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Self et al.(10) **Pub. No.: US 2008/0229675 A1**(43) **Pub. Date: Sep. 25, 2008**(54) **COMPENSATOR DEVICE**(52) **U.S. Cl. 52/35; 52/745.16; 52/741.4**(76) **Inventors:** **James Edward Self**, Isle of Man
(GB); **Graham Robin Lock**, Isle of
Man (GB)

Correspondence Address:

Fleit Gibbons Gutman Bongini & Bianco PL
21355 EAST DIXIE HIGHWAY, SUITE 115
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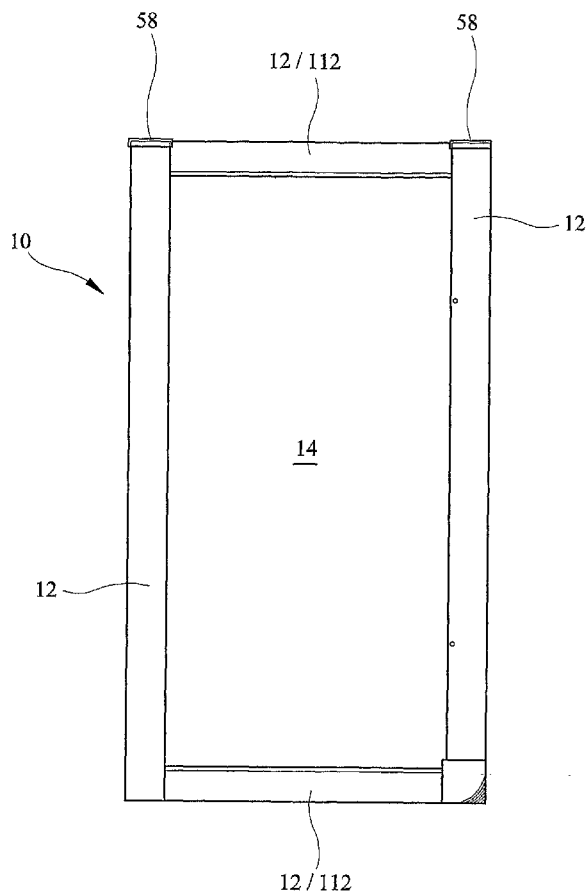
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(57) **ABSTRACT**

A rigid compensator device is provided for a shower screen (10) comprising a plurality of edge support elements (12) having channels (116) and a panel element (14) having edges (26, 28) receivable in the channels (116) of the edge support elements (12). The compensator device (34) is fully positionable or positioned within the channel (116) of one or each said edge support element (12) of the shower screen (10) and comprises a narrow support portion (20) for receiving and directly or indirectly supporting a portion of the panel element (14) at or adjacent to the edge (26, 28) of the panel element (14), a body portion (40) which is wider than the support portion (20) and which includes a panel stop element (22) at or adjacent to a rear edge or edges (50) of the compensator device (34) and spaced from the narrow support portion (20). A panel element guide path (X) is also present which is defined at least in part by the narrow support portion (20) and the body portion (40) and which extends from the narrow support portion (20) to the panel stop element (22). The panel element (14) is thus selectively positionable in and supported by the compensator device (34) up to the panel stop element (22). A shower screen and method are also provided.



