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2,817,094

VERTICALLY ADJUSTABLE LAVATORY

Filed March 2, 1956

2 Sheets-Sheet 1

FIG. 1

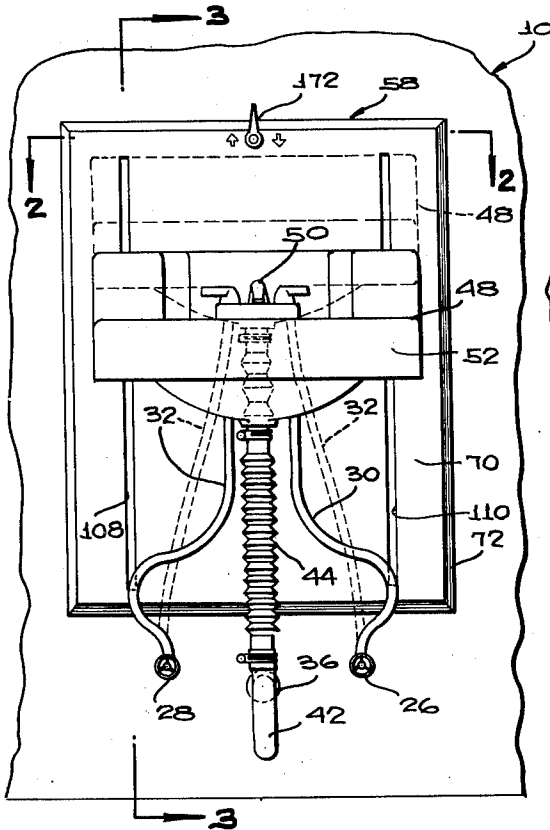


FIG. 5

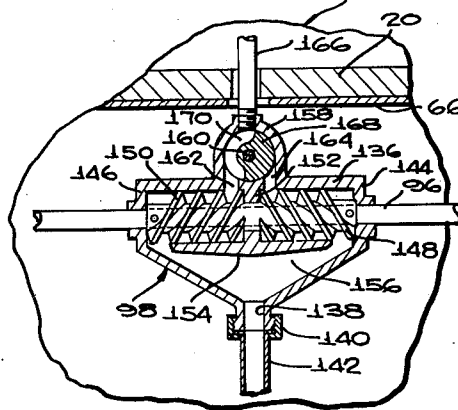


FIG. 7

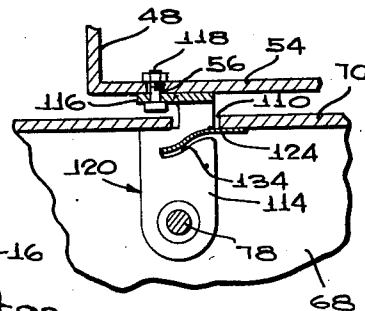
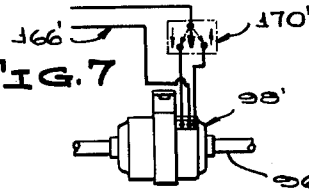


