March 20, 1962 B. J. SKUDA 3,025,532

SHOWER CLOSURE

Filed Jan. 5, 1959 2 Sheets-Sheet 1

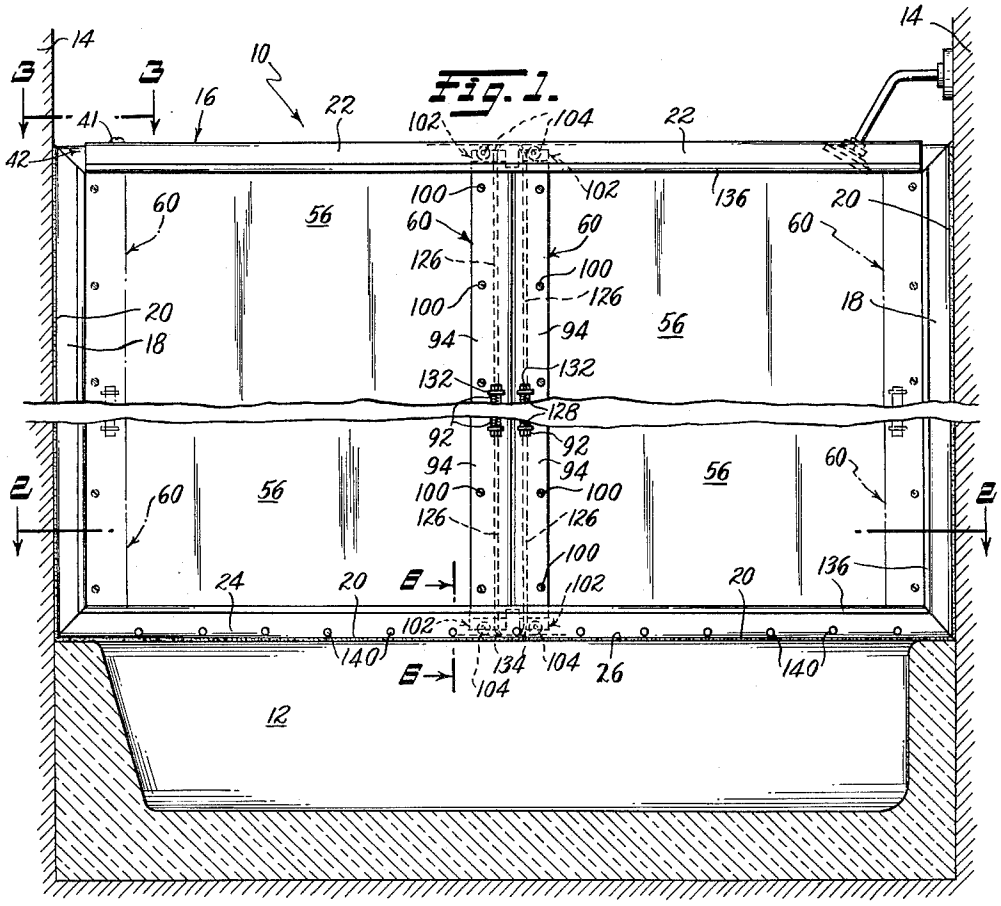


Fig. 1.

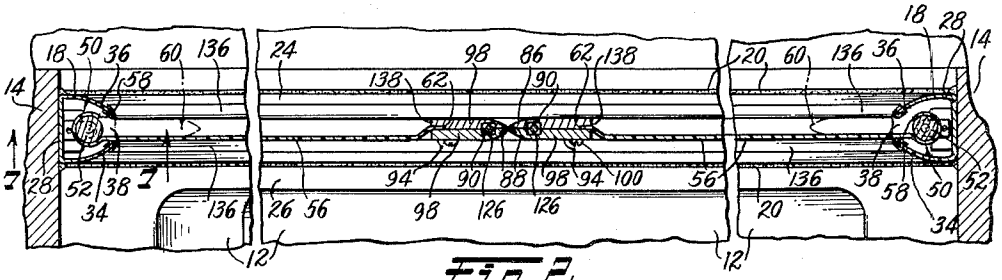


Fig. 2.

