Oct. 9, 1945. E. H. ANDERSON 2,386,178

FASTENER FOR BED RAILS AND THE LIKE

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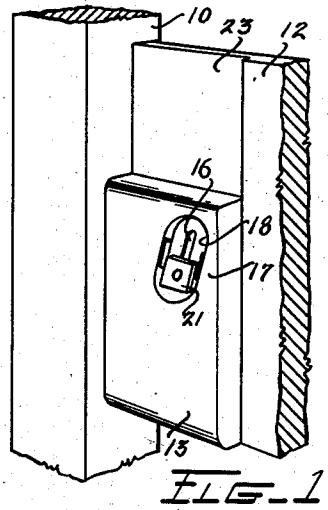

FIG. 1

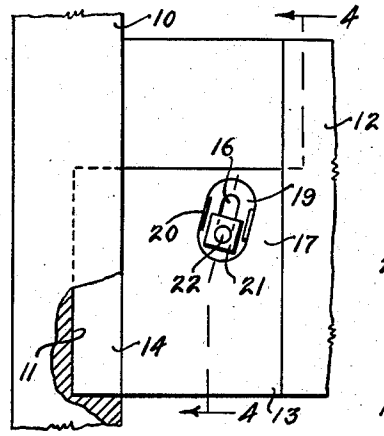

FIG. 3

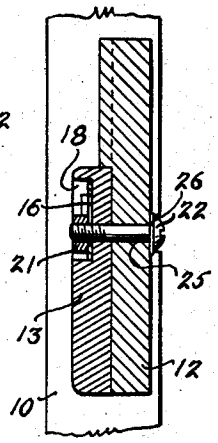

FIG. 4

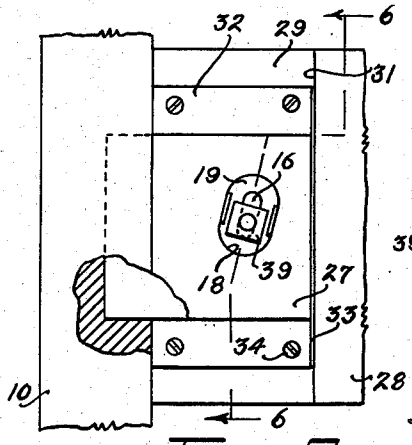

FIG. 5

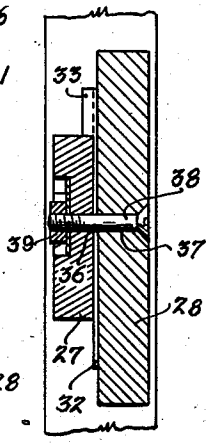

FIG. 6

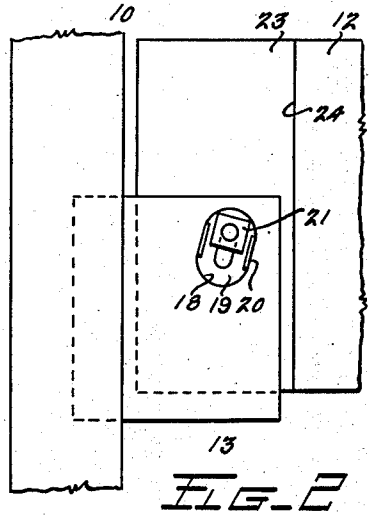

FIG. 2

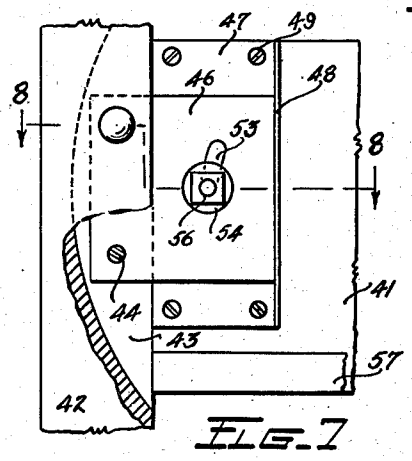

FIG. 7

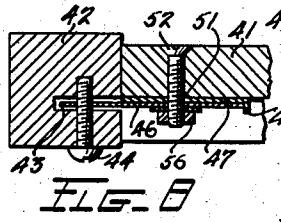

FIG. 8

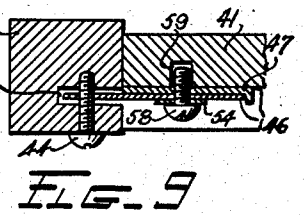

FIG. 9

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2,386,178

FASTENER FOR BED RAILS AND THE LIKE

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Application August 20, 1943, Serial No. 499,359

4 Claims. (Cl. 5—299)

This invention relates to an improvement in furniture, and particularly to structures of the nature of beds, coaches, etc., and the joining of the posts and rails thereof.

