May 3, 1955 H. J. SANDS 2,707,288

BEDFRAME HAVING SPECIAL SUPPORT MEANS

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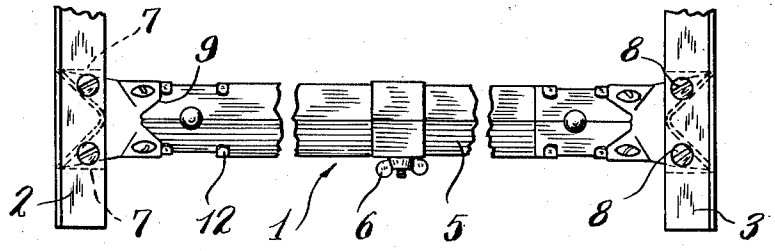


FIG. 2

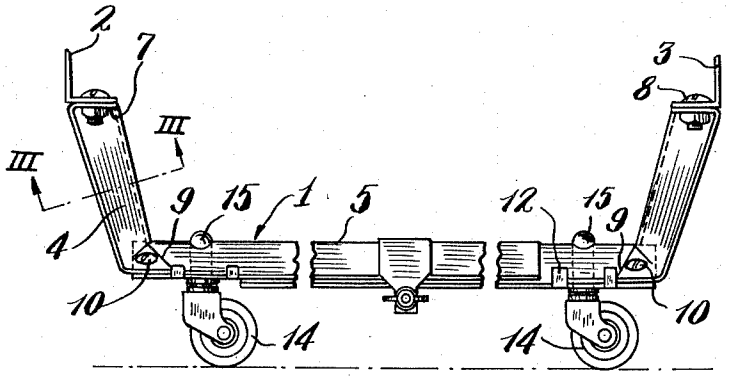


FIG. 1

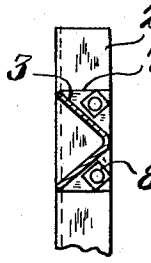


FIG. 3

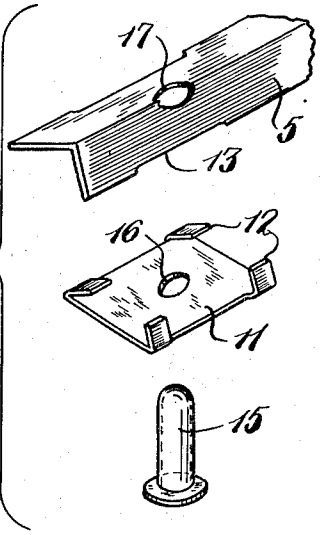


FIG. 4

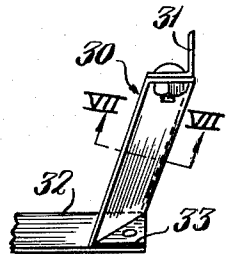


FIG. 6

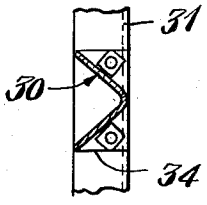


FIG. 7

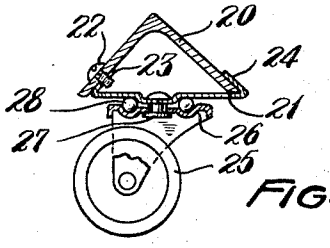


FIG. 5

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BEDFRAME HAVING SPECIAL SUPPORT MEANS

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9 Claims. (Cl. 5—131)

This invention relates to bedframes and particularly to bedframes of the type classified as Hollywood bedframes, and to the support legs and cross rails therefor.

Ordinarily, Hollywood style bedframes primarily are made from metal angles which are assembled in various manners to provide supports for the springs and mattress of a bed. In making bedframes from metal angles, it naturally is desired to obtain maximum strength in the bedframe by use of a minimum amount of material. However, certain elements of the bedframe, and particularly to support legs and cross rails thereof are subjected to quite high stresses when in use. This is particularly true because of the fact that the support legs normally have casters secured thereto in some manner and these casters are offset or "trail" with relation to the caster support whereby relatively large turning movements are set up in the bedframe by the support forces carried by the casters. Hence, it is difficult to provide light weight support legs in Hollywood beds where a strong support is required.

