March 23, 1954 H. A. EGGERT 2,672,929

DRAPE PLEAT-SPACER

Filed April 29, 1952

FIG. 1

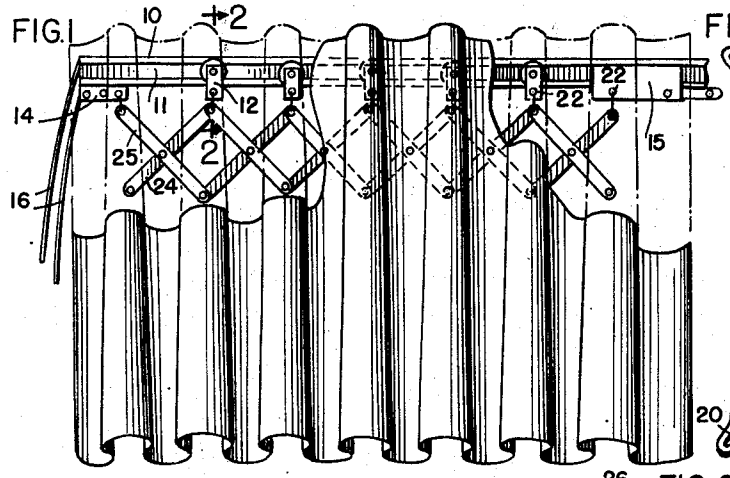


FIG. 3

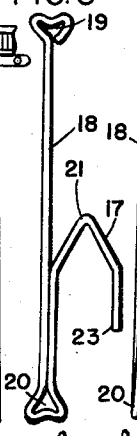


FIG. 2

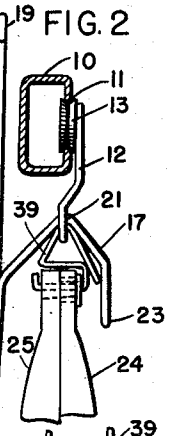


FIG. 4

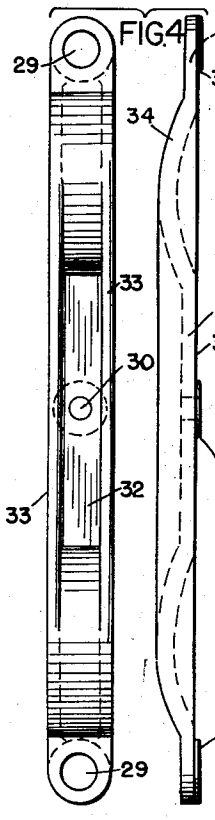


FIG. 5

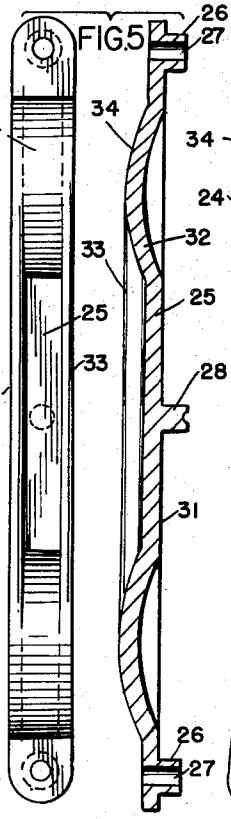


FIG. 6

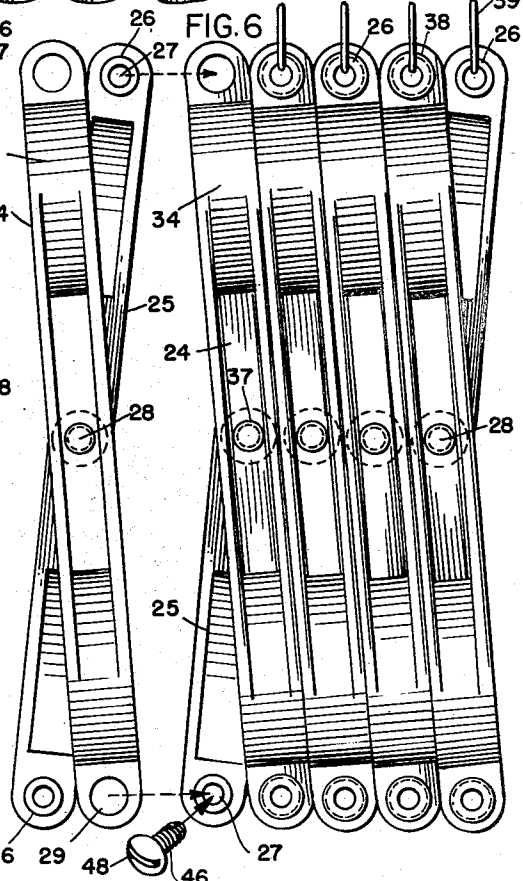
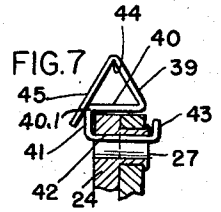


FIG. 7



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DRAPE PLEAT-SPACER

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7 Claims. (Cl. 160—342)

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This invention relates to devices for hanging pleated drapes.

