

Feb. 28, 1967

A. P. CLOUTIER
BEDSTEAD FASTENING

3,305,880

Filed March 7, 1966

4 Sheets-Sheet 1

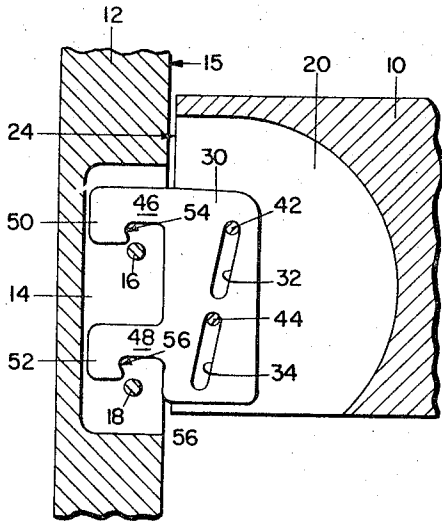


FIG. 1.

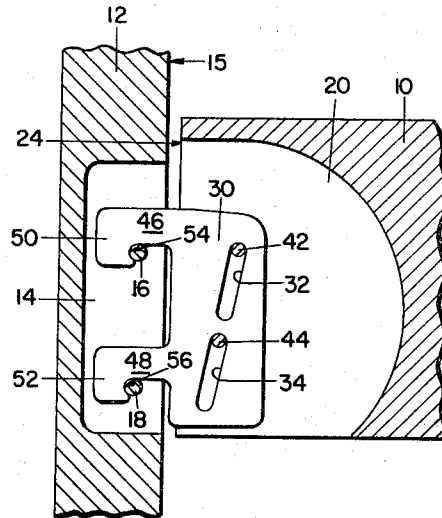


FIG. 2.

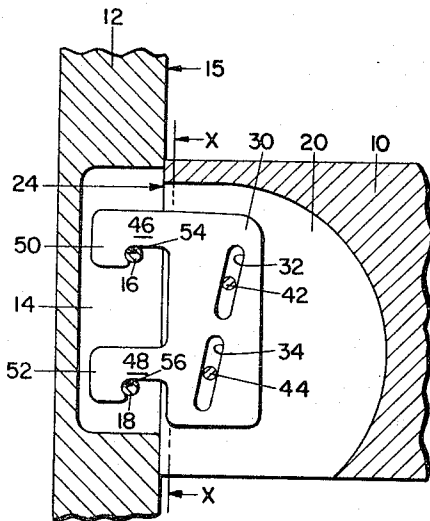


FIG. 3.

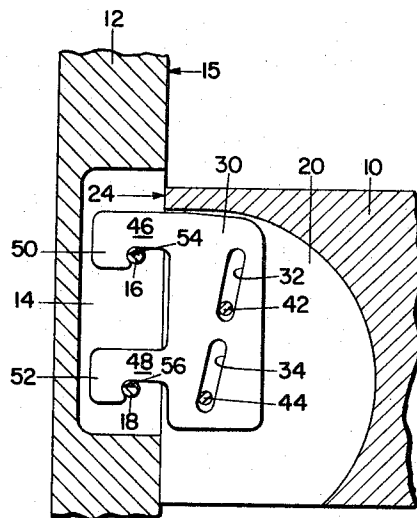


FIG. 4.

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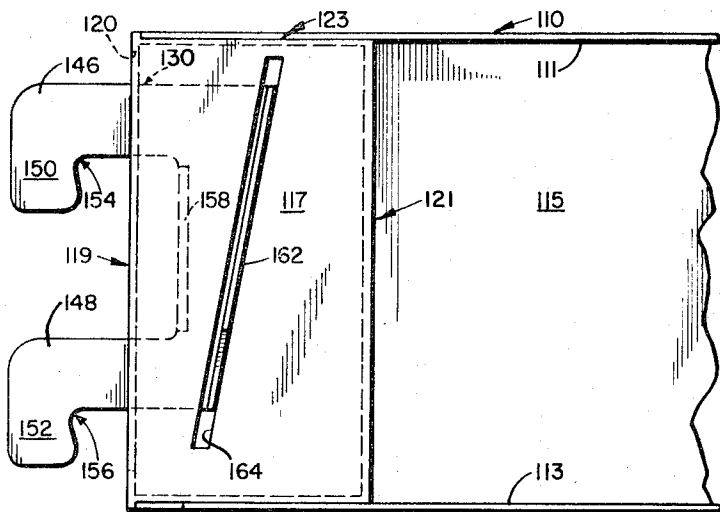


FIG. 5.

