

June 23, 1942.

J. D. BELL

2,287,596

CHAIR BED

Filed Dec. 19, 1940

2 Sheets-Sheet 1

Fig. 1.

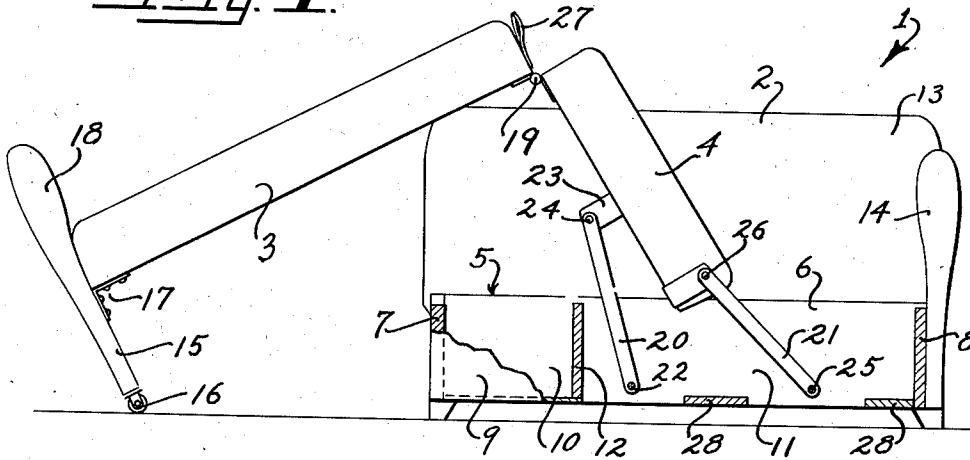


Fig. 2.

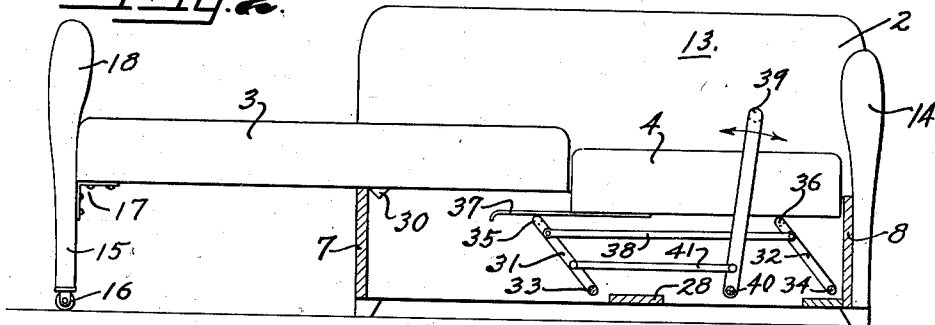
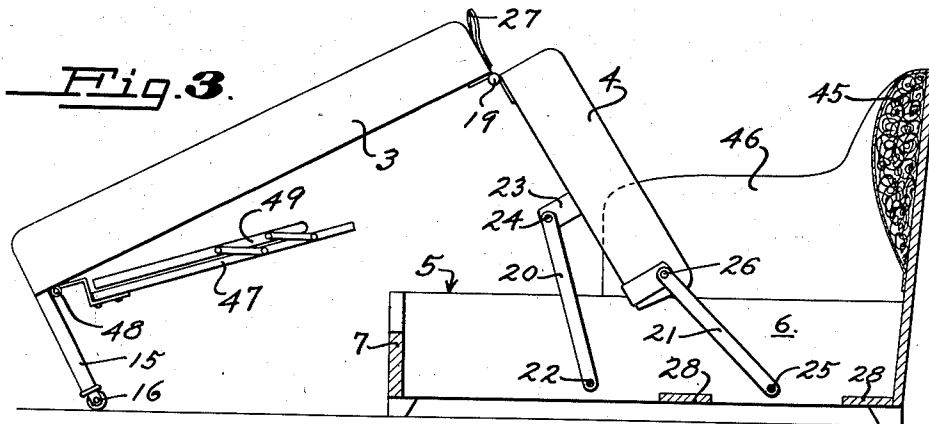


Fig. 3.