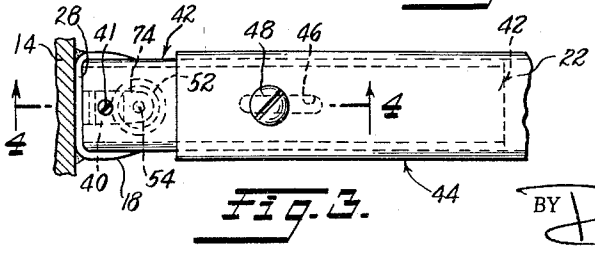


Fig. 3.

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March 20, 1962 B. J. SKUDA 3,025,532

SHOWER CLOSURE

Filed Jan. 5, 1959 2 Sheets-Sheet 2

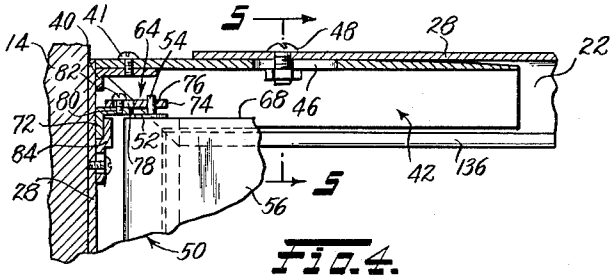


Fig. 4.

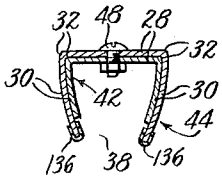


Fig. 5.

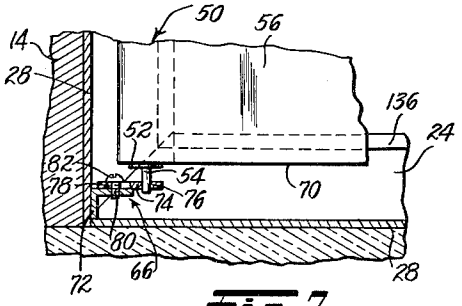


Fig. 7.

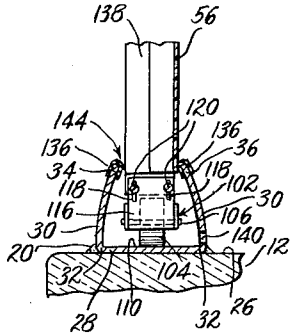


Fig. 6.

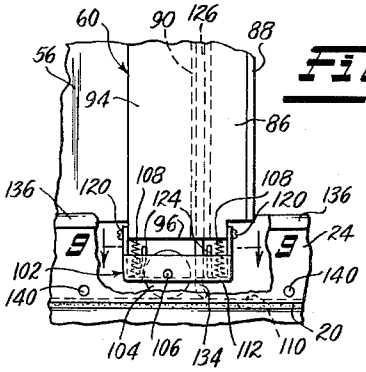


Fig. 8.

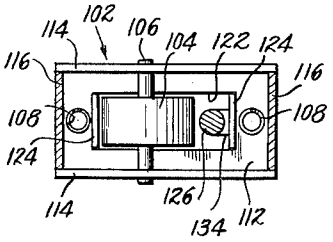


Fig. 9.

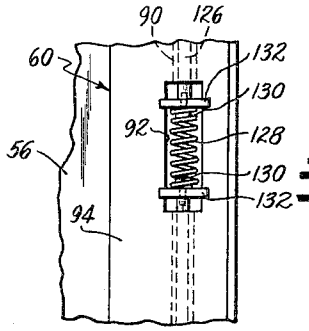


Fig. 10.

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3,025,532
SHOWER CLOSURE

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Filed Jan. 5, 1959, Ser. No. 784,937
4 Claims. (Cl. 4—149)

This invention relates to a shower closure and more particularly to an improved closure structure for enclosing a conventional or standard type of existing bathtub to convert same into a shower stall or for enclosing an existing conventional shower stall.

A principal object of this invention is to provide an improved shower closure that is adapted to be installed in combination with an existing, conventional type bath or shower compartment to enclose same in a watertight manner.