In some bedframes, it is desirable to have low cross rails provided to connect the side rails of the frame and such types of cross rails have been difficult to provide in Hollywood beds as they could not be connected securely to the remaining elements of the bedframes unless relatively large amounts of reinforcing materials were used.

The general object of the present invention is to provide a new and improved type of a bedframe which is particularly characterized by the sturdy connections between the support legs and the remaining elements of the bedframe, and by the low position of the cross rails of the frame.

Another object of the invention is to use a support leg in a bedframe with such a support leg having integral lugs formed thereon at its upper end for contact with the bedframe side rail and with lower lugs for engaging a bedframe cross rail.

Yet another object of the invention is to provide a novel combination of metal angles placed in special relation to each other for forming a sturdy support leg and cross rail assembly with the effective length of the cross rail being adjustable.

Another object of the invention is to position casters in bedframe cross rails in a sturdy, strong manner to provide maximum strength and safety in the bedframe.

Another object of the invention is to provide a relatively uncomplicated type of a bedframe which can be shipped in knocked-down, compact form and which can be securely assembled by relatively unskilled labor.

Other objects of the invention are to provide bedframes which are of safe construction and attractive in appearance due to the special leg supports used and the provision of casters spaced inwardly of the frame, and which are designed for maximum strength in the frame.

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

For a better understanding of the present invention, reference should be had to the accompanying drawings

wherein currently preferred embodiments of the invention are shown and wherein:

Fig. 1 is a broken away elevation of a bedframe embodying the principles of the invention;

Fig. 2 is a plan of a portion of the bedframe of Fig. 1;

Fig. 3 is a fragmentary horizontal section taken on line III—III of Fig. 1;

Fig. 4 is an exploded perspective view of the caster positioning means and cross rail of the invention;

Fig. 5 is a section through a cross rail of the invention showing a modification of the caster means of the invention;

Fig. 6 is an elevation of a modified support leg of the invention; and

Fig. 7 is a section on line VII—VII of Fig. 6.

The present invention broadly resides in a bedframe which has a side rail, a cross rail of inverted V-shape in section, and a leg for securing the cross rail to the side rail. The leg is of angular shape in section and usually has pairs of top and bottom lugs thereon with the top lugs being secured to the side rails and the lower lugs being secured to the cross rail. Caster means are carried by the cross rail and are positioned thereby.

Attention is now directed to the details of the drawings and a bedframe is illustrated in Fig. 1 which bedframe is indicated as a whole by the numeral 1. The bedframe 1 includes side rails 2 and 3 each of which is shown of suitable angular shape in section and is usually made from a conventional metal angle.

As an important feature of the invention, a novel type of a support leg 4 is provided in the bedframe 1. The support legs used in the bedframe are of angular shape in section and they are made from conventional angles or they may be made from sheet metal pressed to shape. The support legs 4 are specially processed to form end lugs thereon in the manner set forth in detail hereinafter. Usually the bedframe 1 also includes a plurality of cross rails 5, each of which usually is made from angles of angular shape in section and with the cross rails 5 being made by positioning the angles in inverted, or turned over position so that they are in effect of inverted V-shape in section. Cross rails are provided adjacent each end of the side rails 2 and 3.

Usually, the cross rails 5 are made in two sections, with one section of each cross rail being fixedly secured to a support leg 4 and extending therefrom transversely of the bedframe 1. These cross rails are adjustably secured together as by suitable means such as a strap type of a clamp indicated as a whole by the numeral 6, which clamp is manually adjustable.

In order to secure the support legs 4 to the side rails 2 and 3, a pair of outwardly directed lugs 7 are formed on or pressed out from the support leg 4 at the upper ends thereof as indicated in Fig. 2. These support lugs 7 are adapted to be positioned in a substantially horizontal plane when the support legs lie against the lower surface of one of the side rails 2 and 3 and are suitably secured thereto, as by the use of bolts 8 which extend through aligned holes provided in the lugs and side rails so that the support legs may be shipped in knocked-down condition. The support legs and other components of the bedframe 1 may be welded or riveted together when convenient. As a feature of the invention, a pair of integral lugs 9 are provided on the lower end of each of the support legs 4. All of the lugs 7 and 9 are preferably of triangular shape and the sides of the lugs that are integral with the support leg 4 usually extend the full length (or width) of the sides of the angle forming the support legs 4. These lugs 9 extend downwardly and outwardly with relation to the support legs as shown in Fig. 1 of the drawings. The lugs 9 usually are formed by stamping them from an extended portion of the sup-

