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(54) **APPARATUS FOR TOILET SEAT LIFTING**

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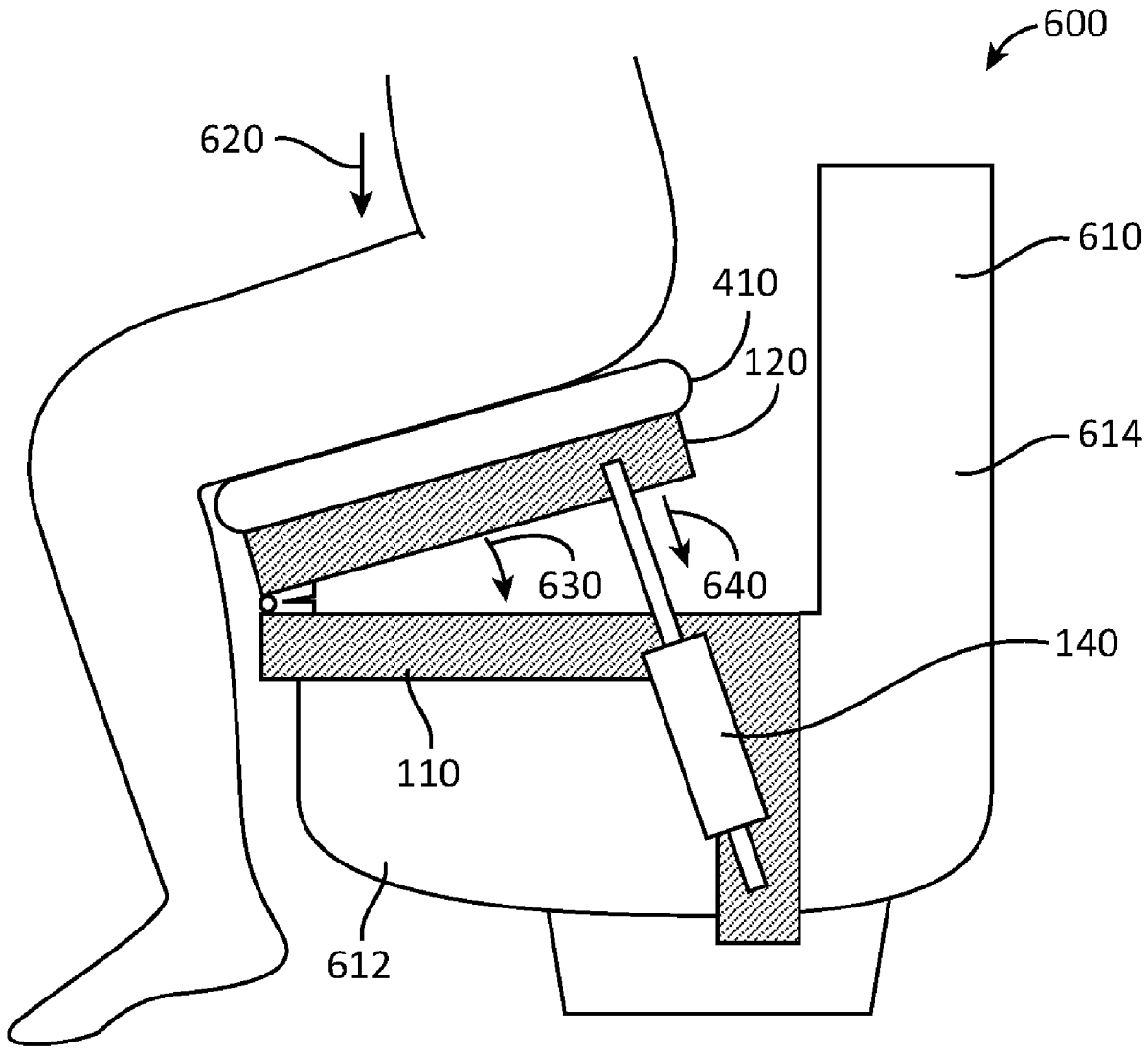
(57) **ABSTRACT**

Various embodiments set forth an apparatus comprising a base assembly configured to be positioned around a base of a toilet, a movable portion mechanically coupled to the base assembly, and a set of lifting components that lift the movable portion away from a portion of the base assembly.



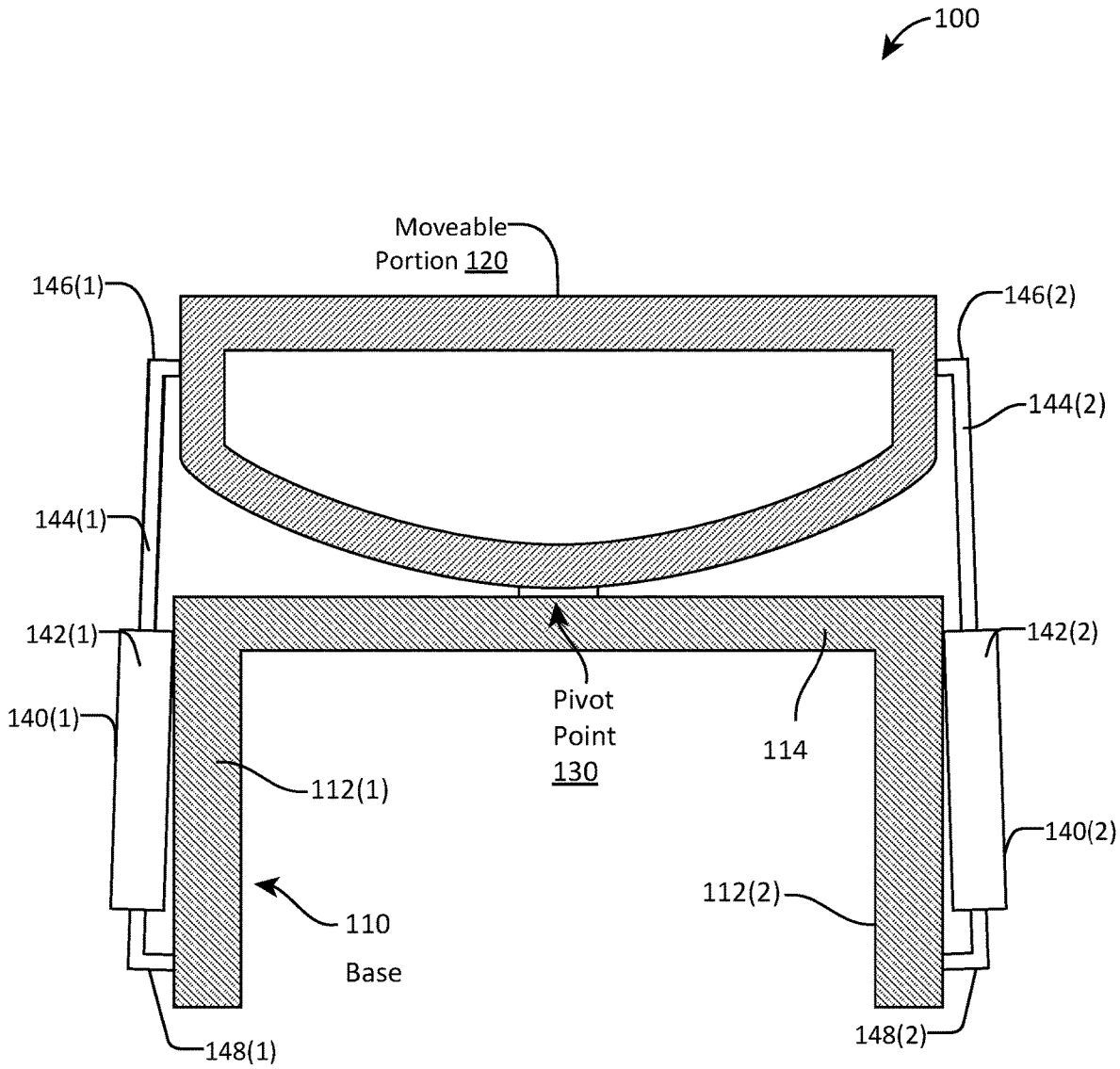

100
Moveable
Portion 120
146(1)
146(2)
144(2)
144(1)
142(1)
142(2)
140(1)
Pivot
Point
130
114
112(1)
140(2)
112(2)
110
Base
148(1)
148(2)