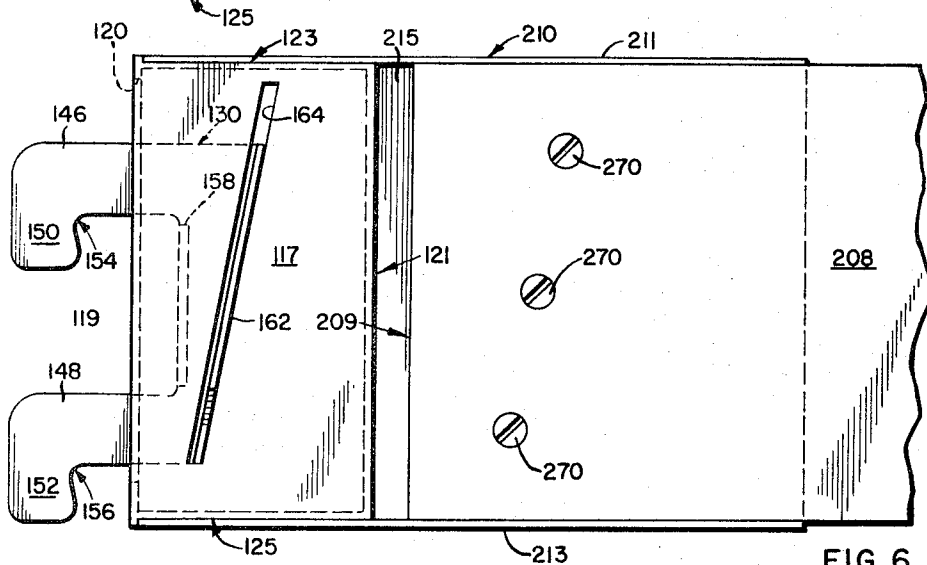


FIG. 6.

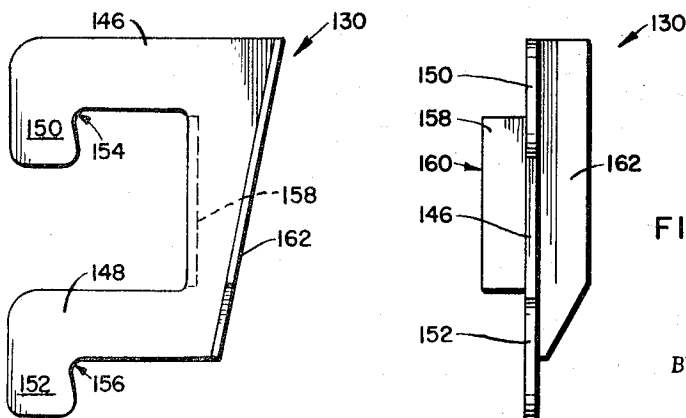


FIG. 7.

FIG. 8.

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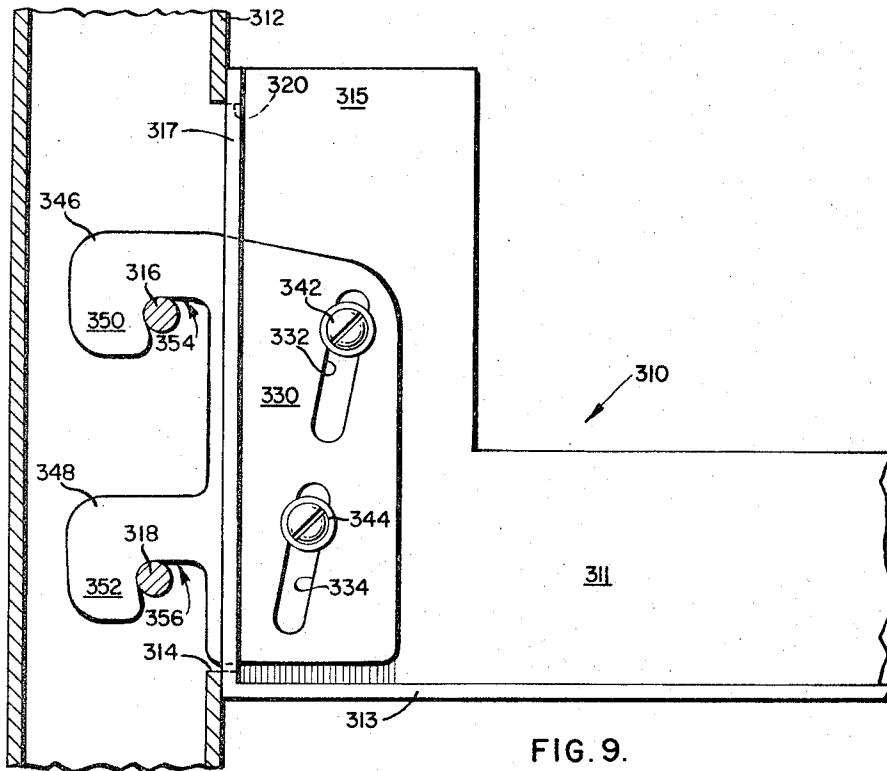


FIG. 9.

