Dec. 8, 1953 M. GURSKY 2,661,485

SOFA BED

Filed April 24, 1952 3 Sheets-Sheet 1

FIG. 1.

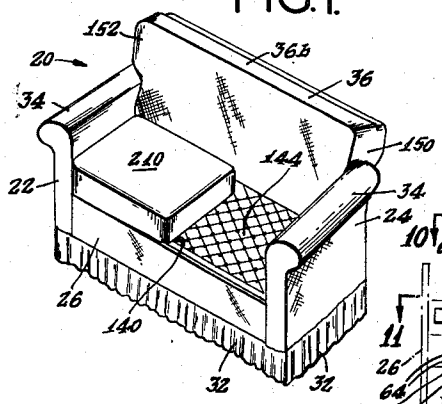


FIG. 2.

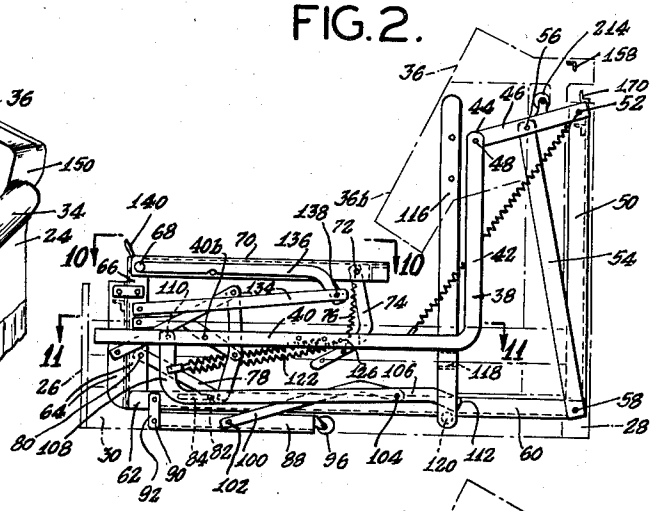


FIG. 10.

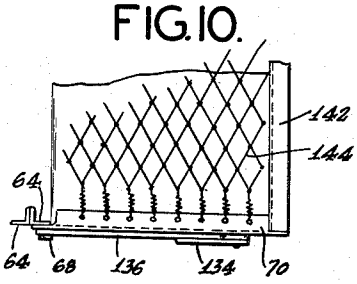


FIG. 3.

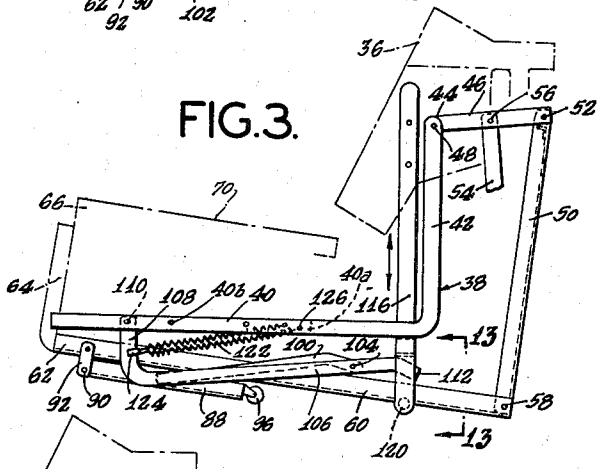
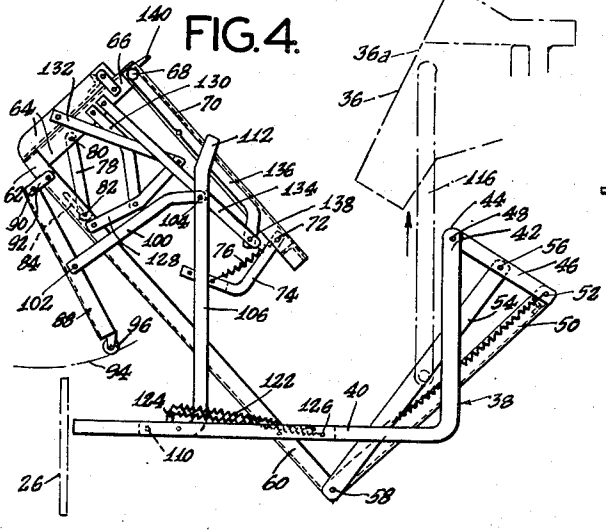


FIG. 4.



