(12) UK Patent Application (19) GB (11) 2 369 651 (13) A

(43) Date of A Publication 05.06.2002

(21) Application No 0112298.5

(22) Date of Filing 21.05.2001

(30) Priority Data
(31) 0012177 (32) 20.05.2000 (33) GB

(71) Applicant(s)
Roman Limited
(Incorporated in the United Kingdom)
Whitworth Avenue, Aycliffe Industrial Park,
CO DURHAM, DL5 6YN, United Kingdom

(72) Inventor(s)
Richard Wayne Hindmarch

(74) Agent and/or Address for Service
Sceptre
373 Scotland Street, GLASGOW, G5 8QA,
United Kingdom

(51) INT CL[7]
E05F 1/06 , A47K 3/28 , E05D 5/02

(52) UK CL (Edition T)
E2F FAD FCD
A4N NSB

(56) Documents Cited
GB 2209794 A
EP 0693607 A
US 3858274 A
EP 0777027 A
US 5613276 A

(58) Field of Search
UK CL (Edition S) A4N NSB , E2F FAA FAD FCD
INT CL[7] A47K 3/28 3/36 , E05D 5/02 , E05F 1/02 1/04 1/06
Online: EPODOC, JAPIO, WPI

(54) Abstract Title
Rising hinge for a shower enclosure

(57) A rising hinge for a shower enclosure door 2 comprises a pin 8 incorporated into the shower tray 2 and a hinge means 9. The hinge means 9 comprises a shaft 16, locatable on the pin 8, and having an external helical bearing surface 18 and a bush 19, locatable on the shaft 16 and having an internal helical bearing surface 17. The internal bearing surface 17 of the bush 19 co-operates with the external bearing surface 18 of the shaft 16 to raise the door 3 as it is moved from a closed to an open position. The pin 8 may be precision engineered in stainless steel. Also disclosed is shower cubicle comprising the hinge assembly where the pin is integral to the shower tray and a method of fitting a shower enclosure comprising the step of incorporating the pin of the hinge in the shower tray prior to installation.

