

April 26, 1966

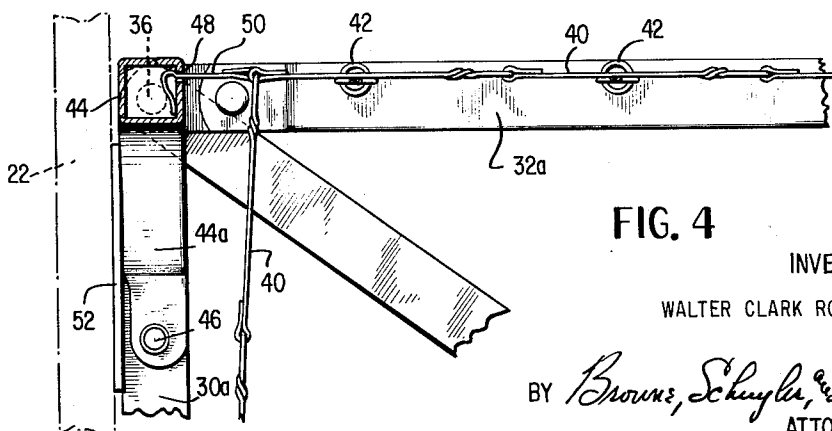
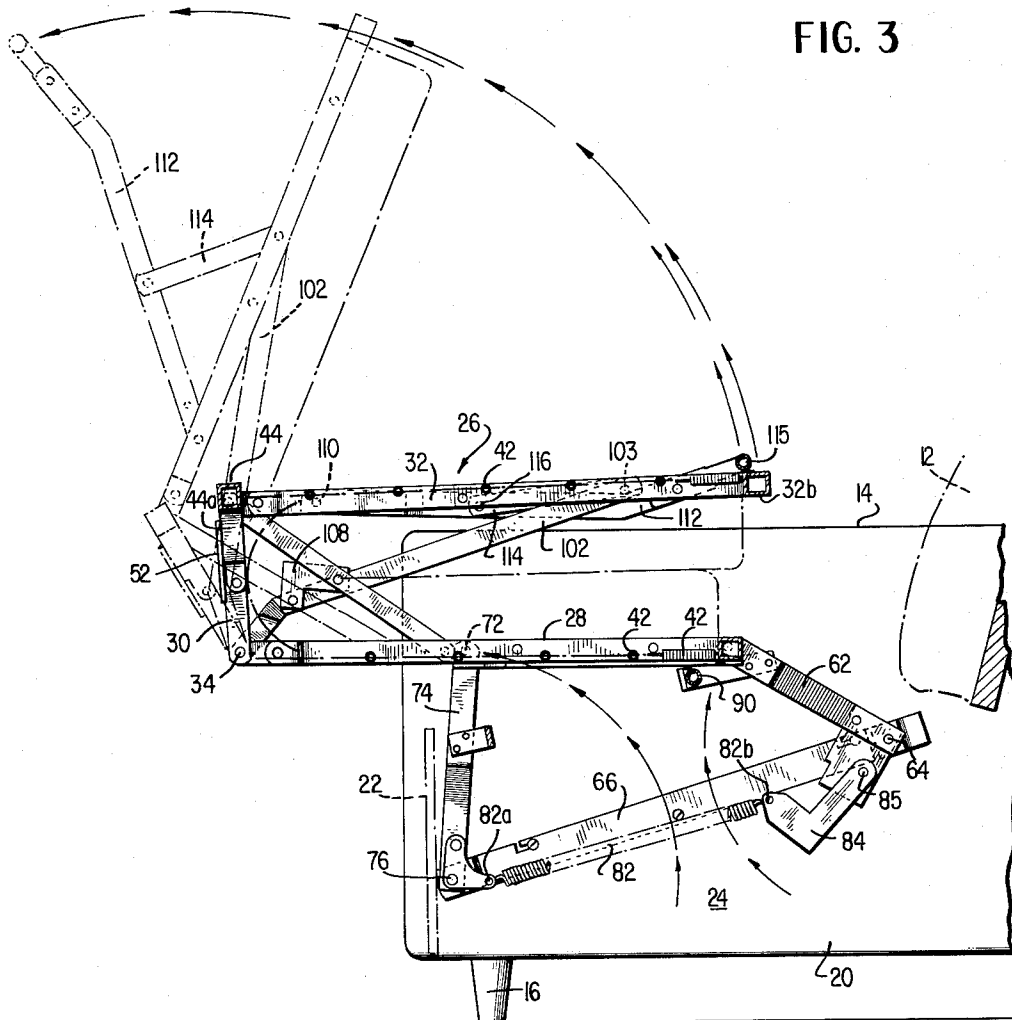
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3,247,526

