Sept. 12, 1950 H. F. YUSTIN 2,521,889

CURTAIN STRETCHER

Filed March 18, 1946 3 Sheets-Sheet 1

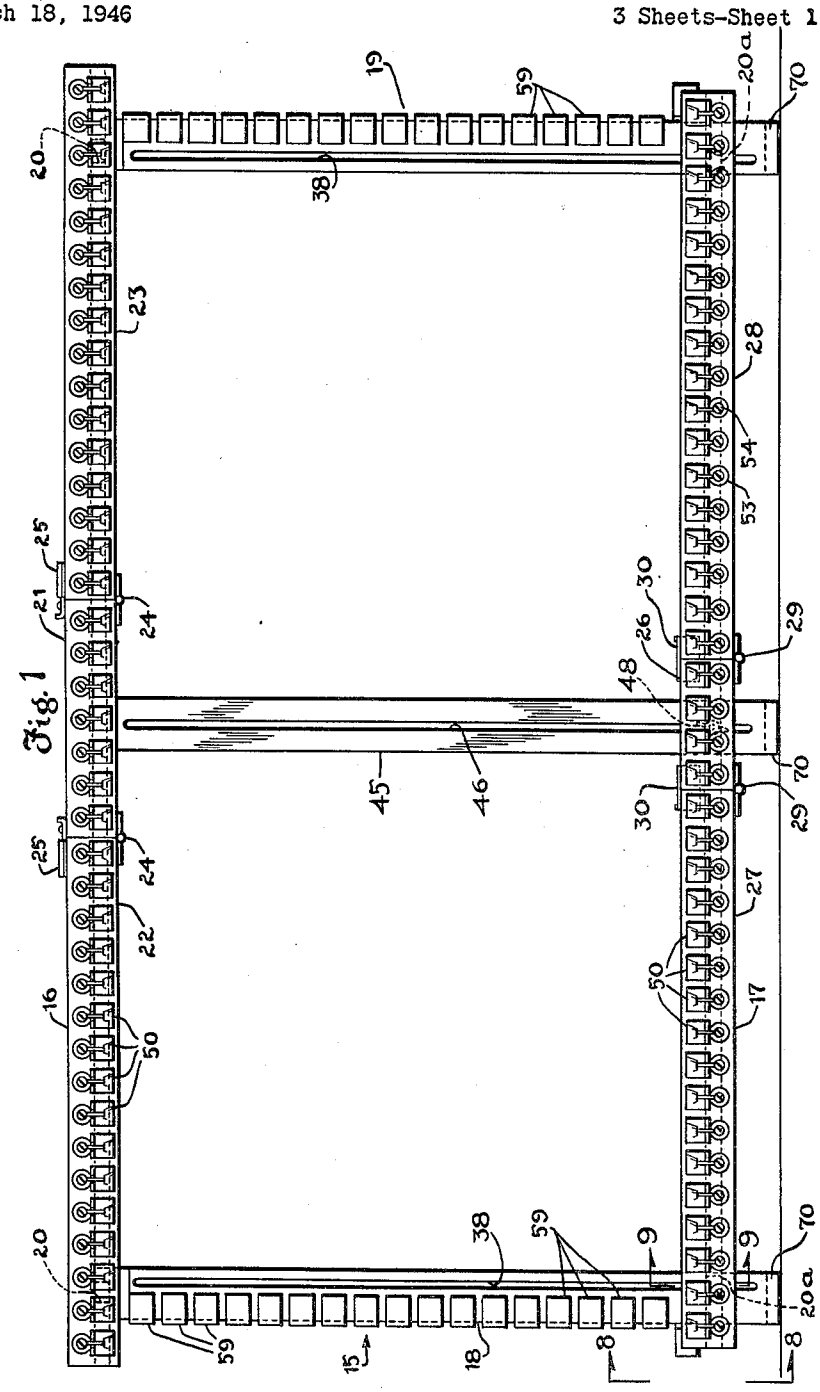


Fig. 1

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CURTAIN STRETCHER

Filed March 18, 1946 3 Sheets-Sheet 2

Fig. 3

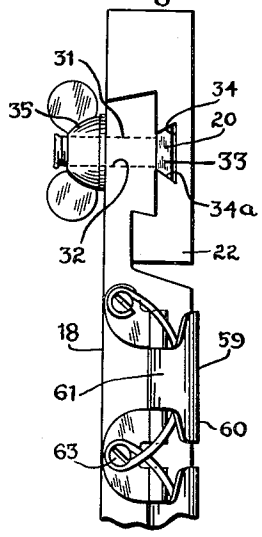


Fig. 2

