

[54] **SHOWER CABINETS**

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[22] Filed: **Oct. 2, 1973**

[21] Appl. No.: **402,915**

Related U.S. Application Data

[63] Continuation of Ser. No. 222,164, Jan. 31, 1972, abandoned.

[30] **Foreign Application Priority Data**

Feb. 9, 1971 Great Britain..... 4226/71

[52] U.S. Cl. 4/146, 135/5 B

[51] Int. Cl. A47r 3/23

[58] Field of Search..... 4/1, 145, 146, 160-162, 4/147, 156, 288; 49/37, 248; 135/1, 4 R, 5 B; 312/138, 271; 74/520

[56]

References Cited

UNITED STATES PATENTS

1,566,387	12/1925	Fifield.....	4/146
3,646,590	2/1972	Bolt	4/146

FOREIGN PATENTS OR APPLICATIONS

1,429,281	11/1968	Germany	135/5 B
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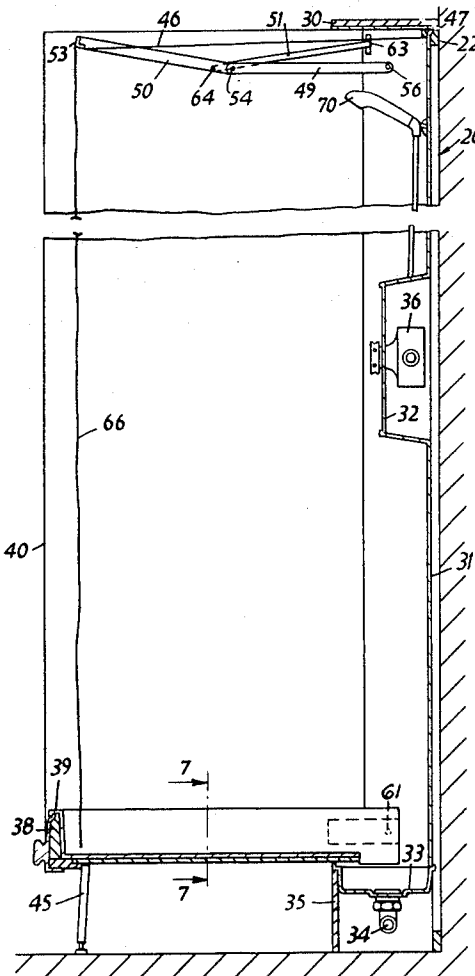
Attorney, Agent, or Firm—Dowell & Dowell

[57]

ABSTRACT

A collapsible shower cabinet having a back structure of small front-to-back depth a tray pivoted to the back structure, side walls pivoted to the back structure, and a front closure member movable by a linkage mechanism from a position adjacent the back structure to a position at the front of the cabinet.

