Dec. 22, 1953 A. WINIKOFF 2,663,028

COMBINED SEAT AND FOLDING BED

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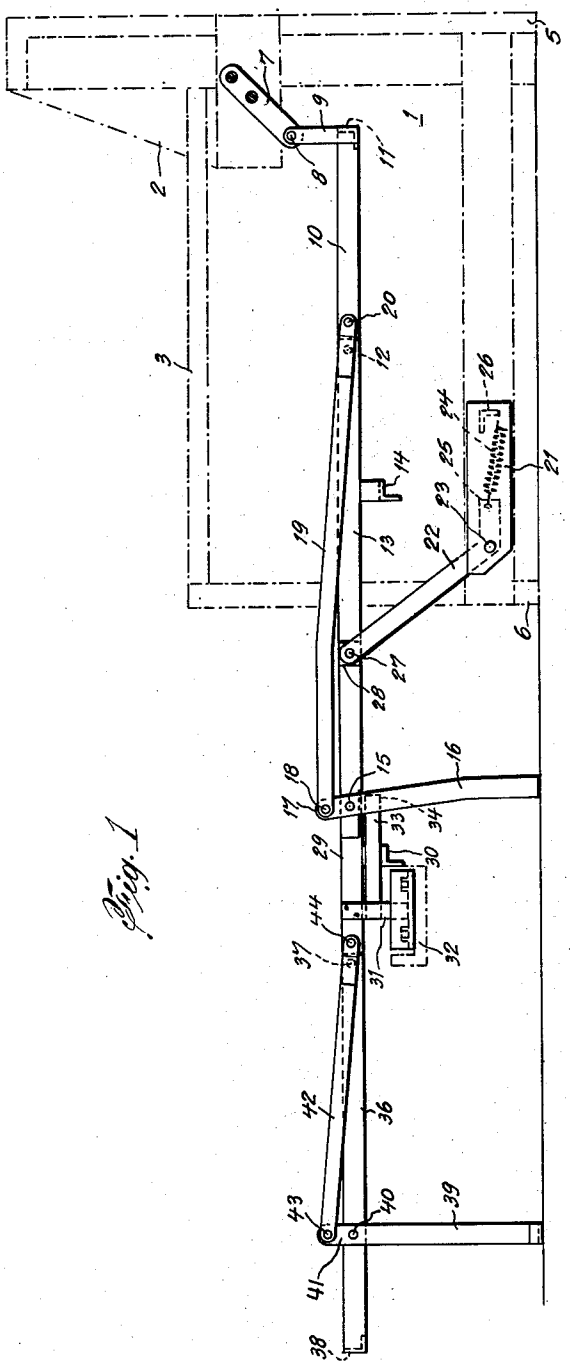


