Aug. 21, 1962 E. H. THIERFELDER 3,049,723

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Fig. 1.

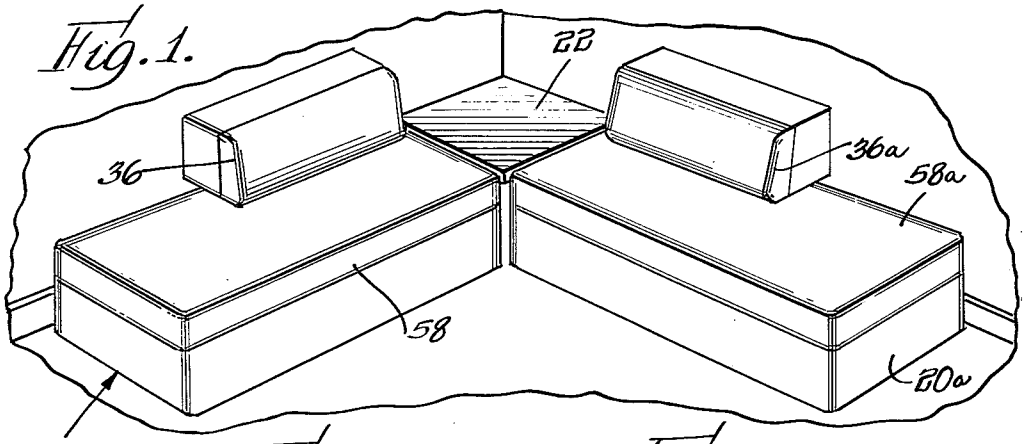


Fig. 2.

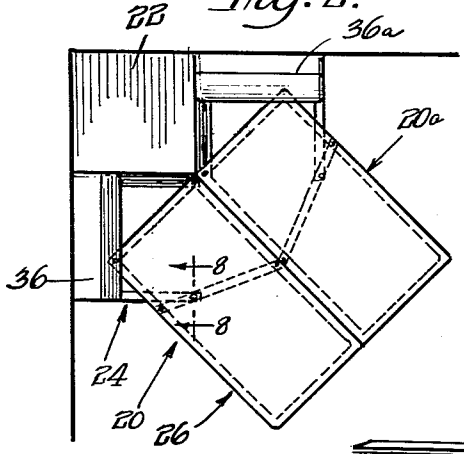


Fig. 3.

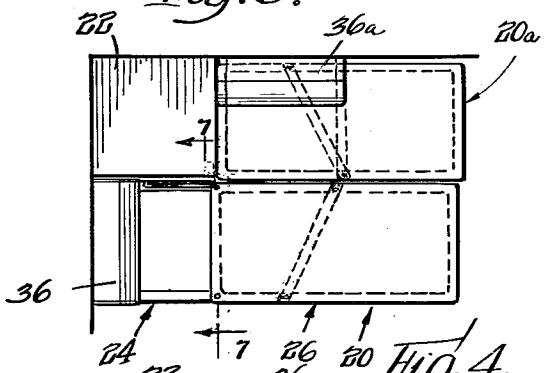
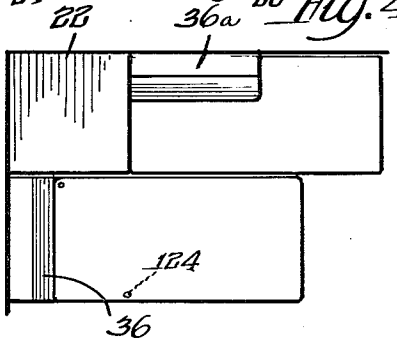


Fig. 4.



