

[54] **BED FRAME**

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[51] **Int. Cl.**..... **A47c 19/12**

[58] **Field of Search**..... **5/174, 176 R, 181, 185, 5/201, 202, 282, 285, 184, 310**

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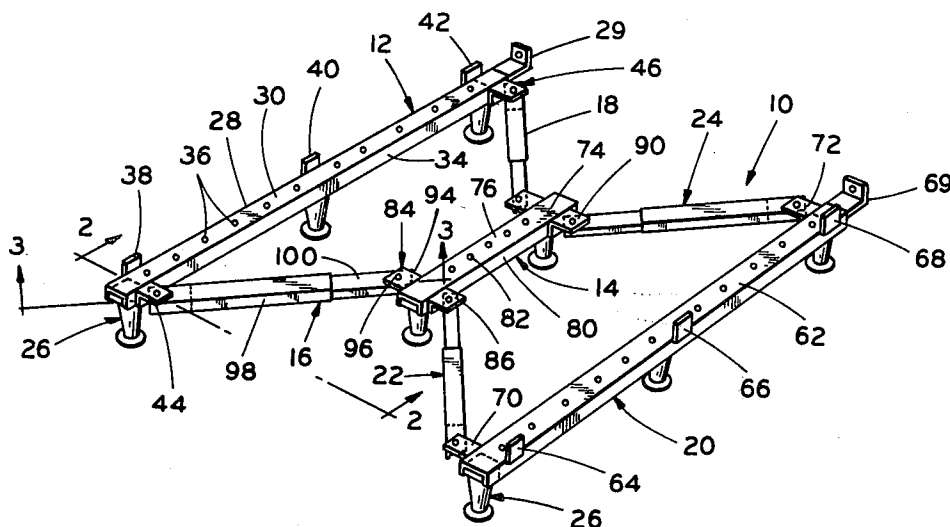
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[57]

**ABSTRACT**

A bed frame, which is capable of being collapsed into a compact elongated package, includes a pair of elongated peripheral supports, each being adapted for supporting a peripheral edge of a box spring. An elongated center support between the peripheral supports is adapted for supporting a central portion of the box spring. A plurality of connectors is connected to the elongated center support at opposite ends thereof, and to the ends of each of the elongated peripheral supports. Each of the connectors includes a pair of telescoping members, which may be separated to arrange the parts in a compact package. Each of the connectors includes a lock for locking the telescoping members to each other in a selected position.

