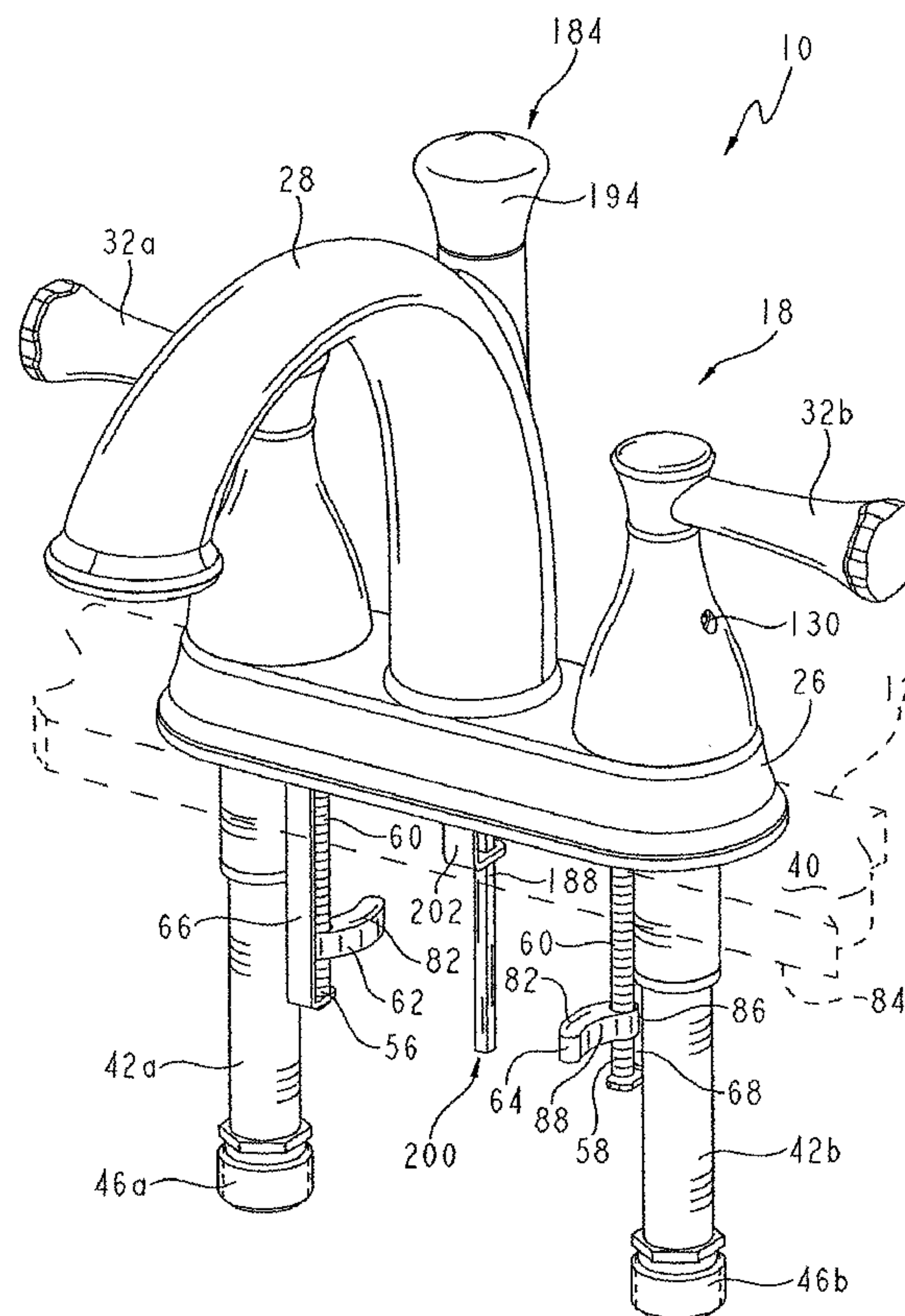




(86) Date de dépôt PCT/PCT Filing Date: 2006/08/01
(87) Date publication PCT/PCT Publication Date: 2007/03/08
(85) Entrée phase nationale/National Entry: 2008/02/21
(86) N° demande PCT/PCT Application No.: US 2006/029769
(87) N° publication PCT/PCT Publication No.: 2007/027340
(30) Priorité/Priority: 2005/08/29 (US11/214,241)

(51) Cl.Int./Int.Cl. *E03C 1/042* (2006.01)
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(54) Titre : SYSTÈME DE MONTAGE DE ROBINET A CAME EN TÊTE
(54) Title: OVERHEAD CAM FAUCET MOUNTING SYSTEM



(57) **Abrégé/Abstract:**

A faucet assembly (10) including a mounting base (20) and an upper faucet assembly (18). A cam fastener (30) releasably couples the upper faucet assembly (18) to the mounting base (20).



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 March 2007 (08.03.2007)

PCT

(10) International Publication Number
WO 2007/027340 A3

(51) International Patent Classification:
E03C 1/042 (2006.01)

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(21) International Application Number:
PCT/US2006/029769

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(22) International Filing Date: 1 August 2006 (01.08.2006)

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/214,241 29 August 2005 (29.08.2005) US

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(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

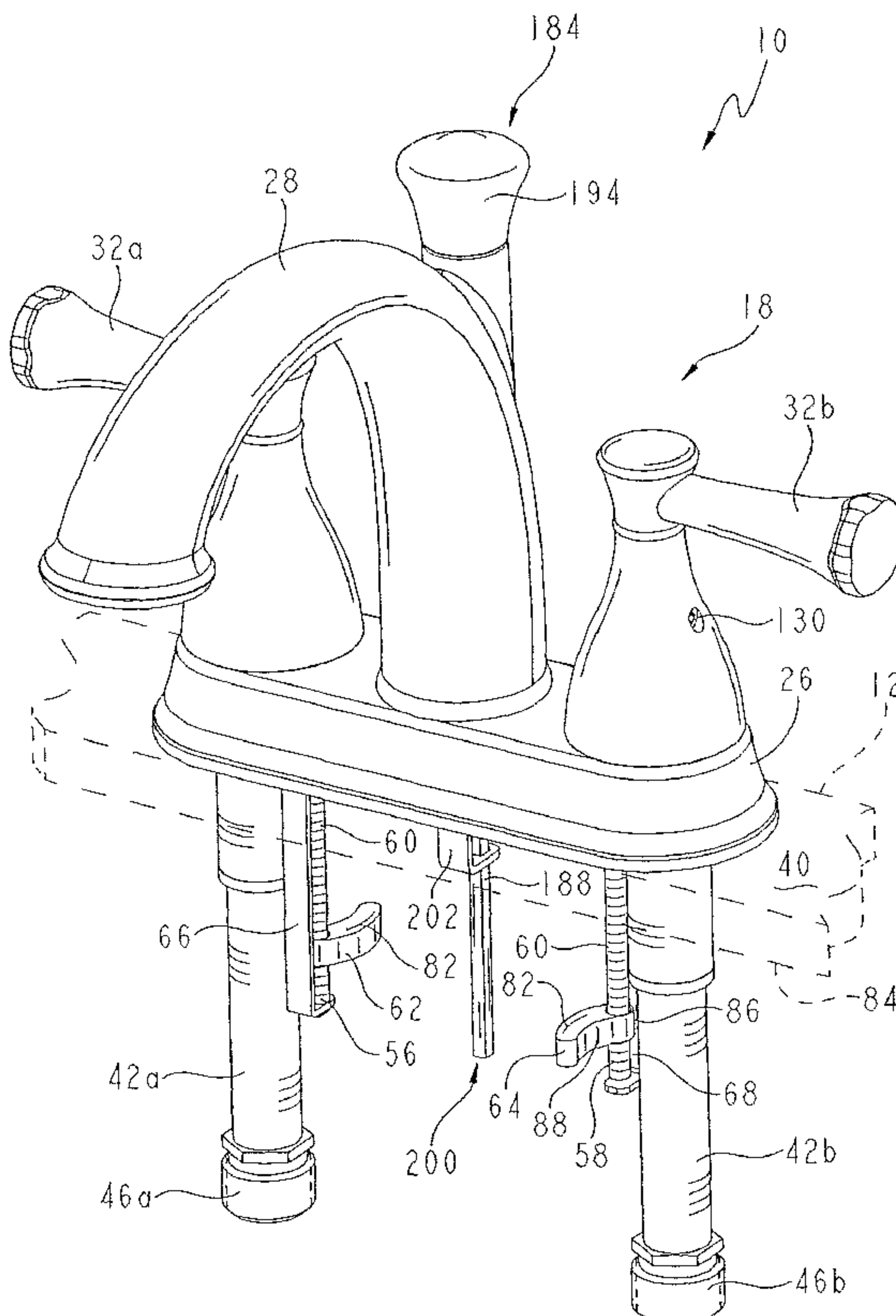
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[Continued on next page]

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European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:

6 December 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

OVERHEAD CAM FAUCET MOUNTING SYSTEM

BACKGROUND AND SUMMARY OF THE INVENTION

[0001] The present invention relates to a mounting system for faucets in which the faucet may be mounted from the top of a mounting deck, such as a counter top or sink.

[0002] The installation of a faucet onto a mounting deck is often a difficult and time-consuming task. At least some of the installation typically requires the installer to work in the cramped and dimly lit work area under the mounting deck. More particularly, faucets are typically attached to the mounting deck with threaded connections which must be made under and behind the sink basin where there is very little room to work.

[0003] As such, there is a need to provide a less cumbersome and complicated system of installing faucets or interchanging different faucet styles onto a mounting deck which can be done largely from the top of the countertop or sink. More particularly, a system is desired which would permit the installer to exchange different escutcheon styles, delivery spouts, and handle combinations quickly and easily without replacing the complete faucet assembly and while providing an aesthetically pleasing appearance.

[0004] According to an illustrative embodiment of the present disclosure, a faucet assembly includes a mounting base configured to be coupled to a mounting deck and including first and second inlet water conduits extending downwardly away from the mounting deck. An upper faucet assembly includes a fluid coupling configured to be in fluid communication with the first and second inlet water conduits of the mounting base. A coupler is supported for rotation relative to the mounting base about a vertical axis. The coupler is releasably secured to the mounting base and to the upper faucet assembly. The mounting base cooperates with the coupler to limit rotation of the coupler to less than approximately 360 degrees.

[0005] According to a further illustrative embodiment of the present disclosure, a faucet assembly includes a mounting base configured to be coupled to a mounting deck. An upper faucet assembly is positioned above the mounting base and includes a delivery spout, a lift rod, and a lift rod passageway for receiving the lift rod. A coupler is releasably secured between the mounting base and the upper faucet

assembly. At least one of the coupler and the mounting base includes an inclined ramp surface configured to cooperate with the other of the mounting base and the coupler for drawing the upper faucet assembly into a locked position relative to the mounting base. The coupler is accessible by a tool inserted through the lift rod passageway.

[0006] According to another illustrative embodiment of the present disclosure, a coupling system for use with a faucet assembly includes a cam fastener having a body, a tab extending radially outwardly from the body, and a retaining member configured to couple with an upper faucet assembly. A mounting base includes a ramp surface which is configured to guide the tab downwardly as the cam fastener rotates, such that the upper faucet assembly is drawn down into a locked position with the mounting base.

[0007] According to yet another illustrative embodiment of the present disclosure, a method of installing a faucet includes the steps of placing a mounting base on a mounting deck, and coupling the mounting base to the mounting deck from a position above the sink deck. The method further includes the steps of placing an upper faucet assembly on top of the mounting base, and engaging a coupler through a lift rod passageway formed in the upper faucet assembly. The method also includes the step of rotating the coupler about a vertical axis such that the coupler causes a downward camming of the upper faucet assembly relative to the mounting base, thereby locking the upper faucet assembly to the mounting base.