6 Claims, 11 Drawing Figures



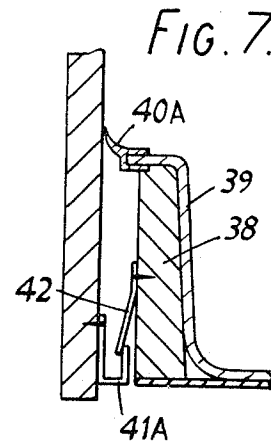
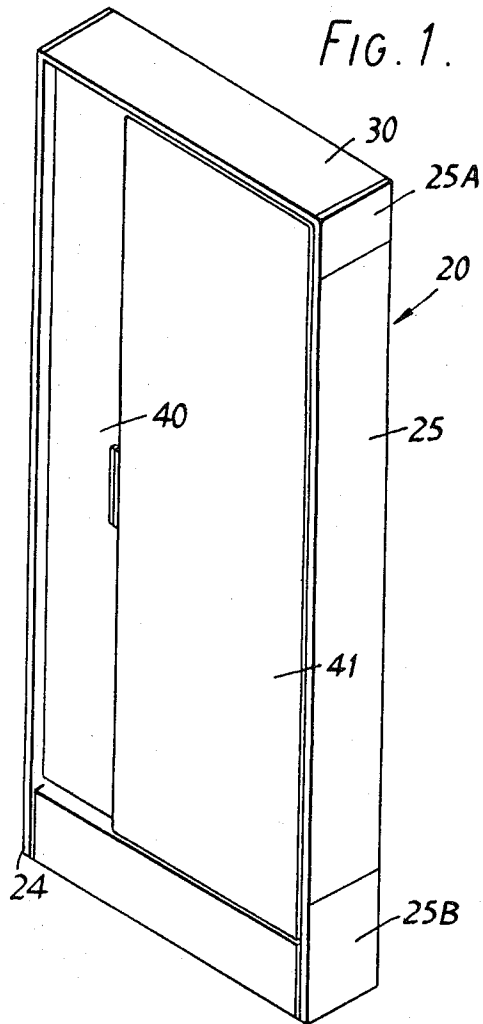
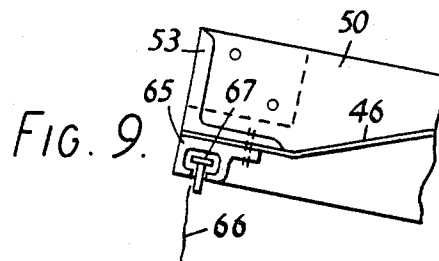
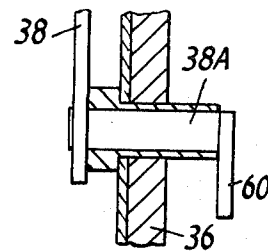


FIG. 8.



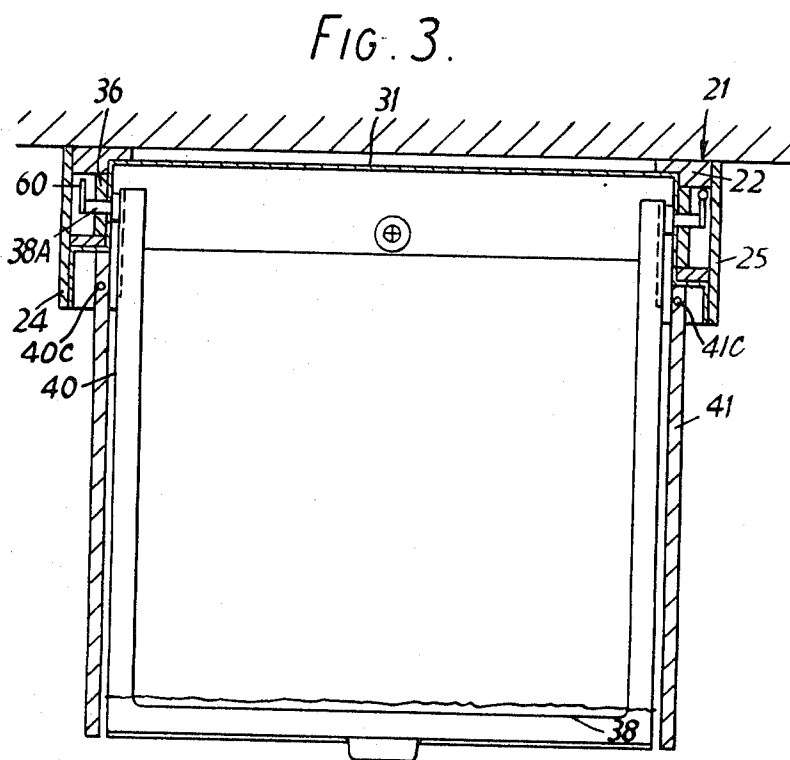
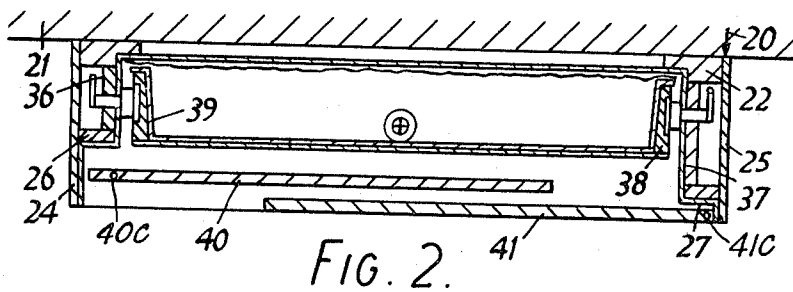


FIG. 4.

