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S. J. IMBER ET AL

2,968,051

BED FRAME AND CLAMPING MEANS THEREFOR

Original Filed June 20, 1958

Fig. 1.

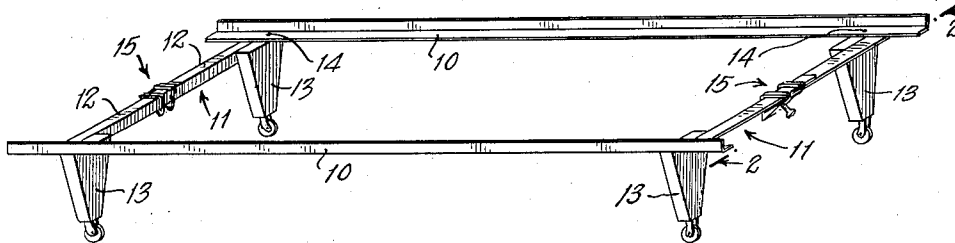


Fig. 2.

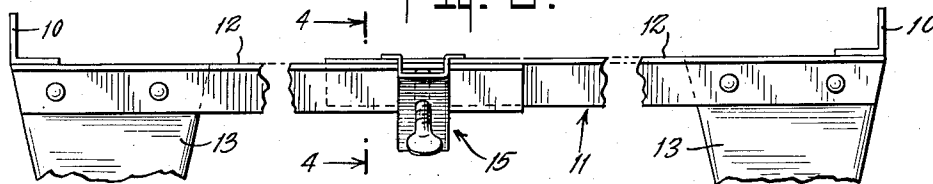


Fig. 3.

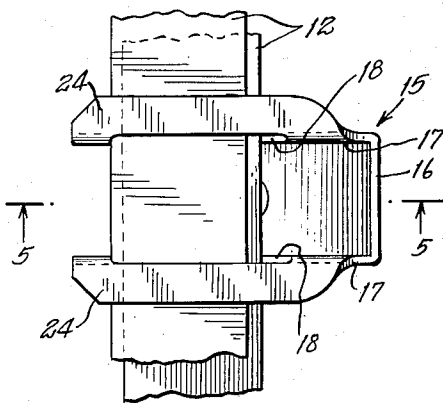


Fig. 4.

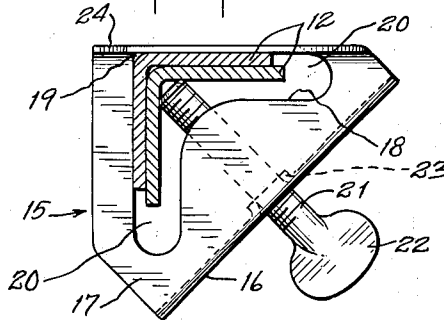
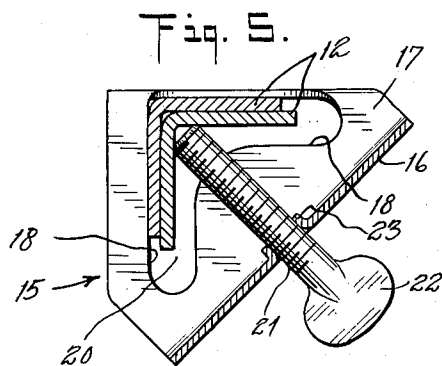
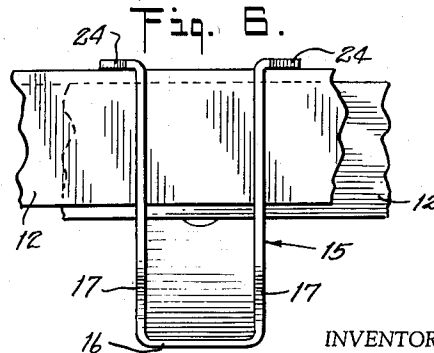


Fig. 5.



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BED FRAME AND CLAMPING MEANS THEREFOR

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6,585

1 Claim. (Cl. 5—181)

The present invention relates to collapsible bed frames, wherein it may be desired to provide transverse elements or end rails formed as a pair of similar angles, one of which is pivoted to each of the side rails of the bed frame and which are overlapped and clamped together in some overlapped position by a special clamping means, forming another phase of this invention, so as adjustably to predetermine the width of the bed. This clamping means is peculiarly adapted for use in conjunction with a bed frame, and particularly with a pair of similar angles thereof, in a way which will be apparent from the particular description hereinafter given. In this way, a bed frame can be made up which will not only be collapsible to permit its easy transportation from place to place; but also it may be adjusted when assembled to be used either as a single bed or as a double bed, at the option of the user. One such structure is disclosed, for example, in the copending application of the present inventors, Serial No. 573,504, filed March 23, 1956, now Patent No. 2,851,702, issued September 16, 1958, and entitled "Bed Frame." It will be understood, of course, that the present construction is not limited to a use in connection with bed frames, even though this use is one which is presently preferred.