**5 Claims, 6 Drawing Figures**



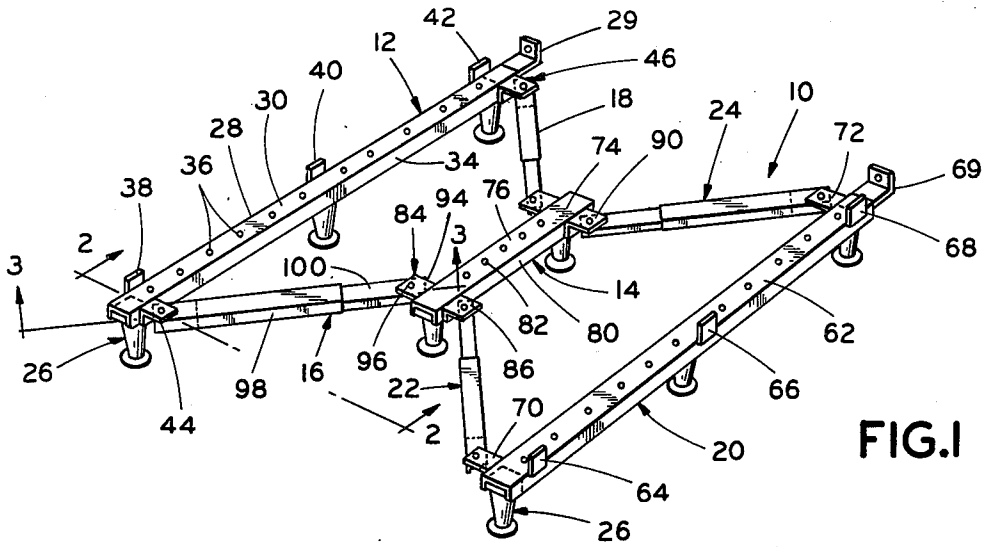


FIG. 1

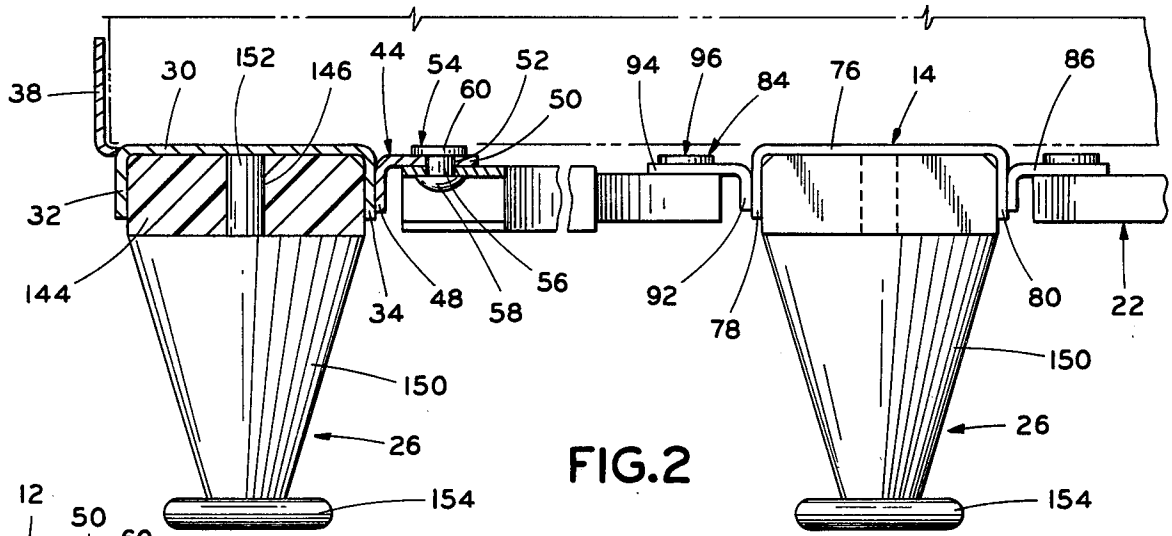


FIG. 2

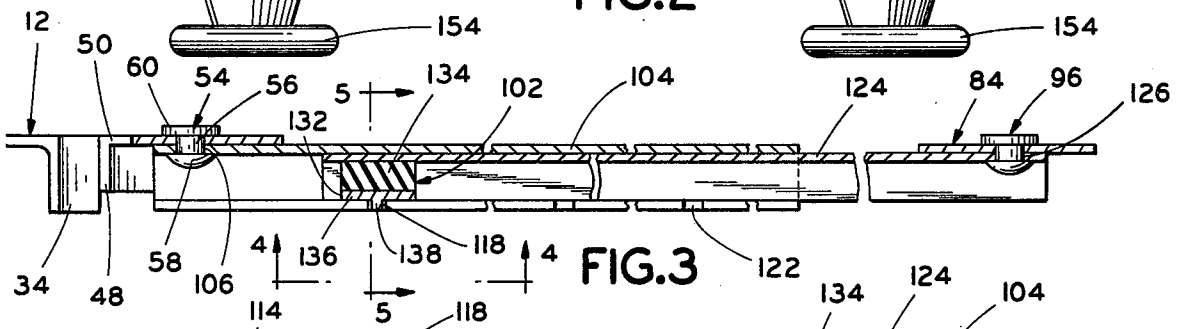


FIG. 3

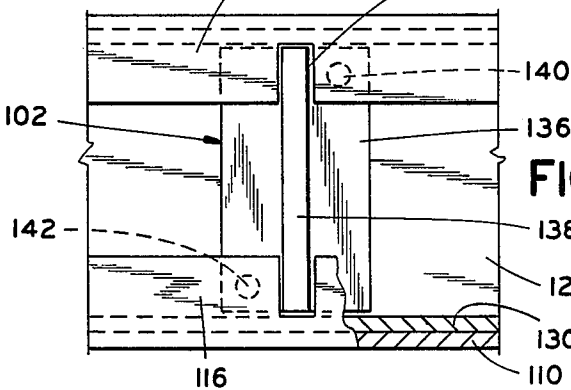


FIG. 4

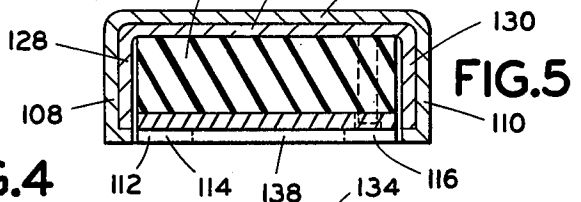


FIG. 5

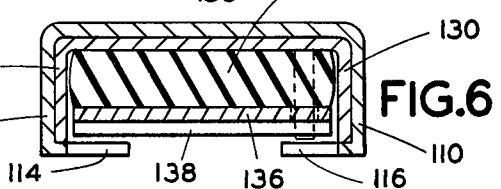


FIG. 6

## BED FRAME

## BACKGROUND OF THE INVENTION

Bed frames, as such, are generally well-known for supporting a box spring and a mattress at a selected height above a floor level. Bed frames must be sturdy to support a substantial weight; but bed frames must also be light-weight so as to keep the cost of manufacture and of shipping at a minimum.

