

June 23, 1953

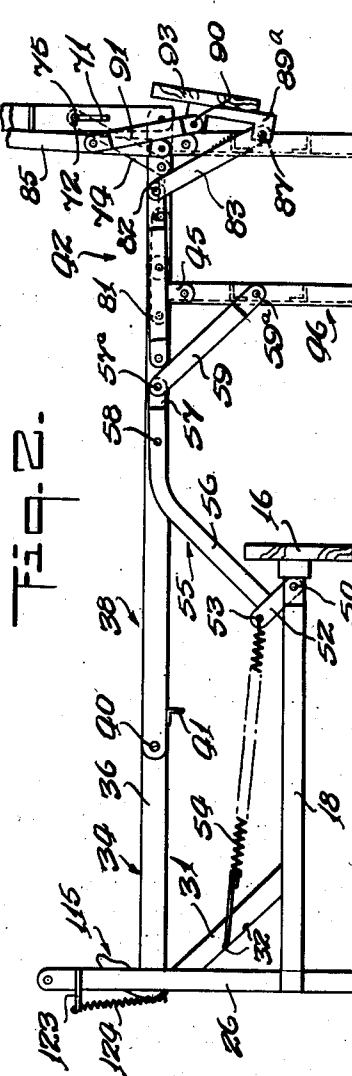
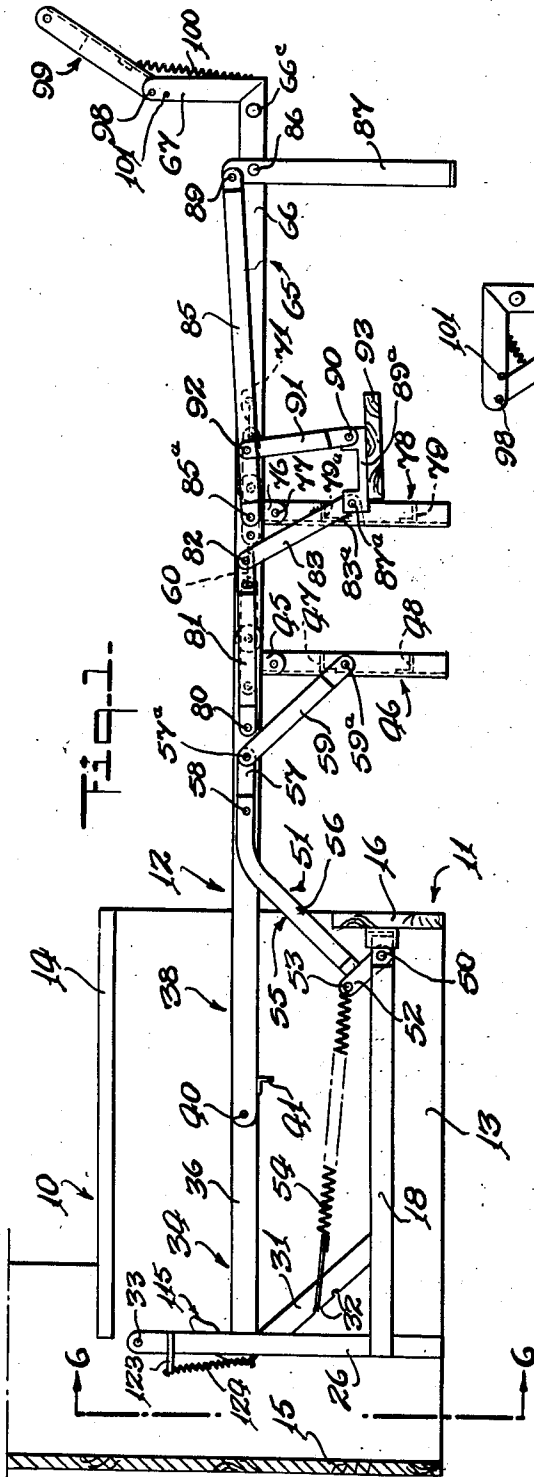
A. M. BANK ET AL

2,642,583

SOFA BED

Filed July 18, 1950

4 Sheets-Sheet 1



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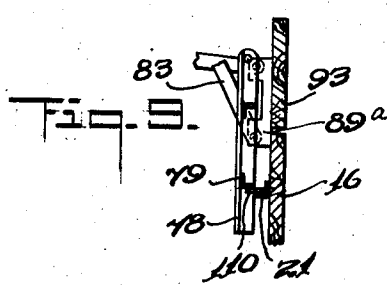
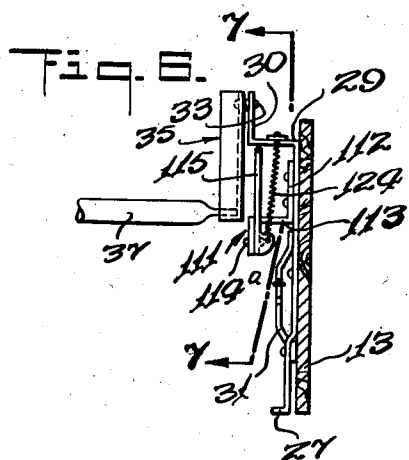
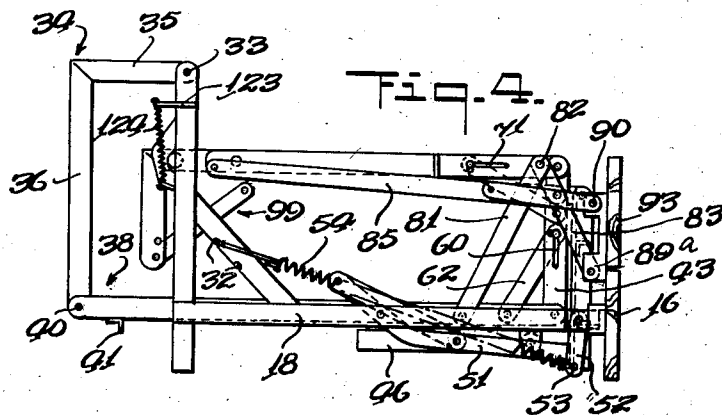
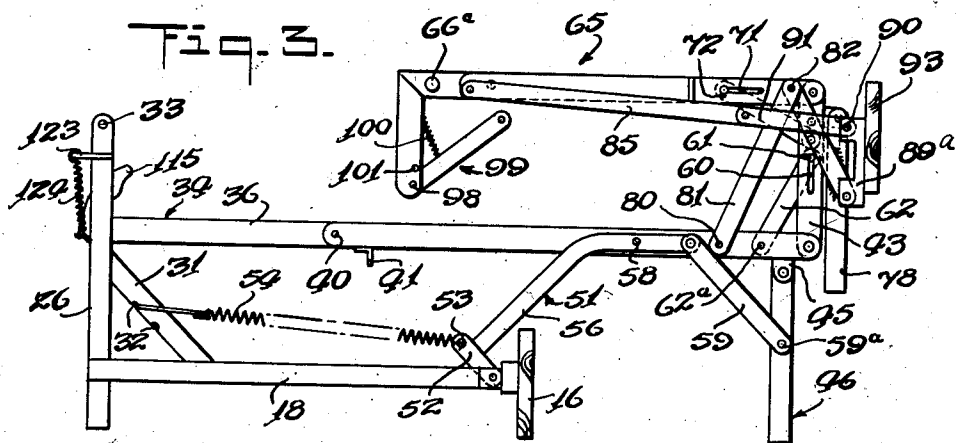
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SOFA BED

