Dec. 6, 1960 P. P. BEBRY 2,962,729

CONVERTIBLE COUCH BED

Filed Nov. 18, 1957 3 Sheets-Sheet 1

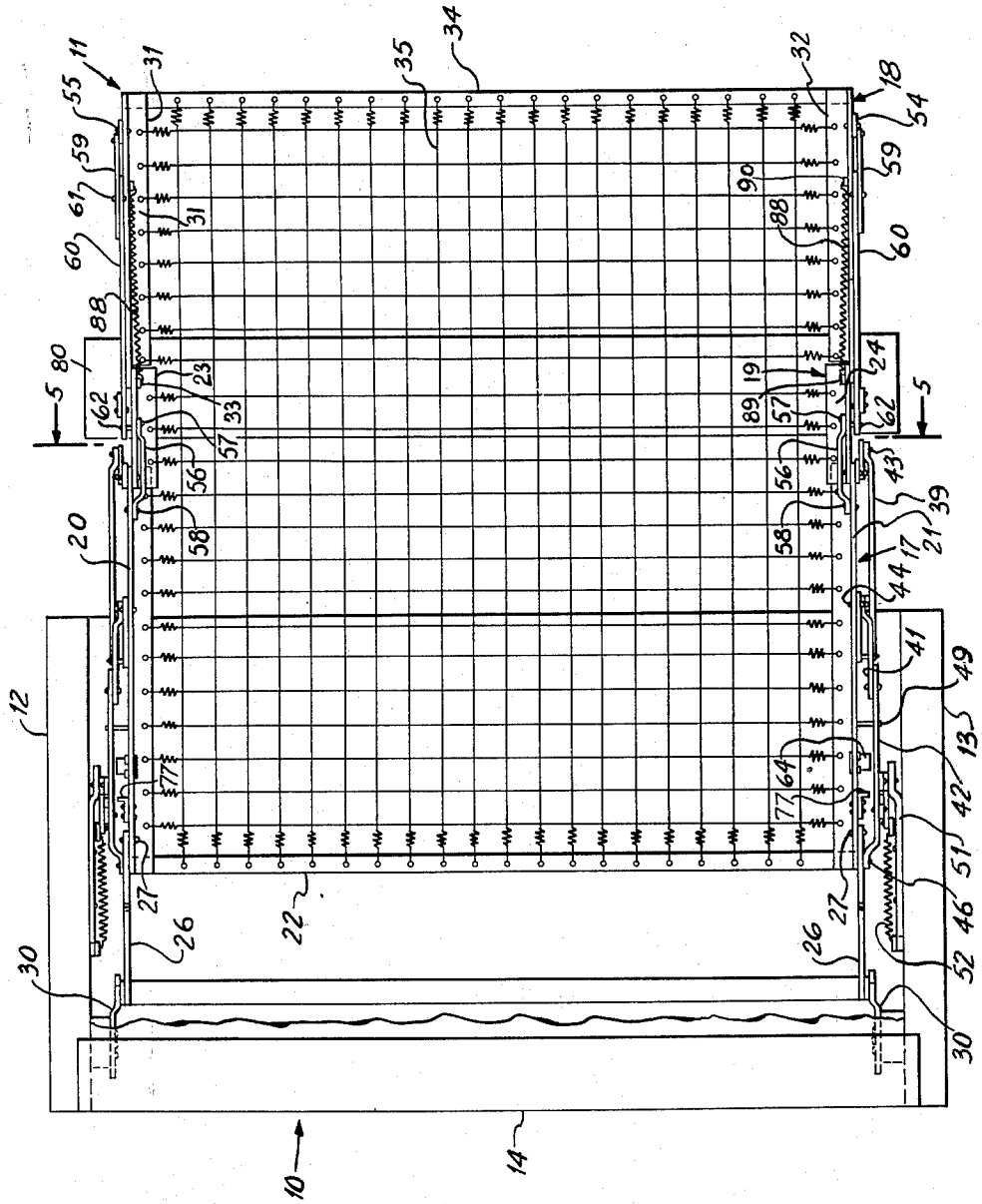


FIG. 1

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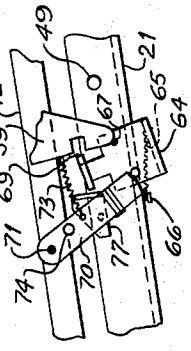
BY Clark & Clark