SOFA BED

Filed May 31, 1963

4 Sheets-Sheet 2



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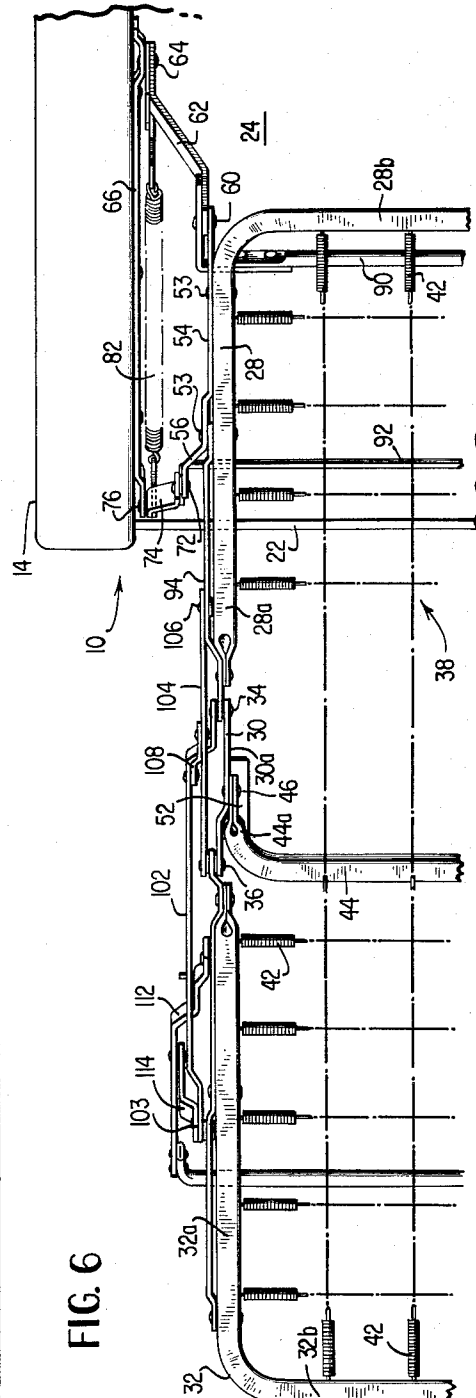
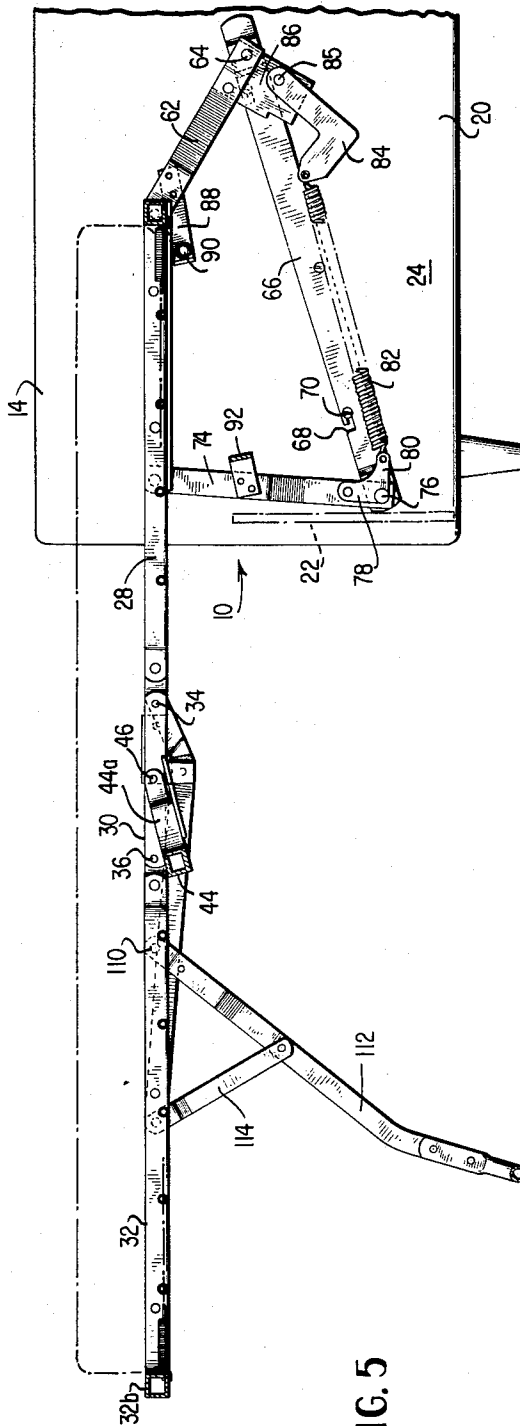
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SOFA BED

