US Patent & Trademark Office
Patent Public Search | Text View

United States Patent Application Publication	20250255415
Kind Code	A1
Publication Date	August 14, 2025
Inventor(s)	Polevoy; Richard S. et al.

ADJUSTABLE HEIGHT TUBULAR BED FRAME

Abstract

A bed frame that can be assembled without tools and that may be easily adjusted to provide for more than one mattress height. The frame is formed by side rails having wedges that are inter fit cross rails having receivers to form supporting legs. An extension can be selectively added to or removed from the receivers to change the height of the supporting legs and thus the height of the bed frame. In one option, the cross rails are telescoping in a manner than ensure that a center support associated with a central rail is always positioned in the middle of the frame regardless of whether the frame is configured for a narrow or wide mattress. In another option, the middle of bed is supported by a third cross rail having an adjustable height leg formed from a center wedge and removable receiver.

Inventors:	**Polevoy; Richard S. (Teaneck, NJ), Carlson; Paul Eric (Skaneateles, NY), Ryan; Howard Scott (Skaneateles, NY), Konieczny; Michael W. (Skaneateles, NY)**
Applicant:	**Finger Lakes Intellectual Property, LLC** (Teaneck, NJ)

Family ID:	**1000008591645**
Assignee:	**Finger Lakes Intellectual Property, LLC (Teaneck, NJ)**
Appl. No.:	**19/116465**
Filed (or PCT Filed):	**September 29, 2023**
PCT No.:	**PCT/US2023/034138**

Related U.S. Application Data

us-provisional-application US 63377595 20220929

Publication Classification

Int. Cl.: **A47C19/04** (20060101); **A47C19/00** (20060101); **A47C19/02** (20060101)

U.S. Cl.:

CPC **A47C19/045** (20130101); **A47C19/005** (20130101); **A47C19/024** (20130101);

Background/Summary

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a safe and attractive, affordable bedframe for supporting a mattress set and, more particularly, to a stable bedframe that assembles and is adjustable to multiple sizes and heights without the need for using tools with fasteners.

2. Description of the Related Art

[0002] Bed frames that are low in cost and non-decorative and typically constructed with stamped metal legs combined with angle iron rails. The stamped metal legs have hard edges and are not ideal for handling during assembly. Also, the nature of the leg means that the height of the bed is fixed. If it is determined at the time of installation that the consumer sleep surface is time too high, the remedy with this type of bed frame is to return to the store and obtain a low-profile frame or foundation.

[0003] Many of these types of frames are also difficult to assemble with multiple loose parts and extensions and that use keyhole interlocks or stamped metal connections that squeak and rattle during use. Assembly of these frames also requires that the purchaser have equipment knowledge and be capable of tool assembly. The use of tools to assemble bedding is undesirable because if the tools are not available then the assembly cannot be done. Also, tool assemblies can be difficult and complicated. Current approaches to tool-less bed frames are made of interlocking stamped sheet metal plates, which can be sharp and dangerous as well as heavy. The weight of bedding and bed occupants creates a downward force on the bedding, which must be transferred to the floor. The connection points between the side rail and the floor are thus an inherent weakness of the structure. Sheet metal, by its nature, has edges that concentrate the forces of the weight of the bedding and any occupants and the connections can be unreliable and loosen over time. Any movement is liable to cause a squeaking noise, which is recognized in the industry as a defect that is almost as critical as a collapse.

[0004] Finally, these frames can be of a fixed size that only fit one mattress type. Some frames may be adjustable, but the adjustment mechanism results in the center support rail and legs not being positioned in the middle of the bed for all size adjustments, thereby providing less than optimum support. Accordingly, there is a need in art for a bed frame that provides superior support for different size and thickness mattress sets and uses smooth contoured attractive resin legs that assemble and adjust without the need for tools or fasteners.

BRIEF SUMMARY OF THE INVENTION

[0005] The present invention provides a bed frame assembly for supporting a mattress or mattress set with two side rails, one center rail and at least one cross member that provides support for size and thickness mattress sets and uses smooth contoured attractive resin legs that assemble and adjust without the need for tools or fasteners. The frame supports the load of a mattress set using multiple support legs units. The rails and the cross member are secured together with a tool-less interlocking wedge and receiver system which uses the weight of the supported load to combine the separate

component parts in to one leg unit. The leg unit forms the connection between the side and cross rail, and also the connection between the cross rail and the center rail. In a preferred embodiment, the side rail has the wedge portion of the connection and the cross rail has the receiver incorporated with the bed frame legs. The assembly utilizes three-dimensional wedge shapes at the ends of the side member and in the center of the cross member to both connect and stabilize the leg and frame. Both the wedge and the receiver are made of molded composite plastic. The wedge has continuous surface contact with the receiving leg which dissipates the stress on this connection.