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CONVERTIBLE COUCH BED

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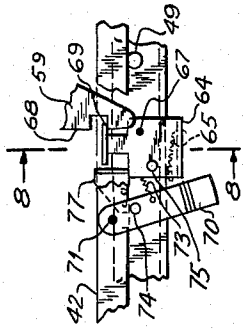


FIG. 6

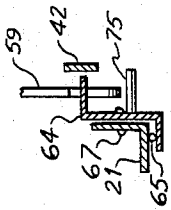


FIG. 8

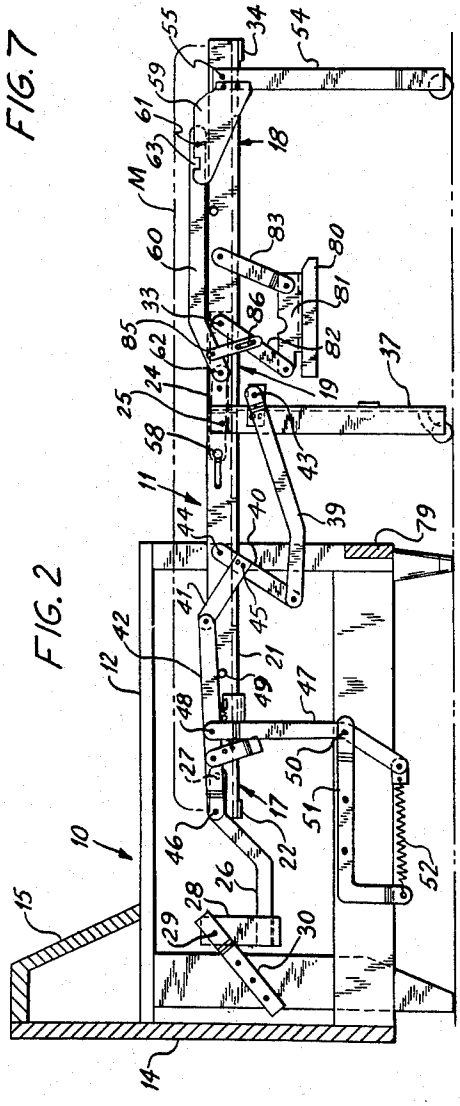


FIG. 7

FIG. 2

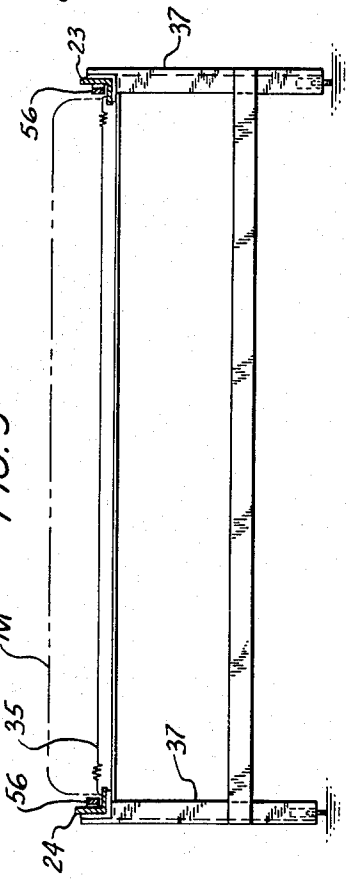


FIG. 5

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FIG. 3

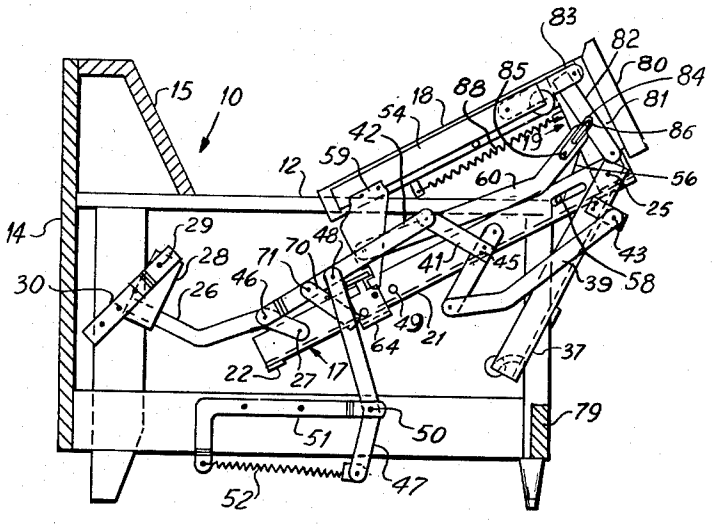
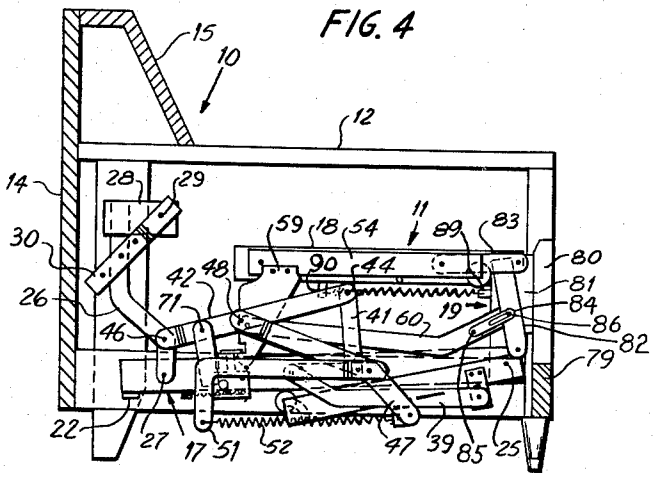


FIG. 4



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United States Patent Office

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CONVERTIBLE COUCH BED

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1 Claim. (Cl. 5—13)

This invention relates to an improved article of furniture which provides a couch and the like and is convertible into a bed.

Heretofore, articles of furniture of this character have included a plurality of relatively wide frame sections in order to provide the required length for sleeping position in right angular relation with the length of the furniture frame. This type of convertible article of furniture takes up considerable space when in bed forming relation and is difficult for use in small rooms. In order to overcome this objection, the present invention provides a convertible article of furniture which is constructed and arranged for sleeping in a position disposed in parallel relation with the length of the article of furniture. This type takes up less room when in bed forming relation and renders it possible to reduce the number and width of the frame sections.

Another object of the invention is to provide an article of furniture of said character with a foldable frame which is disposed at the usual height of a bed when in bed forming relation and which is at the usual height of a couch when in folded relation to support one or more seat cushions to provide a seat.

Still another object of the invention is to provide linkage means connecting the inner end of the foldable frame with the furniture frame which supports the inner end of the foldable frame in spaced relation from the rear of the furniture frame when in bed formation.