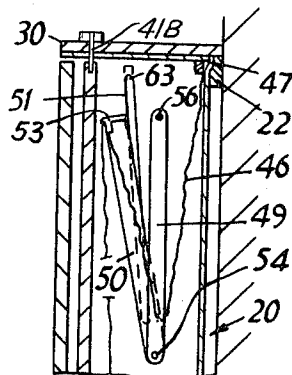
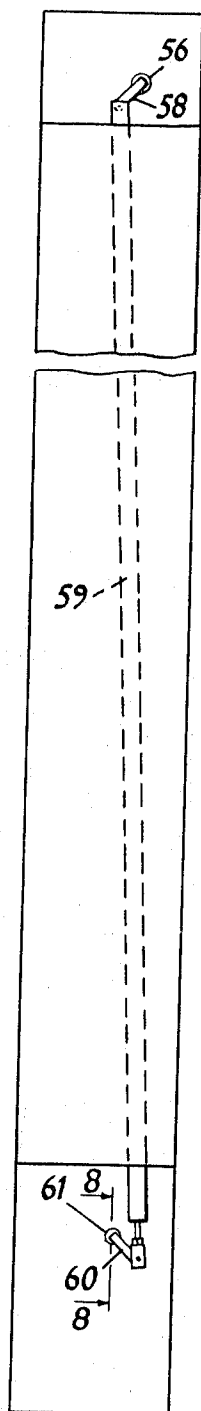
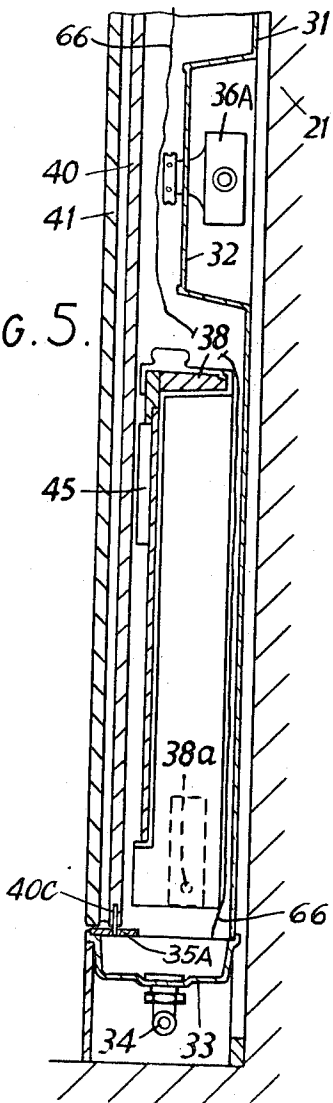
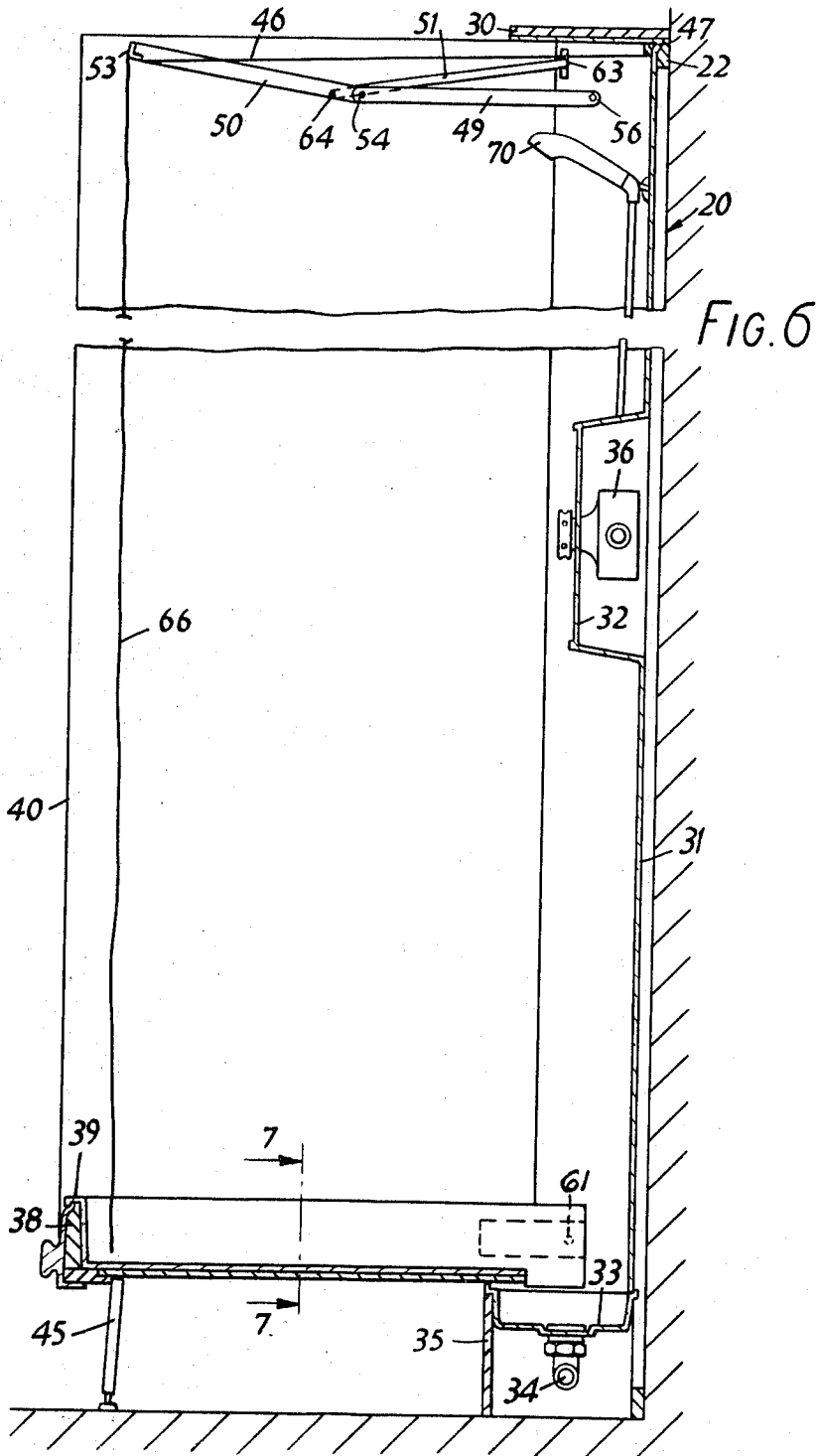