[0008] Additional features and advantages of the present invention will become apparent to those skilled in the art upon consideration of the following detailed description of the illustrative embodiment exemplifying the best mode of carrying out the invention as presently perceived.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The detailed description of the drawings particularly refers to the accompanying figures in which:

[0010] Fig. 1 is a perspective view of a two-handle faucet assembly coupled to a mounting deck and incorporating the coupling system of the present disclosure;

[0011] Fig. 2 is a front elevational view of the faucet assembly of Fig. 1;

[0012] Fig. 3 is a partial exploded perspective view of the faucet assembly of Fig. 1;

[0013] Fig. 4 is a perspective view of a single handle faucet assembly incorporating the coupling system of the present disclosure;

[0014] Fig. 5 is an exploded bottom perspective view of the fluid coupling, mounting support, and coupler of the faucet assembly of Fig. 1;

[0015] Fig. 6 is a bottom perspective view of the mounting base of the faucet assembly of Fig. 1 coupled to a mounting deck;

[0016] Fig. 7 is a top perspective view of the mounting base and the mounting deck of Fig. 6 showing the inlet water conduits extending downwardly therefrom;

[0017] Fig. 8 is a side elevational view, in partial cross section, illustrating the engagement between an adapter of the fluid coupling and a quick release fluid connector of a fluid conduit of the mounting base;

[0018] Fig. 9 is a perspective view of the faucet assembly of Fig. 1, with a partial cut-away thereof and with the upper member of the lift rod and the handles removed, showing the coupler in an unlocked position and engaged by a hex wrench;

[0019] Fig. 10 is a perspective view similar to Fig. 9, with the handles supported above the escutcheon, showing the coupler in a locked position with a lift rod passing therethrough;

[0020] Fig. 11 is a cross-sectional view taken along line 11-11 of Fig. 5;

[0021] Fig. 12 is a detail perspective view illustrating the tabs of the coupler in alignment with the slots of the mounting base retainer;

[0022] Fig. 13 is a partial perspective view with a partial cut-away thereof illustrating the tab of the coupler engaging a ramp surface of the mounting base retainer;

[0023] Fig. 14 is a view similar to Fig. 13 illustrating the tab of the coupler in a locked position engaging a stop;

[0024] Fig. 15 is a partial bottom perspective view of the coupler in the locked position relative to the mounting base; and

[0025] Fig. 16 is a partially exploded perspective view illustrating the lift rod passing through the coupler, which is in a locked position relative to the mounting base.

DESCRIPTION OF INVENTION

[0026] Referring initially to Figs. 1 and 2, a faucet assembly 10 is shown in conjunction with the mounting deck 12 on which it is mounted. The mounting deck 12 typically comprises a countertop or sink ledge and includes access openings 14, 16 (Figs. 2 and 6). The faucet assembly 10 includes an upper faucet assembly 18 and a mounting base 20. A resilient gasket (not shown) may be positioned around the mounting base 20, intermediate the upper faucet assembly 18 and the mounting deck 12. The gasket may be used to provide compliance between the upper faucet assembly 18 and the mounting deck 12. However, other suitable compliance members, such as springs, may be substituted for the gasket. As shown in Fig. 3, the upper faucet assembly 18 includes a fluid coupling 24, an escutcheon 26, and a delivery spout 28. A coupling system 29, including a coupler 30, releasably couples the upper faucet assembly 18 to the mounting base 20.

[0027] With reference to Fig. 3, the upper faucet assembly 18 further illustratively includes first and second handles 32a and 32b, which are operably coupled to valve cartridges or assemblies 34a and 34b, respectively. More particularly, the handles 32a and 32b are supported for rotation. Rotation of the handles 32a and 32b controls the flow of hot and cold water through the valve assemblies 34a and 34b, respectively. The valve assemblies 34a and 34b may be of conventional design, and illustratively of the type detailed in U.S. Patent Nos. 3,645,493 or 4,700,928, both of which are expressly incorporated by reference herein.

[0028] While the illustrative embodiment of Figs. 1-3 shows two handles 32a, 32b coupled to a pair of valve assemblies 34a, 34b, it should be appreciated that the present invention may also be used with a faucet assembly 10' including a single handle 36, as shown in Fig. 4. In such an embodiment, the fluid coupling 24 would be modified to support a single valve (not shown) operably coupled to the handle 36. Further, while the handles 32a and 32b in the illustrative embodiment comprise levers, supported for rotation by approximately 90 degrees, it should be appreciated that conventional knobs (not shown), supported for rotation by approximately 180 degrees, may be readily substituted therefor. Moreover, levers, knobs, or any other conventional operating handle may be utilized in connection with the faucet assembly 10, 10'.

[0029] The mounting base 20 includes a mounting support 38 which is illustratively mounted from the top of the mounting deck 12 and sits on a top surface 40 thereof. It should be noted that the mounting base 20 may also be mounted from the underside of the mounting deck 12. Extending downwardly from openings 41a and 41b in the mounting base 20 are first and second inlet water conduits 42a and 42b. Inlet water conduits 42a and 42b pass through access openings 14 and 16 in the mounting deck 12 and are connected, through conventional fittings 46a and 46b, to conventional water supply tubes (not shown) under the mounting deck 12. Inlet water conduits 42a and 42b concentrically receive, at their upper ends, adapters 50a and 50b which extend downwardly from fluid coupling 24 (Figs. 3 and 5). Adapters 50a and 50b carry hot and cold water from inlet water conduits 42a and 42b to valve assemblies 34a and 34b.

[0030] With further reference to Figs. 1-3, first and second attachment posts 56 and 58 extend adjacent to and parallel with water conduits 42a and 42b. The attachment posts 56 and 58 each include a plurality of external threads 60 that are configured to operably couple with first and second mounting base locking members 62 and 64, respectively. The mounting base locking members 62 and 64 are vertically movable along the threaded attachment posts 56 and 58 that are disposed parallel with adjacent water conduits 42a and 42b, respectively. The attachment posts 56 and 58 are rotatably supported within downwardly extending brackets 66 and 68, respectively. More particularly, an upper end of each attachment post 56 and 58 includes a head 70 supported by an upper arm 72 of the bracket 66, 68 (Fig. 3). The head 70 is configured to be engaged by a tool, such as a screw driver. A connecting portion 74 of each bracket 66 and 68 extends parallel to the attachment posts 56 and 58. A lower end of each attachment post 56 and 58 is supported for rotation by a lower arm 76 and a retaining clip 78. Each bracket 66 and 68 is fixed to the mounting base 20 by a screw 80 passing through the respective upper arm 76.

[0031] To couple the mounting base 20 onto the mounting deck 12, inlet water conduits 42a and 42b, mounting base locking members 62 and 64, attachment posts 56 and 58 and brackets 66 and 68, are inserted through the access openings 14 and 16, and the mounting base 20 is lowered until it rests on the mounting deck 12.

[0032] When the mounting base 20 is on the mounting deck 12, the attachment posts 56 and 58 are rotated to cause the mounting base locking members

62 and 64 to move up or down on the posts 56 and 58. Counterclockwise rotation of the posts 56 and 58 causes locking members 62 and 64 to move downwardly or away from the mounting deck 12 to an unlocked position. Clockwise rotation of the posts 56 and 58 causes locking members 62 and 64 to move upwardly or toward the mounting deck 12 to a locked position.

[0033] In the locked position, an upper surface 82 of each locking member 62 and 64 abuts the bottom or underside 84 of mounting deck 12, thereby securing mounting base 20 to the deck 12 (Fig. 2).

[0034] With reference to Fig. 6, the locking members 62 and 64 are prevented from rotating with the attachment posts 56 and 58 as they are turned, by first and second guide surfaces 86 and 88 of the locking members 62 and 64. Guide surfaces 86 abut against brackets 66 and 68 upon clockwise rotation of the locking members 62 and 64. This causes the locking members 62 and 64 to ride up the posts 56 and 58 as these posts 56 and 58 are rotated in a clockwise direction, instead of rotating 360° along with the rotation of the posts 56 and 58. Guide surfaces 88 abut against inlet water conduits 42a and 42b upon counterclockwise rotation of the locking members 62 and 64. This causes the locking members 62 and 64 to ride down the posts 56 and 58 as these posts 56 and 58 are rotated in a counterclockwise direction.

[0035] To remove the mounting base 20 from the mounting deck 12, attachment posts 56 and 58 are turned in a counter-clockwise manner, moving the locking members 62 and 64 downwardly away from the underside of the mounting deck 12. The inlet water conduits 42a and 42b, mounting base locking members 62 and 64, attachment posts 56 and 58, and bracket 66 and 68 are then pulled up through the access openings 14 and 16 in the mounting deck 12.

[0036] In the unlocked or down position locking members 62 and 64 are swiveled against the inlet water conduits 42a and 42b and can be pulled out through access openings 14 and 16. In the up or locked position locking members 62 and 64 are swiveled away from the inlet water conduits 42a and 42b and their tops abut against the bottom surface or underside 84 of mounting deck 12. In this position the locking members 62 and 64 cannot be pulled through the access openings 14 and 16.

[0037] It is also possible that the inlet water conduits 42a and 42b may be threaded on the outer surface itself. This would then allow the mounting support to be installed in the conventional under-the-sink fashion using compatible nuts. Other

known methods for under-the-sink attaching of the mounting support are envisioned as part of this invention. Examples of such additional methods are detailed in U.S. Patent Application Serial No. 10/411,432, filed April 10, 2003, and U.S. Patent Application Serial No. 10/918,939, filed August 16, 2004, both of which are expressly incorporated by reference herein.

[0038] With reference to Figs. 3 and 5, the fluid coupling 24 illustratively includes a body 92 which supports first and second valve bodies 94a and 94b which, in turn, receive valve assemblies 34a and 34b. The fluid coupling 24 includes a waterway 98 which provides fluid communication between the adapters 50a, 50b and the chambers 94a, 94b. The waterway 98 includes an outlet 100 which is configured to fluidly couple to the delivery spout 28. In one illustrative embodiment, the valve bodies 94a, 94b and the waterway 98 are formed of a metal, such as brass, and the body 92 is formed of thermoplastic, wherein the valve bodies 94a, 94b and the waterway 98 are insert molded within the fluid coupling 24. Additional details regarding such an insert molded waterway are provided in U.S. Patent Application titled "Waterway Connection" (Attorney Docket No. DFC-P0042), filed concurrently herewith, which is expressly incorporated by reference herein.

[0039] Referring now to Figs. 5 and 8, the adapters 50a and 50b each include a central post 102 surrounded by a plurality of fluid passageways 104. An O-ring 106 illustratively seals between each adapter 50a, 50b and the respective inlet water conduit 42a, 42b. The post 102 is configured to operably engage a quick release fluid connector 110. As such, insertion of the adapter 50a, 50b into the inlet water conduit 42a, 42b causes the post 102 to push against a sealing member 112, thereby providing fluid flow therebetween. When the adapter 50a, 50b and post 102 are removed from the inlet water conduit 42a, 42b, water pressure causes the sealing member 112 to prevent water passage therethrough. The quick release fluid connector 110 is of conventional design, and illustratively may be of the type manufactured by Damixa A/S of Odense, Denmark.

