No. 670,589. Patented Mar. 26, 1901.

R. HOFFHEINS.

CURTAIN STRETCHER FRAME.

(Application filed May 24, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig-1

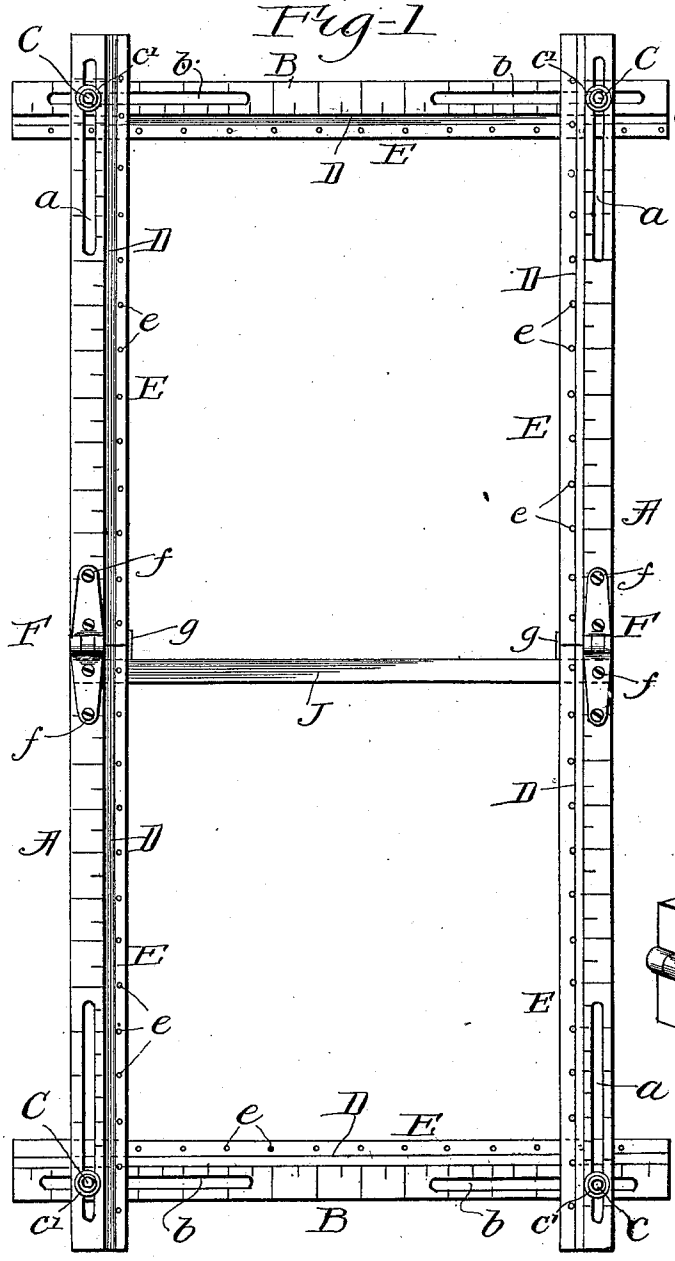


Fig-2

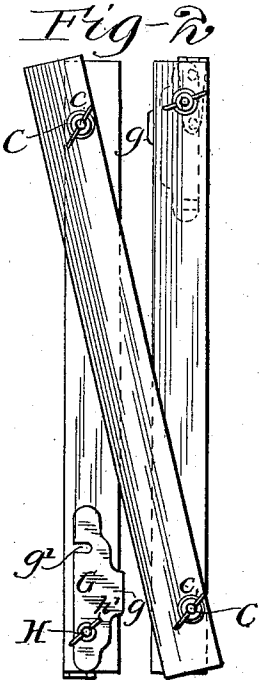


Fig-3

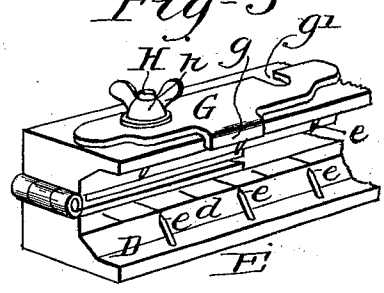
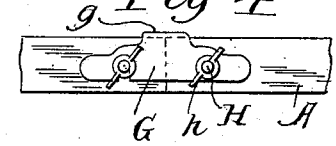


Fig-4



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No. 670,589. Patented Mar. 26, 1901.

R. HOFFHEINS.

CURTAIN STRETCHER FRAME.

(Application filed May 24, 1898.)