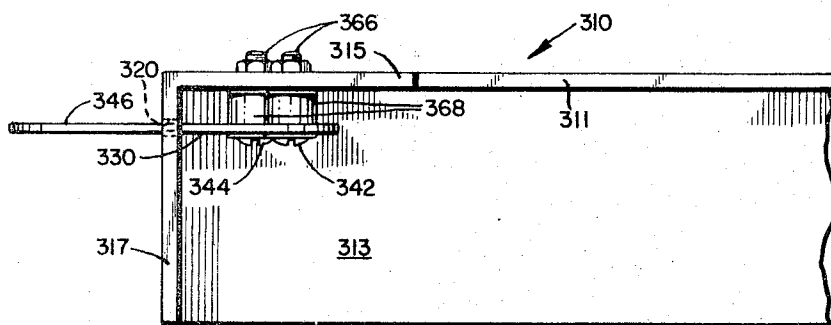


FIG. 10.

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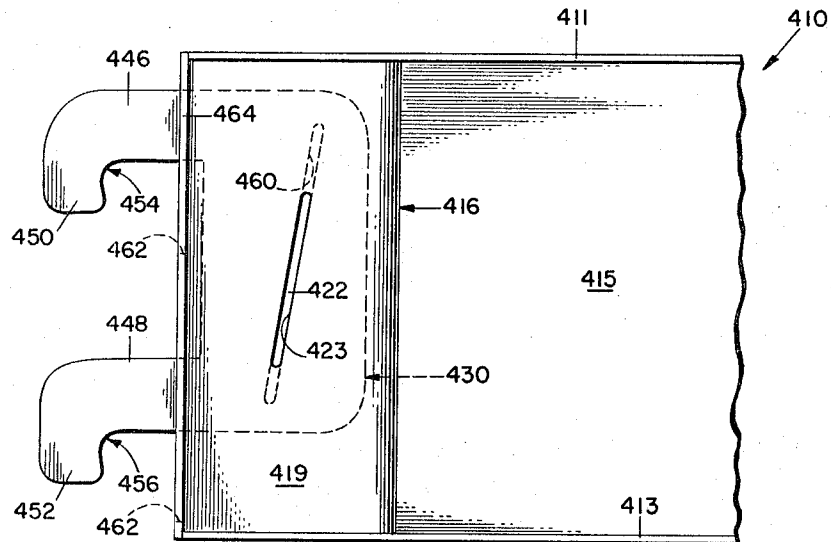


FIG. II.

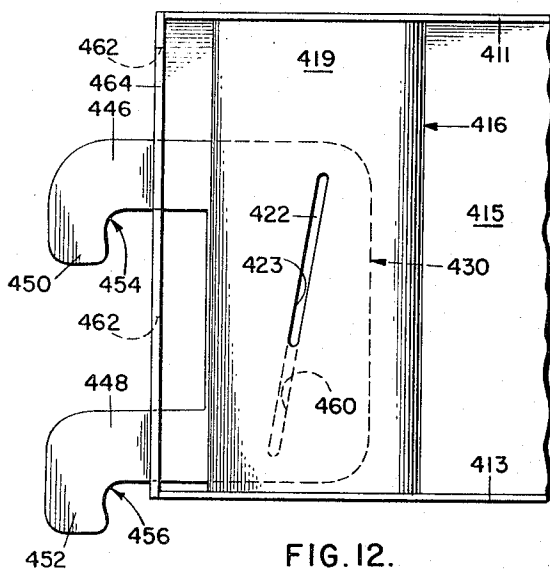


FIG. 12.

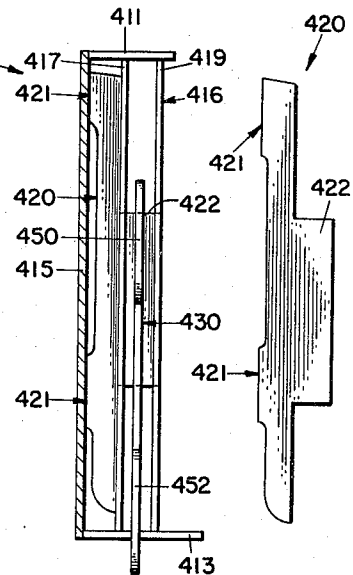


FIG. 13.

FIG. 14.

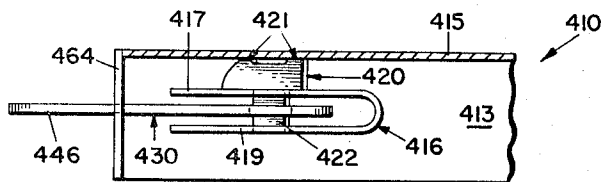


FIG. 15.

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BEDSTEAD FASTENING

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Filed Mar. 7, 1966, Ser. No. 532,441

1 Claim. (Cl. 5—298)

This invention is a continuation-in-part of my application, Ser. No. 405,504, filed October 21, 1964, and relates generally to refinements in fastening means for stationarily holding one component relative to another.

The invention has applications in situations where one of the components may be of metal and the other may be of wood, or where both may be of metal, or where both may be of wood.

