

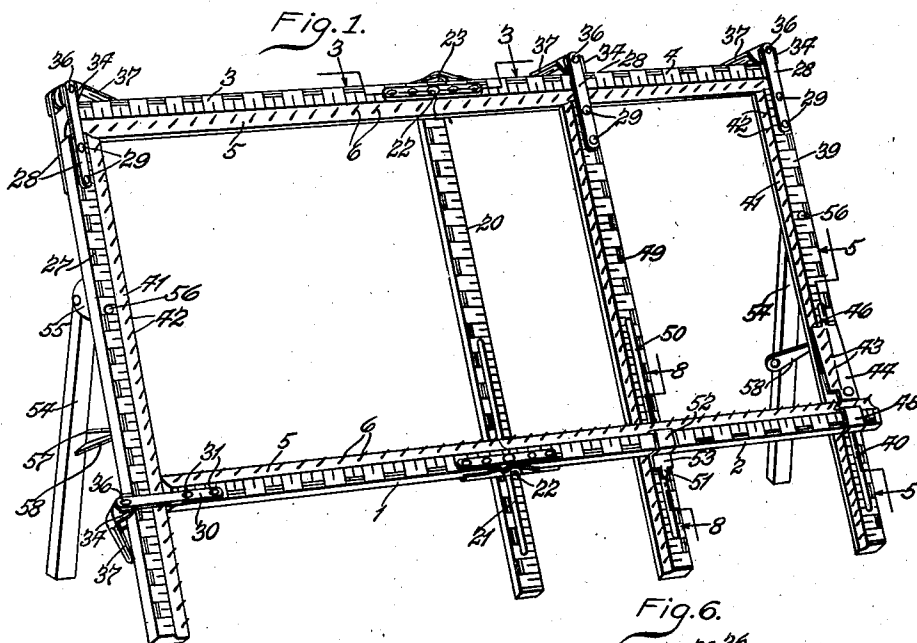
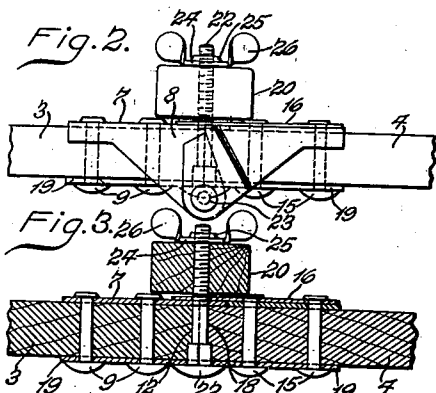
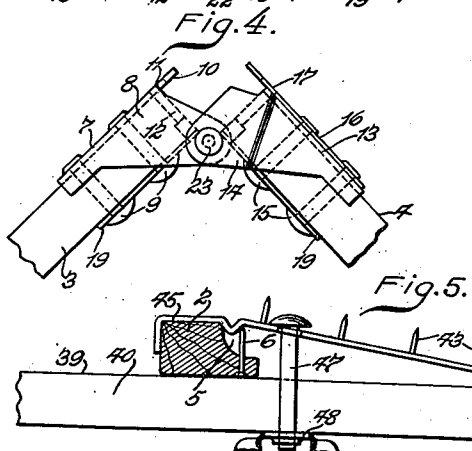
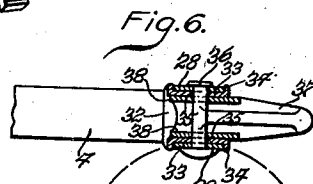
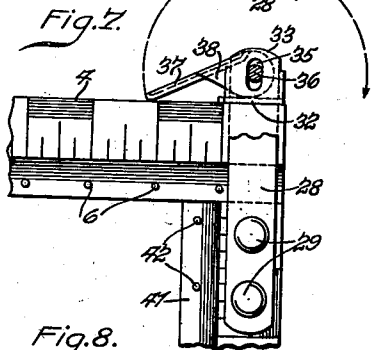
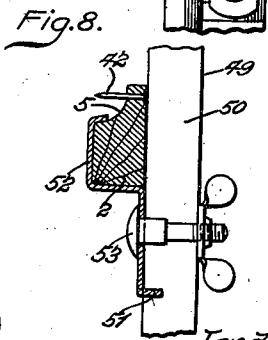
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CURTAIN STRETCHER

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CURTAIN STRETCHER

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3 Claims. (Cl. 45—24)

This invention relates to curtain stretchers; and has special reference to a stretching frame having improved means for varying the effective area thereof in order to adapt the frame for use in supporting stretched fabrics, such as curtains and other articles.