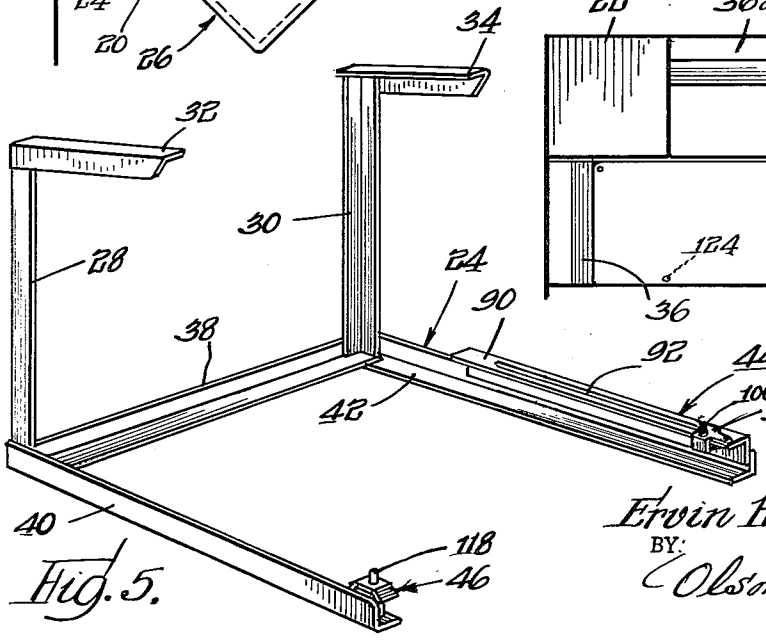


Fig. 5.

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Fig. 6.

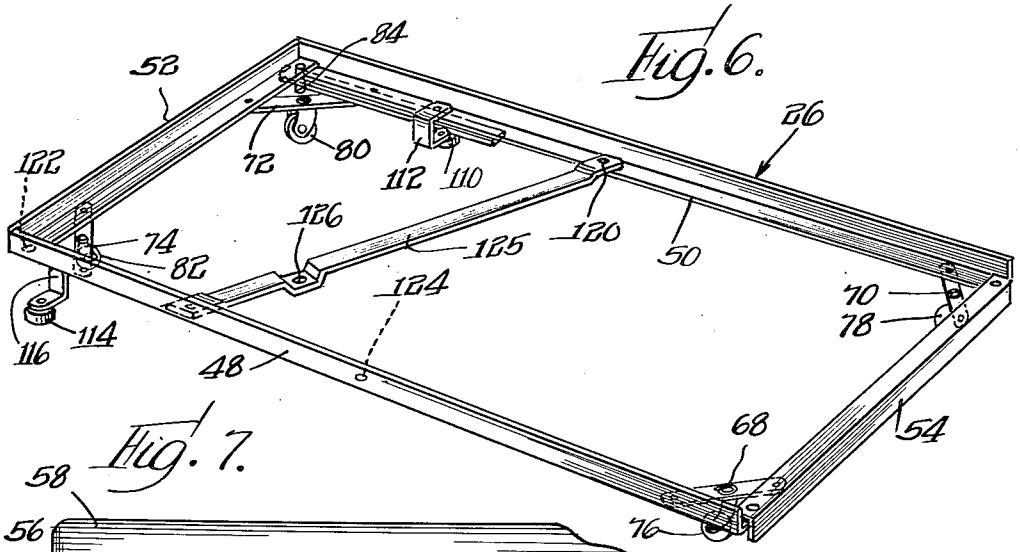

Fig. 7.

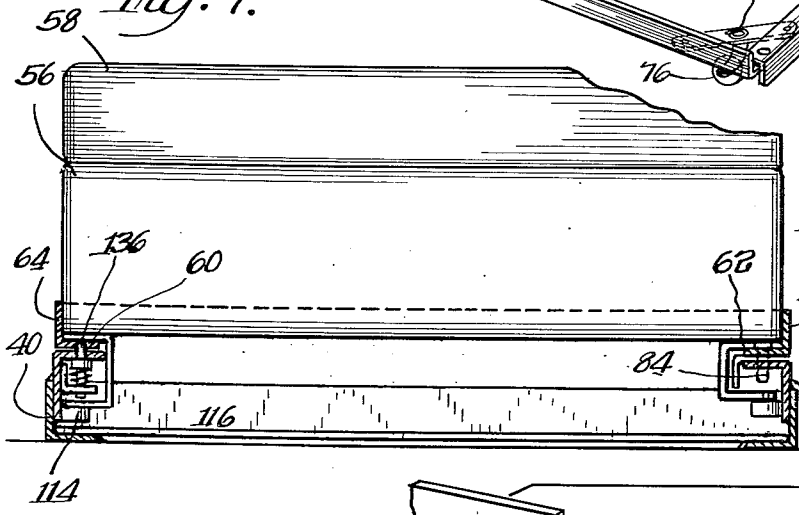

Fig. 8.