FIG. 5.





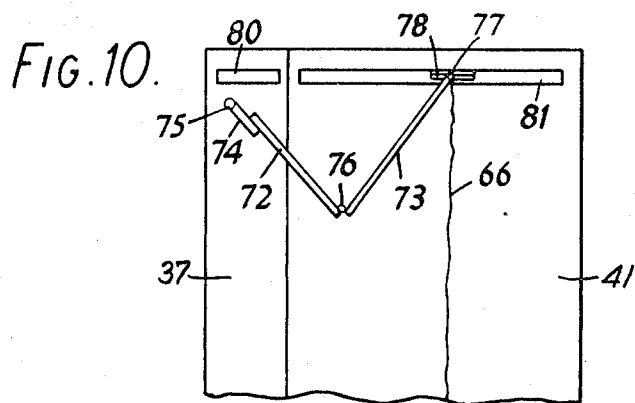
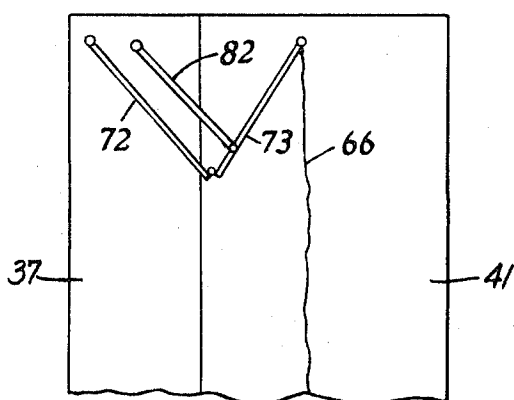


FIG. 11.