The present invention constitutes a continuation of our prior and copending application Serial No. 743,269, filed June 20, 1958, and entitled "Clamping Means For Telescoped Angles," which is now abandoned.

While various structures have been provided in the past for adjustably securing telescoped angles together, these structures have in some instances at least been more or less cumbersome, expensive to manufacture and not wholly satisfactory in use. It is desired in accordance with the present invention to provide a structure for this general purpose, which is simple in character, easy and relatively cheap to manufacture, and which may be easily used without special training and preferably without special tools. The device of the present invention is further peculiarly adapted for use in bed frames, in that it is provided with flange means protecting a bed spring and/or a mattress, which may be used in conjunction with the bed frame, from damage by contact with the clamping means.

Summarizing the present invention, therefore, it comprises a clamp, which is preferably made from a single piece of sheet metal suitably bent to a desired shape and pierced by shaped apertures, so as to provide a back portion and a pair of parallel side portions. In these side portions are arranged similar aligned apertures, each substantially L-shaped and each adapted to receive a pair of telescoped angles with the flanged parts of which the angles are made extending respectively parallel to the legs of the L of each of the apertures. The apertures are further so arranged in the side portion of the clamp that the intersection of the legs of the L thereof is farthest away from the back portion, these legs of the apertures each extending at substantially 45° to the plane of the back portion. With this device constructed as aforesaid is used a set screw or set screw device, which may be

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threaded through the back portion and bear upon the inside intersection of the inner one of a pair of angles to be clamped. When the device is to be used with a collapsible bed frame, it is further preferred that the side portions be provided with flange portions, which will be arranged parallel to the plane of one side of one of the angles being clamped, so that both to be disposed horizontally in the bed frame assembly, so that the flange members will protect a superjacent mattress or spring assembly from damage by contact with the clamping means of the present invention.

Other and more detailed objects and features of the present invention will appear in the following description of a preferred form of the present device, which is further illustrated in the accompanying drawings in which:

Fig. 1 is a view in perspective of a bed frame with the clamping means of the present invention used in conjunction with overlapping angles forming the transverse or end rails thereof;

Fig. 2 is a fragmentary view in elevation and on a somewhat enlarged scale and foreshortened for convenience of illustration showing an end rail of the bed frame of Fig. 1 with the clamping means of the present invention applied thereto;

Fig. 3 is a plan view of the clamping means of the present invention applied to the clamping of a pair of telescoped angles, the view being as would be seen from the top in Fig. 2, but the parts being shown on a still larger scale;

Fig. 4 is a view in transverse section also on a somewhat enlarged scale, and taken substantially on the line 4—4 of Fig. 2;

Fig. 5 is a view in transverse vertical section taken substantially on the line 5—5 of Fig. 3; and

Fig. 6 is a view substantially in elevation as would be seen looking from the left in Fig. 3.

Let us consider first Figs. 1 and 2 in which there is illustrated a bed frame comprising one use of the invention. The bed frame comprises a pair of side rails 10 each of which may be formed as a metal angle. To these side rails there are preferably pivoted end or cross rails, each of which is generally indicated at 11. As shown each cross rail 11 comprises a pair of telescoped angles 12. Each of the angles 12 is secured by rivets or otherwise to a leg structure 13, said leg structures being respectively preferably pivoted as at 14 to one of the side rails. The details of this construction are disclosed and claimed in the copending application, Serial No. 573,504, now Patent No. 2,851,702, above referred to. As seen in Figs. 1 and 2, the angles 12 are arranged to be telescoped to a selected and variable extent and to be clamped in an adjusted telescoped position by clamping means, each of which is generally indicated at 15.

The clamping means 15 is preferably formed, except for a set screw hereinafter described, of a single piece of sheet metal suitably shaped, pierced and bent. This clamping means comprises a back portion 16 which is formed in a plane and is inclined in the position of the parts as shown in elevation in Fig. 4. Rigid and preferably integral with the back portion 16 are a pair of substantially parallel side portions 17, which are disposed in vertical planes in the position of the parts as seen in elevation in Figs. 2 and 4. In each of the side portions 17 is one of a pair of similar aligned apertures 18, which are arranged loosely to receive the pair of the telescoped angles 12 as shown. Each of the apertures 18 is substantially L-shaped in that it comprises a pair of intersecting elongated slots having a relatively sharp angle portion at 19 at a point farthest from the back portion 16 and having a pair of leg portions 20, which extend at substantially right angles to one another and which, in the position of the parts when applied in a bed frame,

are arranged respectively horizontally and vertically and in any case are arranged substantially parallel to the flange portions of which the angles 12 are composed. As will be seen best in Fig. 4, the angles 12 are so disposed that the intersections of their flange portions are adjacent to the corner portions 19 of the apertures 18 and are arranged farthest from the back portion 16. Also as seen in the drawings, the general direction of the longer dimensions of the legs 20 of the apertures 18 is at substantially 45° to the plane of the back portion 16 as best seen in Fig. 4.