[0006] The present invention also provides embodiments with the beneficial ability to adjust the height of the frame. In some cases, a thicker mattress set will require a shorter frame to lower the sleep surface. For this reason, each of the leg units has a removable lower extension. With the extension in place on all the leg units the frame is at a standard height. With all of the extensions removed, the bed will be at a low-profile height. The extensions are secured in place using a wedge and receiver system comparable to that which holds the rails in place. In this embodiment of the invention, the wedge portion is upstanding, and the receiver is downward facing. In this way, the extension has the wedge and the leg unit has the receiver, thereby allowing the leg unit to function as the low-profile leg. The fully assembled leg unit with the extension in place encapsulates two wedge and receiver systems that are opposite and opposing in their orientation. This approach is advantageous in that it secures all of the components into a single solid supporting structure using the weight of the bedding load.

[0007] The present invention further provides embodiments that offer a tool-less plastic double opposing wedge and receiver connection for assembly of the frame structure without needing standard or specialized tools. The wedge inter fit is an elegant and robust connection. The user can easily see the wedge portion fits to the receiver. The fit locks the frame together quickly and securely as well as holding the extension in place with no additional movement. The downward pressure of the bedding makes the connections rock solid. Any looseness that might develop is taken away by the automatic and constant resetting of the wedges in the receivers. The tool-less assembly of the cross member to the side member translates the downward force is to an outward force via the angular wedge shape member. The outward force is then constrained by the continuous inner surface of the receiving member. Because the entirety of the wedge member is acting on the receiving member this outward force is universally felt and dissipated where on one point, line our surface is under greater stress. Because the receiver is a continuous surface entirely surrounding the wedge member its surface is put in tension and is very stable under the stress. This allows the wedge and the receiver to become integral to each other and resist not only downward pressure but also twisting forces.

[0008] The present invention further provides embodiments that have the ability to change the width of the frame to accommodate different size mattress sets. The cross rail of preferred embodiment is constructed of a square metal tube positioned in the center of the frame and having smaller diameter tubes inserted in either end. The smaller tubes can be deployed telescopically to different lengths out of the center tube creating the different widths of the frame. Holes drilled in the telescoping tube align at different predetermined widths allowing a spring-loaded button to passed between them. This acts as a lock holding the tube at a fix position and length corresponding to a bed size. The installer can depress the button to allow the tube to slide within each other and create a different length cross rail. Because the outer positioned tubing slides in and out of both ends of the center tubing the wedge connection on the cross rail will remain in the exact middle of the cross rail and thus the frame regardless of which size mattress the frame is adjusted to match. This approach allows the leg unit and the center rail to always remain in the center of the bed frame, which is the best location to retain bed support and stability.

Description

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

[0009] The present invention will be more fully understood and appreciated by reading the following Detailed Description in conjunction with the accompanying drawings, in which:

[0010] FIG. **1** is a perspective view of the complete adjustable tubular frame assembled.

[0011] FIG. **2** is a perspective view of the complete adjustable tubular frame exploded to show the assembly required by the installer.

[0012] FIG. **3** is a perspective exploded view of a corner leg unit.

[0013] FIG. **4** is a side exploded a corner leg unit.

[0014] FIG. **5** is a cross sectional exploded view of a side leg.

[0015] FIG. **6**A is a cross sectional view of a side leg.

[0016] FIG. **7** is an exploded view a center leg unit.

[0017] FIG. **8** is an end exploded view of center leg unit.

[0018] FIG. **9** is a cross sectional exploded view of a center leg unit.

[0019] FIG. **10** is a cross sectional view of a center leg unit.

[0020] FIG. **11** is an exploded view of a cross-rail subassembly,

[0021] FIG. **12** is an end view of a cross-rail subassembly with the extension tube fully inserted into the center tube and then fully extended from the center tube.

