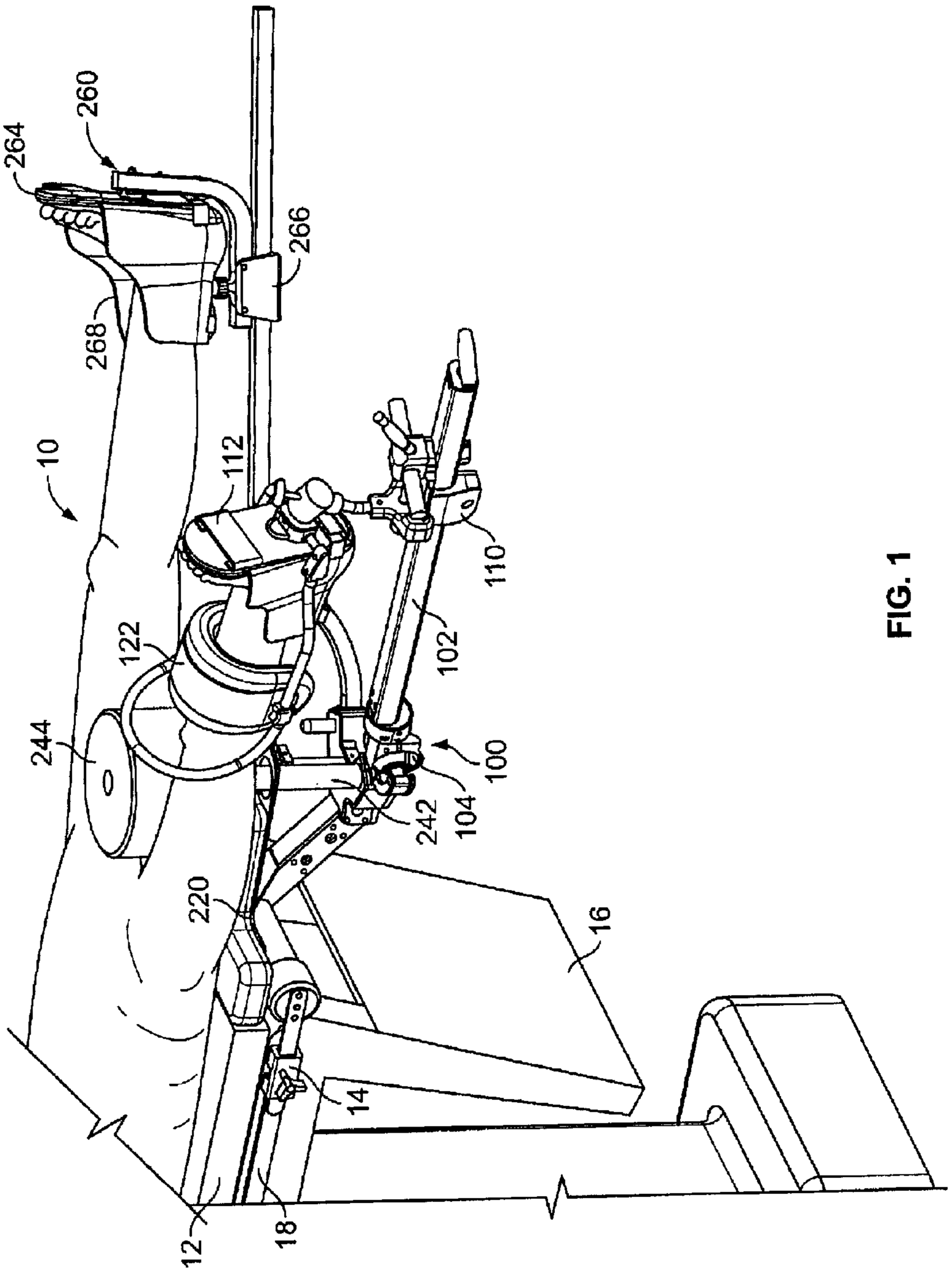
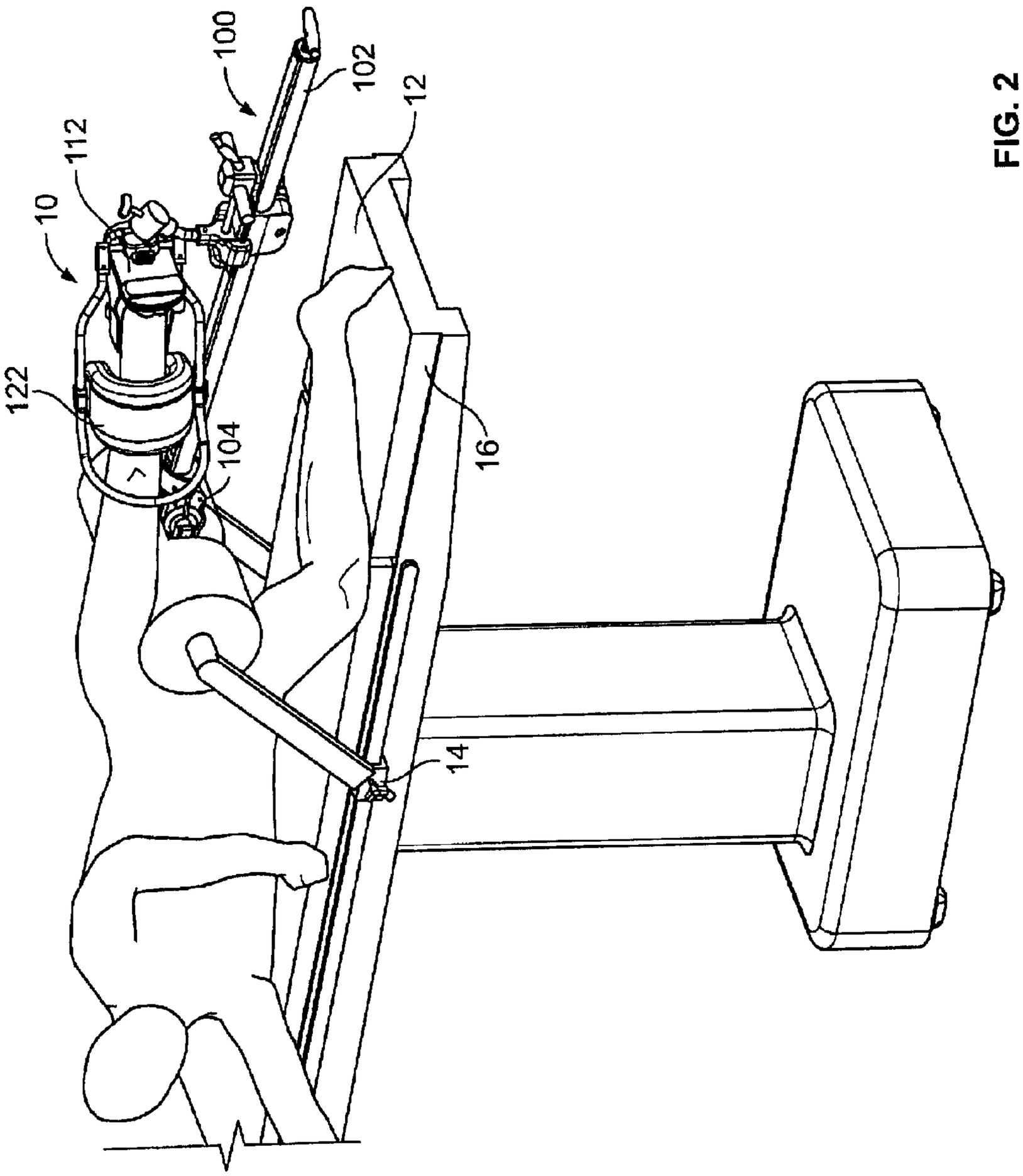


FIG. 1



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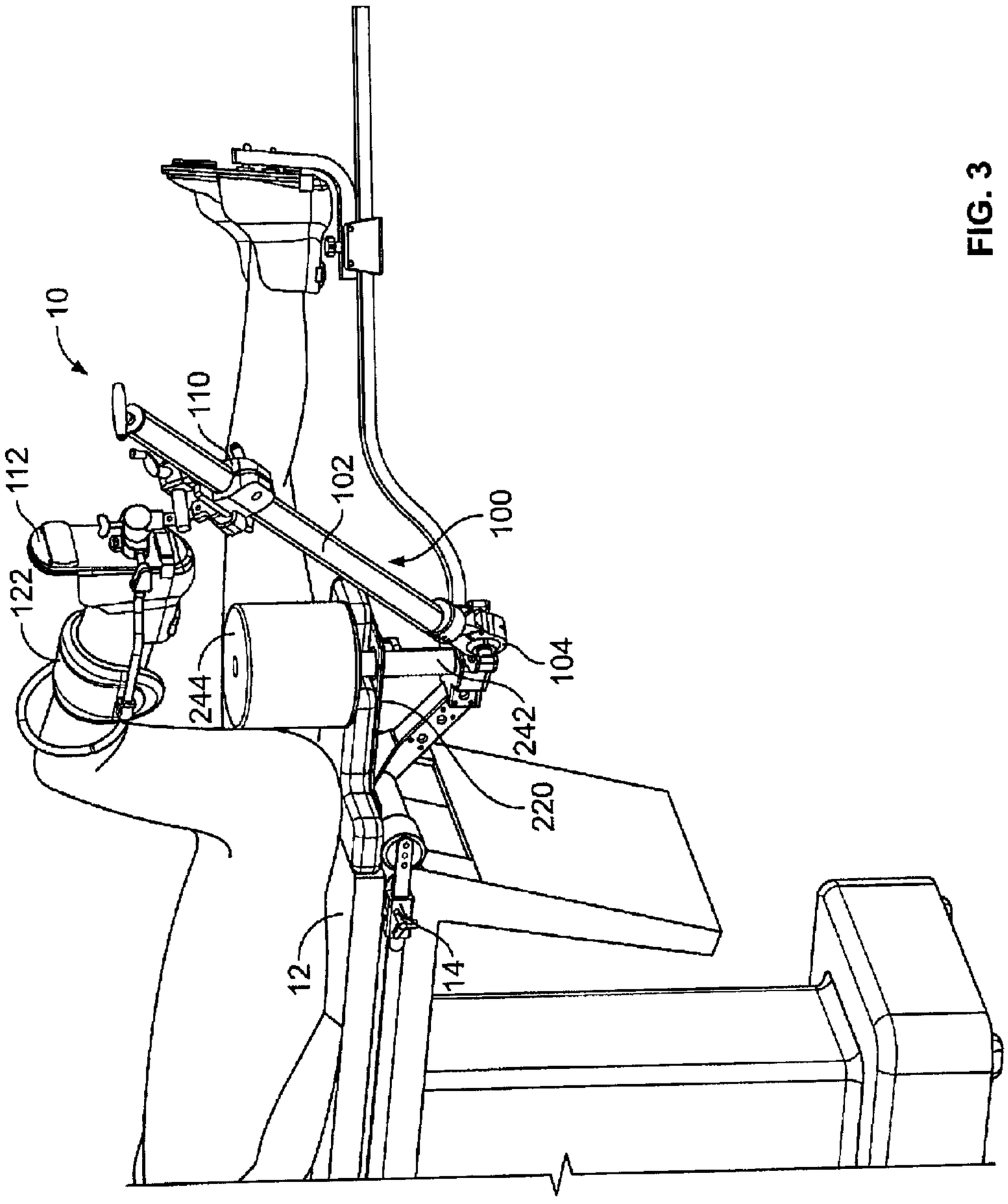

