

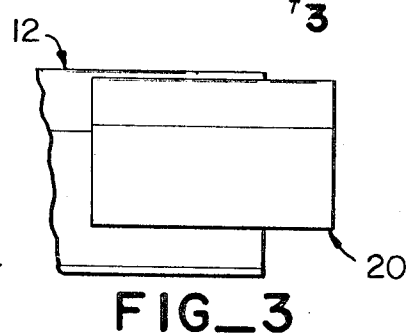
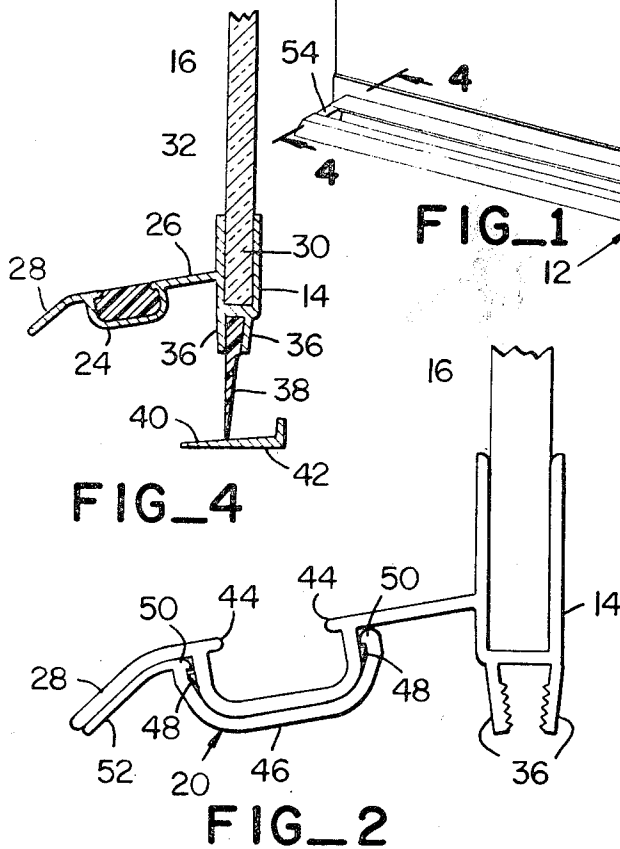
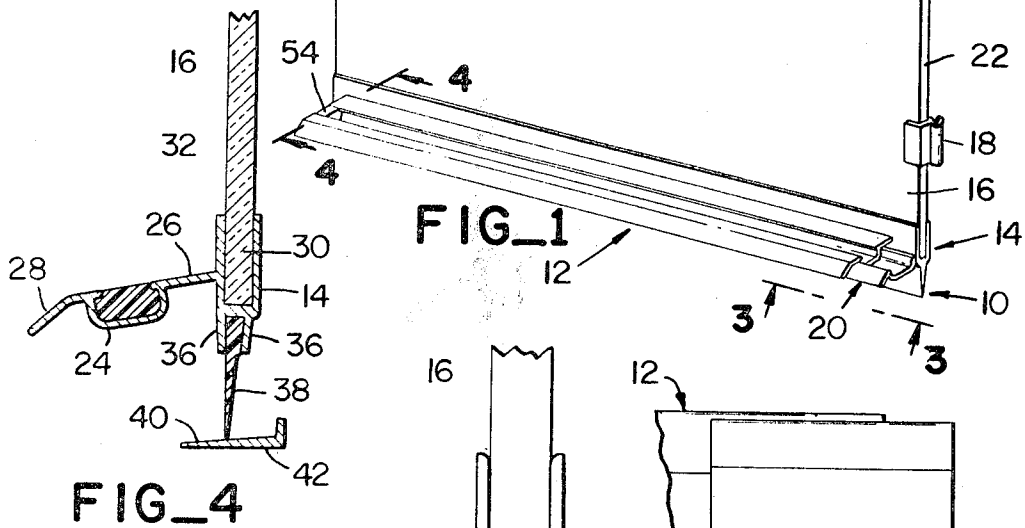
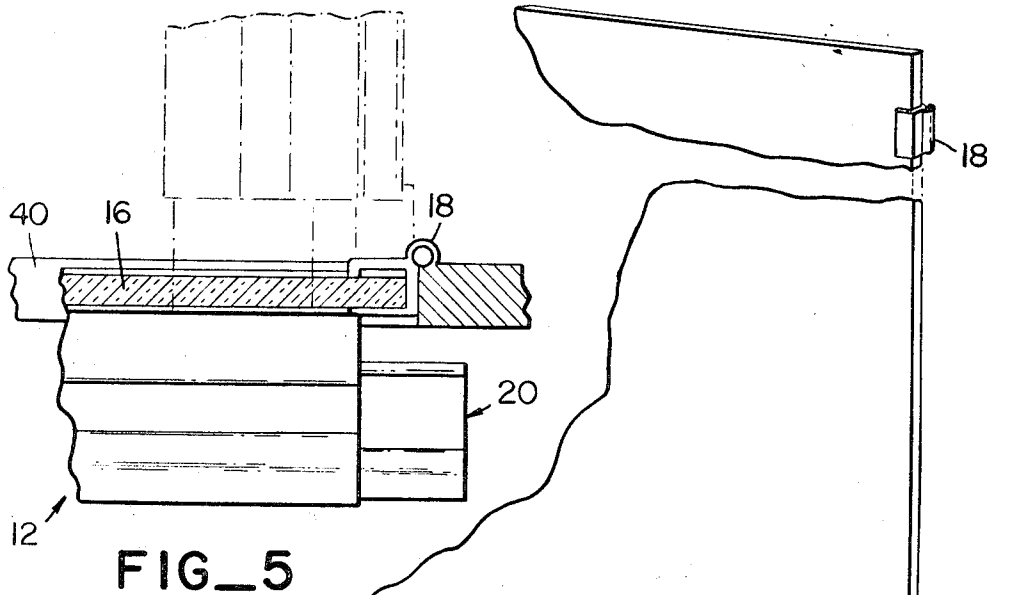
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DRIP ASSEMBLY FOR SHOWER DOOR