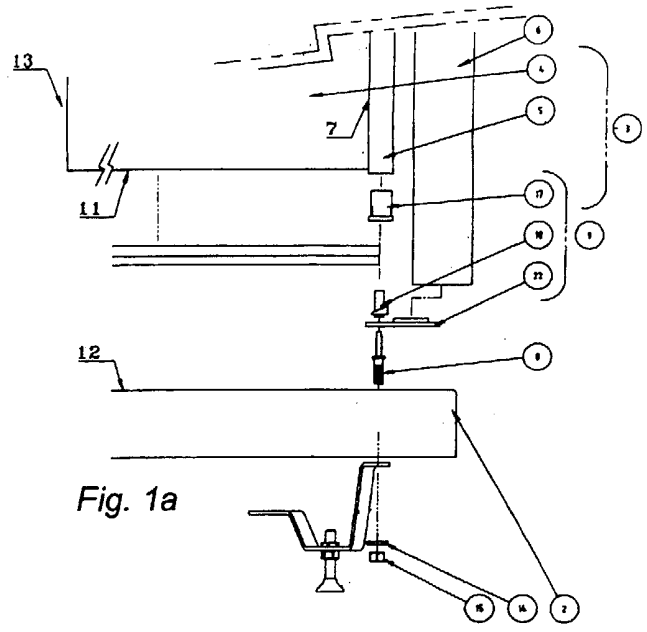


Fig. 1a

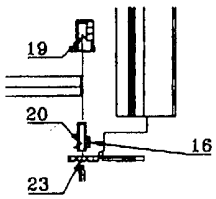


Fig. 1b

GB 2 369 651 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

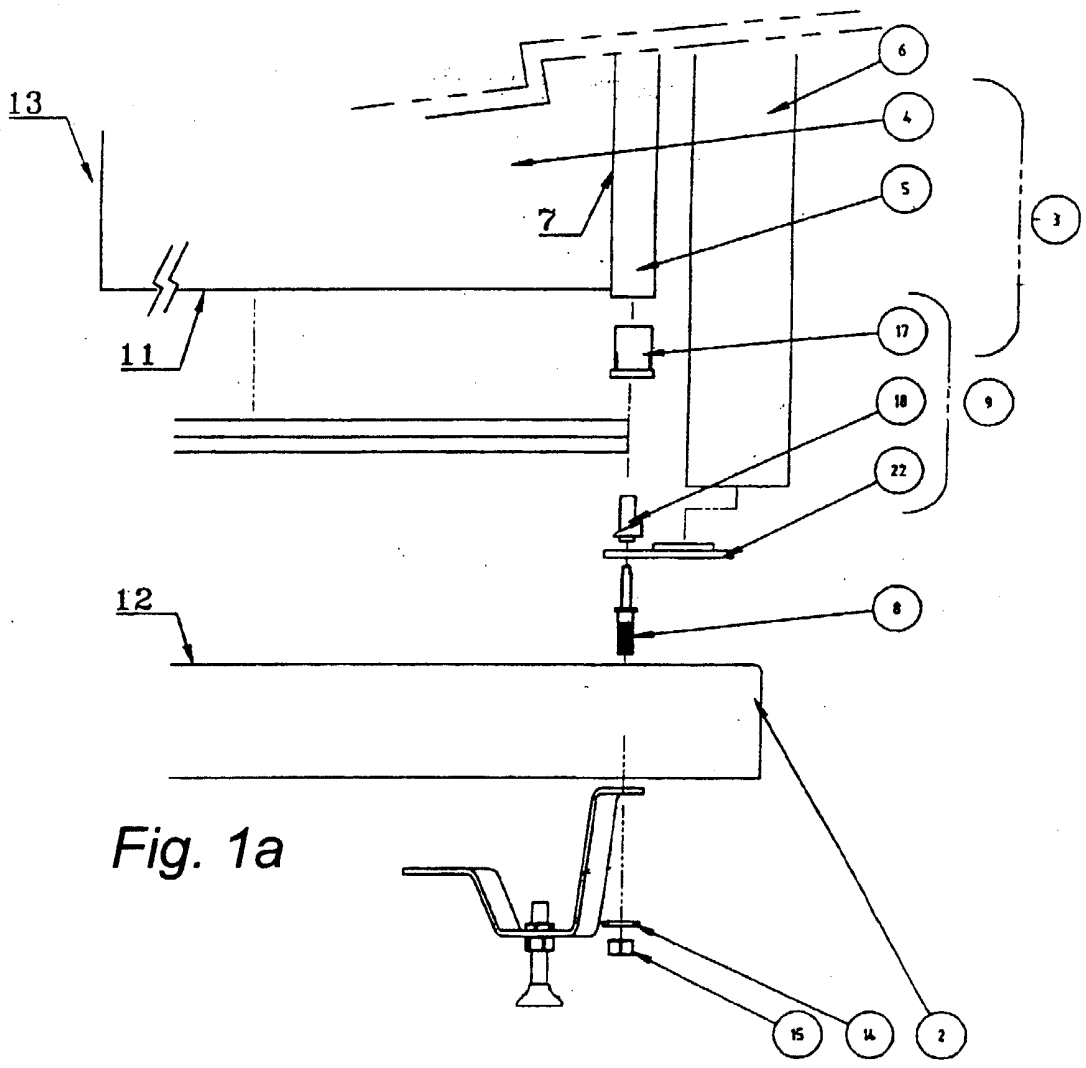


Fig. 1a

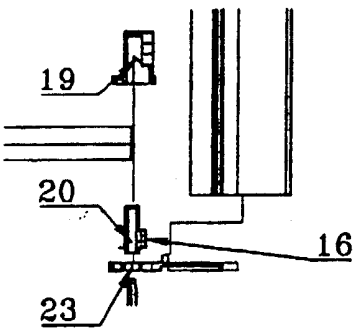


Fig. 1b

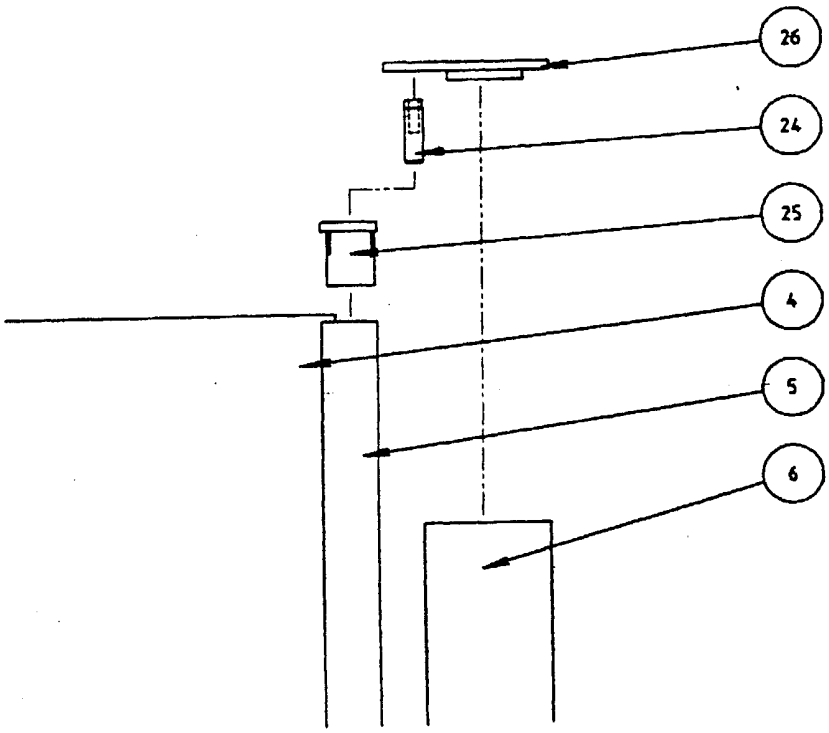


Fig. 1c

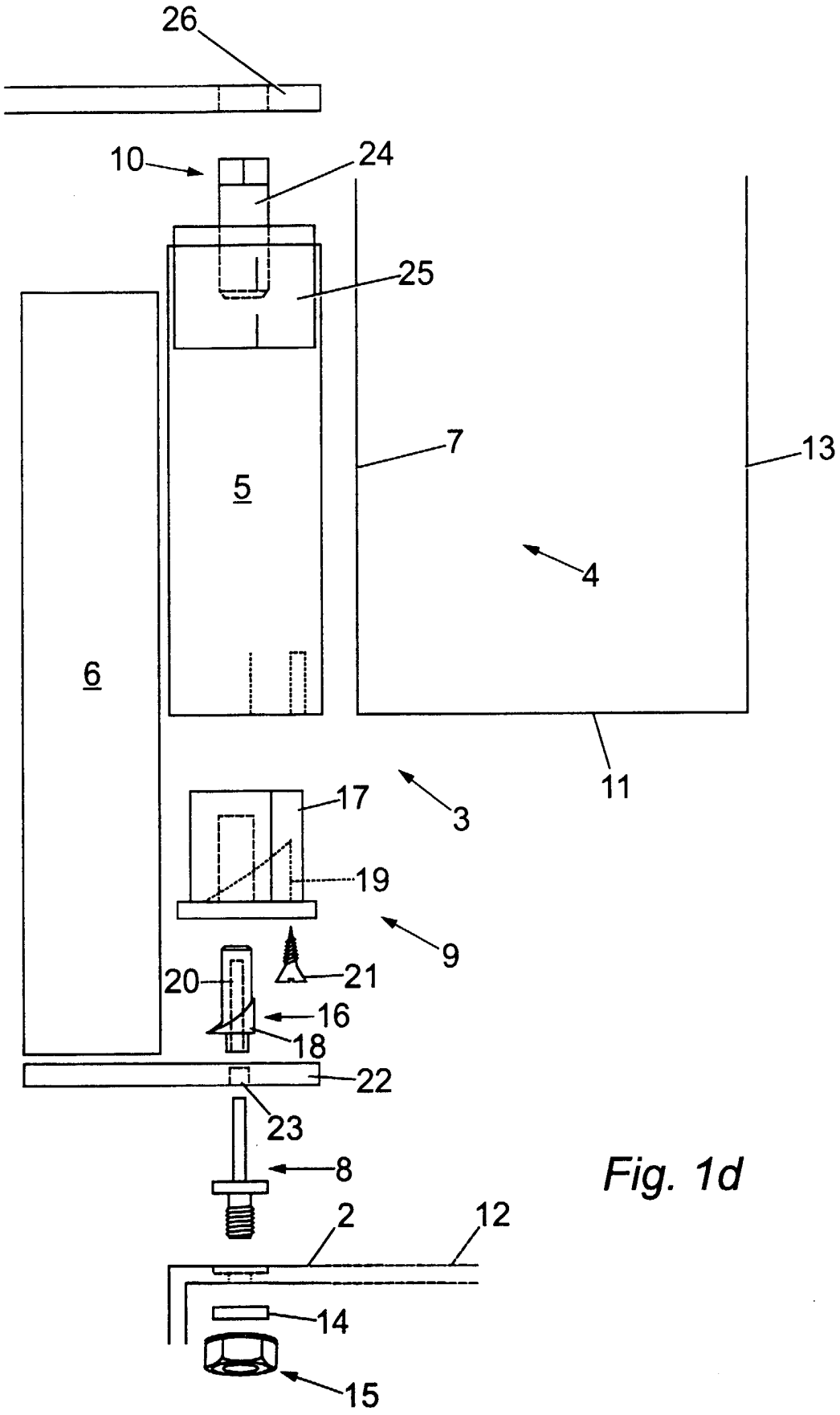


Fig. 1d

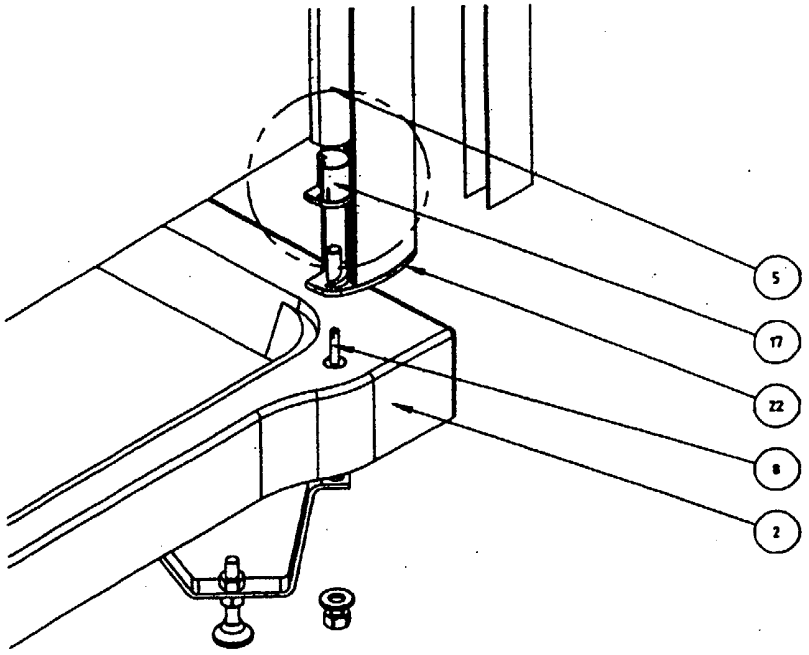


Fig. 2a

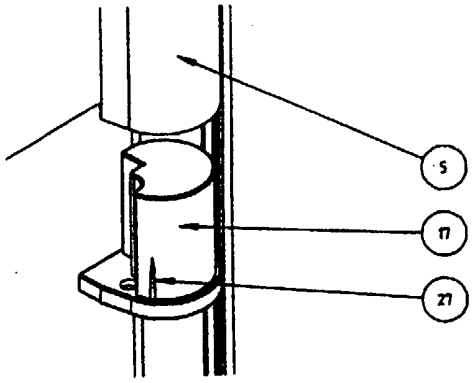


Fig. 2b

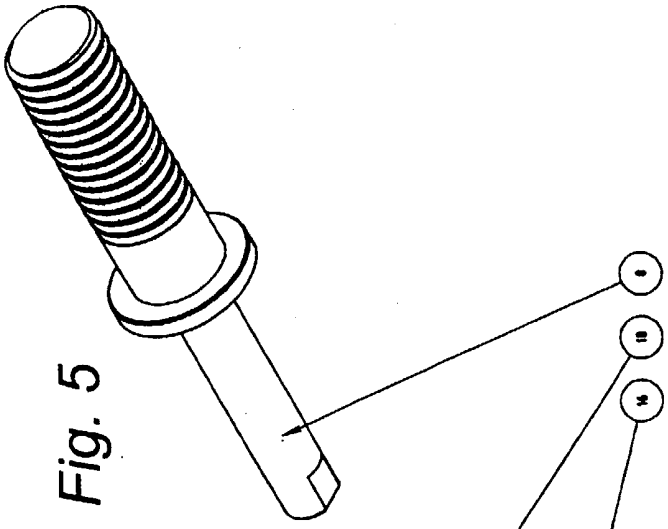


Fig. 5