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SOFA BED

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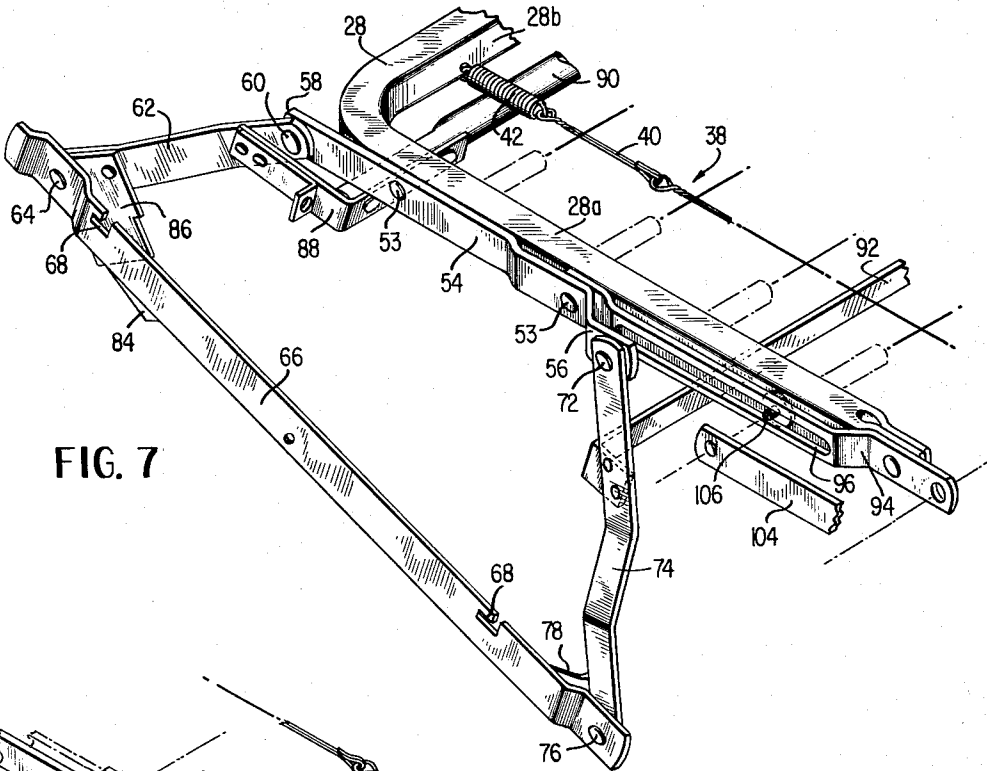


FIG. 7

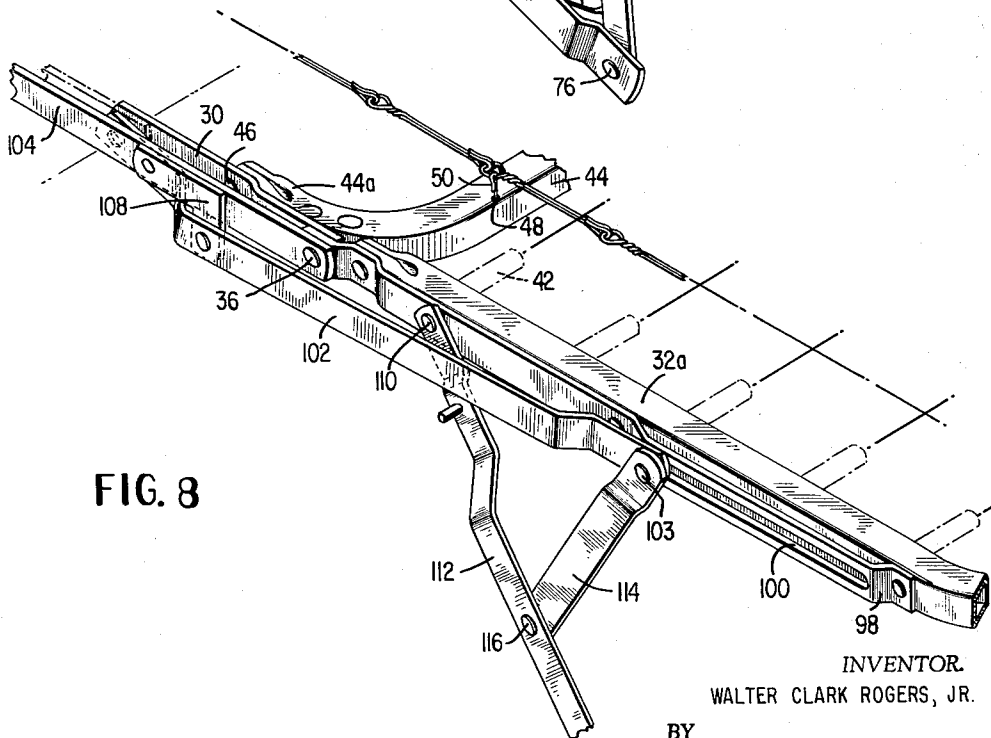


FIG. 8

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3,247,526

SOFA BED

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9 Claims. (Cl. 5—13)

This invention relates to sofa beds of the type in which a foldable bed frame is mounted in a sofa in such a manner that it can be retracted within the framework of the sofa when not in use where it is hidden from view by the front panel of the sofa and the sofa cushions. When it is desired to use the bed for sleeping, the sofa cushions are removed from the sofa and the bed is projected from the space defined by the framework of the sofa and unfolded to define a bed.

In conventional sofa beds, the front panel of the sofa, or a portion thereof, is connected with the bed mechanism so that when the bed is projected from the sofa, the front panel is carried from its normal position by the bed or, in some cases, the front panel is completely removed from the sofa before the bed portion is projected from the sofa. This has been necessary in order that the folded, retracted bed does not protrude above the front board or panel of the sofa, and in order that a comfortable seating height can be maintained with the cushions. As a result, the sleeping height of the unfolded bed is undesirably low and the periodic removal and replacement of the front panel, which is usually upholstered, creates wear.

A further problem encountered is that of obtaining sufficient structural rigidity of the bed frame when it is unfolded due to discomfort to the occupant which results from rigid braces extending beneath the mattress springs.