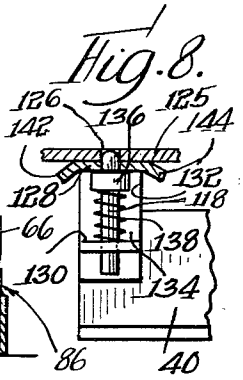

Fig. 9.

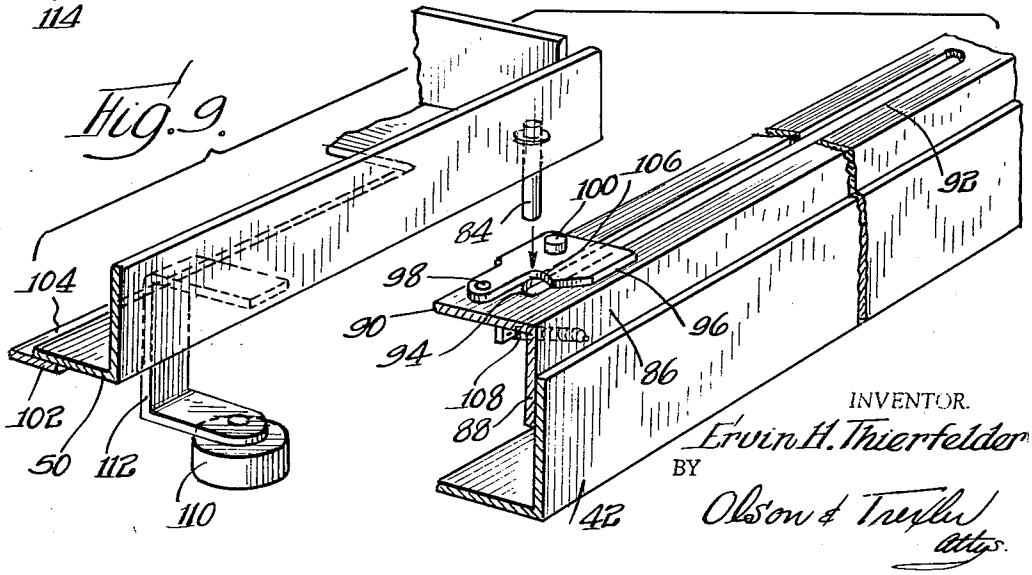

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Fig. 10.

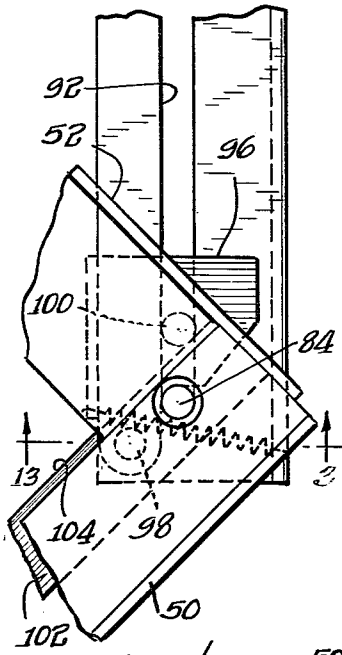


Fig. 11.

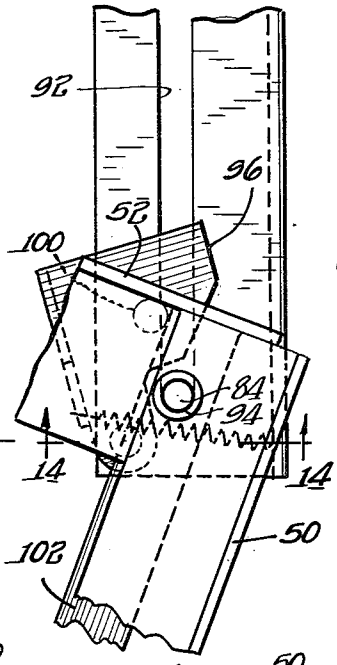


Fig. 12.

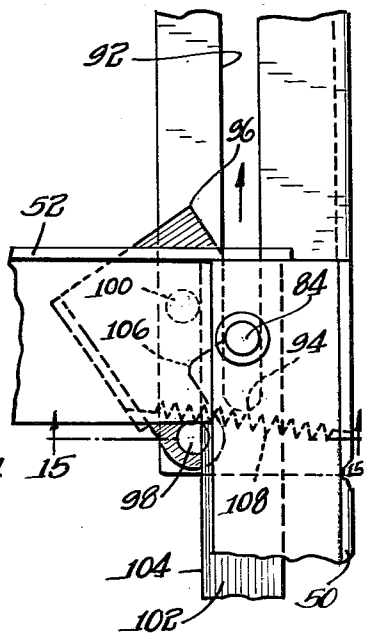


Fig. 13.