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DRIP ASSEMBLY FOR SHOWER DOOR
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ABSTRACT OF THE DISCLOSURE

Drain apparatus for a swingable shower door wherein the apparatus is positioned to collect drain liquid gravitating along the shower side of the shower door and to return the drain liquid to the shower area regardless of whether the shower door is opened or closed. A drain extension attachably mounted at one end of a drain member increases the effective length of the latter so that it communicates with the shower area for all operative positions of the shower door. The drain extension can be coupled to either end of the drain member so that the drain apparatus can be used on a swinging shower door hinged at either of its side edges.

This invention relates to improvements in shower door assemblies and, more particularly, to an improved drain or drip assembly for a swingable shower door.

The present invention is directed to a drain or liquid return assembly for the shower side of a swinging shower door wherein the drain is in a position to collect water as it drips or otherwise gravitates along the shower door regardless of whether the door is open or closed. The drain has an extension removably secured at an end of a drain member disposed at the lower margin of the door. The drain member collects drain water as it gravitates along the shower side of the door and the extension is sufficiently long to return the collected drain water to the shower area for all operative positions of the shower door. Thus, water will not drip onto the floor surface adjacent to the shower area when the door is open.

The drain member and drain extension are made so that the drain extension can be secured to either end of the drain member. Thus, the drain assembly can be used regardless of whether the shower door is hinged on one side edge or the other. Also, the drain member and the drain extension can be made in stock sizes so that they do not need to be sized at the point of use. Thus, the drain assembly components are interchangeable and can be used immediately for doors hinged on right-hand or left-hand side edges. This avoids the problems of prior drain assemblies which had to be notched at the end of the drain nearest the hinge line of the door. This notching generally occurred at the point of use and required considerable skill, time and effort to assure quality workmanship.

Preferably, the drain member and drain extension are formed by an extrusion process to permit construction of the drain member and drain extension as complements of each other. Thus, the drain extension can be readily attached to the drain member either by a telescoping action or by a snap action if one of these two components is resilient. Moreover, the drain member and the drain extension have uniform cross sections throughout their lengths so that the mounting means therefor will be provided at both ends of each to allow the extension to be readily mounted on either end of the drain member. By virtue of this construction, the drain member can be placed on the lower margin of a shower door and the extension can be quickly put into place on the end of the drain member corresponding to the hinged side edge of the door. A removable closure can be then placed on the

opposite end of the drain member to close the latter and thereby complete the installation of the drain assembly.