It is also desirable to provide a bed frame construction which allows one given bed frame to be adapted to any one of a number of standard sizes of beds. By making a bed frame adaptable to a variety of sizes, a manufacturer of bed frames can reduce his manufacturing costs by manufacturing a single size. Persons in the chain of distribution also find that it is particularly convenient to have a single size bed frame, which may be easily assembled to a bed frame of any one of a selected size. It is not necessary for a retailer and his supplier to stock a variety of sizes of bed frames. The ultimate customer may buy one bed frame and use it for any size bed. There is an advantage to the ultimate customer in that, should the ultimate customer wish to change the size of spring and mattress, the customer may readily do so at his convenience.

The ultimate user of a bed frame desires a bed frame which can be quickly, easily and surely assembled with a minimum of effort. He also wishes to be able to assemble the bed frame, using no tools.

## SUMMARY OF THE INVENTION

The present bed frame construction is such that it consists of three collapsible elongated parts and a plurality of legs, which may be readily mounted on the elongated parts. The elongated parts may be placed in close juxtaposition to provide a compact package, which facilitates storage and handling. The instant bed frame generally includes a pair of elongated peripheral supports and a center support. A plurality of connectors is connected to the supports, each of which connectors has a portion which may be folded against its respective support. When the bed frame is assembled, the portions of the connectors are extended and are connected to each other to connect the center portion to the peripheral supports. The plurality of legs is mounted on the supports to hold the bed frame at a selected height.

It is a principal object of the instant invention to provide an improved bed frame construction which may be collapsed and stored in a compact package, and then quickly and readily assembled for use.

It is another object of the present invention to provide an improved bed frame construction wherein the bed frame may be used to support any one of a plurality of selected standard sized box springs.

It is another object of the herein-disclosed invention to provide a bed frame construction which may be economically manufactured.

Other objects and uses of the present invention will become readily apparent to those skilled in the art upon a perusal of the following specification in light of the accompanying drawing.

## BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a bed frame embodying the herein-disclosed invention;

FIG. 2 is an enlarged cross-sectional view of a portion of the bed frame taken on Line 2—2 of FIG. 1, showing some of the details of construction of the subject bed frame;

FIG. 3 is an enlarged fragmentary cross-sectional view taken on Line 3—3 of FIG. 1, showing the interior construction of a connector and the attachment of a connector to supports;

FIG. 4 is an enlarged bottom view taken on Line 4—4 of FIG. 3, showing a lock for the connector and a portion of the connector;

FIG. 5 is a cross-sectional view taken on Line 5—5 of FIG. 3, showing the lock for the connector in a locked attitude; and

FIG. 6 is an enlarged cross-sectional view similar to FIG. 5, but showing the lock in an unlocked attitude.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing, and especially to FIG. 1, a bed frame generally indicated by numeral 10, embodying the present invention, is shown therein. The bed frame 10 generally includes a longitudinal peripheral support 12 connected to an elongated center support 14 by a pair of identical telescoping connectors 16 and 18. A second longitudinal peripheral support 20 is connected to the center support by a pair of identical telescoping connectors 22 and 24. A plurality of identical legs 26 is mounted on the supports 12, 14 and 20 to hold the supports at a selected height.

The longitudinal peripheral support 12 is described in detail herein; and the longitudinal peripheral support 20 is a mirror image of the longitudinal peripheral support 12. The longitudinal peripheral support 12 generally includes an elongated steel channel 28, with a headboard bracket 29 fixed to one end thereof. The channel 28 is conventional in construction and includes a flat elongated base 30 and a pair of sides 32 and 34 formed integral with the longitudinal edges of the base, as may be seen in FIG. 2. The base 30 has a plurality of mounting apertures 36 formed therein. The mounting apertures 36 are equidistantly spaced longitudinally along the center line of the base, as may be best seen in FIG. 1.

The longitudinal peripheral support 12 also includes three identical angle clips 38, 40 and 42 welded to the side 32 and extending upward above the base 30. The angle clips are adapted for engagement with a box spring to prevent the box spring from moving over the edge of the longitudinal peripheral support.

