No. 676,896. Patented June 25, 1901.

R. HOFFHEINS.

CURTAIN STRETCHER FRAME.

(Application filed Oct. 1, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

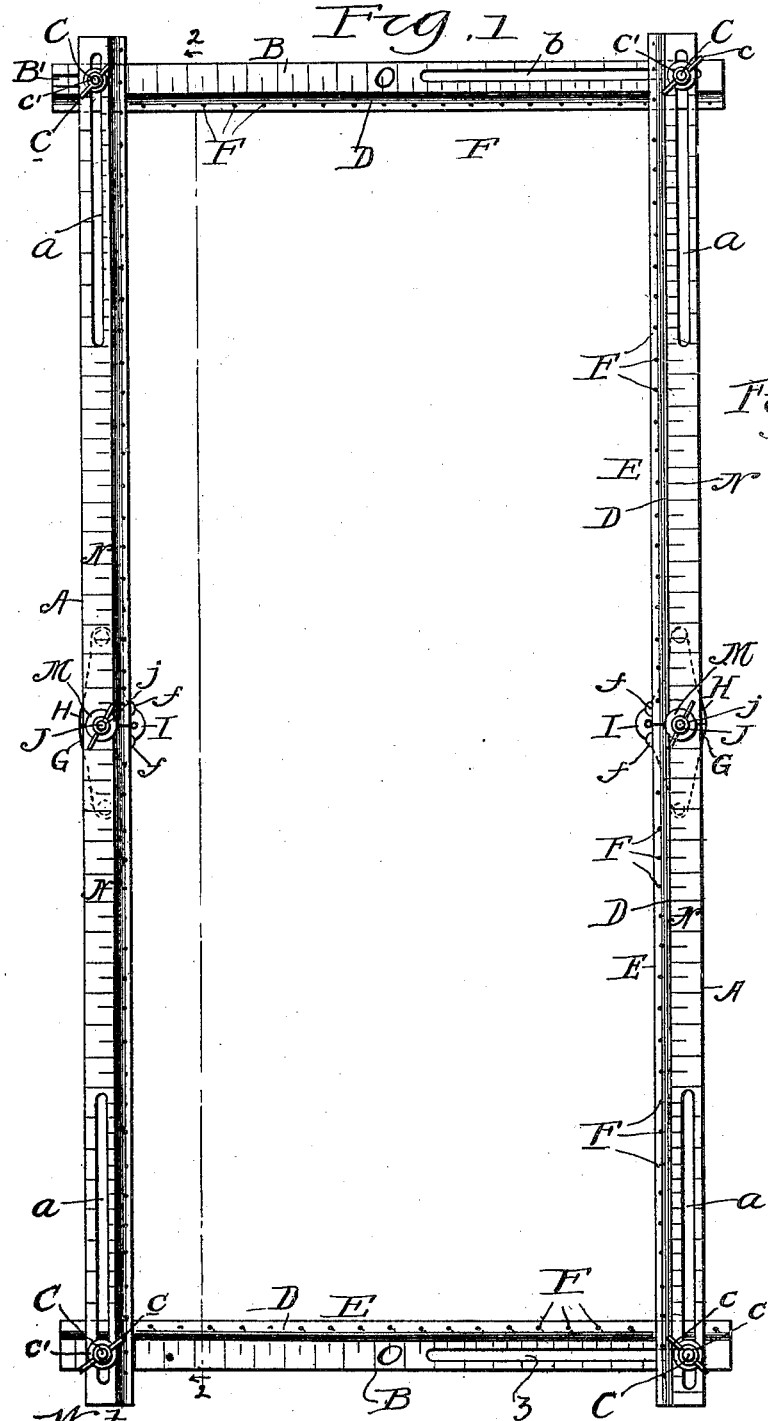
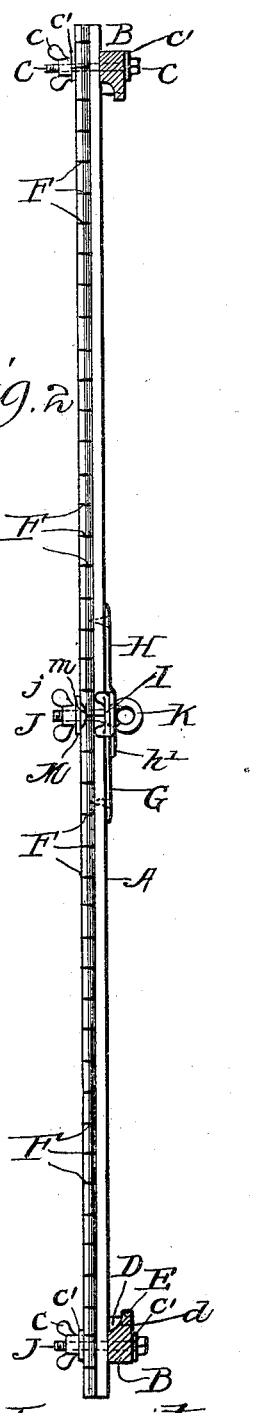


Fig. 2



Witnesses
Harold G. Barnett
Wm. M. Rheem.