The teachings of this invention are especially adapted for swinging shower doors of tempered glass which cannot be cut without great difficulty and which are generally cut to stock sizes at a manufacturing site remote from an installation site. When using stock sizes, it is oftentimes necessary to compensate for errors in the construction and position of accessories, such as mounting frames and structures. The present invention can be used even though such errors exist and thereby the invention is capable of compensating for these errors to permit the resulting shower assembly to have all of the advantages of tempered glass without sacrificing workmanship or a desired attractive appearance for the assembly.

The primary object of this invention is to provide an improved drain assembly for use with a swinging shower door wherein drain liquid which accumulates on and gravitates from the shower side of the shower door is collected by a drain member and returned to the shower area by a drain extension being coupled to either end of the drain member so that the drain assembly can be used with all swinging shower doors regardless of which of their side edges are used for hinging purposes.

A further object of the invention is to provide a drain assembly of the type described within the drain member and the drain extension can be formed from extrusions to permit the drain member and the drain extension to be complements of each other and thereby facilitate the interconnection therebetween.

Another object of this invention is to provide a drain assembly for a swinging shower door wherein the drain assembly can compensate for errors in the construction of the shower entrance with which the door is usable so that the door can be of a stock size to thereby preclude having to size the door at the installation site.

Other objects of this invention will become apparent as the following specification progresses, reference being had to the accompanying drawing which illustrates a preferred embodiment of the invention.

In the drawing:

FIG. 1 is a perspective view of the drain assembly mounted on the lower margin of a swingable shower door;

FIG. 2 is an end elevational view of the drain assembly showing a drain extension on a drain member;

FIG. 3 is a fragmentary bottom plan view of the assembly looking in the direction of line 3—3 of FIG. 1;

FIG. 4 is a cross-sectional view taken along line 4—4 of FIG. 1; and

FIG. 5 is a fragmentary top plan view of the assembly illustrating the operative position of the drain extension when the door is open or closed.

Drip assembly 10 is comprised of a drain or trough member 12 attached to a transversely U-shaped stretch 14 adapted to be forced onto and frictionally held by the lowermost margin of a swingable, frameless shower door 16, the latter having hinge means 18 on one side edge 22 for mounting the door for swinging movement about a generally vertical axis. A trough or drain extension 20 is shiftably mounted on member 12 at the end thereof corresponding to the hinged side edge 22 of door 16. Drain member 12 is mounted in a sloping condition on door 16 to cause liquid collected thereby to gravitate toward extension 20. The liquid will thus flow onto the extension and off the open end of the latter into the drain area in a manner more specifically set forth hereinafter.

Drain member 12 includes a central, channel-shaped portion 24 and a pair of side portions 26 and 28, portions 24, 26 and 28 extending throughout the entire length of the drain member. Portion 26 connects one side of portion 24 to stretch 14 and has a shallow slope, as shown

in FIGS. 2 and 4, to direct water from the shower side 32 of door 16 into channel portion 24. Portion 28, rigid to the opposite side of portion 24, also slopes downwardly to direct any drain water falling thereon back into the shower area when door 16 is closed.

A pair of spaced, longitudinally extending, generally rigid side strips 36 depend from stretch 14 and provide the mounting means for a flexible wiper 38 which extends downwardly to the sloping surface 40 of a curb plate or cross-piece 42 at the entrance to the shower area. To hold wiper 38 in place, side sections 36 are provided with longitudinally extending serrations, as shown in FIG. 2, which define teeth adapted to support the wiper in place. Wiper 38 may be formed from a suitable material, such as neoprene or the like so that it can be made by a molding process and provided with recesses for complementarily receiving the serrations on strips 36.

Central portion 24 of drain member 12 is provided with longitudinal extending lips 44 as shown in FIGS. 2 and 4. Lips 44 provide anti-splash barriers for water in portion 24 but do not interfere with the flow of water into portion 24 from portion 26.

As shown in FIG. 1, the length of stretch 14 is greater than that of member 12 and the ends of member 12 are spaced inwardly from the ends of stretch 14. By virtue of this construction, member 12 will not interfere with frame or wall structure on either side of the entrance to the shower area as door 16 is opened and closed.

Drain extension 20 has a main portion 46 which is substantially complementary to central portion 24 of member 12. This construction allows portion 46 to be telescopically mounted on portion 24 as shown in FIGS. 1 and 2. Also, extension 20 has a width less than that of member 12 so as to avoid interference with adjacent frame or wall structure when door 16 is opened and closed. Extension 20 can also be resilient so that it can be snapped into place on member 12.