[0022] FIG. **13** is a perspective view of another embodiment of a complete adjustable tubular frame assembled.

[0023] FIG. **14** is a perspective view of the complete adjustable tubular frame exploded to show the assembly required by the installer.

[0024] FIG. **15** is an exploded view of FIG. **14** showing the detail of the corner leg unit.

[0025] FIG. **16** is a side exploded view of the complete adjustable tubular frame with a cross sectional view identified.

[0026] FIG. **17** is a cross sectional exploded view of the side leg as identified in FIG. **16**.

[0027] FIG. **18** is a cross sectional view of the assembled side leg of FIG. **16**.

[0028] FIG. **19** is an exploded view of a center cross rail.

[0029] FIG. **20** is an exploded view of a cross rail.

DETAILED DESCRIPTION OF THE INVENTION

[0030] Referring to the figures, wherein like numerals refer to like parts throughout, there is seen in FIG. **1** a perspective view of an embodiment of the bed frame **50** constructed in accordance with the present invention. As can be seen, bed frame **50** is assembled and ready for a foundation and mattress and is comprised of two side rails **52**, **54** that are attached to two cross rails **56** that extend between the ends of side rails **52**, **54**. The two cross rails **56** are also attached to each other by a center rail **58** that extends between the midpoints of side rails **52**, **54**. The side rails **52**, **54** are comprised of steel angle iron. The two cross rails **56** are, as will be explained, are comprised of telescoping tubular steel. The center rail **58** is comprised of two steel angle irons forming a T shaped cross section. As further seen in FIG. **1**, there are side rail legs **60** positioned at each of the four junctures between side rails **52**, **54** and cross rails **56** and cross rail legs **62** positioned at each junction of side rails **52**, **54** and center rail **58**. Side rail legs **60** and cross rail legs **62** support frame **50** in spaced relation to a horizontal surface, such as the floor of a bedroom. Side rail legs **60** and cross rail legs **62** are comprised of molded plastic.

[0031] Referring to FIG. **2**, which shows an exploded view of an embodiment of frame **50**, it may be seen that cross rail leg **62** is formed by a side rail receiver **68** that is coupled to an end of the corresponding cross rail **56** and is configured to receive a wedge **70** affixed the corresponding end of one of side rails **52**, **54**. Center rail **58** is fitted to each cross rail **56** by means of a cross rail wedge **74** secured to the midpoint of each cross rail **56** and configured to engage a center rail receiver **66** positioned at each end of center rail **58**. Each side rail leg **60** and cross rail leg **62** further comprises a lower extension **64** that can be releasably coupled to side rail receiver **68** or