Still another object of the invention is to provide a foldable frame consisting of an inner section, an outer section and a short intermediate section which are swingable from an aligned bed forming position to folded and lowered relation within the furniture frame and which are automatically latched and retained in folded relation incident to the folding thereof and are automatically unlatched and released from folded relation incident to the movement of the sections to aligned bed formation.

With the foregoing and other objects in view, reference is now made to the following specification and accompanying drawings in which the preferred embodiment of the invention is illustrated.

In the drawings:

Fig. 1 is a plan view of a convertible article of furniture constructed in accordance with the invention.

Fig. 2 is a side view of the foldable frame with the sections thereof arranged in end to end relation for use as a bed and with the furniture frame shown in vertical section.

Fig. 3 is a similar view showing the foldable frame in partially collapsed relation.

Fig. 4 is a view showing the foldable frame in fully collapsed relation within the furniture frame.

Fig. 5 is a vertical sectional view taken approximately on line 5—5 of Fig. 1.

Fig. 6 is an enlarged fragmentary side view of the foldable frame showing the latching and unlatching mechanism with the latch parts about to be engaged.

Fig. 7 is a similar view showing the latch parts in latched engagement.

Fig. 8 is a sectional view taken approximately on line 8—8 of Fig. 7.

Referring to the drawings, the article of furniture includes a furniture frame 10 and a foldable frame 11 composed of a plurality of pivotally connected sections which are adapted to be disposed in alignment to support a mattress thereon to provide a double bed as shown in Fig. 1 of the drawings. The sections are foldable from the aligned bed forming relation to collapsed relation within the furniture frame with the mattress arranged in folded over relation between the folded sections and with the outer section disposed uppermost for receiving one or more cushions to provide a couch. The furniture frame 10 consists of side panels 12 and 13 which are connected by a front panel 14 and a back 15.