SHOWER CABINETS

This is a continuation of application Ser. No. 222,164, filed Jan. 31, 1972, now abandoned.

This invention relates to cabinets in which people may take a shower. The conventional shower cabinet is a built-in rigid structure which occupies a space too large to be accommodated in most bathrooms and in any case occupies space only required for a few minutes each day.

The present invention is an improvement on the invention described in the specification of our prior British Pat. No. 3,646,590.

In the specification of British Pat. No. 3,646,590 we have described a shower cabinet which is collapsible so that when not in use it occupies a space of small front-to-back depth but can readily be opened to accommodate a person in a waterproof space including a back structure of smaller depth than said space, a tray pivotally attached to the back structure and movable from a collapsed vertical position adjacent the back structure to a forwardly extended approximately horizontal position near floor level, and two side walls pivotally attached to the back structure movable from collapsed positions adjacent the back structure to forwardly extended positions approximately at right angles to the back structure, means to prevent escape of water between the two side walls when extended and the tray, and a front closure member movable from a position adjacent the back structure to a position at the front of the cabinet in the open condition in which the member serves as a front closure. Such a cabinet is hereinafter referred to as "a cabinet as hereinbefore defined". Thus the cabinet when closed can be almost flat against a wall or built into a recess in a wall. The invention can be usefully fitted in existing houses or new houses and is useful also for hotels, ships, caravans and other habitable structures.

According to the present invention we provide a cabinet as hereinbefore defined having a linkage mechanism mounted at the upper end of the back structure and movable from a folded condition in which it is folded with the back structure to a horizontal forwardly extended position and means attached to the front of the linkage mechanism adapted to carry the front closure member whereby the latter is moved from a position within the back structure to a forwardly extended position.

The invention will be further described by way of example with reference to the accompanying diagrammatic drawings wherein:

FIG. 1 is a perspective view of a shower cabinet made in accordance with the invention;

FIG. 2 is a horizontal sectional view of the cabinet in the closed condition;

FIG. 3 is a horizontal sectional view of the cabinet in the open condition;

FIG. 4 is a side view of the cabinet with certain panels removed;

FIG. 5 is a vertical sectional view of the cabinet in the closed condition;

FIG. 6 is a vertical sectional view of the cabinet in the open condition;

FIGS. 7 and 8 are sectional views on the planes 7-7 and 8-8 on FIGS. 6 and 5 respectively;

FIG. 9 is a detail to be described; and

FIGS. 10 and 11 are side views illustrating two modified constructions.

In FIGS. 1 to 9 the cabinet comprises a back structure 20 attached to the wall 21 of a bedroom or bathroom and consisting of a back frame 22, two rigid side wood walls 24, 25, vertical battens 26, 27 and a top board 30. The side walls have removable panels top and bottom shown at 25A, 26B in FIG. 1 and omitted from FIG. 4. A moulded sheet 31 of synthetic plastics forms a waterproof lining to the back and sides of the back structure and is formed with a bulge 32 (FIGS. 5 and 6) to contain mixing valves or other devices 36A. Below the sheet 31 is a channel 33 leading to a drain 34. The drain is covered by a skirt board 35. The frame 22 and battens 26, 27 are connected together by two further vertical battens 36, 37.

A tray 38 in the form of a rigid structure is pivoted on pins 61 to the side walls and has a plastics sheet lining 39.

Doors 40, 41 are pivoted on vertical pivots such as the pivot 40B carried by the top board 30 and vertical pivots such as the pivot 41B carried by a board 35A mounted on the tray 33, the pivots being located one forwardly of the other so as to overlap when closed. The top and bottom pivots of door 40 are shown at 40B, 40C, respectively in FIGS. 3 and 5. The corresponding pivots of door 41 are not shown in FIG. 5 because they are at the opposite side of the cabinet.

