Feb. 7, 1950 K. J. UNWIN 2,496,645

LEVELING BRIDGE

Filed June 28, 1946

Fig. 1.

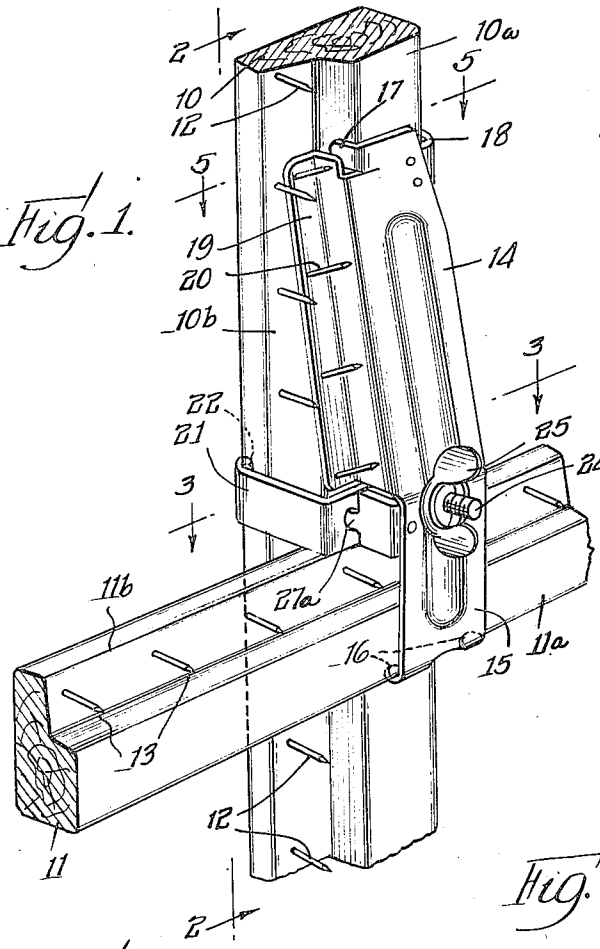


Fig. 2.

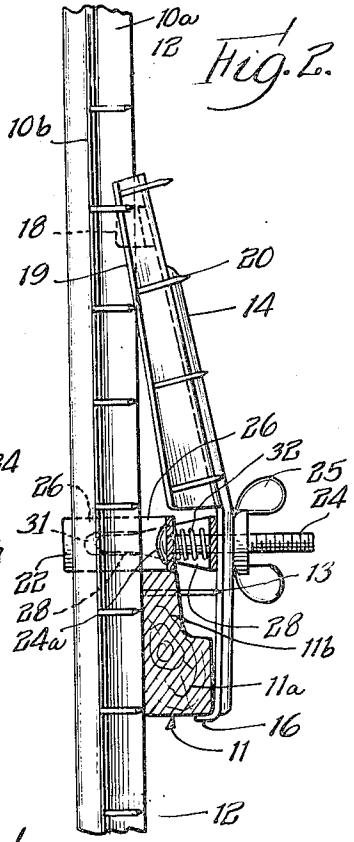


Fig. 3.

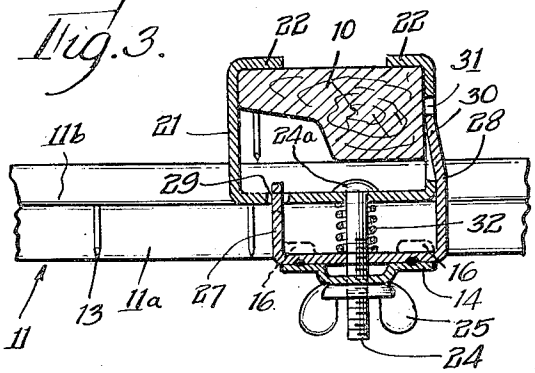


Fig. 4

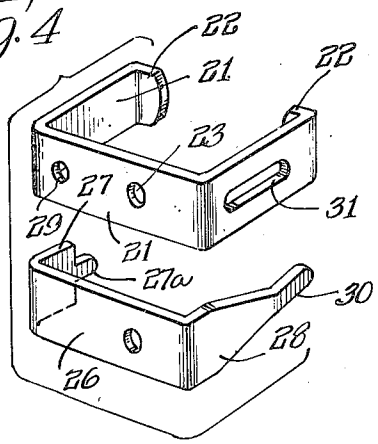
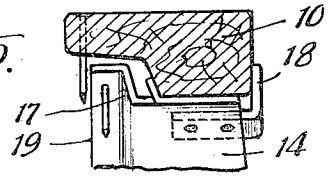


Fig. 5.



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LEVELING BRIDGE

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9 Claims. (Cl. 45—24)

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The present invention relates to new and useful improvements in stretching frames and more particularly to improvements in stretching frames adapted for use in drying curtains and other fabrics.