The foldable frame 11 includes an inner section 17, an outer section 18 and a narrow intermediate section 19. The sections are preferably of angle iron construction, the inner section 17 consisting of spaced side rails 20 and 21 which are arranged with the horizontal flanges extending inwardly and the vertical flanges projecting upwardly. The side rails 20 and 21 are connected at their inner ends by a cross bar 22 and at their outer ends are pivotally connected with the side rails 23 and 24 respectively of the intermediate section 19 on pivot pins 25 extending through the vertical flanges thereof. The inner section is swingably connected with the furniture frame 10 by bent links 26 pivotally connected at their outer ends on pivot pins 27 to the vertical flanges of the side rails thereof and having upwardly extending inner ends 28 which are pivoted on pivot pins 29 to straps 30 affixed to the inside faces of the side panels 12 and 13 respectively. The side rails 23 and 24 of the intermediate section 19 are pivotally connected to the side rails 31 and 32 of the outer section 18 on pivot pins 33 extending through the vertical flanges thereof. The side rails 31 and 32 of the outer section 18 are connected at their outer ends by a cross bar 34 and secured to the inwardly directed flanges of the sections and to the cross bars 22 and 34 is a wire mesh spring 35 which supports a mattress M when the sections are in aligned formation to serve as a bed.

When in bed forming relation, the inner section 17 is supported in outwardly disposed spaced relation from the back of the furniture frame and at an elevation for disposing the mattress thereon at the usual height of a bed. This is accomplished by the bent offset relation of the links 26 and by a linkage construction at each end of the inner section. The said linkage construction includes legs 37 pivotally connected respectively to the outer ends of the side rails 20 and 21 of the inner section and two pairs of pivotally connected links at each end of the section which connect the legs 37 with the bent links 26. One of said pairs of links at each end are the pivotally connected links 39 and 40, while the other of said pairs of links at each end are the pivotally connected links 41 and 42. The links 39 are pivotally connected with the legs 37 on pivot pins 43 and the links 40 are pivotally connected with the vertical flanges of the side rails 20 and 21 on pivot pins 44. The links 41 are affixed to the links 40 as at 45 and the links 42 are pivotally connected with the bent links 26 on pivot pins 46 located in spaced relation from the pivot pins 27 which pivotally connect the link 26 with the inner section. The links 42 engage against lugs 49 affixed to the vertical flanges of

the side rails 20 and 21 which lugs form stops functioning to retain the legs in upright relation.

The links 42 are pivotally connected with bent links 47 on pivot pins 48 which latter links are pivotally connected on pivot pins 50 to the flat bars 51 riveted or otherwise affixed to the inside faces of the side panels 12 and 13. The said flat bars have downwardly directed inner ends with springs 52 connected thereto and to the links 47 for tensioning the inner section against downward movement and for facilitating the upward movement thereof.

The legs 37 support the adjacent ends of the inner and intermediate sections 17 and 19. The outer end of the outer section 18 is supported by legs 54 which are pivoted to the vertical flanges of the side rails 31 and 32 thereof on pivot pins 55. The adjacent ends of the intermediate and outer sections 18 and 19 are maintained in aligned relation by links 56 which are pivotally connected at their outer ends against the inside faces of the vertical flanges of the side rails 23 and 24 on pivot pins 57 and at their inner ends the said links have pin and slot connections 58 with the vertical flanges of the side rails 20 and 21 of the inner section 17. When in bed forming relation the said links bear against the horizontal flanges of the inner and intermediate sections to thereby retain the intermediate section and the inner end of the outer section in aligned relation.

The legs 54 have side plates 59 affixed thereto at their upper ends which are pivotally connected with links 60 on pivot pins 61, the forward ends of said links being pivotally connected with the vertical flanges of the side rails 23 and 24 of the intermediate section on pivot pins 62. With the folding of the outer section on pivot pins 33 to dispose the same in right angular relation with the intermediate section 19, the links 60 effect swinging of the legs 54 into parallel relation with the side rails of the outer section. The intermediate section 19 is swingable on the pivot pins 25 to dispose the same in upstanding relation with the inner section 17. The pin and slot connections 58 permit swinging movement of the inner section to said upstanding relation but prevent swinging movement therebeyond. This swinging movement of the outer and intermediate sections disposes the outer section in overlying substantially parallel relation with the inner section as shown in Figs. 3 and 4 of the drawings.