The tray carries flexible strips 40A (FIG. 7) to make a watertight joint with the doors. The doors carry channels 41A which are engaged by spring strips 42 on the sides of the tray when the cabinet is opened. The strips 42 serve to pull the doors tightly against the sides of the tray and the channels 41 carry any water leakage back to the channel 33. The tray carries legs 45 pivoted to the tray which gravitate to the respective positions when the tray is raised or lowered.

A roof is provided in the form of a single flexible sheet 46 of flexible material so that it can be folded down into a V shape as shown in FIG. 5 within the back structure or can be pulled forwardly to a horizontal position as shown in FIG. 6. The back edge of the sheet is fixed to the top inner corner of the back structure at 47 and its front edge is fixed to the front of a linkage mechanism consisting of two sets of members one at each side of the sheet and each having a lever or link 49, a link 50 and a link 51. An angle member 53 is secured to the front ends of the two links 50. The rear end of link 50 is pivoted at 54 to the front end of lever 49 and the rear end of the latter is pivotally mounted on a pivot pin 56 supported in the battens 36, 37. The two pins 56 carry arms 58 connected by rods 59 to arms 60 on pins 61 which are fixed to the tray 38, FIG. 4. The links 51 are mounted on pivots 63 in the back structure and their front ends are pivoted at 64 to the links 50 so that each of the links 50 is carried by two pivots 54, 64.

The front end of the sheet 46 is fixed between the angle member 53 and a support device for the front closure member, the support device being in this example a curtain rail 65 and the front closure member being a curtain 66 (FIG. 9) carried on runners 67 FIG. 9, and extending from door 40 to door 41 in the open condition. FIG. 9 is an enlarged view of part of FIG. 5 adjacent the member 53. The curtain 66 extends between the doors 40, 41 and does not need to be turned

back in U-shape since even in the retracted position the curtain 66 hangs essentially vertically as shown in FIG. 5.

A shower nozzle is shown at 70 (FIG. 6) which can be turned round or removed when the cabinet is closed.

When the cabinet is out of use it is closed as shown in FIGS. 1 and 5. When it is to be used the doors 40, 41 are opened and the tray 38 is lowered. Through the arms 58, 60 and rods 59 the levers 49 are swung forwards and upwards thereby raising the links 50 which are caused to move forwards guided by the links 51 thereby pulling out the roof sheet 46, to a horizontal position. At the same time the front closure member 66 is brought to the front and the cabinet is ready for use.

In the modification shown in FIG. 10 the roof consists of two rigid sheets 72, 73 of about the same area as each other. FIG. 10 is a view of the inner surfaces of the upper part of the batten 37 and open door 41. FIG. 11 is a view from a position similar to FIG. 10, but further modified.

The rear sheet is provided at each rear corner with a metal plate or these plates may be part of an integral metal strip 74 across the back edge of the plate. The ends of such a strip are located in slots facing into the cabinet and formed in two pivots 75. One of these pivots is freely rotatable in one side wall of the back structure while the other is rotatable in the other side wall of the back structure and extend therethrough and connected on the other side of said walls to an arm normal to the pivot axis and extending radially on both sides of the pivot. The ends of this arm are connected respectively to two long rods (such as 59, FIG. 4) that cross each other and have their lower ends connected to a similar arm on the pivot of the tray 38 so that movement of the tray moves the rear roof sheets from a vertical position when the tray is vertical to a horizontal position when the tray is horizontal. Alternatively, the rods may be on opposite sides of the cabinet.

The front roof sheet is pivoted at its rear edge 76 to the front edge of the rear sheet, e.g. by a strip hinge. Attached to each front corner of the front sheet is a bracket that extends forwardly and carries a rod 77 across the front of the roof sheet. The rod carries rings which support a curtain as 66. Each bracket also carries a pivot pin which carries a shoe or slider 78 which may be two to three inches long. These shoes run in guideways channels. Each guideway consists of a short horizontal portion 80, fixed to the inside of the side wall of the back structure and a long horizontal portion 81 fixed on the inside of the pivoted side wall of the cabinet so as to form a continuation of the short portion but spaced therefrom by a gap sufficiently to allow the pivoted side wall to be closed. The shoes are long enough to slide over this gap.