An object of this invention is to provide a sofa bed in which the bed frame may be projected from and retracted into the sofa portion without displacement of the front panel of the sofa.

Another object is to provide a foldable bed frame in which the side rails are laterally braced in the unfolded bed position by a resiliently supported, or floating cross-bar, the floating cross-bar being actuated to a position to define a cushion support for the sofa when the bed frame is folded.

Another object is to provide a sofa bed in which the bed frame is mounted in the framework of the sofa in such a manner that it can be projected from and retracted into the sofa without displacing any portions of the sofa framework.

Still another object is to provide a sofa bed in which the bed frame is actuated up and over the front panel of the sofa to assume a bed position.

In achievement of the foregoing and other objects, a sofa bed is provided in which the sofa portion includes side frame members with a front panel extending therebetween to define a bed receiving space beneath the cushions of the sofa. A foldable bed frame made up of pivotally connected inner, intermediate and outer sections, is mounted on the side frame members of the sofa in such a manner that when the bed is folded, it can be retracted into the space defined by the side members and front panel to support the sofa cushions, and can be projected up and over the front where it can be unfolded to define a bed.

When in the unfolded bed position, a floating cross brace having leg members pivoted to the side rails is connected with the mattress supporting springs so that it moves vertically about the pivots with vertical movement of the springs. Consequently, lateral bracing is

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provided without interfering with normal movements of the mattress and creating discomfort. When the bed is folded the springs are connected with the floating cross brace in such a manner that it is drawn up into a position where it cooperates with the inner frame section to define a cushion support.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings in which:

FIG. 1 is a side view of a sofa bed embodying the invention with the bed frame in its retracted position within the sofa frame;

FIG. 2 is a view similar to FIG. 1 with the folded bed frame in an intermediate position between its retracted and projected position;

FIG. 3 is a view similar to FIG. 1 in which the folded bed frame is in its fully projected position;

FIG. 4 is an enlarged detailed view of a portion of the bed frame;

FIG. 5 is a view similar to FIG. 1 with the bed frame in its unfolded bed position;

FIG. 6 is a plan view of the bed frame in the position of FIG. 5;

FIG. 7 is a perspective of the supporting linkage of the bed frame; and

FIG. 8 is an enlarged perspective view of a portion of the bed frame illustrating the manner in which the cross brace is connected with the bed springs.

In the drawings, only the right half of the sofa bed is illustrated; it being understood that the left half is a mirror image of the right half.

With reference to FIGS. 1 through 6, reference numeral 10 indicates generally a sofa including a back 12, arms 14, legs 16 and cushions 18. Arms 14 extend upwardly from upholstered side frame members 20 of the sofa. Extending horizontally between side members 20 and beneath the cushions, is a front board or panel 22, which cooperates with side members 20 to define a bed frame receiving space 24.

Mounted on side members 20 is a foldable bed frame 26 which includes an inner section 28, an intermediate section 30, and an outer section 32 which are successively pivotally connected by pins 34 and 36. Frame 26 is foldable from the position of FIG. 5, in which sections 28, 30 and 32 are disposed in horizontal alignment to define a bed, to a collapsed position (FIGS. 1, 2 and 3) in which outer section 32 is parallel to and superposed above inner section 28 with the intermediate section 30 extending substantially vertically between the ends of sections 28 and 32.

In the illustrated embodiment, the inner section 28 is made up of a length of material of square cross section with the ends pinched together. Section 28 is U-shaped in plan to form a pair of parallel rails 28a joined by rail 28b. Section 32 is similar to section 28 and defines a pair of parallel rails 32a connected by a rail 32b. Intermediate section 30 consists of flat bars or plates defining parallel rails 30a, only the right hand rail being visible in the drawings.

When a bed frame 26 is unfolded to define a bed (FIG. 6), sections 28, 30 and 32 cooperate to define a rectangular frame consisting of rails 28a, 30a and 32a connected at their ends by rails 28b and 32b. Supported at its periphery on the rectangular frame is a mattress supporting spring 38 consisting of a wire mesh fabric made up of wire lengths 40 (FIG. 4) connected with the rails by springs 42. For providing lateral support to rails 28a, 30a and 32a, a floating cross bar 44 having leg members 44a extending from its ends is freely pivotally connected with rails 30a by pins 46 which extend through the ends of leg members 44a. Cross bar 44 is provided with a

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series of apertures 48 (FIGS. 4 and 8) for receiving wire hooks 50 pivotally connected with spring 38. Thus, when sections 28, 30 and 32 are unfolded to their horizontally aligned position, cross bar 44 is resiliently supported by mattress spring 38, through springs 42, about pivots 46 to provide lateral bracing of the rails, while at the same time floating freely beneath the springs so as not to interfere with the resiliency of the springs.

When bed frame 26 is folded to its collapsed position of FIGS. 1, 2 and 3, spring links 40 and hooks 50 cause cross bar 44 to pivot about pins 46 from its floating position to an upright position in which legs 44a are maintained in parallel relationship with the upright intermediate section 30 by the springs 42 which are secured to rail 32b. To prevent overtravel of legs 44a past section 30, plates 52 are secured to leg members 44a to form a flange which engages the lower or outer edge of section 30 when the frame is collapsed. Thus, springs 42 react between plates 52 and rail 32b to maintain cross bar 44 in the upright position when the bed is in its folded position.