(No Model.) 2 Sheets—Sheet 2.

Fig-5

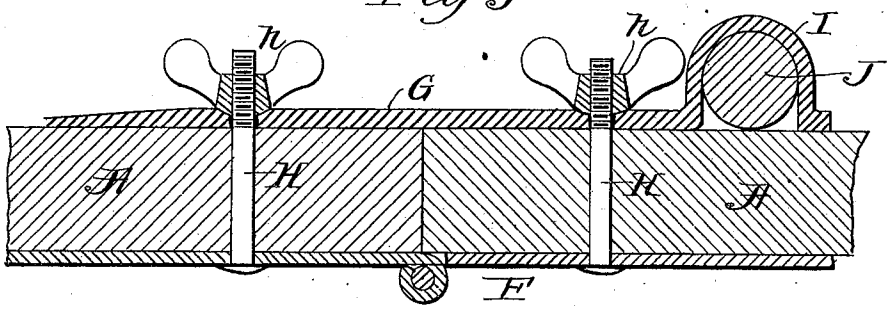


Fig-6

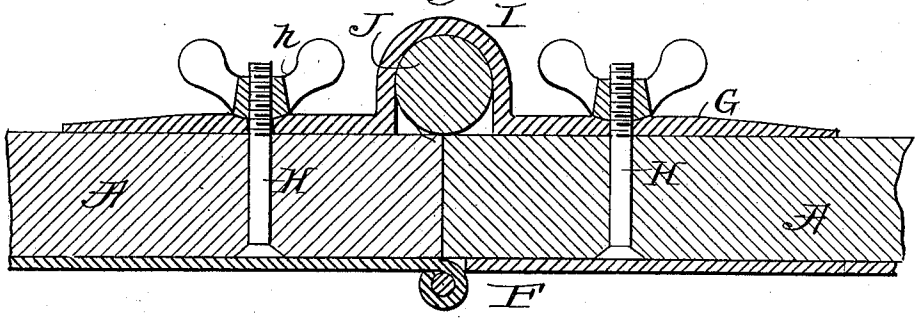


Fig-7

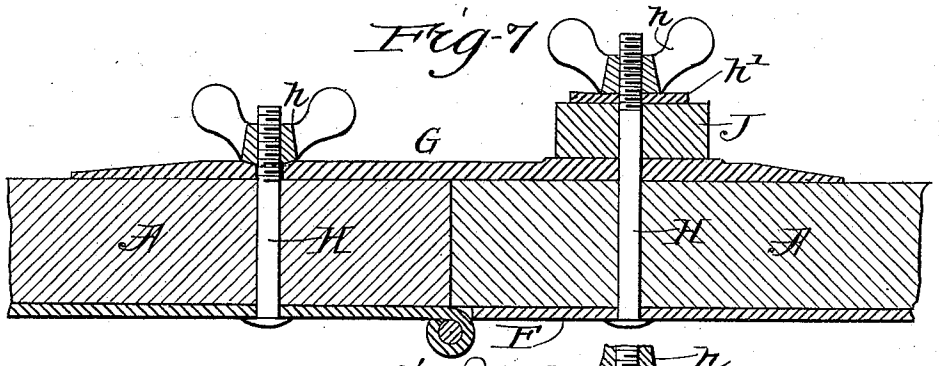
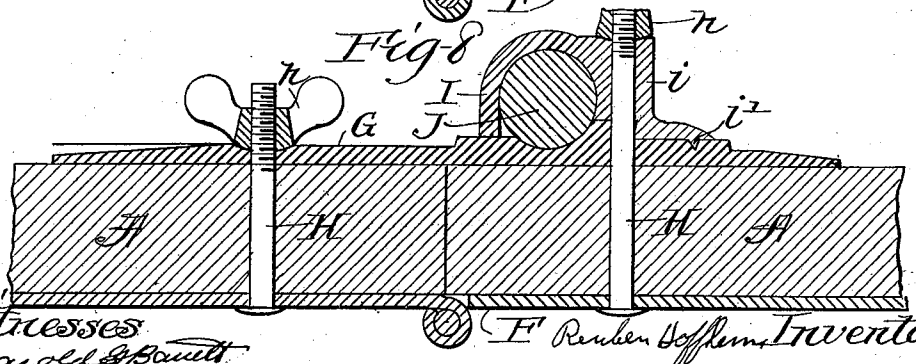


Fig-8



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UNITED STATES PATENT OFFICE.

REUBEN HOFFHEINS, OF CHICAGO, ILLINOIS.