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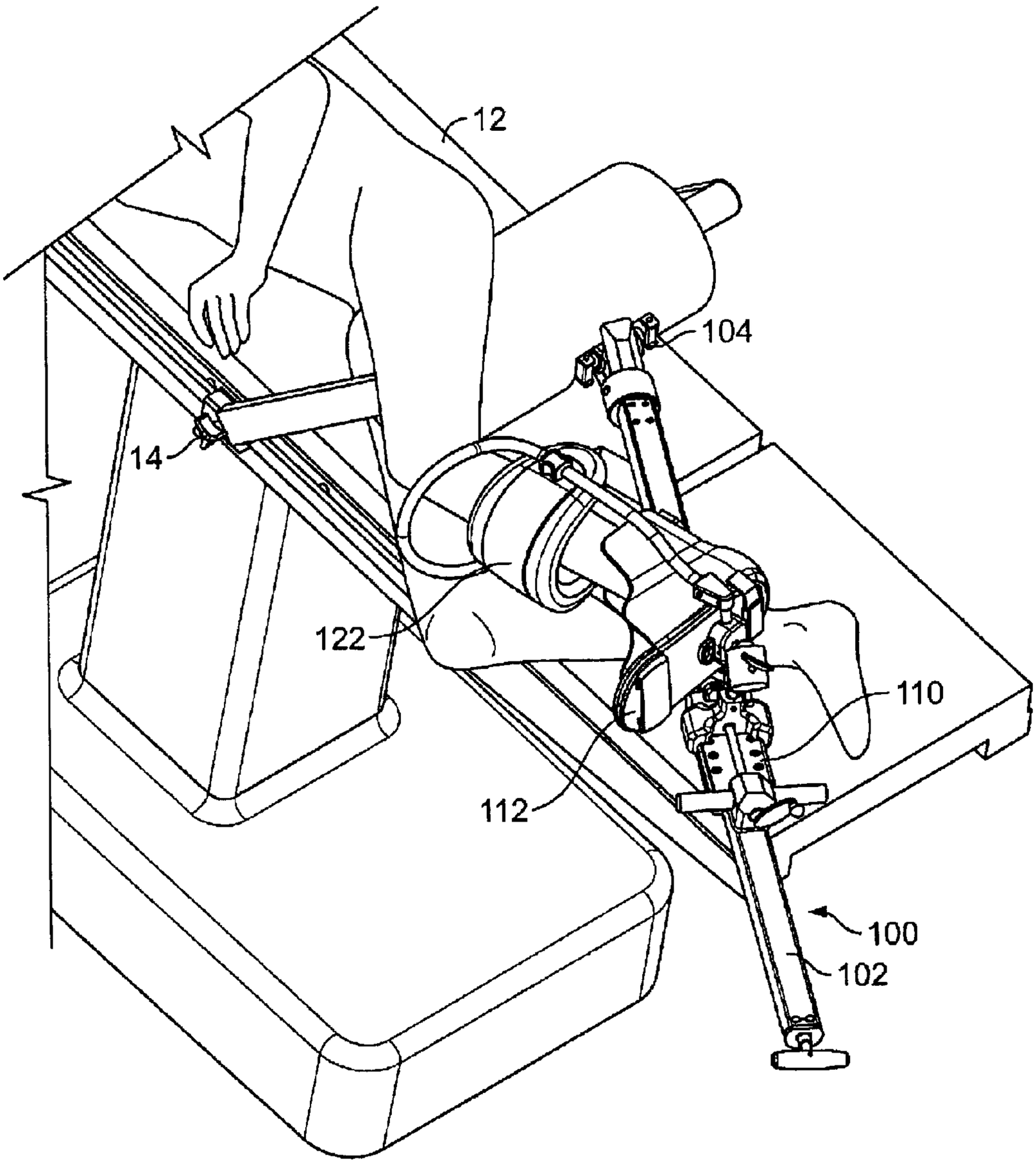

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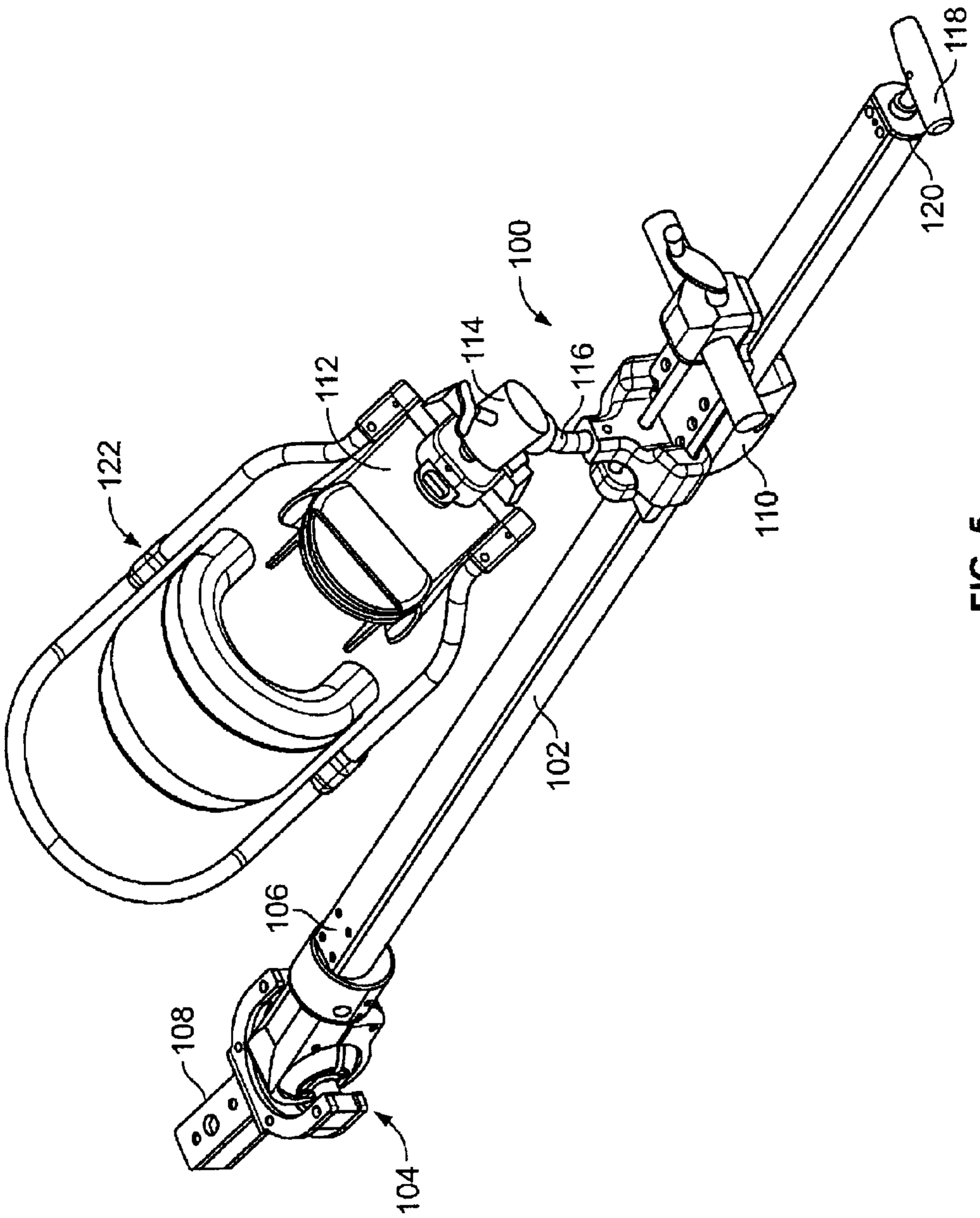

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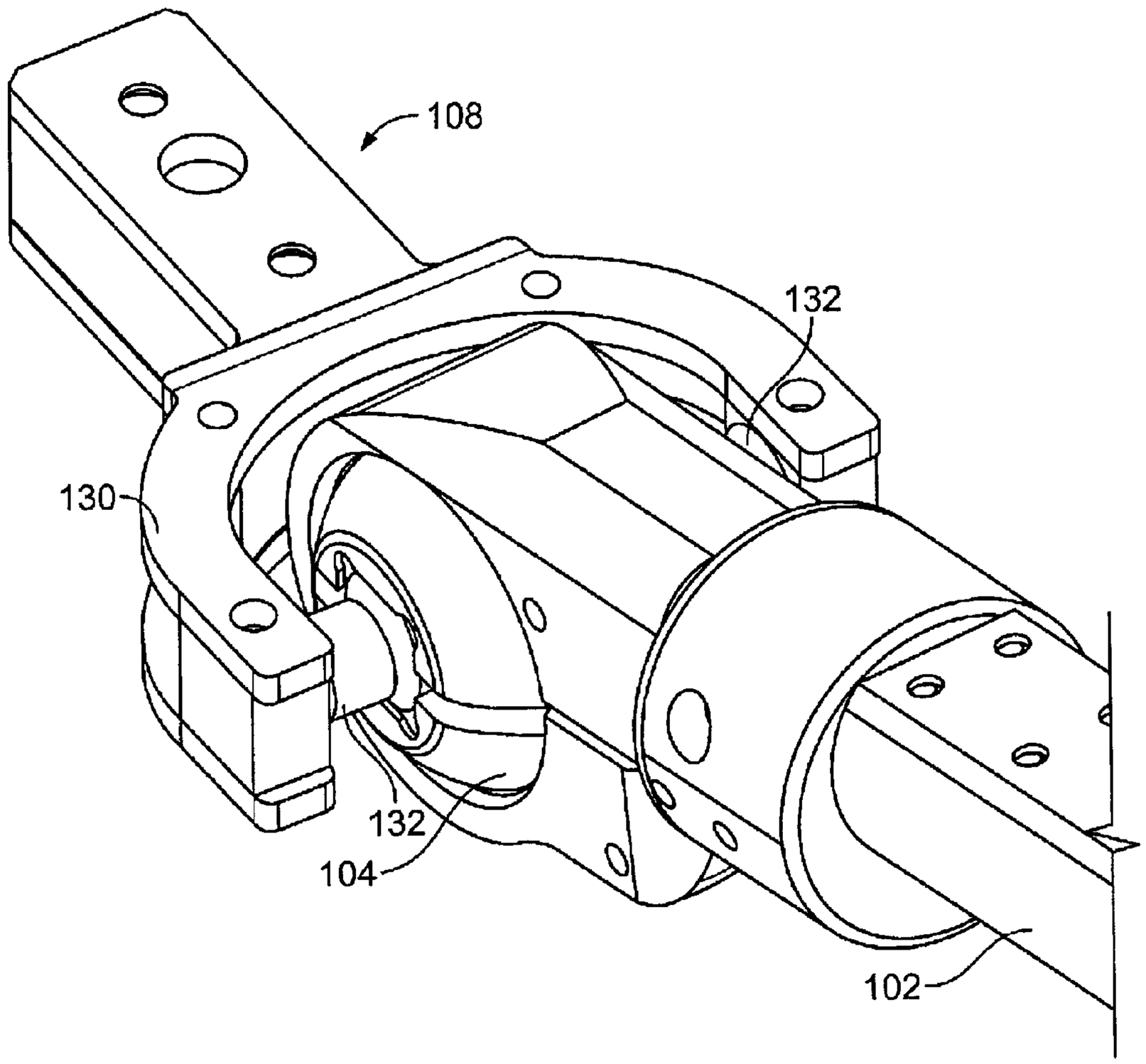