FIG. 1

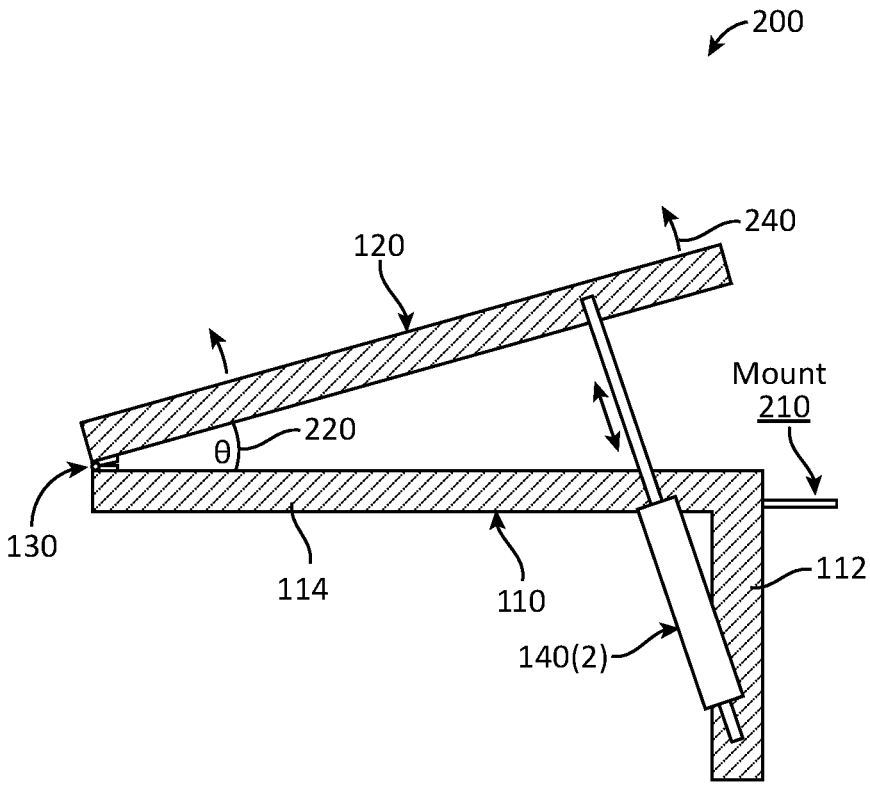


FIG. 2

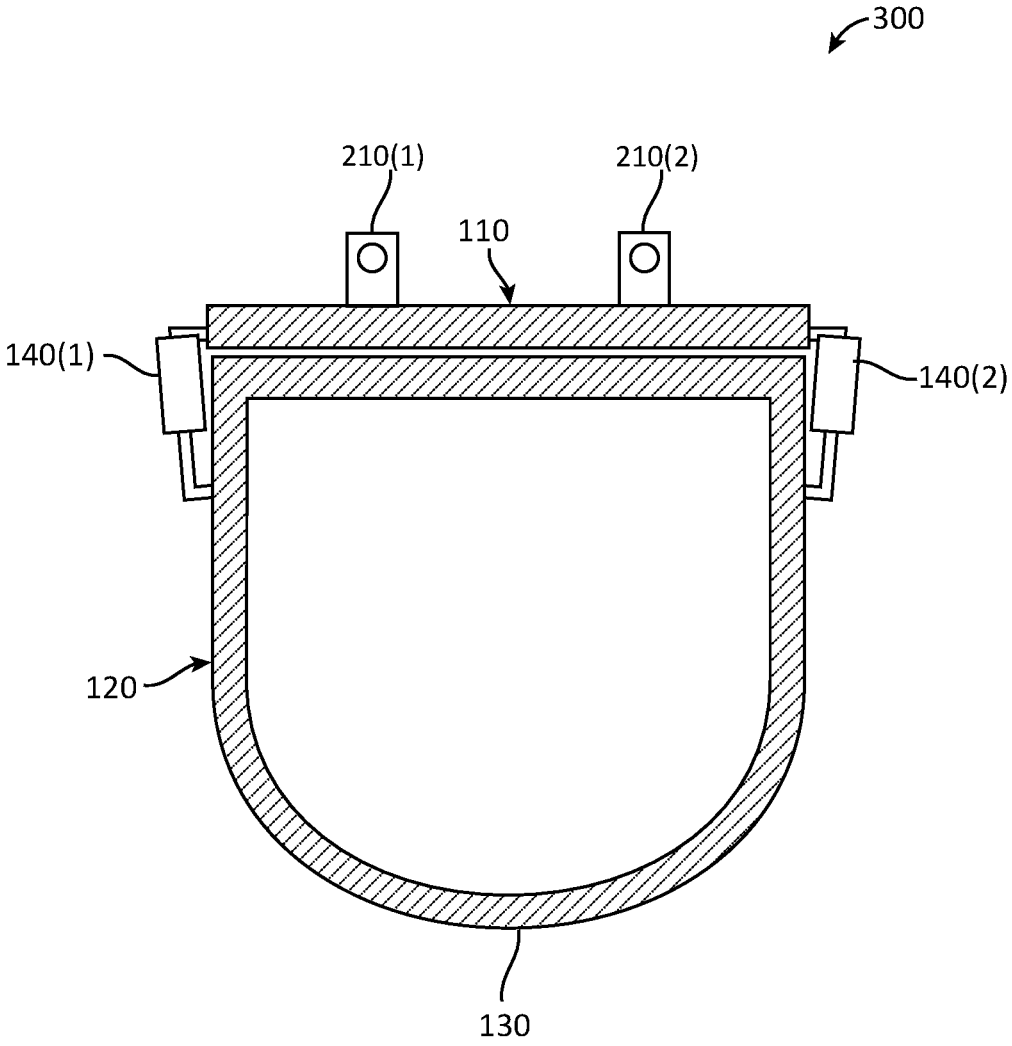


FIG. 3

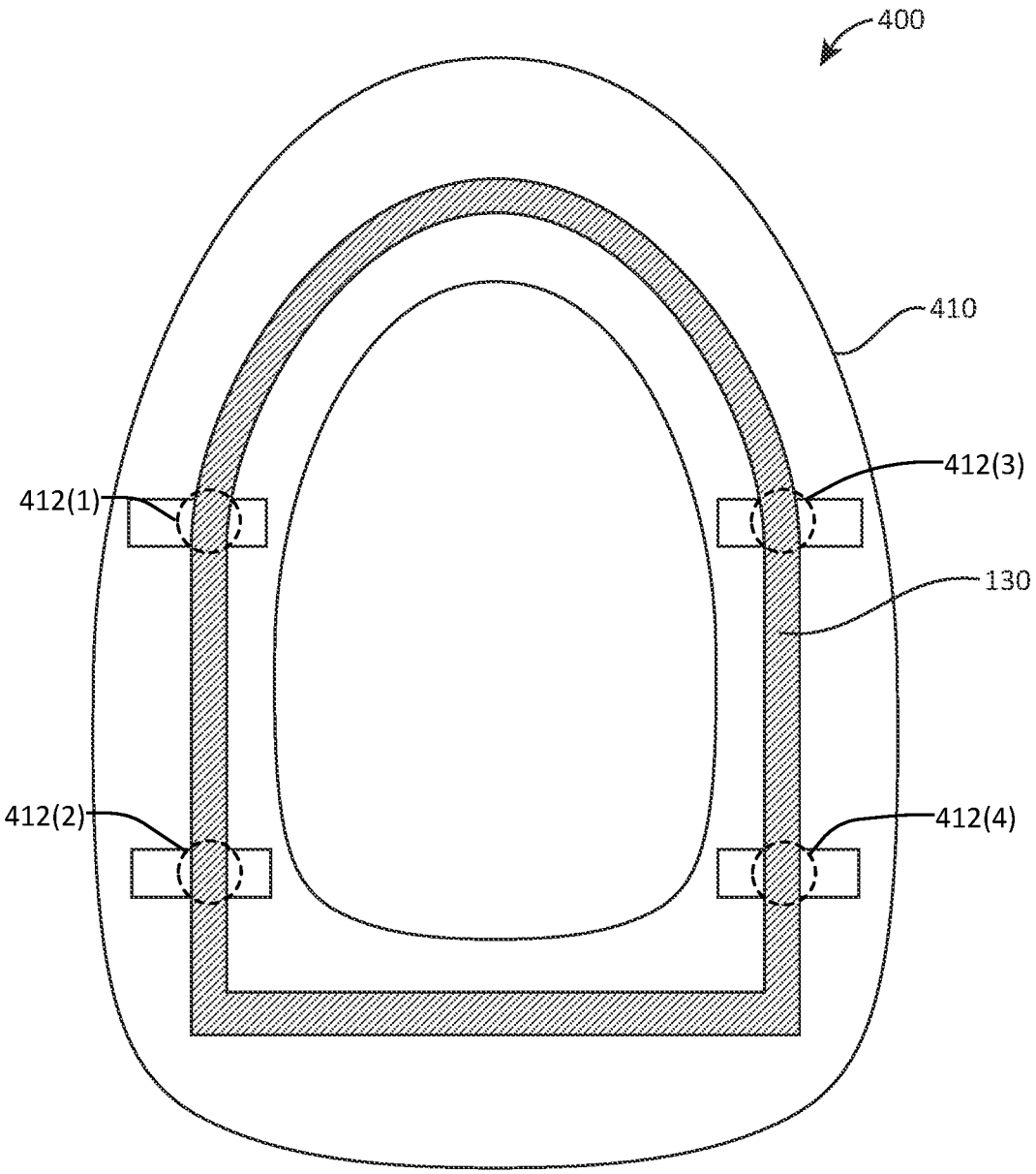


FIG. 4

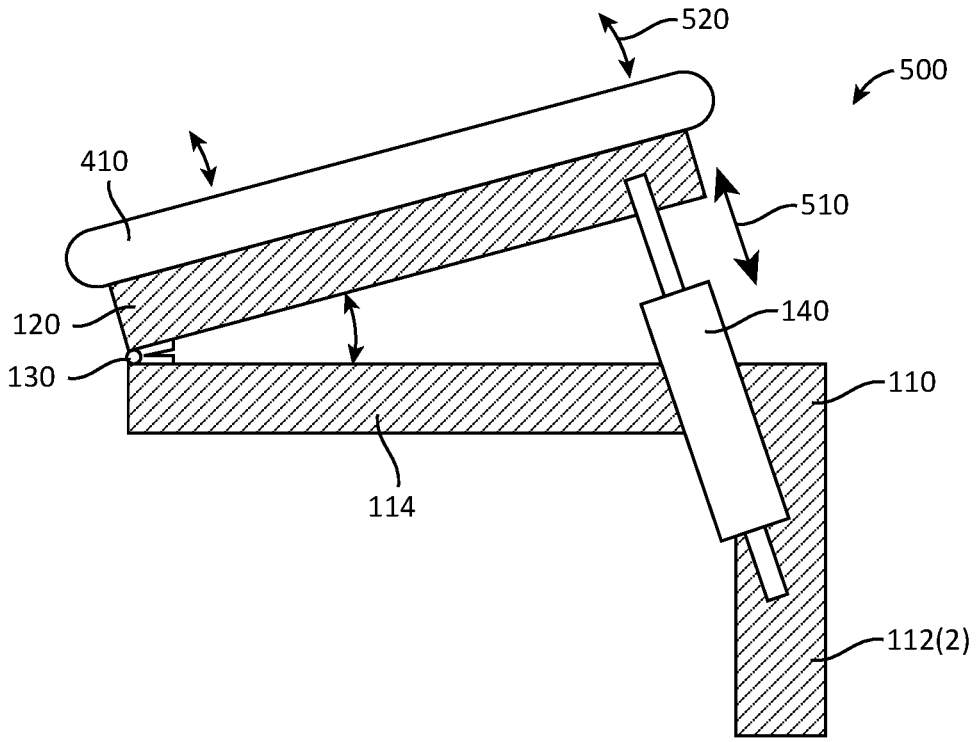


FIG. 5

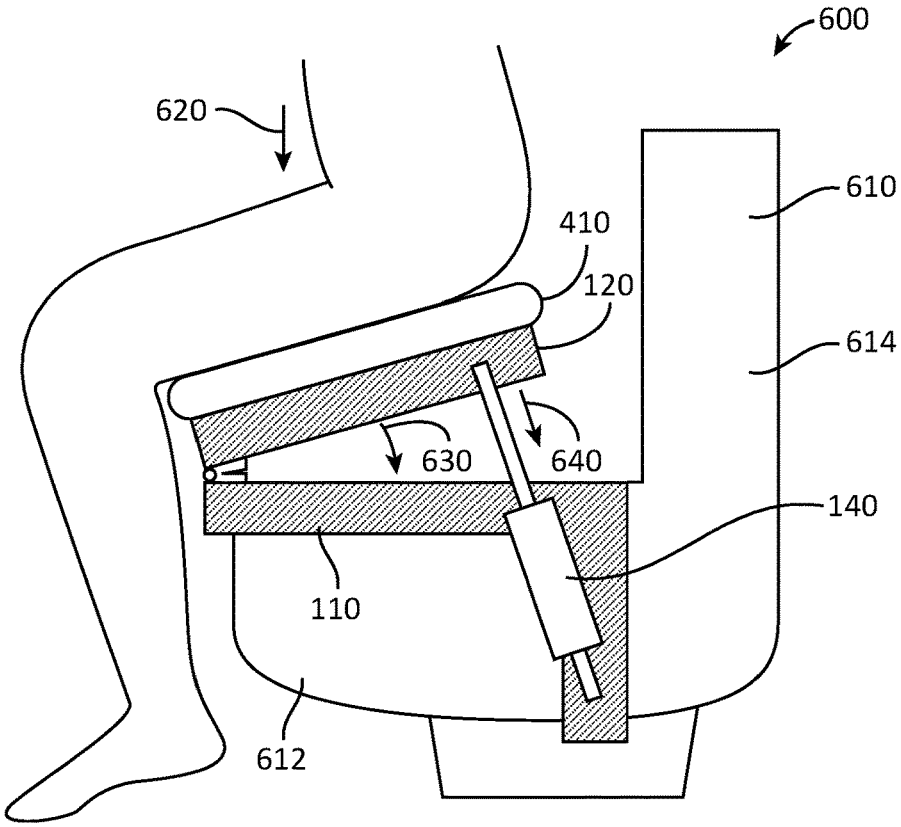

600
620
610
410
120
614
630
640
140
110
612

FIG. 6A

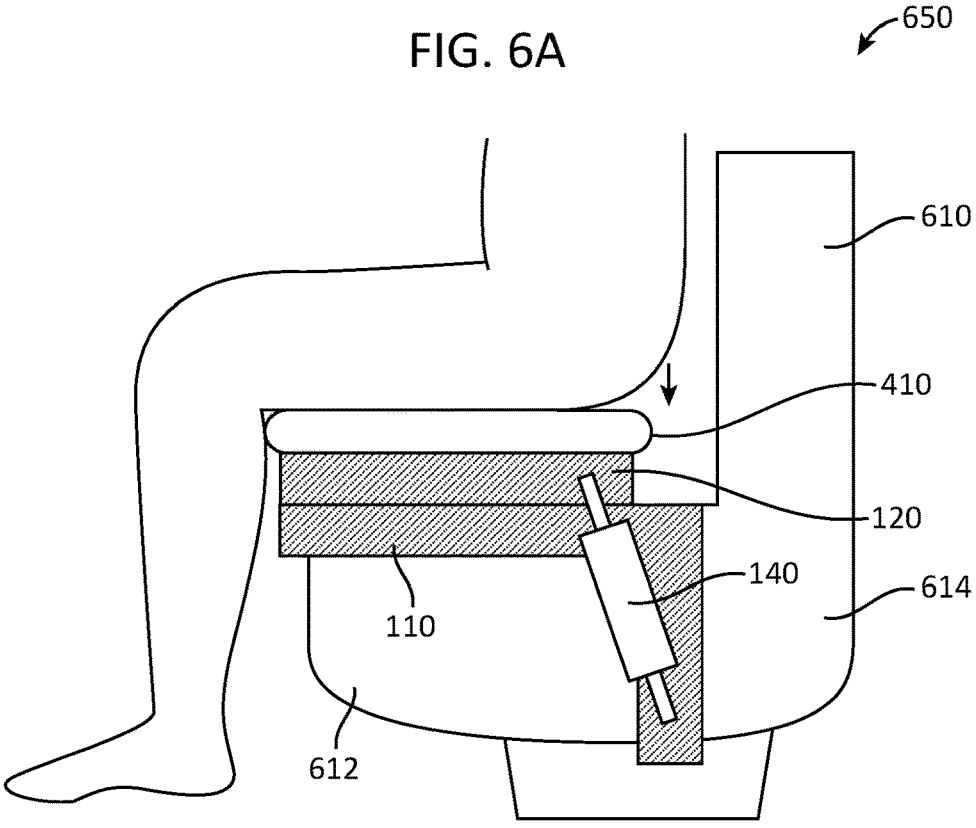

650
610
410
120