Inventor
Reuben Hoffheins

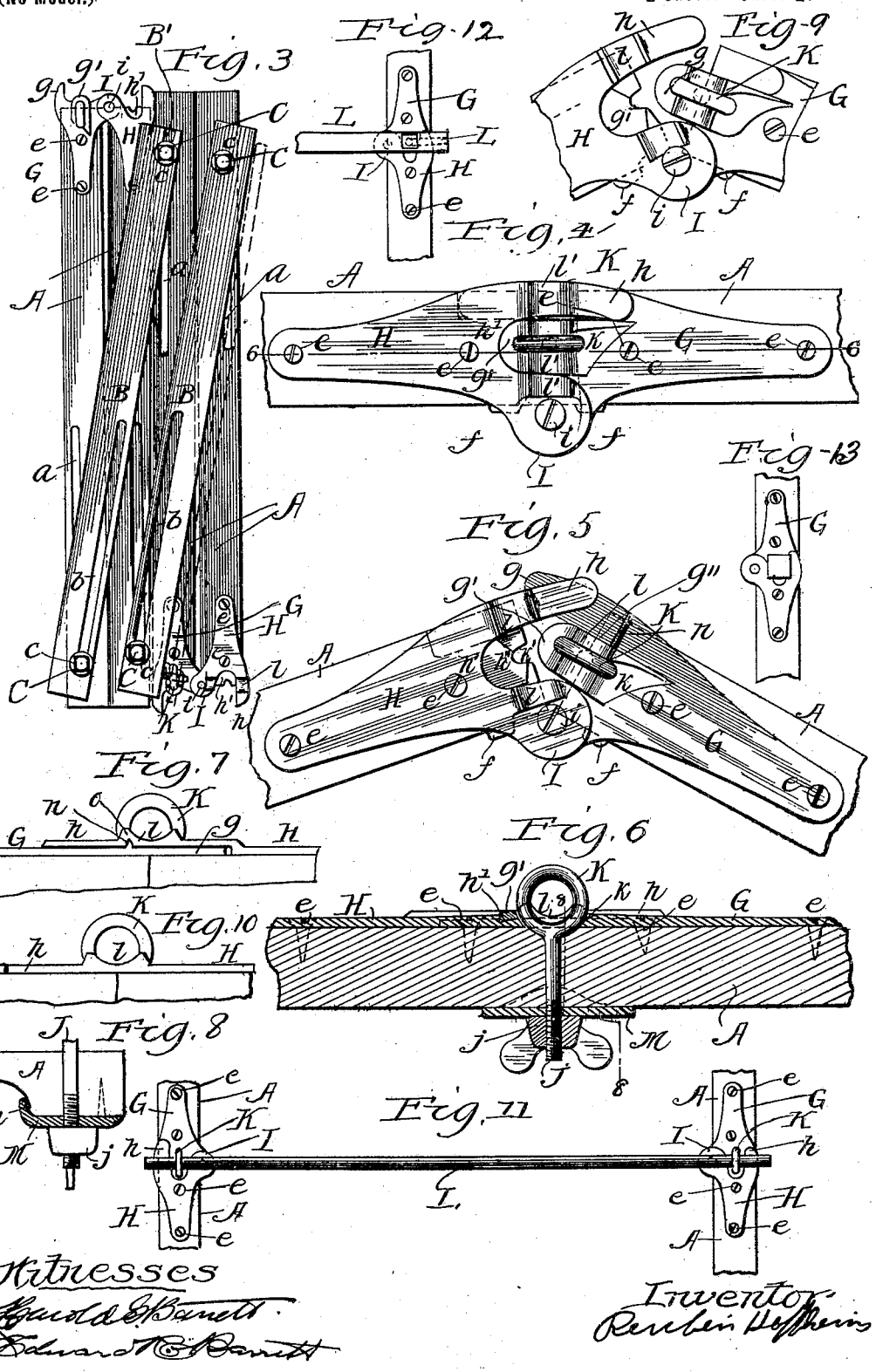
No. 676,896. Patented June 25, 1901.