FIGS. 5, 6 and 7 illustrate in detail the supporting mechanism for actuating the bed frame 26 between its retracted position of FIG. 1 and its projected position of FIGS. 3 and 5. Secured to the outer side of rail 28a by spaced rivets 53 is a plate or bar 54 having an offset outer end 56 and an inner end 58. Pivotally connected by a pin 60 with end 58 of bar 52 is one end of a rear support lever 62, the other end of which is pivotally connected by pin 64 with the rear, or inner end of an elongated plate member 66.

Plate member 66 is mounted on the inner wall of side member 20 (FIG. 5) with its longitudinal axis inclined downwardly toward front panel 22 of the sofa. L-shaped slots 68 may be provided in plate member 66 to receive the heads of screws or bolts 70 to removably secure plate member 66 to the sofa.

Pivotally connected by a pin 72 with the outer end 56 of bar 54 is one end of an outer, or forward support lever 74, the other end of which is pivotally connected by a pin 76 with the forward, lower end of plate member 66. Levers 62 and 74 swingably support the bed frame on the sides 20 of the sofa for movement into and out of space 24 which is defined by the rear face of panel 22 and side members 20.

Rigidly connected with forward support lever 74 at its lower end is a plate 78 having a projecting, apertured tongue 80 to which is secured one end of a balance spring 82. Balance spring 82 is secured at its other end to an L-shaped lever 84 pivotally mounted at 85 on a plate 86 rigidly secured to rear support lever 62 at its inner end.

Mounted near the outer end of rear support lever 62 is one leg of an L-shaped bracket 88. Secured to the inwardly projecting leg of bracket 88 is a support bar 90. Support bar 90, in the projected position of bed frame 26, engages the under side of rails 28a to react between rails 28a and lever 62 to prevent overtravel of levers 62 and 74 about their respective pivots 64 and 76 causing section 28 of the bed frame to assume a horizontal position. When rear support lever 62 is pivoted to the retracted position of FIG. 1, support bar 90 assumes an inoperative position out of engagement with section 28.

Secured intermediate the ends of forward support levers 74 is a forward support strap or bar 92 which, in the retracted position, receives section 28 to support the entire bed frame within space 24. When lever 74 is pivoted from its retracted position of FIG. 1, support strap 92 is moved to an inoperative position.

In the operation of the supporting mechanism, the folded bed frame is received on support strap 92 when it is retracted to the position of FIG. 1. In the retracted position, as pointed out above, sections 28 and 32 of the bed frame are in parallel superposed relationship with intermediate section 30 disposed in a substantially vertical plane between the forward or outer ends of sections 32

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and 28. Intermediate section 30 is positioned adjacent the rear face of front panel 22 of the sofa with cross brace 44 defining, with rail 32b, a cushion supporting surface through springs 38. To actuate the bed to its projected position of FIGS. 3, 5, 6 and 7, cushions 18 are removed from the sofa and the operator may grasp the cross bar 44 or the side rails 32a of section 32b. As cross bar 44 is lifted in an upward direction (FIG. 2) pivot point 34 moves upwardly and forwardly over front panel 22 to the position of FIG. 2.

With reference to FIGS. 1 and 2, pivot pin 72 is disposed below pivot pin 76 when the bed is retracted, and pivot pin 60 is positioned to the rear of pivot pin 64 at the upper end of support lever 62. Consequently, as the frame is lifted upwardly, pin 34 between the lower and outer ends, respectively, of sections 30 and 28 initially moves in a clockwise path about pivot pin 72, which in turn moves in a counterclockwise path about pin 76, with no forward movement until it clears the top of front panel 22. There is no forward movement of pin 34 until lever 62 swings past the vertical axis relative to pin 64. The rate of travel of pin 34 in an upward direction is much greater than the rate of travel of pin 60 in a forward (left in FIGS. 1 and 2) direction until lever 74 reaches the intermediate position of FIG. 2 due to the relative lengths of levers 62 and 74 and the relative position of pivot pins 76 and 64.

As lever 74 continues its counterclockwise movement about pin 76 and lever 62 continues its clockwise movement about pin 64, the frame is carried forward by the levers, and lever 62 acts through pin 60 to pivot the frame in a counterclockwise direction about pin 72. As the frame assumes the horizontal position of FIG. 3, support bar 90 comes into engagement with the bottom of section 28 to lock lever 62 against further clockwise movement and restrain the frame in the horizontal position. During this movement, spring 82 moves across the center of the axis common to points 82a, 82b and 85 to resiliently restrain lever 74 and 62 in their projected positions.