FIG. 6

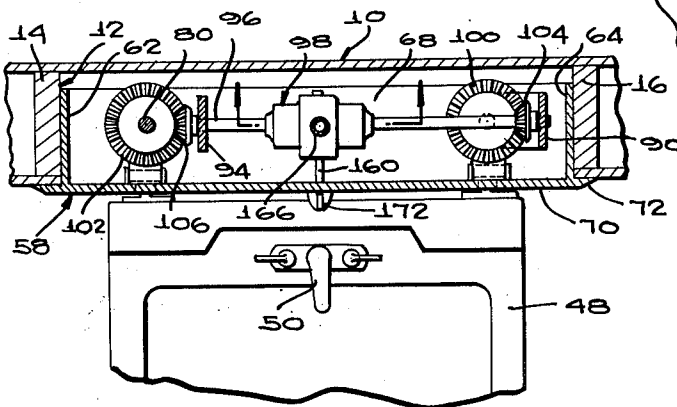


FIG. 2

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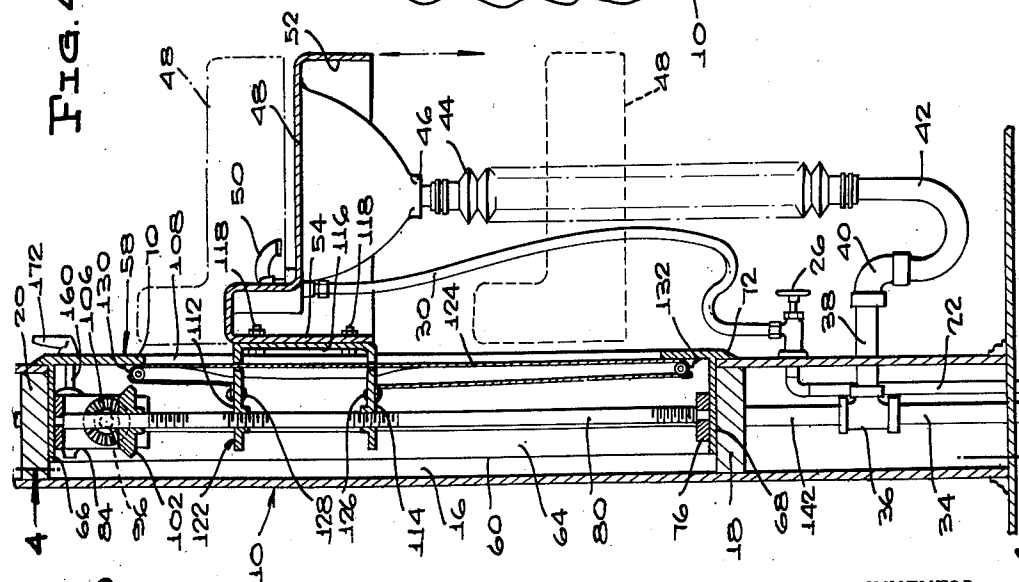
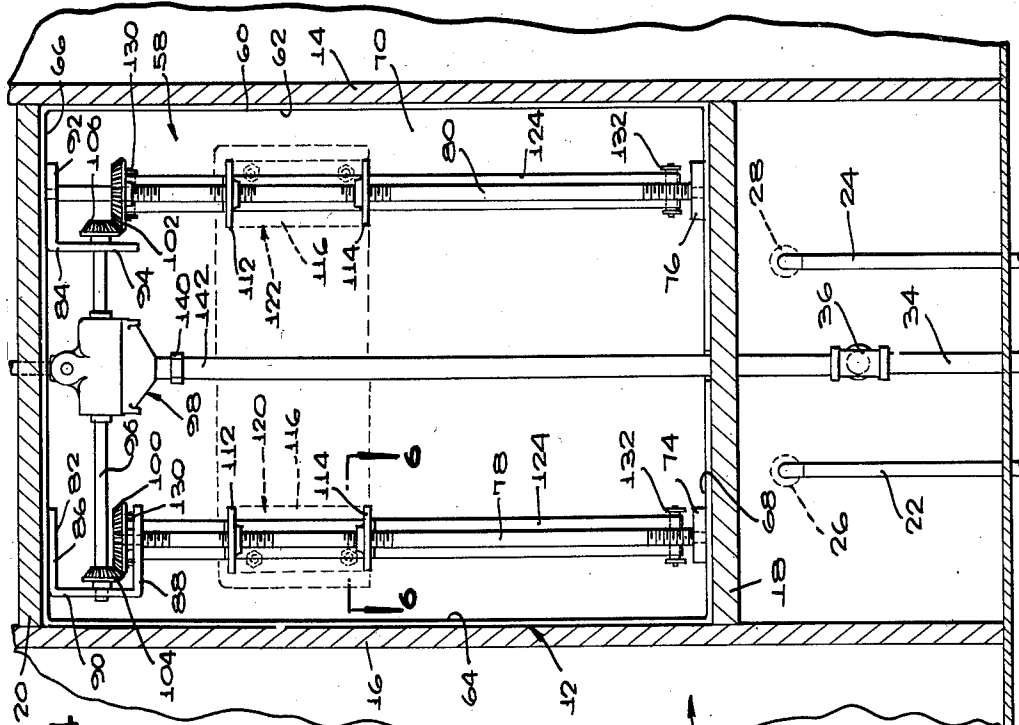
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1