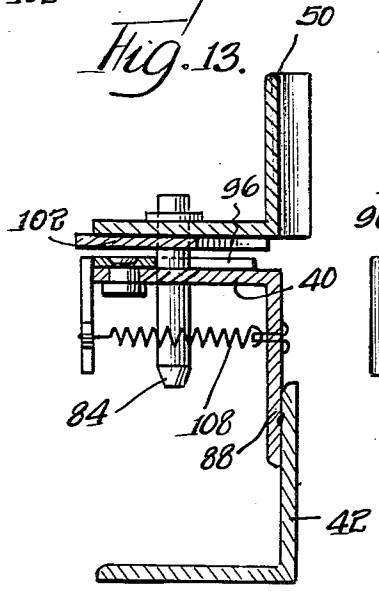


Fig. 14.

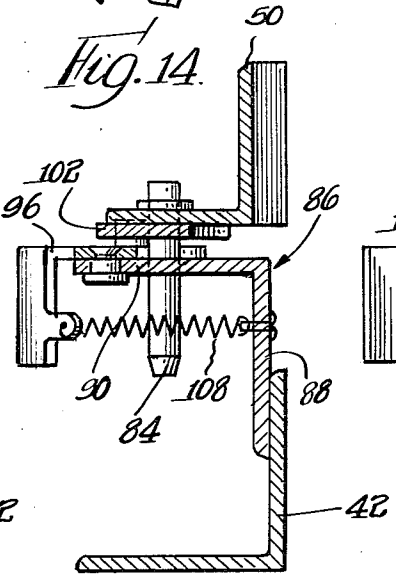
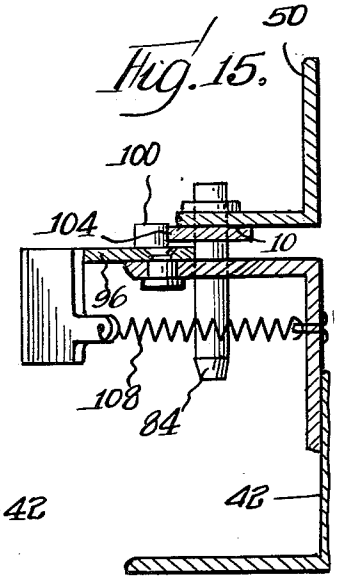


Fig. 15.



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United States Patent Office 3,049,723 Patented Aug. 21, 1962

3,049,723

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Filed Jan. 7, 1959, Ser. No. 785,403
7 Claims. (Cl. 5—8)

The present invention relates to a novel furniture structure, and more specifically to a novel bed structure.

It has frequently been found desirable, both in hotels and private homes, to provide a piece of furniture which may be converted for use as either a couch or a bed. For example, a bolster may be placed on a bed when it is desired to use the bed as a couch, which bolster may then be removed when it is desired to use the bed for sleeping. Often a problem arises as to what to do with the bolster when it is removed from the bed until it is needed again.

In many instances, it is desirable to arrange a pair of beds of the above discussed type toward the corner of a room and in addition, a table may be placed in the corner in a manner such that ends of the beds substantially abut the sides of the table. It will be appreciated that it may be desirable to move or adjust the beds with respect to each other and the table so as to provide either single or double bed sleeping accommodations.

It is an important object of the present invention to provide a novel bed structure which may be utilized in a corner grouping of the above discussed type, which structure is such that the various pieces of the corner grouping may be easily adjusted or positioned with respect to each other to satisfy various sleeping requirements while at the same time the various pieces are separate from each other so that they may be used independently, if desired.

A more specific object of the present invention is to provide a novel bed structure of the above described type wherein the bed may be readily adjusted to and releasably locked in various different positions.