Fig. 1

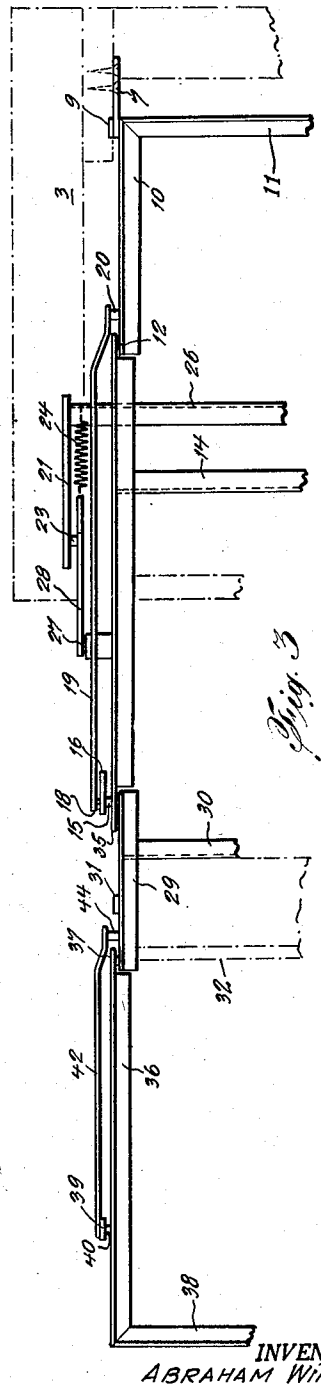


Fig. 3

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Fig. 2

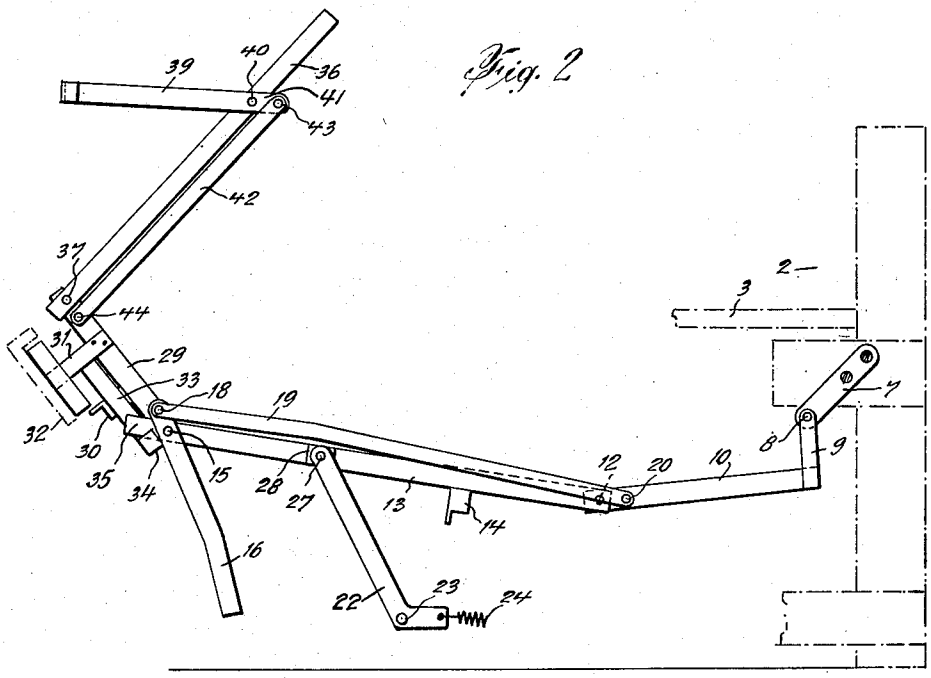


Fig. 4

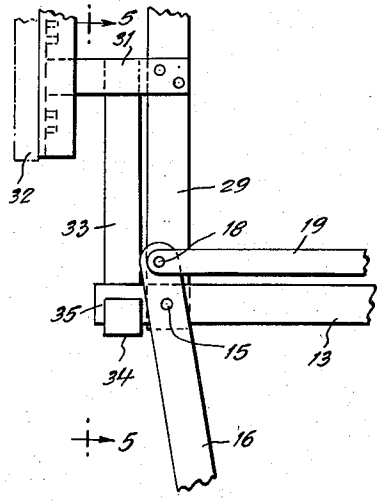
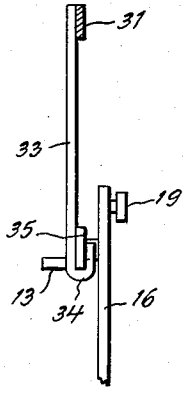


Fig. 5



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COMBINED SEAT AND FOLDING BED

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6 Claims. (Cl. 5—13)

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The present invention is directed to a combined seat and folding bed, wherein the bed is formed of a number of sections pivoted to each other and adapted to be folded in a small volume and nested within the seat.

Structures of this kind have long been known and such combination articles of furniture are on the market. They have been satisfactory in that they accomplish the desired results but they had a number of disadvantages. In some such structures the mechanism was relatively complicated and was costly to produce. In others, there was difficulty in the manipulation thereof to open and close the bed. In some structures means were provided for holding the various bed sections in proper closed position and such devices introduce the difficulty that they would interfere with the sleeper when the bed was open. In some structures the folding legs which were opened in order to support the bed when in open position were so mounted that as the bed was being opened the legs would scrape along the floor or rug and damage the same.

The present invention is intended and adapted to overcome the difficulties and disadvantages inherent in prior structures of the type described, it being among the objects of the present invention to provide a combined seat and folding bed in which there is provided a mounting for the legs to insure that the legs are in fully open position before they touch the floor or other surfaces upon which the open bed rests.

It is also among the objects of the present invention to provide a structure in which there is an automatic lock or latch which suitably supports the several bed sections when the bed is in closed position and at the same time maintains the seat in proper position and with suitable springiness to be comfortable.

It is still further among the objects of the present invention to provide a structure which is simple and compact, which is economical to produce and which is highly effective in operation.

In practicing the present invention, there is provided a seat frame having mounted thereon on a suitable hanger an inner bed section consisting of an angular frame. There is also provided a middle section, a fold section and an outer section, each of said sections being adjacent to the earlier named section and pivoted thereto. Legs are provided at the middle section and outer section and are suitably pivoted to the adjacent section in order to fold when the bed is closed. Keepers are provided on the middle section with suitable elements in the nature of

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latches, which cooperate therewith when the bed is closed in order to maintain the several sections in their proper relative positions. Means are also provided for resiliently maintaining the bed in both open position and closed or nesting position within the seat frame.