In the manufacture of beds or similar articles of furniture in which end members are connected by rails, and more particularly in the manufacture of such articles from wood, it has been the general practice to utilize fasteners such as anchor hooks and bolts. These fasteners varied considerably as to size, shape, and usefulness, although their general purpose was to provide means by which rails might be held in abutment with the bed posts or ends with which they were associated. It was also, of course, necessary to provide for the ready removal of the rails, should it be desired to dismantle the bed. In many instances, these fasteners failed; first, to provide such rigidity as between rail and post as to prevent loosening over a period of use; and, second, to provide some means by which to compensate for any wear in the fastening parts resulting from a period of use.

Generally speaking, the fasteners referred to were neither designed nor intended to be usable for any other purpose than that of assembling rails to bed ends. However, it is well known that manufacturers of beds have always been confronted with the problem of providing suitable means for packaging the beds preparatory to shipment. Additionally, dealers have always demanded some means by which to assemble the bed ends for display purposes. Thus, the bed manufacturer has been required to provide special structure for packaging beds for shipment and, in adidtion, in some instances at least, provide means such as the so-called "short rails" for the dealer to assemble with the bed ends for display purposes. If the manufacturer did not supply short rails, it was incumbent upon him to so design his fasteners that they would be readily adaptable for use with short rails with which a dealer might be supplied.

The current scarcity of metal has so greatly curtailed the manufacture of fasteners of this nature that bed manufacurers have been sorely pressed for some adequate substitute, and the present invention is directed to and has for one of its objects the provision of a fastener for beds and the like that utilizes a minimum of such materials.

Another object of the invention lies in the provision of a fastener for beds that, with the exception of currently purchasable small metal parts, may be constructed in its entirety by the bed manufacturer.

Another object of the invention lies in the provision of a fastener for beds that will rigidly secure a rail and post in abutment.

A further object of the invention lies in the provision of fastening means for beds that, after a period of use and wear, may be quickly and easily reconditioned to assure rigid connection as between rails and posts.

And a further object of the invention lies in the provision of fastening means for bed rails that enables the use of such means to secure the bed ends in package form for shipment and for display purposes as well.

Other objects and advantages of the invention will be more fully understood from a consideration of the following specification, taken in conjunction with the accompanying drawing, and in which

Fig. 1 is a fragmentary perspective view of a post and rail joined by fastening means embodying one form of the invention;

Fig. 2 is a fragmentary inside elevational view of the structure of Fig. 1 showing a step in assembling a rail to a post;

Fig. 3 is a view similar to Fig. 2 showing the rail secured in a position of abutment with the post;

Fig. 4 is a vertical sectional view of the structure, taken substantially on the line 4—4 of Fig. 3;

Fig. 5 is a fragmentary inside elevational view of a modification of the structure shown in Fig. 1;

Fig. 6 is a vertical sectional view, taken substantially on the line 6—6 of Fig. 5;

Fig. 7 is an inside elevational view of a further modification of the invention;

Fig. 8 is a horizontal sectional view, taken substantially on the line 8——8 of Fig. 7; and

Fig. 9 is a horizontal sectional view similar to Fig. 8, showing a modification wherein the fastening means is concealed.

Referring more particularly to the drawing, the reference numeral 10 is employed to designate an end post of a bed, couch, or similar article. A suitable distance above its lower end, the post 10 is formed with a recess 11 that opens from the face of the post to which a rail 12 is to be applied. A block 13 is provided and includes an area 14 of reduced width that projects into the recess 11. A considerable portion of this block extends beyond the face of the post, substantially as shown in the drawing, and may be secured to the post in any conventional man-

ner, such as through the use of glue, dowels, screws, etc.