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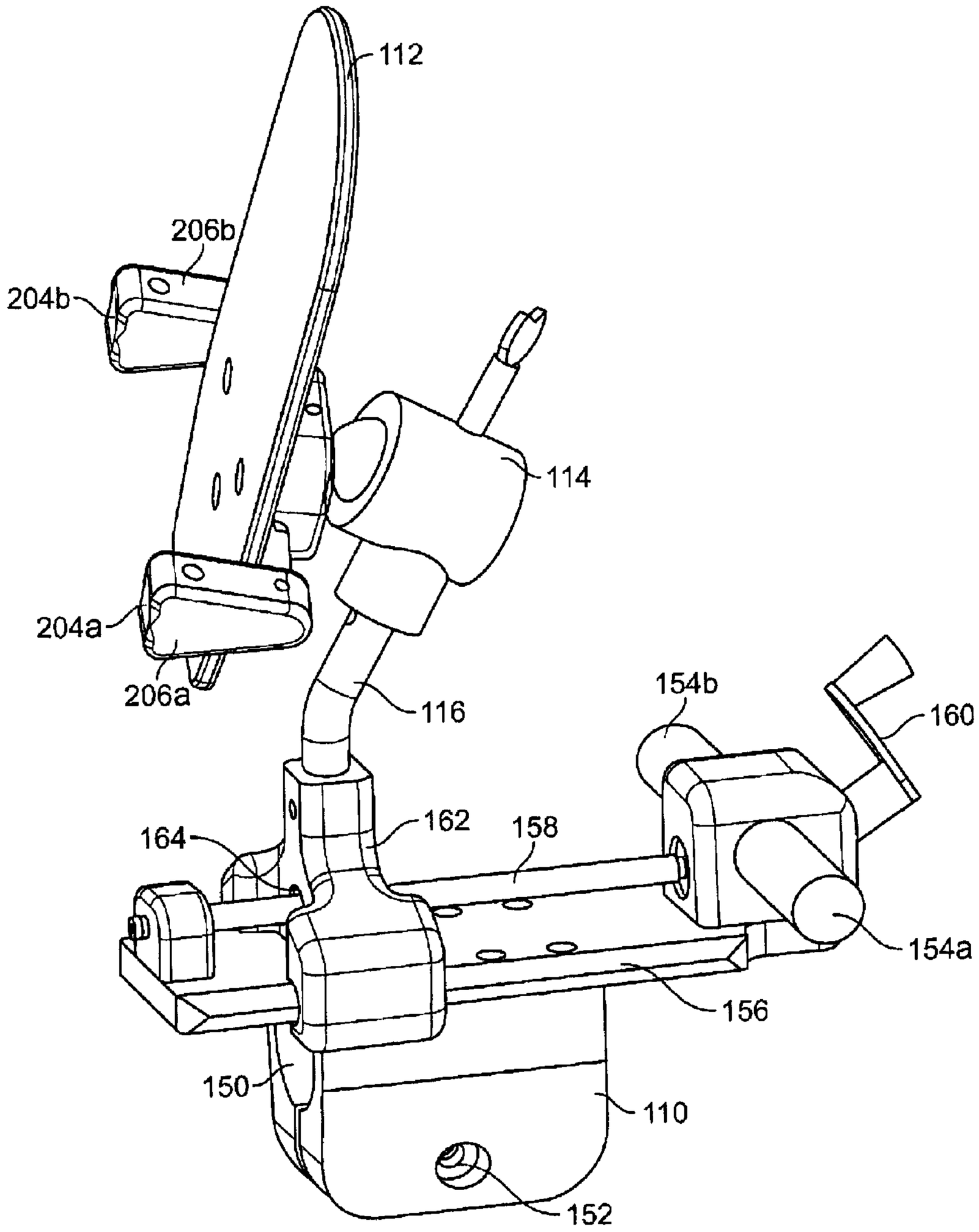
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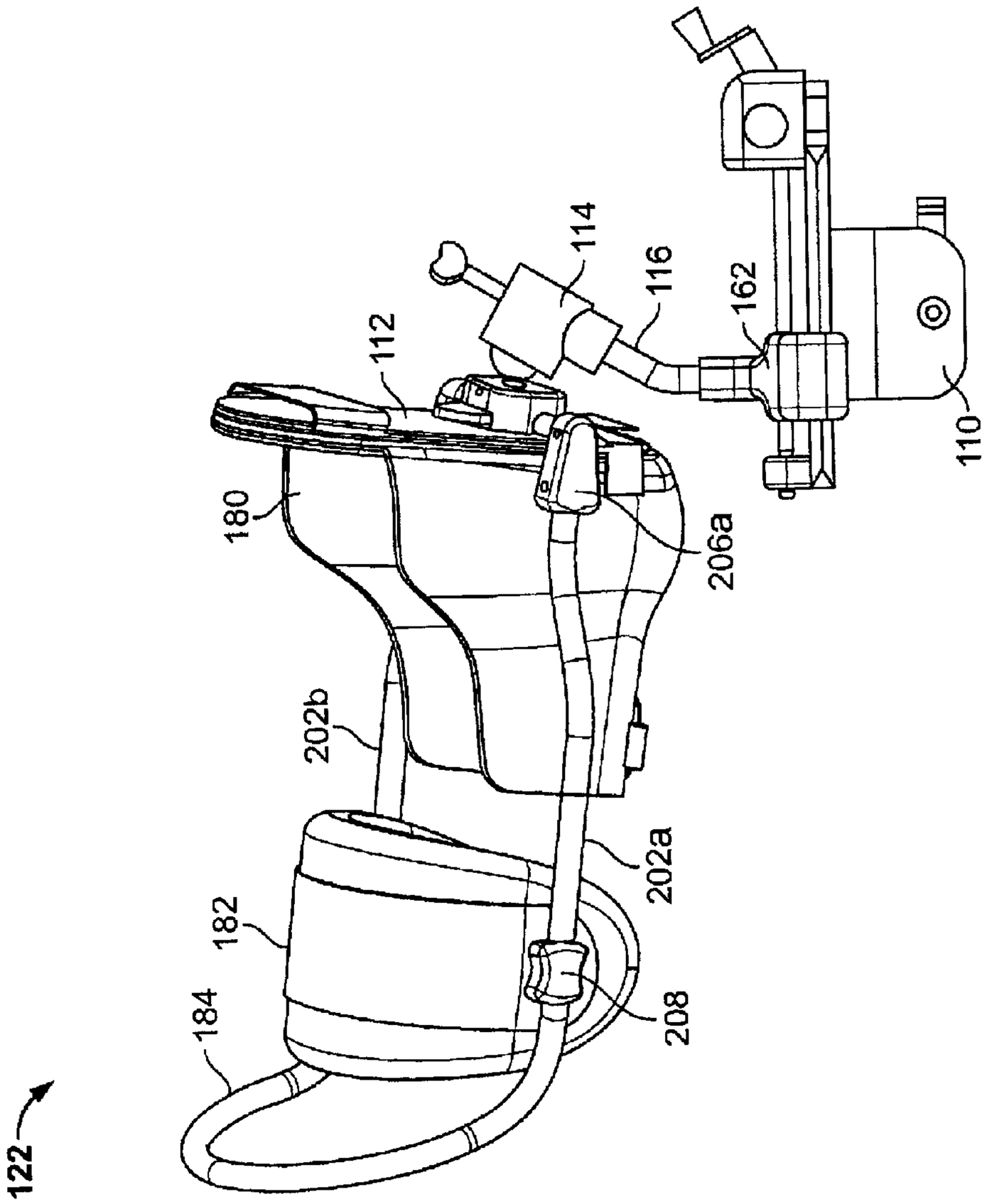
FIG. 7



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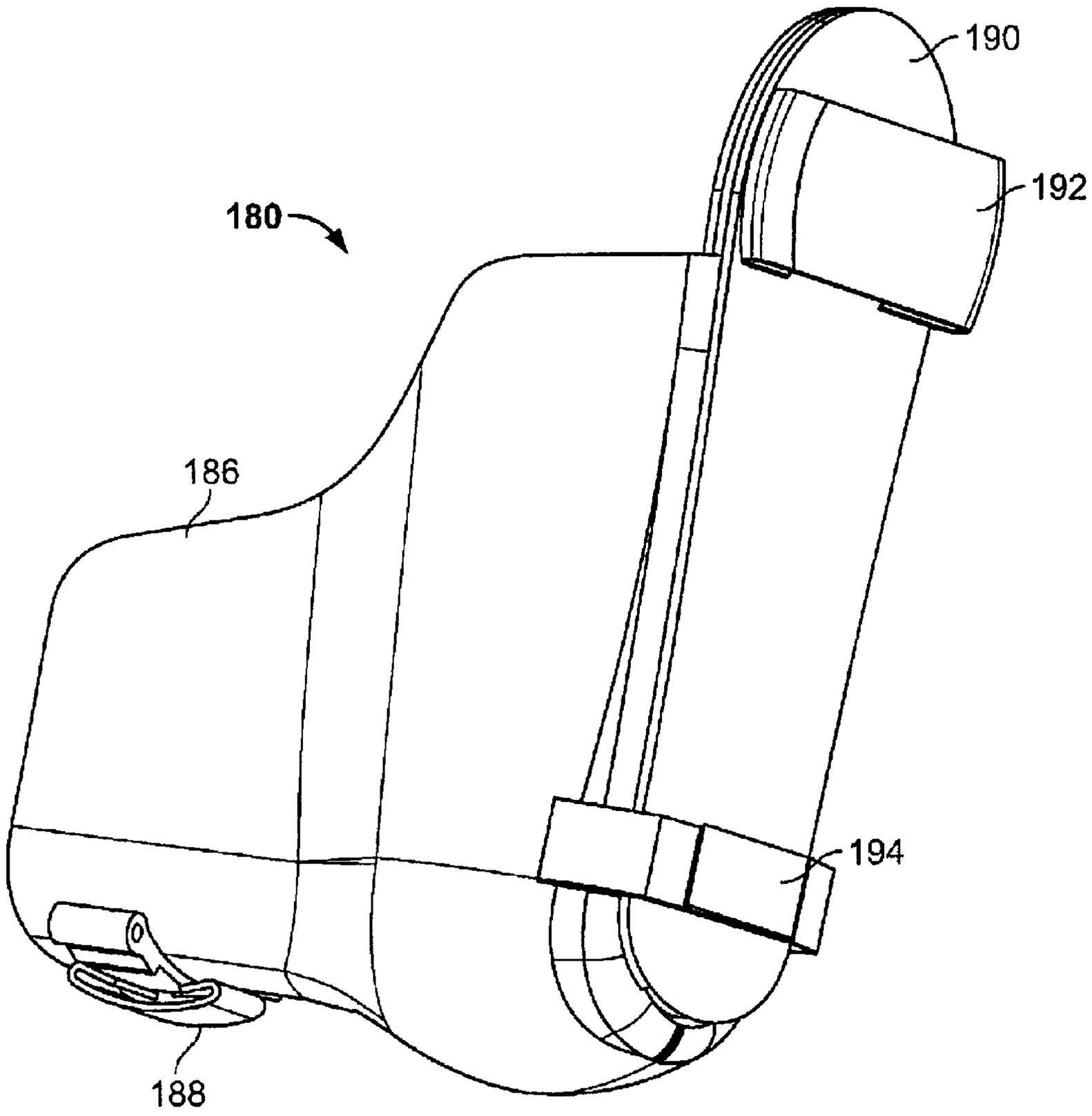