An additional object of this invention is to provide an improved shower closure that will convert an existing bathtub installation of a bath compartment into a watertight shower stall without necessitating any substantial modification or change to be made to the bathtub.

Another object of this invention is to provide an improved shower closure having a relatively rigid frame structure with a flexible impervious curtain material that is generally horizontally movable between an open and a closed position.

A further object of this invention is to provide a shower closure with a frame structure having vertically spaced substantially horizontally extending upper and lower track-guide means with an impervious flexible curtain material that is generally horizontally movable relative to the frame structure and positioning means for positioning and retaining the curtain material in a selected desired position that is either fully open, fully closed or partially open and partially closed.

A still further object of this invention is to provide an improved shower closure having a flexible impervious curtain material that is generally horizontally movable in track-guide means with a relatively rigid generally vertically disposed leading edge having spring biased antifriction means engaging the track-guide means to assure that the leading edge will be maintained in the generally vertical position to facilitate the movement of the curtain material.

It is a still further object of this invention to provide an improved shower closure including a frame structure having a generally vertically disposed elongated return roller assembly and a flexible impervious curtain material attached to the roller assembly for generally horizontal movement toward and from the roller assembly with an adjustable supporting means for supporting the roller assembly so that the longitudinal axis thereof is disposed substantially vertical to compensate for any irregularities in the wall structure to which the frame structure may be secured and to enable the curtain material to be properly aligned during the movement and evenly wound upon the roller assembly.

It is also an object of this invention to provide an improved shower closure having a pair of flexible impervious curtain materials that are generally horizontally movable toward and away from each other to closed and open positions, respectively, with a relatively rigid leading edge having sealing means which effects a seal between the certain materials when the leading edges are brought into engagement with each other in the closed position.

It is also a further object of this invention to provide an improved shower closure member having a flexible impervious curtain material that is generally horizontally movable between a closed and an open position with a releasable locking means which enables the closure member to be retained in the closed or open position and also releasably retained in any position that is intermediate the open and closed positions.

In order to accomplish the desired objects, as stated above, the invention comprises a generally rectangular frame structure which is formed from a suitable material, such as aluminum, and the frame structure is adapted to be removably secured between opposed walls of a bath compartment and along the outer peripheral edge of the bathtub or removably secured between opposed walls of an existing shower stall. An elongated spring biased roller assembly is located adjacent at least one of the side portions of the frame structure and adjustable supporting means is provided for supporting and disposing the roller assembly so that the longitudinal axis thereof will extend substantially vertical. A flexible impervious curtain element is secured adjacent one of its edge portions to the roller assembly and an elongated generally vertically disposed bar having handle means thereon is provided adjacent the opposite edge portion of the curtain element to enable the curtain element to be movable generally horizontally relative to the frame structure between fully open and fully closed positions. The frame structure also includes generally horizontally extending substantially parallel upper and lower guide-track means enabling the curtain element to maintain a desired course during the movement thereof between the open and the closed positions. Anti-friction means in the form of roller elements are provided to maintain the bar generally vertical and to facilitate the desired movement of the curtain element with the roller elements being journalled for rotation in a housing positioned adjacent each end portion of the elongated bar. Spring biased locking means is provided which removably engages the track means and retains the curtain element in the fully closed position and the locking means also may lock and retain the curtain element in any desired position intermediate the fully open and fully closed positions.

Other objects, advantages and important features of the invention will be apparent from a study of the specification following taken with the drawing which together describe, disclose and illustrate a preferred embodiment of the invention and what is now considered and believed to be the best mode of practicing the principles thereof. Other embodiments may be suggested to those having the benefit of the teachings herein, and such other embodiments are intended to be reserved especially as they fall within the scope and breadth of the subjoined claims.