140
614
110
612

FIG. 6B

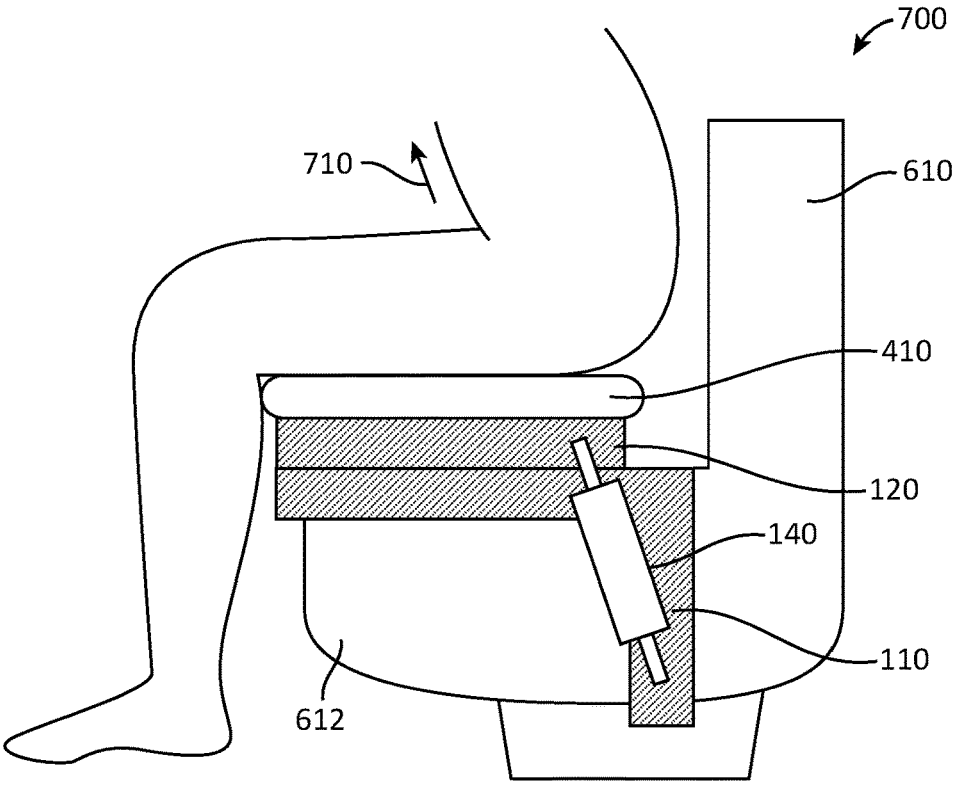

700
710
610
410
120
140
110
612

FIG. 7A

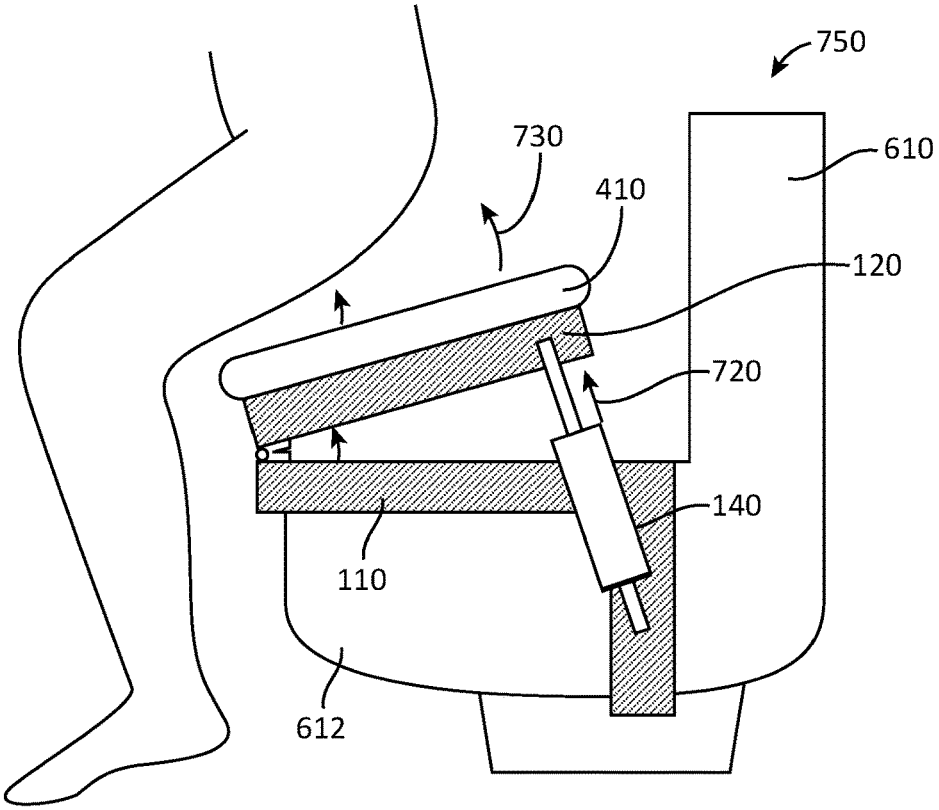

750
730
610
410
120
720
140
110
612

FIG. 7B

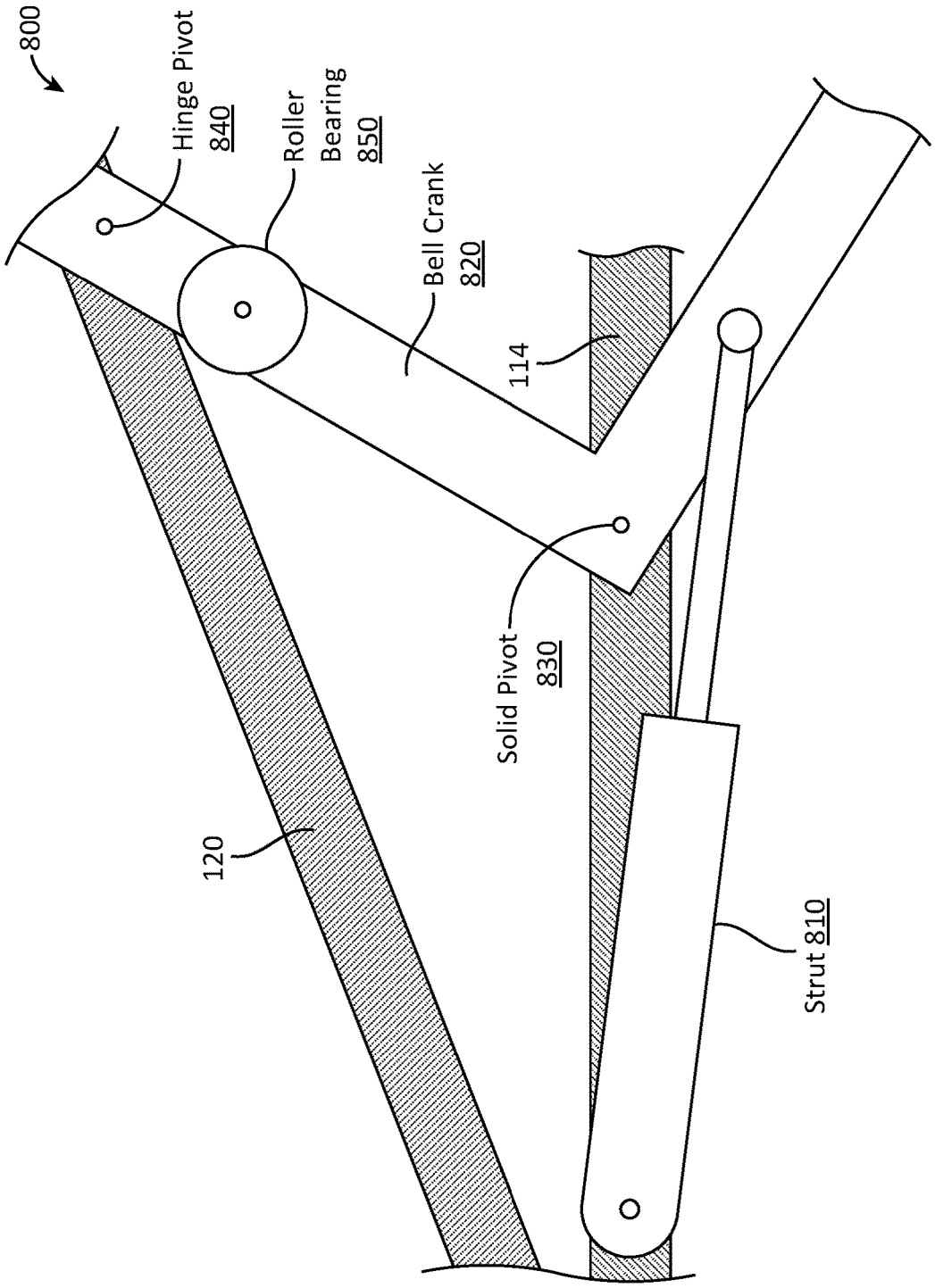

800
Hinge Pivot
840
Roller
Bearing
850
Bell Crank
820
114
Solid Pivot
830
120
Strut 810

FIG. 8

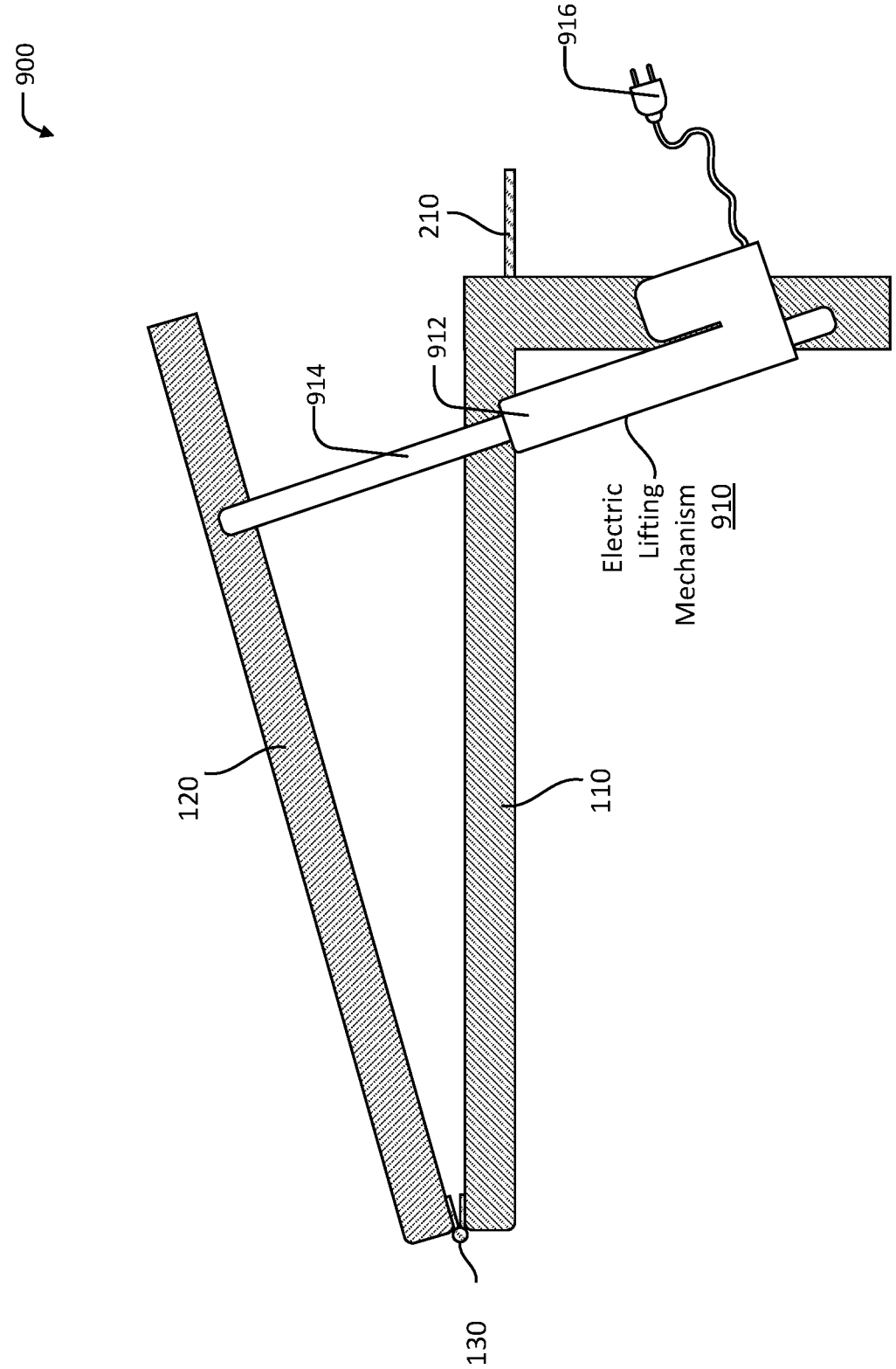