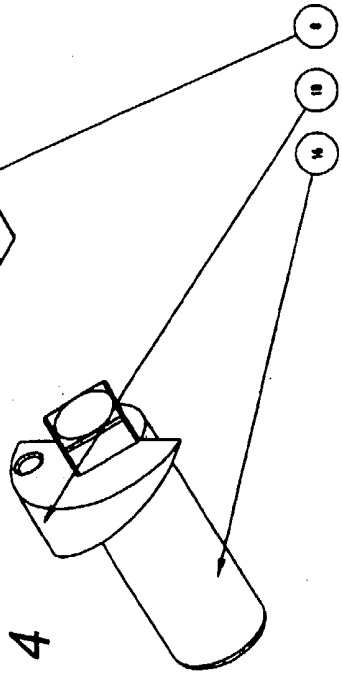


Fig. 4

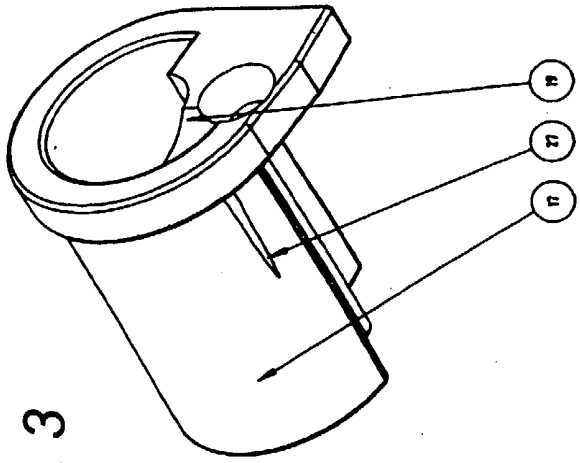


Fig. 3

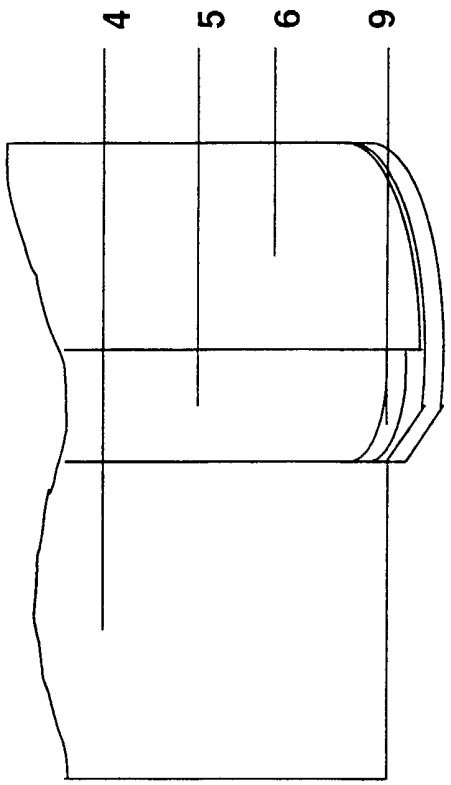


Fig. 6

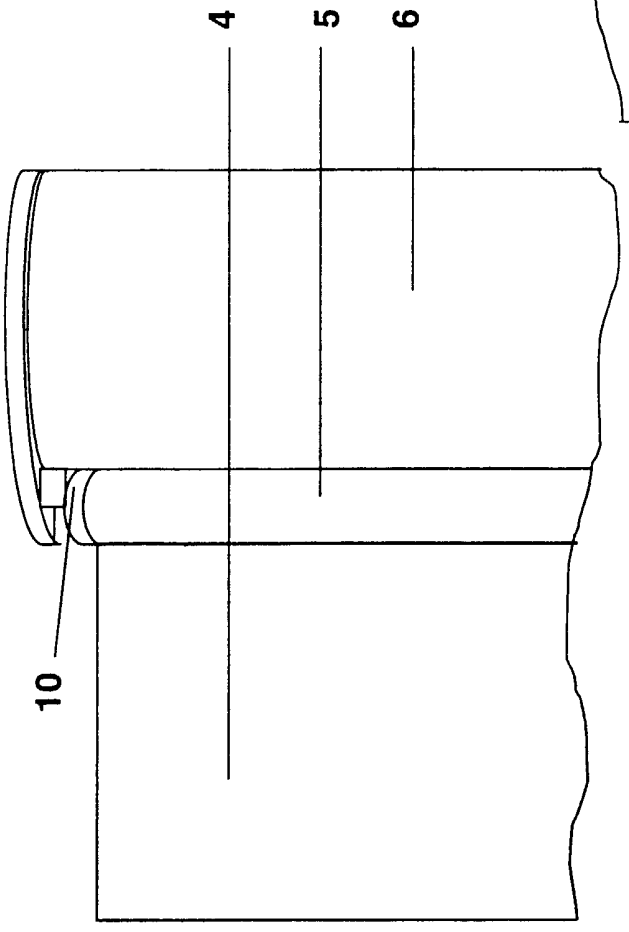


Fig. 11

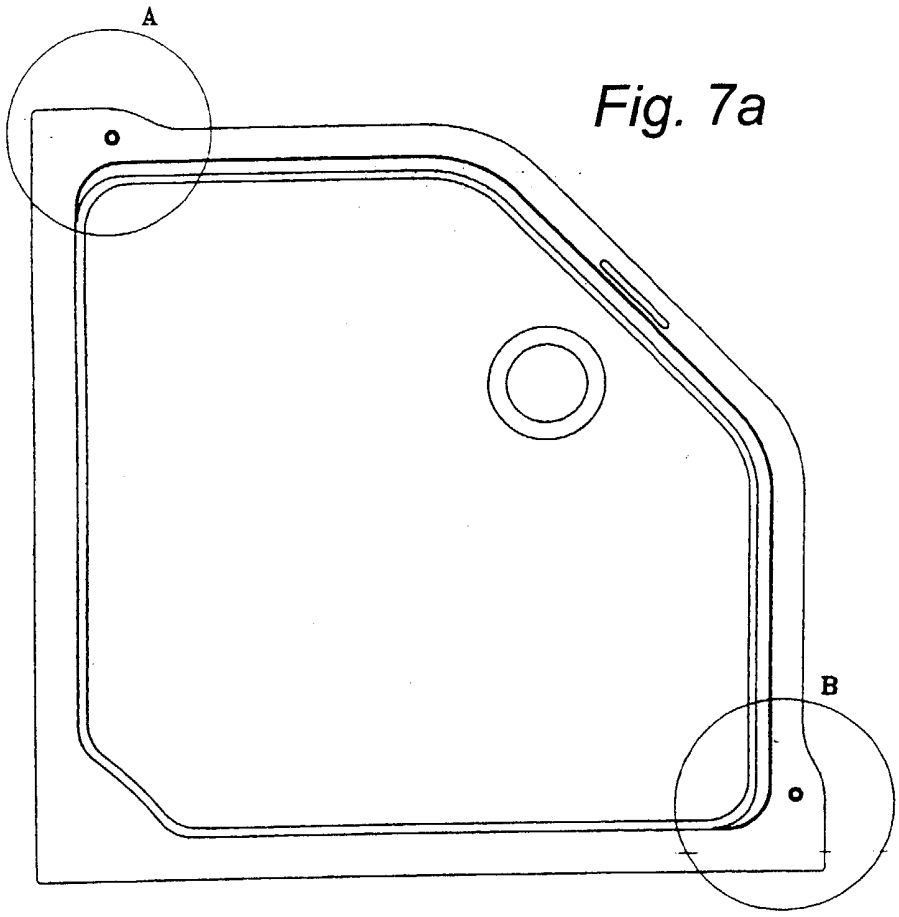


Fig. 7a

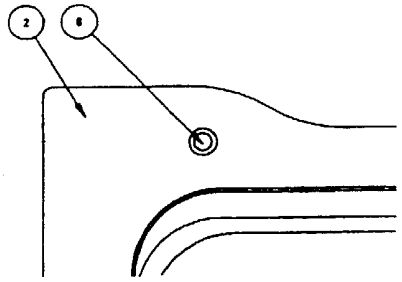


Fig. 7b

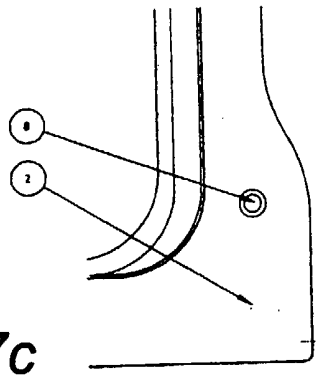


Fig. 7c

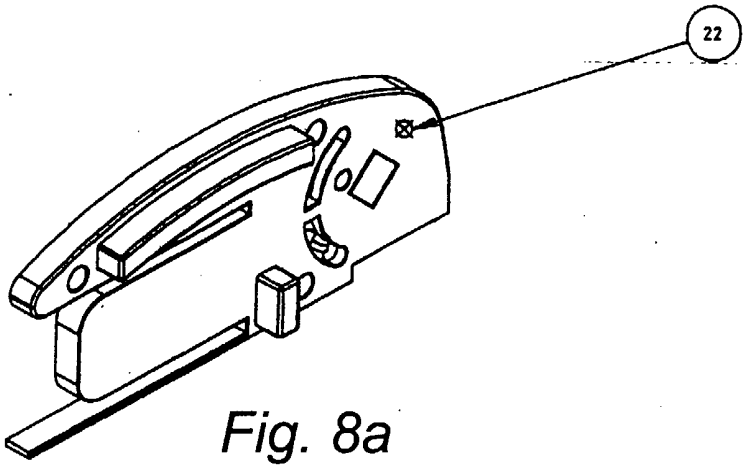


Fig. 8a

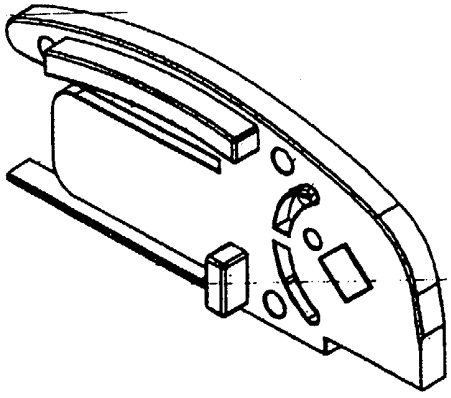


Fig. 8b

Fig. 10

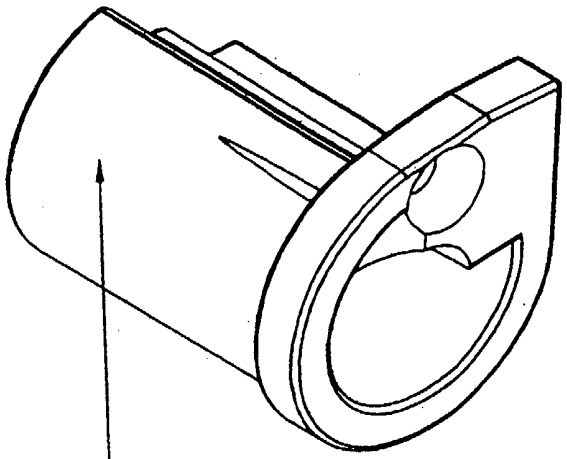
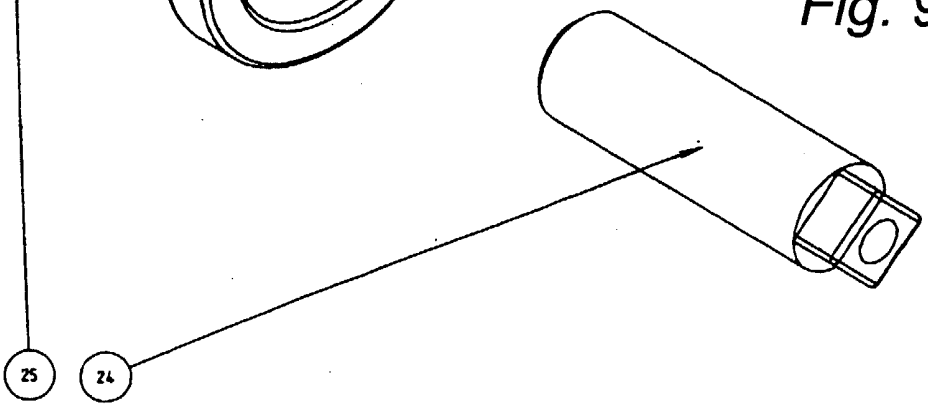