In general, the invention contemplates the provision of a stretching frame which includes angularly disposed post and rail members which overlie one another and are relatively adjustable. At least one corner is formed by a post and rail member and a leveling bridge or pin plate is employed at such corner in order to provide a gradual sloping surface to which the fabric is secured in the transfer area between the overlying post and rail members. In this type of stretching frame, the leveling bridge usually carries some type of clamping member engageable with the post or the rail, while the bridge itself is engageable with the other post or rail member. Thus, the clamping element and the leveling bridge serve to secure the post and rail members in any predetermined adjusted position. Heretofore, some difficulty has been encountered, particularly in assembling the frame, due to relative turning and uncontrolled movement between the clamping element and the bridge.

An object of the present invention is to facilitate assembly, disassembly and adjustment of the post and rail members by maintaining the clamping element and the leveling bridge in relatively fixed positions of predetermined alignment so as to prevent relative canting or tilting therebetween.

A further object of the invention is to provide an assembly of the above type wherein limited relative movement between the clamping element and the leveling bridge toward and away from one another is permitted in order to facilitate adjustment or assembly of the frame, but relative turning between the leveling bridge and clamping element is prevented.

The invention still further aims to provide, in an assembly of the above type, a leveling bridge and clamping means which are relatively simple in construction, reliable in operation, and maintained in relatively fixed positions.

The above and other objects of the invention will in part be obvious and will be hereinafter more fully pointed out.

In the accompanying drawing—

Figure 1 is a perspective view showing a post and rail secured in position by the clamping means and the leveling bridge;

Figure 2 is a sectional view taken along the line 2—2 of Figure 1;

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Figure 3 is a sectional view taken along the line 3—3 of Figure 1;

Figure 4 is an exploded perspective view showing the details of the clamping means; and

Figure 5 is a sectional view taken along the line 5—5 of Figure 1.

Referring more in detail to the accompanying drawing, a vertical post 10 is provided along one side thereof with a raised rib portion 10*a* and along the adjacent side with a reduced portion 10*b*. A rail 11 is similarly constructed with a rib portion 11*a* along the lower edge thereof, and with a reduced portion 11*b* along the upper edge thereof. The post and rail members overlie one another and are disposed in juxtaposition at substantially right angles to one another, although this is not essential, as the shape of the fabric will determine the angular disposition thereof. The reduced portions 10*b*, 11*b* have secured thereto pins 12, 13, respectively which serve as means for securing the curtain or other fabric to be stretched and dried.

A leveling bridge or pin plate 14 is provided with a lower clamping portion 15 which engages the face of the rib portion 11*a* of the rail 11, and is provided with inturned lugs 16 disposed immediately beneath and engaging the bottom edge of the rail. The upper portion of the leveling bridge, namely, the portion disposed above the rail 11, is gradually inclined downwardly toward and into contact with the face of the rib portion 10*a* on the post 10. The upper end of this inclined portion is provided with inner and outer lugs 17, 18, respectively, which engage opposite edges of the rib portion 10*a* and thus serve as guides during adjustment of the frame. A depressed outwardly extending flange portion 19 is provided along the inclined portion of the leveling bridge and is similarly inclined, and this flange portion has pins or small nails 20 carried thereby for securing the curtain or other fabric along this inclined transfer area between the overlying rail and post members.

A clamping element 21 in the form of a substantially C-shaped bracket is provided with inturned flanges 22 at the free ends of the leg portions thereof. The closed end or strap portion of the clamping element is provided with an opening 23 through which extends a headed bolt 24, the outer free end of which extends through a corresponding aperture in the leveling bridge and has threaded engagement with a wing nut 25. A bracket member 26 is suitably secured, as by spot welding, across the inner surface of the leveling bridge 14 immediately above the rail

member 11 and is provided with leg portions 27, 28, which extend inwardly toward the clamping element 21. The leg portion 27 of the bracket is provided with a reduced tongue 27a which is adapted to extend into an opening 29 through the closed end of the clamping element 21. The leg portion 28 of the bracket is also provided with an elongated tongue portion 30 which is slightly bent inwardly, as shown in Figures 3 and 4, to engage within a slot 31 in the corresponding leg portion of the clamping element 21. A coil spring 32 is disposed between the adjacent surfaces of the bracket member 26 and the clamping element 21 and operates to normally urge the same apart.