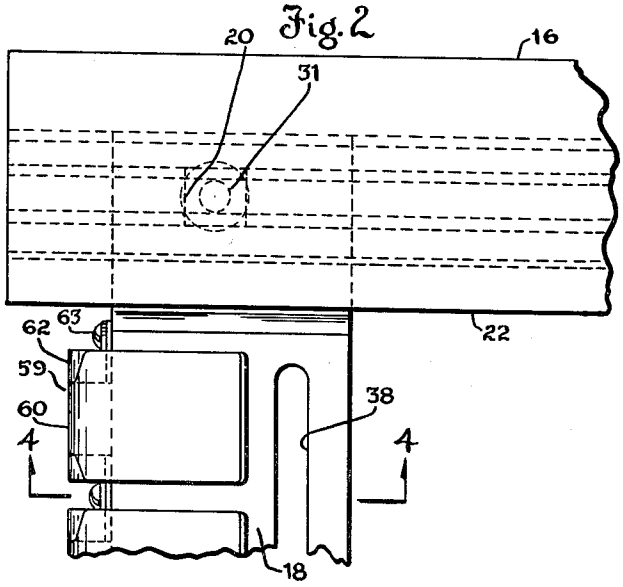


Fig. 4

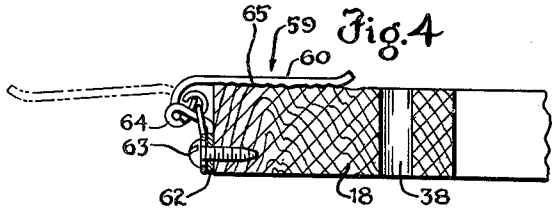


Fig. 5

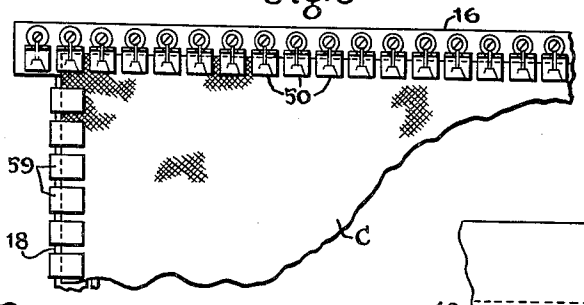


Fig. 7

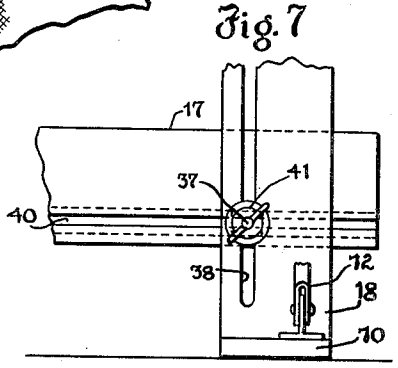
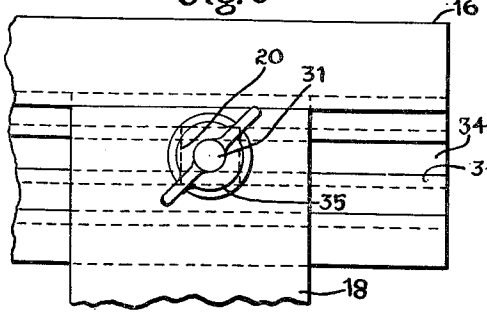


Fig. 6



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Filed March 18, 1946 3 Sheets-Sheet 3

