June 7, 1960 M. E. ROCHE 2,939,157

BEDFRAME WITH CONTROLLED MOVEMENT CROSS RAIL

Filed Feb. 17, 1958

FIG. 1

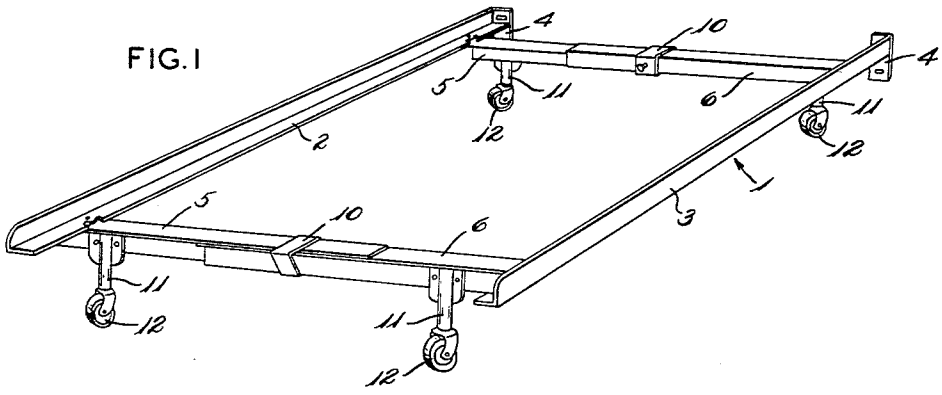


FIG. 2

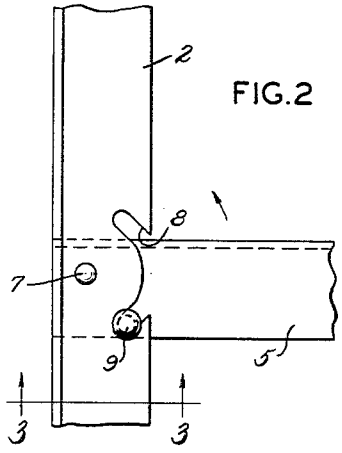


FIG. 4

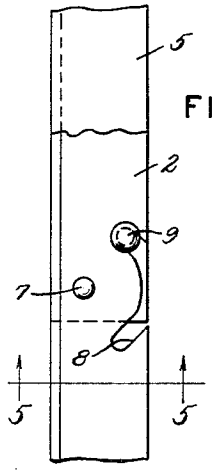


FIG. 3

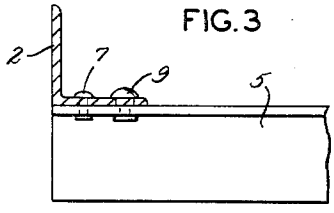
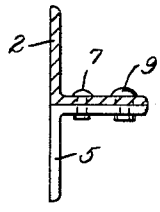


FIG. 5



INVENTOR.
MELVIN E. ROCHE'

BY Oldham & Oldham

ATTYS.

United States Patent Office 2,939,157 Patented June 7, 1960

2,939,157

BEDFRAME WITH CONTROLLED MOVEMENT CROSS RAIL

Melvin E. Roche, Berea, Ohio, assignor to Harvard Manufacturing Company, Cleveland, Ohio, a corporation of Ohio

Filed Feb. 17, 1958, Ser. No. 715,554

2 Claims. (Cl. 5—176)

This invention relates to bedframes, and especially to frames made from metal angles and wherein cross rail sections or members are pivotally secured to the side rails of the bedframe.

The present novel bedframe is particularly useful with and relates to Hollywood style beds and wherein the bed headboards usualy are floated or otherwise secured to and supported on the metal bedframe. These bedframes are normally made from metal angles of right angular shape in vertical section. The frames usually utilize a pair of side rails or runners and a plurality of cross rail sections. The bedframe can be disassembled readily and normally is shipped in a knocked-down or disassembled condition so that the ultimate customer or user of the bedframe buys it in a neat, compact shipping package and assembles the bedframe components at the point of use.

It is the general object of the present invention to provide a novel and improved type of a pivotal connection unit including a cross rail section and a side rail runner or member and characterized by the controlled pivotal movement permitted for the cross rail section.