Objects of the invention are to provide an improved foldable stretcher having sectional longitudinal top and bottom rails, hinges connecting the sections of said respective rails whereby the frame may be folded into compact form in a relationship in which the pins or nails are confined between the folded sections of the frame and are thereby guarded and shielded; to provide means for connecting the hinges and the hinged portions of said rails and locking them in a relationship in which the frame is extended and strengthened; to provide end rails or leg rails for supporting the top and bottom rails and cooperating therewith to form a completed frame provided with pins or nails for engaging the fabrics to be stretched when the frame is extended for use; to provide improved means for holding the end or leg rails in cooperative relationship with each other and with the top and bottom rails of the frame in different adjusted positions as required for use in stretching fabrics of different dimensions; to provide an auxiliary rail and means for attaching it to the top and bottom rails for cooperation therewith and with one of the end or leg rails; to provide a frame or reduced area, smaller than the area of the main frame, or even smaller than one of the sectional portions thereof, as desired; and to provide an improved attaching device for securing one of the end or leg rails to one of the horizontal rails of the frame and having a series of pins or the like in connection therewith inclining from the horizontal rail to the end or leg rail in order to prevent the formation of distorted portions in the curtain or other fabric mounted on the frame.

Another object of the invention is to provide improved means for holding the sections of the frame extended in rigid relationship for use either as a frame composed of the horizontal rails and the end or leg rails, or for use as a frame in which an auxiliary rail functions in association with the horizontal rails and one of the end or leg rails to provide a frame of relatively small area.

Another object of the invention is to provide a stretcher frame having improved clamping devices for attaching the horizontal and up-

right rails in cooperative relationship and in different adjusted positions.

Other objects will be apparent from the following description, reference being made to the annexed drawing, in which—

Fig. 1 is a perspective view of a stretcher frame made in accordance with the present invention.

Fig. 2 is an enlarged top plan view of the hinge device and attached locking bar secured to the top horizontal rail of the frame.

Fig. 3 is a sectional view approximately on the line 3—3 of Fig. 1.

Fig. 4 is a view showing a position of the parts during movement of the frame sections to open or to closed position.

Fig. 5 is an enlarged sectional view approximately on the line 5—5 of Fig. 1.

Fig. 6 is a sectional view showing one of the clamping locks for attaching the horizontal and end or leg rails together, and which is also used in connection with the auxiliary rail.

Fig. 7 is a side elevation showing one of said clamping locks, a part of one of the connecting members being broken away.

Fig. 8 is an enlarged sectional view on the line 8—8 of Fig. 1.

The horizontal bottom rail of the frame comprises two sections 1 and 2 which are of duplicate construction with the exception that the section 2 is slightly longer than the section 1; and the horizontal top rail comprises two duplicate sections 3 and 4 of approximately the same length as the section 2 of the bottom rail. The adjacent margins of the bottom and top rails have rabbeted portions 5 through which the fabric attaching pins or nails 6 extend and are rigidly supported in spaced parallel relationship. The sections 1 and 2 are connected by a hinge device and the sections 3 and 4 are connected by a similar hinge device, so that a description of one of said hinges will apply to both.

Each hinge is composed of two members, and said members are attached to the sections 1 and 2 and to the sections 3 and 4 in reversed relationship. The members of each hinge may be made of sheet metal shaped to provide rear attaching portions and forwardly extended flanges that are pivoted together. One member of each hinge includes a rear attaching portion 7 and a forwardly extended flange 8 attached to the supporting rail section by rivets or bolts 9 passing through the rail section and through the part 7 of the hinge. An extension

10 of the part 7 has a hole 11 in registration with a groove 12 in the end of the rail section to which this hinge part is attached.

The cooperating hinge member is also of angular formation including a rear portion 13 and a forwardly extended flange 14 attached to the adjacent rail section by fasteners 15 passing through said rail section and the hinge portion 13 and through a plate 16 seated against the portion 13 of the hinge and extending so as to overlap the extension 10 of the cooperating hinge member (Fig. 3). The plate 16 has a hole 17 therethrough registering with a groove 18 in the attached rail section and with a hole 11 when the rail sections are extended into alinement.