Means are also provided in conjunction with the device made up of the back portion 16 and side portion 17 for clamping the angles together. For this purpose, there is provided a set screw 21, which may have any suitable type head, one of which is shown at 22. The set screw 21 is threaded in a part of the back portion 16 as generally indicated at 23, this part being somewhat thickened by a combined punching and threading operation in a manner which will be recognized by those skilled in the art from the illustration in the accompanying drawings. In a preferred and simple form of the invention, the set screw 21 itself bears directly upon or impinges against the inside of the intersection of the flange portions of the inner one of the pair of intersecting angles 12 when those angles are extended through the aligned apertures 18 of the side portions 17 as shown. It is contemplated, however, that if desired some suitably bearing part could be interposed between the end of the set screw 21 at the upper left as seen in Fig. 4 and the inside of the telescoped angles 12. Such a construction will occur to those skilled in the art from the foregoing disclosure and is to be considered the equivalent of the simple set screw 21 as shown. Furthermore, it is contemplated that any type of screw including one with a thumb-nut type head, or one wherein the stem of the screw is bent as a loop, or screws formed with any conventional or known type of head for receiving any desired type of screw-turning tool may be used in place of the set screw 21 shown in the accompanying drawings. All such equivalent types of set screws are intended to be included within the purview of the present invention.

When the clamp of the present invention is to be used in conjunction with a bed frame and also for some other uses as will occur to those skilled in the art, it may be desired that there be means for protecting any adjacent structure, such as a spring or mattress to be used with a bed frame, from injury by contact with the clamp 15 of the present invention. For this purpose, each of the side members 17 may be provided with an integral lateral extending flange portion 24. The flanges 24 are preferably both disposed in a single horizontal plane in the use of the clamp 15 in clamping together the telescoped angles constituting the end rails of a bed frame. As such these flanges may extend away from the center of the clamp as shown on the drawings or may extend in opposite directions and toward the clamp center. Also, if desired, one flange could extend in each direction. In this use the flanges 24 are also parallel with horizontally disposed flange portions forming parts of the angles 12, all as seen in the accompanying drawings. These

flange portions 24 will serve in this use and in this position of the parts to prevent damage to a superjacent mattress or spring by contact with the clamp 15 of the bed frame.

While but one embodiment of the present invention has been illustrated and particularly described herein, it will be understood that other and equivalent structures will suggest themselves to those skilled in the art based upon the foregoing particular disclosure. We do not wish to be limited, therefore, except by the scope of the appended claim, which is to be construed validly as broadly as the state of the prior art permits.

We claim:

The combination with a collapsible bed frame having side members, and end members each comprising metallic angles extendible laterally from said side members and arranged to overlap one another to an extent dependent upon the desired width for the bed frame each of said angles having a substantially horizontal plane portion and a substantially vertical plane portion; of clamp members to hold said metallic angles together in adjusted position and thereby to secure the width adjustment of the bed frame; each of said clamp members comprising a plurality of portions formed of a single piece of sheet metal bent and pierced as hereinafter set forth, including a back portion arranged to be disposed at an angle of about 45° to the horizontal, a pair of substantially parallel side portions disposed at right angles to said back portion and each extending in a substantially vertical plane, which is perpendicular to both the substantially horizontal plane portions and the substantially vertical plane portions of the angles clamped by each clamp member when in use, an L-shaped aperture pierced in each of said side portions and each comprising an aperture portion extending substantially horizontally and an aperture portion extending substantially vertically, these aperture portions meeting at substantially a sharp right angle, both apertures in said side portions being substantially identical in size, shape and disposition and being arranged freely to receive overlapping portions of said metallic angles with the intersecting corner part of the section of each metallic angle disposed toward the sharp right angled portion of each of said apertures, a set screw threaded through said back portion and arranged to bear against the inside of the innermost of a pair of said metallic angles, so as to press both said angles together and against the boundaries of said apertures in said side members, and a pair of flange portions extending substantially horizontally from said side portions and in a single substantially horizontal plane overlying and contiguous in use with the horizontal plane portion of the upper one of said angles clamped by each said clamp member to protect superjacent portions of bedding equipment from damage by impingement with any relatively sharp portions of each said clamp member.

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