The main objects of this invention are to provide improved means for controlling the movements of drape hangers on a runway so as to maintain uniform fold spacing in a pleated drape suspended thereon; to provide an improved device of this kind that is readily applicable to any type of conventional drape drawing hanger device without requiring structural changes in such device; to provide an improved form of lazy tong structure, particularly suitable for such use; and to provide an improved form of lazy tong structure to which additional link units may be added indefinitely by an unskilled person without the use of special tools to adapt the same to any width of drape.

A specific embodiment of this invention is shown in the accompanying drawings in which:

Figure 1 is a front elevation of the improved pleat spacer applied to a conventional form of drape hanger with the drape in place but shown partly broken away to disclose parts of the hanger.

Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1.

Fig. 3 is a perspective projection of the drape hanger hook shown in Fig. 2, as it would appear when viewed at an angle from a point of about 45° to the left of Fig. 2.

Fig. 4 shows a female link member of the lazy tong in both front and side elevation.

Fig. 5 is a similar view of the male link member of the lazy tong viewed in front elevation and in longitudinal section taken along the center line of such front elevation.

Fig. 6 is a composite front view showing lazy tong multiple X-unit panel and supplemental single X-unit separated from each other, illustrating two standard unit forms in which the improved spacer is put out, which forms are conveniently assembled in the manner illustrated in this view for adaptation to a variety of widths of drape material.

Fig. 7 is a detail showing an improved form of S-hook that forms part of the improved spacer and is employed for connecting it to the hangers of any conventional form of drape mounting.

Lazy tongs are known in the art for spacing the vertical pleats of hanging drapes and curtains but such devices have usually been somewhat cumbersome and suitable only for individualized special hanger construction; while the present invention is improved in structure and is adaptable for use in connection with any conventional form of drape drawing hanger structure. It is of such nature as to be made in standardized panel units adapted to be assembled for applicability to any curtain width without requiring special tools or skill.

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The novelty of the present invention resides particularly in the structure of the link members which make up the lazy tong structure and in the S-hooks which lock the panel connections and enable the lazy tong to be readily connected operatively to any form of conventional drape drawing device that has movable hangers equipped with eyes or loops for receiving the curtain hooks.

In the form shown in Figure 1, a hollow tubular rod 10 has a longitudinal slot 11 in one side to form a trackway on which a series of pleat hangers 12 are slidably mounted with or without rollers 13 to travel along the rod 10 so as to support a drape 9 for ready expansion and contraction in pleated form along the curtain rod 10. Usually such devices have a fixed hanger 14 at one side of the window or door frame and have a master slide 15 arranged to be pulled back and forth for spreading or retracting the drape either by hand or by cords 16.

The drape has attached thereto a series of curtain hooks 17 located at uniform intervals corresponding to pleat widths of the drape. In the form illustrated, each of these hooks has a shank 18 which has eyes 19 and 20 spaced apart vertically for attachment to the curtain by stitching with its hook prong extending outwardly in a plane at right angles to the plane of the loops in the shank that form the eyes 19 and 20. The hook 17 is bent to an inverted V-shape to provide a seat 21 for engagement with a hook engaging element or eye 22 of the hanger 12. As shown, the seat 21 is horizontally spaced midway between the tip 23 and the shank 18.

The structure shown for the members of the lazy tong lends itself particularly to the use of lightweight transparent thermoplastic materials and is also such that the assemblage of panel units for any particular width of curtain drape, can be accomplished by an inexperienced person without special tools.

In the form shown, the lazy tong structure comprises a series of X-units each having two link bars 24 and 25 which are identical except that one has integral, pivot studs and the other has bearing apertures, as illustrated in Figs. 4 and 5. The link member 25 has integral pivot studs 26 and 28. The studs 26 for the end pivotal connections have axial bores 27.