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4 Sheets-Sheet 2



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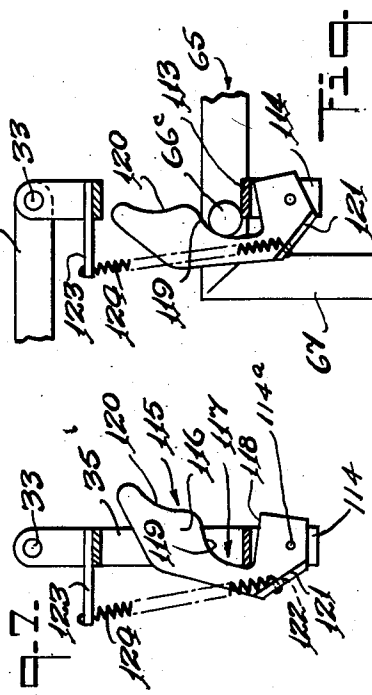
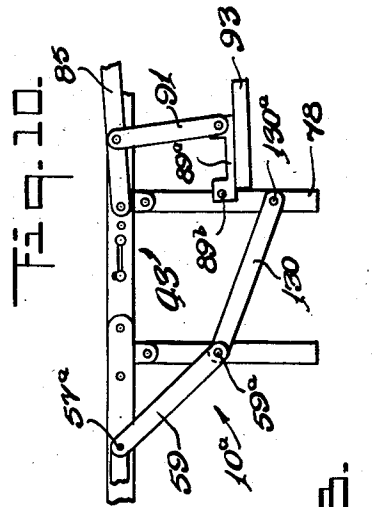
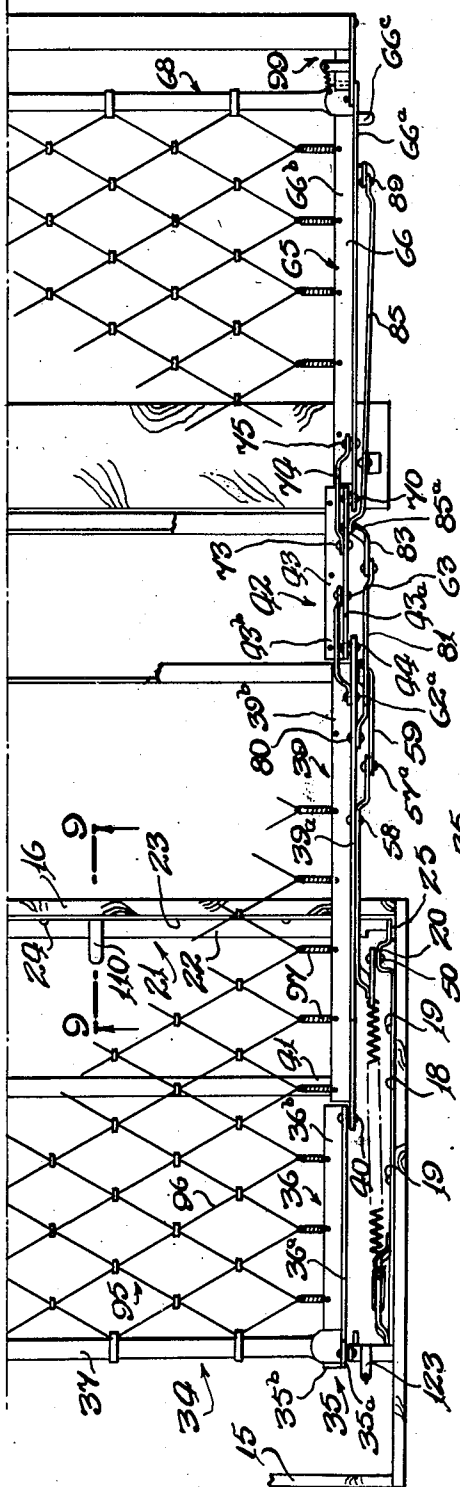
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Fig. 5.