Plates 19 are engaged by the fasteners 9 and 15 and secured against the opposite side of the rail sections from the sides engaged by the hinge portions 7 and 13. A locking bar 20 has in one end a hole adapted to register with the hole 17 through one of the plates 16, and also has a longitudinal slot 21 adapted to register with the hole 17 through the plate 16 that is attached to the opposite horizontal rail. Bolts 22 pass through the holes 17, 11, etc. and through the hole and the slot 21 in the locking bar 20 and are engaged by wing nuts whereby the locking bar 20 may be secured in clamping engagement with the horizontal rails of the frame. This will effectively prevent the frame from being folded, will lock the intermediate hinged ends of the horizontal rails so that they cannot become flexed or distorted or otherwise disarranged, and, generally, strengthen the frame structure. In this extended locked condition of the frame, the flanges 8 and 14 are overlapped and are connected by a pivot 23, which permits swinging movements of the frame sections from extended position, as shown in Fig. 1, to folded position in which the rail sections 1 and 2 and the rail sections 3 and 4 face and lie against each other, respectively, and in which the points of the pins or nails 6 are covered and concealed between the rail sections.

The nut attached to the bolt 22 is pressed or shaped to form a body portion 24 having a central hole therethrough surrounded by a flange 25 composed of the material that is distorted by the formation of the hole through the body, and manually engageable wings or ears 26 formed by twisting parts of the sheet metal from which the nut is formed. The hole through the body 22 and the distorted flange 25 is threaded so that the nut may easily be screwed onto and from the bolt 22.

An end rail or leg rail 27 is attached to the outer ends of the horizontal rail sections 1 and 3 by cooperating clamping devices. A pair of resilient arms 28 are attached to opposite sides of the upper end of the rail 27 by fasteners 29 so as to receive between them the outer end of the rail section 3. A pair of similar resilient arms 30 are attached to the outer end of the rail section 1 by fasteners 31 so as to receive between them the rail 27. A manually operative cam clamp is supported between the outer ends of the arms 28 and the outer ends of the arms 30, respectively, for attaching the rail 20 to the rail sections 3 and 1 in selected adjusted positions. A bearing bracket is supported by the arms 28 and the arms 30, respectively. Each of said bearing brackets comprises a metallic strip bent to provide a bearing portion 32, arms 33 seating against the inner surfaces of the arms 28 and 30, and outwardly extended flanges 34 along the

edges of the arms 33 embracing the arms 28 and the arms 30 between them. The arms 33 are formed with elongated slots 35 (Fig. 7) through which extend pivot pins 36 one of which is attached to the pair of arms 28 and another of which is attached to the pair of arms 30. This permits longitudinal sliding of the bearing brackets between the pairs of arms in connection with which they are supported, and also prevents substantial pivotal or turning movements of said bearing brackets so that the cross portions 32 are always in position to seat against the outer edges of the rail section 3 and the rail 27, respectively. Sufficient space is provided beyond the end of the rail 27 to receive the end of the rail section 3 between the arms 28 and, similarly, sufficient space is provided between the arms 30 beyond the end of the rail section 1 to receive the rail 27.

A cam device is pivoted upon each pivot pin 36 and may be formed of sheet metal shaped to provide a lever 37 and two flanges 38 constituting cams to operate against the parts 32 of the bearing brackets and thereby press said bearing brackets into clamping engagement with the edges of the rail section 3 and of the rail 27, respectively. This clamps the rail section 3 securely against the end of the rail 27 and clamps the rail 27 securely against the end of the rail section 1 until the arms 37 are moved to extend oppositely from the positions shown at the left of Fig. 1 of the drawing. Such movement of the levers 37 releases the pressure against the bearing brackets and thereby releases the rail 27 to permit relative movement of the parts to different adjusted positions. Thus, by releasing the cam supported by the arms 30, the bottom horizontal rail may be moved along the rail 27 toward or from the horizontal top rail in order to reduce or increase the space between the bottom and top rails in conformity with the width of the articles to be attached to the frame.

The opposite end of the frame comprises an end or leg rail 39 similar in all particulars to the rail 27, with the exception that the rail 39 has in its lower portion an elongated slot 40. The upper end of the rail 39 is equipped with clamping devices precisely like the clamping devices attached to the upper end of the rail 27, and the same reference numerals with exponents are applied to like parts thereof. The inner margins of the rails 27 and 39 have rabbeted portions 41 through which the fabric attaching pins or nails 42 extend and are rigidly supported in spaced parallel relationship.

The end of the rail section 2 extends across the rail 39 and does not abut against the inner edge of said rail 39. This permits the rail 39 to be moved along the rail sections 2 and 4 toward and from the rail 27 in order to reduce or increase the length of the frame, as required for fabrics having different lengths.