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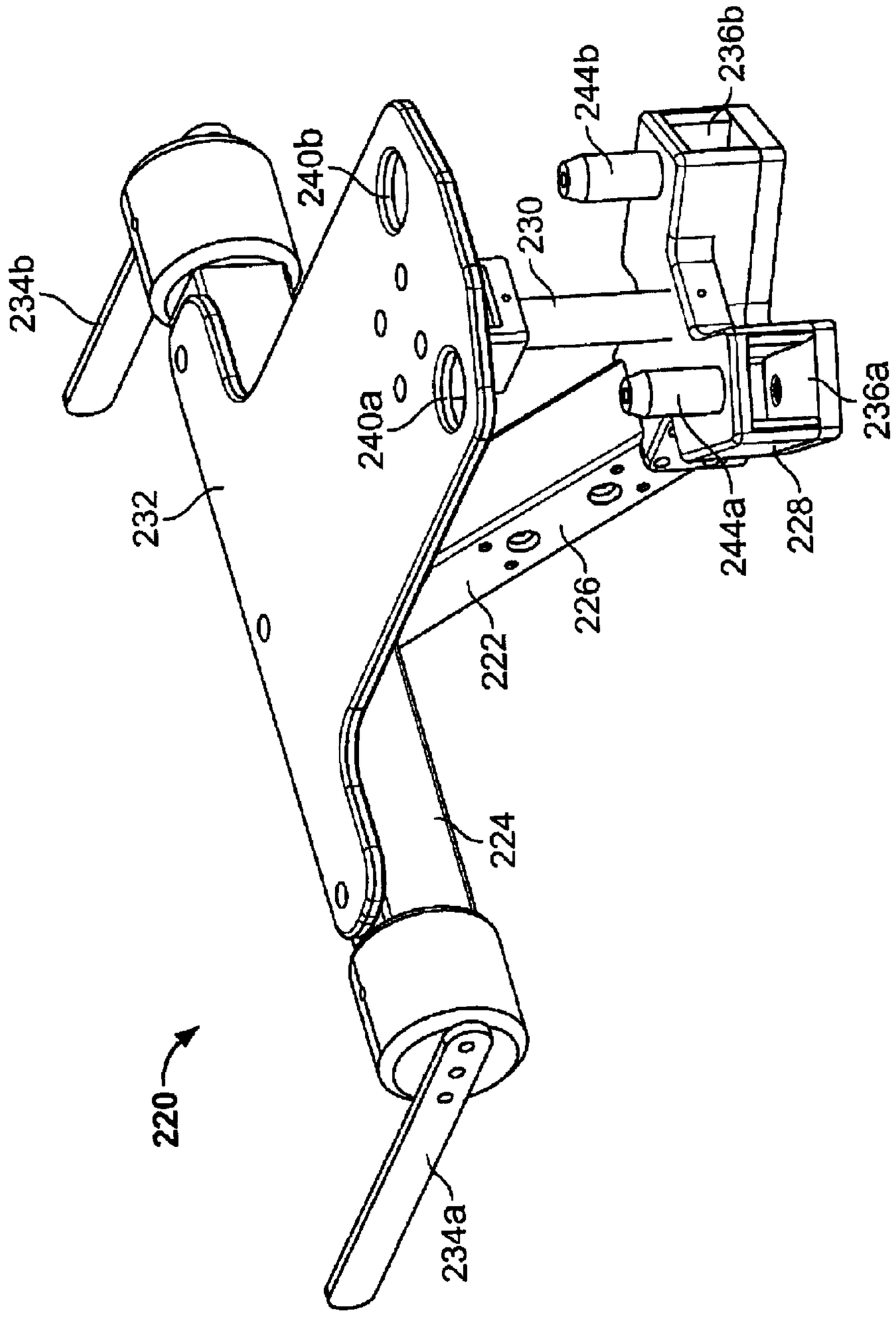
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FIG. 10A

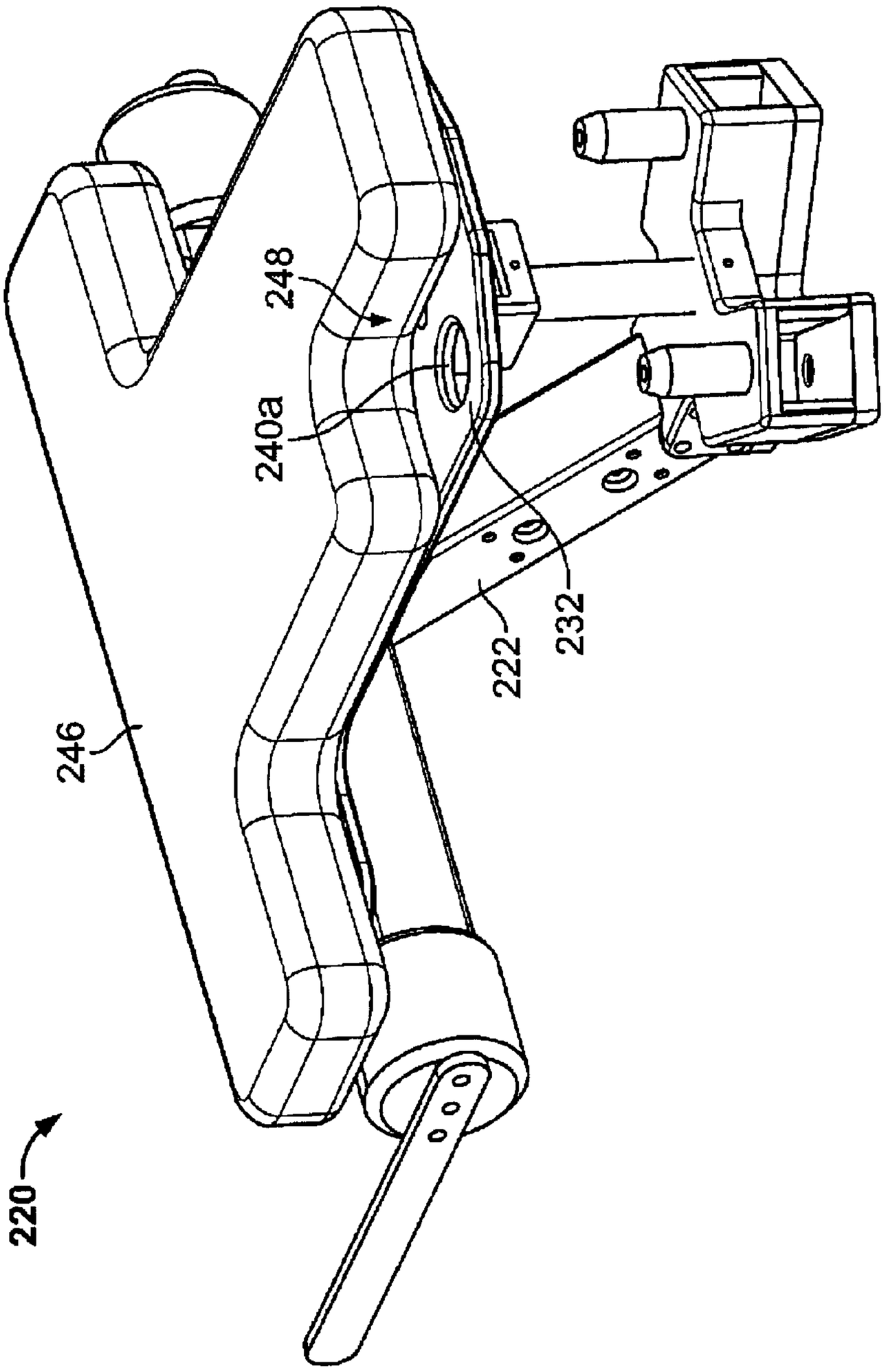
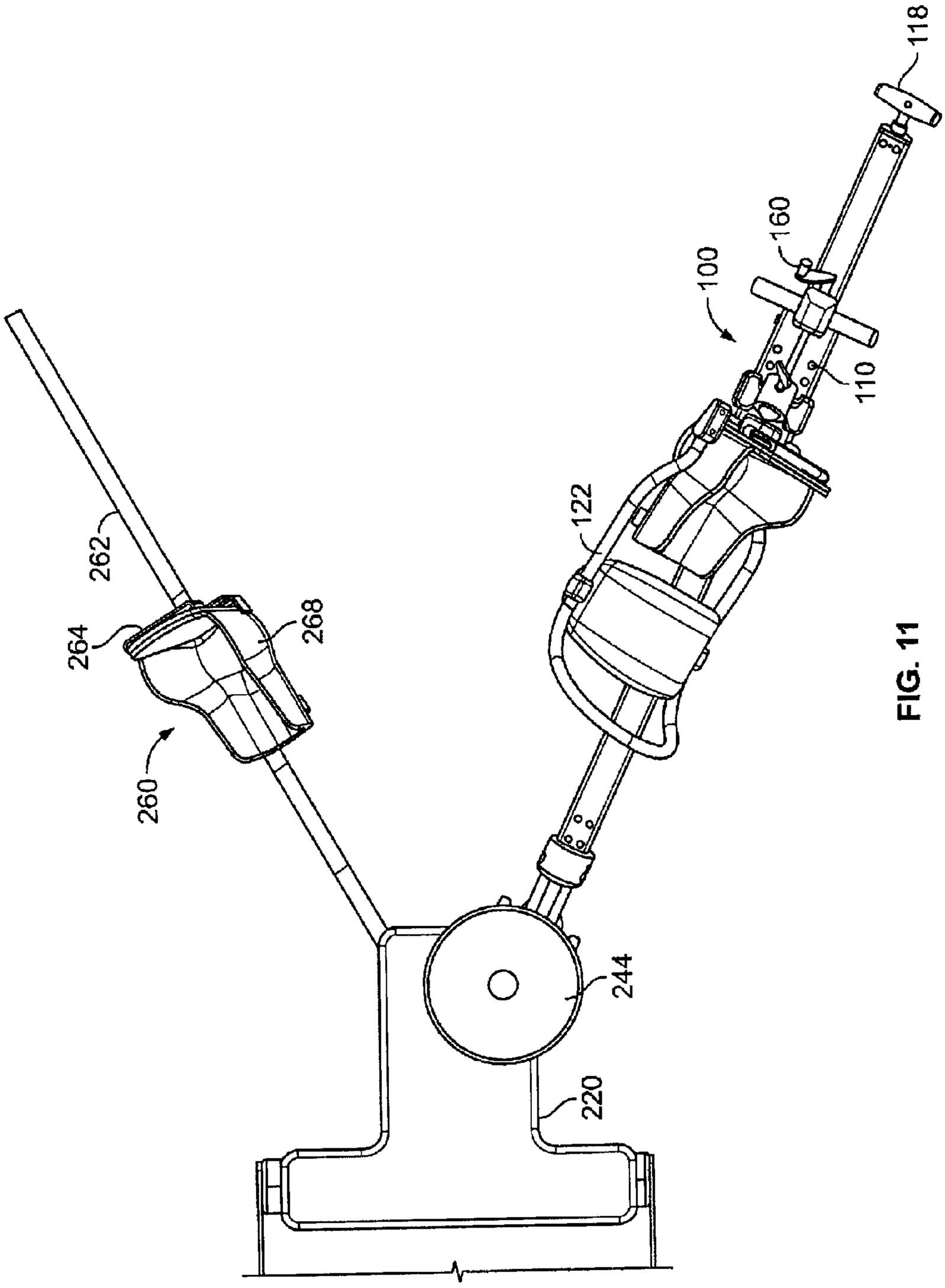