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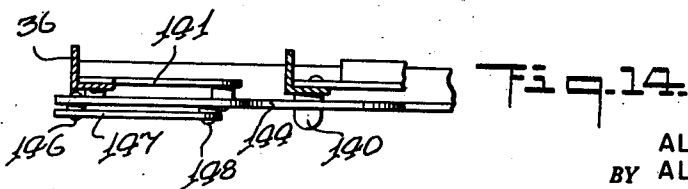
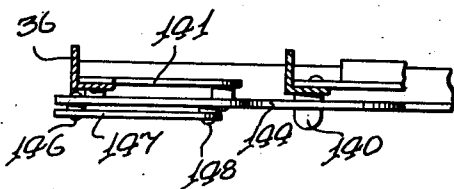
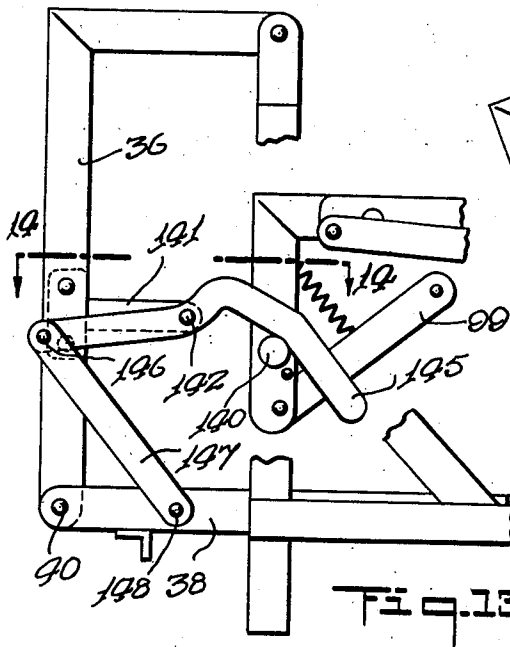
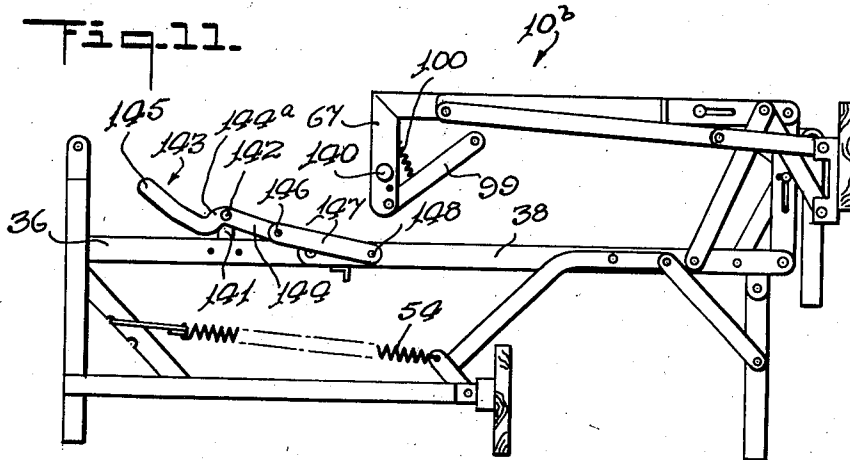
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,642,583

SOFA BED

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Application July 18, 1950, Serial No. 174,380

18 Claims. (Cl. 5-13)

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This invention relates to chair or sofa beds.

One object of this invention is to generally improve the chair bed disclosed in Patent No. 2,407,864, issued to Louis Arzt on September 17, 1946, and assigned to applicant Bank.

One object of the present invention is to provide a sofa or chair bed of the character described including a foldable bed frame and releasable spring latching means to retain the bed frame in completely folded condition.

Another object of this invention is to provide a sofa or chair bed of the character described comprising a chair frame having a front board, a bed frame foldable therein, a top front board pivoted to the bed frame, and means on the inside of the front board of the chair frame to support the front end of the folded bed frame with the top front board disposed above and in the plane of the front board on the chair frame but without resting thereon.

Yet another object of this invention is to provide in a device of the character described, a bed frame having improved means for retaining the folded sections of the bed frame at right angles to each other.

Still a further object of the present invention is to provide a strong, rugged and durable chair or sofa bed of the character described, which shall be relatively inexpensive to manufacture, which shall be easy to manipulate, and which shall yet be easy to fold and unfold and yet practical and efficient to a high degree in use.

Yet a further object of this invention is to provide a folding cot or bed having improved means to aid in drawing the folded sections into fully folded position during the folding operation, and to retain said bed in folded condition.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention,

Fig. 1 is a side elevational view of a sofa or chair bed embodying the invention;

Fig. 2 is a side elevational view thereof, with the front end section folded upwardly;

Fig. 3 is a view similar to Fig. 2 but showing the bed frame in a further folded position;

Fig. 4 is a view similar to Fig. 3 and showing the bed frame in fully folded position;

Fig. 5 is a partial top plan view of the chair or sofa bed embodying the invention;

Fig. 6 is a partial end view taken on line 6-6 of Fig. 1;

Fig. 7 is a cross-sectional view taken on line 7-7 of Fig. 6;

Fig. 8 is a view similar to Fig. 7 but showing the latching mechanism in latching position;

Fig. 9 is a cross-sectional view taken on line 9-9 of Fig. 5, when the bed frame is completely folded;

Fig. 10 is a partial side elevational view of the opened up bed frame and illustrating a modified construction;

Fig. 11 is a side elevational view of a folding bed embodying the invention and illustrating another modified construction, and showing the same in partially folded condition;

Fig. 12 is an enlarged partial side elevational view of the bed shown in Fig. 11, but showing the bed in more fully folded position;

Fig. 13 is a view similar to Fig. 12, but showing the bed fully folded; and

Fig. 14 is a cross-sectional view taken on line 14-14 of Fig. 13.

Referring now in detail to the drawing, 10 designates a chair or sofa bed embodying the invention. The same comprises a chair or sofa frame 11, and a folding bed frame 12 attached thereto and foldable thereinto. The chair or sofa bed frame 11 may be made of wood and comprises a pair of side frame walls 13 which may be made of wood and which constitute the sides of the chair frame.

Attached to the side frames 13 may be arms 14. The frame 11 further may comprise a rear wall 15 extending above the arms in the usual manner. At the front ends of the side walls 13 is a lower front board 16. The chair frame may be upholstered in the usual manner. Attached to the inner surface of each of the side walls 13 is an inner horizontal metal side support bar 18. The bars 18 may be attached to the boards 13 by means of screws or bolts 19. Adjacent the front end of each bar 18 is an inwardly bent portion 20. Attached to the inner side of the front board 16 is a horizontal transverse frame supporting angle iron 21 having a bottom horizontal flange 22 and a front upwardly extending flange 23 receiving bolts, screws or other fasteners 24, which attach member 21 to the front board.