That portion of the block 13 projecting beyond the post is formed with an inclined, transversely cut slot 16. The direction of incline of the slot from top to bottom of the block is inwardly toward the post and, although the angle of such slot is found to be perferably as shown, it will be apparent that the incline may necessarily be varied with application of the invention to the fastening of rails of different types and sizes of beds or similar articles. On the inner face 17 of the block 13 the slot 16 is formed with a countersunk or recessed area 18 in which is located a washer 19 having a slot coinciding with the slot 16. Portions of this washer may be formed into tabs 20 to prevent its lateral displacement and enlargement of the recess 18. The width of this area is such as to receive the nut 21 of a bolt 22.

At the end of the rail 12 and on its inner face, a cut out area 23 is provided. The depth of this area may be only sufficient to provide a shoulder 24 against which the block 13 may abut when the rail is assembled on the post. A transverse opening 25 is made in the cut out area of the rail, being so located that, when the bolt 22 is projected therethrough, it may register with and project through the slot 16 of the block 13.

When it is desired to assemble a bed in which the fastening means of the invention is incorporated, a bolt 22, preferably first provided with a washer 26, is projected from the outer face of the rail through the opening 25. The rail is set against the block 13 and bolt 22 projected through slot 16. A nut 21 is set into the countersunk area 18 and rotation of the bolt draws the rail 12 into abutment with the block 13. At this point of assembly, the structure may appear substantially as shown in Fig. 2 of the drawing. Pressure may be applied to the top of the rail 12, which will cause the bolt 22 to move downwardly of the inclined slot 16 of the block. Such movement continues until the vertical edge of the rail abuts the corresponding face of the post 10, and the shoulder 24 abuts the end surface of the block. The bolt is now further rotated to rigidly secure rail 12 to block 13 and in abutting relationship with post 10.

It will be understood that the slot 16 is of a greater length than the travel initially required by the bolt 22 to move the rail into abutment with the post. If, after a period of use or repeated assembly, the rail ends, shoulder 24, or surface of the block 13 become worn, the rail may be removed by withdrawing the bolt 22. The rail end and outer edge of the block may be slightly sanded or planed not only to remove a fraction of an inch of the stock of these parts, but to true up their worn surfaces as well. When this is done and the rail is again assembled with the block, bolt 22 will move somewhat farther downwardly of the slot 16 and the rail will again have full abutment with the post and the supporting block.

To package bed ends embodying the invention for shipment, an extremely short rail may be provided. This rail, with the exception of length, may be in all respects similar to rail 12 and, when two such rails are connected with the blocks on the bed ends, said ends are rigidly secured in close relationship, possibly being spaced no greater than twice the length of the projecting portion of a block 13. When the bed so packaged is received by the dealer, it may be set up for display purposes without alteration, or if adequate space is available, the dealer may substitute the conventional length rails 12 for the short packaging and display rails.

Reference is now had to the modification shown in Figures 5 and 6 of the drawing. Herein a block 27 is secured to the post 10 in a manner similar to that described in connection with block 13. This block may be provided, centrally thereof, with the identical structure heretofore described and would thus include the slot 16, recessed area 18, washer 19, etc. At its end, the rail 28 is formed with a shallow cut out area 29 that provides a shoulder 31 similar to the shoulder 24 above described. Mounted in this area is a plate 32 having a flange 33 that abuts the shoulder 31. This plate is secured to the rail in any suitable manner, as by screws 34 and provided with an opening 36 that coincides with an opening 37 in the rail 28. A bolt 38, the head of which is preferably countersunk in the outer face of the rail, projects through the openings 37, 36 into slots 16 and is fitted with a nut 39 located in the recessed area 18. Assembly and disassembly of this modification of the invention is identical with that heretofore described. The particular advantage to be derived from this structure is in the provision of a smaller block 27 than was considered necessary in the first disclosure, coupled with the fact that this block abuts the metal flange 33 instead of the wood shoulder 31. Of course a distinct advantage of this modification lies in the fact that the plate 32, regardless of strain placed on the rail, prevents end splitting thereof.