900
916
210
912
914
Electric Lifting Mechanism 910
120
110
130

FIG. 9

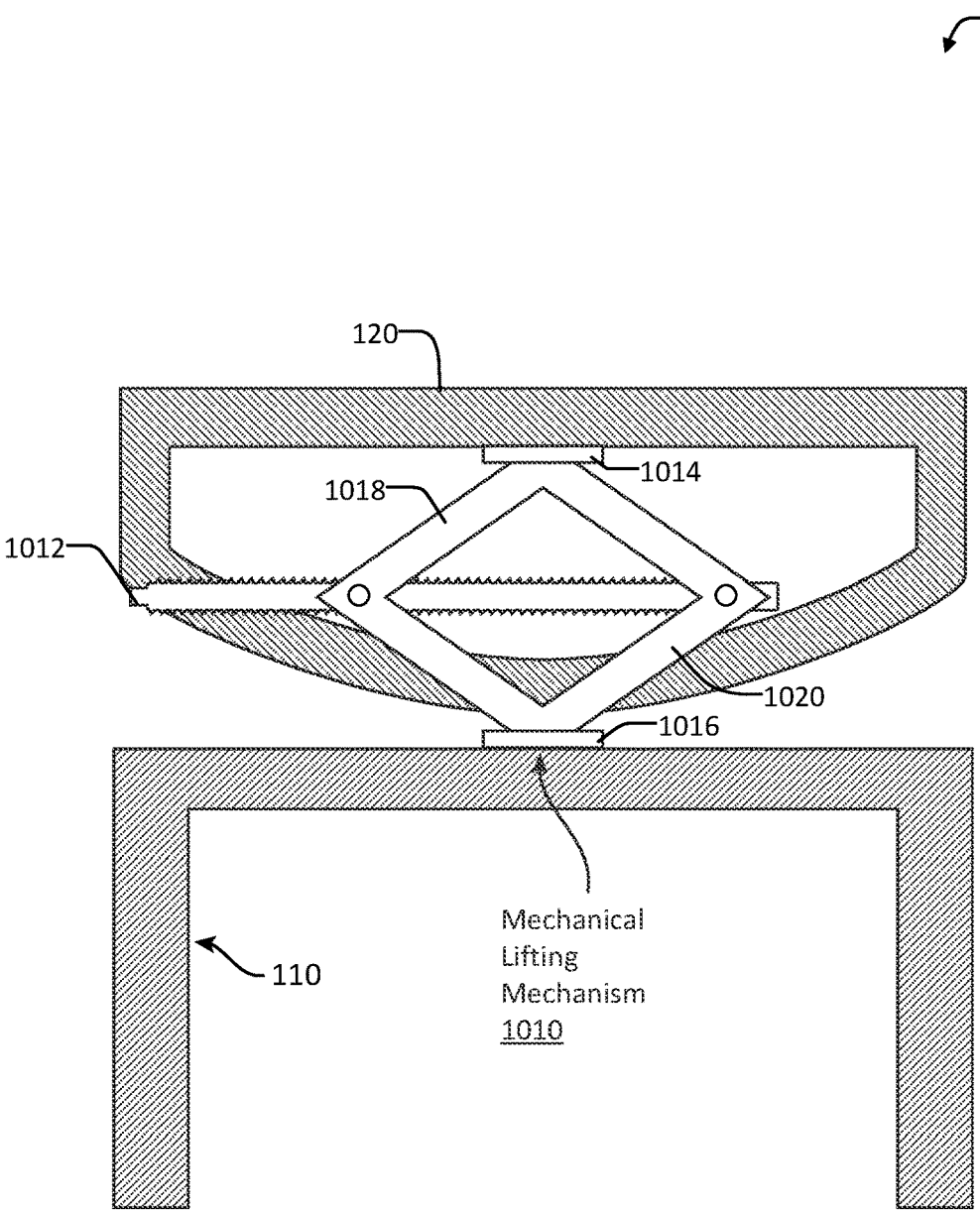

1000
120
1014
1018
1012
1020
1016
Mechanical
Lifting
Mechanism
1010
110

FIG. 10

APPARATUS FOR TOILET SEAT LIFTING

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of the co-pending U.S. patent application titled "Apparatus for Toilet Seat Lifting," filed on Jun. 7, 2022 and having Ser. No. 17/834,741 which claims the priority benefit of U.S. Provisional Patent Application titled, "Apparatus for Toilet Seat Lifting," filed on Feb. 23, 2022, having Application Ser. No. 63/313,070. The subject matter of these related applications is hereby incorporated herein by reference in its entirety.