Still another object of the present invention is to provide a novel bed structure including a mattress supporting frame and a bolster supporting frame, which frames may be relatively shifted so as to position the mattress supporting frame selectively at least partially beneath and substantially entirely out from under a bolster carried by the bolster supporting frame whereby the structure may be selectively used as a couch or a bed.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings wherein:

FIG. 1 is a perspective view showing a corner grouping of furniture including a pair of bed structures incorporating features of the present invention and a corner table;

FIG. 2 is a partially diagrammatic plan view of the corner grouping shown in FIG. 1 and further shows one arrangement whereby the beds may be moved or adjusted relative to each other to provide a "double bed";

FIGS. 3 and 4 are similar to FIG. 2 but show additional ways in which the beds can be arranged with respect to each other and the corner table;

FIG. 5 is a perspective view showing a base and bolster supporting frame means utilized in a bed structure incorporating features of the present invention;

FIG. 6 is a perspective view showing a mattress supporting frame means utilized in a bed structure incorporating features of the present invention;

FIG. 7 is a partial sectional view taken generally along line 7—7 in FIG. 3;

FIG. 8 is a fragmentary partial sectional view taken generally along line 8—8 in FIG. 2;

FIG. 9 is a fragmentary exploded perspective view showing structure whereby the mattress supporting frame means is pivotally connected with the base and bolter supporting frame means;

FIG. 10 is a fragmentary plan view of a portion of the structure shown in FIG. 9;

FIGS. 11 and 12 are similar to FIG. 10 but respectively disclose the manner in which the mattress supporting frame may be manipulated to release the pivot so as to enable the mattress supporting frame to be shifted longitudinally;

FIG. 13 is a sectional view taken along line 13—13 in FIG. 10;

FIG. 14 is a sectional view taken along line 14—14 in FIG. 11; and

FIG. 15 is a sectional view taken along line 15—15 in FIG. 12.

Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, a bed structure **20** incorporating features of the present invention is shown, which bed structure may be used independently or in a corner grouping such as that shown in FIGS. 1–4. This grouping includes a second bed structure which is essentially identical to the bed structure **20** as indicated by the application of identical reference numerals with the suffix "*a*" added to corresponding elements. In addition this furniture grouping may include a corner table **22** against which ends of the bed structures **20** and **20***a* substantially abut.

In general, the bed structure **20** is provided with a base and bolster supporting frame **24** and a mattress supporting frame **26**. The stationary frame **24** comprises a pair of upstanding members **28** and **30** having horizontal arms **32** and **34** secured to and extending from their upper ends. A bolster **36** is secured to the arms **32** and **34**. Lower ends of the upstanding members **28** and **30** are interconnected by a cross member **38**. In addition laterally extending base members **40** and **42** are welded or otherwise secured to the lower ends of the upstanding support members **28** and **30**. Means **44** described in detail below is provided on the base member **42** for cooperation with an element on the mattress supporting frame structure **26** for pivotally and shiftably interconnecting the base frame and the bed or mattress supporting frame structure. In addition means **46** also described in detail below is provided adjacent the outer end of the base member **40** for releasably locking the mattress supporting frame **26** in a desired position.

As shown best in FIG. 6, the mattress supporting frame structure **26** comprises a pair of longitudinally extending opposite side frame members **48** and **50** and opposite end frame members **52** and **54**. These frame members which may be in the form of angle irons and the like are bolted, riveted or otherwise suitably connected together to provide a rectangular frame adapted to support a cushion or a mattress assembly. As indicated broadly in the drawings, the cushion or mattress assembly may include a box spring unit **56** with a mattress **58** thereon, which box spring unit is adapted to rest on inwardly directed horizontal flanges **60** and **62** of the side frame members **48** and **50** respectively. Upstanding flanges **64** and **66** of the side frame members restrain lateral shifting of the box spring unit relative to the supporting frame structure.

In order to rigidify the mattress supporting frame structure **26**, diagonal braces **68**, **70**, **72** and **74** are provided at the corners of the frame structure. It will be appreciated that these braces are fixed to the frame members by bolts, rivets or any other suitable means. In order to facilitate movement or adjustment of the mattress supporting frame structure **26** in the manner de-

scribed in detail below, caster assemblies **76**, **78**, **80** and **82** are respectively secured to the diagonal braces **68–74**.