INVENTOR,

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# UNITED STATES PATENT OFFICE

2,287,596

## CHAIR BED

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Application December 19, 1940, Serial No. 370,756

12 Claims. (Cl. 5—25)

The present invention relates to improvements in chair beds, and more particularly in a so-called settee, and is a continuation in part of my pending application, Serial Number 361,059, filed on October 14, 1940.

The principal object of the present invention is to provide a settee in the nature of a relatively short sofa adapted for seating two persons, and to provide means in connection therewith whereby the same may be extended sidewise to provide a full-length couch or bed or a sofa adapted for seating three persons.

It is further proposed to provide a settee of the character described that has arm rests on the sides thereof, and in which one of the arm rests moves sidewise when the settee is converted into a couch or bed, whereby the spacing between the two arm rests is increased, and one of the arm rests is made to serve as a head-piece for the couch.

It is further proposed to provide a settee containing two principal parts, a frame having one arm rest attached thereto, and a movable seat, having the other arm rest attached thereto, the movable seat normally furnishing the entire seating area for the settee.

Another object of my invention is to provide means whereby the seat, with the arm rest attached thereto, may be moved sidewise on the frame to create a gap between the seat and the arm rest of the frame, and to provide means for positioning an auxiliary seat in said gap on a level with the main seat.

A still further object of the invention is to provide an operative connection between the main seat and the auxiliary seat whereby the latter is normally housed underneath the main seat, and is automatically moved into the plane of the main seat by the sidewise movement of the latter.

And finally it is proposed to provide an operating arrangement whereby the change from settee to couch and vice versa, may be made expeditiously and with a minimum of effort.

Further objects and advantages of my invention will appear as the specification proceeds, and the novel features thereof will be fully set forth in the claims hereto appended.

The preferred forms of my invention are illustrated in the accompanying drawings, forming part of this application, in which:

Figure 1 shows a front view of my chair bed in an intermediate position, part being shown in section;

Figure 2, a front view of a modified form of chair bed, approaching couch position;

Figure 2a a view corresponding to that of Figure 1, with the chair bed in fully extended position;

Figure 3, a front view of a further modified form in which one arm rest is omitted, and in which the upper back and side structure is arranged along the lines of a lounge, and

Figure 4 a view corresponding to that of Figure 1 with the chair bed in chair position.

While I have shown only the preferred forms of my invention, I wish to have it understood that various changes or modifications may be made within the scope of the claims hereto attached, without departing from the spirit of the invention.

Referring to the drawings in detail, and particularly to the form shown in Figures 1, 2a and 4 my chair bed comprises three principal parts, a frame 2, a main seat 3, and an auxiliary seat 4.

The main frame comprises a rectangular box 5 including a rear member 6, two side members 7 and 8, and a front member 9. The box is preferably separated into two compartments 10 and 11 by means of a partition 12, the compartment 10 being intended for a bedding box and compartment 11 for accommodating the auxiliary seat.

The rear wall 6 has a back 13 attached to the rear face thereof and the back rises to the normal height of a sofa back. The side member 8 has an arm rest 14 attached thereto.

The box, itself, is substantially level on top, and furnishes a supporting frame for the main seat. The latter is shown in Figure 1 in tilted position, and is of a length corresponding to the length of the box and of a width corresponding to the width of the box, so that in normal seat position, it rests on, and completely covers the box.

The side of the main seat opposite the arm rest 14 is provided with a leg 15, which in normal position, projects downwardly alongside of and outside the side member 7 of the box, suitable casters 16 being provided at the bottom of the leg and underneath the box.

The leg is secured by means of a bracket 17 and projects above the level of the main seat to provide an arm rest 18 which, in normal position, is arranged opposite the arm rest 14, and in parallel relation thereto.

The auxiliary seat 4 is hinged to the side of the main seat nearest the arm rest 14, as at 19,

and is supported by means of two links 20 and 21. The former link is pivoted to an intermediate portion of the box, as at 22, and to a bracket 23 depending from a central portion of the auxiliary seat, as at 24. The link 21 is pivoted to the box at a point intermediate the pivot 22, and the arm rest 14, as at 25, and to the side of the auxiliary seat, as at 26.