FIG. 10B



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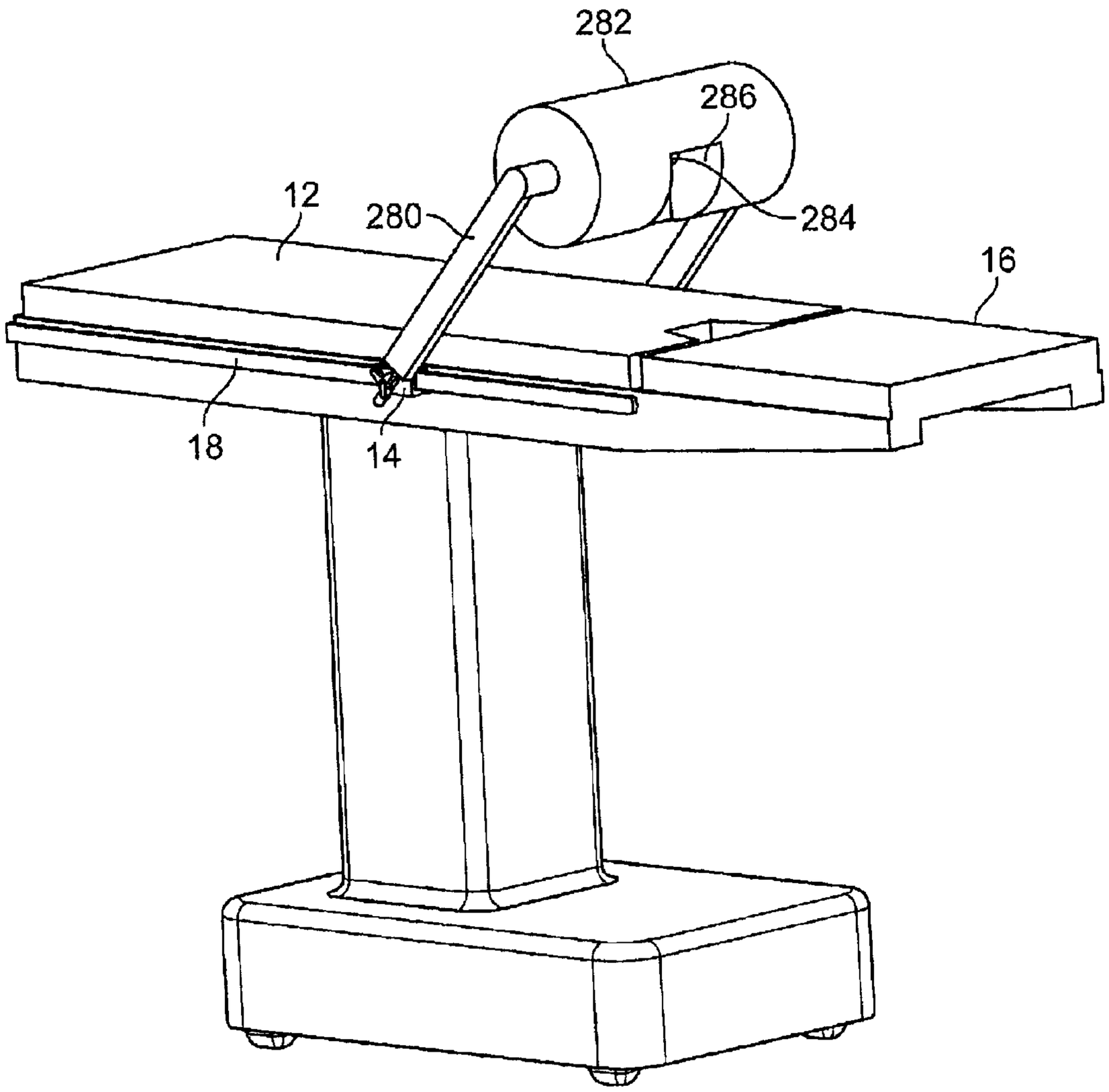