Extending from the ends of flange 23 are end flanges 25 which contact the inner surface of the side walls 13. The forward ends of the bars 18 may rest on the flanges 22 and contact the

end flanges 25, and are attached thereto in any suitable manner. Attached to the inner surface of the side boards or walls 13 are vertical rear posts or bars 26 riveted or otherwise fixed to the rear ends of the bars 18. At the lower ends of the posts 26 are feet 27 which may contact the floor. At the upper ends of the posts 26 are inwardly extending offset portions 29 from which extend upwardly portions 30 (Fig. 6). Interconnecting members 18 and 26 are angular braces 31 formed at their under edges with notches 32.

Pivoted to the upper ends of portions 30 of members 26 as by means of hinges 33 is a head or rear section 34 of the bed frame 12. Said head section 34 comprises parallel members 35 of angle iron which extend downwardly from the hinges 33 when the bed frame is unfolded. Extending at right angles to said portions 35 are parallel portions 36. Portions 35 are horizontal when the bed frame is unfolded. The junctions of portions 35 and 36 of each side of the bed are interconnected by a horizontal cross member 37 which may be of tubular stock, flattened at its ends and riveted or welded at said junctions. When the bed is unfolded the forward ends of portions 36 are between the front board 16 and the rear posts 26. When the bed is completely folded, as shown in Fig. 4, the lower portions 36 are vertical and their lower ends are disposed above the floor. It will be noted that portions 35, 36 are rigid with one another.

The portion 36 of head section 34 may be made of angle iron comprising outer vertical flanges 36a and inwardly extending flanges 36b which are horizontal when the bed is unfolded. The portions 35 of head section 34 may likewise be made of angle iron comprising outer vertical flanges 35a and inwardly extending flanges 35b.

Pivoted to the front ends of the head section 34 is a middle or intermediate section 38. The intermediate section 38 comprises parallel side members 39 pivoted at their rear ends to the front ends of portions 36, as on hinges 40. The side members 39 are interconnected by a transverse angle iron 41, welded to the underside of said members. Members 39 may be made of angle iron, comprising upwardly extending vertical outer walls 39a and inwardly horizontal flanges 39b (when the bed is unfolded). The flanges 39a extend beyond the flanges 36a, as shown in Fig. 5.

Hinged to the forward ends of the flanges 39a about pivots 44 is a short fold section 42. The same comprises a pair of parallel side members 43. Each member 43 comprises an outer flange 43a and a flange 43b extending therefrom and disposed in horizontal position when the bed frame is unfolded.

Extending downwardly from the members 39, back of the forward ends thereof, are ears 45. Pivoted to said ears are legs 46. The legs 46 are interconnected by upper transverse horizontal angle irons 47 and by lower transverse horizontal angle irons or bars 48. Pivoted to the portions 20 of the side bars 18, as at 50, are levers 51. Each lever 51 comprises an arm 52 formed with an opening 53 at its outer end. Interconnecting the outer ends of arms 52 with the braces 31 are coil tension counterbalancing springs 54. The forward ends of the springs are engaged in the openings 53. The rear ends are connected in one or the other of the notches 32.

It will be noted, looking at Fig. 1 of the drawing, that when the bed is unfolded, arms 52 are inclined upwardly and rearwardly from their

pivots. Attached to each arm as by welding or otherwise, is a lever member 55 having a portion 56 inclined upwardly and forwardly and from which extends a portion 57, horizontally disposed when the bed is unfolded. Each portion 57 is pivoted medially the ends thereof to member 39 about an intermediate pivot pin 58. The forward ends of arms 57 terminate short of the forward end of members 39. Interconnecting the forward ends of arms 57, as at 57a, with intermediate portions of the legs 46, as at 59a, are links 59.

It will be noted that the levers 51 are located on the outside of the members 39, but on the inside of the bars 18. Also, the links 59 are located on the outside of said members 39.

Flange 43a of members 43 are formed with longitudinal slots 60. At the forward end of each slot is an offset portion 61. Pivoted to the inner sides of flanges 39a at points 62a spaced rearwardly of the pivot points 44 are short braces 62. Attached to the forward ends of the braces 62 are pins 63 extending from the slots 60, for the purpose hereinafter appearing.

Pivoted to the forward ends of the short fold section 42 is a tail or front section 65. The tail section 65 comprises side members 66. Said members 66 may be made of angle iron, each comprising an outer vertical flange 66a and an inwardly extending flange 66b disposed horizontally (looking at Fig. 1). Extending upwardly from the forward ends of portions 65 at right angles thereto, are vertical portions 67. The flanges 66b are interconnected by a transverse tubular cross brace 68, the ends of which are flattened and either riveted or welded to said flanges adjacent the forward ends thereof. The members 65 are pivoted to members 43, as on pivot pins 70. The flanges 66a are formed with longitudinal slots 71 each having at its forward end an upwardly offset portion 72. Pivoted to the flanges 43a of members 43, as at 73, and disposed on the insides of said members are short braces 74. At the outer ends of the braces 74 are pins 75 received in the slots 71, for the purpose hereinafter appearing.

Attached to the forward ends of members 43 and extending downwardly therefrom are apertured ears 76. Pivoted to the ears 76 as about pivot pins 77, are legs 78, interconnected by transverse horizontal lower and upper angle bracing irons 79, 79a.

Pivoted to the outer sides of flanges 39a of members 39, as about pivot pins 80, are arms 81. The arms 81 are disposed on the outer sides of members 39 and extend in substantially horizontal positions when the bed is unfolded. Pivoted to the forward ends of arms 81, as about pivot pins 82, are links 83, welded as at 83a to the outer sides of the legs 78. When the bed is unfolded the arms 83 are inclined downwardly and forwardly and extend beyond the legs 78, as shown in Fig. 1 of the drawing.

Pivoted to the flanges 43a of members 43, rearwardly of the front ends thereof, as at 85a, are levers 85 which are inclined somewhat forwardly and upwardly, when the bed is unfolded, as shown in Fig. 1. Pivoted to the flanges 66a of members 66, as at 86, are front legs 87 which extend somewhat above the tail section 65. The upper ends of the legs 87 are pivoted as at 89 to the forward ends of the levers 85. Pivoted to the lower ends of links 83, as at 87a, are brackets 89a. The forward ends of brackets 89a are pivoted as at 90 to links 91 which are pivoted to

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intermediate portions of levers 85, as at 92. Interconnecting the brackets 89a is a top front board 93.