[0040] With reference to Figs. 3 and 9, the valve bodies 94a and 94b include a pair of upwardly extending flanges 114a and 114b which extend upwardly and include locating notches 118 for receiving tabs 120 and thereby facilitate proper orientation of the respective valve assemblies 34a and 34b. The escutcheon 26 fits over the fluid coupling 24 such that the flanges 114a and 114b extend upwardly

through openings 122a and 122b formed in the escutcheon 26. Conventional bonnet nuts 126a and 126b are threadably received on the flanges 114a and 114b, above the escutcheon 26, and secure the valve assemblies 34a and 34b within the valve bodies 94a and 94b, respectively. The handles 32a and 32b are then received over the bonnet nuts 126a and 126b and are secured in place by set screws 130 (Fig. 3).

[0041] The delivery spout 28 fluidly couples with the outlet 100 of the waterway 98 and is secured to the fluid coupling 24 by fasteners, such as screws 132. More particularly, the screws 132 have heads 134 which are retained within the body 92 of the fluid coupling 24, and threaded portions 136 which pass through clearance openings 138 in the escutcheon 26 and are threadably received within openings 140 formed in the delivery spout 28. As such, the escutcheon 26 is sandwiched between the fluid coupling 24 and the delivery spout 28.

[0042] With reference to Figs. 3, 5, and 9-15, the coupling system 29 is configured to couple the upper faucet assembly 18 to the mounting base 20. More particularly, the coupler 30 of the coupling system 29 is releasably secured to the fluid coupling 24 and to a retainer 142 formed within the mounting base 20. As shown in Figs. 5 and 12, the coupler 30 illustratively comprises a cam fastener including a cylindrical body 144 having a central passageway 146 extending longitudinally therethrough. A retainer, illustratively an annular flange 148, is supported by an upper end 150 of the body 144. The annular flange 148 is configured to be received within a counterbore 152 formed within the fluid coupling 24. More particularly, the annular flange 148 is configured to engage an annular lip 154 formed in the body 92 of the fluid coupling 24 (Fig. 11). A pair of radially outwardly extending tabs 156a and 156b are supported by a lower end 158 of the body 144. While the illustrative embodiment shows two diametrically opposed tabs 156, it should be appreciated that the number and location of the tabs 156 may be varied. The upper end 150 also includes a hexagonal shaped opening 160 configured to receive a conventional tool, such as a hex or Allen wrench 162 (Fig. 9). The upper end 150 may include other configurations to support different tools, such as a slot configured to receive the blade of a screwdriver.

[0043] As shown in Figs. 12-14, the retainer 142 of the mounting base 20 includes a pair of opposed inclined ramp surfaces 164a and 164b which are configured to engage and guide the tabs 156a and 156b of the coupler 30 as the

coupler 30 is rotated about its longitudinal vertical axis 166. As the coupler 30 is rotated, the ramp surfaces 164 cause the body 144 to move downwardly in a camming manner. The annular flange 148 then draws the fluid coupling 24, and the remainder of the upper faucet assembly 18, downwardly. The retainer 142 of the mounting base 20 includes a pair of stops 168a and 168b which are configured to stop rotation of the coupler 30 after approximately 90° of clockwise rotation about vertical axis 166. It should be appreciated that the number and location of the stops 168 could be varied, thereby adjusting the rotational limits of the coupler 30. Moreover, the stops 168 could be located to provide rotation of the coupler 30 anywhere in the range from approximately 1 to approximately 360 degrees.

[0044] With further reference to Figs. 12 and 13, the retainer 142 of the mounting base 20 includes entry portions 170a and 170b connected to upper ends 172 of each ramp surface 164, and terminal portions 174a and 174b connected to lower ends 176 of each ramp surface 164. The entry portions 170a and 170b illustratively include a pair of diametrically opposed slots 178a and 178b configured to slidably receive the tabs 156a and 156b, respectively, of the coupler 30. As the coupler 30 is then rotated in a clockwise direction about the vertical axis 166, an upper surface 180 of each tab 156a and 156b engages the respective ramp surface 164. As clockwise rotation of the coupler 30 continues from the upper end 172 to the lower end 176, the upper surfaces 180 of the tabs 156 ride along the ramp surfaces 164, causing the coupler 30 to cam, or move, downwardly.

[0045] In the illustrative embodiment, the ramp surface 164 is inclined downwardly from horizontal by an angle α , which illustratively is equal to approximately 33 degrees, and permits 90 degree rotation of the coupler 30 about vertical axis 166 from the entry portion 170 to the terminal portion 176 of the retainer 142. Further, while in the illustrative embodiment, the ramp surface is helical, such that the angle α remains substantially constant, it should be appreciated that this angle could change along the length of the ramp surface 164 from the upper end 172 to the lower end 176. As shown in Figs. 13 and 14, once the tabs 156 are positioned within the terminal portion 174 of the retainer 142, further clockwise rotation of the coupler 30 is prevented by stop 168.

[0046] While the illustrative embodiment shows the tabs 156 supported by the coupler 30 and the ramp surfaces 164 supported by the mounting base 20, it should be

appreciated that such relative positioning may be reversed. More particularly, the tabs 156 may be supported by the mounting base 20 and the ramp surfaces 164 supported by the coupler 30. In both cases, cooperation between the tabs 156 and the ramp surfaces 164 cause the above described downwardly camming action of the upper faucet assembly 18 relative to the mounting base 20.

[0047] With reference to Figs. 1, 3, 10, and 16, the passageway 146 of the coupler 30 is configured to receive a conventional lift rod 184. The lift rod 184 illustratively includes an upper member 186 and a lower member 188. The upper member 186 is coupled to the lower member 188 through a lift rod coupling 190 (Figs. 3 and 16), which may be of the type detailed in U.S. Patent Application Serial No. 10/928,357, filed August 27, 2004, which is assigned to the assignee of the present invention and is expressly incorporated by reference herein. The upper member 186 is configured to be removably received within a lift rod passageway 191 formed within the upper faucet assembly 18, illustratively within the delivery spout 28. The upper member 186 includes an upper end 192 coupled to a conventional pull knob 194, and a threaded lower end 196 coupled to the lift rod coupling 190. The lower member 188 includes an upper threaded end 198 coupled to the lift rod coupling 190, and a lower end 200 which is operably coupled to a conventional pop-up drain assembly (not shown).

[0048] The lower member 188 passes through a bracket 202 which is coupled to a recess 204 formed in the lower surface 206 of the mounting support 38 through a screw 208. The lower member 188 has at least one flat surface 210, and is illustratively of a square cross section. The lower member 188 passes through a cooperating opening 212 formed in the bracket 202 which likewise has at least one flat surface 214, and is illustratively of a square cross section. The flat surfaces 210 and 214 of the lower member 188 and the opening 212 prevent relative rotation between the lower member 188 and the bracket 202, and hence relative rotation between the upper member 186 and the lower member 188. As such, removal of the upper member 186 from the lower member 188 is facilitated.

[0049] In order to install the upper faucet assembly 18 onto the mounting base 20, the adapters 50a and 50b of the fluid coupling 24 are aligned with the upper ends of the inlet water conduits 42a and 42b. The upper faucet assembly 18 is then lowered onto the mounting base 20, where the posts 102 of the adapters 50a and 50b

engage the quick release fluid connectors 110. As such, fluid communication is provided between the inlet water conduits 42a and 42b and the waterway 98. The tabs 156 of the coupler 30 are next received within the 178 of the mounting base 20. With the upper member 186 of the lift rod 184 removed, hex wrench 162 is inserted through the lift rod passageway 191 and received within the hex opening 160 of the coupler 30. The coupler 30 is then rotated clockwise by approximately 90 degrees wherein the tabs 156 of the coupler 30 are guided along the ramp surfaces 164 from the entry portion 170 to the terminal portion 174 of the retainer 142. Engagement between the tabs 156 and the ramp surfaces 164 along the path of rotation of the coupler 30, causes camming of the upper faucet assembly 18 downwardly against the mounting base 20. The hex wrench 162 is then removed and the upper member 186 of the lift rod 184 inserted through the passageway 191 of the upper faucet assembly 18 and the passageway 146 of the coupler 30. The upper member 186 is then coupled to the lower member 188 of lift rod 184 through the lift rod coupling 190.

[0050] In order to remove the upper faucet assembly 18 from the mounting base 20, the above described process is simply reversed. More particularly, the upper member 186 of lift rod 184 is removed, and a user inserts hex wrench 162 into the lift rod passageway 191. The hex wrench 162 is received within the hex opening 160 of the coupler 30 and then rotated counterclockwise by approximately 90 degrees to release the upper faucet assembly 18 from the mounting base 20.

[0051] Although the invention has been described in detail with reference to certain preferred embodiments, variations and modifications exist within the spirit and scope of the invention as described and defined in the following claims.

CLAIMS:

1. A faucet assembly comprising:
a mounting base configured to be coupled to a mounting deck and including first and second inlet water conduits extending downwardly away from the mounting deck;
an upper faucet assembly including a fluid coupling configured to be in fluid communication with the first and second inlet water conduits of the mounting base; and
a coupler supported for rotation relative to the mounting base about a vertical axis, the coupler releasably secured to the mounting base and to the upper faucet assembly, the mounting base cooperating with the coupler to limit rotation of the coupler to less than approximately 360 degrees.
2. The faucet assembly of claim 1, wherein the upper faucet assembly further includes a lift rod passageway, a lift rod configured to be received within the lift rod passageway, and the coupler is accessible for rotation through the lift rod passageway.
3. The faucet assembly of claim 2, wherein the coupler includes a passageway, and the lift rod is configured to pass through the passageway.
4. The faucet assembly of claim 2, further comprising a retainer supported by the mounting base and configured to restrict rotational movement of at least a portion of the lift rod.
5. The faucet assembly of claim 4, wherein the lift rod includes a lower member having at least one flat surface, and an upper member coupled to the upper member, the retainer including an aperture having at least one flat surface configured to engage the at least one flat surface of the lower member to prevent rotation thereof.
6. The faucet assembly of claim 1, wherein the mounting base includes a ramp surface, the coupler comprises a cam fastener having a radially outwardly extending tab configured to engage the ramp surface of the mounting base, and rotation of the cam fastener causes the tab to ride along the ramp surface thereby moving the upper faucet assembly relative to the mounting base.

7. The faucet assembly of claim 6, wherein the mounting base includes a stop coupled to the ramp surface and configured to prevent rotation of the coupler in excess of approximately 90 degrees.

8. The faucet assembly of claim 1, wherein the fluid coupling includes an adapter, and the mounting base includes a quick release fluid connector configured to releasably couple with the adapter of the fluid coupling.

9. The faucet assembly of claim 1, wherein the mounting base includes:
a base plate, the first and second inlet water conduits being in fluid communication with openings formed in the base plate;

a first attachment post positioned adjacent to the first fluid conduit;

a second attachment post positioned adjacent to the second fluid conduit;

a first mounting base locking member operably coupled to the first attachment post;

a second mounting base locking member operably coupled to the second attachment post; and

wherein the first and second inlet water conduits are configured to be coupled to fluid supply lines for supplying fluid to the fluid coupling.

10. The faucet assembly of claim 9, wherein the first attachment post and the second attachment post each include external threads, and the mounting base locking members are threadably coupled to the attachment posts, so that as the attachment posts are rotated in a clockwise manner, the mounting base locking members move up the attachment posts until the mounting base locking members come into contact with the under surface of a mounting deck, so as to secure the mounting base to the mounting deck.

11. The faucet assembly of claim 1, wherein the coupler includes an annular flange configured to engage the upper faucet assembly.

12. The faucet assembly of claim 1, wherein the upper faucet assembly further includes a faucet body configured to fit over the fluid coupling, and a deliver spout in fluid communication with the fluid coupling.