FIG. 12

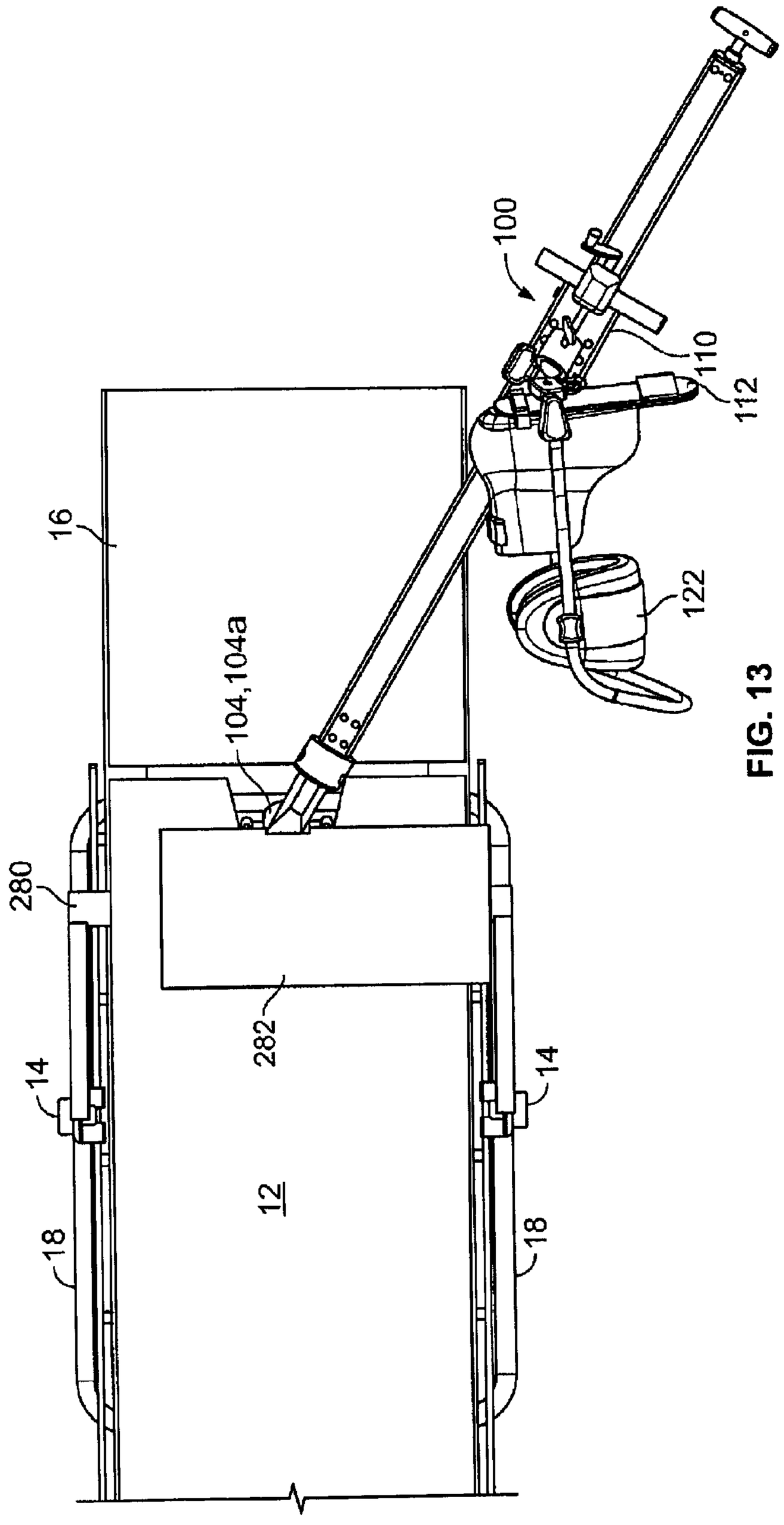

FIG. 13

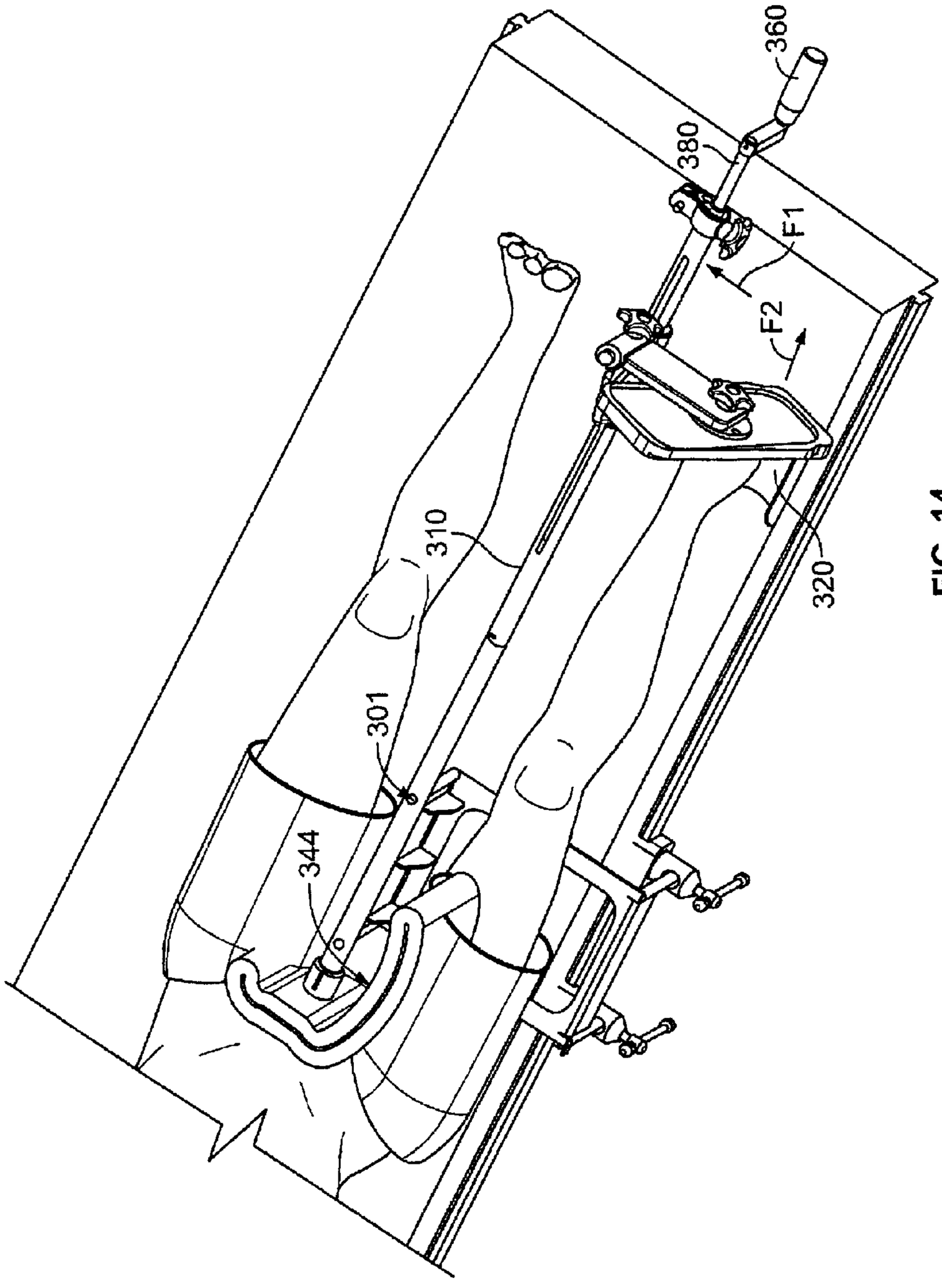

FIG. 14

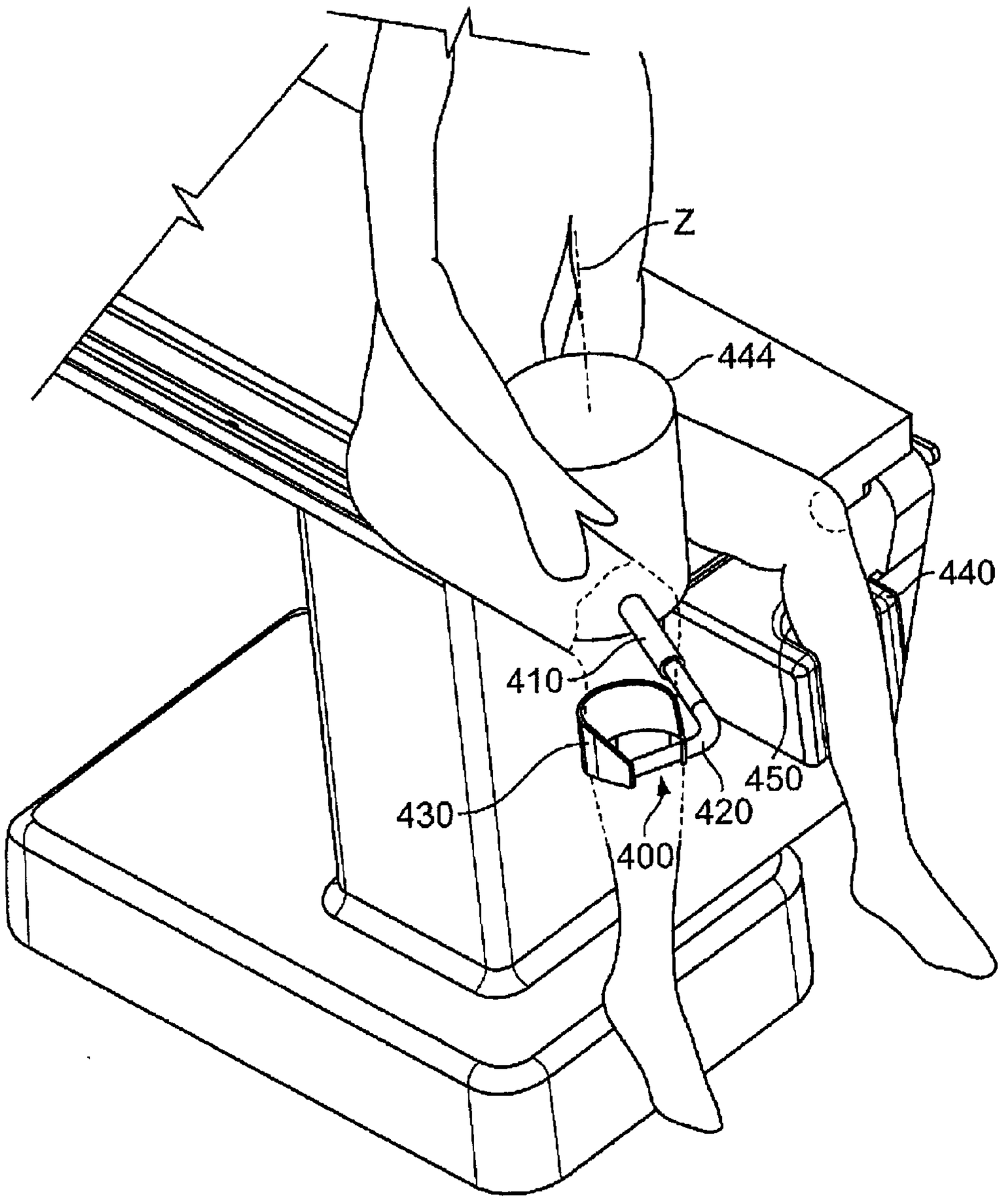

FIG. 15

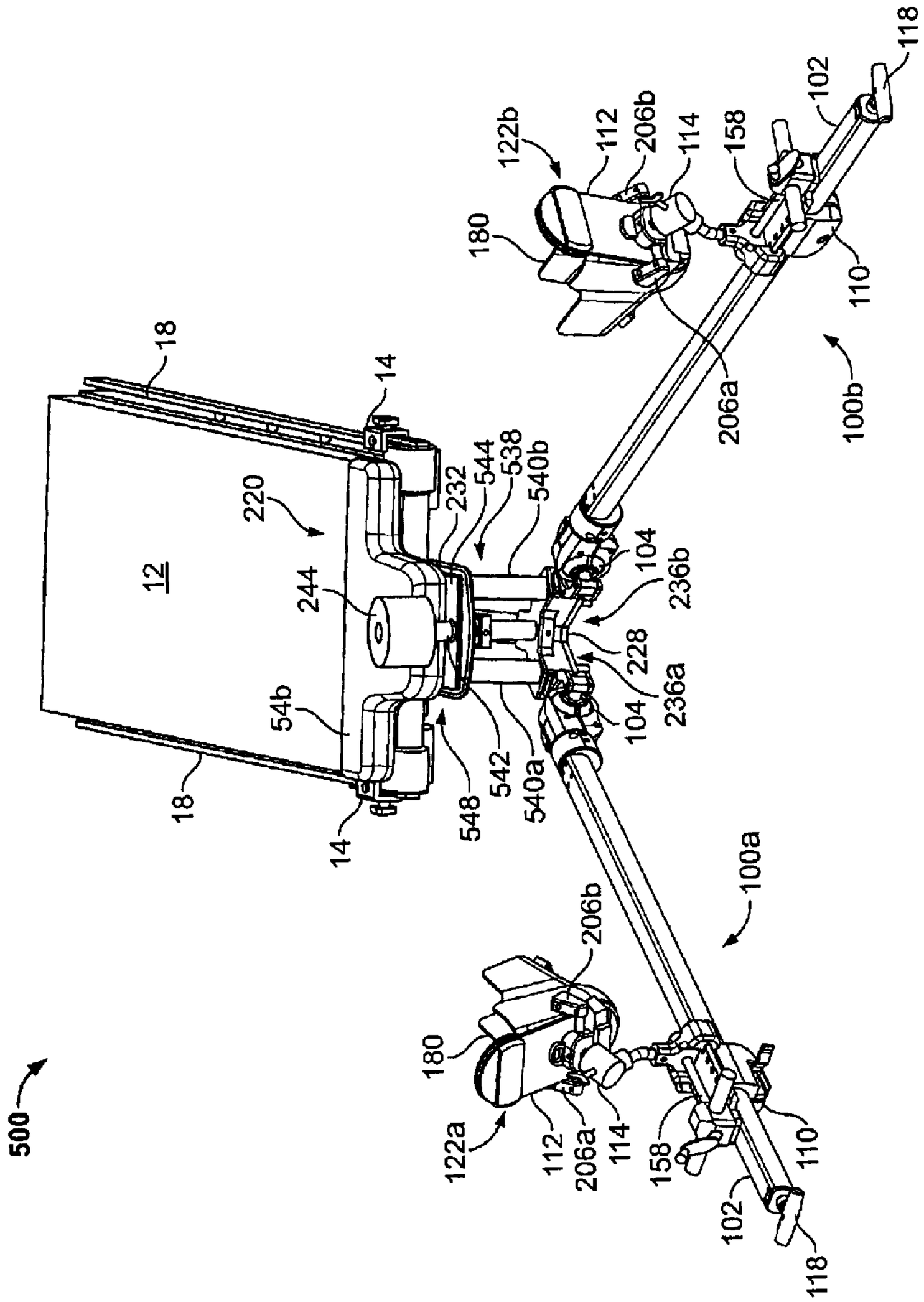
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FIG. 16

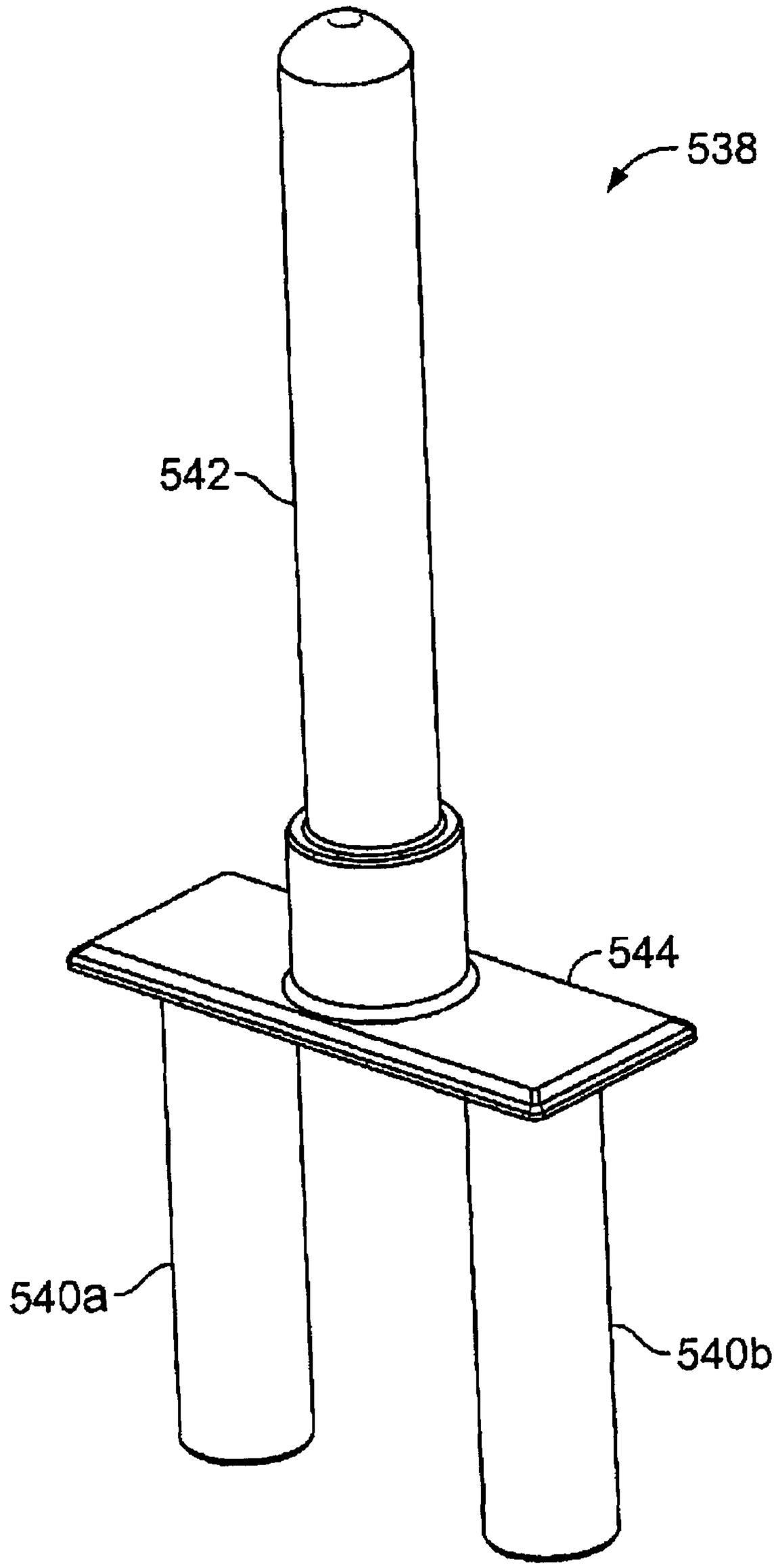

FIG. 17

HIP DISTRACTION

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue; a claim printed with strikethrough indicates that the claim was canceled, disclaimed, or held invalid by a prior post-patent action or proceeding.

TECHNICAL FIELD

This invention relates to hip distraction.

BACKGROUND

To gain access to the hip joint to perform, e.g., hip arthroscopy, orthopedic hip pinning or minimally-invasive hip joint replacement, the femoral head (ball) is pulled out of the acetabulum (socket) in the pelvis. Hospitals typically use a fracture table to put the hip joint under traction while the patient is in a supine position. Hip distractors are known that attach to a standard operating table, and that are dedicated to use with the patient in either a supine position or a lateral position.

Two methods for hip distraction are Distraction Mode, in which the lower extremity is put in tension via traction between the foot and pelvis, and Femoral Acetabular Impingement (FAI) Mode, in which there is no traction on the lower extremity and there is a larger range of motion than the distraction mode. In the FAI Mode, the hip is flexed up between 30 to 90 degrees and the knee is flexed approximately 45 degrees. The scrub nurse holds the knee from falling laterally. Both methods can be performed using a fracture table with the patient in the supine position. To move a patient between the two modes, and to move the hip joint through its range of motion to check for impingement between the femoral neck and the acetabular rim, the circulator nurse reaches under the draped foot area to unlock the table.

SUMMARY

According to one aspect, an apparatus includes a distractor assembly adapted to couple to a leg and capable of providing a distraction load on the leg in both supine and lateral positions of the leg.

Embodiments of this aspect may include one or more of the following features. The distractor assembly includes a joint, for example, a ball joint or universal joint, configured to couple the distractor assembly to a surgical table. The joint is lockable and the mechanism for locking the joint is located remote from the joint. The apparatus is configured such that with a patient positioned on the surgical table and coupled to the distractor, the joint is offset from the patient's hip joint. The apparatus is entirely supported by a surgical table.