R. HOFFHEINS.

CURTAIN STRETCHER FRAME.

(Application filed Oct. 1, 1898.)

(No Model.) 2 Sheets—Sheet 2.



Witnesses
Harold E. Barnett
Edward C. Barnett

Inventor
Reuben Hoffheins

UNITED STATES PATENT OFFICE.

REUBEN HOFFHEINS, OF CHICAGO, ILLINOIS.

CURTAIN-STRETCHER FRAME.

SPECIFICATION forming part of Letters Patent No. 676,896, dated June 25, 1901.

Application filed October 1, 1898. Serial No. 692,379. (No model.)

To all whom it may concern:

Be it known that I, REUBEN HOFFHEINS, of 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 thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a top plan view showing the frame extended for use; Fig. 2, a longitudinal section on line 2 2 of Fig. 1; Fig. 3, a bottom plan view showing the frame folded when out of use; Fig. 4, a detail, being a face view showing the hinge extended; Fig. 5, a detail, being a face view showing the hinge partly closed; Fig. 6, a detail, being a section on line 6 6 of Fig. 4; Fig. 7, a detail, being an edge view of the hinge at the center or joint; Fig. 8, a detail, being a cross-section of the hinge at the center or joint on line 8 8 of Fig. 6; Fig. 9, a detail, being a face view of the hinge, partly closed, showing a modification in the lap at the joint; Fig. 10, a detail, being an edge view of Fig. 9; Fig. 11, a detail, showing a round cross-brace or tie-rod and its attachment; Fig. 12, a detail showing the application of a flat cross-brace or tie-rod; Fig. 13, a detail showing the application of a flat-faced bolt at the joint of the hinge.

This invention relates to adjustable and folding frames having retaining or attaching pins more especially adapted and intended for use as a frame for stretching and drying curtains, but which can also be used for other similar or analogous purposes, and has for its objects to construct a frame which can easily, quickly, and readily be adjusted for use and which can be folded up into a small compass for shipment or storing out of the way when not in use without the removal of any of the parts, to improve the union or connection of the divided side rails, to improve the hinge connecting the sections of the side rail at the joint, to improve the means for locking the hinge, to improve the means for clamping the hinge and the rail, to enable a single clamp to be used for holding a central cross-brace or tie-rod and locking the hinge and rail, and to improve generally the construction and operation of the frame as a whole and its parts and attachments; and its nature consists in providing an end rail having an end-opening slot and a corner-clamping bolt for folding the frame; in providing a hinge having a tongue or extension self-locking the hinge on itself or on the rail; in providing a hinge having an outer tongue or extension and a central tongue or extension for locking purposes; in providing a hinge and single clamping-bolt; in providing a hinge and a central cross-brace or tie-rod locking the hinge when extended or opened; in providing a hinge, a central cross-brace or tie-rod, and a clamping-bolt uniting the hinge, the rail, and the cross-brace or tie-rod; in providing a hinge, a clamping-bolt, and a clamping-washer on the opposite face of the rail to the hinge at the joint, 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 divided side rails, each rail consisting of two sections or divisions having a central joint, and each rail, as shown, having at each end a slot *a* for adjusting purposes.

B represents the end rails, each of a continuous piece, and each rail having at one end a slot *b* for adjusting purposes, and at the opposite end a hole for the passage of the corner-securing bolt or pin, and one rail having a slot B′ opening from the corner hole to the end of the rail to permit the end of the rail to be detached or drawn away for holding to frame.

C represents the securing or clamping bolts, one for each corner of the frame, two of the bolts passing through the slots *a* and *b* and two passing through the slots *a* and hole in the end rail at the other two corners of the frame. Each bolt is screw-threaded at the end to receive a thumb or set nut *c* for tightening and loosening the bolt, and to protect the faces of the rails each bolt is provided with washers *c*′.

D is a space on the inner edge of each side and end rail formed by cutting away a portion of the inner edge, and, as shown, this cutting away is on a curve at the rear to leave

a face *d*, which furnishes additional strength against breaking of the pin-receiving edge or flange of the rail.

E is the edge or flange of each rail through which the retaining or attaching pins are driven for the pins to project, and have their ends or points in line with or below the top face of the body of the rail, so as to allow the rail to slide over the pins in adjusting the frame.

F represents the attaching-pins, driven, as shown, from the rear side or face of each rail through the edge or flange E to project above the edge or flange.