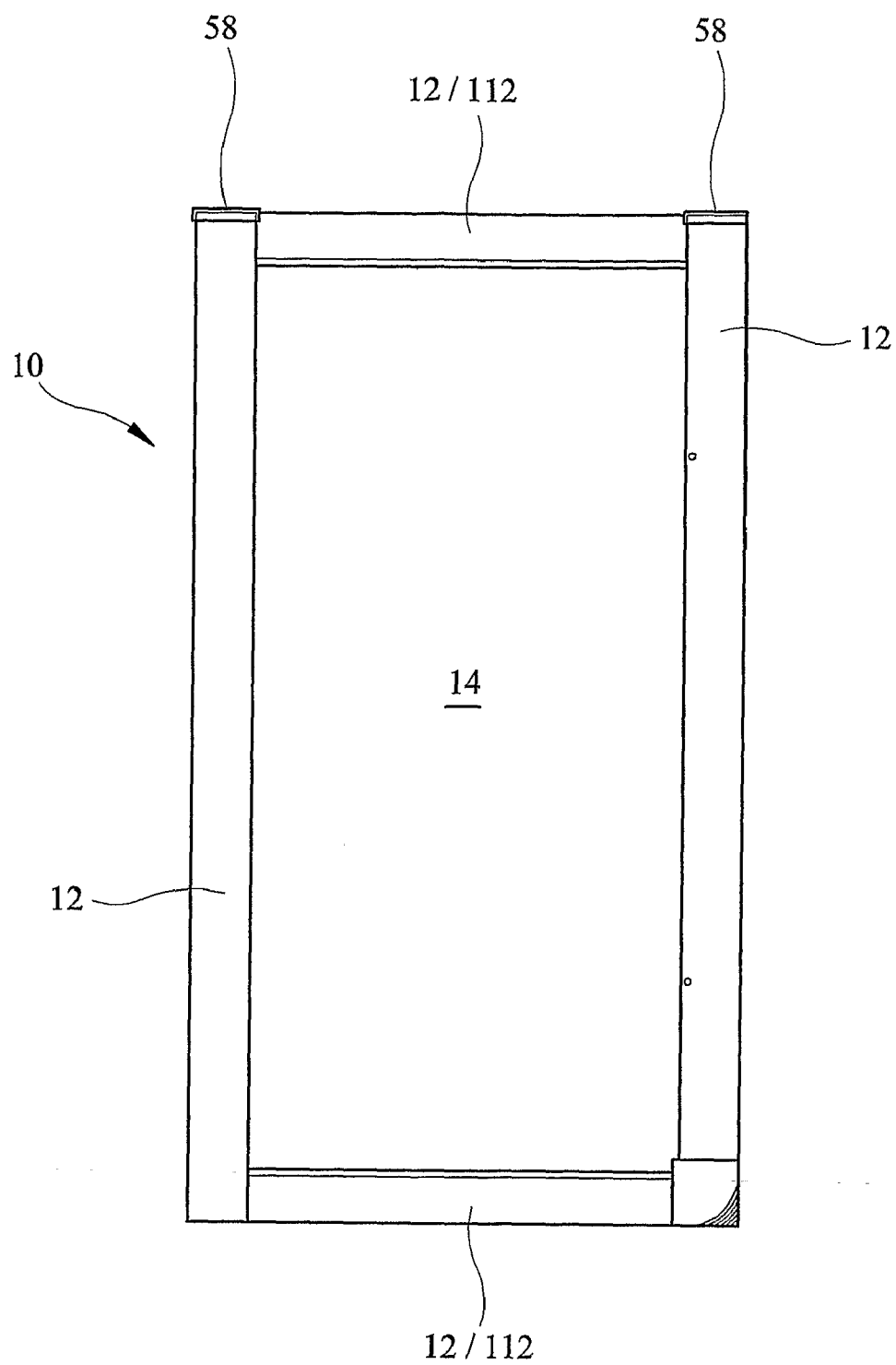


FIG 1

FIG 2

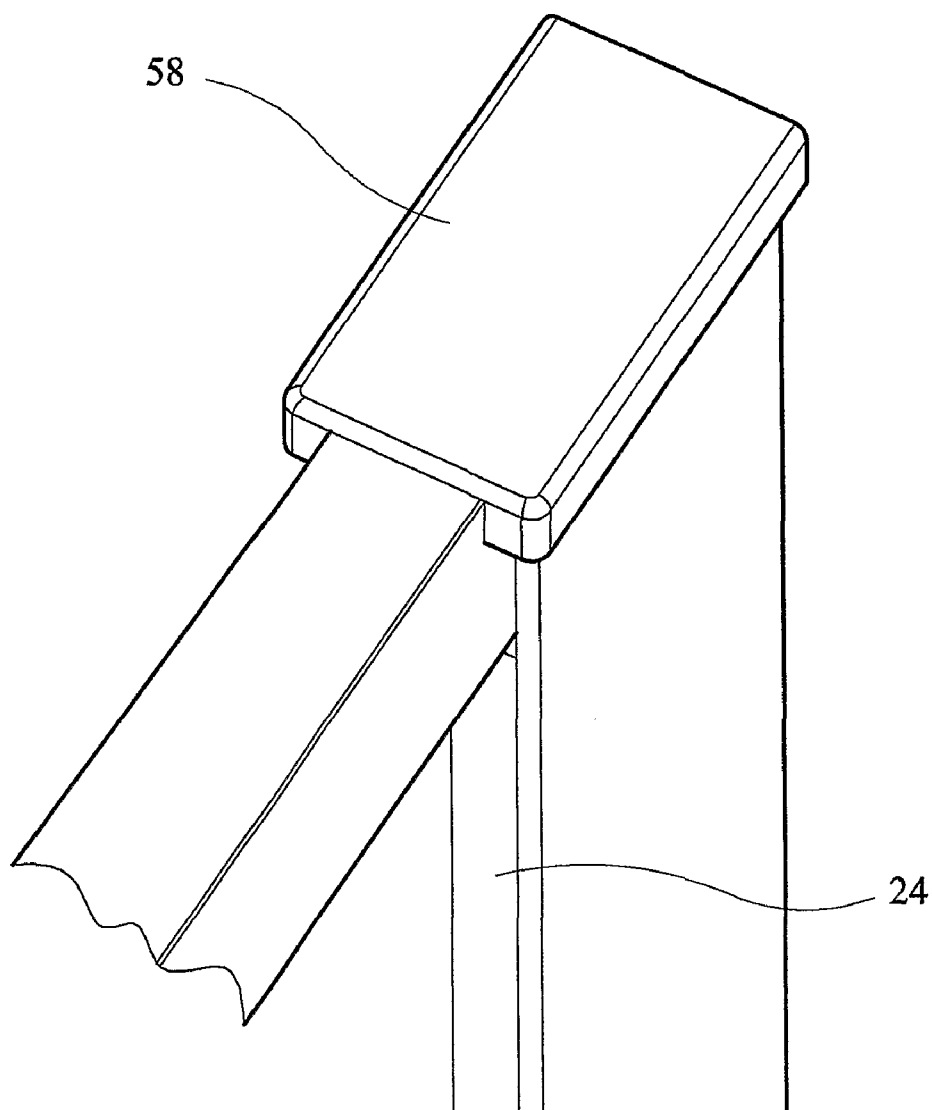


FIG 3

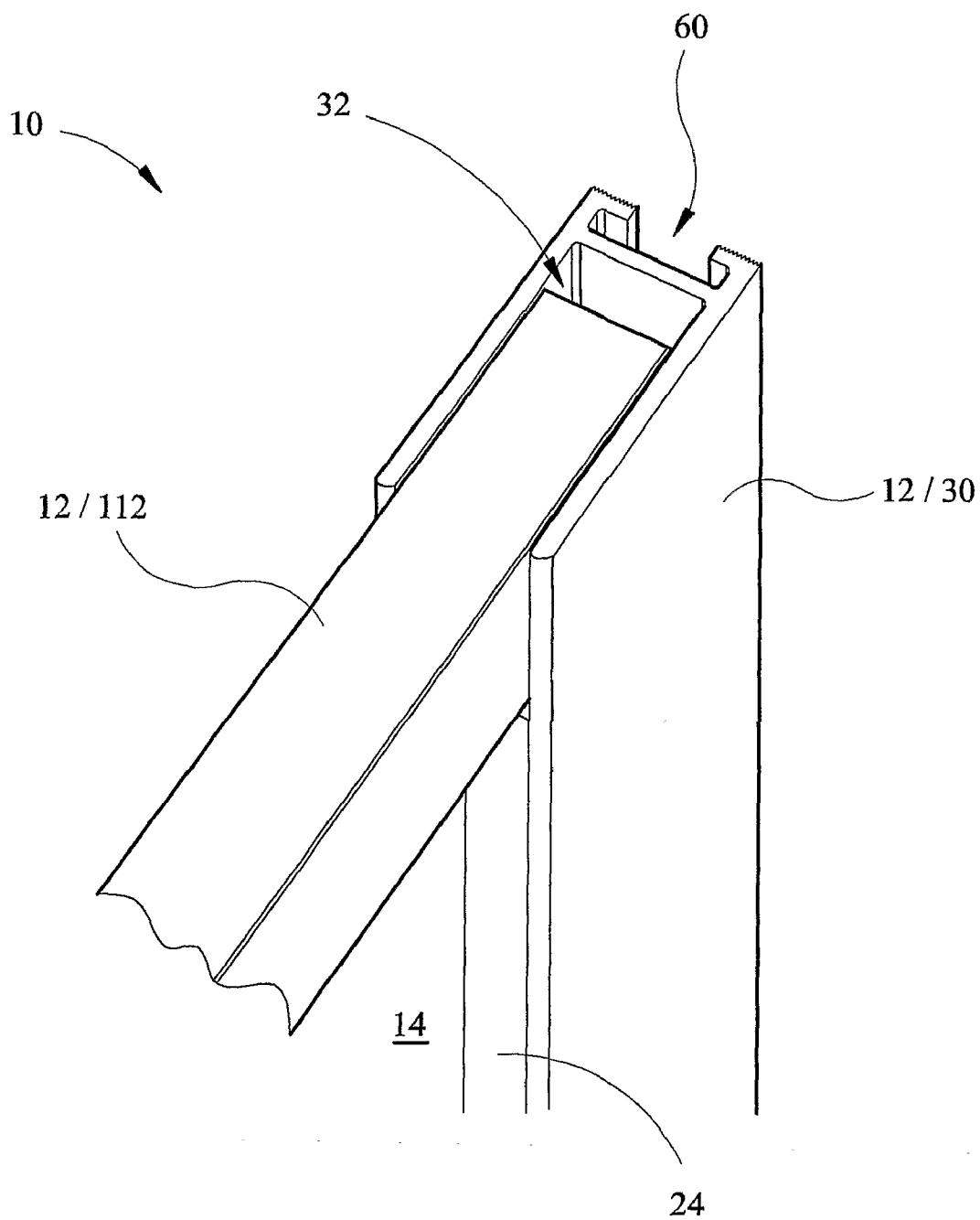


FIG 4

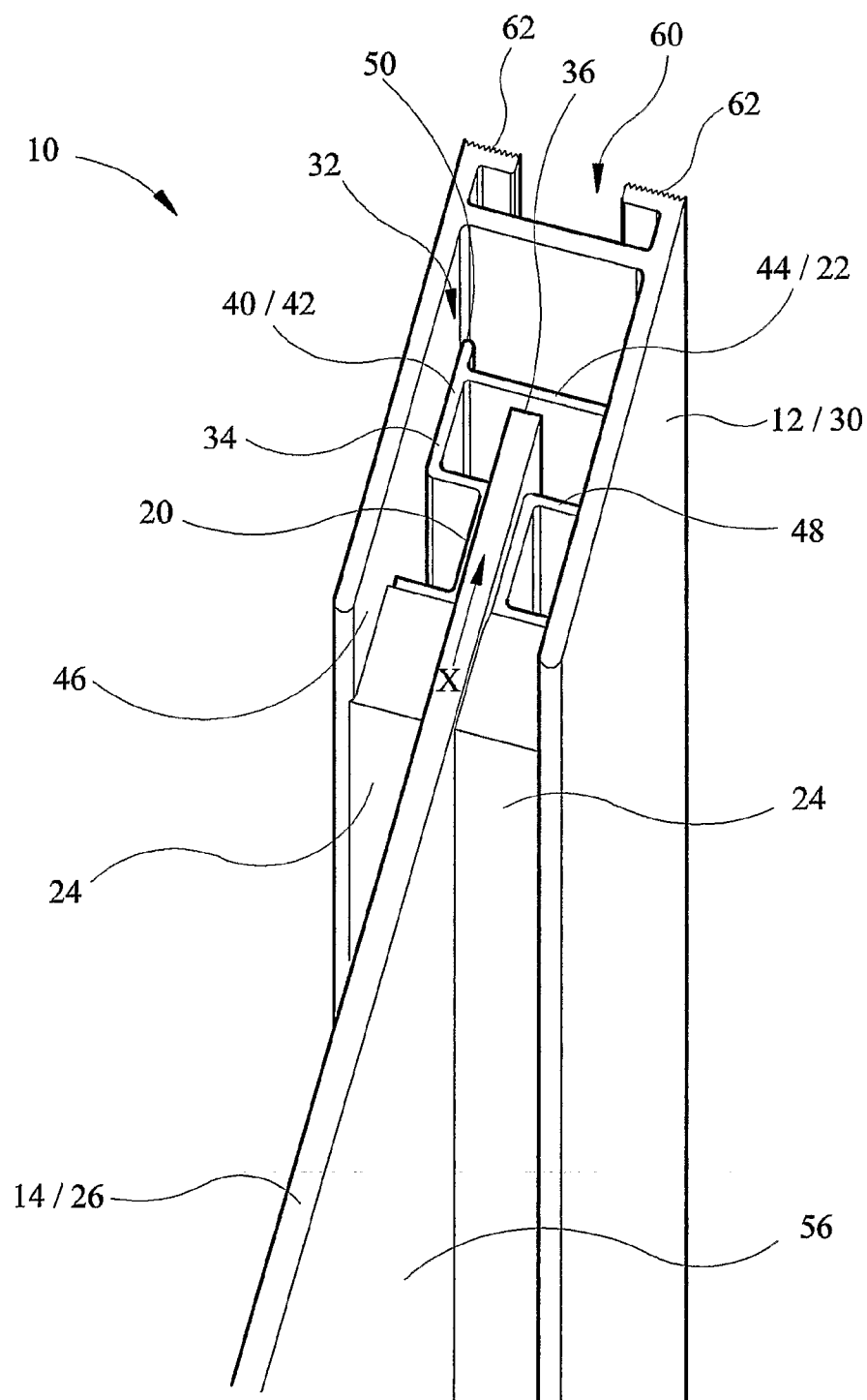


FIG 5

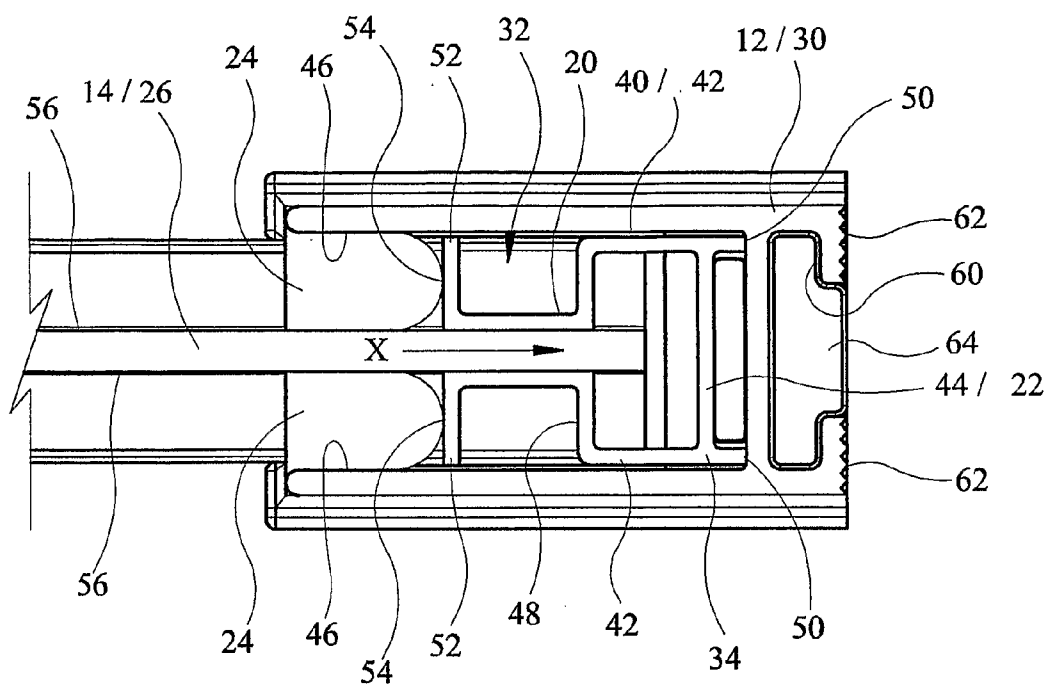