When the bed frame is projected to the position of FIG. 3, it may be unfolded to define a bed. Sections 28, 30 and 32 are inter-connected through a linkage system in such a manner that these sections are folded and unfolded in a predetermined path with a smooth continuous movement. Secured to the outer sides of rails 28a and 32a, respectively, are plate members 94 and 98 each provided with elongated slots 96 and 100, respectively. Pivotally connected at point 34 between sections 28 and 30 is one end of a control lever 102, the other end of which is pivotally and slidably connected by a pin 103 with slot 100 of plate 98. Pivotally connected at point 36 between sections 30 and 32 is one end of a guide lever 104, the other end of which is connected with pin 106 slidable in slot 96. Control lever 102 and guide lever 104 are inter-connected intermediate their ends by an L-shape connecting link 108. Pivotally connected by a pin 110 to plate 98 is one end of a leg member 112. One end of a locking link 114 is pivotally connected with leg member 112 intermediate its ends by a pin 116 and the other end of locking link 114 is secured by pin 103 to control lever 102.

To fold the bed frame from the horizontally aligned position of FIGS. 5 and 6 to the collapsed position, the operator grasps rail 32b and moves section 32 upwardly about pivot 36. Upon the initial upward movement, control lever 102 pivots about point 34 and pin 103. This initial movement is transmitted, through connecting link 108, to guide lever 104 and intermediate frame section 30 causing guide lever 104 to pivot clockwise about pin 106, and section 30 to pivot clockwise about pin 34.

Connecting link 108 pivots clockwise as section 32 moves upwardly and causes pin 106 to move toward the rear of slot 96 (FIG. 7). At the same time pin 103 is cammed forwardly in slot 100 carrying with it the end of locking link 114 which in turn causes leg 112 to pivot

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counterclockwise about pivot 110 (FIG. 8) toward its folded position in which it overlies section 32 with its horizontal portion 115 against the top of section 32.

When section 32 assumes its collapsed position superposed above section 28, pin 106 is positioned at the rear of slot 96 and pin 103 is positioned at the end of slot 100 adjacent rail 32b. When this position is reached, leg member 112 and locking links 114 are slightly inclined in an upward direction from section 32. In this position the parts can be unfolded by merely reversing the above operation, that is by grasping rail 32b and moving it upwardly about pin 36 from its position of FIG. 3. However, further downward movement of leg member 112 causes pin 116 between locking link 114 and leg member 112 to move to a position below the plane of pin 103 due to the configuration of leg 112. This overcenter or locking position of locking link 114 prevents upward movement of section 32 since any upward movement of section 32 tends to cause pin 116 to move counterclockwise about pin 103 in FIG. 3. Since the frame sections 28, 30 and 32 are firmly locked in the collapsed position against relative movement by locking link 114 and leg member 112, the mattress which is folded upon itself and compressed between the frame sections, is firmly held in place.

To unfold the bed, leg member 112 is moved upwardly about pin 110 to unlock the section whereupon they can be unfolded to the position of FIGS. 5 and 6.

While a specific embodiment of the invention has been illustrated and described, the invention is not limited to the exact construction shown. Various alterations in the construction and arrangement of parts can be made without departing from the scope of the invention.

What is claimed is:

1. A foldable bed frame comprising,
 - an inner section, an intermediate section and an outer section,
 - said sections being successively pivotally connected and foldable between a collapsed position in which the inner and outer sections are disposed in spaced, superposed relationship with the intermediate section extending between the inner and outer sections in a generally perpendicular relationship, and an extended position in which the inner, intermediate and outer sections are disposed in horizontal alignment,
 - a wire mesh fabric comprising interconnecting wire links and resiliently supported at its end edges between the end rails of the sections to define a substantially rectangular mattress support between the rails of said section when the sections are in the extended position,
 - a U-shaped cross bar having a base portion and a pair of parallel leg members extending from the ends thereof,
 - said leg members being freely pivotally connected to the opposite side rails of said intermediate section at points spaced from the pivotal connection to said outer section with the base portion extending between said side rails,
 - and at least one connecting link connecting said base portion to longitudinally extending wire links of said fabric within the perimeter of said outer section and of a length to position said leg members essentially perpendicular to the plane of said outer section when in said collapsed position with the longitudinally extending wire links connected to said connecting link under tension by the fabric resilient end support and to position said leg members at an acute angle to the plane of said outer section when in said extended position with said connecting link slack.
2. A foldable bed frame as defined in claim 1 further including,
 - a leg member pivotally connected with said outer section and movable from a floor engaging position when the sections are in their extended position to

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an inoperative position overlying said outer section as the sections are folded to the collapsed position, and a leg operating and bed frame locking linkage system comprising links and levers interconnecting said leg member and said frame sections for moving said leg member between its folded and floor engaging positions upon movement of said frame sections between the collapsed and extended positions,

said locking linkage including a locking link pivotally connected at one end with said leg member and pivotally and slidably connected at its other end with said outer section and movable by said leg member as the leg member moves from the floor engaging position to the inoperative position to an overcenter position below the plane of said outer section to lock the sections in their collapsed position.