CURTAIN-STRETCHER FRAME.

SPECIFICATION forming part of Letters Patent No. 670,589, dated March 26, 1901.

Application filed May 24, 1898. Serial No. 681,650. (No model.)

To all whom it may concern:

Be it known that I, REUBEN HOFFHEINS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Curtain-Stretcher Frames; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, forming a part hereof, in which—

Figure 1 is a top or plan view showing the frame in position for use; Fig. 2, a top or plan view showing the frame folded for storage or transportation; Fig. 3, a detail in perspective, showing the side rail folded at the hinge; Fig. 4, a detail of the under face of the side rail, showing the locking and stiffening latch or plate across the joint of the rail; Fig. 5, a detail in section of the side rail at the joint, showing the stiffening latch or plate having a clasp or loop at one end to receive and retain a tie-brace or cross-rod; Fig. 6, a detail in section of the side rail at the joint, showing the stiffening latch or plate having a clasp or loop at the center to receive and retain a tie-brace or cross-rod; Fig. 7, a detail in section of the side rail at the joint, showing the stiffening latch or plate and a tie-brace or cross-rod attached and held by the clamp-bolt of the latch or plate; and Fig. 8 a detail in section of the side rail at the joint, showing the stiffening latch or plate and an independent clasp or loop for the tie-brace or cross-rod held in place and operated by the clamp-bolt of the latch or plate.

The objects of this invention are to insure a firm, strong, and unyielding support for the joint of the divided side rail of a stretcher-frame; to enable a tie-brace or cross-rod to be readily applied when necessary or desired to support the frame at the center of the side rails; to clasp and lock the tie-brace or cross-rod by the same fastening means that attach and hold the stiffening plate or latch for the joint; to locate and operate a tie-brace or cross-rod in conjunction with a stiffening plate or latch and a flatwise-folding hinge, and to improve generally the construction and operation of the several parts entering into the formation of the frame as a whole; and its nature consists in providing a flatwise-folding or plate hinge on one side of each side rail and a swinging or pivoted latch or plate on the opposite face of the side rails at the joint, such latch or plate overlapping the joint on each side when the frame is outstretched for use and being drawn or clamped snugly and tightly against the face of the rail; in providing a swinging or pivoted latch or plate lying flatwise on the face of the side rail and locked and held to the face of the rail; in providing a swinging or pivoted latch or plate and a clasp or loop operating in unison therewith to receive and retain a tie-brace or cross-rod; in providing a flatwise-folding hinge, a swinging or pivoted latch or plate, and a tie-brace or cross-rod; in providing a flatwise-folding hinge, a swinging or pivoted latch or plate, a clasp or loop coacting therewith, and a tie-brace or cross-rod, and in the several parts and combination of parts hereinafter described, and pointed out in the claims as new.

In the drawings, A represents the side rails, each side rail, as shown, having at each end a slot *a* for adjusting the length of the frame; B, the end rails, each end rail, as shown, having at each end a slot *b* for adjusting the width of the frame; but, if desired, each end rail at one end can have a hole instead of a slot, through which hole the corner-clamping bolt passes; C, the corner-clamping bolts, one for each corner of the frame, each bolt passing through a slot *a* and slot *b*, and each bolt has a thumb or wing nut *c* for tightening and loosening purposes, and, as shown, washers *c'* are provided between the heads and nuts of the bolts and the face of the rails to save injury to the frame in use; D, the space on each side and end rail for the projection of the attaching-pins for the curtain or other article or fabric, which space is located on the inner edge of each rail; E, the flange or ledge on each rail, through which the attaching-pins *e* are driven or on which such pins are otherwise secured, and, as shown, this flange is united to the main portion of each rail at the rear side by a bevel or incline *d*, making the union strong and firm. The attaching-pins *e* shown are stationary; but sliding pins can be used, if desired. These

pins *e* project upward in the space D, and their points terminate in line with or just below the plane of the upper face of the rail.

F represents the hinges, one for each side rail. Each hinge is of the ordinary flat or plate form and is attached to the face of the side rail by screws *f* or otherwise, so as to permit the side rail to be folded flatwise on itself.

G represents the stiffening latches or plates, one for each side rail at the joint thereof. Each latch or plate is located on the opposite face of the side rail to the hinge and has on the inner edge a lip or flange *g*, which when the rail is opened out and the latch or plate is in retaining position overlies the joint of the rail and is in engagement with the edge of the flange or ledge E, holding the joint against the strain of the curtain or other article or fabric in use. Each latch or plate G is provided on one end at the side with a slot or opening *g'*, which passes over a retaining or clamping bolt, and the opposite end of each latch or plate has a hole for the passage of a retaining or clamping bolt for such bolt to form a pivot on which the latch or plate can swing or turn.