FIG 6

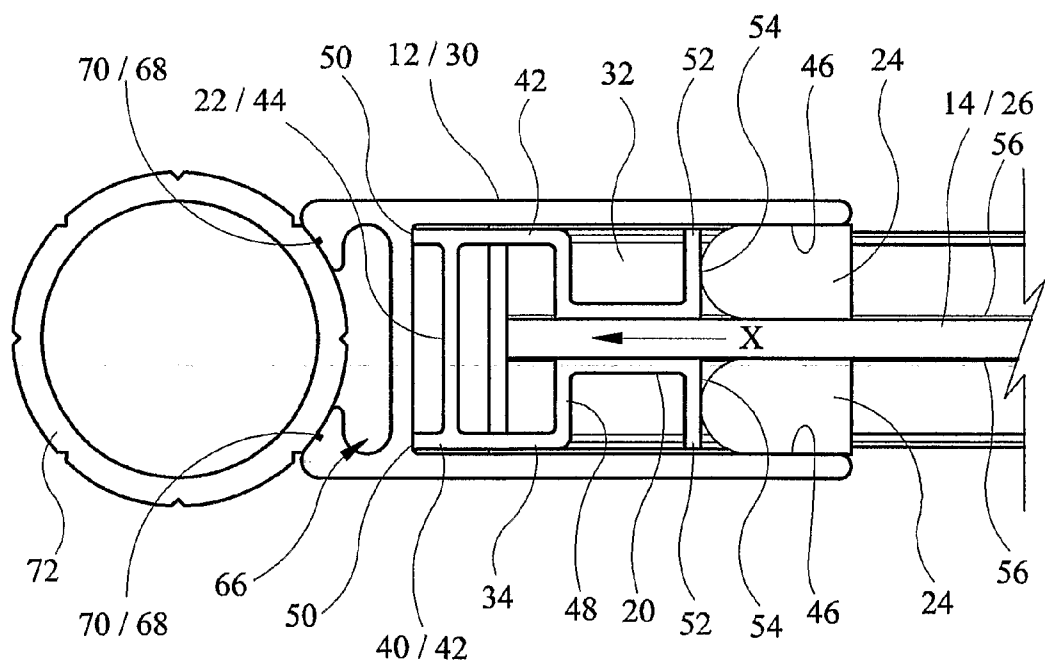


FIG 7

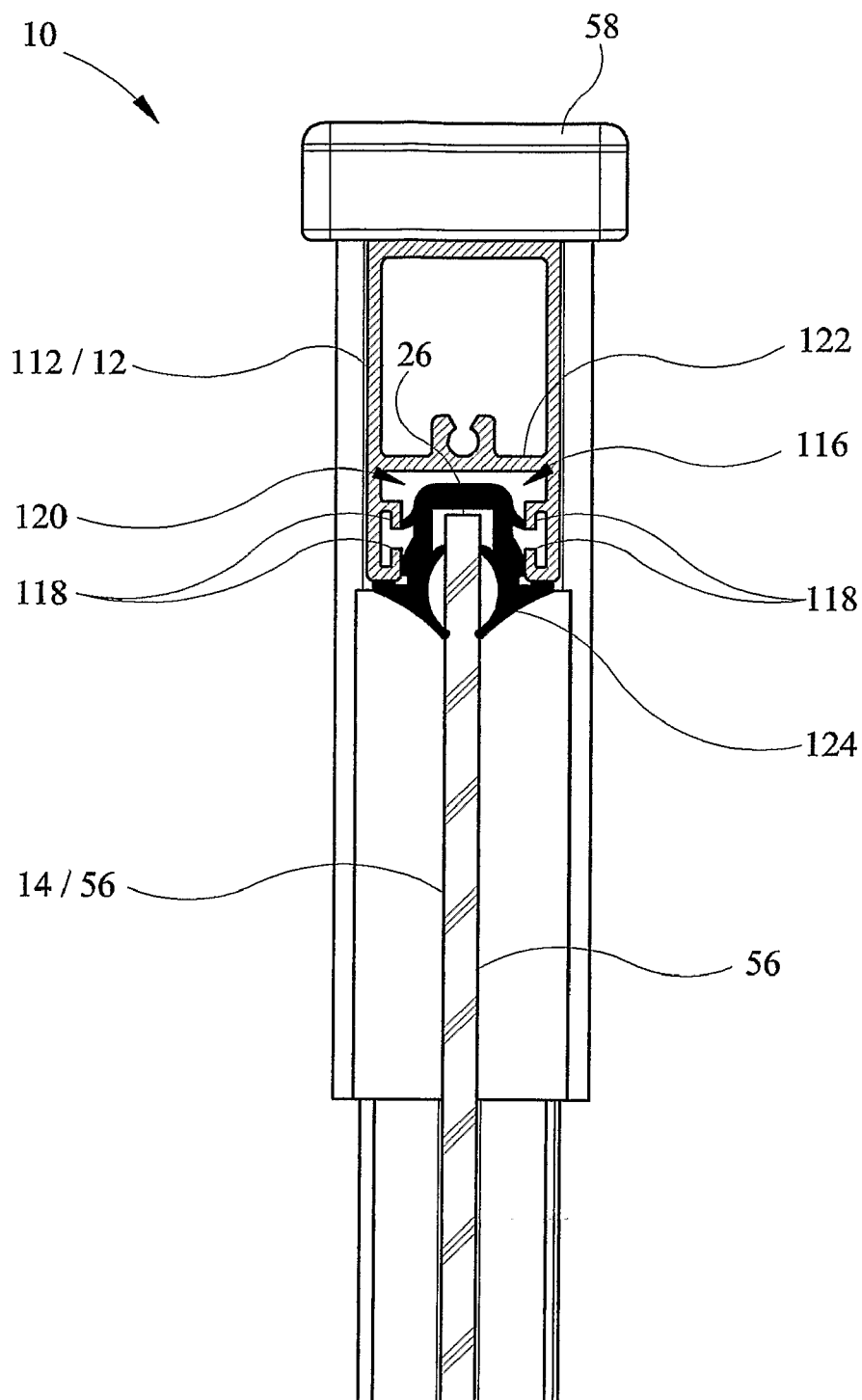


FIG 8

COMPENSATOR DEVICE

[0001] This invention relates to a compensator device for a shower screen, and to a method of assembling a shower screen having such a compensator device.

[0002] Shower screens for shower cubicles are presently preformed and preassembled prior to shipping to a location for installation. To enable the component parts of the shower screen to be manufactured, particularly for bespoke shower screens, the exact dimensions of each shower screen must first be supplied to the manufacturer. This results in increased costs, and time while delivery of the assembled shower screens is awaited.