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VERTICALLY ADJUSTABLE LAVATORY

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Application March 2, 1956, Serial No. 569,166

3 Claims. (Cl. 4—170)

This invention relates generally to lavatory accessories and is more particularly concerned with a novel lavatory elevating and support assembly readily installable on a vertical support wall of a bathroom, for example, for positioning a lavatory in various adjusted positions on said vertical support wall accommodating for different heights of users thereof.

The primary object of invention is to provide a novel lavatory elevating and support assembly including a frame member readily securable on a vertical support wall adjacent the plumbing connections for a lavatory, said frame member including elevating shaft means and a vertically adjustable bracket means engageable with a lavatory, reversible power means on the frame, and means engageable between the power and elevating shaft means for affording ready and expeditious vertical adjustment of the lavatory.

Further objects of invention in conformance with that set forth above reside in details of the frame member, elevating shaft means, support bracket means, collar means, and the like, of the novel lavatory elevating and support assembly.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a front elevational view of a fragmentary portion of a vertical support wall including the novel lavatory elevating and support assembly mounted thereon and including a lavatory which will be utilized therewith;

Figure 2 is an enlarged sectional view taken substantially on line 2—2 of Figure 1;

Figure 3 is an enlarged fragmentary sectional view taken substantially on line 3—3 of Figure 1;

Figure 4 is a sectional view taken substantially on line 4—4 of Figure 3;

Figure 5 is a further enlarged fragmentary sectional view taken substantially on line 5—5 of Figure 2;

Figure 6 is a further enlarged fragmentary sectional view taken substantially on line 6—6 of Figure 4; and

Figure 7 is a fragmentary diagrammatic view on a reduced scale showing an alternate power means which may be incorporated in the novel lavatory elevating and support assembly.

Referring to the drawings in detail, a fragmentary portion of a vertical support wall is indicated generally at 10, said wall having formed therein, as seen in Figures 2 through 4, a suitable recess portion 12 defined by side frame members 14 and 16 having suitably connected thereto vertically spaced transverse support members 18 and 20. A fragmentary wall 10 includes therein conventional hot and cold water lines 22 and 24, respectively, including suitable control valves 26 and 28, respectively, which are connected to suitable flexible fluid lines 30 and 32, respectively. Also included in the wall portion 10 is a waste water outlet line 34 connected by a suitable T

2

element 36 which has a lateral nipple 38 extending therefrom which is connected by means of the elbow element 40 to a conventional gooseneck trap 42, said trap 42 being connected to a collapsible conduit 44 suitably secured to the drain portion 46 of a conventional lavatory assembly 48.

The lavatory 48 has mounted thereon a conventional faucet assembly 50 having a pair of control handles for controlling suitable valves (not shown) connected to the fluid conduits 30 and 32, respectively. The lavatory 48 includes a peripheral skirt portion 52 providing a rear vertical mounting flange 54 incorporating therethrough vertically spaced transverse aperture portions 56, see Figure 6, which permit said lavatory to be mounted on the novel lavatory elevating and support assembly indicated generally at 58 as will subsequently become apparent.

The novel lavatory elevating and support assembly will be constructed from any suitable material, metal lending to mass production methods, for example, and although disclosed as being substantially rectangular in the preferred embodiment, may assume any desired configuration, square, circular, oblong, etc. The assembly 58 includes a frame member 60 which is suitably conformed to be received within the recess 12 of the wall 10, and as shown, includes side members 62 and 64 suitably connected to upper and lower transverse frame members 66 and 68, respectively. Suitably secured in overlying relationship to the frame members 62 through 68 is an integral panel member 70 which includes a peripheral flange portion 72, see Figure 3 for example, which engages the outer surface of the vertical support wall 10.