Fig. 9



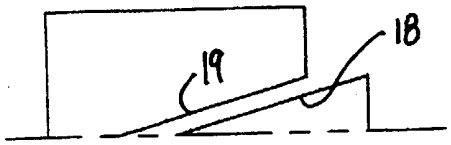


Fig. 12a

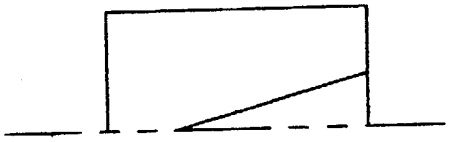


Fig. 12b

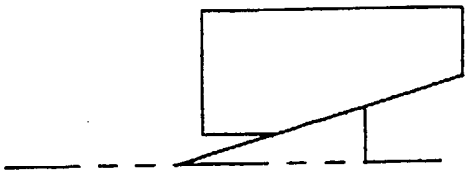


Fig. 12c

Fig. 12d

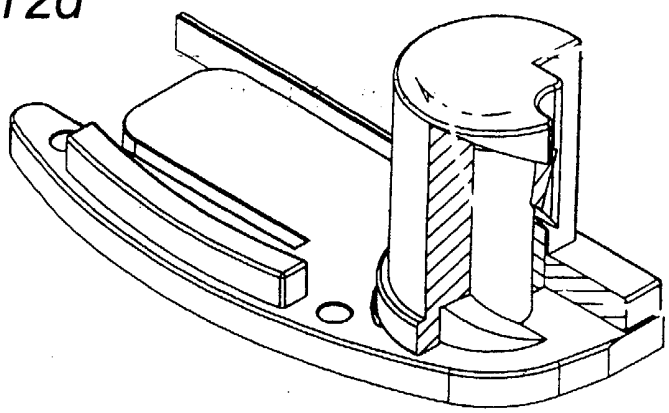


Fig. 12e

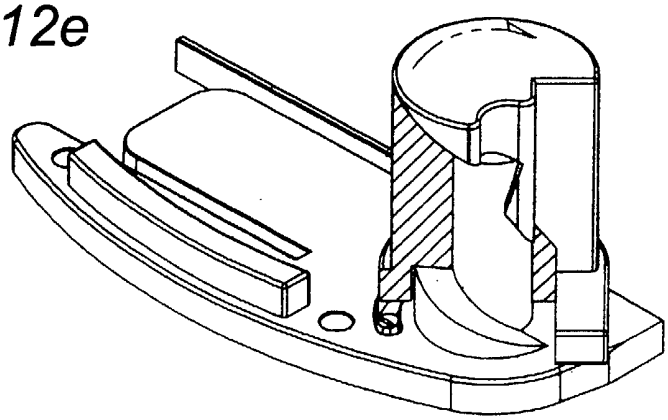
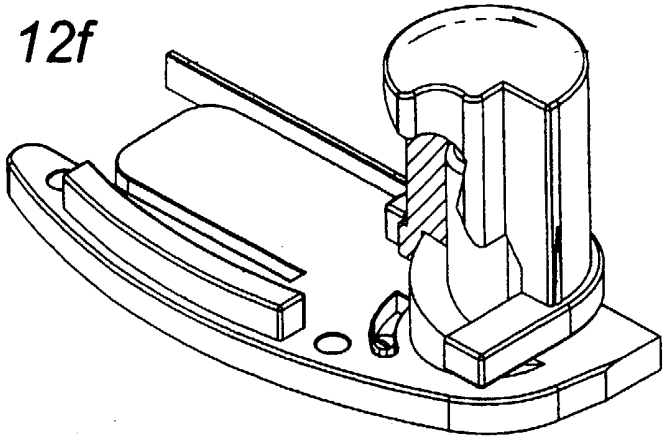


Fig. 12f



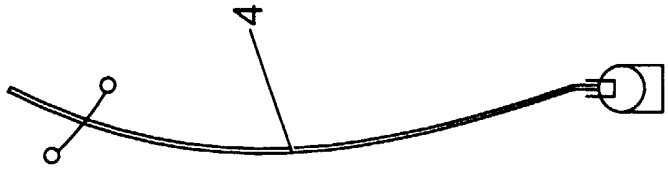


Fig. 14

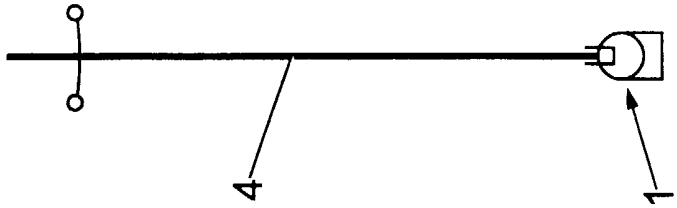


Fig. 13

Fig. 15

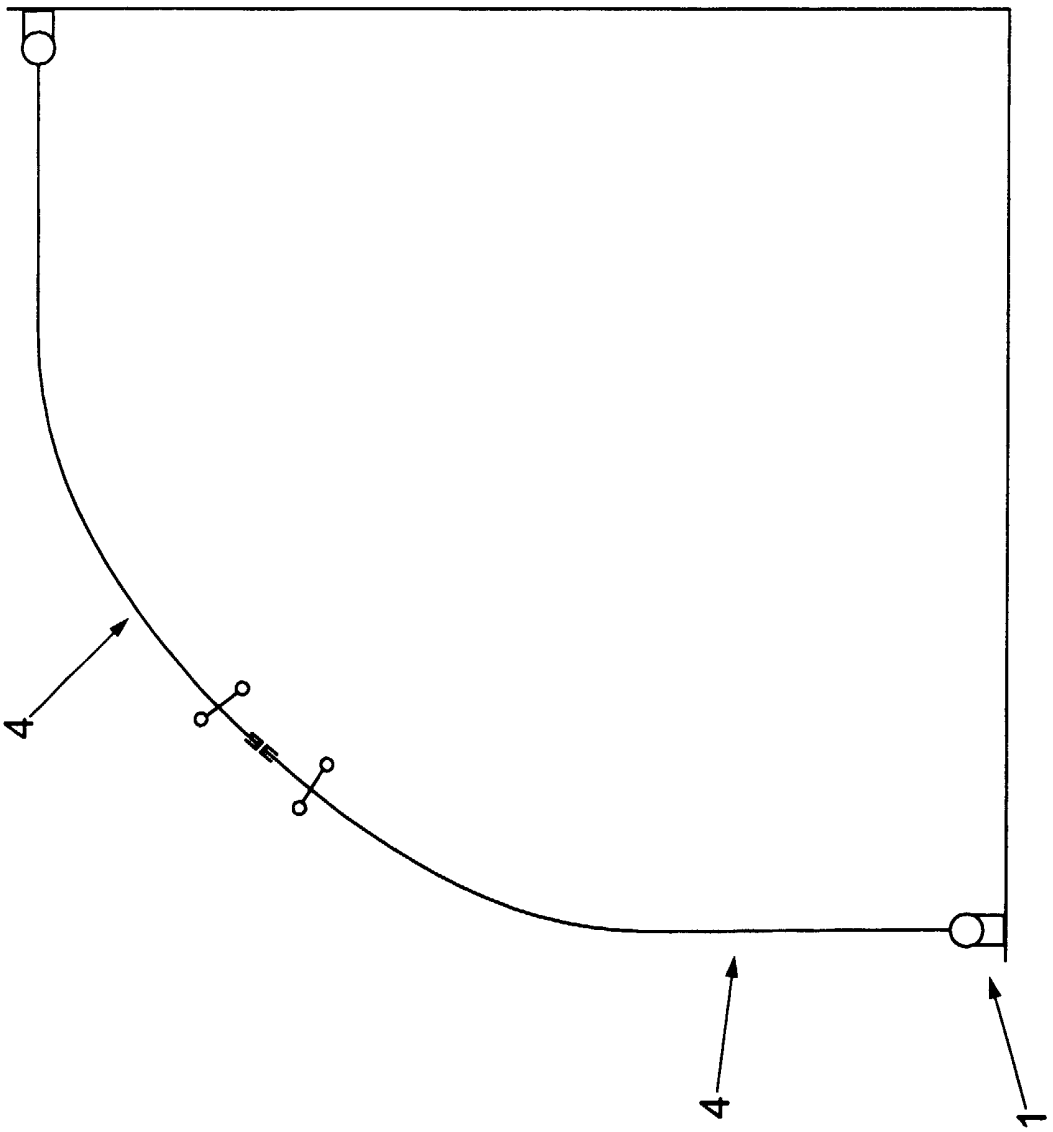
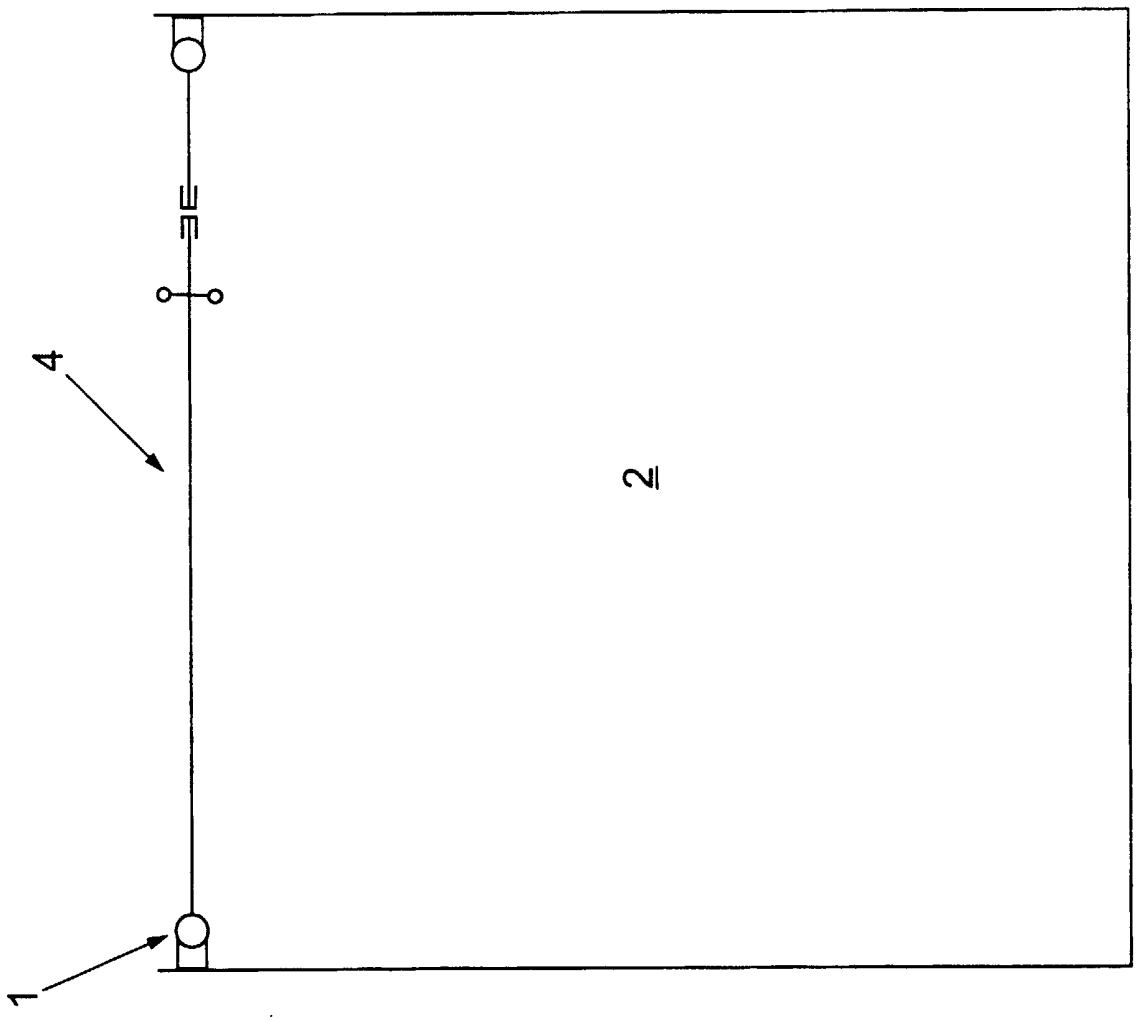