center rail receiver **66**, respectively.
[0032] Complete assembly of frame **50** is accomplished by transitioning from the configuration shown in FIG. **2** to the configuration shown in FIG. **1**, so that each cross rail **56** is dropped into place on the ends of the center rail **58** with center rail receiver **66** inter-fitting with cross rail wedges **74** of cross rail leg **62**. In a similar manner, the side rails **52**, **54** are dropped into place by inserting wedges **70** into receivers **68** of side rail legs **60**, which are on opposite ends of cross rail **56**. Lower extensions **64** may then be optionally inter-fit to the bottom of side rail receivers **68** and cross rail receivers **66**, as further described herein. The inclusion or omission of Lower extensions **64** thus allows frame **50** to be positioned at one of two different heights from the floor depending on the presence or absence of lower extensions **64**. Thus, entire frame **50** can be easily assembled without the need for tools and can be configured to allow for two different mattress heights when a mattress is placed on frame **50**.
[0033] Referring to FIG. **3**, the inter-fitting of side rails **52**, **54** by inserting wedges **70** into receivers **68** of side rail legs **60** may be seen in greater detail. Side rail **52** is attached to wedge **70** and receiver **68** is attached to cross rail **56**. Receiver **68** has a pocket **72** formed therein that provides a press fit with wedge **70** based on matching angled side walls of wedge **70** and pocket **72**. The underside of receiver **68** also has an upstanding pocket **82** (not seen) that is similarly shaped to provide a press fit with an upstanding extension wedge **76** protruding from the inside of lower extension **64**.
[0034] Referring to FIG. **4**, each side rail leg **60** of bed frame **50** is formed by wedge **70** of side rail **52** fitting into pocket **72** of receiver **68** of cross rail **56** and being secured therein by a press fit due to matching angled side walls. The underside of receiver **68** also has an upstanding pocket **82** (not seen) that is shaped in the same way to fit upstanding extension wedge **76** protruding from the inside of lower extension **64**.
[0035] Referring to FIG. **5**, side rail leg **60** is shown in an exploded or disassembled view. Receiver **68** of each side rail leg **60** is comprised of a receiver cap **100** and a receiver foot **78**. Preferably, receiver cap **100** and a receiver foot **78** are fastened together when frame **50** is manufactured, such as by using screws **80**, and are thus shown coupled together. Wedge **70** is configured to be inter-fit with receiver **68** by inserting wedge **70** into pocket **72**. Receiver foot **78** on the underside of receiver **68** is dimensioned and shaped to engage upstanding extension wedge **76** that protrudes from the inside of the lower extension **64** to allow the selectively attachment and release of lower extension **64** to receiver **68**. Receiver **68** thus provides for double wedge fit, with one oriented upward for engaging wedge **70** and one oriented downward for engaging lower extension **64**.
[0036] Referring to FIG. **6**, an assembled side rail leg **60** shows that wedge **70** is inter-fit to receiver **68** at the location of pocket **72** to creates a press fit based on matching angled side walls. On the underside of receiver **68** in receiver foot **78**, the upstanding pocket **82** is seen along with its shape for fitting the upstanding extension wedge **76** protruding from the inside of lower extension **64**.
[0037] Referring to FIG. **7**, center rail leg **62** is shown in an exploded or disassembled view with wedge **74** of cross rail **56** coupling to receiver **66** of center rail **58** via a pocket **84** that is dimensioned and configured to provide a press fit with wedge **74** based on matching angled side walls. The underside of receiver **66** also has an upstanding pocket **86** (not seen) that is shaped in the same way to fit an upstanding extension wedge **76** protruding from lower extension **64**.
[0038] Referring to FIG. **8**, cross rail **56** is shown attached to wedge **74** with receiver **66** attached to center rail **58** via pocket **84** that provides a press fit with the wedge **74** based on matching angled side walls. The underside of receiver **66** has upstanding pocket **86** (not seen) shaped in the same way to fit upstanding extension wedge **76** protruding from the inside of lower extension **64**.
[0039] Referring to FIG. **9**, center rail leg **62** is shown in an exploded or disassembled view with receiver **66** formed by a receiver cap **88** and a receiver foot **90**. Receiver cap **88** and receiver foot **90** are preferably coupled together when frame is manufactured, such as by using two screws **80**.

Wedge **74** may be inter-fit to the receiver **66** at the location of pocket **84**. On the underside of receiver **66**, receiver foot **90** provides upstanding pocket **84** for engaging with upstanding extension wedge **76** protruding from the inside of lower extension **64**.

[0040] Referring to FIG. **10**, center rail leg **62** is shown in an assembled view, where wedge **74** is inter-fit to receiver **66** at the location of pocket **84** to creates a press fit based on matching angled side walls. On the underside of receiver **66** of receiver foot **90**, upstanding pocket **86** has similarly engaged and inter fit with upstanding extension wedge **76** protruding from the inside of lower extension **64**.

[0041] Referring to FIG. **11**, an embodiment of cross rail **56** may comprise an assembly of a center cross rail tube **92** that is tubular with a rectangular cross-section and is telescopically engaged with a pair of cross rails end tubes **94** that are also tubular with a rectangular cross-section and dimensioned to slide telescopically into and out of both opposing ends of center cross rail tube **92**. Each outwardly positioned end of each cross rail end tube **94** is attached to a receiver **68** such as with screws **80**. A center wedge **74** is secured to the center of center cross rail tube **92** such as with screws **80**. The telescoping motion of each end cross rail end tube **94** may be selectively locked into a predetermined position with a spring button **98** associated with each cross rail end tube **94** that is biased outwardly to engage one of a series of holes **96** formed in center cross rail tube **92**. The series of holes **96** are positioned such that the overall length of cross rail **56** can be selected by a user so that the final dimensions of frame **50** correspond to a particular matter size, e.g., twin, full, queen, king, and California king.