In the drawing:

FIGURE 1 is a side elevational view of a shower closure having the improvements of this invention embodied therein with the shower closure being installed in combination with a tub stall with the view being taken from within the tub stall with the shower closure being illustrated in the closed position by solid lines and in the open position by dotted lines;

FIGURE 2 is an enlarged fragmentary horizonal view in section taken along the line 2—2 of FIG. 1 looking in the direction of the arrows;

FIGURE 3 is an enlarged fragmentary plan view taken along the line 3—3 of FIG. 1 looking in the direction of the arrows;

FIGURE 4 is a fragmentary longitudinal sectional view taken along the line 4—4 of FIG. 3 looking in the direction of the arrows;

FIGURE 5 is a cross-sectional view taken along the line 5—5 of FIG. 4 looking in the direction of the arrows;

FIGURE 6 is a cross-sectional view taken along the line 6—6 of FIG. 1 looking in the direction of the arrows;

FIGURE 7 is an enlarged fragmentary vertical sec-

tional view taken along the line 7—7 of FIG. 2 looking in the direction of the arrows;

FIGURE 8 is an enlarged fragmentary view illustrating the details of anti-friction supporting means and the releasable locking and positioning means;

FIGURE 9 is an enlarged horizontal sectional view taken along the line 9—9 of FIG. 9 looking in the direction of the arrows, and

FIGURE 10 is an enlarged fragmentary view illustrating the details of the handle means and the biasing means for actuating the releasable locking and positioning means illustrated in FIG. 8.

Attention is now directed to FIG. 1 of the drawing wherein there is illustrated a shower closure 10 having the improvements of this invention embodied therein and illustrating the shower closure in combination with a conventional type bathtub 12 which is installed in a bath compartment having walls 14—14. The shower closure 10 includes a relatively rigid frame structure 16, generally rectangular in configuration, formed from a suitable material, such as aluminum. The frame structure 16 includes generally vertically disposed spaced opposed side portions 18—18 which are each removably secured to the adjacent wall 14 of the bath compartment by suitable means such as screws or bolts, not illustrated, or by a suitable type plastic adhesive cement 20, such as "Pliobond" or "Miracle Adhesive" and generally horizontally disposed space upper 22 and lower 24 end portions. The lower end portion 24 is removably secured to a peripheral edge portion 26 of the bathtub 12 by the cement 20. It is to be understood that the improved shower closure 10 may also be installed in combination with a conventional type of existing shower stall, not illustrated, to provide a suitable closure therefor and for the sake of brevity the drawing only illustrates the improved shower closure 10 in combination with the bathtub 12 and bath compartment.

Each of the side 18—18 and end 22—24 portions of the frame structure 16 is substantially of channel configuration in cross-section, note FIGS. 2, 5 and 6, and include a substantially flat portion 28 and arcuate side portions 30—30 which extend from the longitudinal edge portions 32 of the flat portion 28 with the arcuate side portions 30—30 converging toward each other and terminating in free edge portions 34—36 which are in spaced relationship to define a generally longitudinally extending slot 38 in each of the side 18—18 and end 22—24 portions of the frame structure 16. In the combination as illustrated, the flat portions 28 of the side 18—18 and lower end 24 portions of the frame structure 16 are adapted to engage the walls 14—14 and end portion 26 of the bathtub 12, respectively, and are removably secured thereto by the cement 20, as stated above.

The adjacent ends of the side portions 18—18 and the end portions 22—24 are secured together by suitable corner bracket means 40 and securing means 41, in the form of metal screw or the like, note FIGS. 4 and 7. The upper end portion 22 of the frame structure 16 is longitudinally adjustable to compensate for any variance in the horizontal distance between the walls 14—14 of the bath compartment by having substantially like portions 42—44 telescopically engaged with the smaller one of the portions 42 having a longitudinally extending slot 46 and the larger portion 44 having a securing means 48, such as a bolt, passing through the slot 46 for securing the portions 42—44 in a desired longitudinally adjusted position, note FIGS. 3, 4 and 5. The lower end portion 24 is unitary and may be cut, by a conventional type cutting tool, to the length desired.

In each of the channel shaped side portions 18—18 there is positioned an elongated spring biased return roller assembly 50 including a roller element 52 journalled on a shaft 54.