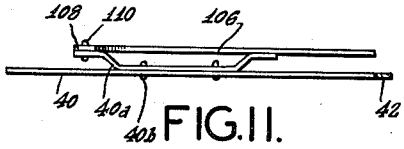


FIG. 11.

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SOFA BED

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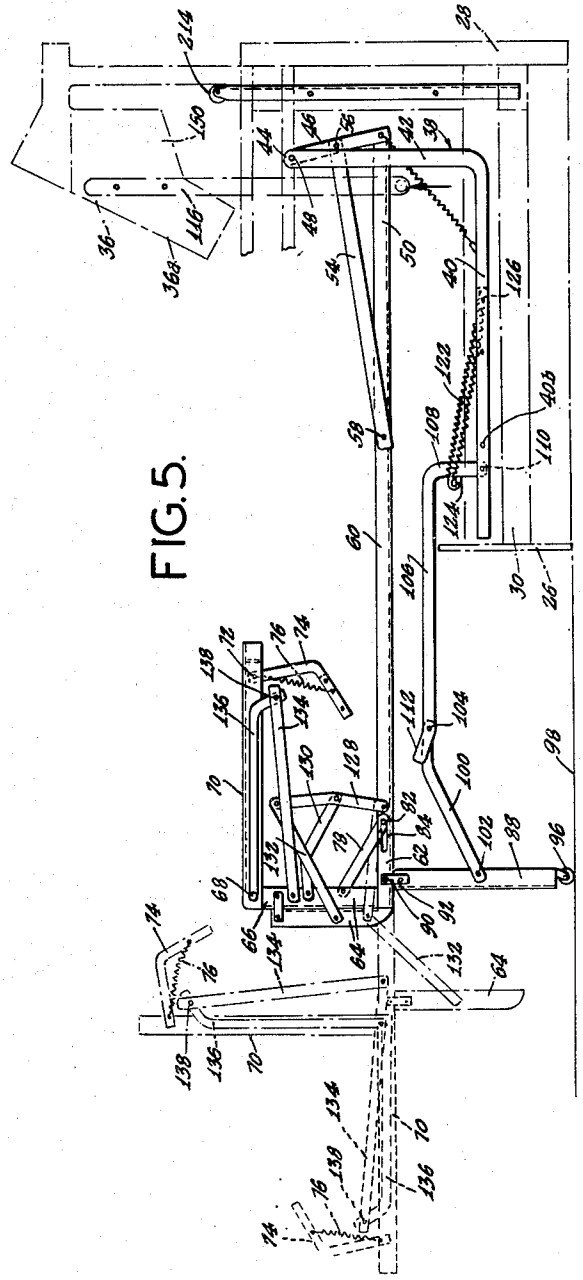


FIG. 5.

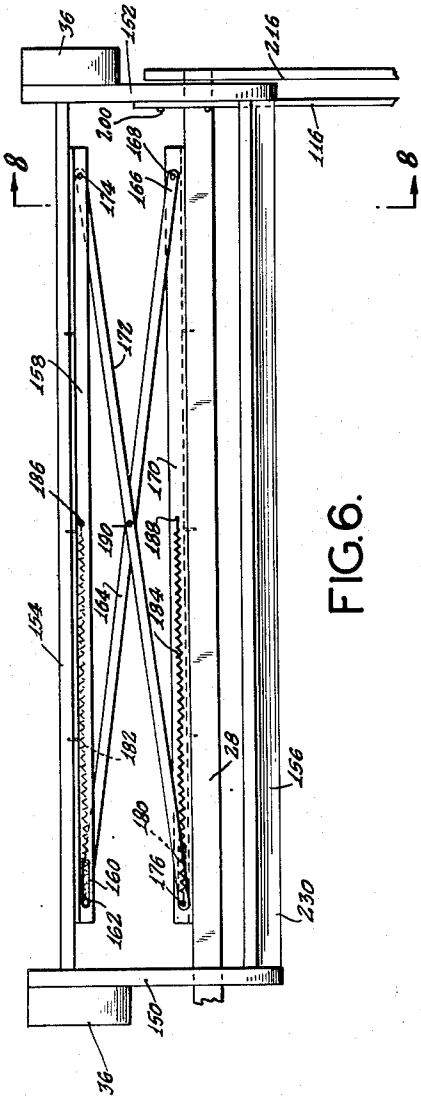


FIG. 6.