It comprehends devices useful in static building or article structures where the principal elemental materials are of wood or metal, exploiting the use of interfitted components, one thereof being the load-bearing component in the respect that it is sufficiently strong and rigid for service as a primary support for other components against gravity and a resistance from transverse loading as in the case of sustainers or rigid components such as studs, joists, beams, columns and the like, although the physical embodiments herein delineated exemplify bed constructions, where side rails and corner posts thereof are interlocked. Such exemplifications are only indicative of but one of the several purposes for which the broad principles of the invention may be employed.

As is known, in a bed, the side rail is commonly latched to the corner post by means of hook members extending outwardly of the side rail and engaging transversely-extending cross pins set in the corner post. After a bed has been in usage, the hook members and/or the cross pins wear such as to cause a loose creaky interconnection with the bed becoming generally unsteady. Contrariwise, the hook members may become so tightly wedged as to be difficult to release. These prior art constructions are singularized by the fact that the fastener devices assume fixed positions upon the side rails wherewith, when related to fixed points on adjacent corner posts, connections therebetween are allowed which are on the bias. As pressure is applied, the fastening devices exhibit tendencies to become loose, if not to become altogether disengaged.

It is the teaching hereof to provide a mechanism offering an ever-tightening relationship between components as pressures, normal to article usage, are experienced, and a floating characteristic in the sense that there is offered a capacity to accommodate and adjust according to wear and/or shrinkage so as to assure maintenance of a continuously tight connection between components even after wear has ensued.

Other objects are to provide a fastener means including a pair of anchors adapted for unison movement relative to one component into and out of engagement with the cross pins on the other of the components, said one component being slidably related to the fastener means so that when the anchors are engaged with the cross pins and a downwardly directed force is applied to said one component, it is biased downwardly into engagement with the said other component and, when once in engagement therewith, is biased into ever tighter engagement therewith, even when wear takes place in either of the components.

In the drawings:

FIG. 1 is a fragmentary view in vertical section showing a corner post, side rail and fastener means embodying one form of the invention, and showing the relative positions of the components immediately prior to engagement of the fastener means with the cross pins of the corner post;

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FIG. 2 is a fragmentary view in vertical section, similar to FIG. 1, showing the positions of the components immediately following engagement of the fastener means with the cross pins;

FIG. 3 is a fragmentary view in vertical section, similar to FIG. 1, showing the components in their locked position after a downwardly directed component of force has been exerted on the bed rail;

FIG. 4 is a fragmentary view in vertical section, similar to FIG. 3, showing the ever-tightening relationship between the components to compensate for wear in the corner post and/or side rail;

FIG. 5 is a view, in side elevation, of another form of construction employing the basic principles of the invention, the fastener means and side rail being shown in their locked positions;

FIG. 6 is a view, in side elevation, of another modified form of construction employing the basic principles of the invention, the fastener means and side rail being shown in their unlocked positions;

FIGS. 7 and 8 are views in side and end elevation respectively, of the fastener means shown in FIGS. 5 and 6;

FIG. 9 is a view, in side elevation, of another modified form of construction employing the basic principles of the invention, the fastener means and side rail being shown in their locked positions relative to a corner post;

FIG. 10 is a view, in top plan, of the FIG. 9 form of the invention, with the corner post being omitted;

FIG. 11 is a view, in side elevation, of a preferred form of construction employing the basic principles of the invention, the fastener means and side rail being shown in their locked positions;

FIG. 12 is a view, in side elevation, similar to FIG. 11, the fastener means and side rail being shown in their unlocked positions;

FIG. 13 is a view, in end elevation, of the structure of FIG. 12 as seen from the left thereof, with portions broken away for clarity;

FIG. 14 is a view, in end elevation, of the guide bar of the structure of FIGS. 11-13; and

FIG. 15 is a view, in top plan, of the structure of FIGS. 11-13, with portions broken away for clarity.

The phrases and terms employed are intended to be as generic in their application as the art will permit. While specific reference is made to a bed, it is to be understood that the invention is conceived as applicable for use with any wood-to-wood, or wood-to-metal, or metal-to-metal arrangement, all without any material alteration of structural features.

The fastener is shown as being employed to securely, but releasably, connect a side rail with the corner post of a head or foot of a bed, the corner post being provided with the usual slot in one side face thereof and with upper and lower transversely-extending slot-intersecting cross pins having opposite ends receivable in suitably aligned openings in the corner post. Such a corner post of the type described is shown only in FIGS. 1-4 and in FIG. 9 for the sake of simplification, it being understood that the constructions of FIGS. 5-8 and FIGS. 10-15 would be similarly interrelated with corner posts.

With reference first to FIGS. 1-4, an improved fastener means constituting one form of the invention is employed to connect a side rail 10 with a corner post 12 of a head or foot of a bed, the corner post being provided with the usual slot or recess or pocket or mortise chamber 14 extending inwardly from one side face 15 thereof and through which extend in transverse intersecting manner upper and lower cross pins 16 and 18 respectively having opposite ends receivable in suitably aligned openings in the corner post.