13. A faucet assembly comprising:

a mounting base configured to be coupled to a mounting deck;

an upper faucet assembly positioned above the mounting base, the upper faucet assembly including a delivery spout, a lift rod, and a lift rod passageway for receiving the lift rod; and

a coupler releasably secured between the mounting base and the upper faucet assembly, at least one of the coupler and the mounting base including an inclined ramp surface configured to cooperate with the other of the mounting base and the coupler for drawing the upper faucet assembly into a locked position relative to the mounting base, wherein the coupler is accessible by a tool inserted through the lift rod passageway.

14. The faucet assembly of claim 13, wherein the upper faucet assembly further includes a fluid coupling in fluid communication with the mounting base and the delivery spout.

15. The faucet assembly of claim 14, wherein the fluid coupling includes first and second adapters, and the mounting base includes first and second quick release fluid connectors configured to releasably couple with the first and second adapters of the fluid coupling.

16. The faucet assembly of claim 13, wherein the upper end of the coupler includes an opening configured to receive a hex wrench.

17. The faucet assembly of claim 13, wherein the mounting base includes a ramp surface, the coupler comprises a cam fastener having a radially outwardly extending tab configured to engage the ramp surface of the mounting base, and rotation of the cam fastener causes the tab to ride along the ramp surface thereby moving the upper faucet assembly relative to the mounting base.

18. The faucet assembly of claim 17, wherein the mounting base includes a stop coupled to the ramp surface and configured to prevent rotation of the coupler in excess of approximately 90 degrees.

19. The faucet assembly of claim 18, wherein the coupler includes a passageway, and the lift rod is configured to pass through the passageway.

20. The faucet assembly of claim 13, further comprising a retainer supported by the mounting base and configured to restrict rotational movement of at least a portion of the lift rod.

21. The faucet assembly of claim 13, wherein the mounting base includes:
a base plate, the first and second inlet water conduits being in fluid communication with openings formed in the base plate;
a first attachment post positioned adjacent to the first fluid conduit;
a second attachment post positioned adjacent to the second fluid conduit;
a first mounting base locking member operably coupled to the first attachment post;
a second mounting base locking member operably coupled to the second attachment post; and
wherein the first and second inlet water conduits are configured to be coupled to fluid supply lines for supplying fluid to the fluid coupling.
22. The faucet assembly of claim 21, wherein the first attachment post and the second attachment post each include external threads, and wherein the mounting base locking members are threadably coupled to the attachment posts, so that as the attachment posts are rotated in a clockwise manner, the mounting base locking members move up the attachment posts until the mounting base locking members come into contact with the under surface of a mounting deck, so as to secure the mounting base to the mounting deck.
23. The faucet assembly of claim 13, wherein the coupler includes an annular flange configured to engage the upper faucet assembly.
24. A coupling system for use with a faucet assembly, the coupling system comprising:
a cam fastener including a body, a tab extending radially outwardly from the body, and a retaining member configured to couple with an upper faucet assembly; and
a mounting base including a ramp surface configured to guide the tab downwardly as the cam fastener rotates such that the upper faucet assembly is drawn down into a locked position with the mounting base.
25. The coupling system of claim 24, wherein the body of the cam fastener is configured to rotate about a vertical axis and the mounting base includes a stop to limit the amount of rotation.

26. The coupling system of claim 25, wherein the stop is coupled to the ramp surface and is configured to prevent rotation of the coupler in excess of approximately 90 degrees.

27. The coupling system of claim 24, wherein the upper end of the body of the cam fastener includes a tool receiver.

28. The coupling system of claim 24, wherein the body of the cam fastener includes a passageway to receive a lift rod.

29. The coupling system of claim 24, wherein the body of the cam fastener includes an annular flange configured to engage the upper faucet assembly.

30. A method of installing a faucet comprising the steps of:
placing a mounting base on a mounting deck;
coupling the mounting base to the mounting deck from a position above the sink deck;
placing an upper faucet assembly on top of the mounting base;
engaging a coupler through a lift rod passageway formed in the upper faucet assembly; and
rotating the coupler about a vertical axis such that the coupler causes a downward camming of the upper faucet assembly relative to the mounting base, thereby locking the upper faucet assembly to the mounting base.

31. The method of claim 30, wherein the rotating step includes rotating the coupler by approximately 90 degrees.

32. The method of claim 30, wherein the mounting base includes a ramp surface, and the coupler engages the ramp surface during the rotating step.

33. The method of claim 30, wherein the step of placing the upper faucet assembly on top of the mounting base includes inserting adapters into quick release fluid connectors.

34. The method of claim 30, wherein the step of engaging the coupler includes inserting a tool into the upper end of the coupler.