A connector clip 44 is connected to the side 34 adjacent to one end of the support 12. An identical connector clip 46 is fixed to the same side 34 adjacent to the other end of the support. The connector clip 44 includes a mounting flange 48, which is welded to the side 34. A pivot flange 50 is formed integral with the mounting flange and is perpendicular to the mounting flange. The pivot flange has a pin aperture 52 formed therein to receive a rivet 54. The rivet 54 is conventional in its construction and includes a shank 56 pivotally mounted in the pin aperture 52. The rivet includes a head 58 formed integral with one end of the shank, and an upset end 60 formed integral with the other end of the shank. As will be described in detail hereinafter, the connector 16 is pivotally connected to the support 12 through the rivet 54, which is mounted on the connector clip 44.

As was mentioned above, the longitudinal support 20 is a mirror image of the support 12 and generally includes a channel 62, with three angle clips 64, 66 and 68 mounted on the channel, a headboard bracket 69 fixed to one end thereof, and a pair of connector clips 70 and 72 secured to opposite ends of channel 62.

The center support 14 is parallel to the two longitudinal supports 12 and 20. In this instance, the center support is shorter than the two longitudinal supports. The center support generally includes an elongated steel channel 74. The channel 74 is conventional in construction, and includes a flat elongated base 76 and a pair of sides 78 and 80 formed integral with the longitudinal edges of the base. The channel 74 has a plurality of mounting apertures 82 in the base, spaced longitudinally and equidistantly along the center line of the base, in much the same manner as the base 30.

The center support 14 includes four identical connector clips 84, 86, 88 and 90. As may be seen in FIG. 1, the connector clips 84 and 86 are secured to the sides 78 and 80, respectively, adjacent to one end of the support. The clips 88 and 90 are secured to the sides 78 and 80, respectively, at the other end of the support. The clip 84 is shown in greater detail in FIG. 2. Clip 84 includes a mounting flange 92, which is welded to the side 78, and a pivot flange 94, which is formed integral with the mounting flange and is perpendicular to the mounting flange. A rivet 96 is pivotally mounted in the pivot flange for connecting the clip to the connector 16.

The connector 16 generally includes an elongated receptacle 98, a male portion 100 telescopically mounted in the receptacle 98, and a lock 102 for selectively locking the male portion to the receptacle 98.

The elongated receptacle 98 includes an elongated flat base 104, which has a rivet aperture 106 at one end and pivotally receives shank 56 of rivet 54, as may be best seen in FIGS. 2 and 3. The receptacle also includes a pair of elongated parallel sides 108 and 110 formed integral with opposite edges of base 104. A centrally open floor 112 is formed integral with the sides 108 and 110. The floor includes an elongated ear 114, which is formed integral with side 108 and is perpendicular thereto, and an elongated ear 116, which is formed integral with side 110 and is perpendicular thereto. The floor has three slots 118, 120 and 122 extending through ears 114 and 116 for receiving the lock 102.

The male portion 100 is channel shaped and includes an elongated flat base 124, which contains a rivet aperture 126 at one end for receiving the rivet 96. The channel includes a pair of elongated sides 128 and 130 formed integral with the longitudinal edges of the flat base 124; and the sides 128 and 130 are perpendicular thereto. The sides 128 and 130 are engageable with and substantially parallel to the sides 108 and 110.

The lock 102 generally includes a steel T-bar 132 and a block of resilient polyurethane foam 134. The T-bar includes a plate 136, which is generally parallel to the base 124 of the male portion 100. The plate 136 has a dog 138 formed integral therewith, which dog is positionable in any one of the selected slots 118, 120 or 122. The lock also includes a pair of identical rods 140 and 142. Each of the rods has one end fixed to the flat base 124 in an attitude perpendicular to the base. The rods extend through a pair of apertures in plate 136 to guide the T-bar 132, thereby preventing the dog from becoming skewed to its respective slots.

The construction of each of the adjustable connectors 18, 22 and 24 is identical to the adjustable connector 16 (described in detail above). Each of the connectors includes a receptacle, a male portion and a lock for selectively locking the male portion to the receptacle. Each male portion is pivotally connected to the center support 14. Each receptacle is pivotally connected to its respective peripheral support.

All of the legs 26 are identical in their construction to each other leg in that each of the legs includes a plastic leg block 144, with a receptacle aperture 146 formed therein. Each leg includes a leg portion 148, which leg portion includes a tapered column 150, with a stud 152 formed integral with the upper portion thereof. A foot 154 is formed integral with the lower end of the column 150.

Each of the legs 26 is secured to its respective support by gluing the plastic block to its respective channel between the sides and against the base. The leg portion is then simply mounted in the block by inserting the stud 152 into the receptacle aperture 146.