In the accompanying drawing constituting a part hereof, in which like reference characters indicate like parts,

Fig. 1 is a longitudinal cross-sectional view of a combined seat and folding bed, showing the bed in fully open position;

Fig. 2 is a view similar to Fig. 1 but showing the fold and outer sections in partially closed positions;

Fig. 3 is a fragmentary top plan view of the bed in open position, and

Figs. 4 and 5 are fragmentary elevational and edge views of an intermediate portion of the frame.

There is provided a seat frame 1 having a back 2 and sides 3. The back and sides are suitably upholstered. Legs 5 and 6 at the rear and front corners of frame 1 maintain the seat a proper distance from the floor surface.

Fixed in the sides of frame 1 is a pair of hangers 7 having a pivot point 8. The inner section of the bed consists of a pair of downwardly extending bars 9 pivoted at 8 and having horizontal bars 10 integral therewith. A transverse member or cross brace 11 joins the two angular members 9—10 to complete the inner section. Adjacent to the outer end of bars 10 are pivots 12. The middle sections of the bed comprise a pair of longitudinal bars 13 pivoted to bars 10 at 12 and having a cross member or brace 14 near the inner end of bars 13 to complete the middle section.

Pivoted to bars 13 at point 15 near the outer ends thereof are a pair of legs 16 extending upwardly above bars 13, as shown at 17. Pivoted at 18 on extension 17 are links 19 which are pivoted to an intermediate portion of bars 10 at pivot point 20.

Plates 21 are secured to sides 3 on seat frame 1 and crank levers 22 are pivoted to the front end thereof at 23 at an intermediate point of said crank levers. Coil springs 24 are attached to the inner end of levers 22 at 25 and plates 26. The other ends of levers 22 are pivoted at 27 to downwardly extending brackets 28 on bars 13. Said brackets are spaced laterally from bars 13 a sufficient distance so as to allow legs 16 to nest therein and thus said brackets constitute keepers for said legs.

Also pivoted at 15 are bars 29 having a cross

member or brace 30 uniting the same to form the fold section. A support 31 extending from bars 29 is adapted to retain front board 32 of the seat. Extending inwardly from the support 31 are latches 33 having hooked ends 34 adapted to contact the extensions 35 of bars 13.

The outer section consists of a pair of bars 36 pivoted to the fold section at 37 and having a cross member or brace 38 joining the outer ends thereof and forming the outer section. A pair of legs 39 are pivoted on bars 36 at 40 and have upwardly extending portions 41. Links 42 are pivoted to said extensions 41 at 43 and to an intermediate portion of bars 29 at pivot points 44.

Assuming that the bed is in open position as shown in Fig. 1, in order to close the same, the outer end of outer section 36 is lifted from the floor, causing links 42 and legs 39 to fold up. Then fold section 29 is raised until it is in a vertical position whereby latch 33 engages the under side of extension 35, thus locking the fold section in its closed position. The partially folded bed is then raised, causing the middle section to slide rearwardly about pivots 12, thus closing legs 16 into position between brackets 28 and bars 13 to lock the bed in its final position. By the operation of crank 22 and spring 24 when the folded bed is nested into seat 1, the spring tension holds the bed in closed position against accidental displacement.

Front board 32 is now in a vertical position and closes the lower front end of the seat. When it is desired to open the bed, the reverse movements take place. In the first of these movements, legs 16 are opened and they become fully opened prior to their touching the floor surface. Therefore, there is no scraping along the floor, avoiding possible scratching thereof, and there is no danger of tearing a rug where such a rug is present in front of the seat. Similarly, when the outer legs are opened, they are in their final open position before the legs can touch the floor.

There are a number of advantages inherent in the present construction as noted above. There are other advantages, as for example the latch arrangement 33—34—35 is positive in its action and when the bed is in open position there is no interference with the sleeper or the mattress since it is below the bed at all times. The legs 6 constitute positive locking arrangements for the folded bed so that the folding cannot exceed the predetermined limits. The outer section when in folded position is resiliently supported so that it provides more comfort for the occupant of the seat when the bed is not in use.