[0042] Referring to FIG. **12**, cross rail **56** is comprised of center rail tube **92** and two cross rail end tubes **94** that can telescope into and out of center rail tube **92**, thereby changing the distance between the receivers **68** positioned on either side of center cross rail tube relative to each other and to center wedge **74** attached to center rail tube **92**. As seen in the top portion of FIG. **12**, cross rail end tubes **94** can be fully inserted into center rail tube **92** and locked into position using the center most of the series of holes **96** and spring button **98** to provide the narrowest possible width frame **50**. As seen in the lower portion of FIG. **12**, cross rail end tubes **94** can be fully extended from center rail tube **92** and locked into position using the outward most of the series of holes **96** and spring button **98** to provide the widest possible width frame **50**. In order to transform the cross rail **56** from the configuration of the top of FIG. **12** to that of the bottom of FIG. **12**, or any of the other configurations possible, a user presses spring buttons **98** of both cross rail end tubes **94** into the holes **96** of center rail tube **92** and telescopically slides cross rail end tubes **94** into or out of to the next desired position. Because holes **96** on the center rail tube **92** are symmetrical about the center of frame **50** and each end cross rail end tube **94** slides in the opposite direction, the position of cross rail wedges **74** can always be centered about center rail tube **92** at any of the predetermined positions for frame **50**. This correlates to cross rail legs **60** and center rail **58** being centered in the frame **50** at any fixed size so that center rail leg **62** is always positioned in the middle of frame **50** and any mattress positioned thereon.

[0043] Referring to FIG. **13**, there is seen a perspective view of an embodiment of a bed frame **150** constructed in accordance with the present invention. As can be seen, bed frame **150** is assembled and ready for a foundation and mattress and is comprised of two side rails **152**, **154** that are attached to three cross rails **156** that extend between the ends of side rails **152**, **154**, with one cross rail **156** positioned at the ends of each side rail **152**, **154** and one cross rail **156** between the midpoints of each side rail **152**, **154**. Side rails **152**, **154** are formed from steel angle irons and cross rails **156** are formed from two steel angle irons forming a T shaped cross section. As further seen in FIG. **13**, there are side rail legs **160** positioned at each of the six junctures between side rails **152**, **154** and a center cross rail leg **162** positioned at the midpoint of the middle cross rail **156**. Side rail legs **160** and center cross rail leg **162** support frame **150** in spaced relation to a horizontal surface, such as the floor of a bedroom. Side rail legs **160** and center cross rail leg **162** are comprised of molded plastic.

[0044] Referring to FIG. **14**, which shows an exploded view of an embodiment of frame **150**, each side rail leg **160** is formed by a side rail receiver **168** that is coupled to cross rail **156** and is configured to receive a wedge **170** affixed one of side rails **152**, **154**. Center cross rail leg **162** of centrally positioned cross rail **156** includes a center receiver wedge **174** coupled to its midpoint that inter fits a center rail receiver **166**. Each side rail leg **160** further comprises a lower extension **164** that can be releasably coupled to side rail receiver **68** or center rail receiver **66**, respectively. As seen in FIG. **14**, center receiver wedge **174** of center cross rail leg **162** center rail receiver **166** is dimensioned so that it corresponds to side rail receiver **168** and center lower extension **166** is dimensioned so that the overall size of center cross rail leg **162** corresponded to side rail leg **160** when lower extension **164** is included.

[0045] Complete assembly of frame **150** is accomplished by transitioning from the configuration shown in FIG. **14** to the configuration shown in FIG. **13**, so that each side rail **152**, **154** is dropped into place over each cross rail **156** with each wedge **170** inter fitting into each side rail receiver **168**. Lower extensions **164** may then be optionally inter-fit to the bottom of side rail receivers **168** and center rail receiver **166** to center rail wedge **174**, as further described herein. The inclusion or omission of lower extensions **164** and center rail receiver **166** thus allows frame **150** to be positioned at one of two different heights from the floor depending on the presence or absence of lower extensions **164** as part of side rail legs **160** and center rail receiver **166** on center rail wedge **174**. Thus, entire frame **150** can be easily assembled without the need for tools and can be configured to allow for two different mattress heights when a mattress is placed on frame **150**.