Another object of the invention is to provide a bedframe that can be shipped in a very compact, flat condition, but which has controlled pivotal movement between relatively movable portions of the bedframe when changing the bedframe from disassembled to assembled condition.

A further object of the invention is to provide a bedframe having a pivotal connection between a side rail and a cross rail and wherein a headed member is secured to the cross rail and seats in a slot provided in an edge of the side rail to limit the pivotal movement of the cross rail and to prevent anything but pivotal movement of the side rail in a plane parallel to a leg of the side rail to which the cross rail is pivotally secured.

The foregoing and other objects and advantages of the invention will be made more apparent as the specification proceeds.

Reference now is particularly directed to the accompanying drawings, wherein:

Fig. 1 is a perspective view of a bedframe embodying the principles of the invention;

Fig. 2 is a fragmentary enlarged plan view of a portion of the bedframe of Fig. 1 illustrating the cross rail in operative relation to the side rail;

Fig. 3 is a fragmentary vertical section taken on line 3—3 of Fig. 2;

Fig. 4 is a fragmentary plan, like Fig. 2, only with the cross rail being positioned in inoperative or collapsed relation to the side rail; and

Fig. 5 is a fragmentary vertical section on line 5—5 of Fig. 4.

The present invention, in general, relates, to a beoframe made from a pair of side rails having a pair of cross rail sections pivotally secured to each of the side rails, the side and cross rails are of right angle shape in

section and with each of the side rails having a vertically extending and a horizontally extending leg and with each cross rail angle having a vertically extending leg extending oppositely from the vertical leg of the side rail, each of the side rails having a pair of substantially kidney shaped slots extending into the inner edge of the horizontal leg thereof adjacent each cross rail section, and stud means are secured to each of the cross rails and continuously received in one of the slots in the side rail to limit the pivotal movement of the cross rails to a 90° arc.

When referring to corresponding members shown in the drawing and referred to in the specification, corresponding numerals are used to facilitate comparison therebetween.

Reference now is particularly directed to the details of the structure shown in the drawings, and a bedframe is indicated as a whole by the numeral 1. This bedframe is made from a pair of side rails 2 and 3 with each side rail normally having a slotted end plate 4 suitably secured thereto, as by welding, at the head end of the side rails. These end plates extend normally to the longitudinal axes of the side rails 2 and 3 and are used for securing a conventional headboard to the side rails by use of any desired members.

Cross rails, or cross rail sections 5, are pivotally secured to the side rail 2 adjacent the ends thereof, whereas similar cross rail sections 6, 6 are pivotally secured to the other side rail 3 at corresponding longitudinally spaced portions thereof. These cross rail sections 5 and 6 are secured to the side rails by suitable means, such as rivets 7. It will be seen that the cross rail sections 5 and 6 can be swung to extend normally from the side rails 2 and 3 and with the ends of the cross rail sections at such time being exactly aligned with the lateral margins of the side rails.

It is an important feature of the present invention that the pivotal movement of the cross rail sections 5 and 6 is of a controlled and limited nature. To this end, an arcuate slot, or kidney shaped slot 8 is provided in each of the side rails 2 and 3 immediately adjacent each of the cross rail sections 5 and 6, pivotally secured thereto. Such slots 8 are of slightly more than 90° of arcuate length, and are centered on the rivets 7. Such slots, as best shown in Fig. 2, extend arcuately from the edge of the horizontal leg of each of the side rails 2 and 3 into such leg in two directions. The slots 8 are of a width as to receive the shank of a headed rivet or stud 9 secured in any desired manner to each of the cross rail sections 5 and 6 and extending upwardly vertically therefrom. The slots 8 of the invention can also be termed to be twin diverging slots having a common arcuate connecting edge extending between the diverging portions of the twin slots and connecting them in the side rails 2 and 3.