The side portions of sections 34, 39, 42 and 65 and the cross brace members 37 and 68 are interconnected by a mattress spring or support 95 of any suitable construction. It may be made of interconnected wires 96, connected by coil springs 97 to the side portions of the bed frame. It may be made of cloth or in any other suitable manner. The usual mattress rests on the bed spring 95.

Means is provided to clamp the front end of a mattress on the spring 95 to said bed frame. To this end there is pivoted to the upper end of member 67, as at 98, an upwardly and forwardly inclined clamp section 99, interconnected by coil springs 100 to the lower ends of members 67. Springs 100 normally swing the members 99 to a position shown in Fig. 1. Any suitable stop means may be provided to retain the clamp member 99 in the position shown in Fig. 1. However, said member 99 may be swung in a counterclockwise direction, bringing the springs 100 to the opposite side of the pivot point 98 and causing the springs to pull the clamping member 99 against the front end of a mattress placed on the bed frame.

The method of folding the bed frame will now be described. Beginning with the part as shown in Fig. 1 the first step is to swing member 99 inwardly or in a counterclockwise direction. Fig. 2 shows the inwardly swung position of member 99 with the mattress removed. Stop members 101 attached to members 67 limit the inward swinging movement of said clamping member 99. The operator then grasps the front end of the bed frame and swings tail or front section 65 upwardly to the position shown in Fig. 2. When that is done, member 65 moves in a counterclockwise direction, to vertical position. During this movement the links 74 swing about the pivot pins 73 in a counterclockwise direction causing the pins 75 to ride outwardly in the slots 71. The pins 75 may then be engaged with the offset portions 72 of the slots. It will be observed that the braces 74 limit upwardly swinging movement of member 65 and retain said member at right angles to the short folding section 42. During the movement of section 65 from the position shown in Fig. 1 to the position shown in Fig. 2 the legs 87 will be swung in a counterclockwise direction, about the pivot pins 86 toward members 66. Furthermore, members 85 will swing in a counterclockwise direction about their pivot points 85a, from the position shown in Fig. 1 to the position shown in Fig. 2. Such movement will raise the links 91 causing brackets 89a and board 93 to swing in a counterclockwise direction about the pivot pins 87a to the position shown in Fig. 2.

After the tail section 65 is in the position shown in Fig. 2, the operator may then grasp the board 93 and pull upwardly causing the parts to move from the position shown in Fig. 2 to the position shown in Fig. 3. During such movement the tail section 65 moves to a rearwardly extending horizontal position and the short fold section 42 moves from horizontal to vertical position. During such movement the legs 78 will swing about the pivot pin 77 in a clockwise direction, toward members 43. Members 43 will swing upwardly in a counterclockwise direction about the pivot pins 44 to a vertical position. The braces 62 will swing about their pivot points 62a in a counterclockwise direction, causing the pins 63

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to ride upwardly in the slots 60, until they engage the offset portions 61 of the slots, to limit swinging movement of members 43 to a vertical position. At the same time the arms 81 will swing upwardly about their pivot pins 80, causing the links 83 to swing therewith. The links 91 will swing in a counterclockwise direction, relative to the brackets 89a, to a position substantially in alignment with members 85. Until now the head section 34 in the intermediate section 38, lever 31 and legs 46 have not been disturbed.

The operator then grasps the board 93 and moves the bed frame from the position shown in Fig. 3 to the position shown in Fig. 4. This movement is accomplished by lifting and pushing forwardly on the bed board, causing the legs 46 to rise and move over the top of the front bed board 16. The head section 34 is swung during such movement in a clockwise direction about the pivot pin 33 to bring portions 35 to horizontal position and portion 36 to vertical position. The intermediate section 38 moves to a position in back of the bed board 16 and substantially at the level of the side bars 18. During such movement the counterbalancing levers 51 are swung about the pivot pins 50 in a counterclockwise direction, thereby tensioning the spring 54. The tail section 65 moves forwardly and downwardly from the position shown in Fig. 3 to the position shown in Fig. 4. The legs 78 remain in vertical position but assume a location in back of the bed board 16. The transverse member 79 of leg 78 which interconnects the legs 78 rests on a projection 110 fixed to flange 22 of member 20, so that the weight of the folded bed is taken up by member 21. The board 93 remains in vertical position and moves to a position directly above the board 16 in somewhat spaced relation thereto so that the weight is not on board 93, thereby preventing said board from becoming loose. The legs 46 are moved to a rearwardly extending horizontal position by the links 59 which interconnect said legs with the lever 51. Said position of the legs 46 is shown in Fig. 4 of the drawing.

Means is provided to resiliently latch the folded bed frame in the folded position of Fig. 4. To this end there is attached to either one or each of members 26, a Z shaped bracket 111. Said bracket 111 comprises a vertical upwardly extending portion 112 contacting member 26, a horizontal inwardly extending portion 113, and an downwardly extending portion 114 which extends from the inner end of portion 113. Pivoted to said portion 114, as on pivot 114a, is a releasable latching member 115. The latching member 115 comprises a plate 116 disposed in a vertical plane and formed at its forward end with a notch 117 above the portion 114. The notch 117 is bounded by a straight horizontal edge 118 and an upwardly and forwardly curved cammed edge 119, extending from the rear end of the straight edge 118. Extending upwardly from the curved edge 119 is an inwardly curved edge 120. Extending from the lower rear corner of the plate 116 is an offset arm 121 formed with an opening 122. Fixed to portion 29 of member 26 is a finger 123. The finger 123 is interconnected to the opening 122 of offset finger 121 by a coil tension spring 124. The spring 124 tends to rotate member 115 in a clockwise direction, looking at Fig. 7.

Fixed to the outer end of flange 66a of member 66, adjacent its forward end is a horizontal outwardly projecting pin 66c. When the bed frame

is moved from the position shown in Fig. 3 to the position shown in Fig. 4, said pin 66c strikes the cammed edge 120 and rotates the latching member 115 in a counterclockwise direction, thereby tensioning the spring 124. The finger 66c rides along cammed edge 120 and into engagement with the cammed edge 119, until it strikes the portion 113 of the bracket 111. It will be noted that normally the portion 113 of the bracket 111 is received in the notch 117 and contacts the lower end of cammed edge 119 to limit rotation of the latching member 115 in a clockwise direction. In the latching position of Fig. 8 the latching member 115 is pressed against the finger 66c so that said finger is wedged between said latching member and said portion 113 of the bracket 111, thereby serving to latch the folded bed in folded position.