[0003] The present invention seeks to provide a solution to this problem, by providing generic components which can be sized and assembled at the location of installation of the shower screen, or in other words 'on-site'.

[0004] According to a first aspect of the present invention, there is provided a rigid compensator device for a shower screen comprising a plurality of edge support elements having channels and a panel element having edges receivable in the channels of the edge support elements, the compensator device being fully positionable or positioned within the channel of one or each said edge support element of the shower screen and comprising a narrow support portion for receiving and directly or indirectly supporting a portion of the panel element at or adjacent to the edge of the panel element, a body portion which is wider than the support portion and which includes a panel stop element at or adjacent to a rear edge or edges of the compensator device and spaced from the narrow support portion, and a panel element guide path which is defined at least in part by the narrow support portion and the body portion and which extends from the narrow support portion to the panel stop element, so that the panel element is selectively positionable in and supported by the compensator device up to the panel stop element.

[0005] Preferable and/or optional features of the first aspect of the present invention are set forth in claims 2 to 8, inclusive.

[0006] According to a second aspect of the present invention, there is provided a shower screen comprising a plurality of edge support elements, and a panel element supported by the edge support elements, at least one of the edge support elements including a compensator device as claimed in any one of the preceding claims and entirely received within the edge support element for supporting the associated edge of the panel element.

[0007] Preferably, the panel element is opaque, translucent, or transparent. This is advantageous, since a glass panel element or a plastics panel element can be utilised.

[0008] Additionally, the shower screen is preferably in the form of a kit of parts.

[0009] According to a third aspect of the present invention, there is provided a shower cubicle comprising at least one shower screen in accordance with the second aspect of the invention.

[0010] According to a fourth aspect of the present invention, there is provided a method of assembling a shower screen having a plurality of edge support elements and a panel element, the method comprising the steps of: (a) determining a required dimension of the panel element, and sizing the panel element to or substantially to the required dimension; (b) positioning the edge support elements along respective edges of the panel element; (c) locating at least one edge of

the panel element in a compensator device, according to the first aspect of the invention; and (d) interengaging adjacent edge support elements to rigidly support the panel element.

[0011] Preferable and/or optional features of the fourth aspect of the present invention are set forth in claims 14 to 16, inclusive.

[0012] According to a fifth aspect of the present invention, there is provided a method of clamping a panel element of a shower screen to an edge support element having a channel, the method comprising the steps of: (a) inserting an edge of the panel element into the channel of the edge support element; (b) inserting a first seal element or a first portion of a seal element between a first side of the panel element and a first side of the channel of the edge support element; and (c) urging a second seal element or a second portion of the seal element between a second side of the panel element and a second side of the channel of the edge support element, so that the panel element is clamped in the channel of the edge support element by the or each seal element.

[0013] Preferable and/or optional features of the fifth aspect of the invention are set forth in claims 18 to 21, inclusive.

[0014] The present invention will now be more particularly described, by way of example only, with reference to the accompanying drawings, in which:

[0015] FIG. 1 shows a face on view of one embodiment of an assembled shower screen, in accordance with the second aspect of the invention;

[0016] FIG. 2 shows an exploded view of the shower screen, shown in FIG. 1;

[0017] FIG. 3 shows an enlarged scrap perspective view of the upper right corner of the shower screen, shown in FIG. 1;

[0018] FIG. 4 is a view similar to that of FIG. 3, but with an end cap removed;

[0019] FIG. 5 is a view similar to that of FIG. 4, but the a top edge support element removed, and showing a compensator device in accordance with the first aspect of the invention;

[0020] FIG. 6 is a plan view from above of the upper right corner of the shower screen shown in FIG. 5;

[0021] FIG. 7 is a plan view from above of the upper left corner of the shower screen shown in FIG. 1, with an end cap and top edge support element removed, and shown mated to a hinge post; and

[0022] FIG. 8 is a vertical section through the top support element of the shower screen, showing a conventional sealing arrangement.

[0023] Referring firstly to FIGS. 1 and 2 of the drawings, there is shown a shower screen 10 which comprises a plurality of edge support elements 12, and a panel element 14 supported at, or adjacent to, its edges by the edge support elements 12.

[0024] The panel element 14 may be opaque, translucent and/or transparent, and as such is typically formed from glass or plastics material.

[0025] The edge support elements 12 are extruded, typically from aluminium or plastics material.

[0026] The panel elements 14 arrive from the manufacturer or supplier with a standard height or length, and a width intended to be adjusted to suit a particular installation. As such, and as shown with reference to FIG. 8, upper and lower edge support elements 112 are conventional and comprise an extruded channel 116 having inwardly extending locating members 118 defining a neck portion 120, and a panel stop element 122 positioned immediately adjacent the neck por-

tion 120. A unitary seal element 124, having a generally inverted U-shaped lateral cross-section, is located as a push-fit in the neck portion 120, between the locating members 118.

[0027] The upper and lower edges 26 and 28 of the panel element 14 are thus simply pushed into the respective seal elements 124 until each edge 26, 28 causes the respective seal element 124 to approach or abut the panel stop element 122. The upper and lower edge support elements 112 are thus spaced by a standard non-variable distance.

[0028] To allow the width of the shower screen 10 to be conveniently altered on-site at the installation location, each in use vertical side edge support element 30 is extruded with a deep compensator channel 32, as best seen in FIGS. 4 to 7. A compensator device 34 is dimensioned to be received fully within each compensator channel 32 of the vertical side edge support elements 30, and to extend along the majority of the longitudinal extent of the compensator channel 32.