G is one plate or leaf of a hinge having, as shown, a tongue or extension *g* at its outer edge or side projecting beyond the inner end of the body of the plate and having a midway tongue or extension *g'* projecting beyond the inner end of the body of the plate and having also on its body a ledge or shoulder *g''* at the inner terminus or line of the tongue or extension *g*, as shown in Fig. 5. H is the other plate or leaf of the hinge, having, as shown, a tongue or extension *h* at its outer edge or side projecting beyond the inner end of the body of the plate and having a midway recess or mouth *h'* to receive the tongue or extension *g'*, which recess or mouth, as shown, has a bottom plate *h''* on which the bottom or under side of the tongue or extension *g'* rests when the hinge is extended or opened. As shown, the upper face of the bottom *h''* is made slightly rounded or convex, and the under face of the tongue *g'* is made slightly concave, so that when the hinge is opened out or extended these faces will bear snugly one against the other and lock the hinge, and, as shown, the upper face of the tongue or extension *g* is provided with a ledge or rise *n* and the opposing face of the tongue or extension *h* is provided with a notch *o*, located and arranged in relation to the ledge or rise *n*, so that when the hinge is extended the ledge and the recess engage with a cam action and lock the hinge, dispensing with other means for this purpose, and instead of having the engaging cam for the outer tongues or the binding of the midway tongues, as shown, the coacting faces of either could be otherwise formed to have a bearing, one against the other, and lock the hinge, or one set of cams or faces can only be made to perform the locking.

I represents ears, one on each plate or leaf G and H on the inner edge or side, through which ears a pin or pivot *i* passes to unite the plates or leaves and form the hinge, and each leaf at the inner edge adjacent to the base of the ear has a lug or projection *f* to abut against the edge of the frame rail or bar and serve as a guide in placing or setting the hinge and a support against strain in use. The hinge when complete is attached to the sections of the frame rail or bar by screws *e* or other suitable means for a plate or leaf to be attached to an abutting end of the rail or bar, with the center of the pin or pivot *i* in line with the rail-joint and the ears I on the inner edge of the rail or bar.

The construction of hinge shown in Figs. 1 to 7, inclusive, and in Fig. 10 has the tongue *h* to overlie the body of the tongue *g*, with the edge of the tongue *h* to overlap and abut against the edge or face of the shoulder *g''* and to have the under face of the tongue *g'* lie against the upper face of the bottom *h''* with its edges within the recess or mouth *h'*, and the edge of the tongue *g* overlaps and abuts against a shoulder or face formed by the edge of the bottom or plate *h''*. This construction and arrangement gives a firm and solid support for the hinge and furnishes a connection by which the joint of the frame rail or bar is strengthened, and the rail or bar is stiffened and held against yielding at the center or joint. It is evident that the same result can be obtained by omitting the tongue *g* and the plate or bottom *h''* and having the under face of the tongue *h* rest upon and bear against the face of the rail or bar A or likewise have the tongue *g'* rest upon and bear against the face of the rail or bar A, as shown in Figs. 9 and 10. This modification will furnish a hinge having an extension over the joint of the rail on each side, by which the joint is strengthened and the hinge and rail stiffened and supported, and it is also evident that only one tongue need be used, or the tongue *h* can be omitted and the tongue *g* made to overlap and overlie the joint and bear against the face of the rail or bar A, as in the construction of double tongues.

J is a locking or clamping bolt having, as shown in Figs. 1 to 11, a head in the form of an eye or loop, but which could have a flat head, as in Figs. 12 and 13, or a head of other shape, the stem having a screw-threaded end to receive a thumb or set nut *j* for tightening or loosening the bolt. This bolt can be used to clamp or lock the hinge when extended or opened out or to assist in so doing, and when the bolt alone is used for locking the hinge the tongue or tongues need not have a bind or lock against the face of the rail or bar or against one another, but may have such bearing if desired.

K is the eye or loop on the bolt J, forming a receiver for the end of a round cross-brace or tie-rod when used, which eye or loop enters a semicircular recess or slot *k* on the tongue or plate *g'* in the construction shown for the body of the bolt to be in line with the hinge-pivot *i* and the rail-joint, which recess holds the bolt against turning when the head is entered therein.