It will be understood that when the bed is folded, a mattress on the mattress spring or support 95 folds with the bed frame. The weight of the mattress serves to aid in retaining the folded bed in folded position.

While the drawing illustrates only one side of the bed frame or chair frame, it will be understood that the opposite side may be exactly the same and symmetrically disposed.

When it is desired to unfold the bed, the bed frame is lifted upwardly until the legs 78 clear the board 16 and the frame is then pulled rearwardly to bring the frame from the position shown in Fig. 4 to the position shown in Fig. 3. Springs 54 aid this action. Then from the position in Fig. 3, the bed is unfolded to the position shown in Fig. 2 and then from that position to the position shown in Fig. 1. It will be noted that when the bed frame is unfolded from the position shown in Fig. 4 to the position shown in Fig. 3, the pin 66c will be released. Thus the latching member 115 merely prevents accidental release and lifting up or unfolding of the bed frame, but does not prevent the unfolding thereof by an operator.

It will be noted that the entire folding bed frame with its rear supporting members 26, side supporting members 18 and front supporting member 21 may be fabricated separately from the chair or sofa frame and later assembled therewith.

In Fig. 10 there is shown a somewhat modified construction. The bed 10a shown in Fig. 10 is the same as the bed 10, with the exception that the levers 81, 83 are replaced by a link 130 pivoted at one end to the pivot pin 59a and pivoted at its other end, as at 130a to the leg 78 above its lower end. Also, the brackets 89a are pivoted as at 89b to the legs 78 above the pivot point 130a.

In Figs. 11, 12, 13 and 14 there is shown a folding bed 10b embodying the invention and illustrating another modified form thereof. The bed 10b is similar to the bed 10 with the following exceptions.

In the bed 10b the latching member 115 and the spring 124 and arm 123 are eliminated and are replaced by means to aid the bed to be drawn into folded condition and for maintaining the bed in folded condition. Furthermore, in the bed 10b the pins 66c are replaced by pins 140 attached to portions 67 of the folding cot. Replacing the latching device 115 and its operating spring, the bed 10b is instead provided with upstanding posts 141 fixed to members 36 and extending upwardly therefrom when said members are in horizontal position.

Pivoted to the upper end of each post 141 as at 142 is a drawing and holding lever 143. The lever 143 comprises a straight arm 144 extending to one side of the pivot pin 142. Extending to the opposite side of the pin 142 is an offset portion 144a from which extends a longitudinally curved arm or finger 145. The outer end of arm 144 is pivoted as at 146 to a link 147 which in turn is pivoted as at 148 to member 38 adjacent the pivot pin 40.

It will be noted that while only one lever 143 and link 147 is shown in the drawing, the same construction may be carried out at the opposite side of the bed. When members 36 and 38 are in horizontal position the longitudinally curved arm 145 is inclined upwardly and to the left as shown in Fig. 11, and arm 144 is inclined somewhat downwardly and to the right. When the cot is folded from the position shown in Fig. 11 to the final folded position of Fig. 13, lever 143 will be rotated by link 147 in a clockwise direction toward the position shown in Fig. 12, in which position arm 145 engages pin 140 and helps draw the bed toward the fully folded position, as the bed is pushed into such position.

The inner edge 145a of arm 145 engages and contacts the pin 140 and due to the curvature or inclination of said edge 145a the section 65 of the bed is pulled toward the position shown in Fig. 13 in which position the bed is locked in fully folded condition.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described our invention we claim as new and desire to secure by Letters Patent:

1. In combination, a sofa frame comprising a front board and side boards, a front horizontal support member attached to the inner surface of the front board, a pair of horizontal side support members attached to the inner surfaces of the side boards, a pair of vertical rear legs attached to the inner surfaces of the side boards, a bed frame comprising a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to the forward ends of said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to the forward end of said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between said front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs.

2. In combination, a sofa frame comprising a

front board and side boards, a front horizontal support member attached to the inner surface of the front board, a pair of horizontal side support members attached to the inner surfaces of the side boards, a pair of vertical rear legs attached to the inner surfaces of the side boards, a bed frame comprising a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to the forward ends of said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to the forward end of said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between said front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, links interconnecting said brackets with the levers which interconnect the fold section with the front legs, means on the legs attached to the fold section adapted to rest on the front support member when the bed frame is in folded condition, and a board attached to said brackets and adapted to be disposed in the plane of and above and somewhat spaced from the front board when the bed frame is in folded condition.

3. In a sofa bed, a sofa frame, a folding bed frame comprising a head section pivoted relative to the sofa frame, an intermediate section pivoted to the head section, a short fold section pivoted to the intermediate section, and a tail section pivoted to the short fold section, a leg pivoted to the intermediate section, a leg pivoted to the short fold section and a leg pivoted to the tail section, said sections being foldable into the sofa frame, and releasable spring actuated latching means to retain the folded bed frame in folded condition, said sofa frame comprising a front board, a transverse supporting member attached to the inner side of said front board, and said folding bed frame having a portion supported by said supporting member when the bed frame is in folded condition.

4. In a sofa bed, a sofa frame, a folding bed frame comprising a head section pivoted relative to the sofa frame, an intermediate section pivoted to the head section, a short fold section pivoted to the intermediate section, and a tail section pivoted to the short fold section, a leg pivoted to the intermediate section, a leg pivoted to the short fold section and a leg pivoted to the tail section, said sections being foldable into the sofa frame, and releasable spring actuated latching means to retain the folded bed frame in folded condition, said sofa frame comprising a front board, a transverse supporting member attached to the inner side of said front board, and said folding bed frame having a portion supported by said supporting member when the bed frame is in folded condition, a transverse board attached to the folding bed frame and located above and in the plane of but unsupported by said front board of the sofa frame.