As shown in FIGS. 6, 7 and 9–15, a pivot pin **84** is suitably fixed to the mattress supporting frame **26** at the corner thereof between the side frame member **50** and the end frame member **52**, and the pin **84** depends from the mattress supporting frame **26** for cooperation with the above mentioned means **44** whereby the mattress supporting frame **26** is connected with the base frame **24** in a manner which permits the mattress supporting frame to be shifted to the various positions shown in FIGS. 1 through 4. More specifically, the means **44** comprises an elongated angle iron **86** having a vertical flange **88** extending along and welded or otherwise secured to an upstanding flange of the base member **42**. The member **86** also includes an inwardly extending horizontal flange **90** having an elongated slot **92** therein adapted to accommodate the pin **84**. The outer end **94** of the slot **92** is spaced from the upstanding bolster supporting members **28** and **30** a distance as least substantially as great as the width of the mattress supporting frame **26** so that when the pin **84** is in the slot and in engagement with the end **94** thereof the mattress supporting frame **26** may be pivoted about the axis of the pin to and from positions wherein the longitudinal axis of the frame **26** is disposed parallel to, diagonally to and perpendicularly to a vertical plane including the upstanding bolster supporting members **28** and **30**. In other words, the mattress supporting frame **26** may be moved to and from the positions shown in FIGS. 1, 2 and 3.

As shown best in FIGS. 9–15, a locking plate **96** is pivotally mounted at **98** on the horizontal flange **90** of the angle iron **86** for normally retaining the pivot pin **84** substantially against the end **94** of the slot **92** so as to facilitate the above described pivotal adjustment of the mattress supporting frame **26**. However, there are instances when it is desired to shift the frame **26** longitudinally toward the bolster **36** after the frame has been pivoted to the position shown in FIG. 3 so that the end of the mattress supporting frame will be positioned adjacent the bolster to enable the bolster to provide a head board for the bed. In order to permit the mattress supporting frame to be shifted longitudinally in the manner just described, means is provided for actuating the locking plate **96** so as to release the pin **84** for movement longitudinally of the slot **92** when the mattress supporting frame **26** extends substantially perpendicularly from the vertical plane including the upstanding bolster supporting members **28** and **30** as shown in FIG. 3. This means includes a pin **100** fixed to and extending upwardly from the plate member **96** at a location at a side of the pivot pin **84** opposite from the plate member pivot **98** when the pin **84** is at the end **94** of the slot. In addition an elongated bar cam **102** is fixed to the under side of the frame member **50** for engagement with the pin **100**. The bar **102** is disposed so that the cam edge **104** thereof is laterally offset from the axis of the pivot pin **84** a distance substantially greater than the radius of the pivot pin **84**. Thus when the cam edge **104** engages the pin **100** during pivotal movement of the mattress supporting frame **26** toward the position shown in FIG. 3, the pin **100** will be shifted to a position laterally displaced from the slot **92** as shown in FIGS. 10–15. As a result, the plate member **96** will be pivoted until a locking edge **106** thereof is offset from the slot and disengaged from the pin **84**. When this has been accomplished the mattress supporting frame may be shifted longitudinally inwardly or toward the bolster until such movement is arrested by engagement of the pin **84** with the inner end of the slot **92**. Preferably the inner end of the slot is located so that an end of the mattress supporting frame may be located adjacent an outer margin of the bolster. A tension spring **108** is provided for returning the plate member **96** to the locking position when the mattress supporting frame **26** has been moved from the FIGS. 3 or 4 positions toward the FIGS. 1 and 2 positions. Thus it is necessary to provide means for maintaining the plate member **96** in the open position to permit the frame **26** to be returned from the FIG. 4 position to the FIG. 3 position. This retaining means is provided by elongating the actuating cam bar **102** so that it extends for the full length of the slot **92**.

In order to control and stabilize longitudinal movement of the mattress supporting frame **26** between the positions shown in FIGS. 3 and 4, a guide roller **110** is carried by a bracket **112** depending from the side frame member **50** for rolling contact with an inwardly facing vertical surface of either the member **86** as shown or the base member **42**. In addition a similar roller **114** is carried by a bracket **116** secured to and depending from the side frame member **48** for engagement with the inwardly facing vertical surface of the base frame member **40**. It will be noted that the guide roller **114** is disposed substantially at the end of the side frame member **48** which is connected with the end frame member **52** so that the distance between the outwardly facing peripheral portion of the roller **114** and the axis of the pivot pin **84** is substantially equal to and not greater than the distance between the axis of the pin **84** and the inwardly facing upstanding surface of the base frame member **40** whereby the guide roller **114** will in no way interfere with the pivotal movement of the mattress supporting frame **26**. Furthermore, the guide roller **110** is offset longitudinally of the frame **26** from both the pivot pin **84** and the guide roller **114** so that these elements provide three point engagement with portions of the base structure **24** for providing effective control over the longitudinal movement of the mattress supporting frame.