[0046] Referring to FIG. **15**, the inter-fitting of side rails **152**, **154** by inserting wedges **170** into receivers **168** of side rail leg **160** may be seen in greater detail. Side rail **152** (as is the case for side rail **154**) is attached to wedge **170** and receiver **168** is attached to cross rail **156**. Receiver **168** has a pocket **172** formed therein that provides a press fit with wedge **170** based on matching angled side walls of wedge **170** and pocket **172**. The underside of receiver **168** also has an upstanding pocket **182** (not seen) that is similarly shaped to provide a press fit with an upstanding extension wedge **176** protruding from the inside of lower extension **164**.

[0047] Referring to FIG. **16**, each side rail leg **160** of bed frame **150** is formed by wedge **170** of side rail **152** fitting into pocket **172** of receiver **168** of cross rail **156** and being secured therein by a press fit due to matching angled side walls. The underside of receiver **168** also has an upstanding pocket **182** (not seen) that is shaped in the same way to fit upstanding extension wedge **176** protruding from the inside of lower extension **164**.

[0048] Referring to FIG. **17**, side rail leg **160** is shown in an exploded or disassembled view. Receiver **168** of each side rail leg **160** is comprised of a receiver cap **176** and a receiver foot **178**. Preferably, receiver cap **176** and a receiver foot **178** are fastened together when frame **150** is manufactured, such as by using screws **180**, and are thus shown coupled together. Wedge **170** is configured to be inter-fit with receiver **168** by inserting wedge **170** into pocket **172**. Receiver foot **178** on the underside of receiver **168** is dimensioned and shaped to engage upstanding extension wedge **176** that protrudes from the inside of the lower extension **164** to allow the selectively attachment and release of lower extension **164** to receiver **168**. Receiver **168** thus provides for double wedge fit, with pocket **172** oriented upward for engaging wedge **170** and pocket **182** oriented downward for engaging lower extension **164**.

[0049] Referring to FIGS. **18**, an assembled side rail leg **160** shows that wedge **170** is inter-fit to receiver **168** at the location of pocket **172** to creates a press fit based on matching angled side walls. On the underside of receiver **168** in receiver foot **178**, the upstanding pocket **182** is seen along with its shape for fitting the upstanding extension wedge **176** protruding from the inside of lower extension **164**.

[0050] Referring to FIG. **19**, center cross rail leg **162** is shown in an exploded or disassembled view with center rail wedge **174** of middle cross rail **156** capable of coupling to center rail receiver **166** via a pocket **184** that is dimensioned and configured to provide a press fit with center receiver

wedge **174** based on matching angled side walls. Center rail wedge **174** is dimensioned so that it corresponds to the total height of wedges **170** and side rail receiver **168**, rather than just side rail wedges **170**, to provide support for the lower mattress position of frame **150**, and center rail receiver **166** is dimensioned so that the overall size of center cross rail leg **162** corresponds to side rail leg **160** when center rail receiver **166** is uses to that all legs support frame **150** when configured for a higher mattress position.

[0051] Referring to FIG. **20**, each outwardly positioned end of each cross rail **156** is securely attached to a receiver cap **200** and a receiver foot **178** such as with screws **180** at the time of manufacturing and prior to delivery to a user. As a result, a user does not need any tools and can assemble frame **150** simply by inter fitting both side rails **154** to all three cross rails **156** prior to placing a mattress of frame **150**.

[0052] As explained above, a first aspect of the invention is bed frame having: a pair of cross rails, each of which has a first receiver positioned at a first end and a second receiver positioned at a second end, wherein each of the first receiver and the second receiver includes a first pocket facing in a first direction and a second pocket facing in a second direction; a pair of side rails, each of which has a first wedge positioned at a first end and a second wedge position at a third end, wherein the pair of side rails are coupled to the cross rails such that the first wedge of each of the pair of side rails is inter fit with the first pocket of the first receiver of each of the pair of cross rails and the second wedge of each of the pair of side rails is inter fit with the second receiver of each of the pair of cross rails; and a series of extensions, each of which includes an upper geometry for selectively engaging the second pocket of each of the first receiver and the second receiver of each of the pair of cross rails. In a second aspect, the invention is further comprises a center rail having a third receiver position at a first end and a fourth receiver positioned at a second end, wherein the center rail is coupled to an intermediate portion of each of the pair of cross rails by a third wedge coupled to one of the pair of cross rails that inter fits with the third receiver and a fourth wedge coupled to the other of the pair of cross rails that inter fits with the fourth receiver. In a third aspect, each of the pair of cross rails can telescope between a series of lengths, each of which corresponds to one of a series of predetermined bed widths. In a fourth aspect, the center rail is positioned equidistantly from each of the pair of side rails when the pair of cross rails are telescoped into each of the series of lengths. In a fifth aspect, the series of extensions include at least two that can selectively engage the third receiver and the fourth receiver of the center rail.