L is a round cross-brace or tie-rod extending from side rail to side rail across the frame, and having its ends entered one in each eye or loop K, as shown in Fig. 11, with each end resting in a cavity or recess *l*, formed by depressions in the upper faces of the tongues *g'* *h* and the body of one plate or leaf of the hinge, as shown in Figs. 4, 5, 6, and 7. The cavity or recess *l* on the face of each hinge to

receive the end of the cross-brace or tie-rod is located in line with and over the joint of the rail, so that when the end of the brace or rod L is in its cavity or recess *e* and there clamped it will form a lock against the closing or folding of the hinge and furnish a support for the joint of the rail, by which the joint will be strengthened and the rail made stiff and rigid at the center. The cross-brace or tie-rod can be round in cross-section, as in Fig. 11, in which case the eye or loop K is circular or the cross-brace or tie-rod could be rectangular or other form in cross-section with a corresponding eye or loop, or the cross-brace or tie-rod could have flat faces on the top and bottom, in which case a bolt with a flat head could be used, as shown in Fig. 12, and the face of hinge at the point where the end of the brace or tie-rod crosses could be flat, the end of the brace having an end slot. (Shown by dotted lines in Fig. 12.)

M is a clamping plate or washer for the opposite face of the rail or bar A to the hinge, through which plate or washer the bolt J passes to firmly draw and press the plate or washer against the face of the rail or bar for the plate or washer to support and strengthen the rail-joint. As shown in Figs. 6 and 8, the plate or washer has its edge turned down to form a lip *m* to pass over the face *d* of the rail and form a lock against the turning of the plate or washer and also an edge support for the joint of the rail.

N is a scale or measure on the face of the body of each rail A, by means of which the frame can be accurately and readily adjusted for length.

O is a scale or measure on the face of the body of each rail B, by means of which the frame can be accurately and readily adjusted for width.

The scales or measures N and O and their purpose and use are fully described and claimed in my application, Serial No. 676,343, filed April 4, 1898.

The sections of each side rail or bar A are connected by bringing their inner ends together so as to abut and placing a hinge thereon to have the pin or pivot *i* of the hinge in line with the rail-joint and the lugs *f* against the edge of the rail and then securing the hinge to the rail by screws *e* or other suitable means, and when the locking of the hinge and the support of the joint is to be had solely by the tongue or tongues of the hinge nothing further is required, as the rail is ready for use, but when it is desired to have an additional lock by a bolt or where it is desired to use a central brace or tie-rod the bolt J is inserted in its hole through the rail and the clamp-plate or washer M is passed over the end of the bolt and the thumb or set nut *j* applied, when the rail is ready for use in a frame.

The frame is assembled by attaching the side rails and end rails together with the corner securing or clamping bolts C, using washers *c'* and a thumb or set nut *c* for each bolt, and in use the end rails are adjusted for the proper length by moving them in or out, such movement being permitted by the slots *a* and the loosening of the corner-clamps, and the side rails are adjusted for the proper width by moving one rail in or out, such movement being permitted by the slots *b* and the loosening of the corner-clamps, and when the frame is adjusted as required for use the corner-clamps are tightened, locking the frame in its extended and adjusted position.

When the frame is extended or opened out for use, each side rail is extended, and when so extended the tongue or tongues of the plate or plates of the hinge lap across the rail-joint and onto the face of the rail or the face of the body of the opposite plate, so as to bear and furnish a support for the joint and a means for strengthening and stiffening the hinge and the rail, which can be further assisted by the clamp or tightening-bolt J when used. When a round cross-brace or tie-rod L is used, such brace or rod is applied by inserting its ends, one in each eye or loop K, for the end to rest in the cavity or recess *l* of the hinge, in line with and over the joint of the rail, and then securing each end in position by the drawing down of the clamp-eye or loop, and this brace or tie-rod when in place and locked furnishes a lock and support for the hinge and the joint of the rail or bar, by which the rail is held rigid and stiff without the use of other means. When a flat cross-brace or tie-rod is used, such brace or rod is applied by having its ends cross the hinge and using a bolt with an open square hook for a head to clasp over the end of the brace or tie-rod or using a bolt with a flat-faced head for the stem of the bolt to pass through a hole or slot in the end of the brace or tie-rod.

The frame can be folded, as shown in Fig. 3, to do which all that is requisite or necessary is to loosen the corner-clamps and the bolts J when used, and then withdrawing the end of the end rail or bar B, having the end slot B', from the body of its corner bolt or clamp C, folding the side rails inward on themselves and turning the end rails to lie alongside each other, crossing over the folded side rails, as in Fig. 3, and then locking the rails by the corner-clamps, first entering the slot B' onto its clamp or bolt C, securing the frame in its folded position and against unfolding, and to unfold and open out and set the frame the corner clamps or bolts are loosened, the slotted end of the end rail is withdrawn, and the side rails opened and the end rails turned to bring the rails as shown in Fig. 1, and then entering the slot B' onto its corner clamp or bolt and setting and adjusting the rails as desired for the length and width required and locking the frame by the corner clamps or bolts. The cross-brace or tie-rod when used can be folded with the frame by loosening the bolts J, withdrawing

one end of the brace or tie-rod, and then turning it to lie alongside of an end rail, as shown by dotted lines in Fig. 3.

