

Oct. 10, 1961

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3,003,160

FOLDABLE BED FRAME-BED TO CONTOUR CHAIR

Filed Dec. 1, 1958

3 Sheets-Sheet 1

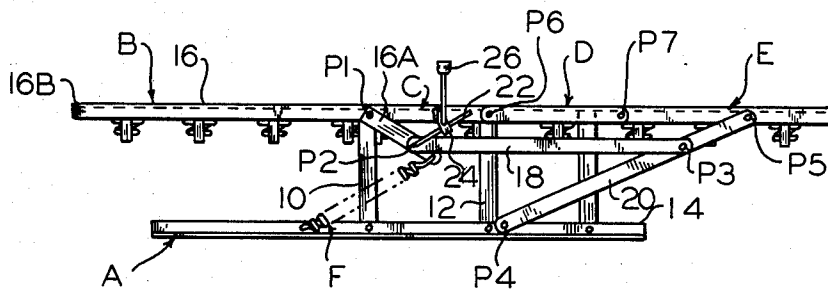


FIG. 1

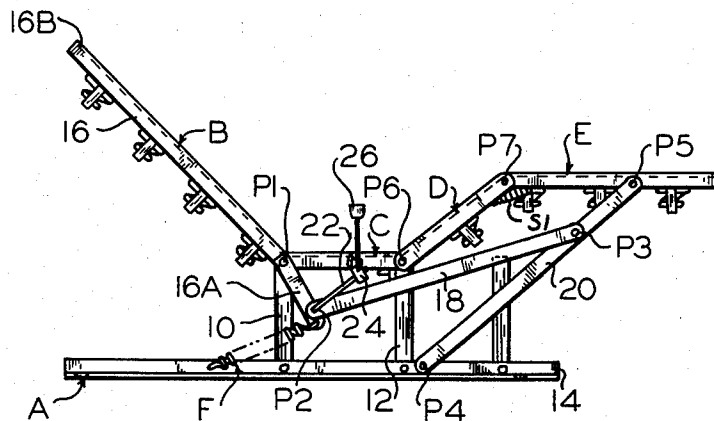


FIG. 2

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3 Sheets-Sheet 2

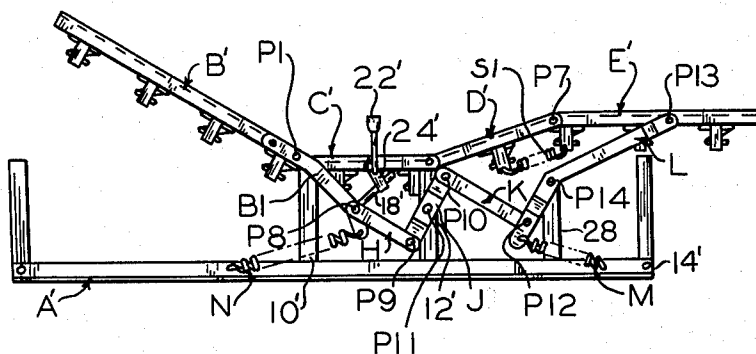


FIG. 3

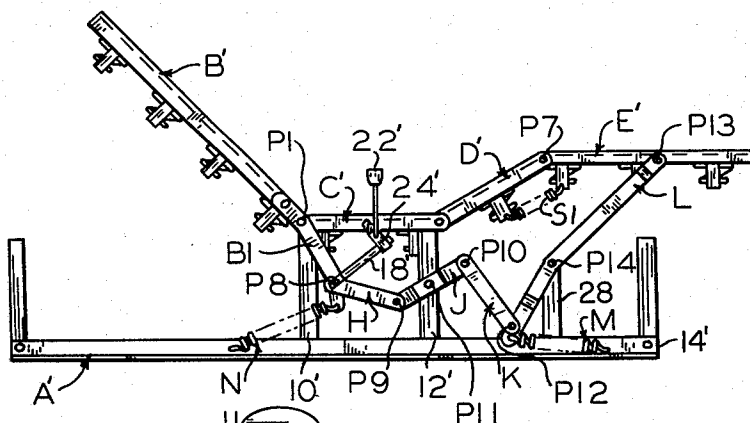


FIG. 4

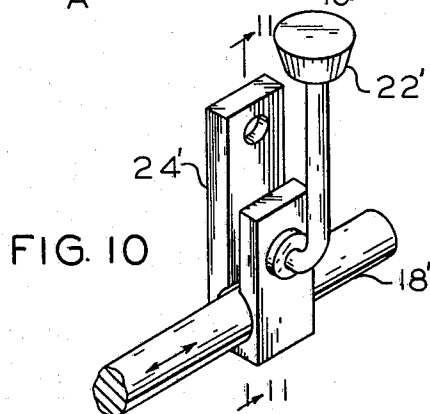


FIG. 10

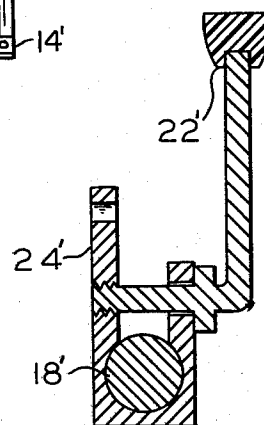


FIG. 11

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FOLDABLE BED FRAME-BED TO CONTOUR CHAIR

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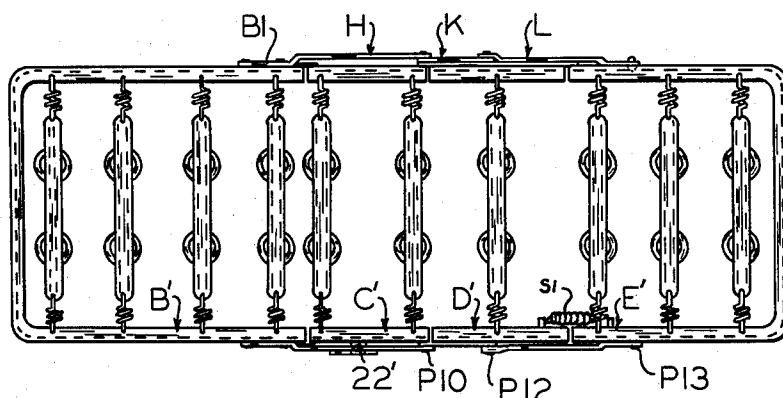


FIG. 5

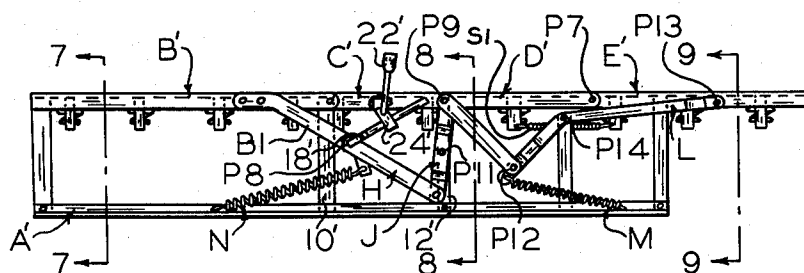


FIG. 6

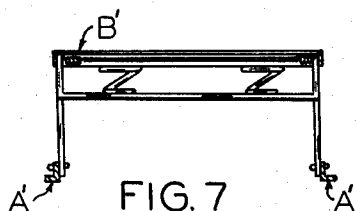


FIG. 7

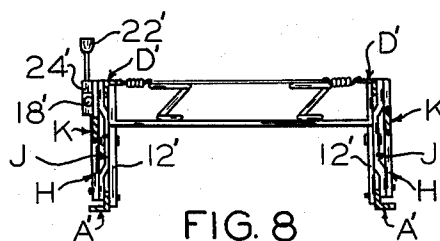


FIG. 8

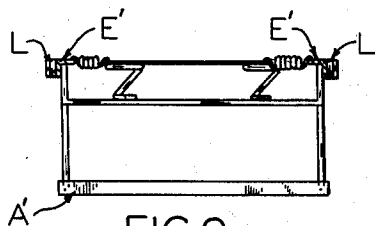


FIG. 9

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FOLDABLE BED FRAME-BED TO CONTOUR CHAIR

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4 Claims. (Cl. 5-69)

My invention relates to a foldable bed frame which may serve both as a bed and as a contour chair. It also may be used by a person who is convalescing and who desires to shift their position in the bed from a lying position to a sitting position in the contour chair.

Heretofore, foldable bed frames of various types have been manufactured and sold. However, a bed which also can serve as a contour chair has not, to my knowledge, been manufactured and sold, wherein the shifting of the contour is controlled by the shifting of the body of the person on the bed.