H represents the retaining or clamping bolts, one on each side of the rail-joint. Each bolt passes through a hole therefor in the rail and can pass through the plate of the hinge, as shown in Figs. 5, 7, and 8, or the bolt can pass through the rail only, as shown in Fig. 6; but in either case one bolt passes through the latch or plate G and forms a pivot for the latch or plate and the other bolt is located for the slot *g'* to pass thereover for the bolt to enter the slot or opening *g'*. Each bolt has a thumb or wing nut *h*, by means of which the clamp or pressure on the latch or plate G is applied and released.

I is a clasp or loop for a tie-brace or cross-rod when used. A clasp or loop is provided for each latch or plate G and can be formed with the latch or plate, as shown in Figs. 5 and 6, or be an independent piece, as shown in Fig. 8. As shown in Fig. 5 the clasp or loop is formed at one end of the latch or plate G, and as shown in Fig. 6 it is formed at the center of the latch or plate G; but in Fig. 8 it is separate and mounted on the latch or plate and held in place by one of the bolts H, the stem of which passes through a boss or hub *i* on the clasp or loop and is held in line and stiffened by a point *i'* on its under face.

J is a tie-brace or cross-rod held and retained, as shown in Figs. 5, 6, and 8, by the clasps or loops I. This tie-brace or cross-rod extends from side rail to side rail and serves to give additional strength to the frame at the center and to prevent any sagging or bending of the side rails in use, and it also greatly stiffens and supports the frame when opened out for use. A tie-brace or cross-rod can be applied and used with a plain latch or plate—that is, one not having a clasp or loop—and such arrangement is shown in Fig. 7, in which the brace or rod J is attached by the bolt H on each side rail, such bolts passing through holes or slots in the brace or rod.

Each side rail is formed by bringing the two parts thereof together for their ends to abut and then attaching the hinge F to the face of the rail by screws *f* or otherwise. The bolts H, if not passing through each hinge leaf or plate, are inserted before attaching the hinge, but if passing through the leaf or plate they are inserted after the hinge is attached, and these bolts H can pass through holes made therefor in each leaf or plate of the hinge, or they can be so located and arranged as to pass through one of the screw-holes of the leaf or plate, dispensing with the use of a screw at that point. After the hinge F and bolts H are attached the end of the latch or plate G having the hole therein is slipped over one of the bolts H for the bolt to form a pivot for the latch or plate, and the slot *g'* is made to inclose the other bolt H, when the thumb or wing nuts *h* are applied to the bolts H, completing the side rail ready for use in the frame.

The frame is assembled by placing the side rails and the end rails on each other and passing the bolts C through the slots *a* and *b* and applying the thumb or wing nuts *c*, when the frame is ready for use, and in use the length of the frame is adjusted by loosening the nuts *c* and moving the end rails B in or out, as required, for the desired length, and the width is adjusted by moving one or both of the side rails in or out, as required, for the desired width, and when the desired size is obtained the thumb or wing nuts *c* are tightened, locking the frame at the corners by the clamping-bolts. The curtain or other article or fabric is then placed on the frame by hooking the scallops or edges onto the attaching-pins *e*, securing the curtain or other article to the frame.

The frame can be folded up for storage or shipment by loosening the nuts *h* on the latches or plates G, turning the plates around on the face of the rails, as shown in Fig. 3, and locking them by tightening the nut *h* of the pivot-bolt. The side rails can then be folded flatwise, as shown in Fig. 3, and the side rails and end rails folded and brought together, as shown in Fig. 2, bringing the frame into a very small and compact shape for storage or setting away or for shipment.

The frame is well adapted for use without a tie-brace or cross-rod, employing only a plain stiffening latch or plate, as shown in Figs. 3 and 4, which plate in and by itself, by reason of the lip or flange *g* overlapping the edge of the rail and the joint, makes the joint firm, strong, and unyielding, when the latch or plate is drawn close and tight against the face of the rail, thus supporting and holding the joint both edgewise and flatwise.