Fig. 12

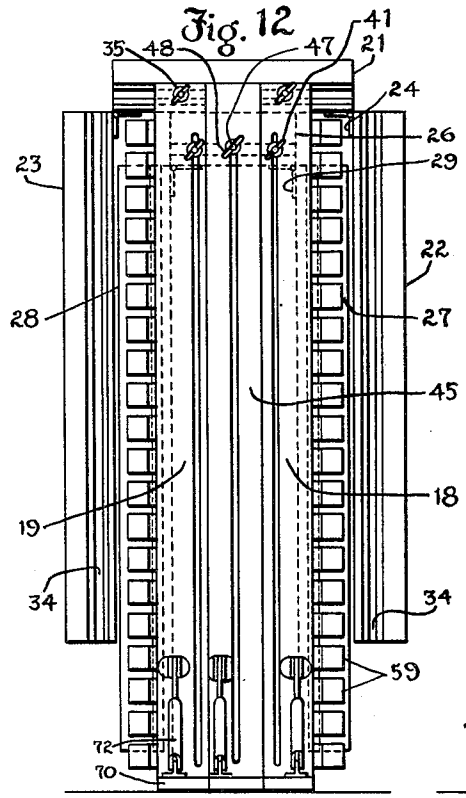


Fig. 8

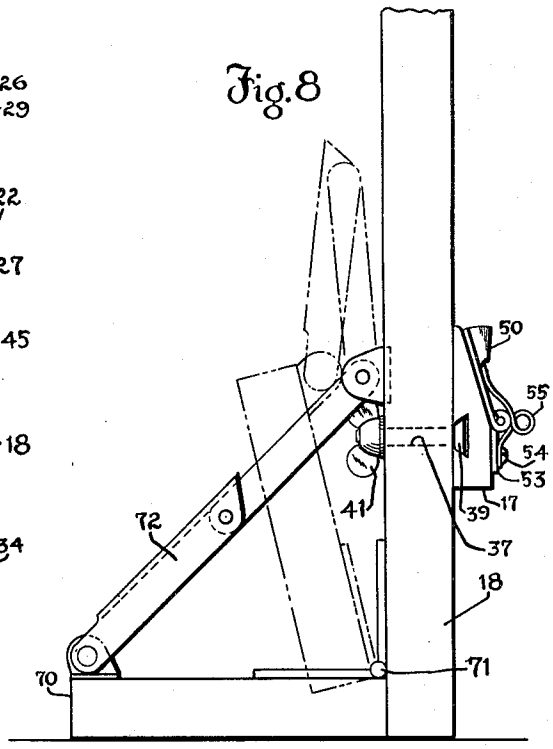


Fig. 9

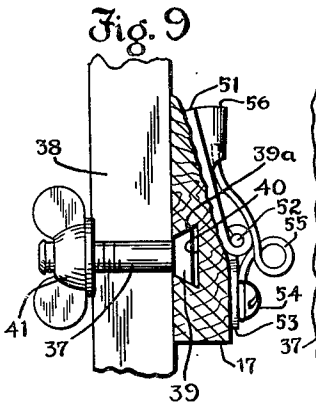


Fig. 10

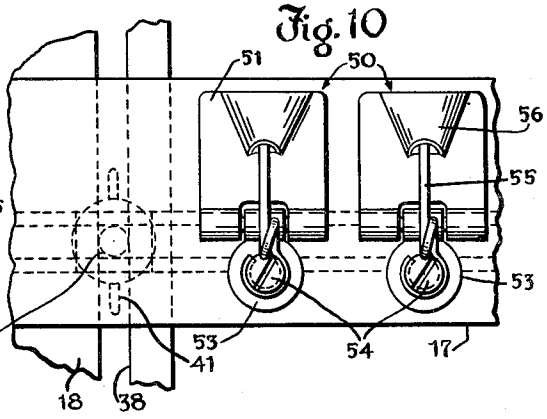
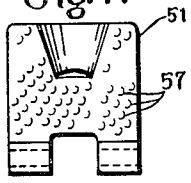


Fig. 11



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CURTAIN STRETCHER

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Application March 18, 1946, Serial No. 655,228

10 Claims. (Cl. 45—24)

1

This invention relates to a curtain stretcher.

