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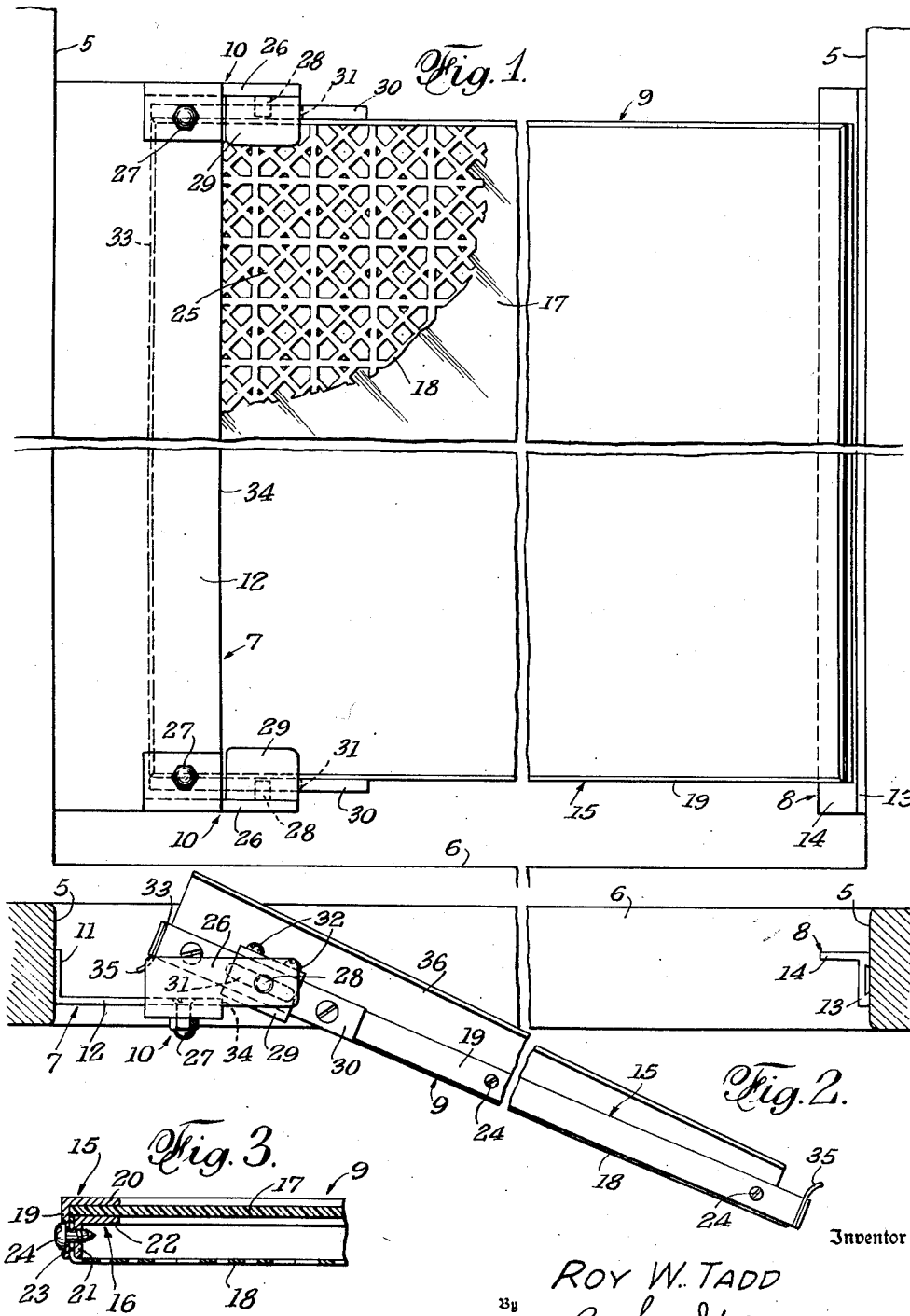
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SHOWER STALL DOOR