The side rail is constructed in the usual manner and is

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provided with an arcuate slot or recess 20 formed therein to extend inwardly from an end face 24 thereof intermediate its inboard and outboard side faces, which recess is of a width sufficient loosely to receive the main body portion of a fastener means 30 therein.

Fastener means 30, in the form of a flat metal plate, is mounted within the arcuate slot 20 and is adapted for a certain slidable movement therewithin, or the side rail is adapted for a certain slidable movement relative to the fastener means, as will appear.

The configuration of the fastener means is such that it can be used at either end of the bed rail with mere reversal.

The main body portion of the fastener means is provided with a pair of aligned, inclined, upper and lower slots 32 and 34 respectively for receiving therethrough a pair of upper and lower slip pins 42 and 44 respectively which extend in transverse intersecting and loose-fitting manner through the arcuate slot and have opposite ends receivable in suitably aligned openings in the side rail at opposite sides of the arcuate slot.

Due to the aligned and angular disposition of slots 32 and 34 along an inclined plane, the slip pins are not in vertical alignment. Rather lower slip pin 44 is disposed closer to the edge 24 of the side rail than is upper slip pin 42.

The slots provide cam surfaces wherewith the side rail may be moved vertically and laterally downwardly relative to the fastener means from what is defined as a normal rest or unlocked position, as shown in FIGS. 1 and 2, wherein the slip pins are disposed at the upper ends of their respective slots, to what is defined as a locked position, as shown in FIGS. 3 and 4, wherein the slip pins have been moved away from the upper ends of the slots, the edge 24 of the side rail now having been moved into tight engagement with side face 15 of the corner post.

The outboard end of the fastener means is provided with a pair of outwardly-extending upper and lower anchor arms or fingers 46 and 48 respectively having outer ends formed with upper and lower downwardly facing hooks 50 and 52 respectively to define upper and lower slots 54 and 56 respectively which open toward the main body portion of the fastener means and which receive therein the respective cross pins 16 and 18 of the corner post when the anchor arms or fingers are extended into recess or pocket 14 upwardly of or above the respective cross pins, the recess or pocket 14 being of such height and the cross pins being so spaced as to each other as to allow a clearance upwardly of each cross pin sufficient to allow the extension of the anchor arms or fingers fully into the pocket and without contact of the cross pins by the respective hooks 50 and 52, as clearly shown in FIG. 1. That is, the hooks are allowed to be extended inwardly of or beyond the vertical plane defined by the cross pins in manner whereby the hooks may be passed downwardly each below the horizontal plane of its respective cross pin and the cross pins seat in the respective upper and lower slots 54 and 56. At this time, the side rail, fastener means and corner post are substantially in the position shown in FIG. 2. The fastener means is now virtually stationarily secured to the stationary corner post and any further movement as the result of downward pressure exerted on the side rail takes place in the side rail alone.

Such movement of the side rail is angularly downwardly, with the slots and the slip pins biasing the side rail toward the corner post until the end face 24 of the side rail is in tight engagement with the side face 15 of the corner post.

As previously stated, the slip pins fit in the slots rather loosely. Thus, a certain amount of pivoting movement of the fastener means relative to the cross pins of the corner post takes place as the side rail is moved downwardly to its locked position. The inwardly-directed slots 54 and 56 formed by the depending hooks 50 and 52 permit such

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pivoting movement while insuring that the fastener means remains engaged with said cross pins.

In FIG. 3, the phantom line X—X in FIG. 3 to have taken place, the side rail will have moved downwardly relative to the fastener means to the position of FIG. 4 while still tightly embracing the corner post.

In actuality, slots 32 and 34 are intentionally of such length that the side rail under normal conditions of assembly does not move downwardly to that extreme lower position where the slip pins seat in the bottoms of their respective slots so as to preclude further downward movement and this for the reason that the slots are purposefully dimensioned so that the length of slip pin travel is never such as to exploit the full length of the slots so as to provide a compensating distance representative of an allowance factor to provide for additional downward movement of the fastener means, following assembly, when and as wear and/or shrinkage and/or other ageing conditions ensue through continued use. Advantageously, the cam surfaces tend to wedge the latching plate and the side rail to the left as shown in FIGS. 3 and 4, thereby tending to tighten the corner post-side rail relationship with a capability for continued wedging when and as any shrinkage of parts, corner post or side rail, develops.

As indicated, the device is not limited to bedsteads and may find applications in tables, shelving or the like where it may be desired to eliminate the conventional mortising problems so as to allow locking without glue.

Additionally, it is entirely conceivable that permanent securement may be desired in which event the same mechanism may be employed with the addition of gear washers or other components offering serrated edges and sleeved upon the slip pins where the hardness of the washers against the latching plate of a lesser temper will allow a biting action between washer and plate.

To avoid needless repetitious description, similar characters of reference have been applied to the corresponding parts in the illustrations of the other forms of the invention now to be described and new reference characters are applied only where significant departures take place.