BACKGROUND

Field of the Various Embodiments

[0002] Embodiments disclosed herein generally relate to mechanical devices and, more specifically, to an apparatus for toilet seat lifting.

Description of the Related Art

[0003] Toilets are generally designed to accommodate a wide range of users of varying heights, where a given user sits on a toilet seat above a toilet base. When complete, the user performs a sit-to-stand motion in order to separate from the toilet seat. However, various users have difficulty performing the sit-to-stand motion. For example, some users have injuries, weak muscles or joints, preventing the user from performing such motions without assistance. Further, a user sitting on the toilet for prolonged periods can further contribute to the bodily weakness in the user, causing further difficulty in performing the sit-to-stand motion.

[0004] Various devices exist in the prior art that assist the user in rising from a toilet seat. For example, some toilet systems are designed such that the user is not in a sitting position while upon the toilet. However, such systems are not compatible with existing toilets or toilet seats. Other toilet systems include fixed bars installed proximate to the toilet that assist a user to rise from a sitting position by pushing or pulling on the bar. However, these systems are large and typically cannot be installed in certain facilities due to the constraints around a given toilet.

[0005] In light of the above, more effective techniques for assisting users engage with a toilet would be useful.

SUMMARY

[0006] Various embodiments include an apparatus comprising a base assembly configured to be positioned around a base of a toilet, a movable portion mechanically coupled to the base assembly, and a set of lifting components that lift the movable portion away from a portion of the base assembly.

[0007] At least one technological advantage of the toilet seat lifting assembly relative to the prior art is that, with the disclosed apparatus, the toilet seat lifting assembly can be fixed to a conventional toilet and provide mechanical assistance when a user performs a sit-to-stand motion when rising from the toilet. Further, as the toilet seat lifting apparatus is configured to fit around a conventional toilet, the toilet seat lifting assembly can be installed on conventional toilets in small areas, enabling the assembly to be used in areas that are not suitable for other user assistance systems. These technical advantages provide one or more technological advancements over prior art approaches.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] So that the manner in which the above-recited features of the present disclosure can be understood in detail, a more-particular description of the invention, briefly summarized above, may be had by reference to embodiments, some of which are illustrated in the appended drawings. It is to be noted, however, that the appended drawings illustrate only typical embodiments of this invention and are therefore not to be considered limiting of its scope, for the invention may admit to other equally-effective embodiments.

[0009] FIG. **1** illustrates a front view of a toilet seat lifting assembly, according to various embodiments.

[0010] FIG. **2** illustrates a side view of the toilet seat lifting assembly of FIG. **1**, according to various embodiments.

[0011] FIG. **3** illustrates a top view of the toilet seat lifting assembly of FIG. **1**, according to various embodiments.

[0012] FIG. **4** illustrates a bottom view of a toilet seat coupled to the movable portion of the toilet seat lifting assembly of FIG. **1**, according to various embodiments.

[0013] FIG. **5** illustrates a side view of the toilet seat lifting assembly of FIG. **1** when the lifting mechanism is engaged, according to various embodiments.

[0014] FIG. **6**A illustrates a side view of a user initiating a sitting motion on the toilet seat lifting assembly of FIG. **1**, according to various embodiments.

[0015] FIG. **6**B illustrates a side view of a user completing a sitting motion of the toilet seat lifting assembly of FIG. **1**, according to various embodiments.

[0016] FIG. **7**A illustrates a side view of a user initiating a standing motion from the toilet seat lifting assembly of FIG. **1**, according to various embodiments.

[0017] FIG. **7**B illustrates a side view of a user completing a standing motion from the toilet seat lifting assembly of FIG. **1**, according to various embodiments.

[0018] FIG. **8** illustrates a side view of the toilet seat lifting assembly of FIG. **1** that includes an alternative lifting mechanism, according to various embodiments.

[0019] FIG. **9** illustrates a side view of the toilet seat lifting assembly of FIG. **1** that includes an electronic lifting mechanism, according to various embodiments.

[0020] FIG. **10** illustrates a back view of the toilet seat lifting assembly of FIG. **1** that includes an alternative mechanical lifting mechanism, according to various embodiments.

DETAILED DESCRIPTION

[0021] In the following description, numerous specific details are set forth to provide a more thorough understanding of the embodiments of the present invention. However, it will be apparent to one of skill in the art that the embodiments of the present invention may be practiced without one or more of these specific details.

[0022] Embodiments disclosed herein include a toilet seat lifting assembly that assists users in transitioning from a seated position to a standing position. The toilet seat lifting assembly can be configured to rest around a toilet base and includes components that enable the toilet seat lifting assembly to be fixed to the toilet seat base. The toilet seat assembly includes a fixed base assembly and a movable portion that is

partially attached to the fixed base via one or more lifting mechanisms. In operation, the lifting mechanisms provide a directional force to a movable portion that transfers the energy associated with the directional force to an object positioned on the movable portion, such as the legs of a user when seated on a toilet seat attached to the movable portion. The energy provided by the toilet seat lifting assembly enables a user sitting on a toilet to transition to a standing position.

[0023] FIG. **1** illustrates a front view of a toilet seat lifting assembly **100**, according to various embodiments. As shown, the toilet seat lifting assembly **100** includes, without limitation, a base assembly **110**, a movable portion **120**, a pivot point **130**, and one or more lifting mechanisms **140** (e.g., **140**(**1**), **140**(**2**), etc.). The base assembly **110** includes one or more leg portions **112** and one or more top portions **114**. In various embodiments, the lifting mechanism **140** can include a shock housing **142**, a shock piston **144**, a first connection point **146**, and a second connection point **148**.

[0024] In various embodiments, the toilet seat lifting assembly **100** comprises metal (e.g., steel), carbon fiber, plastic, composite materials, and/or any other material capable of supporting a user and providing energy by, for example, applying an upward force, applying a torque, and/or applying other types of forces to the user. The base assembly **110** can be configured to stand around a toilet base. For example, the base assembly **110** can include one or more legs **112** that rest on a ground proximate to a toilet base and can support the mass of a user in addition to or in lieu of the support provided by the toilet base.

[0025] The toilet seat lifting assembly **100** includes a movable portion **120** that is mechanically attached to the top portion **114** of the base assembly **110**. In various embodiments, the movable portion **120** can be attached to the base assembly **110** via one or more connection points. For example, the movable portion **110** can be attached to the base assembly **110** via the pivot point **130** and the set of one or more lifting mechanisms **140**. In operation, the set of lifting mechanisms **140** move the movable portion **120** from resting on the top portion **114** to a position away from the base assembly **110**. In various embodiments, the movable portion **120** can be mechanically attached to the top portion **114** of the base assembly **110** at a first position using an attachment mechanism such as the pivot point **130**. For example, the pivot point **130** can be included in a hinge that attaches to the movable portion **120** and the base assembly **110**. In such instances, the lifting mechanism **140** can apply lifting forces to the movable portion **120** to cause the movable portion **120** to rotate around the pivot point **130**. In another example, a set of one or more gears can connect the movable portion **120** to the base assembly **110**.

[0026] In various embodiments, the movable portion **120** can be mechanically attached to the base assembly via the one or more lifting mechanisms **140**. In such instances, the lifting mechanism **140** can include a connecting element that connects to the movable portion **120** at the connection point **146** and a connecting element that connects to the leg **112** of the base assembly **110** at the connection point **148**.