The hinge constructed as described is capable of use alone as a self-locking hinge and a support for the rail or joint or of use with a clamping-bolt, and when used in either way the hinge is locked when opened and the joint of the rail is supported and the rail strengthened and stiffened at the joint and made firm and rigid at the center, all of which is very desirable in a frame for stretching curtains or other fabrics for drying or other purpose. A bolt with a flat-faced head can be used for locking the hinge by having the head project to engage the body of the plates and the tongues, as shown in Fig. 13. A self-locking hinge is provided by the use of cam or engaging faces on the tongues *g* and *h* or by the use of such faces on the midway tongues, and such cam or engaging faces can be provided for both the outer and midway tongues, or one set of tongues can be made to perform the locking and stiffening of the hinge. Such locking and stiffening of the hinge is also had by the use of a cross-brace or tie-rod crossing the hinge at the line of and over the rail-joint and clamping the brace or tie-rod to the hinge, and such locking and stiffening is also had by the use of a bolt having a head of sufficient size to overlap the parts of the hinge at the rail-joint and drawing and clamping the parts together by the bolt, so that the head of the bolt will bind against the face of the hinge, and with the use of the cross-brace or tie-rod for locking the hinge or the use of the headed bolt for that purpose the locking office of the tongues can be omitted and the tongue or tongues be made to merely lap over the rail-joint without having a cam or binding action, or, if desired, the tongue or tongues can be made to engage and bind one against the other, so as to be self-locking, and additional security be provided by the locking of the brace or tie-rod or the central bolt in strengthening the rail and stiffening and supporting the joint.

Both side rails fold inward on themselves, by which construction it will be seen that the pins are brought to the center of the fold on both side rails, protecting the pins from being broken or bent, as would be the case with an outward fold of the rail on itself, where the pins would be brought to the outside instead of the inside, and by folding the end rails with their upper faces against the side rails for the end rails to lie obliquely across the side rails the pins of the end rails are protected by being inclosed between the folded side rails and the turned end rails, protecting the pins on all sides, so that when the frame is folded with each side rail folded on itself inwardly and the two rails lying parallel to each other and the end rails turned and lying obliquely across the folded side rails the pins are not exposed on any of the rails, but are fully protected against being broken or bent. The single central clamping-bolt located at or near the line of the rail-joint furnishes a stiffening means for the joint, as in use it draws against both abutting ends of the divided side rail, thereby drawing together the hinge and the end rails, making the joint rigid and firm and holding the rail ends at the joint against being forced away, as the pressure of the clamp is on both ends of the rail and at the point to best resist any outward springing away from the hinge, thus insuring a firm and unyielding binding together of the rail ends and the hinge, and this result can be accomplished without the use of a washer or stiffening-plate by having the head of the bolt or using a nut with a broad face to overlie both ends of the rail at the joint, in which case the face of the head of the bolt or the face of nut would be adjacent to the face of the rail instead of to the hinge.

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

1. A stretcher-frame having jointed slotted side rails and continuous end rails pivotally connected to the side rails at each corner, one end rail having an open-ended slot for connecting and disconnecting the frame at one corner, each side rail having its abutting ends connected by an edgewise inwardly folding hinge, a cross-brace or tie-rod crossing each hinge of the side bars and a clamping device for each hinge operating to clamp and lock the hinge between the cross-brace or tie-rod and the abutting ends of each side rail, when the frame is open for use, in combination with clamping-nuts, whereby the connection of the open-ended slotted rail and one end of the cross-brace or tie-rod can be relaxed, and the frame disconnected at one corner, for the side rails to be folded inwardly on themselves to lie side by side and parallel to each other in pairs, and the pivoted end rails can be laid obliquely across the side rails and the open-ended end rail be securely clamped to the side rail, as shown and described.

2. The combination with a divided rail of a stretcher-frame, of an edgewise-folding hinge, an ear or tongue on one leaf or plate of the hinge, extending across the joint of the rail, and a single central clamping-bolt carried by the ear or tongue and passing centrally through the rail in line with the joint and provided with clamping means extending across the hinge in line with the joint and across the abutting ends of the rail, for the single bolt and its clamping means to simultaneously draw together both abutting ends of the rail and the ends of the hinge on each side of and directly at the rail-joint, substantially as described.