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SOFA BED

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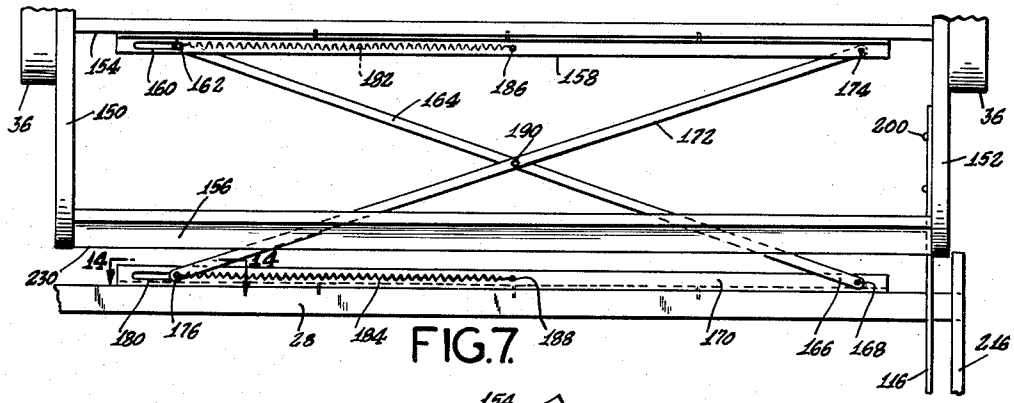


FIG.7.

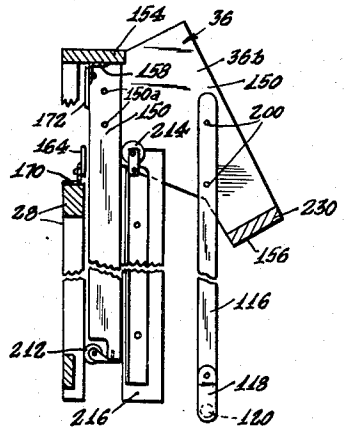


FIG.8.

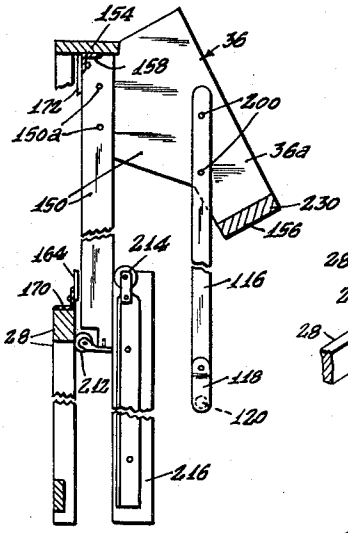


FIG.9.

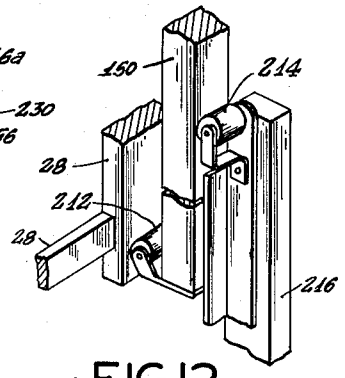


FIG.12.

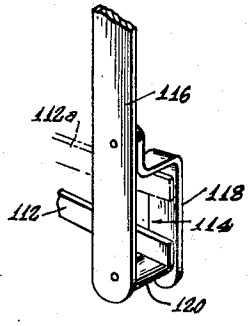


FIG.13.