A flexible impervious sheet of vinyl film curtain material 56, such as "Ultron" or the like which is mildew proof, has one of its edge portions 58 secured to the roller element 52 and extends therefrom through the respective slot 38 and has an elongated generally vertically disposed relatively rigid bar 60 attached to an opposed edge portion 62 of the curtain material 56. Whiel a pair of roller assemblies 50, curtain materials 56 and bars 60 are illustrated in the drawing, it is to be understood that in an installation having a relatively small entrance to be enclosed, such as a shower stall, that only one roller assembly 50, curtain material 56 and bar 60 will be necessary.

The curtain materials 56 and bars 60 are movable generally horizontal relative to the frame structure 16 between fully open and fully closed positions with the curtain material 56 being rolled onto and off the respective roller element 52 in accordance with the direction of movement which is imparted to the curtain material 56. As illustrated in FIGS. 1 and 2, the fully closed position of the curtain materials 56 is shown by solid lines and the fully open position is shown by dotted lines.

Upper 64 and lower 66 adjustable support means are provided adjacent the upper and lower end portions of each roller assembly 50, note FIGS. 4 and 7. The support means 64 and 66 engage the respective end portions of the shaft 54 and dispose the roller assembly 50 with the longitudinal axis thereof extending generally vertically so that the upper 68 and lower 70 opposed edge portions of the curtain material 56 will not bind or engage the adjacent flat portion 28 of the upper 22 and lower 24 end portions, respectively, of the frame structure 16 during the generally horizontal movement of the curtain material 56 between the open and closed positions and will also assure that the curtain material 56 will be evenly wound upon the respective roller element 52.

Each of the adjustable support means 64 and 66 include a pair of slidably engaged bracket members 72 and 74. One of the bracket members 72 is secured to the flat portion 28 of the respective side portion 18 and the other bracket member 74 is slidably supported by the bracket member 72 and has an aperture 76 into which the respective end portion of the shaft 54 is positioned. Each of the bracket members 74 is further provided with an elongated generally longitudinally extending slot 78 and each of the bracket members 72 has an aperture 80 in alignment with the slot 78 of the bracket member 74 that is slidably supported thereon and a suitable securing means 82, such as a metal screw, passes through the aligned slot 78 and aperture 80 to secure the bracket member so that the longitudinal axis of the roller assembly 50 is generally vertical, as stated supra.

It is to be noted that the lower bracket member 72 is secured directly to the flat portion 28 of the respective side portion 18 while the upper bracket member 72 is removably secured to the adjacent flat portion 28 by a flange 84 that is secured directly to the flat portion 28, note FIG. 4, so that by removing the upper end portion 22 of the frame structure 16 from the side portions 18—18 the upper adjustable support means 64 may be removed from the flange 84 and the roller assembly 50 may be entirely removed from the respective side portion 18 to enable the curtain material 56 to be repaired, cleaned and replaced or changed to suit the user's taste in color or design.

Attention is now directed to the elongated bars 60, note FIG. 2, each of which have a tapered leading edge 86 which overlap to define a seal therebetween when the curtain materials 56 are in the fully closed position. If desired, the leading edges 86—86 of the bars 60 may be provided with a suction means or interlocking structure 88 to improve the sealing effect therebetween. Each of the elongated bars 60 is provided with a bore 90 which extends throughout the full longitudinal extent thereof and an opening 92 on the inner side 94 which opens generally horizontally and laterally inwardly and which is positioned intermediate the upper and lower end portions 96

of the bar 60. Each of the bars 60 are formed from a pair of blanks 98 which are substantially enantiomorphous and which are joined together by suitable securing means, 100, such as bolts or screws, to secure the said opposed edge portion 62 of the curtain material 56 therebetween.

Each of the upper and lower end portions 96 of the elongated bars 60—60 have a housing 102, note FIGS. 6–8, telescopically received thereon with each housing 102 having an anti-friction means 104 in the form of a roller journalled for rotation on a shaft 106. The housings 102 are each spring biased in a longitudinal direction generally outwardly away from the adjacent end portions 96 of the respective bar 60 by a plurality of spaced resilient means 108 in the form of coil springs which are disposed between each housing 102 and the adjacent end portion 96 of the respective bar 60. The resilient means 108 maintains each of the anti-friction means 104 in engagement with a track 110 defined by the longitudinally extending central portion of the flat portion 28 of the respective upper 22 and lower 24 end portions of the frame structure 16 so that the bars 60—60 will not be substantially canted or inclined from the vertical during the movement of the curtain material 56 between the open and closed positions.