My invention embodies a bed made of multiple articulated sections; one section being a head section, a fixed seat section, an intermediate section, and a foot section, which have their ends pivotally joined together whereby they may be in a continuous surface either flat or irregular contour configuration. The sections form a framework which may be covered in any manner desired, as is common in this art.

It is an object of my invention to provide a foldable bed frame which can be converted to a contour chair with a minimum of effort.

Another object of my invention is to provide a foldable bed frame which can be easily converted to a contour chair by a convalescent without the aid of others.

Other objects of my invention are to provide an improved device of the character described, that is easily and economically produced, which is sturdy in construction, and which is highly efficient in operation.

With the above and related objects in view, my invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawing, in which:

FIG. 1 is a side elevational view of a convertible bed and contour chair embodying my invention, with the top sections shown in flat position to serve as a bed, but omitting the mattress, the side coverings and any cushions which may be used.

FIG. 2 is a side elevational view of a convertible bed and contour chair with the various sections upraised.

FIG. 3 is a side elevational view of a modified form of the invention, showing the device in partially raised position.

FIG. 4 is a view similar to FIG. 3 but showing the device in fully raised position.

FIG. 5 is a top plan view of the device shown in FIGS. 3 and 4.

FIG. 6 is a view similar to FIGS. 3 and 4 but showing the device in fully lowered or horizontal position.

FIG. 7 is a sectional view taken along the line 7-7 of FIG. 6.

FIG. 8 is a sectional view taken along the line 8-8 of FIG. 6.

FIG. 9 is a sectional view taken along the line 9-9 of FIG. 6.

FIG. 10 is an enlarged view showing the locking handle and the sliding rod 18'.

FIG. 11 is a sectional view taken along the line 11-11 of FIG. 10.

Referring now in greater detail to the drawings wherein similar reference characters refer to similar parts, and wherein the drawings neither show the mattress nor

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cushions in position, nor is there any outside covering for a metallic supporting frame, which is generally designated as A. In other words it should be pointed out that each side of the frame is similar on the other side of the frame so that cross springs are held between the two sections to provide support for a mattress (not shown).

The multiple articulated sections forming the bed spring comprises a head section, generally designated as B, mounted upon a frame, generally designated as A, a seat or body section C, an intermediate section, generally designated as D, and a foot section, generally designated as E, which are pivotally connected together to lie in one plane thereby forming a bed. The frame A includes a plurality of vertically extending angle iron posts 10 and 12, rigidly attached to a floor angle iron or base 14.

Pivotally mounted at P1 upon the fixed post 10 is the head section B. It should be observed that the angle iron side 16 of the head section B, has a rigidly attached extension 16A which extends to the right of the pivot P1 as viewed in FIGS. 1 and 2. Attached to the free end of the extension 16A is one end of a torsional spring, generally designated as F, which has its other end connected to the floor angle iron 14 of the frame A. In its normal position the spring F tends to pull the head section upwardly.

Pivotally connected at P2 to the extension 16A of the head section B is one end of a rigid link 18. The other end of this link 18 is pivotally connected at P3 to an intermediate portion of the lever 20. Pivotally connected to the extension 16A at P2 is a holding slide or rod 22 that passes through a pivoted guide 24. A locking handle 26 is located within easy grasp of the person lying upon the bed so that turning the handle locks or unlocks the holding slide 22.

Hence, the connecting link 18 is pivotally connected at P3 intermediate the ends of the lever 20 and at pivot P2 to the end of the head section B so that movement of the head section moves the links 18 and the lever 20. The lever 20 is pivoted at P4 at one end to the base 14 and has its other end pivoted at P5 intermediate the ends of the side of the foot section E.

At this time it is to be pointed out that the head section B is pivoted to the frame A or post 10 and the body portion C is fixed in position. One end of the intermediate section of the bed is pivoted at P6 to the vertical brace 12 and its other end is pivoted at P7 to one end of the foot section E.

The various pivotal connections between the several bed sections B, C, D and E, permits the head section B, the intermediate section D and the foot section E to move relative to each other when the frame is adjusted from a bed position to that of a contour chair position.

Assuming that the frame is in a flat unfolded position for supporting a mattress as a bed, as shown in FIG. 1, and the frame is to be formed to a contour chair as shown in FIG. 2, the operator will release the locking handle 26 whereby the sliding holding member 22 will slide through the loop 24 and the user, by shifting the weight of his body, will permit the head section to be pulled upwardly and the foot section to be pulled upwardly by virtue of the pull of the spring F and the action of the link 18 and the lever 20.