These two links are positioned and proportioned to guide the auxiliary seat for movement from an inverted position within the compartment 11 below the upper plane of the box, to a normal position above the plane of the box, and in alignment with the main seat 3. A suitable strap 27 is attached to the hinged end of the main seat 3 to serve as a handle for changing the chair bed from one position to another.

In normal or settee position, the auxiliary seat, which is slightly narrower than the main seat, is accommodated upside down in the compartment 11, and rests on bottom slats 28 or any other suitable bottom support secured into the box. The main seat 3 rests on top of the box, the hinged side adjacent the arm rest 14 and the arm rest 18 opposite the former arm rest.

The entire device now has the appearance of an ordinary settee with arm rests on opposite sides as shown in Figure 4. For changing the settee into a couch, the operator, preferably resting his right hand on the arm rest 14, lifts on the strap 27 for raising the hinge. This causes the two sections to move through the position of Figure 1 into a position of relative alignment as in Figure 2a. The entire change may be effected with surprisingly little effort, since the different parts, after the desired lifting effect has been made, fall into place almost automatically.

Analyzing the movement, in settee position, the link 21, as viewed in Figure 4, occupies a low slanting position to the left, while the link 20 slants to the right and crosses link 21. When the hinge 19 is pulled upward, the two pivots 24 and 26 are swung about one another for inverting the seat 4, with the result that the latter reaches a horizontal position on top of the box with both links inclined toward the right. The hinge 19 moves forward during the inverting operation and urges the main seat 3 outwardly, whereby the latter is made to project outside of the box and to leave a gap between the main seat and the arm rest 14, which gap is filled by the auxiliary seat 4. Thus the two seats form a continuous seating area of the length of a couch, with the two arm rests spaced by the length of the couch, and the arm rest 18 forming the head-piece for the couch.

Referring particularly to the inverting movement beginning from the position of Figure 4, it will be noted that during the first half of the said movement, the auxiliary seat turns essentially about its front portion. While the axis of the turning movement shifts, of course, to some extent, it is rather definitely identified with the front section of the auxiliary seat. This arrangement offers a number of advantages:

In the first place, there is very little downward movement of any portion of the auxiliary seat, which allows the latter to be disposed relatively close to the bottom plane of the settee, with the result that the main seat may also be arranged relatively low which is a much desired feature in modern sofa construction.

Secondly, since the turning movement takes place about the front portion of the auxiliary

seat, the hinge 19 describes a relatively long arc and causes immediate movement of the main seat 3, which latter rolls outward on the roller 16 incidental to the turning movement and thus gives a certain momentum to the latter after the movement has started. This momentum tends to smooth out the entire operation and serves as a balancing factor involving braking action, as well.

The specific arrangement of the links 20 and 21, therefore, is of considerable significance.

The form shown in Figure 2 differs from the one thus far described in the fact that there is no operative connection between the two seats. The main frame 2 is constructed substantially similar to that of Figure 1 and the main seat 3 is also substantially the same. But, instead of being hinged to the auxiliary seat, it is disconnected altogether at its right side, and is free to slide outwardly on the wall 7 of the box, the outward movement being limited by a suitable stop 30 depending from the seat.

When the main seat is moved to the extreme outward position, there is a gap between the seat and the arm rest 14 which corresponds in dimensions to the size of the auxiliary seat 4. The latter, which is normally housed under the main seat, may be lifted by a simple lever mechanism or any other suitable means to fill the gap and to occupy a position on a level with the main seat.

The lever mechanism illustrated comprises two levers 31 and 32 having their lower ends pivoted to the box, as at 33 and 34, while their upper ends through cross-members 35 and 36 support the auxiliary seat, which latter is provided with a forwardly extending bracket 37 to give additional bearing surface. The two levers are interconnected by a link 38, and are operated by means of a handle 39, pivoted to the box, as at 40, and connected to one of the levers by means of a link 41. The handle 39 is preferably made in the form of a yoke straddling the auxiliary seat, the links and levers being duplicated on opposite sides of the box structure.