[0027] In some embodiments, the lifting mechanisms **140** can include various types of mechanical and/or electrical components that act as actuation mechanisms. For example, various types of lifting mechanisms can include switches, actuators, shocks, struts, jacks, threaded screws, and so forth. For example, the lifting mechanism **140** can comprise a telescoping hydraulic shock, where mechanical resistance controls the rise and descent of the movable portion **120** via the extension and/or contraction of the shock piston **144** in the shock housing **142**. In such instances, the shock piston **144** extending out from the shock housing **142** can provide a lifting force upon the movable portion **120** via the connection point **146**. In another example, the lifting mechanism **140** can include an electrical switch or trigger. In such instances, a user can provide an input to the electrical trigger in order to cause the lifting mechanism **140** to provide force to the moving portion **120** in order to lift the moving portion **120**.

[0028] FIG. **2** illustrates a side view **200** of the toilet seat lifting assembly **100** of FIG. **1**, according to various embodiments. As shown, the toilet seat lifting assembly **100** includes, without limitation, the base assembly **110**, the movable portion **120**, the pivot point **130**, and the lifting mechanism **140**. The base assembly **110** includes leg portion **112**, top portion **114**, and one or more mounts **210**.

[0029] In operation, the set of lifting mechanisms **140** provides a directional force. The pivot point **130** causes the directional force to be converted to a torque **240** to an object positioned on the movable portion **120**, such as the legs of a user when seated on a toilet seat attached to the movable portion **120**. In various embodiments, the torque **240** provided by the toilet seat lifting assembly **100** can be based on the angle **220** formed between the top portion **114** of the base assembly **110** and the movable portion **120**, where energy provided to the user via the generated torque **240** enables a user to transition to a standing position.

[0030] In some embodiments, the base assembly **110** can include various attachment points and/or attachment slots (not shown). In such instances, the lifting mechanism **140** can be attached to the base assembly **110** at one of the attachment points. For example, the second connection point **148** of the lifting mechanism **140** can attach to the base assembly **110** at an attachment point located on the leg **112**. In some embodiments, the attachment points can affect the lifting force that the lifting mechanism **140** applies on the movable portion **120**. For example, when the connection point **148** is attached to the base assembly **110** closer to the top portion **114**, the lifting mechanism **140** may apply a smaller lifting force.

[0031] The set of one or more mounts **210** can include various slots, brackets, or other connection points to fix the base assembly **110** to a portion of a toilet. For example, the mounts can include slots to attach the mount **210** to a back of a toilet base. In various embodiments, the set of mounts **210** can be positioned such that the base legs **112** rest on above the floor adjacent to the toilet base.

[0032] FIG. **3** illustrates a top view **300** of the toilet seat lifting assembly **100** of FIG. **1**, according to various embodiments. As shown, the toilet seat lifting assembly **100** includes, without limitation, the base assembly **110**, the movable portion **120**, the pivot point **130**, and the one or more lifting mechanisms **140**. The base assembly **110** includes the one or more mounts **210**.

[0033] In various embodiments, the base assembly **110** can include the set of mounts **210** opposite to the pivot point **130**. In such instances, the base assembly **110** can remain stable when the lifting mechanism **140** provides the torque **240** to the movable portion **120**.

[0034] FIG. **4** illustrates a bottom view of a toilet seat coupled to the movable portion of the toilet seat lifting

assembly of FIG. **1**, according to various embodiments. As shown, the toilet set lifting assembly **400** includes, without limitation, the movable portion **120**, a toilet seat **410**, and a set of connection points **412**.

[0035] In various embodiments, the movable portion **120** can be configured to accommodate the space within a conventional toilet seat **410**. For example, the movable portion **120** can include a partial oval shape that corresponds to the shape of at least a portion of the toilet seat **410**. Additionally or alternatively, the movable portion **120** can include various attachment mechanisms (not shown) to mechanically attach the movable portion **120** to the toilet seat **410** at the attachment points **412**. For example, the attachment points **412** can include various types of connection mechanisms (e.g., mounts, brackets, slots, etc.) that are configured to connect the movable portion to parts of the toilet seat **410** such that the toilet seat **410** remains fixedly secure during use.

[0036] FIG. **5** illustrates a side view of the toilet seat lifting assembly of FIG. **1** when the lifting mechanism is engaged, according to various embodiments. As shown, the toilet seat lifting assembly **500** includes, without limitation, the base assembly **110**, the movable portion **120**, the pivot point **130**, and the lifting mechanism **140**. The base assembly **110** includes leg portion **112** and the top portion **114**.

[0037] The toilet seat lifting assembly **500** can use one or more leverage points (e.g., the pivot point **130**) and angles to raise parts of the movable portion **120** above a normal resting position. For example, the lifting mechanism **140** can be a shock that is connected to a point on the movable portion **120** on an opposite end of the point where the movable portion **120** is attached to the pivot point **130**. The attachment positions on the movable portion **120** can serve as leverage points that convert the directional force **510** generated by the lifting mechanism **140** into a torque **520** applied to a user. In some embodiments, the lifting mechanism can provide force to rotate the moving portion **120** within a range of angles. For example, the lifting mechanism can move the moving portion from an angle of 0° relative to the base portion **110** to an angle of 90° relative to the base portion **110**.

[0038] FIG. **6**A-**6**B illustrates a side view of a user initiating (configuration **600**) and completing (configuration **650**) a sitting motion on the toilet seat lifting assembly **100** of FIG. **1**, according to various embodiments. As shown, the toilet configurations **600**, **650** include, without limitation, the toilet seat lifting assembly **100** and a toilet **610**. The toilet includes a toilet base **612** and a toilet back **614**. The toilet seat lifting assembly **100** includes the base assembly **110**, the movable portion **120**, and the lifting mechanism **140**.

[0039] In operation, the toilet seat lifting assembly **100** can be installed on an existing structure, such as a toilet base **612**. Additionally or alternatively, the base assembly **110** can include multiple legs (e.g., 2-6 legs, etc.) to provide stability from the ground in addition to being fixedly secure to the toilet base **612**.

[0040] In various embodiments, a user initiates a sitting motion **620** atop the toilet seat **410**, providing a downward force. The downward force provides a torque **630** that causes a compression **640** of the lifting mechanism **140**. When the user completes the sitting motion, the legs of the user rest upon the toilet seat **410**, while the movable portion **120** rests upon the top portion **114** of the base assembly **110**. Th energy stored in the lifting mechanism **140** can later be transferred to the toilet seat **140** as a torque **520**.

[0041] FIG. **7**A-**7**B illustrates a side view of a user initiating (configuration **700**) and completing (configuration **750**) a standing motion from the toilet seat lifting assembly of FIG. **1**, according to various embodiments. As shown, the toilet configurations **700**, **750** includes, without limitation, the toilet seat lifting assembly **100** and a toilet **610**. The toilet includes a toilet base **612** and a toilet back **614**. The toilet seat lifting assembly **100** includes the base assembly **110**, the movable portion **120**, and the lifting mechanism **140**.

[0042] In various embodiments, a user initiates a standing motion by performing a weight shift movement **710** to initiate a sit-to-stand motion. In some embodiments, the lifting mechanism **140** can respond to the weight shift movement by providing a directional force **720** that causes the movable portion **120** and the toilet seat **410** to provide a torque **730** to the user, supplementing the force that the user is exerting to perform the sit-to-stand motion.

[0043] Alternatively, in some embodiments, the user can provide a different trigger to the seat lift assembly **100**. For example, a user can provide an input to an electronic trigger. In such instances, the lifting mechanism **140** can respond to the electronic trigger by providing the directional force **720**. Other types of triggers can also cause the lifting mechanism **140** to provide the directional force **720**. For example, the user can provide force to a separate arm, pedal, or other trigger connected to the lifting mechanism **140**. Further, other types of electronic data (e.g., data provided by image sensors, motion sensors, natural language processors) can cause the lifting mechanism **140** to provide the directional force **720**.

[0044] FIG. **8** illustrates a side view of the toilet seat lifting assembly **100** of FIG. **1** that includes an alternative lifting mechanism, according to various embodiments. As shown, the toilet seat lifting assembly **800** includes, without limitation, the top portion **114** of the base assembly **110**, the movable portion **120**, a strut **810**, and a bell crank **820**. The bell crank **820** includes a solid pivot **830**, a hinge pivot **840**, and a roller bearing **850**.