Curtain stretchers of known types in the past have been objectionable, usually because they have been extremely awkward or difficult to assemble for use or to collapse for storage purposes. They have also been objectionable because of the common use of sharp curtain attaching pins, whereby it was impossible to handle the stretcher without pricking the fingers.

One object of this invention is to provide a curtain stretcher which is foldable or collapsible to a small compact size for convenient storage, and conversely conveniently operable to open condition adjusted to accommodate curtains of any size, without the necessity in any instance of removal of the parts of the stretcher.

Another object of the invention is to provide a curtain stretcher of the character described which requires little or no skill to assemble, adjust or use for stretching curtains, or to collapse the same for storage purposes when not in use.

Still another object of the invention is to provide in a curtain stretcher an improved pinless, non-slip curtain attaching means, by which curtains are quickly attachable for stretching the same without the usual danger of pricking the fingers.

These and other objects of the invention will be manifest from the following brief description and the accompanying drawings.

Of the accompanying drawings:

Figure 1 is a front elevation of a curtain stretcher embodying the features of the invention in open or assembled condition thereof.

Figure 2 is a fragmentary enlarged view of the upper left hand corner of Figure 1.

Figure 3 is a fragmentary end view, as seen from the left of Figure 2.

Figure 4 is a cross-section taken on the line 4—4 of Figure 2.

Figure 5 is a fragmentary view of the upper left hand corner portion of Figure 1, on the same scale, but illustrating a curtain attached to the frame.

Figure 6 is a fragmentary rear view, on an enlarged scale, of the upper left hand corner of Figure 1.

Figure 7 is a similar fragmentary rear view of the lower left hand corner of Figure 1.

Figure 8 is an enlarged fragmentary end view taken on the line 8—8 in Figure 1.

2

Figure 9 is an enlarged fragmentary cross-section taken substantially on the line 9—9 of Figure 1.

Figure 10 is a fragmentary front view of a part of the frame illustrated in Figure 9 as viewed from the right thereof.

Figure 11 is a detailed view illustrating the non-slip projections on the inner faces of the clamping plates provided on the frame.

Figure 12 is a rear view of the curtain stretcher illustrated in collapsed condition for storage purposes.

Referring particularly to Figure 1, there is illustrated a curtain stretcher, comprising a rectangular frame 15 which includes spaced top and bottom bars 16 and 17 and spaced side bars 18 and 19, these bars being releasably attached at the corners to be shiftable relatively of each other for adjusting the size of the frame, as by means of releasable top and bottom locking or clamping members 20, 20 and 20*a*, 20*a*, respectively, to be described later.

The top bar 16 may be of segmental construction, including a relatively short central segment 21 and relatively longer outwardly extending segments 22 and 23 hinged thereto at the lower edge of the bar, as indicated at 24, 24. The segments may be locked in rigid extended condition as by means of suitable slide fasteners 25, 25. The bottom bar 17 may be of similar segmental construction, including a relatively short central segment 26 and outer segments 27 and 28 hinged thereto at the lower edge, as indicated at 29, 29, suitable shiftable locking members 30 being provided for locking the segments in rigid extended condition.

As best shown in Figures 1, 2, 3 and 6 the top clamping members 20 may each comprise a threaded stud 31, received through an aperture 32 through the upper ends of side bars 18 and 19 and having a square head 33 at one end thereof. The head 33 is provided with undercut opposite sides 33*a*, for sliding engagement in a similarly undercut groove 34 extending along the rear side of top bar 16, from the end thereof, across the joints of the segments and substantially to the center of the frame. Thus the head 33 is arranged for tongue-and-groove sliding connection with the top bar 16. Threaded on the other end of element 31 may be a wing nut 35 adapted to be turned against the rear face of its

side member 18 or 19 to apply wedging action between the head 33 and the undercut sides 34a of groove 34, to clamp the side bar and the top bar together in any position of adjustment of the former along the latter. Conversely the nut 35 may be turned in the other direction to release the wedging action of head 33 to permit the side bar to be moved relatively of the top bar to any desired position of adjustment.