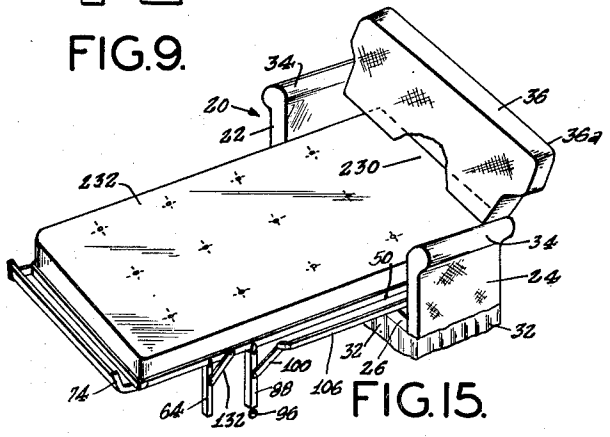


FIG.15.

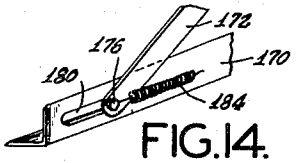


FIG.14.

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Patented Dec. 8, 1953 2,661,485

UNITED STATES PATENT OFFICE

2,661,485

SOFA BED

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Application April 24, 1952, Serial No. 284,058

5 Claims. (Cl. 5—13)

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This invention relates to articles of furniture which form sofas and the like when in closed position, and open out to form beds, and the like.

An object of the invention is to provide a novel and improved sofa-bed construction in which a well chamber is formed in the sofa to receive the foldable mattress supporting frame together with the mattress, the arrangement being such that when the foldable portions are inside the well chamber, the whole unit has the outward aspects and utility of a sofa or love-seat type sofa. When, however, the foldable parts are extended out of the well chamber, then the whole unit has the outward aspects and utility of a full size double bed.

Another object of the invention is to provide a novel and improved sofa-bed construction in which there is a main frame forming a cradle inside the seat well of the sofa, and an extensible foldable frame which is formed with a plurality of pivoted linkage members so as to open out to provide a spring frame or platform to support a mattress, the mattress folding with the extensible foldable frame to about one-third of the extended mattress length, for easy retraction inside the seat well.

A further object of the invention is to provide a novel and improved sofa-bed construction in which the two sides of the sofa, together with the back and front lower walls of the sofa define a seat well which is upwardly open, with a foldable mattress support frame with mattress retractable in folded position inside the seat well, the construction being such that the upper portion of the seat back wall is automatically moved upwards upon extension of the foldable mattress support frame and its mattress, so that there is clearance space under the upraised upper portion of the seat back, providing room for the feet of the occupant of the bed.

Still another object of the invention is to provide a novel and improved sofa-bed construction of the character described, in which, since the upper seat back wall is elevated upon extension of the mattress support frame and mattress, added length is gained without need for making the horizontal depth of the sofa itself excessive.

Still a further object of the invention is to provide a novel and improved sofa-bed construction which is simple in design, inexpensive to manufacture, very compact, and highly effective for its intended purposes.

These and other objects and advantages of the invention will become apparent from the following description of a preferred embodiment of the invention, as illustrated in the accompanying drawings, forming a part hereof, and in which,

Fig. 1 is a perspective view showing the sofa-bed with its bed portion fully retracted, one of the seat cushions being shown removed for illustrative purposes only;

Fig. 2 is an enlarged side elevational view

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showing the frame portions of the sofa bed illustrated in Figure 1, apart from the upholstered portions, the latter being indicated in dot-dash lines, the frame portions being shown in fully retracted positions corresponding to the sofa of Figure 1, and omitting the mattress from the view;

Fig. 3 is a fragmentary view similar to that of Figure 2, showing some of the linkage members only, and illustrating an initial movement of the linkage members toward extended bed positions;

Fig. 4 is a fragmentary view similar to that of Figures 2 and 3, but showing a further extension of the parts, the sofa back being indicated also in elevated position;

Fig. 5 is a side elevational view similar to that of Figures 2, 3 and 4, but showing the frame members in a further stage of extension, and indicating in dotted lines toward the left of the view, a still further stage of extension, and at the extreme left the final stage of full extension;

Fig. 6 is a fragmentary right end elevational view showing the main elements of the back of the sofa, in lowered or retracted position, corresponding to Figures 1 and 2;

Fig. 7 is a fragmentary view similar to that of Figure 6, except showing the frame members of the back in elevated or extended positions, corresponding to Figure 5;

Fig. 8 is a fragmentary sectional view taken substantially along the line 8—8 of Figure 6 (in lower position).