In operation the two sections are manipulated independently. Normally, the auxiliary seat is disposed underneath the main seat and rests on any suitable support, such as the slats 28. The main seat overlies the entire frame or box, and the two arm rests 14 and 18 are on opposite sides of the box to form a settee with the remainder of the structure.

To change to a couch, the main seat 3 is pushed sidewise until the stop 30 reaches the side wall 11 to form a gap between the main seat and the arm rest 14, whereupon the auxiliary seat is lifted into the gap by suitable manipulation of the handle 39. It is apparent that any other suitable means may be used for positioning the auxiliary seat in the gap, the important feature being that the sidewise movement of the main seat opens up a gap for rendering available for use whatever supporting means for the auxiliary seat may be selected.

The showing of Figure 3 corresponds generally to that of Figure 1, except that the arm rest 18 has been omitted from the main seat and the super-structure is arranged more in the nature of a lounge, with a head-piece 45 at one side and an arm rest 46 running along a portion of the rear of the box.

In this form, an extension 47 is hinged to the extreme left side of the main frame, as at 48, to provide for further extension, if such is desired. The extension is furnished with folding

legs 49 adapted for unfolding to support the extreme end of the extension after the latter has been swung outward.

I claim:

1. In an extensible settee, a main frame having an arm rest attached to one of its sides, an upholstered main seat supported in the frame and having an arm rest attached thereto in spaced and opposing relation to the first arm rest, the seat being movable outward on the frame to a position within its original plane so as to increase the space between the arm rests and to produce a gap adjacent the frame arm rest, an upholstered auxiliary seat, and means for supporting the same in the gap on a level with the main seat.

2. In an extensible settee, a main frame having an arm rest attached to one of its sides, an extensible upholstered main seat having an arm rest attached to one of its sides and extensible therewith, an upholstered auxiliary seat housed in the main frame under the main seat, connections between the main frame, the auxiliary seat and the main seat by which the latter is extensible sideways and arm first to an extended position within its original plane so as to increase the space between the two arms and open a gap and whereby the auxiliary seat is made to move into the said gap and into alinement with the main seat to form a bed.

3. In an extensible settee, a main frame having an arm rest attached to one of its sides, an extensible upholstered main seat having an arm rest attached to one of its sides and extensible therewith, an upholstered auxiliary seat housed in the main frame under the main seat, connections between the main frame, the auxiliary seat and the main seat by which the latter is extensible sideways and arm first to an extended position within its original plane so as to increase the space between the two arms and open a gap and whereby the auxiliary seat is moved into said gap and into alinement with the main seat to form a bed, the arm on the extensible seat serving as a head piece therefor.

4. In an extensible settee, a main frame having a supporting means within its body and an arm rest attached to one of its sides, an upholstered extensible seat having an arm rest attached to one of its sides and extensible therewith, connections by which the latter is extensible sideways and arm first to a position within its original plane so as to increase the space between the two arms to bed length and to open a gap, and to make available for use the said supporting means for supporting a member within the gap and on a horizontal plane with the said seat.

5. In an extensible settee or the like, a main frame, an auxiliary seat, and means for supporting the latter bottom-up in the frame, the said means comprising a rearwardly inclined link having one end pivoted to the main frame near the bottom of the frame and forward of the front edge of the seat and having its other end pivoted to the seat substantially above the bottom of the seat and midway of its length, and a forwardly inclined link having one end pivoted to the frame near the bottom of the same and substantially rearward of the first link and having its other end pivoted to the front portion of the seat substantially below the bottom plane thereof, whereby when the rear edge of the seat is raised, the seat is turned toward vertical position with the lower front portion of the seat serving as the axis

of the turning movement and without any substantial lowering of any portion of the seat.

6. In an extensible settee or the like, a main frame, an auxiliary seat, and means for supporting the latter bottom-up in the frame, the said means comprising a rearwardly inclined link having one end pivoted to the main frame near the bottom of the frame and forwardly of the front edge of the seat, and having its other end pivoted to the seat substantially above the bottom of the seat and midway of its length, and guide means cooperable with the lower front portion of the seat whereby when the rear end of the seat is raised, the seat is turned toward vertical position with the lower front portion of the seat serving as the axis of the turning movement and without any substantial lowering of any portion of the seat.