Although the invention has been described setting forth a single specific embodiment thereof, the various changes in the details of construction may be made within the spirit of the invention. For instance, the size and shape of the various elements and the relative proportions thereof may be varied in accordance with the desired characteristics of the finished structure. The materials used may be any of those commonly adaptable for the purpose. Usually the seat frame is made of wood with suitable upholstery and the mechanical elements of the bed are made of steel. However, other materials, such as different metals or alloys may be substituted and plastic materials may be utilized in whole or in part for the seat elements. These and other changes may be made in the details of the invention within the principles herein set forth and the invention is therefore to be broadly construed and not to be limited except by the character of the claims appended hereto.

I claim:

1. In a convertible seat-bed having a seat frame, an inner bed section pivoted to said frame, an adjacent middle bed section pivoted to said inner section, an adjacent fold section pivoted to said middle section, and an adjacent outer section pivoted to said fold section, an inner leg pivoted at the junction of said middle and fold sections and having an extension above said pivot, a link from said extension to said inner section, a crank lever pivoted on said frame, a spring attached to said frame and to one end of said lever, the other end of said lever being pivoted to said middle section, a latch mounted in said fold section, a hooked end thereon below said middle section and engageable therewith to limit the movement of said fold section when the bed is in closed position.

2. In a convertible seat-bed having a seat frame, an inner bed section pivoted to said frame, an adjacent middle bed section pivoted to said inner section, an adjacent fold section pivoted to said middle section, and an adjacent outer section pivoted to said fold section, an inner leg pivoted at the junction of said middle and fold sections and having an extension above said pivot, a link from said extension to said inner section, a crank lever pivoted on said frame, a spring attached to said frame and to one end of said lever, the other end of said lever being pivoted to said middle section, and a latch member mounted on said fold section and having a portion extending beneath a part of said middle section adapted to rigidly engage said part when said sections are folded to extend said fold section perpendicular to said middle section to thereby stop further folding of said fold section.

3. In a convertible seat-bed having a seat frame, an inner bed section pivoted to said frame, an adjacent middle bed section pivoted to said inner section, an adjacent fold section pivoted to said middle section, and an adjacent outer section pivoted to said fold section, an inner leg pivoted at the junction of said middle and fold sections and having an extension above said pivot, a link from said extension to said inner section, a crank lever pivoted on said frame, a spring attached to said frame and to one end of said lever, the other end of said lever being pivoted to said middle section, a latch having a hook at the end thereof mounted on said fold section, the outer end of said middle section adapted to engage said hook to limit the movement of said fold section when the bed is in closed position.

4. In a convertible seat-bed having a seat frame, an inner bed section pivoted to said frame, an adjacent middle bed section pivoted to said inner section, an adjacent fold section pivoted to said middle section, and an adjacent outer section pivoted to said fold section, an inner leg pivoted at the junction of said middle and fold sections and having an extension above said pivot, a link from said extension to said inner section, an outer leg pivoted on said outer section and having an upward extension, a link pivoted to said upward extension and to said fold section, a crank lever pivoted on said frame, a spring attached to said frame and to one end of said lever, the other end of said lever being pivoted to said middle section, and a latch member mounted on said fold section and having a portion extending beneath a part of said middle section adapted to rigidly engage said part when said sections are

folded to extend said fold section perpendicular to said middle section to thereby stop further folding of said fold section.

5. In a convertible seat-bed having a seat frame, an inner bed section pivoted to said frame, an adjacent middle bed section pivoted to said inner section, an adjacent fold section pivoted to said middle section, and an adjacent outer section pivoted to said fold section, an inner leg pivoted at the junction of said middle and fold sections and having an extension above said pivot, a link from said extension to said inner section, a crank lever pivoted on said frame, a spring attached to said frame and to one end of said lever, the other end of said lever being pivoted to said middle section, a keeper on said middle section into which said leg locks when said bed is in closed position, and a latch member mounted on said fold section and having a portion extending beneath a part of said middle section adapted to rigidly engage said part when said sections are folded to extend said fold section perpendicular to said middle section to thereby stop further folding of said fold section.

6. In a convertible seat-bed having a seat frame, an inner bed section pivoted to said frame, an adjacent middle bed section pivoted to said inner section, an adjacent fold section pivoted to said middle section, and an adjacent outer

section pivoted to said fold section, an outer leg pivoted on said outer section and having an upward extension, a link pivoted to said upward extension and to said fold section, an inner leg pivoted at the junction of said middle and fold sections and having an extension above said pivot, a link from said extension to said inner section, a crank lever pivoted on said frame, a spring attached to said frame and to one end of said lever, the other end of said lever being pivoted to said middle section, and a latch member mounted on said fold section and having a portion extending beneath a part of said middle section adapted to rigidly engage said part when said sections are folded to extend said fold section perpendicular to said middle section to thereby stop further folding of said fold section.

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