Portion 24 has a pair of longitudinally extending ribs 48 beneath portions 26 and 28 respectively, and main portion 46 has a pair of longitudinally extending lips 50 which overlie and engage respective ribs 48 in a manner to prevent downward movement of portion 46 from portion 24 when drain extension 20 is attached to drain member 12. A projection 52 integral with portion 46 underlies projection 34. Lips 50 are in sliding engagement with ribs 48 so that extension 20 can be adjusted as to position on the corresponding end of member 12. Ribs 48 and lips 50 extend throughout the lengths of member 12 and extension 20. Thus, extension 20 can be coupled to either end of member 12. Also, member 12 is open at both of its ends so that drain liquid collected in central portion 24 can be caused to move to one end of member 12 as the other when the latter is properly sloped on door 16. Thus, assembly 10 can be coupled to door 16 regardless of which longitudinal side edge hinge 18 is mounted on. To close the opposite end of member 12, a removable closure in the form of a plug 54 is provided. Plug 54 has a cross section substantially complementary to the interior surface of portion 24 as shown in FIG. 4. Thus, the plug can be readily inserted in and taken out of portion 24. Plug 54 is made from any suitable material, such as neoprene or the like, so as to provide an effective seal at the corresponding end of member 12. Other closure means can be provided if desired.

While member 12 and extension 20 can be made in any suitable manner, they are preferably formed by an extrusion process to not only minimize production costs but to form ribs 48 and lips 50 at the same time the other parts of these components are formed. There will, therefore, be uniformity in the cross-sections of member 12 and extension 20 to facilitate the interchangeability feature which permits extension 20 to be readily coupled to either end of member 12. When formed as extrusions, these two components can be formed in relatively long lengths and then cut to size. The ends of member 12 can be cut back

from the ends of portion 28 to provide the spacing as shown in FIG. 1.

In use, assembly 10 is affixed to the bottom margin of door 16 by forcing stretch 14 onto the bottom margin of the door. Member 12 is provided with a certain slope during this step to assure that the lower of its two ends will be adjacent to the side edge of the door having hinge means 18. Plug 54 is then inserted at the upper or opposite end of member 12 and extension 20 is telescoped or snapped onto the lower end. Extension 20 is adjusted so that, when door 16 is closed and above curb plate 42, the outer end of the extension is beyond the hinge line of hinge means 18 in the manner shown in FIG. 5. It is to be noted that the inner longitudinal ledge of extension 20 is spaced from portion 28 and thereby from the adjacent wall surface so that assembly 10 will not interfere with the adjacent frame or wall structure as door 16 is opened and closed.

With door 16 closed, the shower can be turned on and the water spray allowed to strike the inner side face 32 of the door. The water will either be reflected back into the shower area or gravitate along face 32, onto stretch 26 and into the recess formed by central portion 24. Since member 12 slopes toward the end having extension 20, the water will be directed longitudinally of member 12, into the channel defined by extension 20 and out of the latter at the outer end thereof. Since this outer end communicates with the shower area, the drain water is returned to the floor of the shower. Lips 44 prevent any substantial splashing of water in portion 24 from the direct shower spray.

After the shower has been turned off and the door opened, the drain water can continue to gravitate along face 32 and into portion 24. For all normal open positions of door 16, the water will return to the shower area because, as shown in FIG. 5, extension 20 has its outer end in overlying relationship to at least the innermost portion of curve plate 42 so that the drain water gravitating from extension 20 will be returned to the shower area. For the most part, door 16 will not swing through an arc greater than 90 degrees so that extension 20 will always return the drain water to the shower area regardless of whether the door is in its closed position or in the maximum open position.

While drain assembly 10 has been shown with a frameless glass door, it is to be noted that it can also be used with a framed glass door. For the latter case, modifications might be necessary in order to attach drain member 12 to the lower frame portion of the door frame. Nonetheless, the drain assembly will continue to operate in the same manner.

Drain assembly 10 can compensate for errors in the construction and position of the frame components associated with door 16. To this end, stretch 14 can be adjusted so that wiper 38 engages surface 40 of curb plate 42 when the door is closed. Also, stretch 14 can be initially cut for a particular door width and trimmed if necessary to shorten its length. The length of extension 20 is sufficient to permit it to be adjusted over a wide range.

While one embodiment of the invention has been shown and described, it will be apparent that other adaptations and modifications can be made without departing from the true spirit and scope of the present invention.