3. In a davenport sleeper including side frame members and a front board defining a substantially rectangular bed frame receiving space and a bed frame foldable between collapsed and extended positions,

means supporting said bed frame on said side frame member for movement between a retracted position in which the frame is wholly received within said bed frame receiving space behind said front board, and a protracted position in which the bed frame projects above and forward of the space enclosed by the side frame members and front board,

said support means including a rear support lever having one end pivotally connected to the rear of said foldable bed frame and its other end pivotally connected at a first point on said side frame member spaced rearwardly of the front board,

a forward support lever having one end pivotally connected to said foldable bed frame intermediate its ends and its other end pivotally connected at a second point on said side frame member below said first point and between said first point and the front board,

a first support member mounted on the forward support lever for movement from an operative position in which it supports the underside of the bed frame in the retracted position within said bed frame receiving space to an inoperative position out of contact with said frame as said forward support lever pivots about said second point to move the bed frame from the retracted to the protracted position,

and a second support member affixed to and having one portion protruding beyond one end of said rear support lever for movement from an inoperative position out of contact with said bed frame when the bed frame is in the retracted position to an operative position to engage the bed frame with said one portion and position said bed frame in a horizontal plane above said bed receiving space as the rear support lever pivots about said first point to remove the bed frame from the retracted to the protracted position.

4. The construction defined in claim 3 further including a balance spring interconnected between said rear and forward support levers.

5. In a davenport sleeper having a frame including side frame members and a stationary front board defining an enclosed space,

a bed frame having inner, intermediate and outer sections successively pivotally connected and foldable to a collapsed position in which the inner and outer sections are superposed in spaced parallel relationship, and unfoldable to an extended position in which the sections are disposed in horizontal alignment,

mechanism supporting said bed frame on said davenport frame for movement between a retracted position in which the collapsed bed frame is wholly received within said enclosed space and a protracted position in which said inner section is positioned in a horizontal plane above said enclosed space to per-

mit the bed to be unfolded to its extended position, said support mechanism including,

- a first support lever having one end pivotally connected to said inner section and its other end pivotally mounted on the side frame at a first point spaced rearwardly of said front board, 5
- a second support lever having one end pivotally connected to said inner section and its other end pivotally connected to the side frame at a second point below said first point and between said front board and said first point, 10
- a retracted bed supporting member mounted on said second lever and movable between an operative position in which said bed supporting member supports the under side of the collapsed bed frame in the retracted position with the intermediate section disposed adjacent and parallel to the rear face of said front board, and an inoperative position out of contact with said bed frame as said first support lever pivots about said second point to lift the collapsed bed frame from the retracted position to the protracted position, 20
- and a protracted bed supporting member affixed to and having one portion protruding beyond one end of said first lever and movable from an inoperative position out of contact with said bed frame when said bed frame is in the retracted position to an operative position as said first lever pivots about said first point to move the bed frame from the retracted to protracted position in which said one portion engages said inner section to position said bed frame in the protracted position. 30

6. The construction defined in claim 5 in which said inner, intermediate and outer sections each includes a pair of spaced parallel rails, 40

spring means secured at its periphery to said rails to form a substantially rectangular mattress support when the bed frame is unfolded to the extended position.

7. A foldable bed frame comprising, an inner and an outer generally U-shaped section having an end rail joining to opposing side rails, an intermediate section having opposing, parallel side rails, 50

said sections being successively pivotally connected between adjoining side rails and foldable between a collapsed position, in which the inner and outer sections are disposed in spaced, superposed relationship with the intermediate section extending between the inner and outer sections in a generally perpendicular relationship, and an extended position in which the inner, intermediate and outer sections are disposed in horizontal alignment, 55

a wire mesh fabric comprising pivotally interconnecting wire links extending transversely and longitudinally of said sections, 60

end springs connected between the end edges of said wire mesh fabric and the end rails of said outer and inner sections at spaced intervals to support said wire mesh fabric when said sections are in the extended position, 65

a U-shaped cross bar having a base portion and a pair of parallel leg members extending from the ends thereof, 70

means for pivotally connecting each of said leg members to a respective side rail on said intermediate section at a point spaced from the pivotal connection to said outer section with said base portion be- 75

ing pivotable to the level of the plane of said outer section,

a flange on at least one of said leg members extending at right angles thereto to overlie the lower edge of the side rails of said intermediate section,

a plurality of connecting links each connecting at one end to said base portion and pivotally connected at the other end to one point on a longitudinally extending wire link of said fabric within the perimeter of said outer section,

said connecting links being of a length that, in the collapsed position, said cross bar is pivoted by said links to a position substantially perpendicular to the plane of said outer section with said flange contacting the lower edge of said intermediate section side rails and said end springs in tension and, in the extended position, said connecting links are slackened with said cross bar pivoting away from said intermediate section side rails to have said leg members intersecting the plane of said sections at a substantial angle.

8. In a sofa bed, including a sofa portion having a back, side frame members and a front panel extending between said side frame members and vertically as high as the seat cushion on said sofa to define a storage cavity within the sofa,

a fixture for supporting a bed frame on said sofa for movement between: (1) a retracted position in which said bed frame is contained entirely within said end entirely within said storage cavity with said bed frame positioned substantially horizontally, (2) an intermediate position in which said bed frame is tilted from the horizontal to position the forward end of the frame vertically above the location of said forward end in said retracted position and above the top of said front panel and the rear end is positioned at substantially the same horizontal level as in said retracted position and (3) a protracted position in which said bed frame is horizontally disposed above and extends forwardly of said front panel, 45

said bed frame having a rear pivotal connection adjacent its rear end and a front pivotal connection intermediate its ends a first distance forward of said rear pivotal connection,

said fixture comprising:

a rear support lever and a forward support lever, means for pivotally connecting one end of said rear support lever to said rear pivotal connection, 50