The link member 24 has end pivot apertures 29 and a central pivot aperture 30. Each of the links has a planar face 31 on the side that is opposed to its mating link. The members are of channel-shape in transverse section, comprising a web portion 32 and side flanges 33 for longitudinal stiffness.

The web portion 32 is of the same thickness from end to end but is bowed longitudinally so as to be flush with the inner face of the link member for a considerable distance each side of the central pivot 28 and to be flush with the outer edges of the flanges 33 adjacent the end pivots, thus providing an unbroken outer surface 34 sloping toward each end pivotal area.

This channel section of the links gives them the required strength with a minimum use of material and also prevents distortion thereof under unequally distributed strains to sticking of hangers on the traverse rod.

The pivotal studs 28 and 26 are without fillets at their juncture with the body of the member 25 and the bearing apertures 29 and 30 on the member 24 have thin boss formations 35 and 36 concentric with the pivot apertures on the inner face of the bar for reducing friction between the opposed faces of adjoining links.

The inclined unbroken surfaces 34 in the finished structure, as shown assembled in Figs. 2 and 6, are curved to taper toward the relatively thin end portions of the members and are spaced from the depending portions of the tips 23 and shanks 18 of the curtain hooks so as to prevent any interference by the curtain hooks with the free movement of the links of the lazy tong structure, regardless of how the drape may be swung, while the lazy tongs are being expanded or contracted.

In practice, the links of the lazy tong are assembled into two standard unit forms, shown respectively at the left and right sides of the composite Fig. 6, the left-hand form being what is herein referred to as a single X-unit panel consisting of two links pivotally connected at their central pivot 28; and the other form consisting of eight links forming a basic multiple X-panel of four such X-units. In each of these unit forms, the central pivots 28 are swaged by locally applied heat and pressure so as to form heads 37 permanently connecting the male and female links in pairs. The free ends of the tubular pivots 26 are similarly swaged by local heat and pressure to produce outwardly extending head flanges 38 forming permanent pivotal connections on the three intermediate end pivot joints shown at the top and bottom of the panel in Fig. 6. This swaging is done without reduction in diameter of the bore 27. The pivots 26 at the ends of the single X-units, as shown at the left of Fig. 6, are not headed and likewise the pivots 26 at the extreme ends of the multiple panel units, as shown at the right of Fig. 6, are left unexpanded for the purpose of conveniently extending the lazy tong structure by the addition of other multiple panel units or single X-units as the particular situation may require.

In practical application, these two standard sizes of panel units, namely single X-panel units and 4 X-panel units, in which the links are 5⅝ inches long between the centers of end pivots, can be combined so as to satisfy all requirements of pleat spacing arising from the use of combinations of standard commercial "widths" of material in the manufacture of standard or custom-made drapes. Usually widths of 48 or 52 inches are reduced by pleating 25 inches.

Special hanger clips 39 of S-hook form, made of tempered spring wire, are provided for connecting the upper end pivots 26 of the lazy tong structure to the hangers 12 of the curtain rods and are illustrated in Figs. 2 and 7. Each of these S-hooks, as shown in detail in Fig. 7, has its lower part bent to a parallel sided U-shape, constituting a pair of spaced jaws comprising the central horizontal bar 40, serving as an upper jaw, a spacing portion 41 and a lower horizontal bar or jaw 42, the free end of which is bent inward at right angles to form a lip 43 directed toward the upper jaw 40.

The length of the inwardly directed lip 43 is slightly more than the diameter of the bore 27 of the pivot 26; the space between the arms 40 and 42 is approximately equal to the radial distance between the outer end of the link and the adjacent side of the bore 27 so that when the lip 43 and the arm 42 are inserted through the bore 27, this part of the S-hook will lock the two links in their pivotal relation to each other for connecting one panel unit to the other, as above described. The end of the lip 43 is spaced outward from the arm 40 to facilitate the entrance of the arm 42 into the bore 27. The lower jaw 42 of the S-hook being resilient is thus easily inserted into the pivot aperture 27, with the lip 42 inclined to the axis of the bore, but once inserted it acts as a positive means for securing the respective links together and is locked by snap action against accidental dislodgment.

The upper part of the S-hook 39 is bent to an inverted V-shape to provide a seat or notch 44 for engagement with the eye of a pleat hanger 12 and to provide a depending arm 45 which extends downward beyond the shoulder 40.1 formed by the juncture of the central bar 40 with the part 41 of the hook. The lower end of the depending arm 45 may be readily inserted into the eye of the hanger 12 which snaps past the shoulder 40.1 and comes into place with the seat 44 resting in the hanger eye.