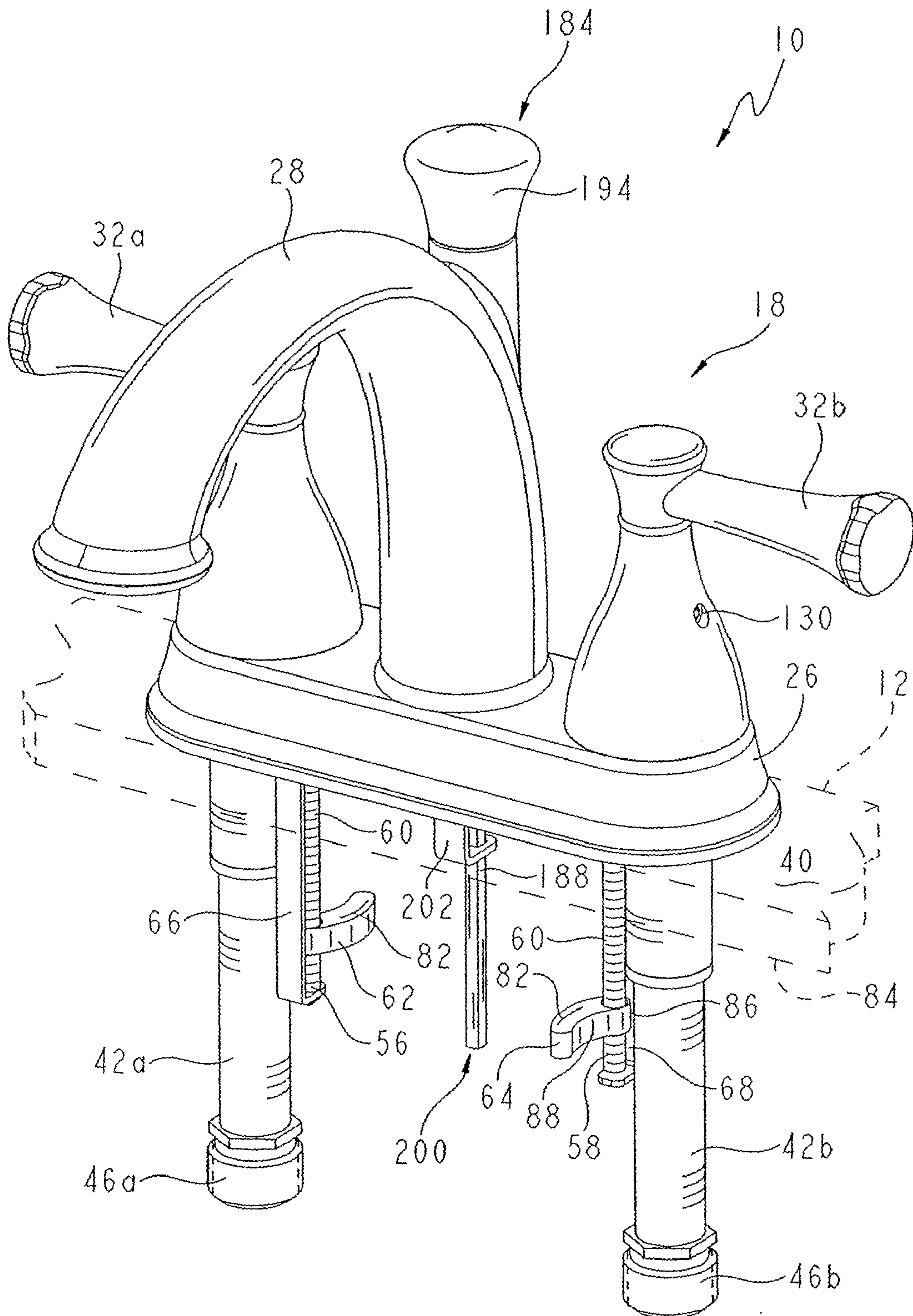


FIG. 1

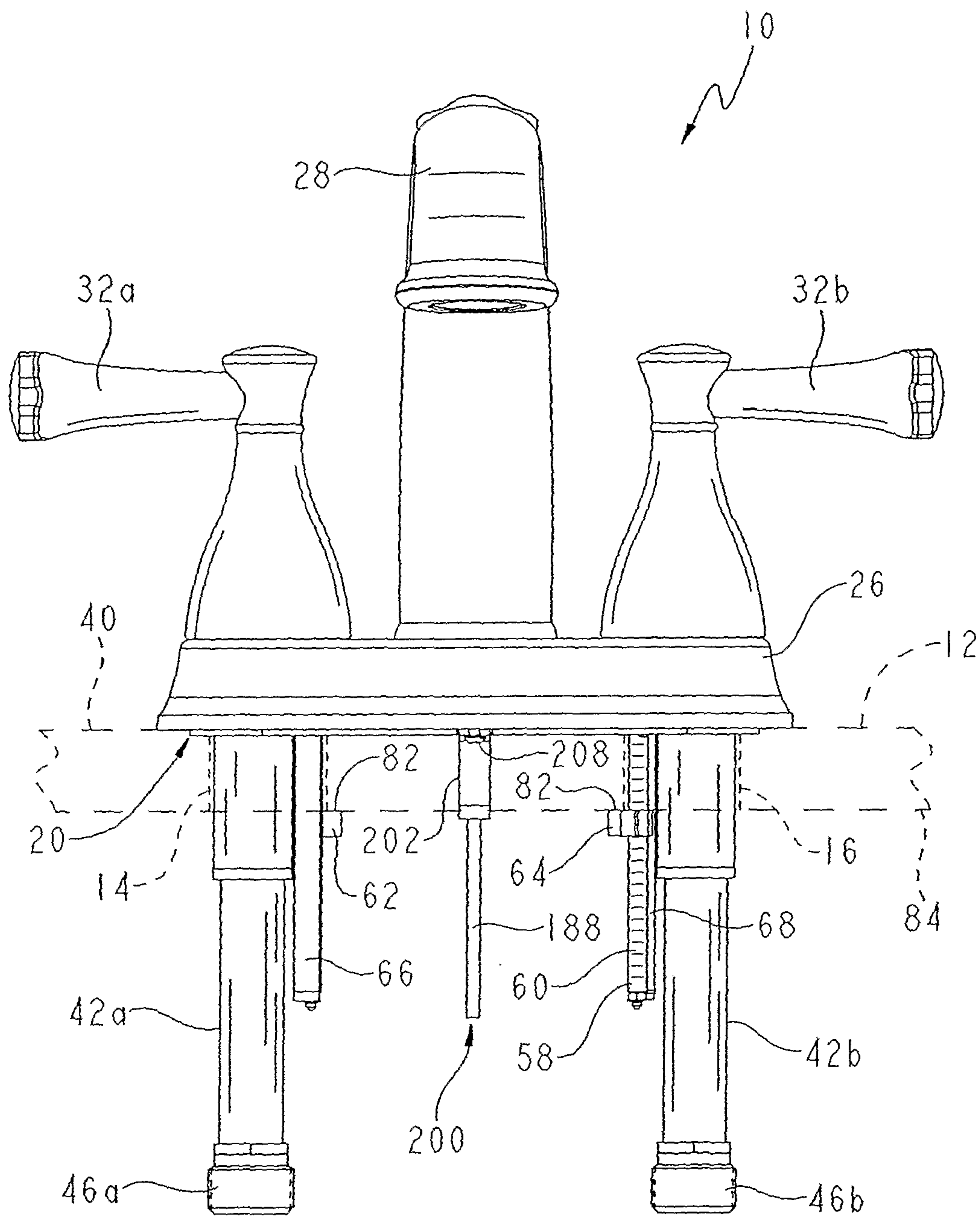
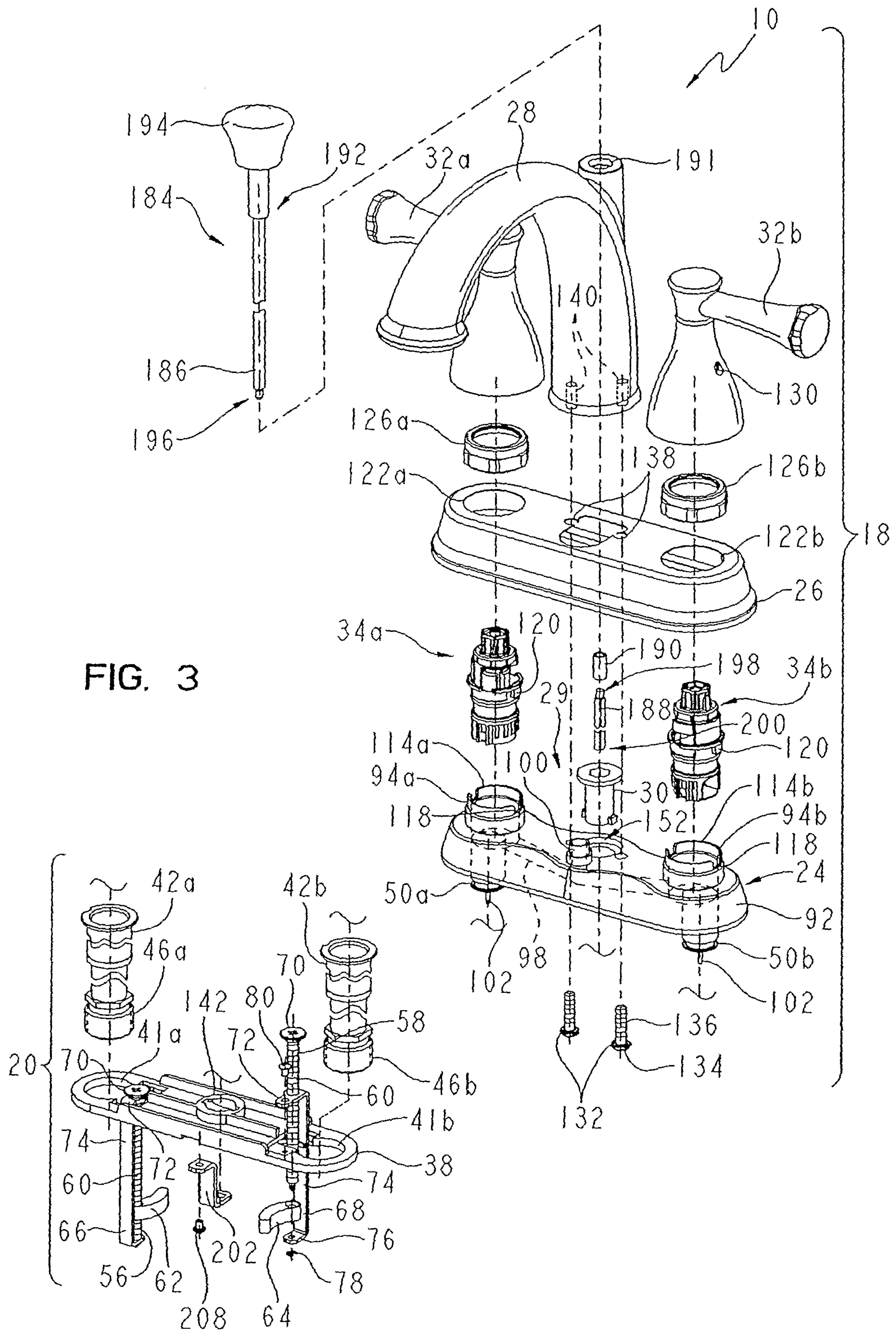