Fig. 16



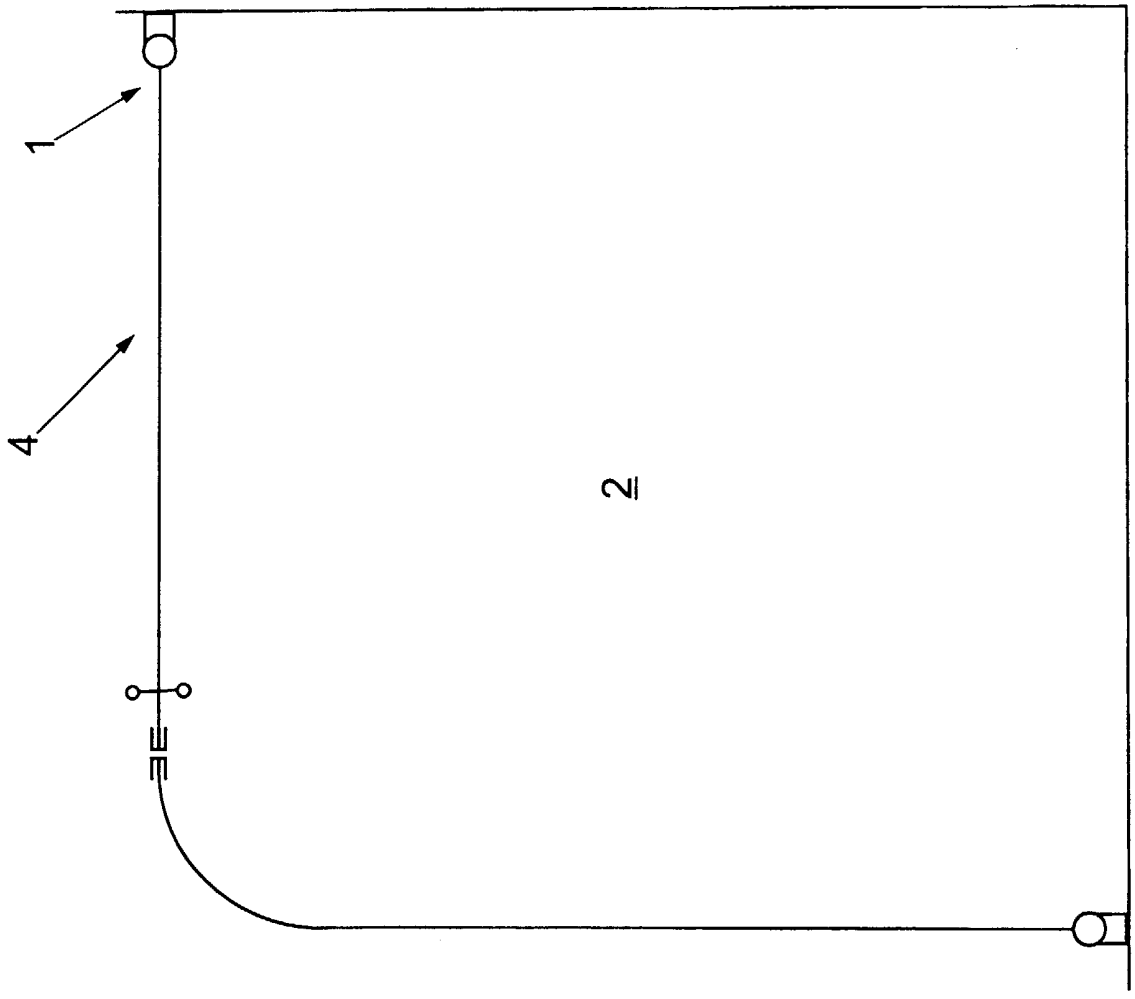
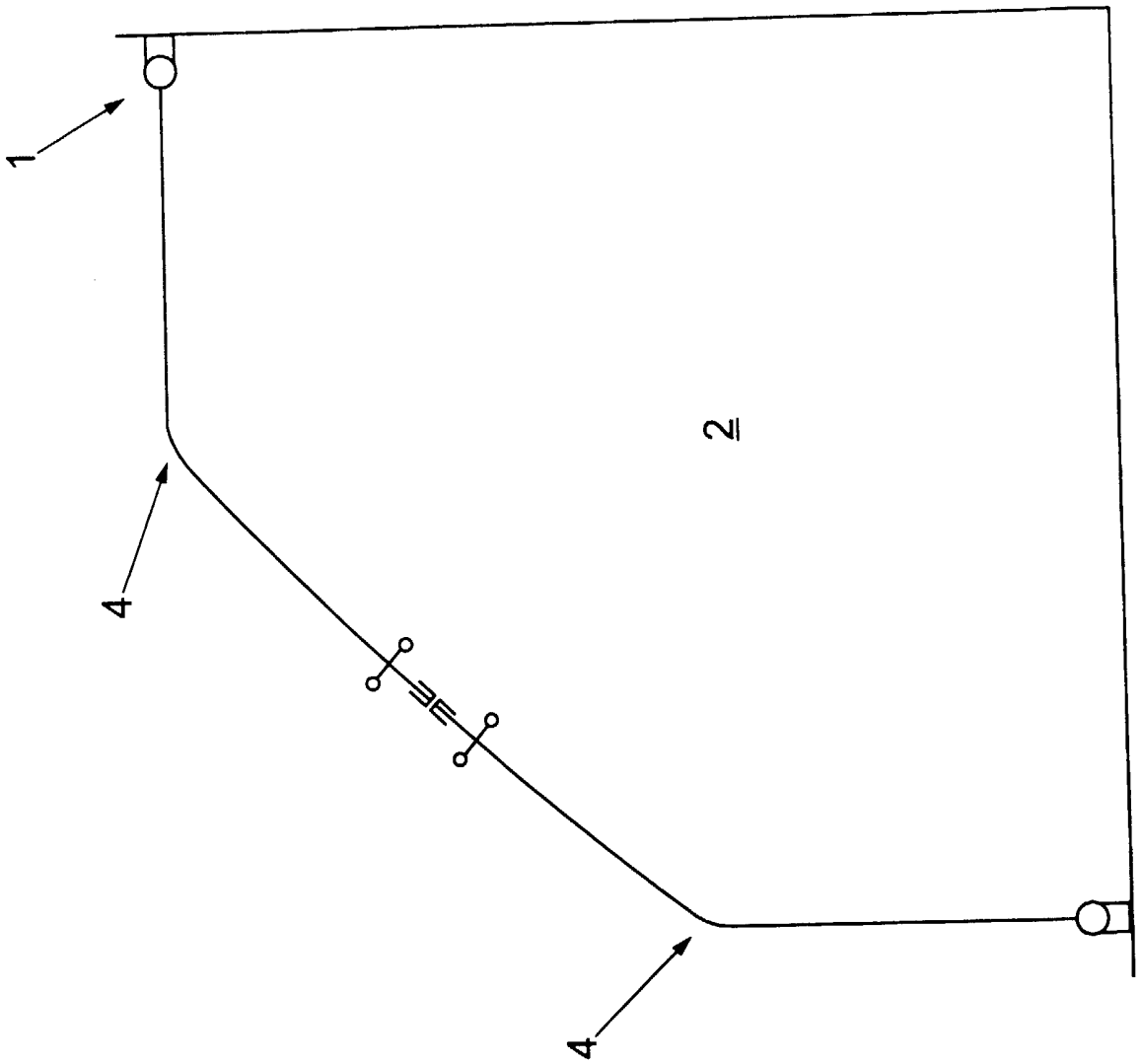