Fig. 9 is a fragmentary sectional view similar to that of Figure 8, but showing the parts with the back of the sofa in elevated position, corresponding to Figure 5;

Fig. 10 is a fragmentary plan view as seen along the line 10—10 of Figure 2;

Fig. 11 is a fragmentary sectional view taken substantially along the line 11—11 of Figure 2;

Figure 12 is a perspective detail view in fragment of the middle portion of the parts shown in Figure 9;

Fig. 13 is an enlarged fragmentary perspective detail view taken substantially on the line 13—13 of Figure 3;

Fig. 14 is an enlarged fragmentary perspective detail view of the lower left end portion of Figure 7, as seen along the line 14—14 of said view; and

Fig. 15 is a perspective view showing the sofa-bed of Figure 1, in fully opened out and extended position ready for use as a bed.

In the construction of articles of furniture in the nature of sofa-beds and the like, the normal outward appearance is that of an ordinary upholstered sofa when all the parts are in fully retracted positions. When opened out, however, they form a full size bed, and the entire foldable assembly, including the mattress, is extended out from within the confines of the contours of the sofa itself. As a result, the utmost compact-

ness is needed in the construction of the foldable and extensible portions of the sofa-bed, and yet it is additionally required that the dimensions of the sofa portion thereof be kept within reasonable confines.

It has been heretofore found necessary, in order to accommodate a full sized length mattress which must be folded in thirds, to make the horizontal depth of the sofa somewhat sizable, more so than the usual sofa which is not convertible to a bed. The present invention provides sofa-bed construction in which novel means is provided so that a full size length mattress may be folded in thirds, and yet the horizontal depth of the sofa may remain substantially less than would otherwise be expected. There is adequate foot room for the occupant of the sofa-bed when the mattress is extended outwardly.

In order to understand clearly the nature of the invention and the best means for carrying it out, reference may now be had to the drawings, in which like numerals denote similar parts throughout the several views.

As seen in Figures 1 and 15, there is a sofa-bed generally indicated at 20, and including a pair of upholstered side walls 22 and 24, secured together in upright spaced relationship by front wall 26 and rear lower wall 28, to define an upwardly open sofa seat well or chamber 30. The assembly may have feet, not shown, for engagement with the floor of a room in which the sofa-bed is placed, with ruffles or valances 32 extending over the same to conceal them from view, or of course, the ruffles 32 may be omitted, in which case the feet may become outwardly visible.

The side walls 22 and 24 may be smoothly upholstered and rounded off somewhat, as at 34, in any suitable manner, depending upon the decor or design of the article of furniture itself. The sofa-bed is provided with an upper back wall member 36, which is movable between the upper extended position shown in Figures 5 and 15, at 36*a*, and the lower or retracted position shown in Figures 1, 2 and 3 at 36*b*.

Referring now to Figure 2, it is seen that there is a pair of substantially L-shaped main frame members 38 having a horizontal leg 40 integral with an upright leg 42, there being one such main frame member 38 at the inner wall portion of each of the end wall members 22 and 24 and secured thereto and hence relatively stationary. At the upper ends 44 of the main frame members 38, there are hinged or pivotally attached levers 46 by means of pivot pins 48, so that the levers 46 are movable between the positions shown in Figure 2 which is the retracted position, to the positions shown in Figure 5, which is the fully extended position.

Lever arms 50 are secured at one end by means of pivot pins 52 to the other end of the arms 46, for movement between retracted vertical positions shown in Figure 2, and extended horizontal positions shown in Figure 5. A pair of angle struts 54 are secured by pins 56 to an intermediate location on the arms 46, and at their other ends by pins 58 to the other ends of the arms 50 as shown. A pair of arms 60 is hinged at pin 58 to the intersection of the arms 50 and 54, and is pivoted at its other end 62 to a pair of extension arms 64, which in turn are hinged at their outer ends 66 to extensions 70, which in turn have hinged thereto at pin 72, the end mattress confining or foot board member 74, the latter being biased by the tension spring 76 secured to an outer portion of member 74 and the pivot pins 72.