Claims

1. A bed frame, comprising: a first side rail; a first wedge affixed to the first side rail; a first cross rail; a first receiver affixed to the first cross rail and including a first pocket formed on a first side that inter fits with the first wedge of the side rail and a second pocket formed on a second side; and a first extension shaped to inter fit with the second pocket of the first receiver and moveable between a first position, wherein the first extension is coupled to the first receiver, and a second position, where the first extension is decoupled from the first receiver.

2. The bed frame of claim 1, further comprising: a second wedge affixed to the side rail, wherein the first wedge is affixed to a first end of the side rail and the second wedge is affixed to a second end of the side rail; a second cross rail; a second receiver affixed to the second cross rail; and wherein the first receiver and the second receiver are positioned on the first cross rail and the second cross rail so that the first cross rail and the second cross rail extend in parallel to each other and perpendicularly to the side rail.

3. The bed frame of claim 2, further comprising a second side rail coupled to the first cross rail and the second cross rail by a third wedge that inter fits with a third receiver affixed to the first cross rail and a fourth wedge that inter fits with a fourth receiver affixed to the second cross rail, respectively.

4. The bed frame of claim 3, further comprising a center rail extending in parallel to the first side rail and the second side rail.
5. The bed frame of claim 4, wherein the center rail includes a fifth receiver positioned at one end and a sixth receiving positioned at an opposing end that inter fits with a fifth wedge affixed to a first intermediate portion of the first cross rail and a sixth wedge affixed to a second intermediate portion of the second cross rail.
6. The bed frame of claim 5, wherein the fifth wedge and the sixth wedge are each positioned at a midpoint of the first cross rail and the second cross rail, respectively.
7. The bed frame of claim 6, wherein the first cross rail comprises a first center tube affixed to the fifth wedge, a first end tube coupled to the first receiver, and a second end tube coupled to the third receiver, wherein the first end tube and the second end tube are positioned in sliding engagement with the first center tube so that the first end tube and the second end tube can telescope relative to the first center tube.
8. The bed frame of claim 7, wherein the first end tube and the second end tube include a first button and a second button, respectively, that are each spring loaded to engage with one of a series of holes formed in a first set of predetermined locations along the first center tube so that the first cross rail can be extended or retracted into one of a first plurality of predetermined lengths.
9. The bed frame of claim 8, wherein the second cross rail comprises a second center tube affixed to the sixth wedge, a third end tube coupled to the second receiver, and a fourth end tube coupled to the fourth receiver, wherein the third end tube and the fourth end tube are positioned in sliding engagement with the second center tube so that the third end tube and the fourth end tube can telescope relative to the second center tube.
10. The bed frame of claim 9, wherein the third end tube and the fourth end tube each include a third button and a fourth button, respectively, for engagement with one of a second series of holes formed in a second set of predetermined locations along the second center tube so that the second cross rail can be extended or retracted into one of a second plurality of predetermined lengths that correspond to the first plurality of predetermined lengths.
11. The bed frame of claim 3, further comprising a third cross rail extending between the first side rail and the second side rail.
12. The bed frame of claim 11, wherein the third cross rail is coupled to the first side rail and the second side rail by a fifth receiver positioned at one end of the third cross rail that inter fits with the fifth wedge affixed to the first side rail and a sixth receiver positioned at an opposing end of the third cross rail that inter fits with a sixth wedge affixed to the second side rail.
13. The bed frame of claim 12, further comprising a fifth extension shaped to inter fit with the fifth wedge and a sixth extension shaped to inter fit with the sixth wedge, wherein the fifth extension and the sixth extension can be coupled or decoupled from the fifth wedge and the sixth wedge, respectively.
14. The bed frame of claim 13, further comprising a seventh wedge affixed to the third cross rail.
15. The bed frame of claim 14, further comprising a seventh extension shaped to inter fit with the seventh wedge and movable from being coupled to the seventh wedge to being decoupled from the seventh wedge.