Fig. 17

Fig. 18



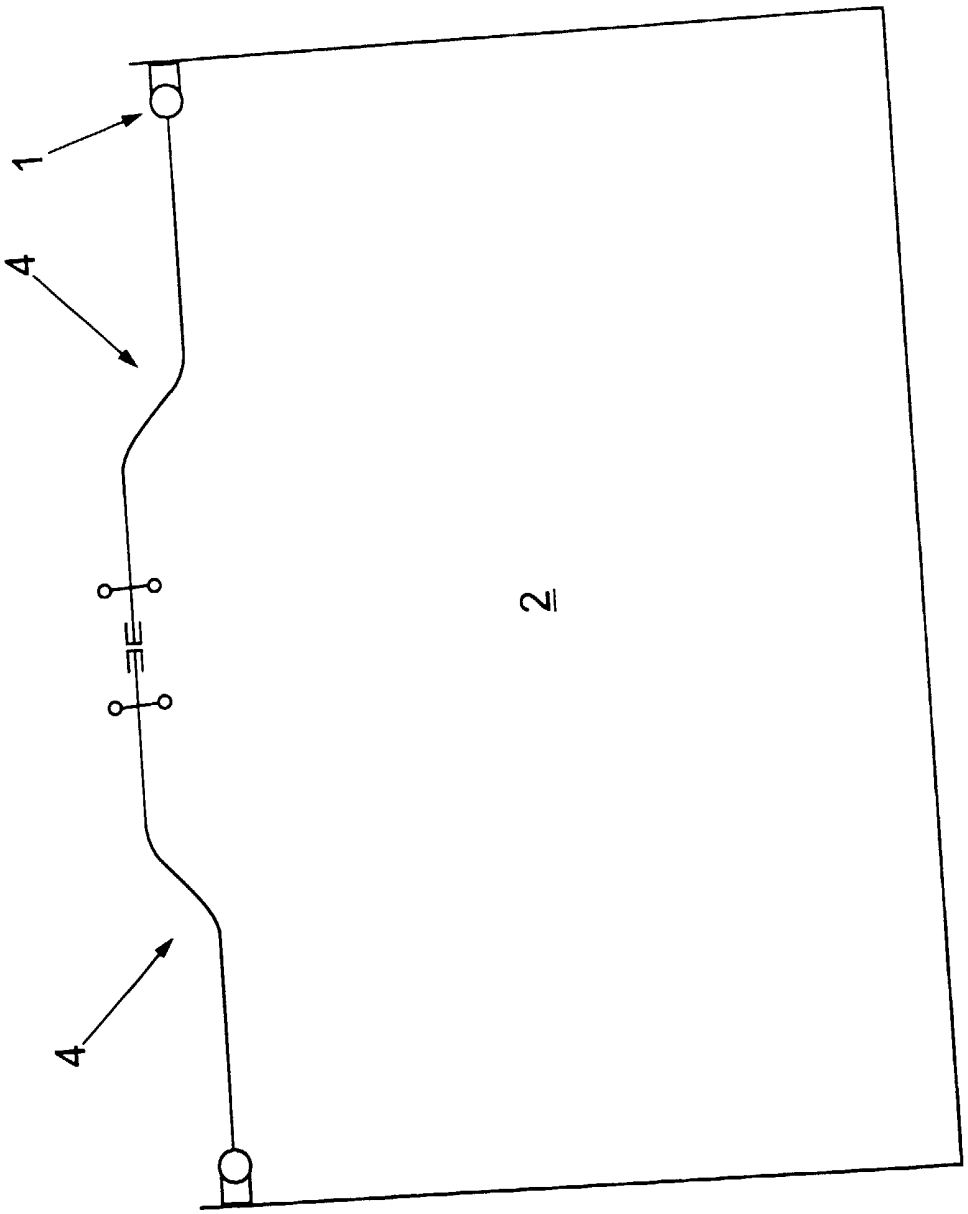


Fig. 19

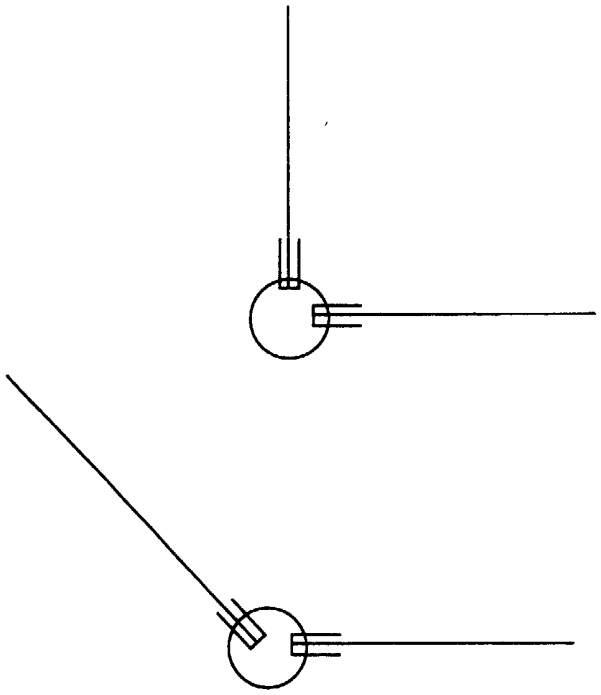


Fig. 20

Hinge assembly

This invention relates to a hinge assembly. In particular this invention relates to a hinge assembly for a shower enclosure, and to a shower enclosure incorporating a hinge assembly.

When installed, a shower cubicle normally includes a showerhead, a shower tray and a shower enclosure. The showerhead and shower tray are normally provided by a manufacturer of sanitaryware, and fitted by a plumber.

To complete the shower cubicle, a shower enclosure including a door panel is selected from a range manufactured by a third party, and fitted on the shower tray once the tray is *in situ*. Such an enclosure is notoriously difficult to align with respect to the plumbed-in shower tray for installation, and the junction between enclosure and tray is unlikely to be watertight.

If a frame is first fitted to the shower tray to support the shower enclosure, this helps in location of the enclosure. If a frame is present, it at least provides a reference against which to install the enclosure.

However, such a frame is cumbersome and unsightly. Shower enclosures without a frame, which must therefore be joined to a wall, are much more difficult to install. Such an enclosure is made up of a panel or panels, one or more of which is adapted to be hingeably attached to an upright. Each hingeable panel hangs on hinges and acts as a door moveable between a closed position in which it encloses the cubicle, and an open position in which it allows access to the cubicle. A problem with known enclosures is the failure of the hinged panels to meet each other or an upright, edge to edge. The cubicle is thus seldom watertight, even when installed by a trained and skilled craftsman.

In addition, the panels of the enclosure are normally of glass and thus of substantial weight. The considerable weight of a panel subjects its hinges to huge pressures, rendering the hinges liable to move, twist, or break.

According to an aspect of the present invention there is provided a hinge assembly for a panel of a shower enclosure comprising a pin configured for

incorporation in a shower tray; and first hinge means locatable on the pin.

Said hinge assembly may be a rising hinge.

Preferably said pin is of metal. More preferably said pin is of stainless steel. Said pin may be precision engineered.

Said first hinge means may further comprise a shaft means locatable on the pin. Said shaft means preferably has an external helical bearing surface along at least part of its circumference. Said shaft means is preferably of durable material. Said shaft means may be of acetal resin (POM).

Said first hinge means may further comprise a bush locatable on the shaft means. Said bush preferably has an internal helical bearing surface. Said bush is preferably of durable material. Said bush may be of acetal resin (POM).

Preferably said bush is configured to co-operate with said shaft means.

Typically said first hinge means is adapted to be incorporated in a lower part of said panel. Typically said pin and said first hinge means co-operate to provide a mechanical link between said tray and said shower enclosure.

Preferably said hinge assembly further comprises second hinge means comprising a bush adapted for fixation to an upper part of said panel. Said bush may have an internal bearing surface. Said bearing is preferably of acetal resin (POM).

Typically said second hinge means further comprises a shaft means. Said shaft means may be adapted for fixation to a wall fixing and be locatable adjacent the upper part of said panel. Said shaft means may be a metal pin. Preferably said shaft means is a stainless steel pin.

Said bush is preferably configured for location on said shaft means. Typically said bush is configured to rotate on said shaft means.

Typically said bush is adapted to be incorporated in an upper part of said panel.

Said panel is preferably moveable between a first, closed, position and a second, open, position.

Said hinge assembly preferably locates the panel on an upper edge of the shower tray, when in said first closed position.

Typically said first hinge means is configured such that when said shaft means and said bush are in co-operation, movement of said panel towards said

second, open, position urges said bearing surfaces into contact.

More preferably said bush is configured to slide on said shaft means when said bearing surfaces are in contact.

Typically co-operation between said bearing surfaces lifts said panel as it is moved towards an open position.

Said shower tray may be a bath.

According to a further aspect of the present invention there is provided a shower cubicle comprising a shower enclosure and a shower tray.

Said shower tray may be a bath.

Preferably said enclosure comprises a panel and a hinge assembly comprising a pin which is substantially integral with said tray, and first hinge means adapted for fixation to said panel, said enclosure being locatable on said tray by means of said first hinge means.

Preferably said pin is of metal. More preferably said pin is of stainless steel. Said pin may be precision engineered.

Said first hinge means may comprise shaft means locatable on the pin. Said shaft means preferably has an external helical bearing surface along at least part of its circumference. Said shaft means is preferably of durable material. Said shaft means may be of acetal resin (POM).

Said first hinge means may further comprise a bush locatable on the shaft means. Said bush preferably has an internal helical bearing surface. Said bush is preferably of durable material. Said bush may be of acetal resin (POM).

Preferably said bush is configured to co-operate with said shaft to raise the panel.

Typically said hinge assembly further comprises second hinge means adapted to secure the upper part of said panel to an upright such as a wall or means attached to the wall. Said second hinge means preferably comprises a bush adapted for attachment to an upper part of the panel, and shaft means on which said bush is adapted to locate. Said shaft means may be adapted for attachment to a wall fixing. Said bush is preferably of durable material. Said bush may be of acetal resin (POM).

Said shaft means may be of stainless steel.