In FIG. 5, a metal side rail 110 defines the normal channel-shaped construction in cross section comprising upper and lower horizontally-disposed flanges 111 and 113 respectively interconnected by a vertically-disposed web 115, and a box-like arrangement is nestably received between the flanges. It includes an outer wall 117 held in spaced parallel relationship to web 115 by a pair of spaced end walls 119 and 121 and a pair of spaced side walls 123 and 125 unitary with and disposed in right-angular relationship to said outer wall.

A fastener means 130 includes upper and lower anchor arms or fingers 146 and 148 respectively and upper and lower hooks 150 and 152 respectively which define, with the fastener means main body portion, inwardly-directed upper and lower slots 154 and 156 respectively. The outboard end face of the main body portion is provided with a down-turned primary guide 158 extending therefrom in right angular relation thereto. The innermost vertically extending end face 160 of the guide serves, on assembly, as a bearing surface for bearing upon the adjacent face of web 115 as the anchor arms or fingers are extended outwardly of the box-like arrangement and through a suitable slot 120 in end wall 119. The inboard end face of the main body portion is disposed at an angle relative to the main vertical axis of the fastener means and is provided with an upturned secondary guide 162 extending therefrom in right angular relation thereto. Guide 162 is receivable through a complementary inclined slot 164 in outer wall 117. Primary guide 158 and secondary guide 162 may be unitary, if desired.

The angular disposition of slot 164 is along an inclined plane to provide a cam surface so that the side rail may be moved vertically relative to the fastener means between an unlocked position (wherein the fastener means is dis-

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posed in a lowermost position) and a locked position (wherein the side rail has been cammed downwardly relative to the fastener means).

Upper and lower slots 154 and 156 respectively of fastener means 130 receive the respective cross pins of the corner post when anchor arms or fingers 146, 148 are extended into the slot of the corner post upwardly of or above the respective cross pins, it being understood that the slot in the corner post is of such height and the cross pins are so spaced as to each other as to allow a clearance upwardly of each cross pin sufficient to allow the extension of the anchor arms or fingers fully into the corner post and without contact of the cross pins by the respective hooks 150 and 152. The hooks are allowed to be extended inwardly of or beyond the vertical plane defined by the cross pins whereby they may be passed downwardly, each below the horizontal plane of its respective cross pin, and the cross pins seat in the respective upper and lower slots 154 and 156. All thereby, horizontal, vertical and angular movement of the latching plate is allowed.

The side rail, with the fastener means in a lowermost position is brought to the corner post. The side rail-fastener means assemblage is raised or elevated in a horizontal plane so as to permit the introduction of the anchor arms into the corner post slot upwardly of or above the respective cross pins sufficiently so as to deny confrontation of the respective hooks with the cross pins. So positioned, the side rail may then be caused to be lowered wherefore the hooks drop down relative to their respective cross pins until the cross pins seat in the respective upper and lower slots 154 and 156.

Following such positioning and with continued downward movement of the side rail, the side rail is wedged toward the corner post thereby tending to tighten the corner post-side rail relationship.

Slot 164 in outer wall 117 enjoys a slight looseness with respect to secondary guide 162 so that a slight pivoting of the fastener means relative to the cross pins of the corner post is allowed and, concomitantly, the anchors are permitted to move until they properly engage the pins whereby the bed rail may be drawn into tight binding engagement with the corner post.

In order to release the bed rail, it is necessary to merely disengage the anchors from the pins by pressing vertically upwardly against the lower planar surface of the rail until the hooks are swung upwardly. A pulling action exerted upon the rail draws the anchors out of the slot.

In the FIG. 6 modified form, the FIG. 5 construction is disclosed as being adapted for attachment to a wooden rail 208 for service as an extension mechanism additionally to a fastening mechanism. A metal channel-shaped extension member 210 comprises upper and lower horizontally disposed flanges 211 and 213 respectively interconnected by a vertically disposed web 215. The outboard extremity of wooden rail 208 is nestably receivable within flanges 211 and 213 and is stationarily secured to web 215 by suitable bolting 270. The fastening assembly may be positioned outboard of an end face 209 of wooden rail 208 so as to extend its operating length.

In the FIGS. 9 and 10 modified form, an all-metal assembly of side rail, fastener means and corner post is shown. The metal side rail 310 defines the normal angle shape in cross section and comprises a vertically extending web 311 and a horizontally extending web 313 unitary with and in right angular relationship therewith. The outboard end portion of the rail is upturned in right-angular relation to its main horizontal axis to provide a vertically-extending side web 315 and a vertically-extending end web 317 unitary with and in right angular relationship therewith.

The fastener means securely but releasably connects rail 310 with a corner post 312, the corner post being fabricated from tubular metal and being provided with a

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slot 314 extending inwardly from one side face thereof and opening into the hollow interior of the post, through which interior extend in transverse intersecting manner upper and lower cross pins 316 and 318 respectively having opposite ends receivable in suitably-aligned openings in the corner post.