3. A hinge for a divided side rail of a stretcher-frame, consisting of two companion plates pivoted together at one side to open edgewise, an outer tongue or bearing-face on one plate, extending across the rail-joint, a

central or midway tongue on the opposite plate also extending across the rail-joint, and a single central clamping-bolt carried by the last-named tongue, in line with the rail-joint, for the one bolt to simultaneously draw together the hinge and the abutting ends of the rails at the joint at the same time, substantially as and for the purposes specified.

4. A hinge for a divided side rail of a stretcher-frame, consisting of two companion plates pivoted together at one side to open edgewise, a midway ear or tongue on one hinge-plate, a midway opening or recess on the other hinge-plate receiving the ear or tongue when the hinge is open, and a single central clamping-bolt, carried by the ear or tongue, substantially as and for the purposes specified.

5. In a curtain-stretcher frame consisting of a divided side rail connected by an edgewise inwardly folding hinge having its pivot on the inner edge of the side rail in line with the rail-joint, a cross-brace or tie-rod extending from side rail to side rail and projecting over the hinge, in combination with a central clamping-bolt, whereby the abutting ends of the rail, the hinge and the cross-brace or tie-rod can be simultaneously clamped together, substantially as described.

6. A self-locking hinge for connecting the side rail of a stretcher-frame, consisting of two companion plates secured to the flat side of the abutting ends of the side rail, and pivoted together at one side of the rail to open and close edgewise, an interlocking cam connecting and locking the companion plates together when the rail is open for use, and a plate or washer on the opposite side of the rail to the hinge extending across the rail-joint, in combination with a clamping-bolt for locking the hinge and simultaneously clamping the abutting ends of the rail between the plate or washer and the hinge, substantially as described.

7. A hinge for a divided side rail of a stretcher-frame, consisting of two companion plates pivoted together at one side to open edgewise and having on its outer face a cavity or recess for the reception of the end of a cross-brace or tie-rod, in combination with a central bolt and a cross-brace or tie-rod, substantially as and for the purposes specified.

8. The combination with the divided side rail of a stretcher-frame of a hinge connecting the rail at the joint and having a cavity or recess in line with the rail-joint, and a cross-brace or tie-rod having its end entering the cavity or recess for locking the hinge and strengthening and stiffening the rail-joint, substantially as specified.

9. In a folding curtain-stretcher frame, a hinge consisting of two companion plates, each plate connected to the flat face of the adjacent ends of the rail, the two plates pivoted together at one edge of the rail in line with the rail-joint for opening and closing edgewise, in combination with a clamping-bolt extended centrally through the rail-joint, and when tightened to draw and clamp both of the abutting ends of the rail and the two adjacent ends hinge directly at the joint simultaneously together, substantially as described.

10. The combination with the divided side rails of a stretcher-frame, and a cross-brace or tie-rod, of a hinge for each side rail, a plate or washer for each side rail on the opposite face of the hinge, and a clamp common to the hinge, the plate or washer and the cross-brace or tie-rod, substantially as and for the purposes specified.

11. The combination with the divided side rails of a stretcher-frame, and a cross-brace or tie-rod, of a hinge for each side rail, a cavity or recess for each hinge, a plate or washer for each side rail on the opposite face of the hinge, and a clamping-bolt common to each hinge and plate or washer, and having an eye or loop receiving the end of the cross-brace or tie-rod, substantially as and for the purposes specified.

12. The combination with the divided side rails of a stretcher-frame and a cross-brace or tie-rod, of a hinge for each side rail, a receiving-face on each hinge for the brace or tie-rod, and a clamping-bolt having a head engaging the end of the cross-brace or tie-rod, substantially as and for the purposes specified.

13. The combination with the divided side rail, of a stretcher-frame, of a connecting-hinge on one side face of the rail at the abutting ends, a clamping-plate or washer on the opposite face of the rail to the hinge extending across the rail-joint, a clamping-bolt passing through the washer and between the abutting ends of the rail and the hinge, and means for clamping the abutting ends of the rail between the washer and hinge, substantially as described.

14. A self-locking and self-releasing hinge consisting of two companion plates pivoted together at one side to open edgewise, the two plates at the butt-end crossing each other and passing one over the other when the hinge is opened, and interlocking means on the contiguous faces of the butt-ends automatically brought into engagement and self-locked by the act of opening the hinge, and automatically self-released by the act of closing the hinge, substantially as described.

15. The combination with the side rail of a stretcher-frame of an edgewise opening and closing hinge on one side face of the rail connecting the rail ends, a plate or washer on the opposite face of the rail to the hinge extending across the rail-joint, a clamping-bolt extending through the hinge, the abutting ends of the rail and the washer, and means for clamping and locking together the hinge, the abutting ends of the rail and the washer, substantially as set forth.