[0029] The compensator device 34 is, typically extruded, metal or plastics material, and has a generally 'wine-glass' shaped lateral cross-section. A narrow neck portion 20 is provided for directly supporting a portion of the panel element 14 at or adjacent to its side edge 36, and a hollow body portion 40 is formed contiguously with the neck portion 20. The body portion 40 includes two parallel side walls 42, a rear wall 44 interconnecting the two side walls 42 so that the side walls 42 are spaced to contact the channel sides 46 of the vertical edge support elements 30, and a split front wall 48 from which the neck portion 20 extends. The rear wall 44 of the body portion 40 is located adjacent to two rearwardly projecting edges 50 of the compensator device 34, and acts as a panel stop element 22.

[0030] The neck portion 20 defines part of a guide path (indicated by arrow X) along which the panel element 14 can move as it is received in the compensator device 34. Due to the body portion 40 having a split front wall 48 and a rear wall 44 which is positioned adjacent to the rear edges 50 of the compensator device 34 remote from the neck portion 20, the guide path X extends from the neck portion 20 into the body portion 40 and up to the panel stop element 22. This allows the panel element 14 to be received a significant distance into the compensator device 34.

[0031] Front edges 52 of the neck portion 20, remote from the body portion 40, flare outwardly to form seal abutment surfaces 54. The front edges 52 extend so as to also contact the channel sides 46 of the vertical edge support elements 30.

[0032] The compensator device 34 includes two elongate flexible, typically rubber, seal elements 24.

[0033] To assemble the shower screen 10, the overall width of the shower screen 10 is first determined, and the panel element 14 is then roughly cut to a width which is slightly less than the desired width of the shower screen 10. A said compensator device 34 is fully received in the deep compensator channel 32 of each vertical edge support element 30, and the cut side edge 36 of the panel element 14 is fed into the neck portion 20 and, if necessary, into the body portion 40 and up to the panel stop element 22. The rough cut edge 36 of the panel element 14 is thus hidden from view. Depending on the accuracy of the measurement of the required width of the shower screen 10, and the cutting of the width of the panel element 14, the panel element 14 can be selectively arranged in the compensator device 34 to obtain the required overall width of the shower screen 10.

[0034] Once positioned, the panel element 14 is prevented from movement in the compensator device 34 by the press fitting of the seal elements 24. Each seal element 24 is interposed between the channel side 46 of the vertical edge support element 30 and a major surface 56 of the panel element 14. The seal elements 24 are pushed home until they abut the respective seal abutment surfaces 54 on the compensator device 34, thus clamping the compensator device 34 in the compensator channel 32. The panel element 14 is thus also clamped between the two seal elements 24, which also form a liquid tight seal preventing the ingress of water into the vertical edge support element 30 and the compensator device 34. By use of the seal elements 24, screw-threaded fasteners for securing the compensator device 34 to the edge support elements to prevent movement are not required.

[0035] The upper and lower edge support elements 112 and their respective seal elements 124 are also cut roughly to match the width of the panel element 14. The upper and lower edge support elements 112 locate on the upper and lower edges 26, 28 of the panel element 14, and the end portions are received in the compensator channels 32 of the vertical edge support elements 30, as best seen in FIG. 4. Again, therefore, the rough cut ends of the upper and lower edge support elements 112 are hidden from view.

[0036] The upper and lower edge support elements 112 are secured to the vertical side edge support elements 30 using suitable fastening means, such as screw-threaded fasteners and/or adhesive.

[0037] To close the ends of the vertical edge support elements 30, end caps 58 are press-fit engaged therewith, as best shown in FIG. 3.

[0038] The vertical edge support elements 30 can include conventional means for fastening the shower screen 10 to a supporting surface, such as a wall. In the present case, and as best seen in FIG. 6, a fastening channel 60 is extruded opposite the compensator channel 32. The fastening channel 60 includes inwardly turned edges 62 to allow retention of a T-shaped fastening element 64 (see FIG. 6) secured to the supporting surface.

[0039] However, as shown in FIG. 7, a hinge post channel 66 can be extruded opposite the compensator channel 32 instead. Inwardly turned edges 68 of the hinge post channel 66 present arcuate exterior surfaces 70 complementarily shaped to accept a hinge post 72.

[0040] Other shapes of channel can also be extruded opposite the compensator channel.

[0041] Although the edge support elements and the compensator device are preferably extruded, other methods of forming are possible, such as moulding.

[0042] Although it is envisaged that the shower screen will be provided by the supplier with a predetermined or preset height which is not intended to be altered, edge support elements, having compensator channels, and compensator devices can be used on the upper and lower edges of the panel element, as well as along the side edges. This allows the height and the width of the shower screen to be adjusted at the installation location.

[0043] Alternatively, the edge support element, having the compensator channel, and the compensator device can only be used on one edge of the panel element, while conventional edge support elements are used on the other edges.

[0044] In the above described embodiments, the compensator device is unitarily formed independently of the side

support elements. However, the compensator device can be integrally formed as part of one or more of the side support elements.

[0045] Although described as ‘wine glass’ shaped, the compensator device can have any suitable shape, such as H-shaped.

[0046] Although the compensator device includes a panel stop element which is adjacent to the rear of the compensator device, the panel stop element can be at the rear of the compensator device. By use of the term ‘adjacent’, it is intended to mean a position from halfway to substantially the rear of the compensator device.

[0047] The or each compensator device can be fitted to the panel element prior to the compensator device being inserted into the compensator channel of the side support element.