A fastener means 330 corresponds essentially in design and function with that shown in FIGS. 1-4 and includes upper and lower anchor arms or fingers 346 and 348 respectively and upper and lower hooks 350 and 352 respectively and upper and lower inwardly-directed slots 354 and 356 respectively, with the main body portion of the fastener means being provided with a pair of aligned, slightly inclined, upper and lower slots 332 and 334 respectively for receiving therethrough a pair of upper and lower slip pins 342 and 344 respectively which extend transversely outwardly from side web 315, slip pins 342 and 344 being secured as by suitable bolting 366 to side web 315 and having washers or other spacer means 368 sleeved thereon so as to hold the fastener means distantly of and in coplanar relationship with web 315, end web 317 being provided with a suitable slot 320 through which the anchor fingers or arms of the fastener means may extend.

Due to the angular disposition of slots 332 and 334 along an inclined plane, cam surfaces are provided wherewith the side rail may be moved vertically relative to the fastener means between a normal position of rest or unlocked position wherein the fastener means is disposed in its lowermost position with the walls at the tops of slots 332 and 334 bearing upon slip pins 342 and 344 respectively and a locked position wherein the side rail has been cammed downwardly relative to the fastener means with the slip pins now located either intermediate the opposite extremities of their respective slots.

Upper and lower slots 354 and 356 respectively receive respective cross pins 316 and 318 of the corner post when the anchor arms or fingers of the latching plate are extended into slot 314 upwardly of or above the respective cross pins, slot 314 being of such height and the cross pins being so spaced as to each other as to allow a clearance upwardly of each cross pin sufficient to allow the extension of the anchor arms or fingers fully into the corner post and without contact of the cross pins by respective hooks 350 and 352. The hooks are allowed to be extended inwardly of or beyond the vertical plane defined by the cross pins and then are passed downwardly each below the horizontal plane of its respective cross pin and the cross pins seat in the respective upper and lower slots 354 and 356. In this manner, horizontal, vertical and angular movement of the latching plate is found to be allowed.

The side rail, with the latching plate in the normal rest or locked position, is brought to the corner post with the side rail-latching plate assemblage being raised or elevated in a horizontal plane so as to permit the introduction of the anchor arms into slot 314 upwardly of or above the respective cross pins sufficiently so as to deny confrontation of the respective hooks with the cross pins. So positioned, the side rail may then be caused to be lowered wherefore the hooks will drop down relative to their respective cross pins until the cross pins seat in the respective upper and lower slots 354 and 356.

Slots 332 and 334 are intentionally of such length that the side rail under normal conditions of assembly does not move downwardly to that extreme lower position where the slip pins seat in the bottoms of their respective slots so as to preclude further downward movement. That is, the slots are purposely fully dimensioned so that the length of side rail travel is never such as to exploit the full length of the slots so as to provide a compensating distance representative of an allowance factor to provide for additional downward movement of the side rail, following assembly, when and as wear

and/or shrinkage and/or other ageing conditions ensue through continued use. Advantageously, the cam surfaces tend to wedge the side rail to the left as shown in FIG. 9, thereby tending to tighten the corner post-side rail relationship with a capability for continued wedging when and as any shrinkage of parts, corner post or side rail, develops.

When it is desired to connect a first component (e.g. a bed rail) with a second component (e.g. a corner post of a head or foot of a bed), the anchor arms or fingers may be passed into slot 314 of the second component and engaged with the pins 316 and 318 as by grappling or hooking thereonto.

Since the slots 332 and 334 enjoy a slight looseness with respect to the slip pins, a slight pivoting of the fastener means relative to the first component is allowed and concomitantly the anchors are permitted to move until they properly engage the pins 316 and 318 whereupon the first component may be drawn into tight binding engagement with the second component. In order to release the first component, it is merely necessary to disengage the anchors from the pins by pressing vertically upwardly against the lower planar surface of the first component until the hooks are swung upwardly and a pulling action exerted to draw the anchors out of the second component slot.

With reference to FIGS. 11-15, which I choose to designate as the preferred exemplification, a metal side rail 410 is of the normal channel-shaped construction in cross section and includes upper and lower horizontally-disposed flanges 411 and 413 respectively interconnected by a vertically-disposed web 415.

Within the area defined by flanges 411 and 413, a U-shaped member 416 may be nestably received inclusive of so-called bottom and top walls 417 and 419 respectively, the bottom wall being held in spaced parallel relationship to web 415 by a fastener means guide bar 420 having bearing surfaces 421 resting on web 415 and an outwardly directed rib 422 extendable through aligned inclined slots 423, 423 in walls 417 and 419 of U-shaped member 416.

A fastener means 430 includes upper and lower anchor arms or fingers 446 and 448 respectively and upper and lower hooks 450 and 452 respectively which define, with the main body portion of the latching plate, upper and lower inwardly directed slots 454 and 456 respectively.

The fastener means is disposed between the walls 417 and 419 of U-shaped member 416 and is provided with an inclined slot 460 which is alignable with the slots 423 in said walls 417 and 419, but which is of greater length than said slots.