The outer section is secured in overlying relation with the inner section by means of latch elements 64 which are biased into engagement with detent slots 63 in the side plates 59 as shown more clearly in Figs. 6 and 7 of the drawings. The said latch elements are pivoted to the outside faces of the vertical flanges of the side rails 20 and 21 of the inner section 17 on pivot pins 67 and are tensioned by coil springs 65 affixed to said latch elements and to depending lugs 66 affixed to the under side of the side rails 20 and 21. With the movement of the outer section 18 into overlying relation with the inner section 17, the leading edges 68 of the side plates 59 engage the edges 69 of the latch elements 64 and swing the latch elements on their pivotal connections until the detent slots 63 are in alignment with the edges 69 whereupon the springs 65 function to swing the latch elements 64 into engagement with the slots 63.

The inner and outer sections are automatically released from latched engagement with the swinging of the sections from collapsed folded relation within the furniture frame to dispose the inner section in elevated relation. For this purpose latch release elements 70 are pivoted to the links 42 on pivot pins 71 which are biased by springs 73 to normally retain stop elements 74 in engagement with the lower edges of said links and the detent elements are in angular relation. The springs 73 are affixed in tensioned relation to the latch release elements 70 and to the lower edges of the links 42. With the upward movement of the sections, the lower ends of the latch release elements are swung into engagement with

lugs 75 projecting outwardly from the latch element 64 to thereby cam the latch elements out of engagement with the detent slots 63 as shown in Fig. 7 of the drawings so as to permit of the swinging of the outer section from overlying relation with the inner section into extended position as shown in Fig. 2 of the drawings. With the release of the latch elements 64 out of engagement with the detent slots 63, the latch release elements 70 are moved out of engagement with the lugs 75 whereby the springs 65 function to swing the latch elements 64 into engagement with stop elements 77 to thereby retain the latch elements in tensioned upright relation. The stop elements 77 are affixed to the vertical flanges of the side rails 20 and 21 of the inner section 17 at the rear of the latch elements 64 respectively.

The furniture frame also includes a front panel 79 affixed at its ends to the side frames 12 and 13 at the front thereof. A movable panel 80 is carried by the foldable frame 11 for movement into position above the panel 79 to close off the front opening in the furniture frame with the movement of the foldable frame into collapsed position therein. The movable panel 80 is affixed at its ends to brackets 81 which brackets are swingably connected with the outer section 18 by links 82 and 83 pivotally connected to the brackets and to the vertical flanges of the side rails 33 and 34. The panel 80 is movable from horizontal relation to vertical relation above the panel 79 with the swinging of the foldable frame into collapsed relation within the furniture frame 10 by links 84 pivoted to the links 60 on pivot pins 85 and to the links 82 on pin and slot connections 86.

When in bed forming relation the outer section 18 and the intermediate section 19 are biased by springs 88 connected at their ends to lugs 90 and 89 affixed to the said sections respectively. The springs thus tension the outer section 18 to facilitate the swinging thereof into overlying relation with the inner section.

While the preferred form of the invention has been shown and described herein, it is to be understood that the same is not so limited but shall cover and include any and all modifications of the invention which fall within the purview thereof.

What is claimed is:

In an article of furniture of the class described, a furniture frame, a foldable frame composed of a plurality of sections pivotally connected together in end to end relation for movement from aligned bed forming relation to a folded relation within the furniture frame, said foldable frame including an inner section having side rails, leg members pivotally connected to the outer ends of said side rails, means swingably connecting said inner section with the furniture frame including a first link at each side of bent formation pivotally connected to the side rails of said inner section and extending inwardly and downwardly below the inner section and having upwardly extending inner ends pivotally connected at their upper ends with the furniture frame at the sides respectively adjacent the rear thereof in substantially horizontal alignment with the pivotal connections of said first links with said inner section when in bed formation and with the pivotal connections of said first links with said inner section in substantially vertical alignment with the pivotal connections of said first links with the furniture frame when the foldable frame is in folded relation, second and third links consisting of a pair of pivotally connected links at each side of said inner section, said third links being pivotally connected respectively to the legs and said second links being pivotally connected respectively to said side rails, a fourth link pivotally connected at each side to said bent links respectively inwardly of the pivotal connection of said bent links with the inner section, means rigidly affixed to said second links and pivotally connected to the outer ends of said fourth links respectively, a fifth link at each side pivotally connected to said furni-

ture frame and to said fourth links respectively adjacent the pivotal connections of said first links with the inner section for supporting the inner section in elevated bed forming relation, and said bent links and said fifth links functioning to swing said inner section from bed forming relation to lowered relation within the furniture frame with the inward swinging of said sections to folded relation.

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