The lower clamping members 20a are best illustrated in Figures 1, 7, 9 and 10. Each member 20a may comprise a stud 37 received through a slot 38 through side bars 18 or 19, and extending along substantially the full length thereof adjacent the inner edge. The stud 37 is provided with a squared head 39, undercut at opposite sides 39a thereof, for sliding engagement in a similarly undercut groove 40 which extends along the rear side of the bottom bar 17 from the end thereof, across the joints of the segments, to the center of the frame as described in connection with the top bar 16, the head 39 being in tongue-and-groove sliding connection with said bottom bar. Threaded on the inner end of stud 37 may be a wing nut 41 adapted to be turned against the rear face of side member 18, or 19 as the case may be, to apply clamping action between the head 39 and the undercut sides 40a of the groove 40, and thereby to clamp the side bar and the top bar together in any position of adjustment of the side bars from and toward each other and in any position of adjustment of the bottom bar from and toward the top bar.

Secured to the central segment 21 of top bar 16 may be a central reinforcing bar 45, which is coextensive with the side bars 18 and 19 and which is provided along the length thereof with a slot 46 for receiving therethrough a stud 47 secured in the central segment 26 of lower bar 17. On the free end of the stud 47 is wing nut 48 for clamping the segment 26 in any position of vertical adjustment thereof along bar 45. The free ends of the top clamping members 20, bottom clamping members 20a, and central clamping member 47 may be peened over to prevent removal of the respective wing nuts therefrom.

The front faces of the top and side bars preferably lie in the same plane, as best illustrated in Figure 3 and the bottom bar preferably is tapered toward the top bar so that the curtain attaching front surface thereof will be as nearly as possible in the plane of said front surfaces of the top and side bars.

As best illustrated in Figures 1, 9 and 10, provided along the front surfaces of the top and bottom bars 16 and 17 may be spaced curtain-attaching members 50, 50, the same comprising clamping plates 51 pivoted at 52 to lugs 53, secured to the bars by means of screws 54. The plates 51 are yieldingly held against the surfaces of the bars as by means of wire springs 55, secured at one end by the screws 54 and at the other end by engaging through an aperture in a raised portion 56 provided in the plate. On the inner faces of the plate 51 may be a plurality of relatively short rounded, non-slip projections 57, the arrangement being such that the edge portion of a curtain is insertable between the surface of the respective bar and the non-slip surface of the plate 51, to be clamped tightly thereby under the strong yielding action of spring 55.

Referring particularly to Figures 1, 2, 3 and 4, there is illustrated a plurality of spaced clamping members 59 which are similar in certain respects to members 50, and include clamping plates 60 which are yieldingly engageable with the outer face of the respective side bars through action of a spring device 64. The inner face of the plate 60 is provided with non-slip projections in the manner of plate 51 as best shown in Figure 11. Because the bottom bar 17 is shiftable along the outer face of the side bars 18 and 19 it is necessary to provide means to swing some of the clamping plates 60 out of the way, in accordance with the required size of the frame. To this end the plates 60 have inturned portions 61 which are hingedly connected to lugs or brackets 62 secured to the edges of the bars by means of screws 63, the hinge point being rearwardly of the outer or clamping faces of the side bars. The spring device (see Figure 4) is of double acting type operable to swing the plate 60 on its pivot past a dead-center in one direction, into yielding engagement with the outer face of its side bar as best shown in full lines in Figures 1, 2, 3, 4 and 5, and also operable to swing the plate 60 on its pivot past the dead-center in the other direction, yieldingly to hold it in an out of the way position, as illustrated in chain-dotted lines in Figure 4. The clamping surfaces of the frame bars may be indented or roughened, as best indicated at 65 in Figure 4, to provide additional non-slip means.

For supporting the frame in upright position rearwardly extending feet 70 may be provided at the lower ends of the side bars 18 and 19 and of the central reinforcing bar 45. These feet may be hinged to the vertical bars, as indicated at 71, and releasably held in extended position as by means of suitable releasable braces 72, the extended relationship of the feet being best illustrated in full lines in Figure 8 while the folded relationship thereof is shown in chain-dotted lines therein.