FIG. 2



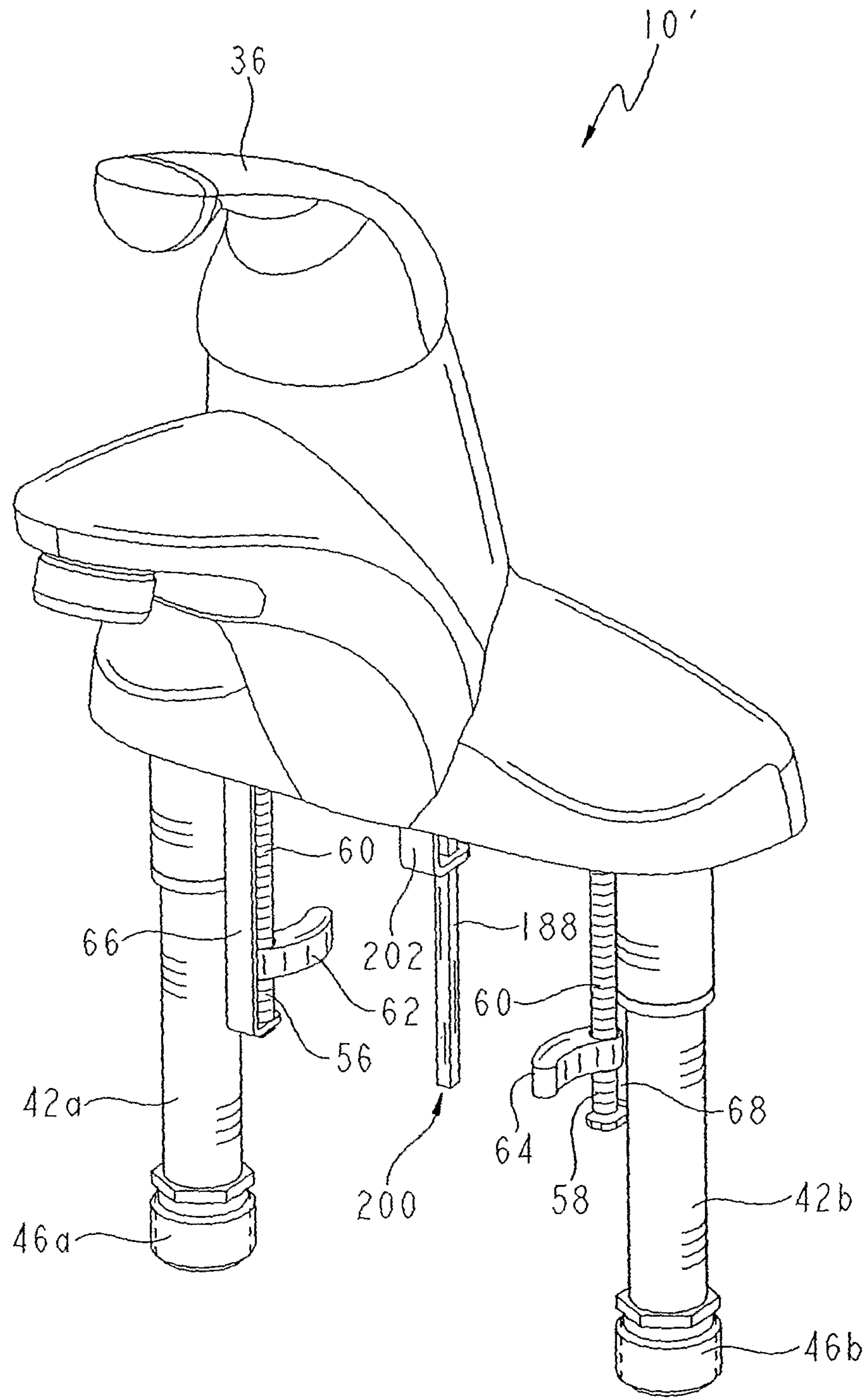
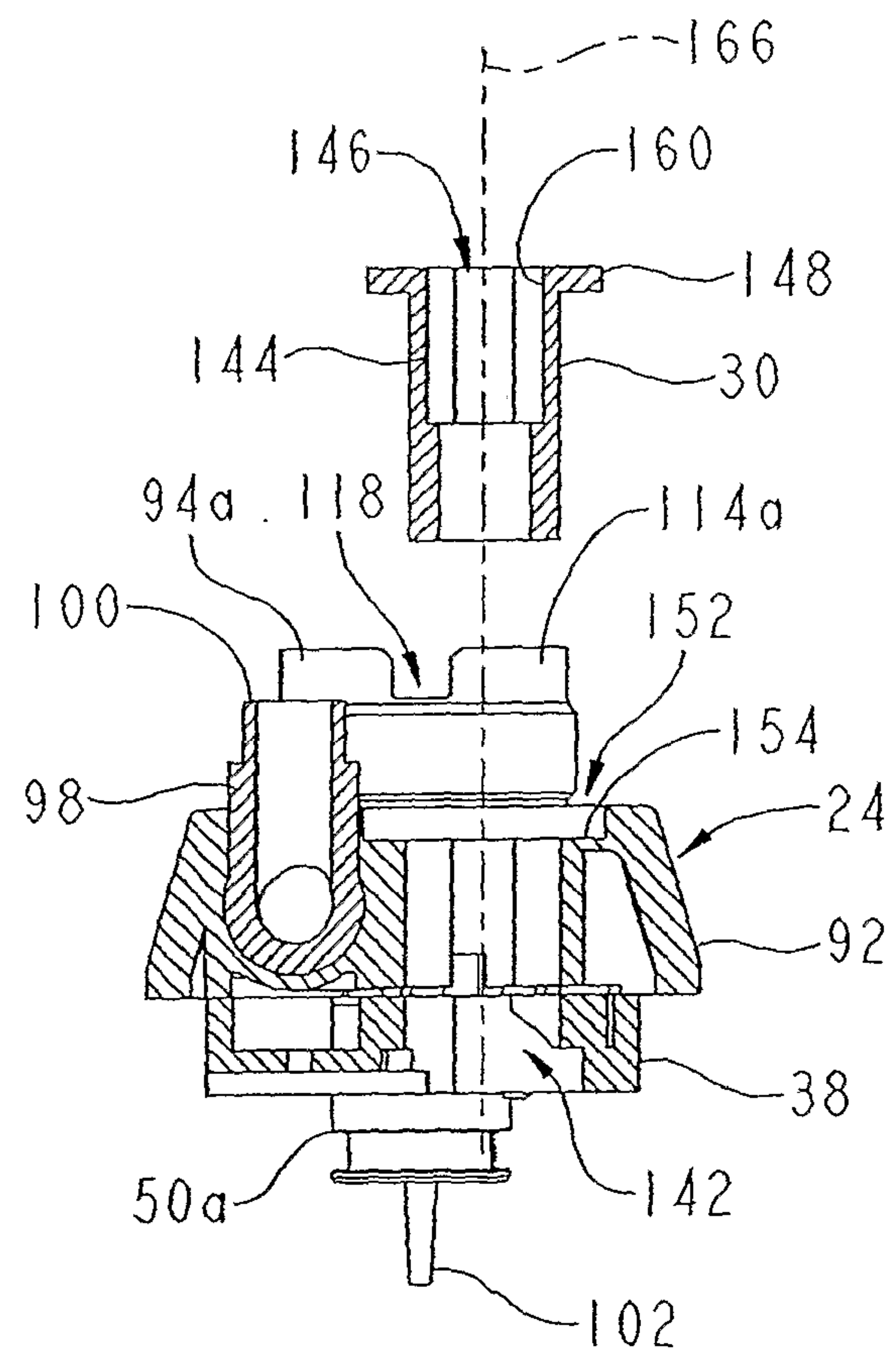
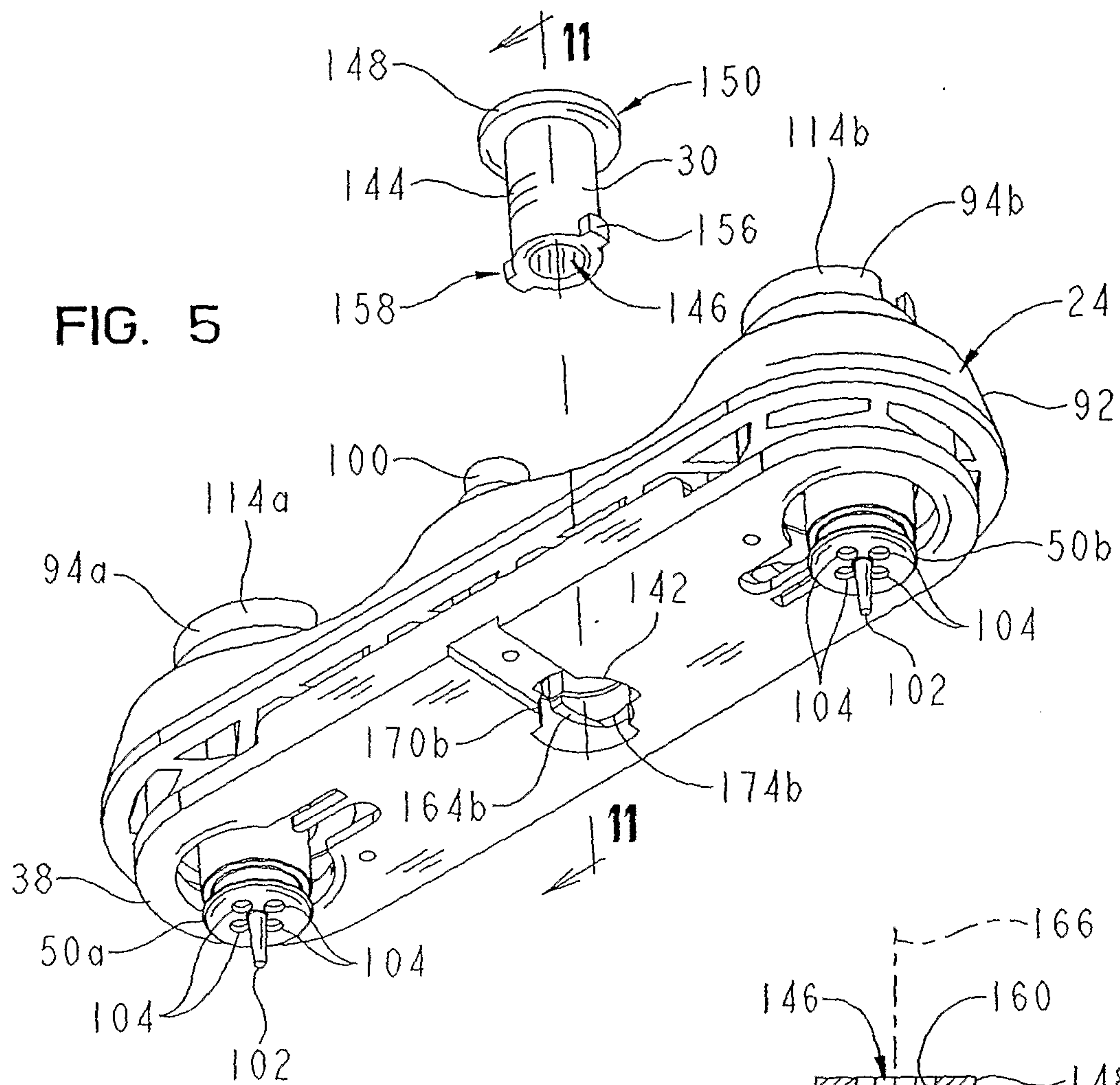