[0048] The neck portion of the compensator device directly supports the panel element. However, one or more seal elements, for example, can be interposed between the neck portion and the panel element. Consequently, the panel element can be indirectly supported by the neck portion of the compensator device.

[0049] Furthermore, the neck portion, although formed unitarily with the body portion, can be separate of the body portion. In this case, the neck portion can be fastened to the body portion, for example by screw-threaded fasteners, or simply held to the body portion by the seal elements.

[0050] The seal elements provide the clamping of the compensator device in the compensator channel of the edge support element, and also the clamping of the panel element in the compensator channel. However, it is envisaged that a single seal element could be utilised which extends around the cut edge of the panel element and which is of sufficient size to project out of the compensator channel. Once the panel element is positioned, first and second portions of the seal element, adjacent major surfaces of the panel element, can be urged into the compensator channel to provide an external appearance as shown, for example, in FIG. 5.

[0051] It is thus possible to provide a shower screen which can be dimensioned at, or in the vicinity of, an installation location. The shower screen can be provided with generic parts allowing sizing and assembly on-site. The shower screen can be provided as a kit of parts for simplified transportation and storage. One or more of the shower screens can be assembled to form a shower cubicle. By providing a compensator device which effectively conceals rough or uneven cuts, less accurate cutting of the panel element is required whilst the cosmetic appearance of the finished shower screen can be maintained at a high standard.

[0052] The embodiments described above are given by way of examples only, and further modifications will be apparent to persons skilled in the art without departing from the scope of the invention as defined by the appended claims.

1-21. (canceled)

22. A rigid compensator device for a shower screen which comprises a plurality of edge support elements having channels and a panel element having edges receivable in the channels of the edge support elements, wherein the compensator device is fully positionable or positioned within the channel of one or each said edge support element of the shower screen and comprises a narrow support portion which receives and directly or indirectly supports a portion of the panel element at or adjacent to the edge of the panel element, a body portion which is wider than the support portion and which includes a panel stop element at or adjacent to a rear edge or edges of the

compensator device and spaced from the narrow support portion, and a panel element guide path which is defined at least in part by the narrow support portion and the body portion and which extends from the narrow support portion to the panel stop element, so that the panel element is selectively positionable in and supported by the compensator device up to the panel stop element.

23. A compensator device as claimed in claim 22, wherein the support portion is adapted to directly support a portion of the panel element.

24. A compensator device as claimed in claim 22, wherein the compensator device is a unitarily formed device and is independent of the edge support element of the shower screen.

25. A compensator device as claimed in claim 22, wherein the compensator device is integrally formed as part of the edge support element of the shower screen.

26. A compensator device as claimed in claim 22, further comprising one or more clamping seal elements which clamp the panel element of the shower screen in the channel of the edge support element.

27. A compensator device as claimed in claim 22, further comprising one or more clamping seal elements which clamp the compensator device in the channel of the edge support element.

28. A compensator device as claimed in claim 26, wherein the or each seal element is a liquid tight seal element which form a liquid tight seal between the panel element of the shower screen and the associated edge support element.

29. A compensator device as claimed in claim 26, wherein two independent said seal elements are provided which locate on opposite sides of the panel element.

30. A shower screen comprising a plurality of edge support elements, and a panel element supported by the edge support elements, at least one of the edge support elements including a compensator device as claimed in claim 22 and entirely received within the edge support element for supporting the associated edge of the panel element.

31. A shower screen as claimed in claim 30, in the form of a kit of parts.

32. A shower cubicle comprising at least one shower screen as claimed in claim 30.

33. A method of assembling a shower screen having a plurality of edge support elements and a panel element, the method comprising the steps of:

- a) determining a required dimension of the panel element, and sizing the panel element substantially to the required dimension,
- b) positioning the edge support elements along respective edges of the panel element;
- c) locating at least one edge of the panel element in a compensator device as claimed in claim 22; and
- d) interengaging adjacent edge support elements to rigidly support the panel element.

34. A method as claimed in claim 33, further comprising a step (e), subsequent to step (d), of inserting seal elements of the compensator device between the panel element and the respective edge support element to provide a liquid tight seal and to hold the panel element stationary in the compensator device.

35. A method as claimed in claim 33, wherein the shower screen is assembled and the panel element is sized at or in the vicinity of the location of intended installation of the shower screen.

36. A method as claimed in claim **33**, wherein step (c) is performed before step (b).

37. A method of clamping a panel element of a shower screen to an edge support element having a channel, the method comprising the steps of:

- e) inserting an edge of the panel element into the channel of the edge support element;
- f) inserting a first seal element or a first portion of a seal element between a first side of the panel element and a first side of the channel of the edge support element; and
- g) urging a second seal element or a second portion of the seal element between a second side of the panel element and a second side of the channel of the edge support element, so that the panel element is clamped in the channel of the edge support element by the or each seal element.

38. A method as claimed in claim **37**, further comprising a step (d), prior to step (a), of locating the said edge of the panel

element in a compensator device which holds the panel element in position when in the channel of the edge support element, the or each seal element in step (c) clamping the compensator device in the channel of the edge support element.

39. A method as claimed in claim **37**, wherein screw-threaded fastening devices are not utilised to retain the panel element and/or compensator device in the channel of the edge support element.

40. A method as claimed in claim **37**, wherein the or each seal element is the sole means by which the panel element and/or the compensator device is/are retained in the channel of the edge support element.

41. A method as claimed in claim **37**, wherein steps (b) and (e) are performed simultaneously or substantially simultaneously.

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