Preferably said bush is configured to rotate on said shaft.

Said enclosure may comprise a plurality of moveable panels.

Further according to the present invention there is provided a method of fitting a shower enclosure comprising the steps of:
precision engineering a pin on which to locate lower hinge means of a rising hinge assembly and incorporating said pin in a shower tray or a bath prior to its installation in a bathroom.

Said method preferably includes the step of attaching lower hinge means in the form of a first bush in co-operation with first shaft means to a lower part of a panel of the enclosure.

Said method may include the step of attaching upper hinge means in the form of a second bush in co-operation with second shaft means to an upper part of a panel of the enclosure.

Said method may include the step of hanging said panel by lowering said lower hinge means onto said pin and said second bush onto said second shaft means, to locate the panel with respect to the tray.

Said method may include the step of securing said panel to an upright by means of compression plates associated with the panel.

Embodiments of the invention will now be described by way of example only with reference to the accompanying drawings in which:

Figs 1a - 1d are exploded view of the hinge assembly of an embodiment of the present invention;

Figs 2a is a detail view of the hinge assembly of Fig 1;

Fig 2b is a detail of Fig 2a, showing the lower hinge of the assembly;

Fig 3 is a perspective view of the bush of the first, lower, hinge means of the hinge assembly of the present invention;

Fig 4 is a perspective view of the shaft of the first, lower, hinge means of the hinge assembly of the present invention;

Fig 5 is a perspective view of the pin of the hinge assembly of the present invention;

Fig 6 shows the lower hinge means in situ, hanging a panel on an upright;

Fig 7a is a plan view of a shower tray plate in which the pin of Fig 5 is secured;

Figs 7b and 7c are detail views of the shower tray of Fig 7a;

Figs 8a and 8b are views of the base plate, from reverse angles, respectively;

Fig 9 is a perspective view of a shaft of the second, upper, hinge means of the hinge assembly of the present invention;

Fig 10 is a perspective view of a bush of the second, upper, hinge means of the hinge assembly of the present invention;

Fig 11 shows the upper hinge means in situ, hanging a panel on an upright;

Figs 12a to 12c schematically illustrate the co-operation of the bearing surfaces of the first hinge means of the hinge assembly of the present invention;

Figs 12d to 12f illustrate the co-operation of the bearing surfaces, these figures correspond to the schematic representations of figs. 12a to 12c; and

Figures 13 to 20 show plan views of examples of bath screens and shower enclosures incorporating the rising hinge of the present invention.

Referring to the drawings, for aesthetic reasons consumers prefer enclosures for shower cubicles to

have sleek lines. Preferred designs for enclosures thus incorporate minimal framework since, in most bathrooms, space is limited.

It is necessary to hingeably attach the enclosure, or the part or parts thereof which serves as a door, to permit access to the cubicle, and thus to the showerhead and the shower tray. Since, particularly in the UK, bathrooms tend to be carpeted, the hingeable attachment of this embodiment of the invention is by means of a rising hinge mechanism, generally designated 1. This rising hinge 1 raises the door 3 on opening to give clearance over the shower tray 2. The door 3 has seals attached along its bottom edge 11, and this rising hinge 1 also, on closing, drops the door 3 in position on the upper edge 12 of the tray, thus compressing the attached seals and creating a watertight seal between door edge 11 and tray edge 12.

A described embodiment of the invention is a frameless shower enclosure that does not leak.

The enclosure segregates a shower cubicle having a showerhead, and a shower tray 2, from the rest of a bathroom or shower room. At least a panel 3 of the enclosure is configured to move relative to an upright 6 to which it is attached. The upright 6 may be a wall or a fixed panel of the enclosure.

The moveable panel 3 provides a door to the shower cubicle. The portion of the door 3 of this embodiment is a glass panel 4. This door 3 also comprises a hinge tube 5 bonded to the glass panel 4 along a first vertical side 7 of the glass panel 4 to allow movement of the door 3 relative to the upright 6.

The door 3 is hung by means of a hinge assembly. The assembly comprises a pin 8 integral with the tray 2, a lower hinge 9 and an upper hinge 10.

This configuration allows the door 3 to move between a first, closed, position in which seals attached along the bottom edge 11 of the panel 4 lie along a top edge 12 of the tray 2, the seals being compressed to create a watertight seal between door edge 11 and tray edge 12, and a second vertical edge 13 of the panel 4 (which may also have a seal) abuts another vertical upright of the enclosure (the abutment may be against another seal), rendering the cubicle watertight; and a second, open, position for access to the cubicle.

In a further embodiment the door comprises a pair of panels each having two vertical edges, said panels being hinged along one vertical edge, and the other vertical edges, at least one of which has a seal or seals attached along its length, are configured to abut in said first, closed, position. The precision

with which the vertical edges abut seals the cubicle and renders it watertight.

In some embodiments of the enclosure, the enclosure, or a panel or panels thereof are curved. In some embodiments of the enclosure, the enclosure, or a panel or panels thereof are of shaped glass. In some embodiments of the enclosure, a panel or panels of the enclosure are straight.

In the absence of a frame, the edges of the panels 4, at least one of which has a seal attached along its length, meet exactly to provide a perfect seal.

In the first, closed position, the bottom edge 11 of the panel 4 rests along the top edge 12 of the shower tray 2, sealing the bottom of the cubicle. To open the cubicle, the panel 4 must be lifted clear of the edge 12 of the shower tray 2. For this purpose the described embodiment has a rising hinge assembly. This hinge assembly raises the panel 4 on opening.

The hinge assembly comprises a pin 8 integral with the tray 2. The pin 8 is of stainless steel and precision drilled within a very small tolerance. The pin 8 is secured to the top edge 12 of the shower tray during manufacture of the shower tray by means of a washer 14 and a nyloc nut 15. The pin 8 is thus substantially integral with the top edge 12 of the shower tray 2.

The tray 2 is installed with the pin 8 in place.

The hinge assembly further comprises a first, lower hinge 9 having two leaves. The two leaves are a shaft 16 and a bush 17. The shaft 16 has an external helical bearing surface 18 along at least part of its circumference. The bush 17 has a corresponding internal helical bearing surface 19. The shaft has an internal bore 20. The hinge assembly operates around the shaft 16, and this rotational action ensures alignment of the male and female components of the hinge assembly.

The shaft 16 is made of acetal resin (POM), or a similar durable moulding polymer. The bush 17 is also made of acetal resin (POM), or a similar durable moulding polymer. The bush 17 is attached in the hinge tube by means of a screw 21; and the shaft 16 is attached to a bottom base plate 22.

The bottom base plate 22 is manufactured by injection moulding, and configured with a hole 23 directly beneath the shaft 16 to accommodate the pin 8. Thus the base plate 22 can be placed over the pin 8 which is then accommodated in the bore 20 of the shaft 16.

As is best seen in Figs 12a to 12f, a pushing or pulling movement to open the door urges the helical bearing surfaces 18 19 against one another as the bush 17 is caused to rotate around the shaft 16, as illustrated in Figs 12b, 12e and 12c, 12f. The

relative movement of the helical surfaces causes an upward lift of the bush 17 (as the shaft 16 remains stationary) thus lifting the door 3 as it is opened.

The hinge assembly further comprises a second, upper hinge 10 having two leaves. The two leaves are a shaft 24 and a bush 25. The bush 25 has an internal bearing surface and is configured for location on the shaft 24. The bush 25 is free to rotate on the shaft 24. The bush 25 is made of acetal resin (POM), or a similar durable moulding polymer. The shaft 24 is made of stainless steel.

The bush 25 of the upper hinge 10 is also attached in the hinge tube 5 prior to its location in position. The shaft 24 is attachable to a top base plate 26, which is fixable at the height of and adjacent to the door 3.

When the door 3 is located on the pin, the top base plate 26 is then affixed to an upright profile attached to the wall. That is, an upright profile attached to the wall provides a true vertical to which the door 3 is attached. The main body 6 contains a nut rail. Location of the door 3 on the pin 8 aligns the nut rail with predetermined positions on the wall profile which are adapted for attachment of the rail. The rail is then easily tightened in position by means of an Allen key.

Each bush 17 25 has ribs 27 proud of their surface to locate the bush in correct position.

The lower hinge 9 and bottom base plate 22; the upper hinge 10 and top base plate 26; and the hinge tube 5 are all assembled together in a factory. The hinge tube 5 is then bonded to the glass panel 4. The complete assembly is then ready for fitment on a 'plumbed in' shower tray 2 by lowering the assembly onto the pin 8. The pin 8 fits in the bore 20 of the shaft 16.

The top edge 12 of the shower tray 2 is constructed with an integral bump stop. The bump stop is configured to accommodate the bottom base plate 22. The base plate 22 is sealed with silicone on its lower side, for waterproofing.

To install the enclosure, the complete assembly is manoeuvred into position and located on the pin 8, which fits snugly through the bottom base plate 22 into the bore 20 of the shaft 16. Location of the door 3 on this pin 8 means that perfectly accurate positioning of the door 3 is easily and repeatably achievable. That is, once the lower hinge 9 is located on the pin 8, the position of the door 3 on the tray edge 12 is exact. There is no requirement to adjust the door 3 once it is slotted in position.

The enclosure can therefore be fitted by an unskilled labourer. That is, once the tray 2 is plumbed in,

the enclosure need merely be dropped in position with the shaft of the lower hinge 9 located on the pin 8. This location pin 8 ensures that every enclosure fitted is in the correct position relative to its shower tray 2.

When hung, the hinge assembly drops the door panel 3 down into its closed position onto the central ridge on the horizontal upper edge 12 of the shower tray 2. This single ridge facilitates door closure. The panel 4 has a colourless seal or seals along its bottom horizontal edge 11. The glass panel 4 is of considerable weight. Thus, in closed position, the weight of the panel 4 compresses the seals to create a watertight seal between the panel edge 11 and the shower tray 2, rendering the shower cubicle watertight.