port legs 4. The lugs 9 lie abutted against the surface of the member to which they are to be secured. Hence, the lugs 9 lie on top of the cross rails 5 and are suitably secured thereto, as by the use of bolts 10, or rivets extending through the lugs 9 and cross rails 5. It will be seen that the support legs 4 provide maximum strength for the amount of material used therein due to their angular cross section, and to the shape and positioning of the lugs 9. It will be noted that the support legs 4 extend generally downwardly and slightly inwardly of the bedframe 1. By the positioning of the support legs 4, as shown, the angle formed between the lugs 9 and the adjacent outer surface of the support legs is appreciably greater than 90° and usually is in the vicinity of 130° so that the metal is not stressed severely in being bent to provide the lugs 9. In some instances, the lugs 7 and 9 are of different shapes than that shown, if desired. Also, the lugs 7 could extend inwardly of the legs 4 when convenient.

Casters are positioned in the bedframe 1 in a solid, sturdy manner, and the caster support means provided may include a caster plate 11 which usually has upwardly directed lugs 12 thereon that are adapted to engage with and be bent over the lower edges of the cross rails 5 so that each caster plate is bridged over a lower portion of a cross rail. Preferably the lower edges of the cross rails are notched at 13 to receive the caster plate and prevent movement thereof along the axis of the cross rail. Casters 14 of conventional construction are provided for the bedframe and they engage caster sockets 15 which extend through holes 16 provided in the caster plates 11. These caster sockets 15 are shown as extending through holes or apertures 17 provided at the upper or apex corners of the cross rails 5 so that the caster sockets 15 are secured in place by relatively widely spaced retaining forces applied thereto by the cross rails 5 and the caster plates 11. This positioning of the casters 14 has provided an effective stabilized caster support action with the cross rails 5 being well adapted to withstand ordinary turning moments set up in the bedframe by application of load thereto and wherein such loads are of course carried by the casters 14. The top of the caster sockets 15 may otherwise engage the cross rails 5 if desired.

As a modification of the invention, a cross rail 20 is shown in Fig. 5 and it has a suitable caster plate 21 secured thereto by a screw 22. This screw 22 extends through a hole in a cross rail 20 and engages a suitably tapped hole in an upwardly and inwardly directed lug 23 in the caster plate 21. This plate also has an upwardly directed lug 24 that engages the outer surface of the cross rail 20 opposed from the screw 22. The caster plate 21 suitably positions a caster 25 through a support plate 26. The support plate 26 is rotatably engaged with the caster plate 21 by means of a rivet or headed pin 27 and by roller bearings 28 that are positioned intermediate the caster plate and the support plate 26.

Fig. 6 shows a support leg 30, like the support leg 4, only in this embodiment of the invention, the apex of the angle used in making the leg is outwardly directed. The leg 30 positions a side rail 31 on a cross rail 32. The support leg 30 has downwardly and outwardly directed lower lugs 33 thereon abutted against the inclined upper surface of the cross rail and suitably secured thereto. Upper support lugs 34, like the lugs 7, also are provided on the support leg 30, and such lugs 34 are secured to the side rail 31 in a conventional manner.

It will be noted that both the upper and lower ends of the support legs engage or contact the cross rails and the side rails and form a brace that extends therebetween.

Bedframes constructed in accordance with the invention have had excellent service life and have carried large loads without any distortion of the bedframe. The cross rails carry the casters and are positioned very close to the floor, and the support legs 4 are of sturdy inexpensive construction and extend inwardly of the frame. Thus, it is thought that the objects of the invention have been achieved.

While several embodiments of the invention have been disclosed herein, it will be appreciated that modifications of these particular embodiments of the invention may be resorted to without departing from the scope of the invention as defined by the appended claims.

Having thus described my invention, what I claim is:

1. In a bedframe or the like, a side rail, a cross rail of inverted V-shape in section, a leg securing said cross rail to said side rail, said leg being of angular shape in section and having a pair of outwardly and horizontally directed integral top lugs contacting the lower surface of said side rail, said leg having a pair of outwardly and downwardly directed integral lower lugs contacting the upper surfaces of said cross rail, said top lugs and said lower lugs both extending outwardly with relation to said leg, the lower ends of said leg abutting on the inclined upper surface of said cross rail, said leg extending upwardly and outwardly from the said cross rail, and means extending through the lugs on said leg to secure it to said side rail and to said cross rail.