FIG. 4



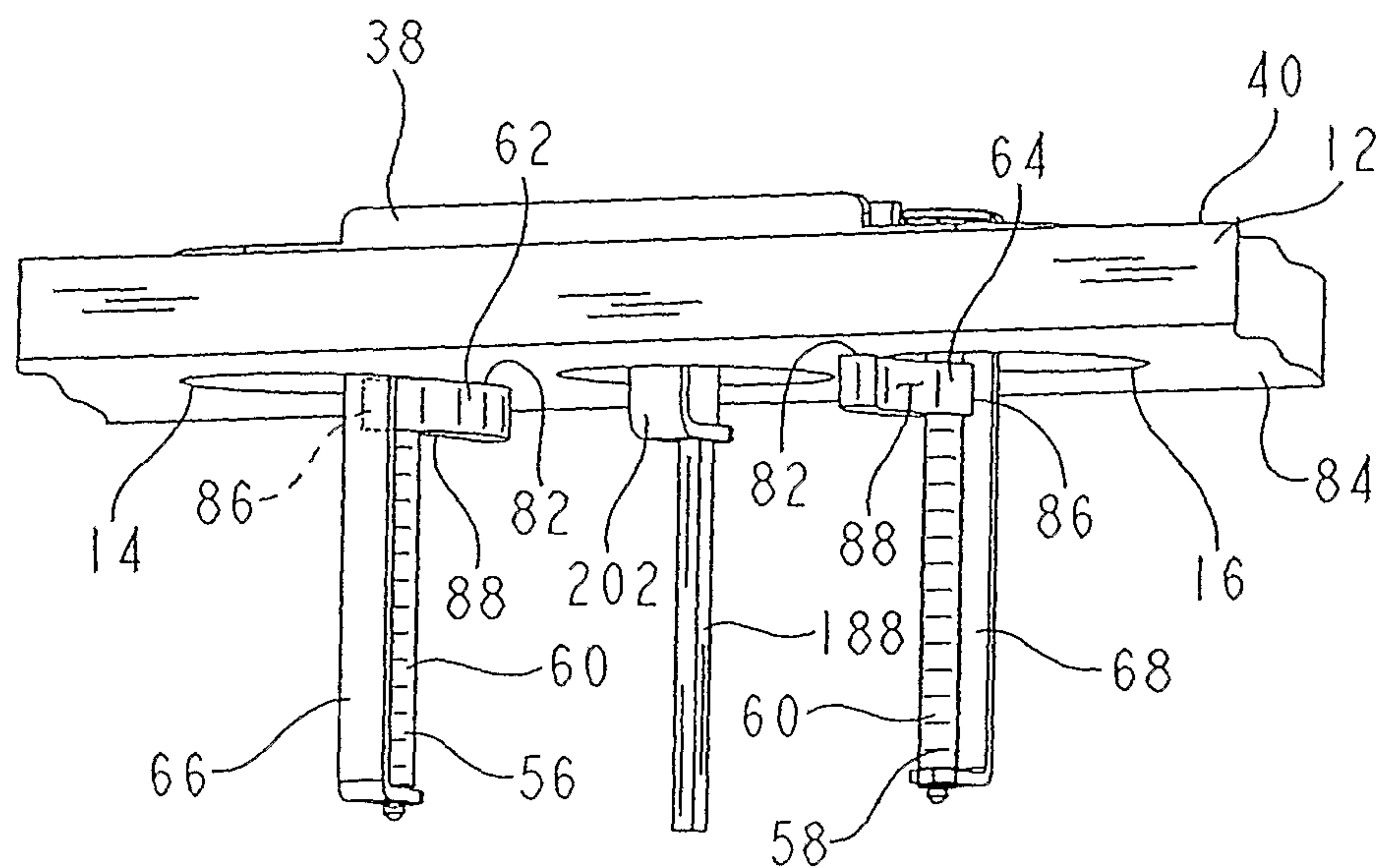


FIG. 6

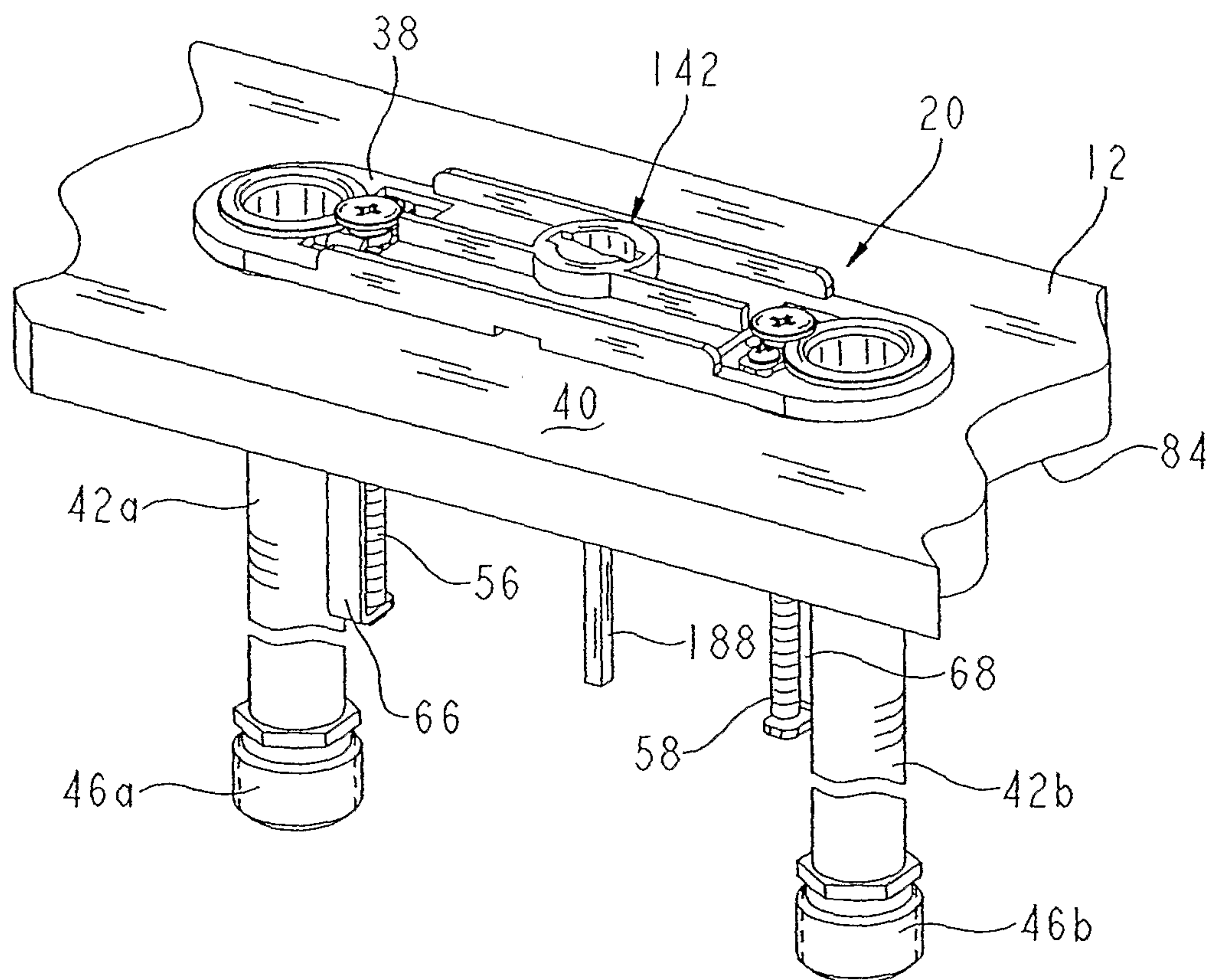


FIG. 7

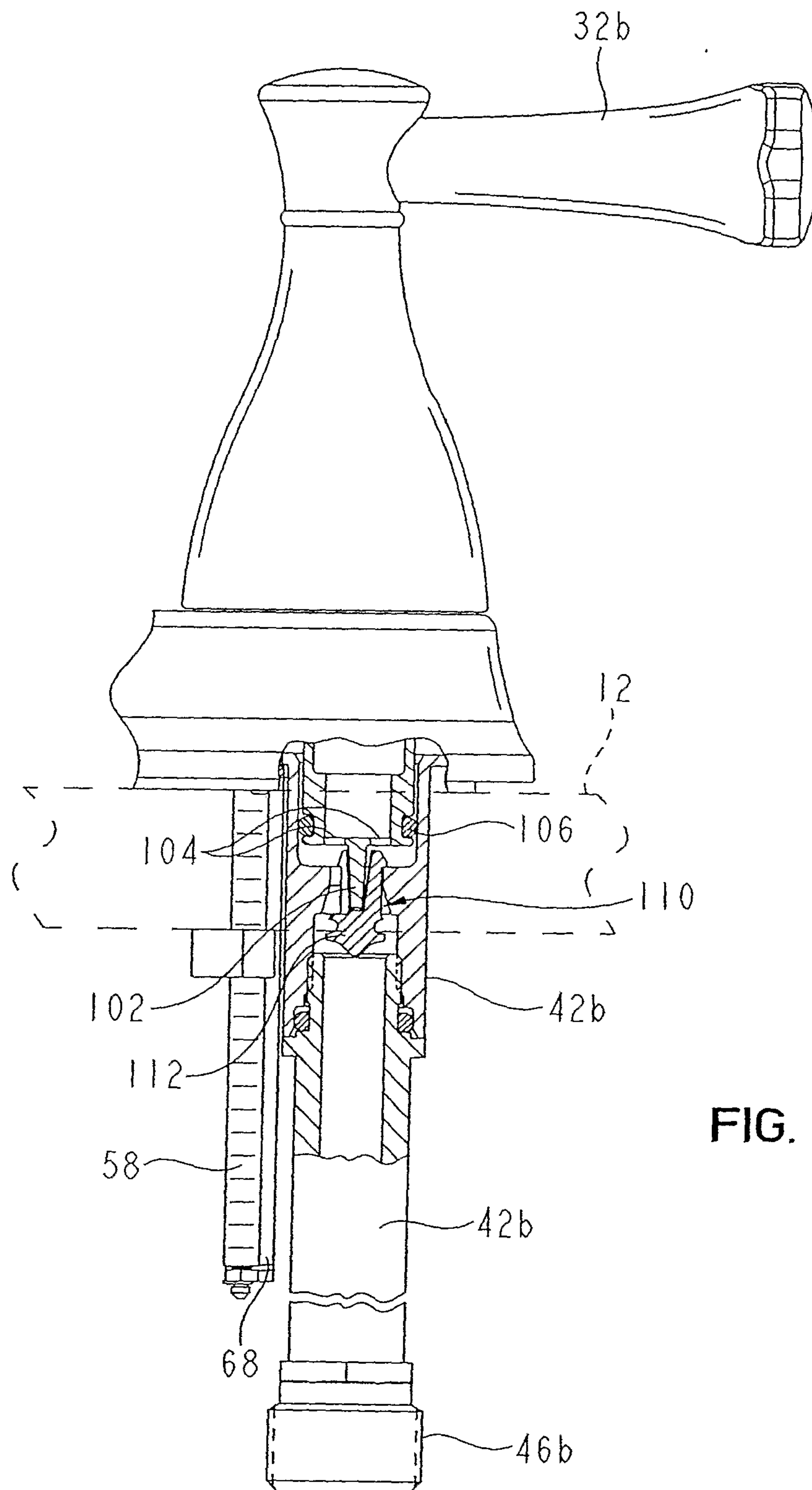


FIG. 8

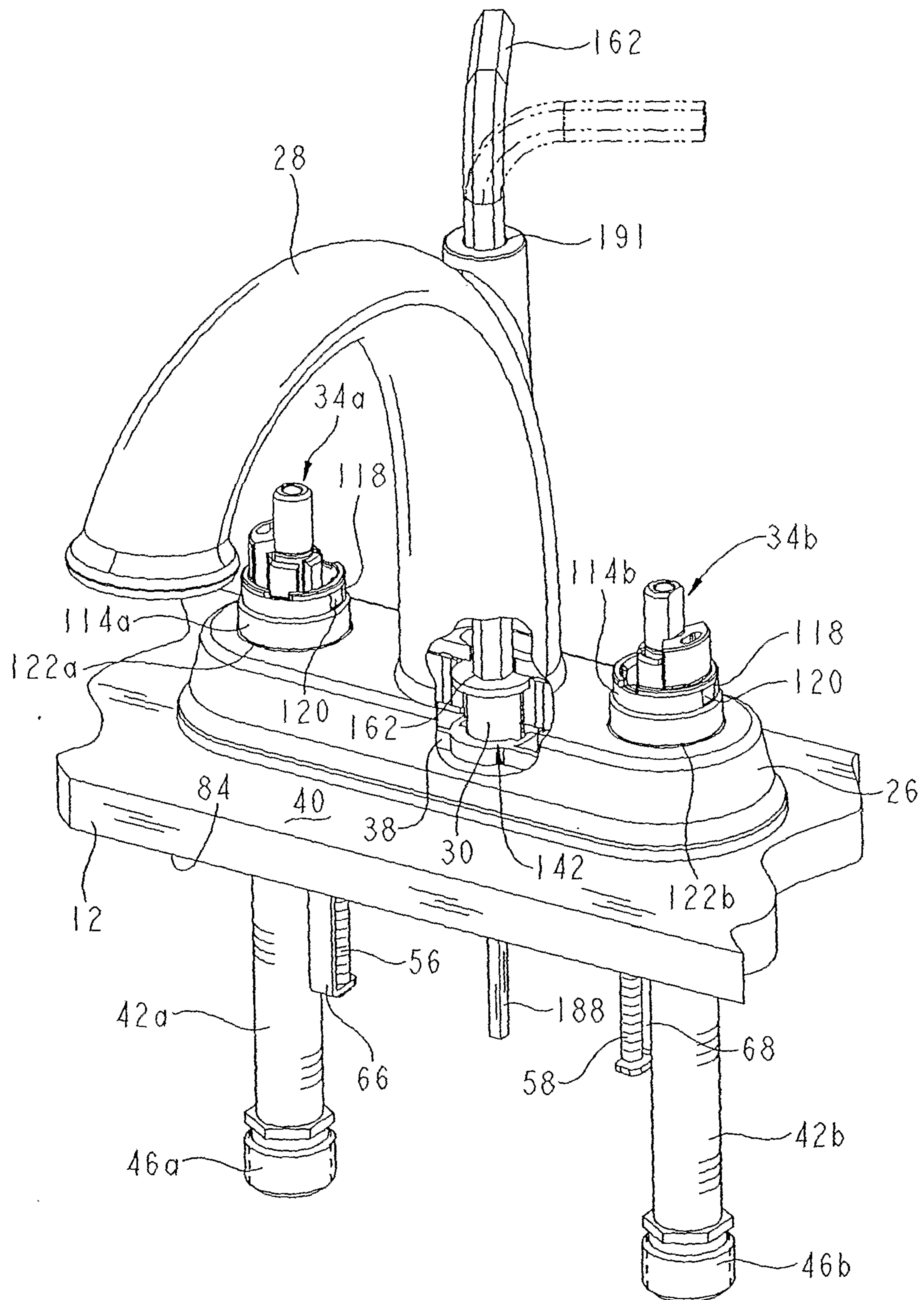


FIG. 9