Thus, as the tray is lowered for use the roof is automatically extended and the curtain automatically brought to its required forward position. When the tray is raised the roof sheets are automatically collapsed and moved together with the curtain into the back structure, whereupon the pivoted side walls can be closed like doors.

Other parts of the cabinet may be made as described in the specification of our said prior application.

Instead of or in addition to providing guideways the front sheet may be guided by other means such as a parallel linkage. Thus as shown in FIG. 11 at one or each side an arm 82 may be pivotally mounted at its

upper end at the top of the back structure while its lower end is pivoted to the side of the front roof sheet between the ends of that side so that the arm is parallel to the rear roof sheet. The front edge of the front roof sheet is thereby guided in a horizontal plane.

The linkage mechanism of the present invention includes at least one member which is mounted on the back structure and carries at least one other member which can form an extension of the length of the first member, the members being collapsible into the back structure thereby bringing the front closure member to its forward position in which it serves as a front closure to the shower space.

If desired, the linkage mechanism may be operated by hand, or by cords, or by a lever separate from the tray.

We claim:

1. A shower cabinet which is collapsible so that when not in use it occupies a space smaller than the front-to-back depth required to accommodate a person taking a shower but can readily be opened to provide a space to accommodate such a person, said cabinet including a back structure of smaller depth than said space, a tray pivotally attached to the back structure and movable from a collapsed vertical position adjacent the back structure to a forwardly extended approximately horizontal position near floor level, two side walls pivotally attached to the back structure on vertical axes and movable from collapsed positions adjacent the back structure to forwardly extended positions approximately at right angles to the back structure, an overhead transverse horizontal support member, foldable linkage means including a first linkage mounted on the cabinet and a second linkage hinged thereto and carrying said member, said linkage means being arranged to convey said member from the back of the cabinet to the front of the cabinet by extending the linkage means from a position adjacent the back structure where the linkages are folded on each other into a forwardly extended approximately horizontal overhead position which is approximately in the same transverse vertical plane as the front edge of the extended tray whereby the forward and retracted positions of said horizontal support member are in a common horizontal plane, means to prevent escape of water between the two side walls when extended and the tray, a front closure member having its top edge carried by said support member and movable thereby from a retracted position adjacent the back structure to a position at the front of the cabinet in the extended position in which the front closure member is supported in both forward and retracted positions in approximately fully extended condition vertically, and connecting means operatively connecting the foldable linkage means with the tray whereby movement of the tray to its extended and retracted positions automatically moves the linkage means to bring the front closure member to its extended and retracted positions respectively.

2. A cabinet as claimed in claim 1, wherein the overhead support member is made of a plurality of sheets of rigid material hinged together at their transverse edges.

3. A cabinet as claimed in claim 1, wherein the overhead support member is made of a single sheet of flexible material carried by said linkage means.

4. A cabinet as claimed in claim 1, wherein the linkage means includes pivot means carried transversely in

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the back structure, a lever pivoted at its rear end on said pivot means, a first link, said lever being pivotally attached at its other end to the rear end of said first link, the forward end of said first link being attached to the forward edge of the overhead support member, and a second link pivoted at its rear end to the back structure and pivoted at its forward end to the first link.

5. A cabinet as claimed in claim 1, wherein the linkage means includes pivot means mounted transversely in the back structure, a lever pivoted at its rear end on said pivot means, and a link pivoted at its rear end to the forward end of the lever, a slider carried by the for-

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ward end of the link and a horizontal guide which guides said slider.

6. A cabinet as claimed in claim 1, wherein the overhead support member comprises two rigid sheets together forming a roof, one of which is pivotally mounted in the back structure at its rear edge and has its forward edge pivoted to the rear edge of the forward sheet, and means for guiding the forward sheet to a horizontal position when the rear sheet is moved to a horizontal position.

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