The subject bed frame 10 is simply and economically manufactured. The longitudinal peripheral supports are each made simply by cutting a selected size channel iron to size and drilling the mounting apertures 36 into the base of the channel iron. The angle clips are welded to the sides; and the connector clips are also welded to the sides. The plastic blocks are then positioned in the channels and are held in place (in this instance by a suitable adhesive). Each of the connectors has its receptacle pivotally connected to the connector clip by the rivets.

The center support is also made of a selected size channel iron. The mounting apertures 82 are drilled into the base of the channel. The connector clips are welded to the sides of the channel; and the plastic blocks for the legs are secured to the channel (in this instance by a suitable adhesive). The male portions of the connectors are pivotally connected to the connector clips. The male portion of each of the connectors has the lock 102 mounted therein. The manufacturer then need only fold the receptacles against the supports and the male portions against the support to have a compact arrangement of parts. The parts may be conveniently packaged to provide a small package; and the leg portions are easily inserted in the package.

Once the packaged bed frame is delivered to a user, the user need only remove the packaged bed frame and insert the male channels into the respective receptacles. The locks in the channels then may be selectively engaged into one of the appropriate slots in the respective channel. The T-bar 132 is compressed within the receptacle until the T-bar comes to a slot; and then the resilient material, in the form of the polyurethane foam 134, urges the dog 138 into a slot. In order to move the lock into another slot, the operator need only use a digit to compress the polyurethane foam and to move the male portion relative to the receptacle to the required size.

Once the size has been established, the leg portions are then simply placed in the receptacle apertures of the plastic blocks to hold the frame up. It may be seen that there is no need to use any tool in order to assemble the present bed frame.

If it is desired, a box spring mattress may be secured to the bed frame by inserting screws into the mounting

apertures 36 and 82 to fix the bed frame to a box spring.

It should be noted that, in certain constructions of a box spring frame, there is no center support; and it may be necessary to provide a filler between the center support and the box spring. The recommended filler, in this instance, is a strip of polyurethane foam, which is cemented to the base of the channel.

Although a specific embodiment of the present invention has been shown in detail and described in detail above, it is readily apparent that those skilled in the art may make various modifications and changes in the present invention, such as substituting materials and changing specific constructions, without departing from the spirit and scope of the instant invention. It is to be expressly understood that the instant invention is limited only by the appended claims.

What is claimed is:

1. A collapsible bed frame comprising: a pair of spaced elongated parallel peripheral supports, each having the same length, each being adapted for supporting a peripheral edge of a box spring, a pair of legs connected to each of said elongated peripheral supports for holding the supports at a selected height, an elongated center support being shorter than the elongated peripheral supports, said elongated center support adapted for supporting a central portion of the box spring positioned parallel to and between said peripheral supports within the ends of the peripheral supports, a support leg connected to said center support for holding the center support at substantially the same height as the elongated peripheral supports, a pair of connectors pivotally connected to one end of the center support, one of said connectors being pivotally connected to one end of one of the peripheral supports, the other of said connectors being pivotally connected to one end of the other of the peripheral supports, a second pair of connectors pivotally connected to the other end of the center support, one of said second pair

of connectors being pivotally connected to the other end of the one of the peripheral supports, the other of said second pair of connectors being pivotally connected to the other end of the other of the peripheral supports, each of the connectors being adjustable in length to make the frame adjustable to receive a selected one of a plurality of sizes of box springs, and each of said connectors having a lock for releasably locking the connectors in a selected length.

2. A collapsible bed frame as defined in claim 1 wherein each connector includes a receptacle and a male portion removably telescoping with the receptacle, said lock releasably locking the male portion to the receptacle.

3. A collapsible bed frame as defined in claim 2 wherein each receptacle has a plurality of slots substantially transverse to the length thereof, each of said male portions being hollow, a bar movably mounted in each male portion and engageable therewith and being selectively engageable with a slot in its respective receptacle, and a resilient element positioned between each bar and a portion of the interior of its respective male portion for holding the respective bar in a selected slot.

4. A collapsible bed frame as defined in claim 3, including a pair of blocks mounted on each of the elongated peripheral supports, a support block mounted on the center support, each of said blocks having a receptacle aperture, each of said legs having a stud positionable in the receptacle aperture of each of the blocks for supporting the bed frame.

5. A collapsible bed frame as defined in claim 1, including a pair of blocks mounted on each of the elongated peripheral supports, a support block mounted on the center support, each of said blocks having a receptacle aperture, each of said legs having a stud removably positioned in the receptacle aperture of the respective block, said legs supporting the bed frame.

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