The lower frame member 68 of the frame 60 has suitably secured on the inner surface thereof a pair of transversely spaced journal block elements 74 and 76, see Figure 4, which are centrally apertured for receiving therein lower reduced diameter portions of vertically extending externally threaded elevating screw elements 78 and 80, respectively. The upper frame member 66 of the frame 60 has suitably secured on the inner surface thereof transversely spaced bracket elements 82 and 84, said bracket element 82 having a C-shaped configuration, see Figure 4, including mutually parallel flanges 86 and 88 connected by a vertical web portion 90, the flange portion 86 being connected to the aforementioned frame portion 66, the flange portion 88 being centrally apertured and receiving therethrough an upper reduced diameter end portion of the elevating screw element 78. The bracket element 84 has an L-shaped configuration, see Figure 4, including a flange portion 92 suitably secured to the frame member 66 and centrally apertured for receiving a reduced diameter upper end portion of the elevating screw element 80. The bracket element 84 includes a vertical flange portion 94 disposed substantially parallel to the web portion 90 of bracket 82, and said web 90 and flange 94 include aligned aperture portions for receiving therethrough end portions of a power output shaft member 96 of power means indicated generally at 98 which is utilized for the purpose of raising and lowering the lavatory 48 as will subsequently become apparent. The power output shaft 96 and the elevating screw elements 78 and 80 include cooperating force transmitting means comprising bevel gear assemblies which include bevel gear elements 100 and 102 which are respectively secured on the upper end portion of the elevating screw element 78, and an intermediate portion of the elevating screw element 80. Meshingly engaged with the bevel gear elements 100 and 102, respectively, are cooperating bevel gear elements 104 and 106 which are suitably secured in spaced relationship on the power output shaft 96. Thus rotation of the power output shaft 96 in one direction results in elevation of the lavatory support brackets as will subsequently become

3

apparent, and rotation in the opposite direction will result in lowering said lavatory support brackets.

The panel portion 70 of the frame 60 of the novel elevating and support assembly has extending vertically therethrough in spaced relationship elongated mutually parallel slot portions 108 and 110 which have extending therethrough notched out flange portions 112 and 114, see Figures 3, 4 and 6, which are connected to an integral vertical web portion 116, said web portion 116 being juxtaposed against the rear mounting flange portion 54 of the lavatory 48 and including suitable transverse apertures therethrough for alignment with the aperture portions 56 of said flange 54 for receiving therethrough bolt assemblies 118 for the purpose of detachably securing the lavatory on support bracket elements indicated generally at 120 and 122 which are comprised of the aforementioned flange portions 112 and 114 and the web portion 116. The flange portions 112 and 114 include aligned internally threaded aperture portions which are journaled on the elevating screw elements 78 and 80 and thus rotation of said elevating screw elements results in the aforementioned vertical adjustment of the lavatory 48.

For the purpose of substantially sealing the vertical slot portions 108 and 110 above and below the brackets 120 and 122 for preventing the entrance of foreign matter within the frame 60 of the assembly as well as for the purpose of improving the appearance thereof, there are provided elongated flexible sealing band elements 124 which are disposed in vertical alignment with the aforementioned slots 108 and 110 adjacent the inner surface portion of the panel 70 of the frame 60, opposite ends of said elements 124 being secured by means of rivets, for example, 126 and 128, see Figure 3, to respective upper and lower surface portions of the flanges 112 and 114, respectively, of the brackets 120 and 122. The panel 70 has extending inwardly from vertically spaced inner surface portions thereof oppositely disposed roller assemblies 130 and 132 over which intermediate portions of the elements 124 are journaled. As clearly seen in Figure 6, the band element 124 extends into suitable transverse notch portions 134 which extend into the flanges 112 and 114 of the brackets 120 and 122. Thus vertical adjustment of the support brackets 120 and 122 results in the vertical adjustment of the lavatory 48 with the flexible band elements 124 substantially sealing the slots 108 and 110 above and below the aforementioned bracket elements.