With the fastener means disposed between the walls of U-shaped member 416, rib 422 of guide bar 420 is pressed into the slot 423 of bottom wall 417, through slot 460 of the latching plate and into slot 423 of top wall 419. The entire assemblage may now be inserted in the manner of a press fit between flanges 411 and 413 of side rail 410, with bearing surfaces 421 of guide bar 420 resting on web 415 of the side rail, and with the anchor arms or fingers of the fastener means extending outwardly through suitable slots 462 provided in an end wall 464 of side rail 410.

Due to the angular disposition of the slots along an inclined plane, the side rail may be removed vertically relative to the fastener means from what is defined as a normal or unlocked position wherein the fastener means is disposed in its lowermost position to what is defined as a position of elevation or locked position wherein the side rail has been moved downwardly relative to the fastener means.

Upper and lower slots 454 and 456 respectively of fastener means 430 receive the respective cross pins of the corner post when anchor arms or fingers 446, 448 are extended into the slot of the corner post upwardly of or above the respective cross pins, the slot in the corner post being of such height and the cross pins being so

spaced as to each other as to allow a clearance upwardly of each cross pin sufficient to allow the extension of the anchor arms or fingers fully into the corner post and without contact of the cross pins by the respective hooks 450 and 452. That is, the hooks are allowed to be extended inwardly of or beyond the vertical plane defined by the cross pins in manner whereby the latching plate may be moved downwardly until the hooks are passed downwardly each below the horizontal plane of its respective cross pin and the cross pin seats in the respective upper and lower slots 454 and 456. In this manner, horizontal, vertical and angular movement of the latching plate is allowed.

A side rail, with the fastener means in a lowermost position is brought to a corner post with the side rail-fastener means assemblage being raised or elevated in a horizontal plane so as to permit introduction of the anchor arms into the corner post slot upwardly of or above the respective cross pins sufficiently to deny confrontation of the hooks with the respective cross pins. So positioned, the side rail may then be caused to be lowered wherefor the hooks drop down relative to their respective cross pins until the cross pins seat in the respective upper and lower slots 454 and 456.

Advantageously, the side rail is wedged toward the corner post thereby tending to tighten the corner post-side rail relationship. The U-shaped member may be horizontally positioned to lengthen or shorten the horizontal dimension of the side rail as shown in FIG. 12.

When it is desired to connect a bed rail with a corner post of a head or foot of a bed, the anchor arms or fingers may be passed into the slot of the corner post and engaged with the pins as by grappling or hooking thereonto. Since the fastener means slot 460 enjoys a slight looseness with respect to rib 422, a slight pivoting of the fastener means relative to the rail is allowed whereby the anchors properly engage the pins thus permitting the bed rail to be drawn into tight binding engagement with the corner post. To release the bed rail, it is merely necessary to disengage the anchors from the pins by pressing vertically upwardly against the lower planar surface of the rail until the hooks are swung upwardly, whereupon a pulling action exerted upon the rail draws the anchors out of the slot. The essential point is that the normal forces or thrusts experienced by the rail, including the forces of gravity, are vertically-downward forces against the upper planar surface of the rail as desirably to offer an ever-tightening reaction.

The devices are not limited to bedsteads and may find applications in tables, shelving or building structures where it may be desired to eliminate the conventional mortising problems so as to allow locking without glue.

I claim:

In fastening means for interengaging the adjacent working faces of metal to metal or metal to wood or wood to metal or wood to wood components, the combination of:

(a) a latching plate;

(b) a box-like subassembly including an outer wall held in spaced parallel relation to the said one of the components by spaced inboard and outboard end walls and spaced upper and lower walls unitary with and in right-angular relationship to the outer wall with an angularly-inclined slot extending through the outer wall;

(c) the outboard end wall of said subassembly being slotted;

(d) said latching plate having a main body and spaced upper and lower hooks unitary therewith and extendable through the slot of the outboard end wall and further having a primary guide extending at right angles from one side of the main body and a secondary guide extending at right angles from the other side of the main body;

(e) the secondary guide of said latching plate being receivable in the slot of the outer wall of said sub-

assembly as said latching plate is positioned in slidably mounted connection with the said one of the components with the primary guide of said latching plate having a bearing relationship upon the said one of the components;

(f) spaced locking means on the other of the components and disposed inwardly of the plane of the working face of the latter;

(g) said locking means being adapted each for interengagement with the hooks of said latching plate as the hooks of said latching plate are extended into mating position relative to the said other of the components;

(h) the angular disposition of the slot in the outer wall of said subassembly forming a cam surface for the vertical movement of the said one of the components relative to said latching plate between an unlocked position with said latching plate disposed

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lowermost and a locked position with the said one of the components cammed downwardly relative to said latching plate.

References Cited by the Examiner

UNITED STATES PATENTS

1,871,199	8/1932	Rainier	5—296
2,169,138	8/1939	Causey	5—298 X
2,246,090	6/1941	Filer	5—296
2,420,095	5/1947	Rainier	5—296
2,712,138	7/1955	Bogar	5—287
3,161,894	12/1964	Short	5—296

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