means for pivotally connecting one end of said forward support lever to said forward pivotal connection,

means for pivotally connecting the other end of said rear support lever to a rear fixed pivot on said side frame members, 55

means for pivotally connecting the other end of said forward support lever to a forward pivot on said side frame members a second distance forward of and below said rear fixed pivot to rotate in the opposite direction from said rear support lever in moving said bed frame between the retracted and protracted positions,

the length of said forward support lever being greater than the vertical distance from said forward fixed pivot to the top of said front board, 65

said first and second distances and the length of said rear support lever positioning said bed frame at said retracted position to have said rear pivotal connection rearwardly of a vertical from said rear fixed pivot with said front pivotal connection at substantially the same horizontal level as said forward fixed pivot in said retracted position, and establishing a locus of motion of the forward end of said bed frame which is generally vertical as said frame moves

between said retracted and said intermediate positions and which is a forwardly projecting arc as said frame moves between the intermediate and protracted positions,

- a first support member affixed to one of said forward support lever and said bed frame for movement between (1) an operative position in which one segment of said support member becomes engaged with the other one of said support lever and said bed frame to support said bed frame from said forward support lever with the bed in the retracted position and (2) an inoperative position in which said one segment becomes disengaged as said forward support lever pivots in moving toward the protracted position, and a second support member affixed to one of said rear support lever and said bed frame to have one end protruding therefrom and mounted for movement between (1) an inoperative position in which said one end is free from engagement with any structure and (2) an operative position in which said one end engages the other one of said support member and said bed frame to position said frame in a horizontal frame above said storage cavity as the rear support lever pivots from the retracted to the protracted bed position.

9. In a sofa bed, including a sofa portion having a back, side frame members and a front panel extending between said side frame members and vertically as high as the seat cushions on said sofa to define a storage cavity within the sofa and a foldable bed frame having inner, intermediate and outer sections successively pivotably connected to be foldable between a collapsed condition in which said outer section is disposed in substantially parallel, superposed relation to said inner section with a spacing equal to the length of said intermediate section and an extended position in which said sections are disposed in horizontal alignment,

a fixture for supporting said bed frame in said collapsed condition for movement between: (1) a retracted position in which said collapsed bed frame is contained entirely within said storage cavity with said inner and outer frames substantially horizontally disposed, (2) an intermediate position in which said collapsed bed frame is tilted from the horizontal to position the forward end of said inner section vertically above the location of said forward end in said retracted position and above the top of said front panel and the rear end of said inner section is positioned at substantially the said horizontal level as in said retracted position, (3) and a protracted position in which said inner section is horizontally disposed above and extends forwardly of said front board,

said inner section having a rear pivotal connection adjacent its rear end and a front pivotal connection intermediate its ends a first distance forward of said rear pivotal connection,

said fixture comprising:

a rear support level and a forward support lever, means for pivotally connecting one end of said rear support level to said rear pivotal connection,

means for pivotally connecting one end of said forward support lever to said forward pivotal connection,

means for pivotally connecting the other end of

said rear support lever to a rear fixed pivot on said side frame members at a level below that of said inner section in the protracted position, means for pivotally connecting the other end of said forward support lever to a forward fixed point on said side frame members a second distance forward of and below said rear fixed pivot to rotate in the opposite direction from said rear support lever in moving said bed frame between the retracted and protracted positions,

the length of said forward support lever being greater than the vertical distance from said forward fixed pivot to the top of said front panel, said first and said second distances and the length of said rear support lever positioning said inner section at said retracted position to have said rear pivotal connection rearwardly of a vertical from said rear fixed pivot with said front pivotal connection at substantially the same horizontal level as said forward fixed pivot in said retracted position, and establishing a locus of motion of the forward end of said inner section which is generally vertical as said bed frame moves between said retracted and intermediate positions and which is a forwardly projecting arc as said bed frame moves between the intermediate and protracted positions,

a first support member affixed to one of said forward support lever and said bed frame for movement between (1) an operative position in which one segment of said support member becomes engaged with the other one of said support lever and said bed frame to support said bed frame from said forward support lever with the bed in the retracted position and (2) an inoperative position in which said one segment becomes disengaged as said forward support lever pivots in moving toward the protracted position,

and a second support member affixed to one of said rear support lever and said bed frame to have one end protruding therefrom and mounted for movement between (1) an inoperative position in which said one end is free from engagement with any structure and (2) an operative position in which said one end engages the other one of said support member and said bed frame to position said frame in a horizontal frame above said storage cavity as the rear support lever pivots from the retracted to the protracted bed position.

References Cited by the Examiner

UNITED STATES PATENTS

1,386,789	8/1921	Luppino	5—31
1,649,719	11/1927	Miesner	5—13
1,675,883	7/1928	Dyke	5—13
1,712,145	5/1929	Hultgren	5—22
1,975,664	10/1934	Revell	5—51
2,131,675	9/1938	Schieber	5—313
2,960,699	11/1960	Fox et al.	5—13
2,982,975	5/1961	Goodman	5—13

FOREIGN PATENTS

751,185	6/1933	France.
612,768	1/1961	Canada.
835,373	5/1960	Great Britain.

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