Referring particularly to Figs. 7 and 8, a still further modification of the invention is shown wherein a rail 41 is adapted to be applied to a conventional end post 42. It is customary to provide a saw-cut slot 43 in the posts and so mount one or more pins 44 that they extend transversely of the slot 43. These pins are adapted to be engaged by conventional bed rail hooks. Projecting into the slot 43 is a plate 46 having suitable openings by which pins 44 may engage and prevent removal of the plate from the post. Although it is preferable, this plate need not be accurately and tightly secured to the post by the pins 44. At an end of the rail 41 is a plate 47 having a flange 48. This plate is secured in any suitable manner, as by screws 49, to the rail and includes an opening 51. A bolt 52 is projected through an opening in the rail and the opening 51 and is of sufficient length to extend through a slot 53 in the plate 46. A suitable washer 54 and nut 56 are mounted on the bolt 52 and, when the nut is turned down, plates 46 and 47 are secured against displacement. It will be noted that neither of these plates extends to the base of the rail 41 and, thus, it is possible to provide a conventional cleat 57 on which spring supporting slats may be mounted. This cleat extends to the rail end and serves, when the rail is mounted and secured, as additional support against lateral twisting of the rail with respect to the post.

The modification of Fig. 9 includes identical parts with the structure shown in Figures 7 and 8, with the exception that a machine screw 58 is applied with washer 54 to the inner face of plate 46. In this showing, the opening 51 through the plate 47 is threaded, and the plate itself may be of somewhat heavier gauge material to provide adequate engagement for the screw 58. The end of the screw projects into a recessed area 59 on the rail 41. By reversing the structure from that shown in Fig. 8, the plate 47 is in effect the equivalent of nut 56, and no fastening means appears on the outer face of the rail.

When the rail 41 is brought into abutment with the post 42 by movement of bolt 52 down the inclined slot 53, it will be found that the plate 46 will be firm against its supporting pins 44 and all play or looseness taken up. A particular advantage of this modification is apparent in the simplicity of the parts and their reversibility by which to eliminate right and left hand plates.

Applicant has shown and described only three variations of his invention in fastening devices for the rails of beds and the like, but it will be understood that deviations from the structure shown may be made and are contemplated in the application of the invention to other articles of furniture insofar as such deviations are within the spirit and scope of the annexed claims.

Having thus set forth my invention what I claim as new and for which I desire protection by Letters Patent is:

1. A structure for securing together the end and rail elements of a bed or the like comprising a supporting member permanently joined to the end element, said member having an inclined transverse slot, the end of said rail element having an undercut area adapted to in part receive said member and provide a shoulder, said shoulder at least in part, supporting the weight of said element on said member, means cooperating with said slot to guide the rail element into a position of abutment with the shoulder of said end element, said means also serving to secure the end and rail elements against relative displacement.

2. A structure for securing a rail to an end section of a bed or the like comprising a member joined to and extending laterally from said section, said member having a transverse slot inclined from the free end thereof downwardly and inwardly toward the end section, an end of said rail having a shoulder providing an abutment for said member, a bolt carried by said rail projecting into said slot, said bolt cooperating with said slot to guide said rail into abutment with said end section and seat said block against said shoulder.

3. A structure for securing a rail to an end section of a bed or the like comprising a member carried by and extending laterally from said section, said member having a commonly inclined slot and surrounding countersunk area, an end of said rail having a shoulder providing a surface for abutment of said member, a bolt carried by said rail projecting into said slot, the incline of said slot being such as to guide said bolt downwardly and toward said end section and said member, and a nut mounted in the countersunk area surrounding said slot engageable with said bolt and serving to secure said rail against displacement.

4. A structure for securing a rail end to an end section comprising a plate, said end section being recessed to receive one end of said plate, means securing said plate against displacement from said recess, the exposed portion of said plate having a transverse closed slot inclined from the free end downwardly and inwardly toward the end section, a plate carried by an end portion of said rail, a vertically extending shoulder at one end of the rail carried plate, a bolt carried by said rail and projecting through said slot, said bolt cooperating with the walls of said slot to guide said rail into a position whereby the vertical end of the plate carried by said end section abuts said shoulder, and a nut engageable with said bolt for securing the parts against displacement.

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