In an illustrated embodiment, the distractor assembly includes a distractor member and a leg mount, for example, a foot mount, coupled to the distractor member for movement relative to the distractor member by both sliding and threaded engagement. The leg mount is coupled to the distractor member by a ball joint. The apparatus includes a foot holder mountable to the distractor assembly and including a support bar that supports the lower leg in the lateral and supine positions.

The apparatus further includes a support configured to be fastened to a surgical table, and the distractor assembly includes a joint, for example, a ball joint or a universal joint, coupling the assembly to the support. The support includes two mounts for coupling to the joint and the distractor assembly is arranged for use with a patient in a supine position with the joint coupled to a first of the mounts for surgery on a right leg, or to a second of the mounts for surgery on the left leg.

According to another aspect, a method includes coupling a leg to a distractor assembly, positioning the leg in one of a distraction mode and a femoral acetabular impingement mode, and repositioning the leg in the other of the modes without the need for accessing a draped pelvis/thigh region.

According to another aspect, an apparatus includes a distractor member configured for coupling to patient table, and a leg mount coupled to the distractor for movement relative to the table by both sliding and threaded engagement.

According to another aspect, an apparatus includes a distractor member configured for coupling to patient table, a ball joint, and a leg mount coupled to the distractor member by the ball joint. The apparatus is configured such that relative movement between the foot mount and the table applies a distraction load to a patient. Embodiments of this aspect may include that the apparatus is configured to be entirely supported by a surgical table.

According to another aspect, an apparatus includes a distractor assembly configured to apply a distraction load to a patient including a ball joint or a universal joint for coupling the assembly to a surgical table.

Embodiments of this aspect may include that the joint is lockable, and that the apparatus is configured such that with a patient positioned on the surgical table and coupled to the distractor assembly, the joint is offset from the patient's hip joint.

According to another aspect, an apparatus includes a foot holder for use during surgery having a support bar configured and arranged to support a patient's lower leg.

According to another aspect, an apparatus includes a distractor member, a support configured to be fastened to a surgical table, and a joint coupling the distractor member to the support. The support includes at least two mounts for coupling to the joint.

According to another aspect, a method includes coupling a distractor member to a patient's leg, and dislocating the patient's hip by applying an adduction force to the patient's leg.

According to another aspect, a method includes coupling a distractor member to a patient's leg, and applying a distraction force with the distractor member to the patient's leg through a bent knee.

According to another aspect, an apparatus includes means for providing a distraction load on a leg in both supine and lateral positions of the leg.

According to another aspect, an apparatus includes means for repositioning a leg between a distraction mode and a femoral acetabular impingement mode without the need for accessing a draped pelvis/thigh region.

According to another aspect, an apparatus includes a pair of distractor members, a support configured to be fastened to a surgical table, and a pair of joints for coupling the distractor members to the support. The support includes at least two mounts for coupling to the joints.

Implementations of this aspect may include one or more of the following features. For example, the apparatus includes a forked post including a pair of support posts and a center post. The forked post includes a perineal pad supported by the center post. The support includes a pair of through holes, each support post being received in one of the holes. The support includes a pair of external plugs, each support post being

received over one of the plugs. A leg mount is coupled to one of the distractor members for movement relative to the one of the distractor members by both sliding and threaded engagement. A second leg mount is coupled to other of the distractor members for movement relative to the other of the distractor members by both sliding and threaded engagement. The apparatus includes a mechanism for locking one of the joints. The joint is lockable. An actuator for the mechanism is located remote from the joint. The apparatus is configured to be entirely supported by the surgical table.

According to another aspect, an apparatus includes a pair of distractor assemblies configured to apply a distraction load to a patient. Each of the assemblies includes a joint for coupling the corresponding assembly to a surgical table. The joint permits vertical and horizontal angular adjustment of the corresponding assembly.

Implementations of this aspect may include one or more of the following features. For example, each joint permits vertical angular adjustment of greater than about twenty degrees from horizontal, and a total range of horizontal angular adjustment of greater than about twenty degrees. Each joint permits vertical angular adjustment of greater than about forty-five degrees from horizontal, and a total range of horizontal angular adjustment of greater than about forty-five degrees. At least one of the joints is a ball joint. At least one of the joints is a universal joint. The apparatus is configured to be entirely supported by the surgical table.

According to another aspect, a method includes coupling a patient's legs to a pair of distractor assemblies and simultaneously adjusting a vertical angle and a horizontal angle of at least one of the distractor assemblies.

Implementations of this aspect may include one or more of the following features. For example, adjusting the vertical angle includes rotating the distractor assembly greater than about twenty degrees from horizontal. Adjusting the horizontal angle includes rotating the distractor assembly greater than about twenty degrees. The method includes fastening a support to a surgical table to support the pair of distractor assemblies. The method includes remotely locking the vertical angle and the horizontal angle of at least one of the distractor assemblies.

According to another aspect, a device includes a forked post including a connector plate having a first side and a second side, a center post extending from the first side of the connector plate, and a pair of support posts extending from the second side of the connector plate. The center post is equidistant from each of the support posts. The device also includes a platform configured for attachment to a surgical table and defining a pair of holes spaced to receive the support posts.

Implementations of this aspect may include one or more of the following features. For example, the device includes a perineal pad supported by the center post. The forked post is configured to support the perineal pad in a substantially transversely centered location of the platform.

According to another aspect, a method of performing a medical procedure includes positioning a forked post on a support fastened to a surgical table. The forked post includes a con-nector plate having a first side and a second side, a center post extending from the first side of the connector plate, and a pair of support posts extending from the second side of the connector plate. The center post is equidistant from each of the support posts. The method also includes positioning a patient on the surgical table such that the center post is between the patient's legs. Implementations of this aspect may include, for example, passing each of the support posts through one of a pair of through holes in the support.

Advantages of the apparatus and method may include ease of positioning throughout the large range of motion required in FAI Mode, ease of repositioning between Distraction and FAI Modes, a single system that allows for both supine and lateral positioning, freeing the scrub nurse from holding the knee from falling laterally in FAI Mode, ease of positioning or repositioning both of the patient's legs before and during procedures, and less expensive than a fracture table.

The details of one or more embodiments of the invention are set forth in the accompanying drawings and the description below. Other features, objects, and advantages of the invention will be apparent from the description and drawings, and from the claims.

DESCRIPTION OF DRAWINGS

FIG. **1** illustrates a distraction assembly arranged for use in a Distraction Mode with the patient in a supine position.

FIG. **2** illustrates the distraction assembly arranged for use in a Distraction Mode with the patient in a lateral position.

FIG. **3** illustrates the distraction assembly arranged for use in a FAI Mode with the patient in a supine position.

FIG. **4** illustrates the distraction assembly arranged for use in a FAI Mode with the patient in a lateral position.

FIG. **5** is an isometric view of the distraction assembly and a foot holder attached to the distraction assembly.

FIG. **6** is an isometric view of a ball joint of the distraction assembly.

FIG. **7** is an isometric view of a slider and foot mount of the distraction assembly.

FIG. **8** shows the foot holder attached to the slider.

FIG. **9** is an illustration Of a boot of the foot holder.

FIGS. **10**A and **10**B are isometric views of a table extension for mounting the distraction assembly to an operating room table with the patient in a supine position.

FIG. **11** is a top view of the distraction assembly also illustrating a non-operative leg holder for the supine position.

FIG. **12** is an isometric view of a lateral positioning table extension and pad.

FIG. **13** is a top view of the distraction assembly arranged for lateral positioning.

FIG. **14** illustrates an alternative embodiment of a hip distractor.

FIG. **15** illustrates another alternative embodiment of a hip distractor.

FIG. **16** illustrates a system including a pair of distractor assemblies and a centered perineal pad.

FIG. **17** illustrates a forked post for use with the system of FIG. **16**.

DETAILED DESCRIPTION

Hip distraction is performed in either the Distraction Mode (FIGS. **1** and **2**) or Femoral Acetabular Impingement (FAI) Mode (FIGS. **3** and **4**) using a system **10** that can be attached to a standard operating table **12**, such as found in hospitals and surgery centers, and that can accommodate both supine (FIGS. **1** and **3**) and lateral (FIGS. **2** and **4**) positioning of the patient. The system **10** permits operating room personnel to reposition the patient between Distraction Mode and FAI Mode without needing to access the draped pelvis/thigh region.

Referring to FIG. **5**, a distractor assembly **100** includes a distraction member, for example, a longitudinal spar **102** having a D-shaped cross-section, a lockable ball joint **104** (available from Allen Medical of Acton, Mass. and as seen in Allen Medical's Ultrafin stirrup products) attached to the

proximal (pelvis) end **106** of the spar, a coupler **108** attached to the ball joint **104** for coupling the distractor assembly **100** to an operating room table, a slider **110** slidably mounted on the spar **102**, and a leg mount, for example, foot mount **112**, attached to slider **110** via a lockable ball joint **114** and a rigid, stationary arm **116**. The ball joint **104** can be locked and unlocked by actuating a knob **118** located at the distal (foot) end **120** of the spar **102**, thus allowing for the assembly to be unlocked and repositioned without need to access the draped pelvis/thigh region.

The ball joint **104** and the coupler **108**, as shown in FIG. **6**, allows for a large range of hip motion, providing a full range of motion about the horizontal axis, and about 80 degrees of motion in the horizontal plane. The coupler **108** includes a yoke **130** that receives horizontally extending side arms **132** of the ball joint **104**.

Referring to FIGS. **5** and **7**, the slider **110** defines a D-shaped longitudinal through bore **150** that slidably and non-rotationally receives the spar **102**, and a threaded, lateral through bore **152** that receives a locking bolt (not shown), that is tightened to lock the slider **110** to the spar **102**. The slider **110** includes handles **154**a, **154**b that are used by the operating room personnel to slide the slider relative to the spar to provide gross distraction of the leg. For fine distraction, the slider **110** includes abase **156** supporting a threaded rod **158** attached to a turn handle **160**. The base **156** also slidably supports a yoke **162** defining a threaded bore **164** through which the threaded rod **158** is received. By turning the handle **160**, the yoke **162**, and therefore the foot mount **112** attached to the yoke by the ball joint **114** and arm **116**, can be moved back and forth relative to the base **156** to apply a desired amount of traction, for example, 25-150 pounds of force, to the leg.

Attached to the foot mount **112** of the assembly **100** is a foot holder **122** (FIGS. **5** and **8**). The foot holder **122** includes a boot **180**, a shin support **182**, and a support bar **184** that holds the upper tibia aligned with the foot. The support bar is particularly advantageous during FAI to stabilize the knee from falling laterally thus freeing the scrub nurse from having to hold the patient's leg in position. Referring also to FIG. **9**, boot **180** includes a foot housing **186** with a tightening clasp **188**, a sole **190**, a U-coupling **192** that receives the foot mount **112**, and straps **194** for securing the boot to the foot mount. The foot housing **186** has three straps, not shown, that go over the patient's forefoot and close the foot housing onto the foot.

The support bar **184** has two legs **202**a, **202**b, the ends of which are respectively received within openings **204**a, **204**b of foot mount couplers **206**a, **206**b (FIG. **7**). The shin support **182** is attached to support bar **184** via shin mounts **208**. The ball joint **114** and arm **116** permit the patient's leg to be finely positioned.

To support the patient's buttocks when the patient is in a supine position and to attach the distractor assembly **100** to the operating room table, a table extension **220** (FIGS. **1** and **10**A) is employed. The table extension **220** includes a frame **222** with a cross bar **224**, an angled strut **226**, a Y-yoke **228**, a vertical strut **230**, and a platform **232**. Extending from the cross bar **224** are two arms **234**a, **234**b that are used to attach the table extension to the operating room table **12** using rail clamps **14**. The coupler **108** of the distractor assembly **100** plugs into one of a pair of female sockets **236**a, **236**b defined in Y-yoke **228** and is secured in place by a threaded locking knob (not shown). Since the ball joint **104** does not provide a large enough range of motion in the horizontal plane to accommodate surgery on both the right and left hips, socket **236**a is used for surgery on the right hip, and socket **236**b is used for surgery on the left hip, with the ball joint **104** providing the additional range of motion in the horizontal plane required for fine position of the leg.