16. A hinge for a divided side rail of a stretcher-frame, consisting of two companion

plates pivoted together at one side to open and close edgewise one plate overlapping the other when the hinge is open, and the overlapping portions of the two plates provided with self-locking means integral with the plates, automatically brought into engagement by the opening of the hinge and automatically released by the closing of the hinge, in combination with a divided side rail of a stretcher-frame, substantially as described.

17. A hinge for a divided side rail of a stretcher-frame, consisting of two companion plates having a pivotal connection on one side permitting the hinge to open and close edgewise for each plate to cross the rail-joint when the hinge is opened out for use, and provided on the overlapping ends with concave and convex faces forming an interlocking cam, automatically self-locked and automatically self-released by the unfolding and folding of the rail, substantially as specified.

18. A hinge for a divided side rail of a stretcher-frame, consisting of two companion plates having an unyielding pivotal connection at one side, each plate having an extension or tongue, which when the hinge is open, overlap each other across the rail-joint, one extension having a catch on its face and the other a groove in its face receiving the catch whereby the hinge automatically self-locks when open and automatically self-releases its lock when the hinge closes, substantially as described.

19. A hinge for a divided side rail of a stretcher-frame consisting of two companion plates pivotally connected at one side and having each an overlapping portion with the overlapping portions provided with interlocking means on their adjacent faces automatically engaged by the opening of the hinge and automatically released by the closing of the hinge, in combination with a divided side rail and a single clamping device common to the hinge and the rail ends for the one clamping device to simultaneously draw together the hinge and both abutting ends of the rail, substantially as described.

20. In a folding curtain-stretcher frame having a pivotal connecting-hinge consisting of two companion plates connected to the side face of the abutting ends of the side rails, with the pivot of the hinge in line with the rail-joint, for the hinge to open and close edgewise, a cross-brace or tie-rod extended from side rail to side rail across the hinge in line with the rail-joint, and a clamping-bolt extending through the rail-joint in line with the hinge-pivot, in combination with means for clamping and locking together the abutting ends of the rail, the hinge and the cross-brace or tie-rod, substantially as described.

21. The side rails of a sectional curtain-stretcher frame and two companion plates secured to the side face at the abutting ends of the rails, and pivoted together on one side for the pivot to be in line with the rail-joint and form a hinge to open and close edgewise, in combination with a cross-brace or tie-rod extending from side rail to side rail across the hinge, and a central bolt, clamping the hinge between the cross-brace or tie-rod and the face of the abutting ends of the rail, substantially as described.

22. The combination with the abutting ends of a divided side rail of a stretcher-frame, of two plates pivoted together at one side forming a hinge to open edgewise, and a clamping-bolt passing between the abutting ends of the divided side rail at the joint, and through the hinge at the central line transversely for drawing together the abutting ends and the hinge at the joint of the rail, substantially as specified.

23. The combination in a folding stretcher-frame having divided side rails, each rail opening and closing edgewise, of an edgewise-folding hinge for each side rail, an interlock between the plates of each hinge brought into engagement with the opening of the side rail, and a single clamp-bolt, whereby the hinge is held rigid and stiff and the rail supported when opened out for use, substantially as specified.

24. In a curtain-stretcher, a side rail comprising bars joined together at adjacent ends by a hinge, such hinge consisting of plates pivoted together, a cross-bar, a bolt securing the cross-bar to the under side of the side rail with the hinge interposed between it and such side rail, and a washer on the bolt on the upper side of the side rail, the cross-bar and the washer arranged so that the adjacent ends of the plates of the hinge and of the bars of the side rail are overlapped by the cross-bar and by the washer and the tightening of the nut on the bolt attaching the cross-bar in place compresses the adjacent ends of the hinge and bars of the side rail between the cross-bar and the washer, substantially as described.

25. In a curtain-stretcher, a side rail comprising bars joined together at adjacent ends by a hinge, a hinge consisting of plates pivoted together, a portion of the adjacent ends of the plates overlapping for the pivoting thereof and the remaining portion abutting together, a cross-bar, a bolt securing the cross-bar to the under side of the side rail with the hinge interposed between it and such side rail, and a washer on the bolt on the upper side of the side rail, the cross-bar and the washer arranged so that the adjacent ends of the plates of the hinge and of the bars of the side rail are overlapped by the cross-bar and by the washer, and the tightening of the nut on the bolt attaching the cross-bar in place compresses the adjacent ends of the hinge and bars of the side rail between the cross-bar and washer, substantially as described.

REUBEN HOFFHEINS.

Witnesses:
ALFRED GRAINGER,
M. J. CAREY.