Each of the housings 102 comprise a generally horizontally disposed base portion 112 having generally outwardly extending side 114 and end 116 flanges. The end flanges 116 are each provided with elongated slots 118, note FIG. 6, having securing means 120 passing therethrough to retain the housings 102 on the end portion 96 of the respective bar 60.

As illustrated in FIGS. 8 and 9, the base portion 112 of each of the housings 102 is provided with an opening 122 which is struck from the base portion 112 in the same direction that the flanges 114 and 116 extend therefrom to define a plurality of spaced stop means 124 which terminate beyond the periphery of the adjacent roller 104 which is positioned intermediate the stop means 124 within the opening 122 with the shaft 106 being secured to the base portion 112. Each of the stop means 124 is positioned to engage the adjacent end portion 96 of the respective bar 60 to prevent either end portion 96 from engaging the respective roller 104 to retard the rotation thereof during the movement of the bar 60 and curtain material 56 along the track 110.

A pair of axially aligned, elongated longitudinally spaced rods 126 are longitudinally movably positioned within the bore 90 of each of the bars 60 and the rods 126 are normally spring biased longitudinally generally outwardly in a direction away from each other by a resilient means 128 in the form of a coil spring that is positioned intermediate the adjacent inner ends 130 of the rods 126, note FIG. 10. Attached to each of the inner ends 130 of the rods 126 is a handle means 132 which extends generally laterally from the respective inner end 130 through the opening 92 of the respective bar 60, note FIG. 10, and terminates in spaced relationship to the inner side 94 thereof.

The outer end portion 134 of each of the rods 126 is bent from the longitudinal axis in the direction of movement of the respective bar 60 and curtain material 56 and is urged by reason of the resilient means 128 to normally engage the track 110, note FIG. 8, of the adjacent flat portion 28 and provide a positioning and locking means for retaining and locking the respective curtain material 56 and bar 60 in the fully closed position as illustrated by solid lines in FIGS. 1 and 2, or in any desired position that is intermediate the closed and open positions with the bars 60 being in spaced relationship to each other to partly close the bath compartment or shower stall.

The positioning or locking means defined by the outer end portions 134 and tracks 110 is released from its normal engaging position by urging each of the longitudinally spaced handle means 132 toward each other to overcome the normal bias of the resilient spring means 128.

The edge portions 34—36 of the arcuate side portions 30—30 of the side 18—18, upper end 22 and lower end 24 portions of the frame structure 16 may be covered with a plastic, resilient, elastomeric or rubber material 136. One of the so covered portions 34 of the side portions 18—18 will act as a wiper to remove any water, soapy substance or the like, from the inside of the curtain material 56 as the curtain material is wound onto the roller element 52, note FIG. 2. Also, it is to be noted that the other edge portion 36 of each of the side portions 18—18 defines a stop means which cooperates with a corner portion 138 of the respective bar 60 to position the respective curtain material 56 and bar 60 in the fully open position.

The slots 38 defined by the edge portions 34—36 of each of the upper end 22 and lower end 24 portions of the frame structure 16 define vertically spaced, generally horizontally extending elongated guide means, note FIG. 6, for guiding the curtain material 56 and bar 60 along the respective track 110 and the lower end portion 24 of the frame structure 16 is provided with a plurality of longitudinally spaced inwardly opening apertures 140 which are located closely adjacent to the flat portion 28 to enable any water which may accumulate within the lower end portion 24 of the frame structure 16 to drain into the bathtub 12 or shower stall.

While the invention has been described in terms of an embodiment which it has assumed in practice, the scope of the invention should not be deemed to be limited by the precise embodiment herein shown, such other embodiments being intended to be reserved especially as they fall within the scope of the claims herein appended.