The plain latch or plate while it strengthens and stiffens the joint and rail may not on long rails be sufficient to prevent bending and sagging, and to overcome this difficulty

the center tie-brace or cross-rod J is used. The stiffening and strengthening plate for use with a brace or rod can be one having a clasp or loop on the end or one having a clasp or loop at the center, the clasp or loop in both cases being formed with the body of the latch or plate, or such clasp or loop can be made separate and applied as in Fig. 8. The tie-brace or cross-rod is applied by loosening the nut *h* of the bolt H, inserting the end of the brace or rod beneath the clasp or loop, and then tightening the nut *h*, drawing the loop or clasp snugly around the tie-rod and at the same time drawing the latch or plate firmly and closely against the face of the rail; uniting the several parts one to the other.

The tie-brace or cross-rod (shown in Fig. 7) is attached by slipping it onto a bolt H, using a plain latch or plate, the brace or rod being slotted or having a series of holes to permit the adjustment of the width of the frame.

A scale or measure is shown on the rails of the frame; but such scale or measure is not herein specifically described, as it is fully described and claimed in my application Serial No. 676,343, filed April 4, 1898.

The gist of the present invention is the stiffening and strengthening latch or plate in connection with the flatwise-folding hinge and the adaptability of such latch or plate for use by itself in supporting the joint and rail or in conjunction with a tie-brace or cross-rod, permitting the union of the several parts by the use of the same means, whether a plain latch or plate is used or a tie-brace or cross-rod is employed, enabling such tie-brace or cross-rod to be used or dispensed with without changing the efficiency and operation of the latch or plate and permitting the latch or plate and the brace or rod to be used on the same face of the frame.

The brace or rod applied as in Figs. 7 and 8 can be folded with the frame by loosening the nuts, detaching one end of the brace or rod, and turning the brace or rod to lie lengthwise of the side rail and then tightening the nut *h* of the attached end of the brace or rod.

What I claim as new, and desire to secure by Letters Patent, is—

1. A folding side rail or bar for a stretcher-frame folding flatwise on itself, in combination with a flat hinge uniting the sections of the folding rail or bar, a swinging or pivoted latch or plate on the opposite face of the rail to the flat hinge, a brace or tie-rod and means for clamping the brace or tie-rod and drawing the plate or latch, the brace or tie-rod and the rail together, substantially as specified.

2. A divided or sectional side bar or rail for a stretcher-frame folding flatwise on itself, in combination with a flat hinge at the joint of the rail or bar, a swinging or pivoted latch or plate on the opposite face of the rail to the flat hinge, said latch or plate having a side extension to the inner edge of the rail with a lip or flange on the extended portion overlapping and engaging the inner edge of the rail on each side of the joint, and means for drawing the parts together at the joint of the rail, substantially as specified.

3. A folding stretcher-frame having divided or sectional side rails, each provided with a flatwise-opening hinge on one face at the joint, and with a swinging or pivoted latch on the opposite face to the hinge, each plate or latch having a side extension to the inner edge of the rail with a lip or flange engaging and overlapping the edge of the rail at the joint, and bolts with clamping-nuts drawing and uniting the parts together, substantially as specified.

4. The combination in a stretcher-frame of divided or sectional side rails each having a flatwise-opening hinge on one face at the joint, a swinging or pivoted latch or plate on the opposite face of each rail, each latch or plate having a side extension to the inner edge of the rail with a lip or flange engaging and overlapping the edge of the rail at the joint, clamping-bolts, and a brace or tie-rod extending from side rail to side rail, substantially as specified.

5. The combination, in a stretcher-frame, of side rails, each having a flat hinge on one face, a swinging or pivoted latch or plate, with a lip or flange, on the opposite face, bolts clamping the parts together, a clasp or loop for each plate operated by the bolts, and a tie-brace or cross-rod entering and held by the clasps or loops, substantially as specified.

6. In a folding stretcher-frame, a divided side rail or bar, a flatwise-folding hinge at the joint of the rail or bar, a stiffening-plate on the opposite face of the rail or bar to the hinge, and a cross rod or bar forming a tie rod or brace, in combination with clamping-bolts, one each side of the rail-joint for each end of the stiffening-plate, for simultaneously clamping together the rail ends, the plate and the tie rod or brace, substantially as described.

7. In a folding stretcher-frame, a divided side rail or bar, a flatwise-folding hinge at the joint of the rail or bar, a stiffening-plate on the opposite face of the rail or bar to the hinge, and a cross bar or rod forming a tie rod or brace, in combination with clamping-bolts, one each side of the rail-joint for each end of the stiffening-plate, for simultaneously clamping together the rail ends, the hinge, the plate and the tie rod or brace, substantially as set forth.

REUBEN HOFFHEINS.

Witnesses:
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O. W. BOND.