A combined clamp and pin plate is provided to attach the rail section 2 to the rail 39 and to constitute a support for a series of pins 43 inclining from the series of pins 42 to the series of pins 6 on the rail section 2 to prevent the formation of objectionable folds or wrinkles in the curtain or fabric during the time that it is attached to the frame. A plate 44 to which the pins 43 are secured is shaped to provide a bracket 45 receiving and engaging that part of the rail section 2 between the rabbet 5 and the lower edge of said rail section, and to avoid the ends of the pins 6 and the pins 42. The upper end of the plate 44

is formed with a finger 46 engaging in the slot 40. A bolt 47 extends through the plate 44 and through the slot 40 and has screwed on the threaded end thereof a nut 48 like the nuts that are screwed on the bolts 22. Thus, the plate 44 constitutes a clamp to hold the rail section 2 and the rail 39 in rigid relationship and cooperates directly with the clamping device at the upper end of the rail 39 and with the clamping devices at the opposite end of the frame to hold the frame parts in rigid relationship.

The invention comprises an auxiliary rail 49 like the rail 39 and having a clamping device attached to its upper end like the clamping devices that are attached to the upper ends of the rails 27 and 39 and adapted to cooperate with the rail section 4 as shown, or with the rail section 3 in an obvious manner to hold the auxiliary rail in different adjusted positions with respect to the rail 27. The lower portion of the rail 49 is formed with an elongated slot 50 receiving a tongue 51 of a clamping bracket 52 held in clamping engagement with the rail section 2 as shown, or with the rail section 1 in an obvious manner by a clamping bolt 53 equipped with a nut like the nut 48. Thus, the auxiliary rail may be secured in different adjusted positions within the frame so as to cooperate with the rail 27 and with the bottom and top rails of the frame to support and stretch smaller articles and fabrics during drying thereof.

A leg brace 54 is pivotally connected with each of the rails 27 and 39 by brackets 55 attached to said legs by fasteners 56. The arrangement is such that the lower ends of the legs 54 may be moved only a limited distance away from the rails 27 and 39 and held in such positions to support the frame inclined upwardly and rearwardly as shown. A retaining arm is pivoted to each of the legs 54 and comprises a metallic plate 57 having its end pivoted to the leg 54 and formed with a laterally extended flange 58 adapted to abut against the front side of the leg 54 and limit extent of swinging movement thereof. The ends of the plates 57 engage against the rear sides of the rails 27 and 39 and cooperate with the knuckle joints at the upper ends of the legs 54 to provide a strong supporting structure when the parts are arranged as shown in Fig. 1. The front surfaces of the different rails and of the locking bar 20 may be formed with designated graduated spaces, and alternate ones of said spaces may be colored in contrast with adjacent spaces as shown, to facilitate adjustment of the parts properly for different uses.

The clamping brackets 52 and the device 44 are interchangeable and either may be used in substitution for the other. Also, it should be apparent that the device may be modified in numerous other particulars without departing from the nature and principle thereof.

I claim:

1. In a device of the character described, two frame sections each including a horizontal bottom rail section and a horizontal top rail section, pivotally connected hinge members attached to the adjacent ends of said respective rail sections, parts rigid with said hinge members that overlap when the respective rail sections are in longitudinal alinement, a locking bar extending from one hinge to the other and overlapping said parts, and clamping devices engaging said rail sections and said overlapping parts of said hinges and said locking bar and cooperating with said locking bar to prevent relative movement of said respective rail sections.

2. A device of the character described comprising two frame sections each including a horizontal bottom rail section and a horizontal top rail section, hinges including connected hinge members attached to the adjacent ends of said respective rail sections and leaving said frame sections free for swinging movement from superimposed position in which their front surfaces are toward each other to longitudinally alined position, an extension integral with one hinge member of each hinge extending to the rear side of the adjacent alined rail section, a locking bar extending from said bottom rail sections to said top rail sections and across said extensions of said hinge members, and detachable elements for attaching said locking bar rigidly against said extensions and preventing swinging movements of said frame sections on said hinge members.

3. A device of the character described comprising two frame sections each including a horizontal bottom rail section and a horizontal top rail section attached together at their outer ends, hinges including pivotally connected hinge members attached to the adjacent ends of said respective rail sections and leaving said frame sections free for swinging movement from superimposed position in which their front faces are toward each other to longitudinally alined position, an extension integral with one hinge member of each hinge extending to the rear side of the alined rail section near its inner end, a locking bar extending from said bottom rail sections to said top rail sections and across said extensions of said hinge members and having a longitudinal slot in its lower portion, a releasable element for attaching the upper end of said locking bar rigidly against said upper hinge extension to prevent swinging movements of said top rail sections, and a cooperating releasable element extending through said slot and attaching the lower portion of said locking bar rigidly against said bottom hinge extension to prevent swinging movement of said bottom rail sections.

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