In the use or operation of the improved curtain stretcher in the extended position best shown in Figure 1, the clamping devices 20, 20a and 47 may be loosened by turning the respective wing nuts thereof, to permit adjustment of the side bars toward or from each other, or the lower bars 17 relatively of the top bar, as previously described. In this manner the frame is adjusted to pre-determined size, which may be gauged by means of suitable markings on the bars (not shown) or by means of the spacing between the clamping members 50 or 59, such spacing preferably being in standard units such as inches. When this adjustment has been made, the thumb nuts being again tightened, a curtain C, in the usual wet or damp condition, is applied to the frame by progressively inserting the edge portions thereof under the clamping plates 50 or 59, to be yieldingly held thereby in the manner previously described and as clearly illustrated in Figure 5. Conversely the curtain may be removed after it is stretched dry by releasing the spring-pressed clamping plates 51 and 60.

When it is desired to store the stretcher frame, the wing nuts of the clamping members 20, 20a and 47 are loosened, to permit adjustment of the bottom bar 17 upwardly to be closely adjacent the top bar 16, and adjustment of the side bars 18 and 19 toward the center of the frame to positions in which the clamping members 20 and 20a are inwardly of the hinge joints of the bars. In the last-named position, the locks 25 and 30 may be released to permit swinging the outer segments of the top and bottom bars downwardly, as illustrated in chain-dotted lines in Figure 1 and in full lines in Figure 12. In this collapsed condition the wing nuts of the clamping members may

again be tightened to retain the frame in convenient compact condition.

Modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. A curtain stretcher or the like, comprising a rectangular frame having top and bottom and opposite side bars, top locking means for releasably locking each said side bar at selectively adjusted positions laterally along said top bar from one end thereof substantially to the center of the same, and a releasable bottom locking member for each said side bar, each said locking member having a part slidably mounted with respect to said bottom bar to be slidable along the same substantially to the center thereof, each said locking member having a part slidably mounted with respect to its side bar to be slidable along the same to substantially close to said top bar, said locking member thereby being adapted for releasably locking said bottom bar in various positions thereof vertically along said side bars and in various positions of the side bars laterally along the bottom bar, said side bars thereby being adjustable to a collapsed position of the frame in which the side bars are centrally of the frame and in which the bottom bar is adjusted to adjacent the top bar, said top and bottom bars each including a central segment and opposite end segments pivoted thereto to be swingable downwardly when said bottom and side bars are in said collapsed positions thereof.

2. A curtain stretcher or the like, comprising a rectangular frame having top and bottom and opposite side bars, top locking means for releasably locking each said side bar at selectively adjusted positions laterally along said top bar from one end thereof substantially to the center of the same, and a releasable bottom locking member for each said side bar, each said locking member having a part slidably mounted with respect to said bottom bar to be slidable along the same substantially to the center thereof, each said locking member having a part slidably mounted with respect to its side bar to be slidable along the same to substantially close to said top bar, said locking member thereby being adapted for releasably locking said bottom bar in various positions thereof vertically along said side bars and in various positions of the side bars laterally along the bottom bar, said side bars thereby being adjustable to a collapsed position of the frame in which the side bars are centrally of the frame and in which the bottom bar is adjusted to adjacent the top bar, said top and bottom bars each including a central segment and opposite end segments pivoted thereto to be swingable downwardly when said bottom and side bars are in said collapsed position thereof, the pivot points of said segments being located to be outwardly of said side bars in the collapsed position thereof.

3. A curtain stretcher or the like, comprising a rectangular frame having top and bottom and opposite side bars, top locking means for releasably locking each said side bar at selectively adjusted positions laterally along said top bar from one end thereof substantially to the center of the same, a releasable bottom locking member for each said side bar, each said locking member having a part slidably mounted with respect to said bottom bar to be slidable along the same substantially to the center thereof, each said locking member having a part slidably mounted with respect to its side bar to be slidable along the same to substantially close to said top bar, said locking member thereby being adapted for releasably locking said bottom bar in various positions thereof vertically along said side bars and in various positions of the side bars laterally along the bottom bar, said side bars thereby being adjustable to a collapsed position of the frame in which the side bars are centrally of the frame and in which the bottom bar is adjusted to adjacent the top bar, said top and bottom bars each including a central segment and opposite end segments pivoted thereto to be swingable downwardly when said bottom and side bars are in said collapsed position thereof, and releasable means for locking said segments in extended positions.