When two panel units are connected together, the upper pivotal connection is locked against accidental disconnection by the S-hook. The lower pivotal connection is similarly locked by inserting a self-tapping screw 46 into the bore 27 of the respective pivot 26, the head 48 of the screw being of larger diameter than the bearing bore 29 of the connecting link member, as will be understood from Fig. 6.

It will be seen that the lazy tongs device hangs freely behind and in parallel relation to the drape, and also that the entire lazy tong structure occupies no more space between the drape and wall than does the existing hanger hardware and requires no change in such hardware. It does not interfere with the free hanging of the drape, but maintains the pleats of the drape and its hangers in uniformly spaced relation in all positions of travel, whether moved by hand or by cord. In the form shown, the first multiple panel unit will serve five pleats, each additional multiple panel unit will serve four additional pleats, and single pleat units can be added as required for any actual number of pleats.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that details of the construction shown may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

I claim:

1. In a curtain hanger structure having a trackway and a series of pleat hangers shiftable therealong and each having a hook engaging element, a pleat spacer comprising a series of crossed pairs of bars pivotally connected in lazy tongs fashion and having open bores at their bar-end-pivotal connections on one side of the series, and a series of S-hooks severally engaged in said bores and connected in succession to said hook engaging elements.

2. In a curtain hanger structure having a trackway and a series of pleat hangers shiftable therealong and each having a hook engaging element, a pleat spacer comprising a series of crossed pairs of bars pivotally connected in lazy tongs fashion and having open bores at their bar-end-pivotal connections on one side of the series, and a series of S-hooks severally engaged in said bores and connected in succession to said hook engaging elements; each said S-hook having an upper hook and a lower hook open toward opposite sides thereof, the upper hook being of inverted V-shape and the lower hook being of U-shape with a laterally directed lower jaw extendable through such pivotal bore and with an upwardly extending lip, the length of said lower jaw approximating the length of such bore and the height of said lip approximating the diameter of such bore.

3. In a draping pleat spacer, a lazy tong link having an integral pivot stud near one end and having a bore extending axially through said stud, a second lazy tong link having a bearing hole near one end in which said stud is seated, and a hanger clip of resilient wire having a hook with a U-shaped portion spanning the space between said bore and the adjacent ends of both said links and having an arm extending axially through said bore and terminating in a lip inhibiting separation of said links from each other and from said clip.

4. A draping pleat spacer, comprising a pair of lazy tong panel structures each comprising a pair of links of equal length pivoted together midway of their ends, one link of each pair having integral pivot studs at its opposite ends with bores extending therethrough axially of the respective studs, and the other link of each pair having bearing apertures for such studs at its opposite ends, the pivot studs at one side of one said panel structure being seated in the bearing aperture at the adjacent side of the other said panel structure, and a hanger clip of resilient wire having a hook extending through the bore of one of said last named pivot studs and resiliently embracing the end portions of the respective links to latch same against accidental separation.

5. A drapery pleat spacer, comprising a pair of lazy tong bars pivotally connected together at one end, such pivotal connection comprising an integral axially bored stud on one bar and a bearing aperture therefor in the other bar, and a hanger clip of spring wire having oppositely directed hooks, one hook extending crosswise over the bar ends, then radially inward to the bore of the stud, then through the bore and then radially outward from the bore to prevent separation of the pivotal connection, and the other said hook being adapted to serve as a suspension for the bars.

6. A drapery pleat spacer, comprising a pair of lazy tong bars pivotally connected together at one end, such pivotal connection comprising an integral axially bored stud on one bar and a bearing aperture therefor in the other bar, and a hanger clip of spring wire of S-hook form having oppositely directed hooks lying in a common plane, one hook extending crosswise over the bar ends, then radially inward to the bore of the stud, then through the bore and then radially outward from the bore to prevent separation of the pivotal connection, and the other said hook being adapted to serve as a suspension for the bars.

7. A drapery pleat spacer, comprising a pair of lazy tong bars pivotally connected together at one end, such pivotal connection comprising an integral axially bored stud on one bar and a bearing aperture therefor in the other bar, and a hanger clip of spring wire comprising a medial portion of a length substantially equal to the combined thickness of said bars, one end portion being in the form of a nearly closed rectangularly looped hook extending through the axial bore at said pivotal connection and latchingly embracing the adjacent bar ends, and the other end portion being in the form of a nearly closed triangularly looped hook adapted to serve as a suspension for the bars.

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