A view of the construction illustrated will enable one to readily understand the operation of the bed. The frame A and the bed section are rigidly fixed together by suitable bolts or holding members. The frame section that supports the mattress comprises the head section B, the seat or body portion C, which is fixed in position, the pivotally connected intermediate portion D, which is connected to the seat portion, and the foot section E pivotally connected to the intermediate section. The

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bed sections B, D and E, when in flat position, lie in the same plane as shown in FIG. 1.

However, upon the shifting of the body, the spring F will pull the head section extension, the link 18 and the lever connected to the foot section, thereby causing the contour section to assume the configuration as shown in FIG. 2, wherein the head section extends at substantially an angle of 45° to the horizontal, the intermediate section is inclined upwardly at an angle of 45° to the horizontal so that the sections B and D are at an angle of 90° to one another and the foot section moves upwardly from a horizontal position in the same plane as the seat portion C, into a plane higher than the plane in which the seat appears.

A modification of my invention is shown in FIGS. 3 and 4, wherein a frame A', bracing vertically extending angle irons 10' and 12, are joined by a seat portion C' on the upper end and the base 14' at the lower end. There is a head section B' pivoted to the bracing or seat member C', an intermediate section D' pivotally connected at one end to the seat section B', and a foot section E', pivotally connected to one end of the intermediate section D'.

It is to be noted that a rigidly mounted link, generally designated as B1, is affixed to the head section B' and its other end is pivotally connected to another arm H, which is pivoted at P8. The lever arm H is pivoted at one end at P8 to B1 and its other end is pivoted at P9 to a link J. The intermediate portion of the link J is pivoted at P11 to the post 12' of the frame A'. One end of the link K is pivoted at P10 to a lever arm L that is pivoted to the foot member E' at P13, and it is to be noted that a spring M is connected at one end to the frame A' and its other end to an extension of the foot section of the lever arm L. The lever arm L is pivoted at P14 intermediate its end to a rigid post 28 on the frame A'. A second spring N has one end connected to the frame A' and its other end is connected to the link B1 and the spring causes additional torsion to move the frame. A sliding rod 18' is pivotally connected at one end to the link B1 and it engages within a slide holder 24'. A locking handle 22' is similar to that as illustrated in FIGS. 1 and 2.

A spring S1 is connected to the intermediate section D' and the foot section E to cause the aforementioned sections to swing about the pivot P7. An intermediate link K is connected at P12 to one end of the lever L and the other end of the link K is pivoted to one end of the swinging link J.

Although my invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

I claim:

1. A contour bed comprising a base, a frame extending upwardly from said base, a seat section rigidly mounted in horizontal position on said frame, a head section pivotally connected to one end of said seat section, an

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intermediate section having one end thereof pivotally connected to the opposite end of said seat section and having the opposite end thereof pivotally connected to a foot section, said head section, intermediate section and foot section being positionable in horizontal alignment with said seat section and being pivotally movable relative thereto, linkage operatively connecting said head section directly to said foot section for providing simultaneous movement of said head and foot sections, spring means urging said head and foot sections away from said horizontal alignment with said seat section, and pivotal locking means engageable with a straight slidable rod for releasably locking said sections in said horizontal alignment, said locking means being pivotally connected to said rigid seat section while said rod is pivotally connected to said linkage and is free from connection to any other part of said frame.

2. The bed of claim 1 wherein said linkage comprises an offset extension on said head section pivotally connected to one end of a connecting link, the opposite end of said connecting link being pivotally connected to an intermediate portion of an actuating link, said actuating link being pivotally connected at one end to an intermediate portion of said foot section and being pivotally connected at its opposite end to said base, and said spring means being connected at one end adjacent to but offset from the pivotal connection between said offset extension and said connecting link and at its opposite end to said base.

3. The bed of claim 1 wherein said linkage comprises an offset extension on said head section pivotally connected to a first connecting link, said first connecting link being also pivotally connected to an intermediate link, said intermediate link being pivoted both to said frame and to a second connecting link, said second connecting link being pivotally connected to an offset extension of an actuating link, said last-mentioned offset extension being pivoted at its junction with said actuating link to a portion of said base, said actuating link being pivotally connected to an intermediate portion of said foot section, and oppositely-extending springs connecting each of said offset extensions to said base.

4. The bed of claim 1 wherein a handle is operatively connected to said locking means for opening and closing said locking means.

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