4. A curtain stretcher or the like, comprising a rectangular frame having top and bottom and opposite side bars, top locking means for releasably locking said side bars at selectively adjusted positions laterally along said top bar, and bottom locking means for releasably locking said bottom bar in various positions thereof vertically along said side bars and in various positions of the side bars laterally along the bottom bar, said side bars thereby being adjustable to a collapsed position of the frame in which the side bars are centrally of the frame and in which the bottom bar is adjusted toward the top bar, said top and bottom bars each including a central segment and opposite end segments pivoted thereto to be swingable downwardly when said bottom and side bars are in said collapsed position thereof, said top locking means each comprising an elongated guide slot in said top bar and a clamping element mounted on the side bar having a head retained in and slidable along said guide slot and means being provided on the element to be operable to draw the side and top bars together, said bottom locking means each comprising an elongated slot in the side member along the length thereof to closely adjacent said top bar and a guide slot extending along the bottom member to closely adjacent the center of the frame and a clamping member received through the elongated slot in the side member, said clamping member having a head retained in and slidable along the bottom member guide slot, means being provided on said clamping member to be operable to draw the side and bottom bars together.

5. A curtain stretcher or the like, comprising a rectangular frame having top and bottom and opposite side bars, top locking means for releasably locking said side bars at selectively adjusted positions laterally along said top bar, bottom locking means for releasably locking said bottom bar in various positions thereof vertically along said side bars and in various positions of the side bars laterally along the bottom bar, said side bars thereby being adjustable to a collapsed position of the frame in which the side bars are centrally of the frame and in which the bottom bar is adjusted toward the top bar, said top and bottom bars each including a central segment and opposite end segments pivoted thereto to be swingable downwardly when said bottom and side bars are in said collapsed position thereof, said top locking means each comprising an elongated guide slot in said top bar and a clamping element mounted on the side bar having a head retained in and slidable along said guide slot and means being provided on the element to be operable to draw the side and top bars together, said bottom locking means each comprising an elongated slot in the side member along the length thereof to closely adjacent said top bar and a guide slot extending along the bottom member to closely adjacent the center of the frame and a clamping member re-

ceived through the elongated slot in the side member, said clamping member having a head retained in and slidable along the bottom member guide slot, means being provided on said clamping member to be operable to draw the side and bottom bars together, a vertical central bar in the plane of said side bars and secured to said central segment of the top bar, said central bar having an elongated slot along the same to closely adjacent said top bar, and a central clamping element on said central segment of the bottom bar having a portion received through said slot of the central bar, said central clamping element including means operable to draw said central and bottom bars together.

6. A curtain stretcher or the like comprising a rectangular frame including top and bottom and opposite side bars, means on said bars for releasably attaching a curtain between the same, releasable clamping means on said side bars in sliding connection with said top bar and adjustable to clamp the side bars in various positions along the top bar, releasable clamping devices mounted to be relatively shiftable along said side bars and including retaining portions mounted to be shifted along said bottom bar, whereby said clamping devices are adjustable relative to opposite ends of said frame to various selective clamping positions along both the side and bottom bars at the respective ends of said frame, said attaching means comprising spring-pressed plates spaced along the frame bars and normally yieldingly urged toward forward faces of the bars, whereby the edge portions of a curtain or the like are insertable between the plates and said bars to be yieldingly clamped thereby, said attaching means of the side bars each including a part fixed with respect to its side bar and to which said spring-pressed plate thereof is shiftably attached to be selectively positioned either to be in said spring-pressed clamping position or to be yieldingly shifted against the spring-pressed action thereof to a released position rearwardly of the forward face of the respective side bar to permit free sliding movement of said bottom bar along said side bars.