The rising hinge assembly thus has the dual function of compressing the seals along the panel edge 11 against the shower tray 2 to create a watertight seal when the door 3 is closed; and operating to open the door 3 over the edge 12 of the shower tray 2.

The base plate 22 of the lower hinge 9, when in position on the pin 8, forms a mechanical link between the enclosure and the shower tray 2, and thus with the floor. This mechanical link gives the hinge great strength, rigidity and durability.

In addition the hinge assembly of this embodiment including the stainless steel pin 8 is not subject to the torque and pressure associated with known rising hinge systems. This has the result that the lower hinge 9 does not move or twist with repeated use, and the silicone seal and any other seals around the hinge plate therefore remain intact throughout its life.

The enclosure and tray of this embodiment are provided to co-operate. That is, as an improvement over known shower cubicles, trays and enclosures of this embodiment are provided to be used together, and designed to co-operate.

Improvements and modifications may be made to the above without departing from the scope of the invention.

CLAIMS

1. A hinge assembly for a panel of a shower enclosure comprising a pin configured for incorporation in a shower tray; and first hinge means locatable on the pin.

2. A hinge assembly as claimed in Claim 1, wherein said hinge assembly is a rising hinge.

3. A hinge assembly as claimed in either preceding claim, wherein said pin is formed of metal.

4. A hinge assembly as claimed in Claim 3, wherein said pin is formed of stainless steel.

5. A hinge assembly as claimed in any preceding claim, wherein said pin is precision engineered.

6. A hinge assembly as claimed in any preceding claim, wherein said first hinge means further comprises a shaft means locatable on the pin.

7. A hinge assembly as claimed in Claim 6, wherein said shaft means has an external helical bearing surface along at least part of its circumference.

8. A hinge assembly as claimed in either one of claims 6 or 7, wherein said shaft means is preferably of durable material.

9. A hinge assembly as claimed in Claim 8, wherein said shaft means is formed of acetal resin (POM).

10. A hinge assembly as claimed in any one of claims 6 to 9, wherein said first hinge means further comprises a bush locatable on the shaft means.

11. A hinge assembly as claimed in Claim 10, wherein said bush has an internal helical bearing surface.

12. A hinge assembly as claimed in either one of claims 10 or 11, wherein said bush is formed of a durable material.

13. A hinge assembly as claimed in Claim 12, wherein said bush is formed of acetal resin (POM).

14. A hinge assembly as claimed in any one of claims 10 to 13, wherein said bush is configured to co-operate with said shaft means.

15. A hinge assembly as claimed in any preceding claim, wherein said first hinge means is adapted to be incorporated in a lower part of said panel.

16. A hinge assembly as claimed in any preceding claim, wherein said pin and said first hinge means co-operate to provide a mechanical link between said tray and said shower enclosure.

17. A hinge assembly as claimed in any preceding claim, further comprising a second hinge means comprising a bush adapted for fixation to an upper part of said panel.

18. A hinge assembly as claimed in Claim 17, wherein said bush has an internal bearing surface.

19. A hinge assembly as claimed in Claim 18, wherein said bearing is formed of acetal resin (POM).

20. A hinge assembly as claimed in any one of claims 17 to 19, wherein said second hinge means further comprises a shaft means.

21. A hinge assembly as claimed in Claim 20, wherein said shaft means is adapted for fixation to a wall fixing and is locatable adjacent the upper part of said panel.

22. A hinge assembly as claimed in either one of claims 20 or 21, wherein said shaft means is a metal pin.

23. A hinge assembly as claimed in Claim 22, wherein said shaft means is a stainless steel pin.

24. A hinge assembly as claimed in claims 20 to 23, wherein said bush is configured for location on said shaft means.

25. A hinge assembly as claimed in Claim 24, wherein said bush is configured to rotate on said shaft means.

26. A hinge assembly as claimed in any one of claims 17 to 25, wherein said bush is adapted to be incorporated in the upper part of said panel.

27. A hinge assembly as claimed in any preceding claim, wherein said panel is preferably moveable between a first, closed, position and a second, open, position.

28. A hinge assembly as claimed in Claim 27, wherein said hinge assembly locates the panel on an upper edge of the shower tray, when in said first closed position.

29. A hinge assembly as claimed in either one of claims 27 or 28 when dependent upon claims 6, 7 and 10, wherein said first hinge means is configured such that when said shaft means and said bush are in co-operation, movement of said

panel towards said second, open, position urges said bearing surfaces into contact.

30. A hinge assembly as claimed in Claim 29, wherein said bush is configured to slide on said shaft means when said bearing surfaces are in contact.

31. A hinge assembly as claimed in either one of claims 29 or 30, wherein said co-operation between the bearing surfaces lifts said panel as it is moved towards an open position.

32. A hinge assembly as claimed in any preceding claim, wherein said shower tray is a bath.

33. A shower cubicle comprising: a shower tray and a shower enclosure said enclosure comprising a panel and a hinge assembly, the hinge assembly comprising a pin which is substantially integral with said tray, and first hinge means adapted for fixation to said panel, said enclosure being locatable on said tray by means of said first hinge means.

34. A shower cubicle as claimed in Claim 33, wherein said pin is formed of metal.

35. A shower cubicle as claimed in Claim 34, wherein said pin is formed of stainless steel.

36. A shower cubicle as claimed in any one of claims 33 to 35, wherein said pin is precision engineered.

37. A shower cubicle as claimed in any one of claims 33 to 36, wherein said first hinge means comprises shaft means locatable on the pin.

38. A shower cubicle as claimed in Claim 37, wherein said shaft means has an external helical bearing surface along at least part of its circumference.

39. A shower cubicle as claimed in either one of claims 37 or 38, wherein said shaft means is formed of durable material.

40. A shower cubicle as claimed in Claim 39, wherein said shaft means is formed of acetal resin (POM).

41. A shower cubicle as claimed in Claim 37, wherein said first hinge means further comprises a bush locatable on the shaft means.

42. A shower cubicle as claimed in Claim 41, wherein said bush has an internal helical bearing surface.

43. A shower cubicle as claimed in either one of claims 41 or 42, wherein said bush is formed of durable material.

44. A shower cubicle as claimed in Claim 43, wherein said bush is formed of acetal resin (POM).

45. A shower cubicle as claimed in any one of claims 41 to 44, wherein said bush is configured to co-operate with said shaft to raise the panel.

46. A shower cubicle as claimed in any preceding claim, wherein said hinge assembly further comprises second hinge means adapted to secure the upper part of said panel to an upright such as a wall or means attached to the wall.

47. A shower cubicle as claimed in Claim 46, wherein said second hinge means comprises a bush adapted for attachment to an upper part of the panel, and shaft means on which said bush is adapted to locate.

48. A shower cubicle as claimed in Claim 47, wherein said shaft means may be adapted for attachment to a wall fixing.

49. A shower cubicle as claimed in either one of claims 47 or 48, wherein said bush is formed of durable material.

50. A shower cubicle as claimed in Claim 49, wherein said bush is formed of acetal resin (POM).

51. A shower cubicle as claimed in any one of claims 47 to 50, wherein said shaft means is formed of stainless steel.

52. A shower cubicle as claimed in any one of claims 47 to 51, wherein said bush is configured to rotate on said shaft.

53. A shower cubicle as claimed in any one of claims 33 to 52, wherein said enclosure comprises a plurality of moveable panels.

54. A shower cubicle as claimed in any one of claims 33 to 53, wherein said shower tray may be a bath.

55. A method of fitting a shower enclosure comprising the steps of:
precision engineering a pin on which to locate lower hinge means of a rising hinge assembly and incorporating said pin in a shower tray or a bath prior to its installation in a bathroom.

56. A method as claimed in Claim 55, wherein said method includes the step of attaching lower hinge means in the form of a first bush in co-operation with first shaft means to a lower part of a panel of the enclosure.

57. A method as claimed in Claim 56, wherein said method includes the step of attaching upper hinge means in the form of a second bush in co-operation with second shaft means to an upper part of a panel of the enclosure.

58. A method as claimed in Claim 57, wherein said method includes the step of hanging said panel by lowering said lower hinge means onto said pin and said second bush onto said second shaft means, to locate the panel with respect to the tray.

59. A method as claimed in any one of claims 55 to 58, wherein said method includes the step of securing said panel to an upright by means of compression plates associated with the panel.

60. A hinge assembly substantially as hereinbefore described with reference to the accompanying drawings.

61. A shower cubicle substantially as hereinbefore described with reference to the accompanying drawings.

62. A method substantially as hereinbefore described with reference to the accompanying drawings.

27

Application No: GB 0112298.5 **Examiner:** David Glover
Claims searched: 1-54 **Date of search:** 22 August 2001

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): A4N (NSB); E2F (FAA, FAD, FCD)

Int Cl (Ed.7): A47K 3/28, 3/36; E05D 5/02; E05F 1/02, 1/04, 1/06

Other: Online: EPODOC, JAPIO, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2209794 A	(Hammerton) see figure 1 and page 2 line 27 - page 3 line 30	1-8, 10-12, 14-16, 27-31, 33-39, 41-43, 45-49, 51, 52
X	EP 0777027 A	(Torverk) see figures and column 2 line 55 - column 4 line 45	1-8, 10-12, 14-16, 27-31
X	EP 0693607 A	(Coatbridge) see figures and column 2 lines 14-45	1-8,10-12, 14, 16-18, 20-25, 27-39, 41-43, 45-49, 51-54
X	US 5613276	(Franz) see figures and column 2 lines 45 - column 3 lines 41	1-5, 15, 16, 21, 26, 27, 28, 32-36, 46, 53-55, 59

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

28

Application No: GB 0112298.5
Claims searched: 1-54
Examiner: David Glover
Date of search: 22 August 2001

Category	Identity of document and relevant passage	Relevant to claims
X	US 3858274 (Questor) see figure 3-6 and column 3 lines 13-17	1-8, 11, 12, 14, 16-18, 21-25, 27-31, 33-39, 41-43, 45-49

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.