5. In combination, a sofa frame comprising a front board and side boards, a front horizontal

support member attached to the inner surface of the front board, a pair of horizontal side support members attached to the inner surfaces of the side boards, a pair of vertical rear legs attached to the inner surfaces of the side boards, a bed frame comprising a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to the forward ends of said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to the forward end of said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between said front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs, and spring means to releasably latch said folding bed frame in folded condition.

6. In combination, a sofa frame comprising a front board and side boards, a front horizontal support member attached to the inner surface of the front board, a pair of horizontal side support members attached to the inner surfaces of the side boards, a pair of vertical rear legs attached to the inner surfaces of the side boards, a bed frame comprising a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to the forward ends of said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to the forward end of said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between said front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs, a spring latch on at least one of said rear legs and means on said tail section to engage said latch.

7. A folding bed frame comprising a front horizontal support member, a pair of horizontal side support members attached at their front ends to the outer ends of said front support member, a pair of vertical rear legs attached to the rear ends of said side support members, a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their

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upper ends to said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between the front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs.

8. A folding bed frame comprising a front horizontal support member, a pair of horizontal side support members attached at their front ends to the outer ends of said front support member, a pair of vertical rear legs attached to the rear ends of said side support members, a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between the front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs, and means on the legs attached to the fold section adapted to rest on the front support member when the bed frame is in folded condition.

9. A folding bed frame comprising a front horizontal support member, a pair of horizontal side support members attached at their front ends to the outer ends of said front support member, a pair of vertical rear legs attached to the rear ends of said side support members, a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between the front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs, and means on the legs attached to

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the fold section adapted to rest on the front support member when the bed frame is in folded condition, and a board attached to said brackets and adapted to be disposed in a vertical plane when the bed is in folded condition.

10. A folding bed frame comprising a front horizontal support member, a pair of horizontal side support members attached at their front ends to the outer ends of said front support member, a pair of vertical rear legs attached to the rear ends of said side support members, a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between the front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs, a spring pressed latch on at least one of said rear legs, and means on the tail section adapted to engage said latch when said bed is in folded condition.

11. A folding bed frame comprising a front horizontal support member, a pair of horizontal side support members attached at their front ends to the outer ends of said front support member, a pair of vertical rear legs attached to the rear ends of said side support members, a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between the front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs, said short fold section being formed with slots and arms pivoted to said intermediate section and having means received in said slots and adapted to limit movement of the fold section to a position at right angles to the intermediate section.

12. A folding bed frame comprising a front horizontal support member, a pair of horizontal side support members attached at their front ends to the outer ends of said front support member, a pair of vertical rear legs attached to the rear ends of said side support members, a head

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section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between the front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs, said short fold section being formed with slots and arms pivoted to said intermediate section and having means received in said slots and adapted to limit movement of the fold section to a position at right angles to the intermediate section, said tail section being formed with slots and arms pivoted to said short fold section and having means engaged in the slots in the tail section and adapted to limit movement of the tail section to a position at right angles to the short fold section.

13. A folding bed frame comprising a front horizontal support member, a pair of horizontal side support members attached at their front ends to the outer ends of said front support member, a pair of vertical rear legs attached to the rear ends of said side support members, a head section pivoted to the upper ends of said rear legs, an intermediate section pivoted to the forward end of said head section, legs pivoted at their upper ends to said intermediate section, a relatively short fold section pivoted to the front end of said intermediate section, legs pivoted at their upper ends to said fold section, a tail section pivoted to the front end of said fold section, counterbalancing levers pivoted to the side support members and to the intermediate section, counterbalancing springs to aid in rotating said levers in a direction to unfold the bed frame, links interconnecting said levers with the legs pivoted to the intermediate section, front legs pivoted to the tail section, levers pivoted to the fold section and to the front legs at points above the pivotal connections between the front legs and the tail section, brackets pivoted relative to the legs which are pivoted to the fold section, and links interconnecting said brackets with the levers which interconnect the fold section with the front legs, said short fold section being formed with slots and arms pivoted to said intermediate section and having means received in said slots and adapted to limit movement of the fold section to a position at right angles to the intermediate section, said tail section being formed with slots and arms pivoted to said short fold section and having means engaged in the slots in the tail section and adapted to limit movement of the tail section to a position at right angles to the short fold section, and a spring latch on at least one of said rear legs, and means on the tail section adapted to engage said spring latch upon folding said bed frame.

14. A folding bed frame comprising a front

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horizontal support, side horizontal supports attached at their front ends to the outer ends of the front horizontal support, vertical rear legs attached at intermediate portions to the rear ends of said side horizontal supports, a head section comprising a portion pivoted to the upper ends of said rear legs, and a portion at right angles to the first portion and rigid with respect thereto, said first portion being disposed in a vertical plane and extending downwardly from its pivots when said bed frame is unfolded, said second portion extending horizontally forwardly from the lower end of said first portion when said bed frame is unfolded, an intermediate section pivoted at its rear end to the front end of said second portion of said head section, a short fold section pivoted at its rear end to the front end of the intermediate section, a tail section having a first portion pivoted at its rear end to the front end of the short fold section, and disposed in a horizontal plane when the bed frame is unfolded, said tail section comprising a second portion extending upwardly at right angles to the forward end of the first portion of said tail section when said bed is unfolded, legs pivoted at their upper ends to said intermediate section, legs pivoted at their upper ends to said short fold section, front legs pivoted to the first portion of said tail section and extending above the pivotal connections between said legs and said tail section, counterbalancing levers pivoted to the side support members and also pivoted to said intermediate section, braces interconnecting the side support members with the vertical rear legs, counterbalancing springs interconnecting said counterbalancing levers with said braces, links interconnecting said counterbalancing levers with the legs which are pivoted to the intermediate section, levers interconnecting said short fold section with the upper ends of said front legs, brackets pivoted to the legs which are pivoted to the fold section, links connecting said brackets with the levers which connect the short fold section with the front legs, means to rotate the legs which are pivoted to the short fold section relative to the short fold section, upon rotating the short fold section relative to the intermediate section.