The power means 98 may be of any suitable configuration, and when sufficient water pressure is available, a hydraulic motor may be utilized. As clearly shown in Figure 5, the hydraulic motor may include a housing member 136 having a lower outlet portion 138 externally threaded for receiving thereon a coupling or housing nut element 140 connected to an outlet fluid conduit line 142 which is suitably connected as seen in Figures 3 and 4 to the T 36 of the waste line 34. The power output shaft 96 extends through oppositely disposed suitably apertured side portions 144 and 146 of the housing member 136 of the hydraulic power means, said power output shaft having fixedly secured thereon within the housing member 136 oppositely disposed and oppositely directed fluid pressure operated screw elements 148 and 150 which are separated by a transverse wall portion 152 of a sleeve member 154 in said housing member 136, said sleeve member 154 communicating at its opposite ends with the lower portion 156 of the housing member 136, said portion 156 communicating with the outlet portion 138 of said housing member. The housing member 136 includes an upwardly extending transverse integral body portion 158 having a central support shaft 160 extending therethrough, and being in communication at 162 and 164 on opposite sides of the transverse partition element 152 of said housing member 136. Suitably connected at the upper end of portion 158 of the housing member 136 is a fluid pressure inlet line 166 for directing fluid pres-

4

sure to one or the other of the helical screw elements 148 and 150 through the medium of the control valve element 168 journaled on the transverse shaft 160. The control valve element 168 includes a notched out portion 170, see Figure 5, for the purpose of providing communication to one or the other of the helical screw elements 148 or 150, also being effective to close off communication of pressure fluid to either of said helical elements. Thus, as seen in Figure 5, for example, fluid pressure will be directed to the helical element 150 causing rotation indicated by the solid direction arrow thereon. Rotation of the shaft 160 in the direction to cause fluid pressure to the helical element 148 results in the rotation of the power output shaft 96 in the direction indicated by the dotted direction arrow. As seen in Figure 3, for example, the shaft 160 extends beyond the panel portion 70, frame 60 has suitably secured on an end portion thereof an actuating handle 172, and if desired, said panel may have on the outer surface thereof suitable indicia means for indicating in which direction the handle 172 should be rotated for the purpose of raising and lowering the lavatory 48.

Although a hydraulic motor has been disclosed, this may be replaced by a suitable reversible electric current operated motor indicated generally at 98' which has a transverse power output shaft 96' extending therethrough. The electric motor 98' will be installed in the frame 60 in any suitable manner, and will be suitably connected to an electric current power input source indicated generally at 166'. A suitable three-position control switch indicated generally at 170' will be interposed between the electric power means 98' and the power source 166' and will include a neutral and two motor actuation positions, one for rotating the motor 98' in one direction and the other for the purpose of reversing the motor 98'.

Thus there has been disclosed a novel lavatory elevating and support assembly which fully conforms with the objects of invention heretofore set forth.

Various positional directional terms such as "upper," "lower," etc., will be utilized herein and have only a relative connotation to aid in describing the device and it is not intended to require any particular orientation with respect to any external elements.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described and accordingly all suitable modifications and equivalents may be resorted to falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A lavatory elevating and support assembly comprising a frame member including means thereon for mounting the frame member on a vertical support wall, externally threaded elevating shaft means rotatably mounted between spaced journaled portions of the frame member, vertically adjustable support bracket means including an internally threaded aperture portion journaled on the shaft means, said bracket means including mounting portions thereon for removably supporting a vertically adjustable lavatory thereon, reversible power means on said frame member, and power transmitting means operatively connecting the power and shaft means for transmitting reversible rotary force to the shaft means for providing various positions of vertical adjustment of the lavatory, said reversible power means comprising a reversible motor assembly supported on the frame member, said motor assembly including a rotatable power output shaft, power input means operatively connected to the reversible motor assembly and three-position control means interposed between the power input means and motor assembly for controlling the direction of rotation of the motor assembly power output shaft, said reversible motor assembly further including a hydraulic motor including the hous-

5

ing incorporating a fluid pressure inlet and an outlet portion, a pair of independent coaxial chambers each communicating between the fluid pressure inlet and the outlet portion, said three-position control means comprising a fluid control valve for communicating fluid pressure to neither or to one or the other of the coaxial chambers, said power output shaft extending transversely through the coaxial chambers and out of opposite sides of the housing, a pair of oppositely convoluted drive screws circumposed on the output shaft, one of the drive screws within each of the coaxial chambers whereby fluid pressure directed to one or the other of the chambers will cause the output shaft to rotate in one direction or the other for raising or lowering a lavatory.