7. A curtain stretcher or the like comprising a rectangular frame including top and bottom and opposite side bars, means on said bars for releasably attaching a curtain between the same, releasable clamping means on said side bars in sliding connection with said top bar and adjustable to clamp the side bars in various positions along the top bar, releasable clamping devices mounted to be relatively shiftable along said side bars and including retaining portions mounted to be shifted along said bottom bar, whereby said clamping devices are adjustable relative to opposite ends of said frame to various selective clamping positions along both the side and bottom bars at the respective ends of said frame, said attaching means comprising clamping plates spaced along the frame bars and each having a spring device normally yieldingly urging the plate toward the forward face of its respective bar, whereby the edge portions of a curtain or the like are insertable between the plates and said bars to be yieldingly clamped thereby, each said attaching means of the side bars including a part fixed with respect to its side bar and to which said clamping plate thereof is pivotally attached to be pivoted to a released position in which the plate is rearwardly of the forward face of the side bar to permit sliding movement of said bottom bar along the side bar and the spring device thereof including past

dead-center connecting portions adapted to release said yielding clamping action of the plate when it is forcibly pivoted toward said released position.

8. A curtain stretcher or the like comprising a rectangular frame including top and bottom and opposite side bars, means on said bars for releasably attaching a curtain between the same, releasable clamping means on said side bars in sliding connection with said top bar and adjustable to clamp the side bars in various positions along the top bar, releasable clamping devices mounted to be relatively shiftable along said side bars and including retaining portions mounted to be shifted along said bottom bar, whereby said clamping devices are adjustable relative to opposite ends of said frame to various selective clamping positions along both the side and bottom bars at the respective ends of said frame, said attaching means comprising spring-pressed plates spaced along the frame bars and having inner faces of substantial area normally yieldingly urged toward the forward faces of the bars, whereby the edge portions of a curtain or the like are insertable between the plates to be clampingly held thereby, said plates each having a plurality of slightly projecting rounded portions on the inner surfaces thereof.

9. A curtain stretcher or the like, comprising a rectangular frame having top and bottom and opposite side bars, top locking means for releasably locking said side bars at selectively adjusted positions laterally along said top bar, bottom locking means for releasably locking said bottom bar in various positions thereof vertically along said side bars and in various positions of the side bars laterally along the bottom bar, said side bars thereby being adjustable to a collapsed position of the frame in which the side bars are centrally of the frame and in which the bottom bar is adjusted toward the top bar, said top and bottom bars each including a central segment and opposite end segments pivoted thereto to be swingable downwardly when said bottom and side bars are in said collapsed positions thereof, and curtain-attaching means along said top, bottom and side bars, said attaching means comprising spring-pressed plates spaced along the frame bars and having inner faces of substantial area normally yieldingly urged toward the forward faces of the bars, whereby the edge portions of a curtain or the like are insertable between the plates to be clampingly held thereby.

10. A curtain stretcher or the like, comprising a rectangular frame having top and bottom and opposite side bars, top locking means for releasably locking said side bars at selectively adjusted positions laterally along said top bar, bottom locking means for releasably locking said bottom bar in various positions thereof vertically along said side bars and in various positions of the side bars laterally along the bottom bar, said side bars thereby being adjustable to a collapsed position of the frame in which the side bars are centrally of the frame and in which the bottom bar is adjusted toward the top bar, said top and bottom bars each including a central segment and opposite end segments pivoted thereto to be swingable downwardly when said bottom and side bars are in said collapsed positions thereof, and curtain-attaching means along said top, bottom and side bars, said attaching means comprising spring-pressed plates spaced along the frame bars and normally yieldingly urged toward forward face of the bars, whereby the edge portions of a curtain or the like are insertable be-

tween the plates and said bars to be yieldingly clamped thereby, said attaching means of the side bars each including a part fixed with respect to its side bar and to which said spring-pressed plate thereof is shiftably attached to be selectively positioned either to be in said spring-pressed clamping position or to be yieldingly shifted against the spring-pressed action thereof to a released position rearwardly of the forward face of the respective side bar to permit free sliding movement of said bottom bar along said side bars.

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