The platform **232** is x-ray translucent and defines through holes **240**a, **240**b for receiving a post **242** (FIG. **1**). The post **242** is received over a respective plug **244**a, **244**b of Y-yoke **228**, and a perineal pad **244** (FIG. **1**) slips over the post **242**. The post and pad provide the restraining force against the pelvis when the distraction force is applied to the leg. Through hole **240**a is used for surgery on the right hip, and through hole **240**b is used for surgery on the left hip. As shown in FIG. **10**B, a pad **246** is attached to the platform **232**. The pad defines a cut-out **248** permitting access to holes **240**a, **240**b.

Referring to FIGS. **10**A and **11**, a non-operative leg holder assembly **260** is secured within the respective opposite socket **236**a, **236**b from that in which distractor assembly **100** is secured. Assembly **260** includes a spar **262** to which a foot mount **264** is slidably attached viva lockable slider **266** (FIG. **1**). Attached to foot mount **264** is a boot **268** through which mild traction, for example, about 20 pounds can be applied to the non-operative leg.

To position the patient in the supine position for the Distraction Mode (FIG. **1**), operating room personnel lower the operating room table's foot section **16** to the vertical position, clamp the table extension **220** to the side rails **18** of the table, and connect the distractor assembly **100** and leg holder **260** to the table extension. A patient transfer board (not shown) can be attached to the table extension to provide interim support to the legs while the feet are strapped into the boots **180**, **268**.

The operating room personnel then place the patient on the table, anaesthetize the patient, and attach the perineal post and pad to the table extension. The patient is then brought down the table firmly against the perineal pad, and the feet are wrapped in disposable foam booties (not shown) and strapped into the boots. The well leg is put under mild traction and the foot allowed to pivot into it's neutral position. The operating room personnel remove the patient transfer board and put the operative leg under initial traction by sliding the slider **110** along the spar **102** until mild traction, for example, about 20 to 50 pounds, is achieved. The slider **110** is then clamped to the spar. Further traction is achieved via the mechanical advantage of the threaded screw **158** between the slider **110** and boot **180**. This distracts the hip via traction through the ankle and knee joints. The foot can be locked in any orientation (flexion or rotation) via the ball joint **114** between the boot and the threaded screw.

The surgeon then checks the distraction with fluoroscopy, places a drape over the patient, including covering the pelvis/thigh region of the patient, and places portals through the patient's skin leading to the hip joint under fluoroscopy control. As soon as the first portal is created the vacuum seal between the femoral head and acetabulum is broken and the joint distracts further. This can be aided by injecting fluid into the joint.

To move the patient from Distraction Mode to FAI Mode (FIG. **3**), the operating room personnel reduce the traction force by turning the threaded screw **158** until no force is on the joint, unlock the ball joint **104**, and lift the femur into flexion by raising the spar **102**. Since the center of rotation of the spar, i.e., the ball joint **104**, is located below the hip joint of the patient, the knee flexes as the spar is raised. The natural tendency of the knee to fall laterally is limited by the boot's lateral support bar **202**a, **202**b thus freeing the scrub nurse to help the surgeon.

Referring to FIGS. **12** and **13**, for lateral positioning of the patient, the system **10** includes a "U" shaped perineal bar **280** supporting a pad **282**. The bar **280** has a socket **284** for

receiving the coupler **108** (FIG. **5**) of the distractor assembly **100**, and the pad **282** defines a cut-out **286** for accessing socket **284**. Bar **280** is attached to the side rails **18** of the operating room table **12** using clamps **14**.

To position the patient in the lateral position for the Distraction Mode (FIG. **2**), with the operating room table's foot section **16** up, the anaesthetized patient is rolled onto their side, the operating room personnel clamp the bar **280** to the side rails **18** with the pad **282** positioned between the patient's legs. To obtain lateral distraction, the operating room personnel raise the bar **280** by rotating the bar within the clamps **14** and lock the clamps. The distractor assembly **100** is then attached to the bar **280** and the operative leg wrapped in a disposable foam bootie (not shown) and strapped into the boot. As discussed above, gross distraction is achieved by moving the slider **110** followed by fine distraction using the threaded screw **158**. The boot can be positioned in any combination of flexion or rotation. There is no need for a non-operative leg holder as the non-operative leg is supported by the table's foot section **16**.

To move between the Distraction Mode (FIG. **2**) and FAI Mode (FIG. **4**), the spar **102** is pivoted laterally about the ball joint **104**. Since the center of rotation of the spar **102**, i.e., the ball joint **104**, is located distal to the hip joint of the patient, the knee flexes as the spar is moved laterally. The natural tendency of the knee to fall towards the floor is limited by the boot's lateral support bar **202**a, **202**b, thus freeing the scrub nurse to help the surgeon.

A number of embodiments of the invention have been described. Nevertheless, it will be understood that various modifications may be made without departing from the spirit and scope of the invention. For example, the distractor assembly can include a tensiometer to provide the surgeon with the distraction force. The slide and spar can be other than D-shaped, though preferably the slide and spar are configured such that the slide can slide along the spar without rotating. The ball joint **104** can be replaced with a two axis universal joint **104**a (FIG. **13**). Rather than locating screw thread **158** at slider **110**, fine adjustment can be provided by a screw thread located, for example, between the ball **104** and the spar **102**.

In an alternative configuration shown in FIG. **14**, hip distraction is achieved via a pivoting action. Rather than using only axial force to dislocate the hip joint, a lever that pivots along the thigh translate a small foot adduction (movement towards the body centerline) into a large lateral hip distraction force. With a pivot **301** closer to the hip joint than to the foot end of a spar **310**, a simple lever is created. The operative foot is held to the spar **310** by a boot assembly **320**. Thus, when a small adduction force F_1 is applied to the spar **310** near the foot region, the mechanical advantage provided by the lever creates a larger lateral force at the hip joint. A perineal pad **344** pushes laterally against the upper femur moving the femoral head of the hip joint. In addition to this lateral force, an axial force F_2 is imparted on the hip joint via traction through the boot assembly **320**. This force can be achieved though turning of a crank **360** which is rotationally connected to a threaded rod **380**. The boot assembly **320** is threaded to rod **380** but is limited from rotating by spar **310**, thus boot assembly **320** moves axially when the crank **360** is turned. The perineal pad **344** also provides a reaction force against the pelvis.

Referring to FIG. **15**, distraction can be achieved through a bent knee providing a more compact distractor. With the operative leg bent approximately 90 degrees at the knee, the distraction force can be exerted at the knee. In addition, the reactive force that is borne through the non-operative leg can be reacted at the knee rather than through the ankle. Bent knee distraction of the operative leg is carried out by transmitting a distraction force to the upper tibia via a strap **430**. The distraction force is transmitted through the knee to the femoral head. A perineal pad **444** is connected to the surgical table and reacts the distraction force by pushing against the pelvis. A telescoping spar assembly **400** includes a bar **420**, which is connected to a tube **410** by a slidable, lockable mechanism, such as a one-way ratcheting pawl.

When distraction is pulled on the operative leg, the pelvis tends to rotate around a vertical axis "Z" created by the perineal pad. In order to minimize this pelvic rotation, a bent knee counter traction force is imparted upon the non-operative leg by a support **440**. This force can be transmitted to the upper tibia via surface **450** which is then transmitted through the knee to the femoral head and pelvis. The support **440** can be fixed to the surgical table or it can telescope like spar assembly **400**. If support **440** is fixed then the patient is moved proximally to create the counter traction force.

Referring to FIG. **16**, a system **500** that permits operating room personnel to independently move a patient's legs before and during a procedure, e.g., hip arthroscopy or non-arthroscopic procedures such as orthopedic hip pinning and minimally-invasive hip joint replacement, includes two distractor assemblies **100**a, **100**b, with one replacing leg holder assembly **260** (see FIG. **1**). Each distractor assembly **100**a, **100**b is as discussed above with respect to distractor assembly **100**, and is attached to the Y-yoke **228** at a respective socket **236**a, **236**b. Although the foot holders **122**a, **122**b of the distractor assemblies **100**a, **100**b are not shown with shin supports **182**, support bars **184**, shin mounts **208** and legs **202**a, **202**b (refer to FIG. **8**), it is to be understood that these can be attached to each distractor assembly **100**a, **100**b by way of the foot mount couplers **206**a, **206**b.

It can be advantageous, e.g., for x-ray and surgical access, to mount the perineal pad **244** at a centered location on the table extension **220**, rather than off-center as shown, for example, in FIGS. **1**, **3**, and **11**. Thus, the system **500** includes a forked post **538** that supports the perineal pad **244** approximately aligned with the transverse center of the operating table **12**. As illustrated in FIG. **17**, the forked post **538** includes two support posts **540**a, **540**b that are fixedly attached to a center post **542** by way of a connector plate **544**. For example, in one implementation the center post **542** is located equidistant from each of the support posts **540**a, **540**b. Each of the support posts **540**a, **540**b is received in one of the through holes **240**a, **240**b (see FIG. **10**A) and over one of the respective plugs **244**a, **244**b of the Y-yoke **228**. The connector plate **544** rests on the platform **232** of the table extension **220**. To permit this, a modified pad **546** defines a cut-out **548** that permits access to both holes **240**a, **240**b at the same time. The perineal pad **244** slips over the center post **542** to provide the restraining force against the patient's pelvis when the distraction force is applied to the leg.

Accordingly, other embodiments are within the scope of the following claims.

What is claimed is:

1. A device *for use in hip surgery*, comprising:

a forked post including:

a connector plate having a first side and a second side,

a center post extending from the first side of the connector plate, and

a pair of support posts extending from the second side of the connector plate, the center post being equidistant from the support posts; and

a platform configured for attachment to side rails of a surgical table and defining a pair of holes spaced to receive the support posts.

2. The device of claim 1, further comprising a perineal pad supported by the center post.

3. The device of claim 2, wherein the forked post is configured to support the perineal pad in a substantially transversely centered location of the platform.

4. The device of claim 1, wherein the three posts lie in a common plane.

5. An apparatus *for use in hip surgery*, comprising:

a pair of distractor members;

a support configured to be fastened to side rails of a surgical table;

a pair of joints, each joint coupling one of the distractor members to the support, wherein the support includes at least two mounts for coupling to the joints; and

a forked post including a pair of support posts and a center post.

6. The apparatus of claim 5, further comprising a perineal pad supported by the center post.

7. The apparatus of claim 5, wherein the support further includes a pair of through holes, each support post being received in one of the holes.

8. The apparatus of claim 5, wherein the support further includes a pair of external plugs, each support post being received over one of the plugs.

9. A method of performing [a medical procedure] *hip surgery*, comprising:

fastening a support to a surgical table to extend a surface of the table on which a patient lies;

positioning a forked post on the support, the forked post including a connector plate having a first side and a second side, a center post extending from the first side of the connector plate, and a pair of support posts extending from the second side of the connector plate, the center post being equidistant from each of the support posts; and

positioning a patient on the surgical table such that the center post is between the patient's legs.

10. The method of claim 9, wherein positioning the forked post includes passing each of the support posts through one of a pair of through holes in the support.

11. The method of claim 9, wherein fastening the support includes providing the support with a cushion.

12. The device of claim 1 wherein the platform is configured for attachment at an adjustable operating position along the side rails of the surgical table.

13. The apparatus of claim 5 wherein the support is configured to be fastened at an adjustable operating position along the side rails of the surgical table.

14. The apparatus of claim 5 wherein the at least two mounts detachably couple to the joints.

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