[0045] In various embodiments, the toilet seat lifting assembly **100** can include a different type of lifting mechanism **140**. For example, the toilet seat lifting assembly **800** includes a lifting mechanism **140** that includes a strut **810** connected on one end to the top portion **114** of the base assembly **110** and connected on the opposite end to a bell crank **820**. The bell crank **820** can be fixed at one point to the top portion **114**, creating a solid pivot **830** at the connection point to the top portion **114**. The bell crank **820** can be connected to the movable portion **120** at a different position, forming a hinge pivot **840** at the connection point to the movable portion **120**.

[0046] In operation, the strut **810** can provide a directional force away from the pivot point **130**. The bell crank can respond to the force by rotating around the solid pivot **830**, causing the bell crank **820** to rotate towards the pivot point **130** while the hinge pivot **840** moves towards the hinge **130** while rotating.

[0047] Other configurations using other types of lifting mechanisms can be implemented on one or more embodiments. In various embodiments, the lifting mechanisms **140** can include various mechanical (e.g., gears, actuators, solenoids, threaded screws, jacks, etc.), hydraulic, electrical (e.g., connected to electrical switches, triggers, actuators,

etc.), and/or other types of mechanisms to provide force and/or torque to the moving portion **120**. For example, a user can apply an input to an electrical switch to trigger an actuator-solenoid type of lifting mechanism to move the moving portion **120**.

[0048] FIG. **9** illustrates a side view of the toilet seat lifting assembly **100** of FIG. **1** that includes an electronic lifting mechanism, according to various embodiments. As shown, the toilet seat lifting assembly **900** includes, without limitation, the base assembly **110**, the movable portion **120**, the pivot point **130**, mounts **210**, and the electric lifting mechanism **910**. The electric lifting mechanism **910** includes, without limitation, an electric housing **912**, a piston **914**, and an electrical connection **916**.

[0049] In operation, the electric lifting mechanism **910** can receive electric power via the electrical connection **916** and can convert the electrical energy to mechanical energy to lift the movable portion **120** via the piston **914**. In some embodiments, the electric lifting mechanism **910** can include an electronic trigger (not shown) that responds to various types of inputs by causing the electric lifting mechanism **910** to move the piston **914**.

[0050] FIG. **10** illustrates a back view of the toilet seat lifting assembly of FIG. **1** that includes an alternative mechanical lifting mechanism, according to various embodiments. As shown, the toilet seat lifting assembly **1000** includes, without limitation, the base assembly **110**, the movable portion **120**, and the mechanical lifting mechanism **1010**. The mechanical lifting mechanism **1010** includes, without limitation, an arm **1012**, a top **1014**, a base **1016**, upper arms **1018** and lower arms **1020**.

[0051] In various embodiments, the mechanical lifting mechanism **1010** can connect to the base assembly **110** and the movable portion **120** at the back of the toilet seat lifting assembly **1000**. For example, the top of the mechanical lifting mechanism **1010** can attach to the back of the movable portion **120** at the opposition end to the location of the pivot point **130**. The base **1016** can connect to the base assembly **110**. In operation, the user can apply a force to the arm **1012** and the arm **1012** can cause the upper arms **1018** to pivot at the top **1014** and the lower arms **1020** to pivot at the base **1016**. In such instances, the movement of the arms **1018**, **1020** can provide an upward force to the moveable portion **120** that causes the moveable portion **120** to transfer the force to a user sitting on a toilet seat **410** attached to the movable portion **120**.

[0052] 1. In various embodiments, an apparatus comprises a base assembly configured to be positioned around or on a base of a toilet, a movable portion mechanically coupled to the base assembly, and a set of lifting components that lift the movable portion away from a portion of the base assembly.

[0053] 2. The apparatus of clause 1, further comprising a hinge that mechanically couples the movable portion to a top portion of the base assembly.

[0054] 3. The apparatus of clause 1 or 2, where the set of lifting components lifting the movable portion causes the movable portion to rotate from the top portion of the base assembly around a pivot point at the hinge.

[0055] 4. The apparatus of any of clauses 1-3, further comprising a set of mounts configured to fix the base assembly to a portion of the toilet.

[0056] 5. The apparatus of any of clauses 1-4, where the movable portion further comprises a set of attachment areas configured to fix the movable portion to a toilet seat attached to the base.

[0057] 6. The apparatus of any of clauses 1-5, where the at least one of the base assembly or the movable portion comprises a steel material.

[0058] 7. The apparatus of any of clauses 1-6, where the set of lifting components comprises at least one of a hydraulic shock or a strut.

[0059] 8. The apparatus of any of clauses 1-7, where the hydraulic shock or strut is fixed to a top portion of the base assembly, and the set of lifting components further comprises at least one bell crank fixed to the movable portion at a first end and fixed to the hydraulic shock or the strut at a second end.

[0060] 9. The apparatus of any of clauses 1-8, where the set of lifting components initiates lifting the movable portion in response to a shift in a downward force applied to the movable portion.

[0061] 10. The apparatus of any of clauses 1-9, where the set of lifting components are configured to be fixed at a first end to a leg of the base assembly and fixed at a second end to the movable portion.

[0062] 11. The apparatus of any of clauses 1-10, where the base assembly comprises at least four legs.

[0063] 12. The apparatus of any of clauses 1-11, further comprising a set of attachment mechanisms configured to mechanically couple the set of lifting components to the base assembly and the movable portion, where the set of attachment mechanism comprises at least one of a roller bearing, a mounting slot, mounting bracket or a fixing mechanism.

[0064] 13. The apparatus of any of clauses 1-12, further comprising a switch that triggers the set of lifting components to lift the movable portion.

[0065] 14. In various embodiments, a toilet seat lifting assembly comprises a base assembly configured to be fixed to a toilet base at a first point, a movable portion mechanically configured to be attached to a toilet seat and mechanically coupled to the base assembly at a second point distinct from the first point, and a set of lifting components that mechanically lift the movable portion away from a top portion of the base assembly.

[0066] 15. The toilet seat lifting assembly of clause 14, further comprising a hinge that mechanically couples the movable portion to a top portion of the base assembly, where the set of lifting components mechanically lifting the movable portion causes the movable portion to rotate from the top portion of the base assembly around a pivot point at the hinge.

[0067] 16. The toilet seat lifting assembly of clause 14 or 15, further comprising a set of mounts configured to fix the base assembly to a portion of the toilet, where the set of lifting components mechanically lifting the movable portion causes the movable portion rotates away around the pivot point from set of mounts.

[0068] 17. The toilet seat lifting assembly of any of clauses 14-16, where the set of lifting components initiates lifting the movable portion in response to a shift in a downward force applied to the movable portion away from the set of mounts.

[0069] 18. The toilet seat lifting assembly of any of clauses 14-17, where the lifting component comprises at

least one strut fixed to the top portion of the base assembly, and at least one bell crank fixed at a first end to the movable portion and fixed at a second end to the strut.

[0070] 19. The toilet seat lifting assembly of any of clauses 14-18, where the set of lifting components comprises a hydraulic shock configured to be fixed at a first end to a leg of the base assembly and fixed at a second end to the movable portion.

[0071] 20. The toilet seat lifting assembly of any of clauses 14-19, where the movable portion further comprises a set of attachment areas configured to fix the movable portion to a toilet seat.

[0072] Any and all combinations of any of the claim elements recited in any of the claims and/or any elements described in this application, in any fashion, fall within the contemplated scope of the present invention and protection.

[0073] The descriptions of the various embodiments have been presented for purposes of illustration, but are not intended to be exhaustive or limited to the embodiments disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the described embodiments.

[0074] While the preceding is directed to embodiments of the present disclosure, other and further embodiments of the disclosure may be devised without departing from the basic scope thereof, and the scope thereof is determined by the claims that follow.

We claim:

1. An apparatus for lifting an object sitting on a toilet, the apparatus comprising:

a base assembly having (i) a set of mounts positioned at a first end of the base assembly and (ii) a hinge positioned at a second end of the base assembly opposite from the first end, wherein the base assembly is mountable on a base of a toilet via the set of mounts, and wherein every portion of the base assembly, when mounted on the base of the toilet, is elevated from a ground on top of which the toilet is positioned;

a movable portion mechanically coupled to the base assembly via the hinge, wherein the movable portion transitions between a resting position on top of at least a portion of the base assembly and a lifted position away from the at least a portion of the base assembly; and

a set of lifting components that lift the movable portion from the resting position to the lifted position in response to a weight shifting movement of an object sitting on the toilet.

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