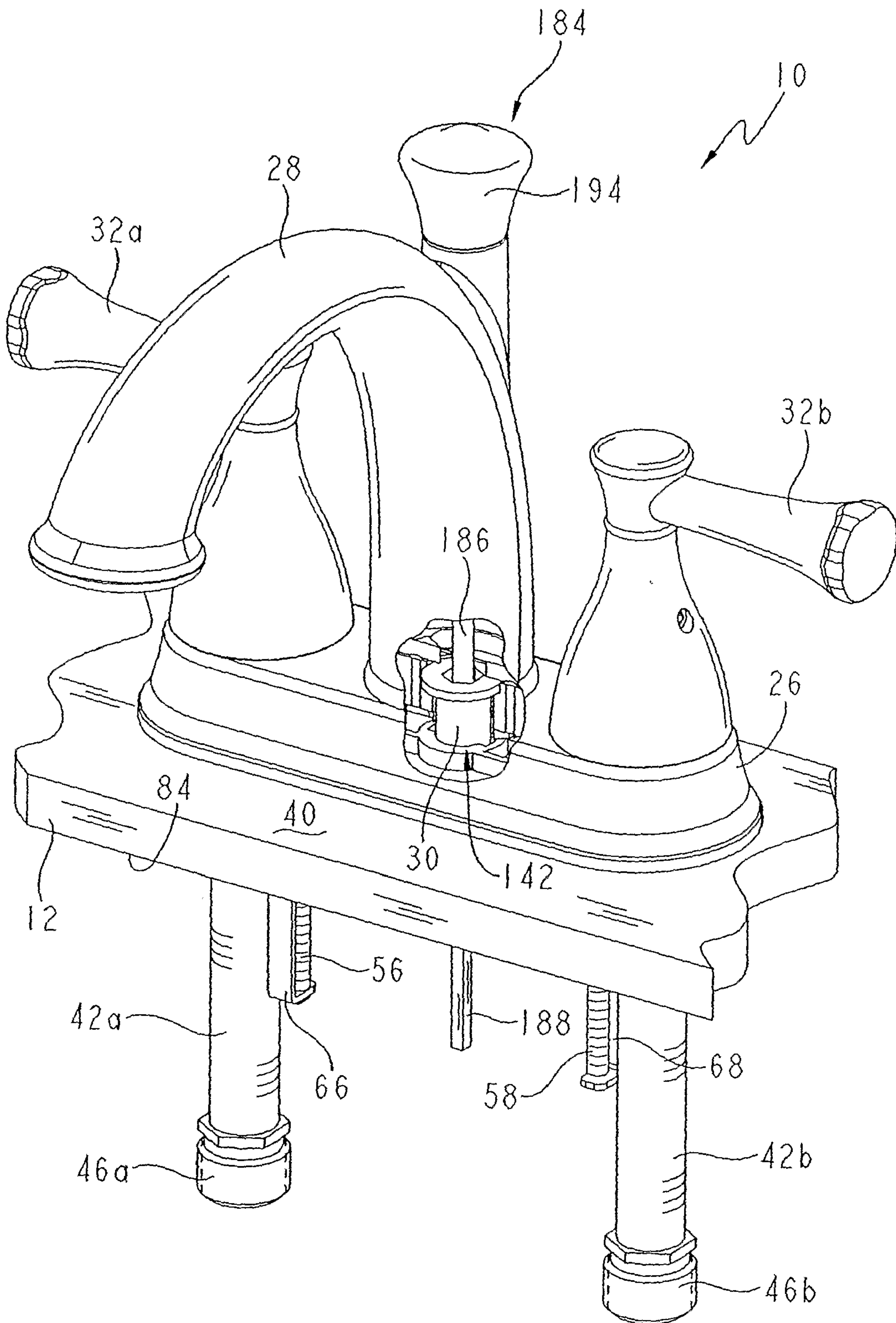


FIG. 10

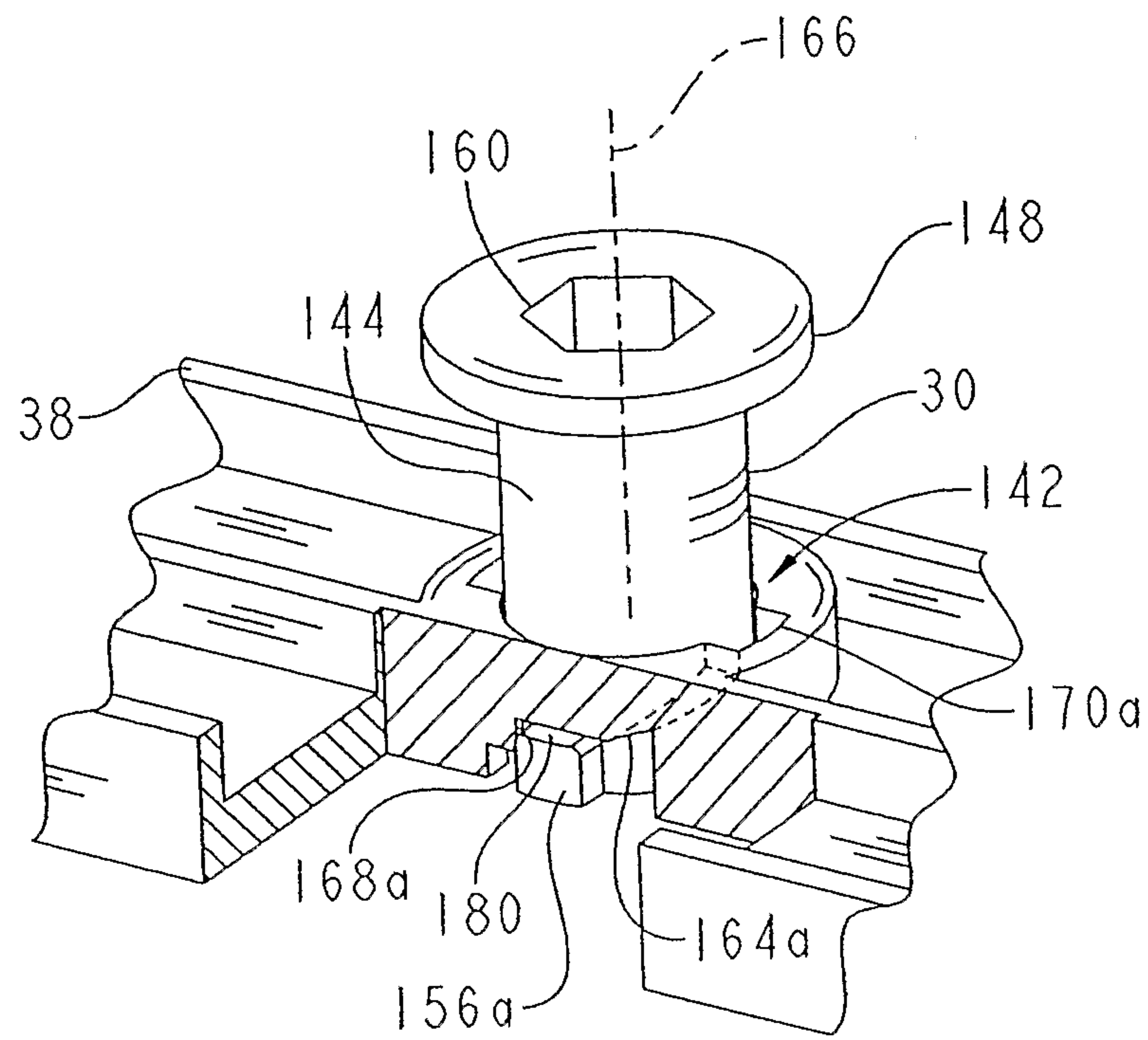


FIG. 14

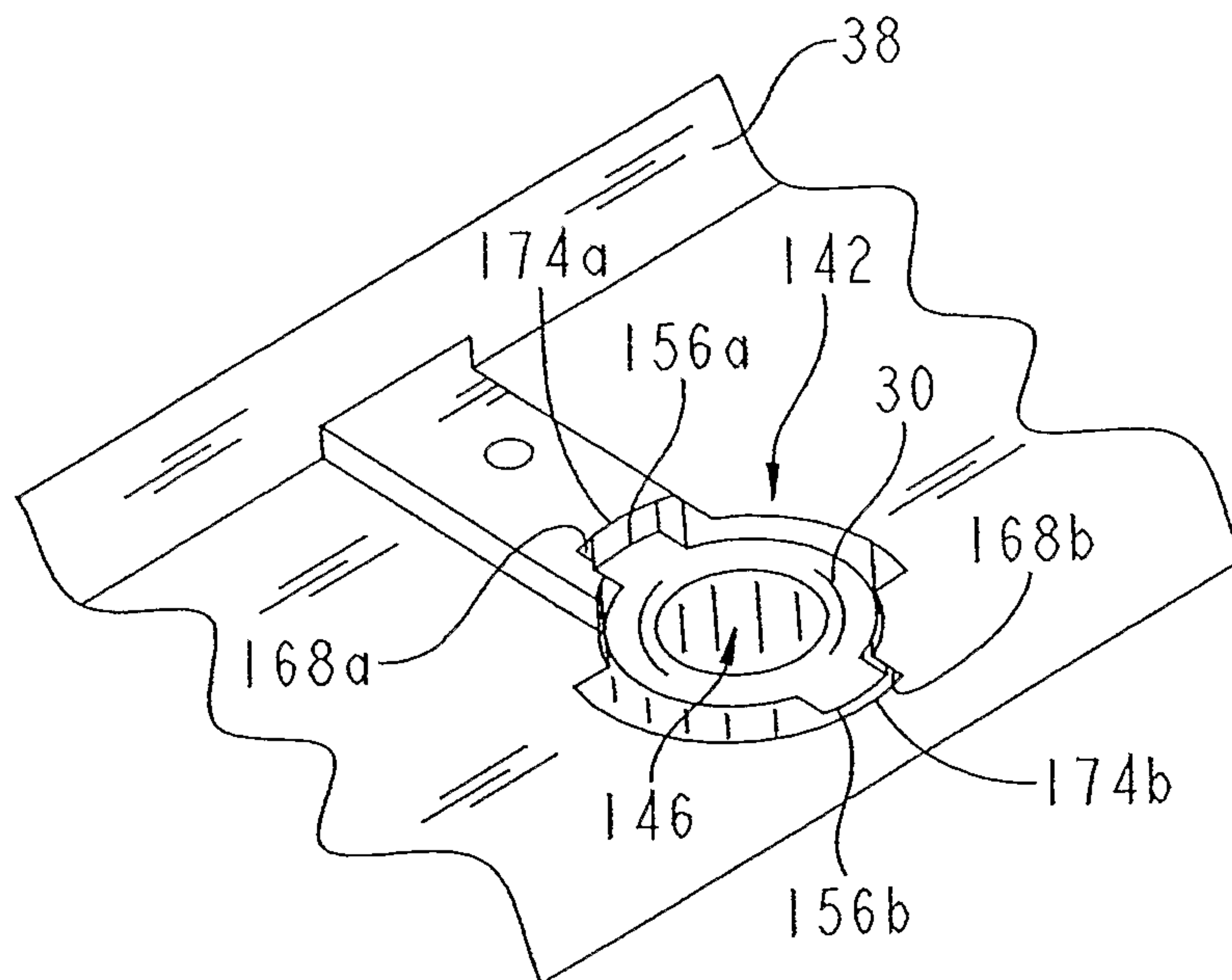


FIG. 15

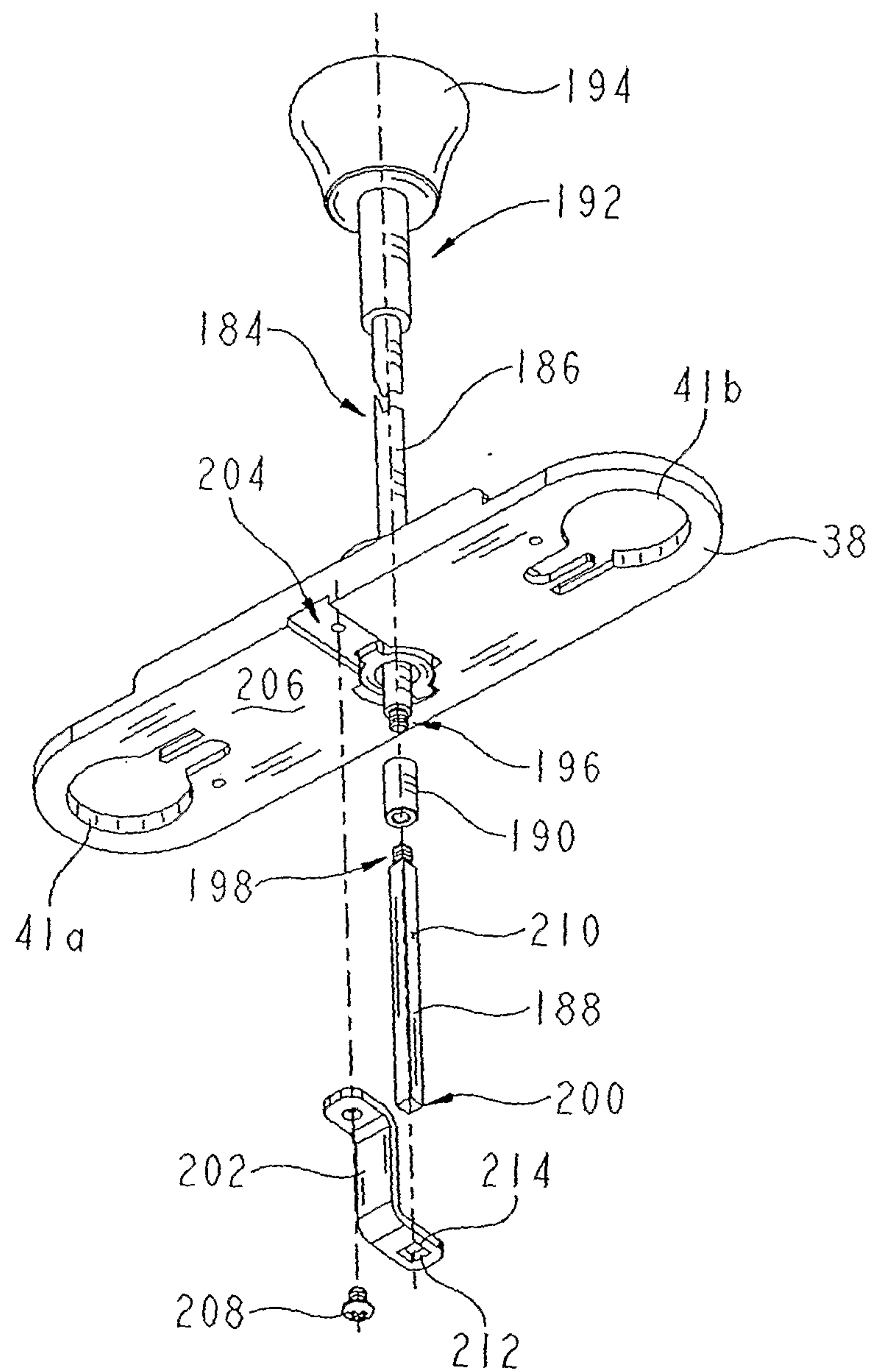


FIG. 16