Filed Sept. 3, 1953

2 Sheets-Sheet 1



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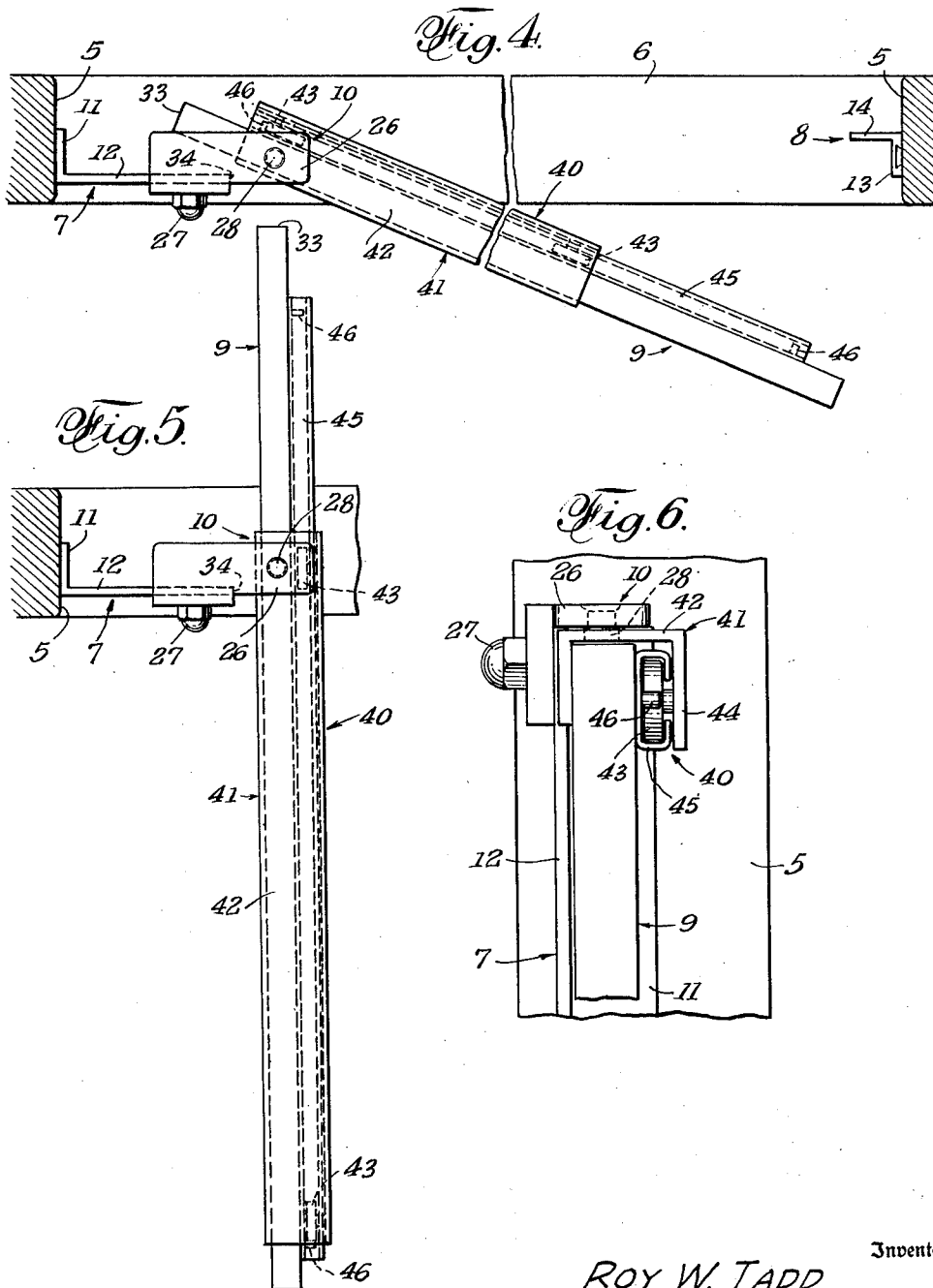
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SHOWER STALL DOOR

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5 Claims. (Cl. 189—46)

This invention relates to a shower door stall.

Conventional shower doors are usually made of glass of plate thickness and, therefore, are expensive. Also, such doors, being heavy because of the thick plate glass used, when slammed shut with greater force than necessary or upon striking some pointed object, may shatter with the possibility of injury to a person proximate thereto. Recently, thick and rigid plastic sheets have been used as a substitute for plate glass. While such sheets eliminated the hazard of injury, the same also introduced an added expense—that of a plastic sheet sufficiently thick to be inflexible.

Recognizing the foregoing, it is an object of the present invention to provide a shatter-proof shower door that has resilience so the same will yield to accidental shocks including inadvertent encounter with the person using the shower, and yet be suitably rigid for the purpose intended.

Another object of the invention is to provide a waterproof door of the character indicated that is relatively less expensive and lighter in weight than doors in common use.

A further object of the invention is to provide a shatter-proof shower door that is comprised of an inner waterproof and relatively thin and inexpensive sheet of plastic, and an outer perforated metal sheet that protects the same, the perforations of said sheet being arranged to form an overall repeat design or pattern.

A still further object of the invention is to provide adjustable hinge mounts for a door, as above, so that said door may be adapted to stall openings of different widths, the pattern of said door being more or less covered according to the adjustment of the hinges and yet giving the appearance of completeness because of the overall form of said pattern.