As indicated above, means are provided on the mattress supporting frame **26** cooperable with the means **46** on the base frame structure **24** for releasably locking the mattress supporting frame in any of the positions shown in FIGS. 1 through 4. More specifically, the locking means **46** includes a locking pin **118**, and the cooperable means on the frame structure **26** include aperture means **120** in the frame member **50** for receiving the pin **118** when the frame structure **26** is in the position shown in FIG. 1, and aperture means **122** at the corner of the frame structure **26** provided by the frame members **48** and **52** for accommodating the pin **118** when the frame structure **26** is in the position shown in FIG. 3. In addition aperture means **124** is provided in an intermediate portion of the frame member **48** for accommodating the pin **118** when the frame structure **26** is in the position shown in FIG. 4. In order to enable the frame **26** to be locked in the diagonal position shown in FIG. 2, a bar **125** is provided between and is secured to the opposite side frame members **48** and **50**, and aperture means **126** is provided at a suitable location in the bar **125** for accommodating the locking pin **118**.

The locking means **46** is constructed so that the pin **118** will automatically snap into any of the aperture means **120**, **122**, **124** and **126** mentioned above when such aperture means becomes aligned with the pin. The pin **118** then locks the frame member **26** against inadvertent movement. However, the construction of the locking means **46** is such that the pin **118** will be cammed downwardly and released from a complementary aperture means when an operator applies a predetermined force to the frame structure **26** for accomplishing adjustment of the frame structure between any of the various positions shown in FIG. 1 through FIG. 4. More specifically, the pin **118** is vertically slidably disposed in aligned apertures of vertically spaced flanges **128** and **130** of bracket members **132** and **134** respectively. The bracket member **134** is welded or otherwise secured to the member **132** which in turn is welded or otherwise fixed to the base frame member **40** as shown best in FIGS. 7 and 8. An annular enlargement

136 is provided on the pin 118 beneath the upper end thereof and the flange 128, and a compression spring 138 is provided between the enlargement 136 and the lower flange 130 for normally and resiliently supporting the pin so that the upper end thereof projects above the flange 128 for entry into one of the complementary aperture means. As shown best in FIG. 8, the upper exposed end 140 of the pin 118 is rounded. This feature enables the pin to be cammed downwardly when engaged by an edge of the mattress supporting frame 26 as a result of the application of the above mentioned predetermined force to the frame structure 26 by an operator. Thus the pin 118 may be automatically depressed either to permit a portion of the frame 26 to pass thereover until one of the complementary aperture means becomes aligned with the pin or to cause the pin to be disengaged from such aperture means. As indicated in FIG. 8, marginal portions 142 and 144 of the flange 128 are preferably inclined downwardly so as to facilitate sliding movement of a portion of the mattress supporting frame structure 26 over the flange 128 and into or out of engagement with the pin 118.

While the preferred embodiment of the present invention has been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. An assembly of the type described including stationary frame means having an upstanding portion for supporting bolster means and the like, said stationary frame means including a portion engageable with a support surface such as a floor and spaced laterally from said upstanding portion for maintaining said upstanding portion in an erect position, a bed frame overlying said laterally spaced frame means portion, means between said last mentioned stationary frame means portion and a corner portion of said bed frame pivotally connecting the bed frame with said stationary frame means for enabling the bed frame to be pivoted between first and second right angularly disposed positions and a third position disposed diagonally with respect to said first and second positions, and cooperable means on said stationary frame means and said bed frame and offset substantially from said connecting means for releasably locking the bed frame in said first, second and third positions, said connecting means including means enabling longitudinal movement of the bed frame from said second position to a fourth position and for restraining such longitudinal movement when the bed frame is in said firstand third positions.

2. An assembly, as defined in claim 1, wherein said cooperable locking means includes means for releasably locking said bed frame in said fourth position.