Angle struts 78 are secured pivotally at one end to pivot pins 80 engaging members 64, and have pins 82 on their other ends slidably engaging guide slots 84 formed in members 60, to limit the motion of the angle struts 78 between the two positions shown. When in the positions shown in full lines in Figures 2, 4 and 5, the pins 82 are against the right hand ends of the slots, whereas when in the fully extended position shown at the left of Figure 5, the pins 82 are against the left ends of the slots.

It is also seen that the legs 88 are pivoted at 90 to lugs 92 which in turn are secured to the angle irons 60 to allow the legs 88 to swing along the angle arc indicated at 94 in Figure 4, a suitable roller or wheel 96 being carried by the lower end of the legs 88 for engaging the floor 98 when in the position of Figure 5. A push arm 100 is pinned at 102 to an intermediate portion of the legs 88, and is pinned at 104 to an end portion of the arm 106, the latter arm being somewhat L-shaped as shown, with its other leg 108 pinned by pivot 110 to the stationary main frame member 40. A handle extension 112 forms part of one end of the member 106, and extends when in retracted position inside the passage 114 shown in detail in Figure 13, and formed between upright push member 116, and the flange member 118 carried thereby and portions of which are spaced therefrom in the manner of Figure 13 to define the passage 114, a pin 120 interconnecting the members 116 and 118 at their lower ends as shown, to confine the handle portion 112 of the lever member 106, when in the retracted position shown in the views.

A tension spring 122 is connected at one end 124 to lever 108, and at its other end 126 to the main frame member 40, tending to bias the members toward retracted position when extended. Additional lever arms are shown at 128, 130 and 132, with pivotal linkage as shown, and as seen best in Figure 5, there are also linkage levers 134 and 136 pivoted together at 138, for facilitating the extension of the members in the manner of Figure 5, and the retraction thereof as needed. Rollers 68 are carried at one end of the levers 136 to facilitate their movement. As seen in Figures 1 and 2, and in Figure 4, there is a pull loop 140, which is carried by the cross rail 142 or the web-like mattress spring 144, for pulling outwardly by the user of the sofa-bed, on an angle of about 45 degrees upwardly, when the parts are in the position shown in Figure 2, to elevate the same out of the seat well 30, from the position shown in Figure 2 to that shown in Figure 3, and then in Figure 4, and ultimately in Figure 5. The result is to tilt the rocker arms 46, from the positions of Figure 2 to that shown in Figure 3, wherein the foldable assembly is elevated somewhat out of the well, and thence to the position of Figure 4, and ultimately to that of Figure 5.

As mentioned hereinabove, I provide a sofa back member 36, which is arranged for vertical movement. Thus, the sofa back frame includes a pair of upright walls 150 and 152, as seen in Figures 6 and 7, interconnected by top and bottom frame members 154 and 156, and covered with suitable upholstery and padding. An angle iron member 158 is secured to the frame member 154 for movement therewith, and has a slot 160 formed therein as shown, to receive a pin 162 carried on the end of the strut member 164.

The lower end **166** of the strut member **164** is pivotally secured by pin **168** to lower relatively stationary angle iron member **170**, which is secured to the lower stationary back frame member **28**. The strut member **172** has its upper end pivoted at **174** to the angle iron member **158**, and has its lower end carrying a pin **176** which is slidable in slot **180** formed in lower angle iron member **170**. Springs **182** and **184** are secured at one end to the pins **162** and **176** respectively, and at their other ends to intermediate portions **186** and **188** of the angle iron members **158** and **170**, so as to bias the strut members **172** and **164** toward open position, the struts being pinned pivotally together at **190**. As a result, the springs, which are of proper predetermined strength, tend to cause the movement of the parts from the position shown in Figure 6 to that shown in Figure 7, to elevate the sofa back wall **36** from the position of Figure 8 to that of Figure 9. The push rod member **116** is secured at its upper portion by pins or screws **200**, to the wall **152** of the vertically movable seat back **36** for movement therewith.