2. In a bedframe or the like, a side rail, a cross rail of inverted V-shape in section presenting a peaked upper surface for shedding dust, a leg securing said cross rail to said side rail, said leg being inclined outwardly and upwardly from an end of said cross rail and being of angular shape in section with its peaked surface facing inwardly and upwardly and having a pair of downwardly directed lower lugs contacting the upper surfaces of said cross rail, and means securing said leg to said side rail and to said cross rail.

3. In a bedframe or the like, a metal side rail, a metal cross rail of inverted V-shape in section, a metal leg securing said cross rail to said side rail, said leg being of angular shape in section and having a pair of integral top lugs in contact with the lower surface of said side rail, said leg having a pair of downwardly directed lower lugs in abutted engagement with the upper surfaces of said cross rail, a caster plate bridged over the lower surface of said cross rail, a caster socket engaged with said caster plate and extending up through said cross rail, and a caster received in said caster socket.

4. In a bedframe or the like, a side rail, a cross rail of inverted V-shape in section, and a leg securing said cross rail to said side rail, said leg being of angular shape in section and having a pair of top lugs engaging the lower surface of said side rail, said leg having a pair of downwardly directed lower lugs in engagement with the upper surfaces of said cross rail.

5. In a bedframe or the like, a side rail, a cross rail of inverted V-shape in section, a leg securing said cross rail to said side rail, said leg being of angular shape in section and having a pair of outwardly directed, with relation to said leg, integral top lugs in engagement with the lower surface of said side rail, said leg having a pair of outwardly and downwardly directed integral lower lugs with relation to said leg in contact with the upper surfaces of said cross rail, and caster means carried by said cross rail.

6. In a bedframe or the like, a bottom rail of substantially inverted V-shape in vertical section, a caster-plate bridged across the lower edges of said bottom rail and having a central opening therethrough, said plate being secured to said edges against movement relative to said rail in a horizontal direction, said rail having a hole therethrough at the top thereof in vertical alignment with the hole of said caster plate, and a caster socket carried by said caster plate and extending through the hole in said rail to provide spaced points for support of the caster socket.

7. In a bedframe or the like, a side rail, a cross rail of inverted V-shape in section, a leg securing said cross rail to said side rail, said leg being of angular shape in section and having a pair of downwardly directed lower

lugs contacting the upper surfaces of said cross rail, means securing said leg to said side rail and to said cross rail, a caster plate bridged over the lower portion of said cross rail, and caster means carried by said caster plate.

8. A bedframe or the like comprising a bottom rail of inverted V-shape in vertical section presenting a peaked upper surface adapted to shed dust, a caster plate bridged across the lower edges of said rail and having a central opening vertically therethrough, said plate having marginal portions turned upwardly to retain the edges of said rail, said rail having a central vertical opening therethrough in alignment with the opening of said plate, and a caster socket extending through said aligned openings to provide vertically spaced apart supports for said caster socket.

9. A bedframe or the like comprising a bottom rail of inverted V-shape in vertical section presenting a peaked upper surface adapted to shed dust, a caster plate bridged across the lower edges of said rail and having a central opening vertically therethrough, said plate having marginal portions turned upwardly to retain the edges of said rail, said rail having a central vertical opening therethrough in alignment with the opening of said plate, the edges of said rail being notched to retain the margins of said plate against movement longitudinal of said rail and marginal portions of said plate being inwardly directed over the peaked upper surface of said rail to retain said plate in place thereon, and a caster socket extending through said aligned openings to provide vertically spaced apart supports for said caster socket.

References Cited in the file of this patent

UNITED STATES PATENTS

1,011,440	Karpen	Dec. 12, 1911
1,180,259	Diss	Apr. 18, 1916
1,394,511	Tamarin et al.	Oct. 18, 1921
1,781,815	Herold	Nov. 18, 1930
2,049,344	Wittke	July 28, 1936
2,317,077	Morgan	Apr. 20, 1943
2,480,025	Hunter	Aug. 23, 1949
2,582,832	Hopkins	Jan. 15, 1952
2,607,051	Jackson	Aug. 19, 1952