Figs. 2 and 4 of the drawings, respectively, show the pivotal cross rail, such as the cross rail section 5, at different extremities of its movement and with the cross rail being operatively positioned, in Fig. 2, and being at one extremity of the slot in such instance and being at the other extremity of the slot 8 and superimposed in under the side rail 2 in the position shown in Fig. 4. By this construction, the pivotal movement of the cross rail section is completely controlled and is limited to an exact 90° arc. The slot 8 is only of a length greater than 90° so as to compensate for receiving the shank of the stud 9 in the slot 8, but still to permit only a 90° swinging movement of the cross rail section. Fig. 5 brings out that the head of the stud 9 engages the horizontal leg of the side rail 2 when the rails are in their inoperative position. This important feature locks the horizontal

legs of the cross rails 5 and 6 securely against the horizontal legs of the side rails 2 and 3 in both the inoperative and operative positions. In the inoperative position, the rivet 9 resists any tendency to open the cross rails in any other manner other than pivoting on the rivet 7. In many instances, in which the cross rails are secured to the side rails only by the pivoting rivet 7, customers have been known to pull the cross rails away from the side rails instead of pivoting them on the rivet 7 and have effected breakage of the cross rails at a section through the rivet holes. The engagement of the rivet 9 in the inoperative position offers such resistance to prevent this action. In addition, in the operative position, the rivet 9 supports the outer edge of the horizontal flanges of the cross rails against the torque action resulting from a load application transferred through the support legs.

It will be seen that the bedframe 1 is made from a minimum number of standard components and that maximum strength is provided in the assembly by forming the slots 8 in the laterally inner margin of the side rails but only forming the slots of full width adjacent the ends of the slots.

The bedframe of the invention is completed by the use of conventional means, such as clamp straps 10, that grasp telescopically engaged center portions of the cross rail sections 5, 5 and 6, 6. Such cross rail sections are brought into desired nested engagement with each other to form the bedframe 1 of proper width for receiving a given mattress or other sleeping unit thereon. Support legs 11, with suitable casters or other members 12 therein, are riveted or otherwise secured to the vertically extending legs of the cross rail sections to complete the bedframe.

From the foregoing, it will be seen that a sturdy type of a bedframe has been provided and which has controlled pivotal movement of the cross rail sections therein. The use of the inter-engaged stud and slot means of the invention provides sturdy means for controlling the pivotal movement of the cross rail sections so that a very compact package can be made therefrom for storage and shipping purposes, but with the relatively movable portions of the bedframe having their movement accurately and positively controlled. Thus it is believed that the objects of the invention have been achieved.

While one complete embodiment of the invention has been disclosed herein, it will be appreciated that modification of this particular embodiment of the invention

may be resorted to without departing from the scope of the invention as defined in the appended claims.

I claim:

1. In a bedframe, a side rail having a slot with a common arcuate connecting edge of about 90° length extending into an integral portion thereof in two directions from the edge of the horizontal leg of the side rail as operatively positioned, a cross rail, means pivotally securing said cross rail to and against but below said side rail adjacent said slot, and a headed member secured to said cross rail and continually engaging the upper surface of said horizontal leg of said side rail, said headed member being movable into either end portion of said slot, the engagement of said headed member, said side rail, and said slot permitting said cross rail to have limited pivotal movement from a position extending normally from said side rail to a position completely aligned therewith to provide a compact unit for storage and shipping actions, and a support leg secured to said cross rail on the lower surface thereof and lying thereunder to maintain the compactness of the bedframe when said cross rail is inoperatively positioned.

2. In a bedframe, a side rail having twin diverging slots with a common arcuate connecting edge and with the other edges thereof being separate straight edges extending thereinto tangent to arcuate end walls of said slots, said slots extending generally longitudinally of said side rail in an integral portion thereof in two directions from the edge of the horizontal leg of the side rail as operatively positioned, a cross rail, means pivotally securing said cross rail to and below said side rail adjacent said slots, and a member secured to said cross rail and continually engaging said side rail adjacent said connecting edge of said slots, said member being movable into either of said slots for pivotal motion limiting action thereby, the engagement of said member and said slots in said side rail limiting said cross rail to pivotal movement in a horizontal plane from a position extending normally from said side rail to a position completely thereunder and with said member being offset longitudinally in opposite directions from said means at the two extremities of movement of said member.

References Cited in the file of this patent

UNITED STATES PATENTS

2,611,907	Clerc	Sept. 30, 1952
2,772,424	Roche	Dec. 4, 1956
2,851,702	Imber	Sept. 16, 1958