2. A lavatory elevating and support assembly comprising a frame member including means thereon for mounting the frame member on a vertical support wall, externally threaded elevating shaft means rotatably mounted between spaced journaled portions of the frame member, vertically adjustable support bracket means including an internally threaded aperture portion journaled on the shaft means, said bracket means including mounting portions thereon for removably supporting a vertically adjustable lavatory thereon, reversible power means on said frame member, and power transmitting means operatively connecting the power and shaft means for transmitting reversible rotary force to the shaft means for providing various positions of vertical adjustment of the lavatory, said reversible power means comprising a reversible motor assembly supported on the frame member, said motor assembly including a rotatable power output shaft, power input means operatively connected to the reversible motor assembly and three-position control means interposed between the power input means and motor assembly for controlling the direction of rotation of the motor assembly power output shaft, the means operatively connecting the power and shaft means comprising a bevel gear assembly including one gear element secured on the vertical shaft means and an intermeshing bevel gear element secured on the power output shaft of the motor assembly, said reversible motor assembly further including a hydraulic motor including the housing incorporating a fluid pressure inlet and an outlet portion, a pair of independent coaxial chambers each communicating between the fluid pressure inlet and the outlet portion, said three-position control means comprising a fluid control valve for communicating fluid pressure to neither or to one or the other of the coaxial chambers, said power output shaft extending transversely through the coaxial chambers and out of opposite sides of the housing, a pair of oppositely convoluted drive screws circumposed on the output shaft, one of the drive screws within each of the coaxial chambers whereby fluid pressure directed to one or the other of the chambers will cause the output shaft to rotate in one direction or the other for raising or lowering a lavatory.

3. A lavatory elevating and support assembly compris-

6

ing a frame member including means thereon for mounting the frame member on a vertical support wall, externally threaded elevating shaft means rotatably mounted between spaced journal portions of the frame member, vertically adjustable support bracket means including an internally threaded aperture portion journaled on the shaft means, said bracket means including mounting portions thereon for removably supporting a vertically adjustable lavatory thereon, reversible power means on said frame member, and power transmitting means operatively connecting the power and shaft means for transmitting reversible rotary force to the shaft means for providing various positions of vertical adjustment of the lavatory, said externally threaded elevating shaft means comprising a pair of spaced externally threaded screw members, the vertically adjustable bracket means including a pair of bracket elements extending laterally from the screw and frame members, said bracket elements including portions detachably secured on mounting portions of the vertically adjustable lavatory, said reversible power means comprising a reversible motor assembly supported on the frame member, said motor assembly including a rotatable power output shaft, power input means operatively connected to the reversible motor assembly and three-position control means interposed between the power input means and motor assembly for controlling the direction of rotation of the motor assembly power output shaft, the output power shaft extending from opposite sides of the motor assembly toward the externally threaded screw elements, the means operatively connecting the power and shaft means comprising bevel gear assemblies engaged between adjacent portions of the power output shaft and the externally threaded screw members, said reversible motor assembly further including a hydraulic motor including the housing incorporating a fluid pressure inlet and an outlet portion, a pair of independent coaxial chambers each communicating between the fluid pressure inlet and the outlet portion, said three-position control means comprising a fluid control valve for communicating fluid pressure to neither or to one or the other of the coaxial chambers, said power output shaft extending transversely through the coaxial chambers and out of opposite sides of the housing, a pair of oppositely convoluted drive screws circumposed on the output shaft, one of the drive screws within each of the coaxial chambers whereby fluid pressure directed to one or the other of the chambers will cause the output shaft to rotate in one direction or the other for raising or lowering a lavatory.

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