Hence, when the pull cord **140** is pulled upon removal of the cushions **210**, and the various parts move to extended positions, the end **112** of the lever which extends inside the passage **114** in Figure 13 moves upwardly to its broken line position **112***a*, carrying with it upwardly the member **116**, and tending to start the upward movement of the members **164** and **172** and the seat back **36** carried thereby, to upraised position shown in Figure 9.

To facilitate the upward and downward motion of the seat back **36**, I provide rollers **212**, as seen in Figures 8, 9 and 12, which are carried by and movable with the frame members **150** of the back frame assembly **36**, and also rollers **214** which are secured to the stationary frame members **216** as shown. As a result, the rollers act as guides and make for smooth movement to minimize friction in the movement vertically.

From Figures 8, 9 and 15, it is seen that upon movement of the foldable frame out of the seat well, the member **112** kicks upwards on member **116**, starting the upward motion of the seat back **36** under the influence of the springs **182** and **184**, so that there is clearance under the lower edge **230** of the seat back as seen in Figures 7, 5 and 9, as compared with the existence of no clearance therebelow in the arrangement of Figures 2, 1 and 6. Hence there is room under the upraised seat back **36** for the feet of the occupant of the bed as seen in Figure 15, and also for the foot end of the mattress **232**. Hence, the mattress which is folded in thirds, approximately when in retracted positions as shown in Figure 2, inside the seat well **30**, is allowed to extend all the way substantially toward the right as seen in Figure 2, under the seat back **36**, which is raised on extension, to allow the feet of the occupant to extend under the seat back **36**. As a result, it is seen that the horizontal depth of the sofa side walls **22** and **24** may be made smaller than heretofore, while yet employing a full length mattress.

Although I have described my invention in specific terms, it will be understood that various changes may be made in size, shape, materials and arrangement without departing from the spirit and scope of the invention as claimed.

I claim:

1. Sofa bed construction comprising a frame defining a well, foldable mattress support means

compactly retractable into said well, and extensible therefrom into horizontal position of the upper portion thereof to support a mattress thereon, said frame including a back lower wall which is stationary, back support means carried by said back lower wall and constructed and arranged for pivoting between lower and upper positions, and back means carried by said back support means for movement with an upper portion thereof, whereby, upon actuation of said back support means, said back means is moved vertically upward to upper position, at which time space exists therebelow for the feet of the occupant; said back support means comprising a pair of first and second mutually intersecting arms pinned together intermediate their ends, one end of said first arm being pinned to said back lower wall and the other end of which is slidably engaging said back means, and wherein one end of said second arm is pinned to said back means and the other end of which is slidably engaged to said back lower wall, and resilient biasing means engaging said intersecting arms, and acting thereon to bias the same so that said back means tends to move toward upper position.

2. The construction according to claim 1, wherein said back means carries guide post kick means secured thereto and extending downwardly therefrom for movement therewith, and wherein said foldable mattress support means comprises a kick handle means which engages said guide post kick means when said back means is in lower position and said foldable mattress support means is in retracted position, and constructed and arranged so that when said foldable mattress support is actuated to expand to extended position, said kick handle kicks said guide post kick means in an upward direction, actuating said resilient biasing means to take over and move said back means to upper position.

3. The construction according to claim 2, wherein said guide post kick means comprises a wall member carried thereby and spaced therefrom to define a passage therebetween, to receive said kick handle, whereby, when in engagement, vertical motion of said kick handle in said passage actuates said guide post kick means and hence said back means into said movement.

4. The construction according to claim 2, wherein said back means and said back lower wall have slots formed therein, and said arms slidably engage said slots for movement therealong.

5. The construction according to claim 2, wherein said back means and said back lower wall have slots formed therein, and said arms have pins carried on those ends thereof which are slidably engaged therewith, said pins extending into said slots and arranged for movement therealong, and wherein said resilient means comprises at least one resilient tension spring acting between said pins and a stationary portion of said slot forming members, tending to bias said arms toward their positions of greatest extension.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
637,670	Sanor	Nov. 21, 1899
1,420,894	Usievich	June 27, 1922
1,519,667	Coopersmith	Dec. 16, 1924
2,485,219	Shumsky	Oct. 18, 1949