3. An assembly of the type described including stationary frame means having an upstanding portion for supporting bolster means and the like, said stationary frame means including a portion spaced laterally from said upstanding portion, a bed frame overlying said laterally spaced frame means portion, means between said last mentioned stationary frame means portion and a corner portion of said bed frame pivotally connecting the bed frame with said stationary frame means for enabling the bed frame to be pivoted between first and second rightangularly disposed positions and a third position disposed diagonally with respect to said first and second positions, and cooperable means on said stationary frame means and said bed frame and offset substantially from said connecting means for releasably locking the bed frame in said first, second and third positions, said bed frame including first and second opposite side frame members and a transverse member extending between intermediate portions of said side frame members, said connecting means being disposed to locate the axis of pivotal movement of the bed frame vertically of and substantially in alignment with said first side frame member, and said releasable locking means including a resiliently biased element mounted on said stationary frame means, first aperture means in said first side frame member for receiving said element when said bed frame is in said first position, and aperture means in said second side frame member for receiving said element when said bed frame is in said second position, and third aperture means in said transverse member for receiving said element when said bed frame is in said third position.

4. An assembly, as defined in claim 3, wherein said element is provided with a rounded end and is disposed so as to present substantially only said end for entry into said aperture means, said rounded end permitting camming of the element out of the aperture means upon the application of a predetermined force to the bed frame in a direction tending to move the bed frame from one of said positions to another.

5. An assembly of the type described including stationary frame means having an upstanding portion for supporting bolster means and the like, said stationary frame means including a portion spaced laterally from said upstanding portion, a bed frame overlying said laterally spaced frame means portion, means between said last mentioned stationary frame portion and a corner portion of said bed frame pivotally connecting the bed frame with said stationary frame means for enabling the bed frame to be pivoted between first and second angularly disposed positions and a third position disposed diagonally with respect to said first and second positions, and cooperable means on said stationary frame means and said bed frame and offset substantially from said connecting means for releasably locking said bed frame in said first, second and third positions, said connecting means including means enabling longitudinal movement of the bed frame from said second position to a fourth position and for restraining such longitudinal movement when the bed frame is in said first and third positions, said connecting means including a pivot pin depending from said bed frame, and said means for enabling longitudinal movement of the bed frame and for restraining such movement comprising elongated slot means in said stationary frame means portion receiving said pin, a retaining member shiftably mounted on said stationary frame means portion and biased for engaging said pin and retaining said pin substantially against one end of said slot means, and an element on said bed frame for engaging and shifting said retaining member out of engagement with said pin when the bed frame is moved from said third position to said second position.

6. An assembly of the type described comprising stationary frame means adapted to be disposed on a floor, a substantially rectangular bed frame including first and second side frame members overlying said stationary frame means, means substantially aligned with said first side frame member and pivotally connecting a corner portion of said bed frame with a portion of said stationary frame means for enabling the bed frame to be pivoted to and from a first position in which said first side frame member extends over a second portion of said stationary frame means and a second position extending diagonally with respect to said first position, and complementary means on said bed frame and said second portion for releasably locking the bed frame in said first and second positions, said pivotal connecting means comprising a pivot pin extending between said first stationary frame means portion and said bed frame corner portion, elongated slot means on one of said last mentioned portions receiving said pivot pin, a shiftable retaining member engageable with said pivot pin for normally retaining the pivot pin adjacent one end of said slot means when the bed frame is in said first and second positions, and an element on one of said last mentioned portions for actuating said retaining member to release said pin when the bed frame is moved to a third position substantially perpendicular to said first position, the release of said pin by said retaining member enabling the bed frame to be shifted longitudinally to a fourth position.

7. An assembly of the type described, comprising sta-

tionary frame means including an upstanding frame portion for supporting a bolster and the like and a horizontal frame portion including a pair of floor engaging frame members spaced apart longitudinally of the upstanding frame portion and extending laterally inwardly therefrom for supporting the same in erect position, a rectangular bed frame overlying said frame members, means providing a readily detachable pivotal connection between said bed frame and one of said frame members enabling the bed frame to be pivoted to various positions relative to the stationary frame means, and a plurality of floor engaging caster means connected to opposite ends of the bed frame for supporting the same independently of the pivotal connection between the bed frame and said one frame member, and the floor engaging caster means at the head end of the bed frame being disposed entirely between the said frame members permitting the bed frame to be moved to and from the various positions without interference between the caster means and the said frame members.

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