7. In an extensible settee or the like, a main frame, an auxiliary seat, and means for supporting the latter bottom-up in the frame, the said means comprising guide means co-operable with the seat at a point above the bottom thereof and midway of its length, and a forwardly inclined link having its lower end pivoted to the main frame near the bottom of the frame and rearwardly of the center of the seat, and having its upper end pivoted to the lower front portion of the seat and below the bottom thereof, the said link and the guide means being operable when the rear edge of the seat is raised, to turn the seat toward vertical position, with the lower front portion of the seat serving as the axis of the turning movement, and without any substantial lowering of any portion of the seat.

8. In an extensible settee or the like, a main frame, an auxiliary seat, and means for supporting the latter bottom-up in the frame, the latter means comprising guide means cooperable with the seat at a point above the bottom of the seat and substantially midway of its length, and guide means cooperable with the front portion of the seat and at a point below the bottom thereof, the two guide means being operable, when the rear edge of the seat is raised, to turn the seat toward vertical position, with the lower front portion of the seat serving as the axis of the turning movement, and without any substantial lowering of any portion of the seat.

9. In an extensible settee, or the like, a main frame, a main seat resting thereon with freedom of movement over one edge of the frame and having a leg outside said edge, an auxiliary seat disposed horizontally and bottom up underneath the main seat, a hinge connecting the two seats at the rear ends thereof, and supporting means for the auxiliary seat operable by a lifting effect on the hinge to swing the auxiliary seat about a pivot passing through the lower front portion of the seat, the supporting means including means for initially holding the pivot against rearward movement whereby the auxiliary seat is made to swing forward to an elevated position and the main seat is caused to move outward on its leg in substantially immediate response to the swinging movement of the auxiliary seat.

10. In an extensible settee or the like, a main frame, a main seat resting thereon with freedom of movement over one edge of the frame and having a leg outside said edge, an auxiliary seat disposed horizontally and bottom-up underneath the main seat, a hinge connecting the two seats at the rear ends thereof, and supporting means for the auxiliary seat operable by a lifting effect on the hinge to swing the auxiliary seat about

the front portion thereof toward an elevated vertical and forward position and to cause the main seat to move outward on its leg incidental to said movement, the said supporting means comprising guide means cooperable with the auxiliary seat at the front and below the bottom thereof, and positioned to initially prevent rearward movement of the front portion of the auxiliary seat, and guide means cooperable with an intermediate portion of the auxiliary seat and above the bottom thereof.

11. In an extensible settee or the like, a main frame, a main seat resting thereon with freedom of movement over one edge of the frame and having a leg outside said edge, an auxiliary seat disposed horizontally and bottom-up underneath the main seat, a hinge connecting the two seats at the rear ends thereof, and supporting means for the auxiliary seat operable by a lifting effect on the hinge to swing the auxiliary seat about the front portion thereof toward an elevated vertical and forward position and to cause the main seat to move outward on its leg incidental to said movement, the said supporting means comprising two links pivoted to the main frame in spaced

relation and near the bottom thereof, one of said links being pivoted to the front portion of the auxiliary seat below the bottom thereof and being positioned to substantially prevent rearward movement at the pivot, and the second link being pivoted to the auxiliary seat at an intermediate portion and above the bottom thereof.

12. In an extensible settee or the like, a main frame, a main seat resting thereon with freedom of movement over one edge of the frame and having a leg outside said edge, an auxiliary seat disposed horizontally and bottom-up underneath the main seat, a hinge connecting the two seats at the rear ends thereof, and supporting means for the auxiliary seat operable by a lifting effect on the hinge to swing the auxiliary seat about the front portion thereof toward an elevated vertical and forward position, and including means to substantially prevent rearward movement of said front portion, the length of the main seat bearing relation to its height and the path followed by the hinge to cause the main seat to move outward on its leg in a continuous movement when the hinge is lifted.

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