What is claimed is:

1. Drain structure for swingable shower door comprising: an elongated trough member having means for mounting the same on a swingable shower door in a position to receive drain liquid from one face of the door and to direct the drain liquid toward one end of the trough member; and a trough extension attachably mounted on said trough member at said one end thereof in a location to receive drain liquid therefrom, said trough extension having an effective length sufficient to return all drain liquid received thereby to the shower area as-

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sociated with said shower door for all operative positions of the latter when the trough member is mounted thereon.

2. Drain structure as set forth in claim 1, wherein said trough extension is shiftably mounted on and movable longitudinally of said trough member to permit said effective length to be adjusted.

3. Drain structure as set forth in claim 1, wherein the opposite end of said trough member is open, and plug means closing said opposite end.

4. Drain structure as set forth in claim 1, wherein said mounting means includes a U-shaped connecting portion adapted to receive the lower margin of said shower door, said trough member extending laterally from one side of said connecting portion, said trough extension having a longitudinally extending inner edge spaced laterally from said connecting portion.

5. A shower door assembly comprising: a shower door having hinge means on one longitudinal edge thereof for mounting the door for swinging movement about a generally vertical axis; a drain member mounted on the lower margin of one side of said door in a position to receive drain liquid from said one side, said drain member being disposed to direct drain liquid received thereby toward one end thereof, said one end of the drain member being spaced from said one longitudinal edge of the door; and a drain extension adjustably mounted on said drain member at said one end in a location to receive drain liquid therefrom, said extension being spaced laterally from said one side of the door and of a length sufficient to extend the effective length of said drain member beyond said one longitudinal edge of said door, whereby drain liquid will be returned to a shower area for all normal operative positions of said door when the latter is hinged at the entrance of said shower area.

6. A shower door assembly as set forth in claim 5, wherein said drain member is in a sloping condition relative to said door to position said one end of the drain member below the opposite end thereof, and wherein is provided a flexible wiper, and means coupling said wiper to said mounting means in depending relationship thereto, said wiper adapted to engage a surface defining the lower boundary of said entrance to said shower area when said door closes said entrance.

7. Drain structure for a swingable shower door having a pair of side edges comprising: an elongated drain member having a longitudinally extending channel portion therein and having a pair of open ends, said drain member having a length less than the wide of said door and adapted to be mounted on one side of said door in a location with the channel portion disposed to receive drain liquid from said one side and with said open ends of the drain member spaced inwardly of the side edges of the door, said drain member adapted to be disposed on said door in a sloping condition to direct drain liquid received in said channel portion toward the lower open end; a drain extension; means on each end of the drain member respectively for attachably mounting said extension thereon, said extension having a channel section disposed to receive drain liquid from said drain member when the drain extension is mounted thereon, said drain extension having

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a length sufficient to extend the effective length of the drain member beyond an adjacent side edge of the door and having an outer open end to cause the drain liquid received therein to gravitate therefrom and thereby to be directed into the shower area associated with said shower door when the latter is hinged at the side edge corresponding to the end of said drain member having said drain extension thereon; and closure means removably mounted on said drain member to close the end thereof opposite to the end having said drain extension thereon.

8. Drain structure as set forth in claim 7, wherein said mounting means includes a pair of longitudinally extending ribs on the outer surface of said drain member on respective sides of said channel portion, said section being telescoped on said one member and having a pair of spaced lips overlying respective ribs, whereby the ribs support said lips and thereby said drain extension on said drain member.

9. Drain structure as set forth in claim 7, wherein said drain extension is formed of resilient material and being substantially complementary to said drain member, said mounting means includes a lip on said drain extension and a recess on said drain member for receiving said lip, whereby said extension may be urged into an operative position with said lip received in said recess to thereby releasably maintain the drain extension on said drain member.

10. Drain structure as set forth in claim 7, wherein said channel portion has an open top, said member having a pair of longitudinally extending lips extending partially across said top on opposed sides of said channel portion to minimize splash of drain liquid therein.

11. Drain structure as set forth in claim 7, wherein said drain member and said drain extension comprise first and second extrusions respectively, said second extrusion being complementary to said first extrusion.

12. Drain structure as set forth in claim 11, wherein said mounting means includes a pair of ribs integral with said first extrusion on opposed sides of said channel portion and a pair of lips integral with said second extrusion on opposed sides of said channel section, said ribs underlying and thereby supporting said lips to connect said second extrusion to said first extrusion.

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