I claim as my invention:

1. A closure comprising a relatively rigid frame structure having vertically spaced generally horizontally extending upper and lower track-guide means and horizontally spaced generally vertically extending side portions, a pair of elongated return spring biased roller assemblies, supporting means for adjustably supporting one of said roller assemblies in each of the side portions of the frame structure between the upper and lower track-guide means thereof with the longitudinal axes of the roller assemblies being disposed substantially vertically in generally parallel relationship to each other, each of said roller assemblies having a generally vertically disposed substantially impervious flexible curtain material attached thereto, and means enabling said curtain materials to be longitudinally movable relative to the frame structure in a generally horizontal direction toward and from each other between closed and open positions, respectively, said last named means including a relatively rigid generally vertically disposed elongated leading edge on each of the curtain materials extending between the upper and lower track-guide means, each of said leading edges of the curtain materials having a longitudinally extending bore therethrough, anti-friction means carried by each end portion of each leading edge of each curtain material in engagement with the upper and lower track-guide means, said anti-friction means including a housing telescopically positioned on the respectve end portion of each leading edge, resilient spring means biasing each housing toward the track-guide means that is immediately adjacent thereto and a roller element journalled in each housing in contact with the adjacent track-guide means, locking and positioning means carried by each leading edge of each curtain material for engaging the upper and lower track-guide means to releasably retain each of the curtain materials in a desired selected position relative to each other, said locking and positioning means including a pair of aligned axially spaced elongated rods disposed within each bore of each leading edge, each of the rods of each pair extending in longitudinally opposed directions through the respective bore and having one end

portion projecting beyond the adjacent end portion of the respective leading edge, each of said one end portions of each rod being bent in a direction common to the direction of movement of the curtain materials and terminating in frictional engagement with the track-guide means that is immediately adjacent thereto and resilient spring means interposed between the other end portions of each pair of rods for urging the one end portions thereof into engagement with the adjacent track-guide means, and handle means secured to the other end portion of each rod, means enabling each of said handle means to be movable in a direction to overcome the force of the resilient means that is interposed between the other end portions of each pair of rods to disengage the one end portion of the respective rod from the adjacent track-guide means to enable the curtain materials to move in said direction either simultaneously or indepedently of each other to and between the open and closed positions.

2. A shower closure comprising a relatively rigid frame structure having spaced generally horizontally extending upper and lower track-guide means, an elongated return roller assembly, supporting means for adjustably supporting the roller assembly between the upper and lower track-guide means of the frame structure with the longitudinal axis of the roller assembly extending substantially vertically therebetween, said roller assembly having an impervious flexible curtain material attached thereto, and means enabling said curtain material to be generally horizontally movable relative to the frame structure between a plurality of open positions and a closed position, said last named means including an elongated relatively rigid leading edge portion on said curtain material extending between the upper and lower track-guide means, said leading edge portion having a bore extending generally longitudinally therethrough, anti-friction means carried by each end portion of the leading edge portion of the curtain material in engagement with each of the upper and lower track-guide means, positioning means carried by the leading edge portion of the curtain material for retaining the curtain material in a desired selected one of the open positions, said positioning means including a pair of aligned, axially spaced, elongated rods disposed within the bore of the leading edge portion, said rods extending in longitudinally opposed directions through the bore with one end portion of each rod projecting beyond the adjacent end portion of the leading edge portion, each of the one end portions of the rods being bent in a direction common to the direction of the movement of the curtain material and terminating in frictional engagement with the track-guide means that is immediately adjacent thereto and resilient means interposed between the other end portions of the rods for urging the one end portions thereof into the frictional engagement with the adjacent upper and lower track-guide means, and handle means carried by the leading edge portion of the curtain material for releasing the positioning means to enable the curtain material to move to and between the open and the closed positions.

3. The shower closure as set forth in claim 2, wherein the anti-friction means includes a housing telescopically mounted in each end portion of the leading edge portion, resilient means interposed between each housing and the adjacent end portion of the leading edge portion biasing the respective housing toward the track-guide means that is immediately adjacent thereto, and an anti-friction element carried by each housing in engagement with the adjacent track-guide means.

4. The shower closure as set forth in claim 2 together with means removably supporting the roller assembly and the curtain material to the supporting means to enable the roller assembly and the curtain material to be removed, repaired, cleaned, or replaced as desired.

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