In operation and use, it will be seen that when the wing nut 25 is tightened relative to the bolt 24, the lower clamping portion 15 of the leveling bridge 14 will be urged inwardly into tight engagement with the rib portion 11a of the rail 11 and, likewise, the clamping element 21 will be urged in an opposite direction so that the flanges 22 thereof will tightly engage the rear face of the post 10, thus tightly securing the post, rail and leveling bridge in any selected adjusted position. When it is desired to adjust or disassemble the stretching frame, the wing nut 25 is loosened and the spring 32 will tend to separate the clamping element 21 and the bracket member 26 which is carried by the leveling bridge 14. The engagement between the tongues 27a, 30 and the opening 29 and slot 31 will permit this relative sliding movement but it will also be seen that the same interengaging parts will prevent relative turning between the clamping element 21 and the leveling bridge 14 about the axis of the bolt 24. The inturned tongue 30, operating in the slot 31 and in conjunction with the bolt 24, will maintain the position of the parts even if the tongue 27a is retracted from the opening 29. Thus, even when the stretching frame is disassembled, the relative position between the clamping element 21 and the leveling bridge 14 is maintained and this construction greatly facilitates its use by inexperienced persons in assembling, adjusting, or disassembling the frame. In other words, the clamping element 21 is maintained in a plane which is substantially normal to the plane of the clamping portion 15 of the bridge and which is fixed with respect to any plane through the bridge, although limited relative sliding movement between the bridge and the clamping element is permitted by reason of the tongue and slot connection with the bracket. The relative position between the head 24a of the bolt 24 and the wing nut 25 will determine the extent of compression of the spring 32 in tending to maintain the parts in spaced relation. Thus, the bolt 24 also aids in maintaining the position of the bridge and C-clamp but relative rotation of those parts about the bolt axis is prevented.

While one form of the invention has been shown and described for purposes of illustration, it is to be clearly understood that various changes in the details of construction and the arrangement of parts may be made without departing from the scope of the invention as set forth in the appended claims.

I claim:

1. In a stretching frame having crossed and relatively overlying post and rail members, a leveling bridge disposed at the intersection between said members, a clamping element adapted to engage one of said members, a bracket extending transversely of and carried by said leveling bridge and having spaced tongue portions adapted to engage correspondingly spaced apertures in said clamping element to prevent tilting thereof with respect to said bridge but permitting limited relative inward and outward sliding movement therebetween, and means engaging said clamping element and said bridge for effecting clamping action thereof against said post and rail members.

2. In a stretching frame having crossed and relatively overlying post and rail members, a leveling bridge disposed at the intersection between said members and contacting the same, a clamping element adapted to engage one of said members, a bolt and nut connection between said clamping element and said bridge for effecting clamping of the said post and rail members therebetween, and means including interfitting and spaced tongue and aperture connections between said bridge and said clamping element for preventing relative turning thereof about the bolt axis.

3. In a stretching frame having crossed and relatively overlying post and rail members, a leveling bridge disposed at the intersection between said members and contacting the same, a clamping element adapted to engage one of said members, a bolt and nut connection between said clamping element and said bridge for effecting clamping of the said post and rail members therebetween, a pair of spaced tongues extending inwardly from said bridge, said clamping element having similarly spaced apertures adapted to receive said tongues whereby to prevent relative turning between the bridge and the clamping element while permitting relative movement thereof along the bolt axis, and spring means normally maintaining the bridge and clamping element in spaced relation.

4. In a stretching frame having crossed and relatively overlying post and rail members, a leveling bridge disposed at the intersection between said members and contacting the same, a C-clamp engageable with one of said members and having an aperture through the closed end thereof and a slot through one side portion thereof, a headed bolt passing through said C-clamp and said bridge with the bolt head engaging the C-clamp, a nut threadedly engaging the free end of said bolt and adapted to contact said bridge for effecting clamping of the said post and rail members, and a bracket carried by said bridge and having tongues fitting within said aperture and slot for maintaining alignment of said bridge and said C-clamp.

5. In a stretching frame as claimed in claim 4, wherein the tongue extending into said slot is directed inwardly to assure proper engagement with said C-clamp.

6. In a stretching frame as claimed in claim 4, the provision of a coil spring disposed around said bolt and between said bridge and said C-clamp for maintaining the same in proper spaced relation.

7. A leveling bridge assembly adapted for use between the post and rail members of a fabric stretching frame and comprising a body portion having rail and post engaging portions and an inclined portion to which the fabric is secured, a clamping member adapted for engagement with one of said members, a bolt and nut connection between the clamping portion of said bridge and said clamping element, spring means maintaining the bridge and clamping element in spaced relation, and a pair of arms carried by said bridge and extending toward said clamping element and having reduced end portions adapted to fit with-

in similarly spaced apertures in said clamping element whereby to maintain relative alignment of the bridge and clamping element while permitting relative movement toward and away from one another.

8. In a stretching frame having crossed and relatively overlying post and rail members, a leveling bridge disposed at the intersection between said members and contacting the same, a clamping element having a strap portion and a flanged leg portion engageable with one of said members and being provided with an aperture through said strap portion and a slot extending longitudinally of said leg portion, a bolt and nut connection between the strap portion of said clamping element and said bridge for effecting clamping of the said post and rail members, and a pair of tongues extending inwardly from said bridge with one of said tongues fitting within said aperture and the other of said tongues fitting within said slot for maintaining alignment of said bridge and said clamping element.

9. In a stretching frame as claimed in claim 8 wherein a bracket is carried by said bridge and is provided with a pair of inwardly extending tongues of different lengths, the shorter tongue fitting within said aperture and the longer tongue fitting within said slot for maintaining alignment of said bridge and said clamping element.

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