15. A folding bed frame comprising a front horizontal support, side horizontal supports attached at their front ends to the outer ends of the front horizontal support, vertical rear legs attached at intermediate portions to the rear ends of said side horizontal supports, a head section comprising a portion pivoted to the upper ends of said rear legs, and a portion at right angles to the first portion and rigid with respect thereto, said first portion being disposed in a vertical plane and extending downwardly from its pivots when said bed frame is unfolded, said second portion extending horizontally forwardly from the lower end of said first portion when said bed frame is unfolded, an intermediate section pivoted at its rear end to the front end of said second portion of said head section, a short fold section pivoted at its rear end to the front end of the intermediate section, a tail section having a first portion pivoted at its rear end to the front end of the short fold section, and disposed in a horizontal plane when the bed frame is unfolded, said tail section comprising a second portion extending upwardly at right angles to the forward end of the first portion of said tail section when said bed is unfolded, legs

pivoted at their upper ends to said intermediate section, legs pivoted at their upper ends to said short fold section, front legs pivoted to the first portion of said tail section and extending above the pivotal connections between said legs and said tail section, counterbalancing levers pivoted to the side support members and also pivoted to said intermediate section, braces interconnecting the side support members with the vertical rear legs, counterbalancing springs interconnecting said counterbalancing levers with said braces, links interconnecting said counterbalancing levers with the legs which are pivoted to the intermediate section, levers interconnecting said short fold section with the upper ends of said front legs, brackets pivoted to the legs which are pivoted to the fold section, links connecting said brackets with the levers which connect the short fold section with the front legs, means to rotate the legs which are pivoted to the short fold section relative to the short fold section, upon rotating the short fold section relative to the intermediate section, and a board interconnecting said brackets.

16. A folding bed frame comprising a front horizontal support, side horizontal supports attached at their front ends to the outer ends of the front horizontal support, vertical rear legs attached at intermediate portions to the rear ends of said side horizontal supports, a head section comprising a portion pivoted to the upper ends of said rear legs, and a portion at right angles to the first portion and rigid with respect thereto, said first portion being disposed in a vertical plane and extending downwardly from its pivots when said bed frame is unfolded, said second portion extending horizontally forwardly from the lower end of said first portion when said bed frame is unfolded, an intermediate section pivoted at its rear end to the front end of said second portion of said head section, a short fold section pivoted at its rear end to the front end of the intermediate section, a tail section having a first portion pivoted at its rear end to the front end of the short fold section, and disposed in a horizontal plane when the bed frame is unfolded, said tail section comprising a second portion extending upwardly at right angles to the forward end of the first portion of said tail section when said bed is unfolded, legs pivoted at their upper ends to said intermediate section, legs pivoted at their upper ends to said short fold section, front legs pivoted to the first portion of said tail section and extending above the pivotal connections between said legs and said tail section, counterbalancing levers pivoted to the side support members and also pivoted to said intermediate section, braces interconnecting the side support members with the vertical rear legs, counterbalancing springs interconnecting said counterbalancing levers with said braces, links interconnecting said counterbalancing levers with the legs which are pivoted to the intermediate section, levers interconnecting said short fold section with the upper ends of said front legs, brackets pivoted to the legs which are pivoted to the fold section, links connecting said brackets with the levers which connect the short fold section with the front legs, means to rotate the legs which are pivoted to the short fold section relative to the short fold section, upon rotating the short fold section relative to the intermediate section, a board interconnecting said brackets, and means on the legs which are pivoted to the short fold section adapted to engage the

front horizontal support upon completely folding the bed frame.

17. A folding bed frame comprising a front horizontal support, side horizontal supports attached at their front ends to the outer ends of the front horizontal support, vertical rear legs attached at intermediate portions to the rear ends of said side horizontal supports, a head section comprising a portion pivoted to the upper ends of said rear legs, and a portion at right angles to the first portion and rigid with respect thereto, said first portion being disposed in a vertical plane and extending downwardly from its pivots when said bed frame is unfolded, said second portion extending horizontally forwardly from the lower end of said first portion when said bed frame is unfolded, an intermediate section pivoted at its rear end to the front end of said second portion of said head section, a short fold section pivoted at its rear end to the front end of the intermediate section, a tail section having a first portion pivoted at its rear end to the front end of the short fold section, and disposed in a horizontal plane when the bed frame is unfolded, said tail section comprising a second portion extending upwardly at right angles to the forward end of the first portion of said tail section when said bed is unfolded, legs pivoted at their upper ends to said short fold section, front legs pivoted to the first portion of said tail section and extending above the pivotal connections between said legs and said tail section, counterbalancing levers pivoted to the side support members and also pivoted to said intermediate section, braces interconnecting the side support members with the vertical rear legs, counterbalancing springs interconnecting said counterbalancing levers with said braces, links interconnecting said counterbalancing levers with the legs which are pivoted to the intermediate section, levers interconnecting said short fold section with the upper ends of said front legs, brackets pivoted to the legs which are pivoted to the fold section, links connecting said brackets with the levers which connect the short fold section with the front legs, means to rotate the legs which are pivoted to the short fold section relative to the short fold section, upon rotating the short fold section relative to the intermediate section, a board interconnecting said brackets, and means on the legs which are pivoted to the short fold section adapted to engage the front support bar upon completely folding the bed frame, a transverse member on the tail section, and a spring latch on one of the rear legs adapted to engage said transverse member upon completely folding the bed frame.

18. A folding bed frame comprising a pair of rear legs, a head section pivoted to the rear legs and extending forwardly therefrom when the bed is unfolded, an intermediate section pivoted to the forward end of the head section and extending forwardly therefrom when the bed is unfolded, a relatively short fold section pivoted to the front end of said intermediate section and extending forwardly therefrom when the bed is unfolded, a tail section pivoted to the front end of said fold section and extending forwardly therefrom when the bed is unfolded, said tail section being swingable upwardly about the fold section to a position at right angles thereto, said upwardly swung tail section and said fold section being swingable together about the intermediate section through an angle of 90° to a position

where the fold section extends upwardly from the front end of the intermediate section, and the tail section extends rearwardly from the upper end of the fold section, and said head section then being swingable about said rear leg to a position where it extends downwardly from the rear leg, and means on said head section to engage means on the tail section during said last movement, to aid in drawing the bed frame towards said last mentioned position, and for retaining the same in said folded condition.

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