A further object of the invention is to provide a door structure, as above indicated, that, when opened, can be partly retracted into the shower stall to, thereby, enable the hanging of a door that is wider than can be accommodated in the space in which it swings, said door, at the same time, being automatically adjustable for its effective width.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawings merely show and the following description merely describes, preferred embodiments of the present invention, which are given by way of illustration or example only.

In the drawings, like reference characters designate similar parts in the several views.

Fig. 1 is an outside elevational view of a shower door structure according to the present invention, the same being foreshortened both in height and width.

Fig. 2 is a top plan view of the door structure.

Fig. 3 is an enlarged fragmentary cross-sectional view of the door, the same being typical.

Fig. 4 is a top plan view, similar to Fig. 2, of a modification.

Fig. 5 is a top plan view showing the door of Fig. 4 open and also retracted partly into the stall.

Fig. 6 is an enlarged fragmentary end view showing

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the upper end of the door in its closed position, the lower end being similar but reversed.

The drawings show a conventional shower stall having side jambs 5 connected at the bottom by a curb 6. The present door is mounted to close the space between jambs 5 and preferably in spaced relation above curb 6.

The door structure that is illustrated in Figs. 1 to 3 comprises, generally, a hinge jamb stile 7 mounted on the inner face of one stall jamb 5, a closing jamb stile 8 mounted on the inner face of the other stall jamb, a door 9 spanning between stiles 7 and 8, and adjustable hinges 10 swingably mounting said door on stile 7.

The hinge jamb stile 7 comprises an angle member having one flange or leg 11 against and fastened to one stall jamb and its other flange or leg 12 extending toward the opposite stall jamb on the outer or front side of the stall opening. In the present case, angle leg 12 is of substantial width, as shown in practice, being in the nature of two and one-half to three inches.

The closing jamb stile 8 comprises an angle member having one flange or leg 13 against and fastened to the opposite stall jamb and its other flange or leg 14 extending toward the first-mentioned jamb on the inner or rear side of the stall opening. Angle leg 14 is relatively narrower than angle leg 12 on the opposite side.

The door 9 comprises an outer frame 15, an inner frame 16, a panel or sheet of relatively thin plastic 17 clamped between said frames, and a metal panel or sheet 18 perforated to have a repeat overall pattern or design, also clamped between said frames 15 and 16.

The outer frame 15 is preferably made up of angle members having outer peripheral legs or flanges 19 and inwardly directed legs or flanges 20, the latter being on the inner side of the door, as shown particularly in Fig. 3. Similarly inner frame 16 comprises angle members having peripheral flanges 21 and inwardly directed flanges 22. The angle frames thus provided are arranged in nesting relation with the marginal edges of sheet 17 between flanges 20 and 22 and with the rearwardly bent margins 23 of metal sheet 18 between flanges 19 and 21. Metal-piercing screws 24 connect the flanges 19 and 21 of the frames.

It will be noted that sheet 17 is on the inner side of the door and, therefore, constitutes an impervious water-intercepting closure for the door. As above indicated, said sheet 17 is relatively thinner than the plate glass ordinarily used in such doors and, while position-retaining, is, nevertheless, elastic enough to yield to shocks and pressures thereagainst. Such an inexpensive sheet otherwise has all the attributes of proof against shattering and penetration of water that are desired in shower doors.

Metal sheet 18 is on the outer side of the door and is spaced from sheet 17 by the width of flanges 21 of inner frame 16. Sheet 18 is also quite thin and, therefore, quite flexible to yield to shocks or pressures thereagainst. Fig. 1, at 25, exemplifies the type of perforations in sheet 18 and the type of repeat pattern or design. While spaced from each other as in Fig. 3, said sheets 17 and 18 mutually back and support each other when one or the other is deflected by shocks and/or pressures.

The hinges 10 are formed, in this case, as upper and lower hinge assemblies that are alike. Each said hinge assembly comprises a bracket 26 that is affixed to angle leg 12 as by a screw 27, a hinge pin 28 extending from said bracket, the hinge pins on the opposite ends of the structure being aligned, a channel piece 29 having a hole in its web through which pin 28 extends, a plate 30 fastened to the door edge and formed with a longitudinal slot 31 into which said hinge pin extends, and clamp screws 32 in one flange of channel 29 and directed to impinge on one edge of plate 30 to draw the opposite flange of said channel member tightly against the opposite edge of plate 30. Thus, channel member 29 may be adjusted along plate 30 to vary the distance between hinge pin 28 and the edge 33 of the door. Since brackets 26 hold the hinge pins 28 on the inner side of stile leg 12, the door 9 is behind said leg and is overlapped with the edge 34 of said leg. Therefore, the amount of such overlap depends on the adjustment of channel pieces 29 and such adjustment is made according to the width between stall jambs 5. In other words, the adjustment is made to

the stile 8, the mentioned overlap of door and stile leg 12 falling as it will.

The importance of providing a repeat pattern on the door such as shown at 25 now becomes apparent. Regardless of the variations in overlap, said pattern, being repetitious, presents a design of which the observer has no conscious feeling that any part of the door is hidden. In other words, stile edge 34 as effectively frames the perforated panel 18 as do the upper, lower and free edges of the door frame.

Each latter edge of the door may carry a sealing strip 35, one to seal against stile leg 12 and the other against stile leg 14. Also, the door may be provided with the usual drain means 36 at the bottom.

In the modification shown in Figs. 4, 5 and 6, the above-described door structure is provided with track means 40 that enables retraction of the door partly into the stall so that its overhang is less than the normal width thereof. Thus, the door width may be made to a certain maximum size to be retractable to an effective width that will also fit between the jambs of a relatively narrower stall. Also, this structure is applicable to stalls of a width greater than the space provided for swinging said door open.

The means 40 is applied to both the top and bottom of the door structure, the top only being shown. The channel piece 29 is replaced by an elongated channel 41 and hinge pin 28 extends into a hole in the web 42 of said channel. The length of channel 41 may be made as desired but, in any case, is substantially shorter than the width of door 9. Fig. 5 best shows a proportion in which the door width is approximately half again greater than the length of channel 41.

Near its ends, said channel 41 is provided with rollers 43, the same being carried by the inner flange 44 of the channel. Along its upper edge, on the inner face, the door carries a channel track 45 in which said rollers are guided and stop pins 46 are provided at the ends of said track. Said track is substantially longer than channel 41 and the pins 46 spaced farther apart than are rollers 43.

In the normal closed position of the door, the roller 43 at the hinge end of the door is against the pin 46 adjacent thereto, as shown in Fig. 4, or is spaced therefrom if the distance between jambs 5 is less than a certain maximum. In this manner, the distance between hinge pin 28 and the door edge 33 can be varied as in the earlier form of the invention.

The door 9 may be swung open in the usual way, or retracted to reduce the overhang thereof, as shown in Fig. 5. In such case, the stop pin 46 at the free end of the door encounters the other roller 43 to limit the retraction. In the manner described, the door 9 is mounted to both hinge and slide.

While I have illustrated and described what I now contemplate to be the best modes of carrying out my invention, the constructions are, of course, subject to modification without departing from the spirit and scope of the invention. It is, therefore, not desired to restrict the invention to the particular forms of construction illustrated and described, but to cover all modifications that may fall within the scope of the appended claims.

Having thus described the invention, what I claim and desire to be secured by Letters Patent is:

1. A shower stall door structure comprising, in combination, a door and a stile in overlapped relation and spanning across the stall opening, hinge brackets carried by said stile at the upper and lower ends thereof and each provided with a hinge pin disposed beyond the inner lateral edge of the stile and said pins being vertically aligned, a member receptive of each hinge pin and adjustable along the respective upper and lower edges of the door according to the amount of overlap of door and stile that is desired, and inward of the stile, and means to lock each said member on the door in adjusted position.

2. A shower door structure according to claim 1: a front panel on said door and comprising a flexible metal sheet provided with a perforated repeat design that extends throughout the entire height and width of the door, the stile overlapping said panel and framing the same according to the adjustment of the hinge pin-receiving members.

3. A shower door structure according to claim 1: a front panel on said door and comprising a flexible metal sheet provided with a perforated repeat design that extends throughout the entire height and width of the door, the stile overlapping said panel and framing the same according to the adjustment of the hinge pin-receiving members, a water-intercepting flexible plastic panel constituting the inner face of said door, the two panels being transversely spaced and mutually supporting each other against excessive flexure.

4. A shower door structure comprising, in combination, a stile having a laterally directed door-mounting flange, a door having one lateral edge behind and in overlapped relation with said stile flange, adjustable hinge means carried by said flange and engaged with the door in spaced relation to said lateral edge thereof, track means interposed between the hinge and the door, and a flexible panel constituting the outer face of said door and having a perforated repeat pattern therein that is framed by said stile flange according to the adjustment of said hinge means.

5. A shower stall door structure comprising, in combination, a door and a stile in overlapped relation and spanning across the stall opening, hinge brackets carried by said stile at the upper and lower ends thereof and each provided with a hinge pin disposed beyond the inner lateral edge of the stile and said pins being vertically aligned, a channel member receptive of each hinge pin and overlapping the respective upper and lower edges of the door, a track carried by the door on the upper and lower ends thereof, transversely spaced rollers carried by each channel member and disposed in the respective tracks, and stop pins for said rollers and carried by the tracks to limit the movement of the door relative to the channel members.

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