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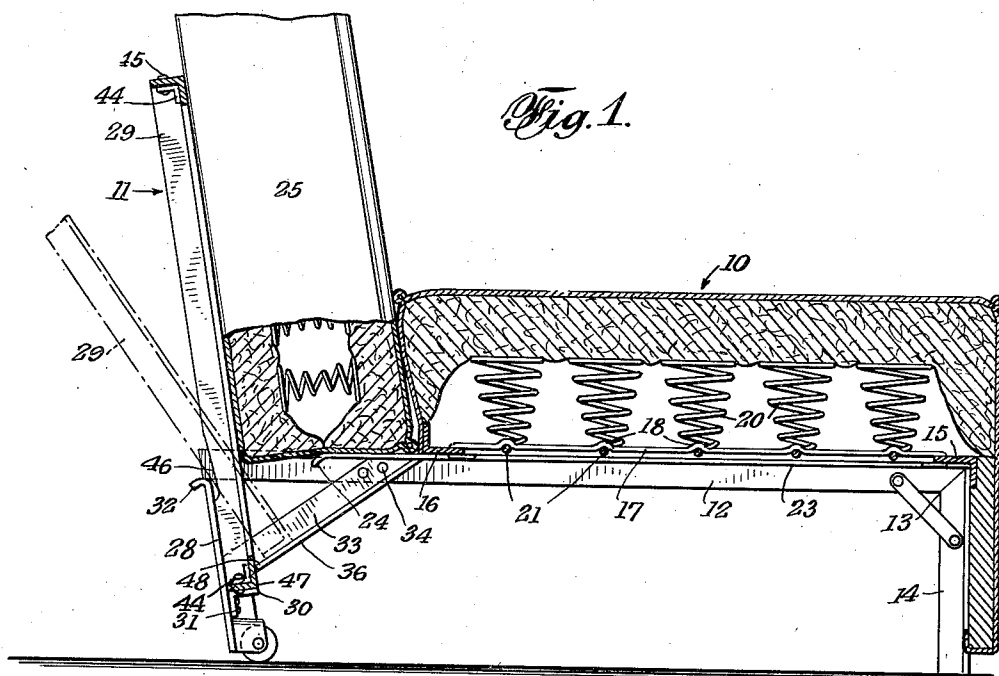
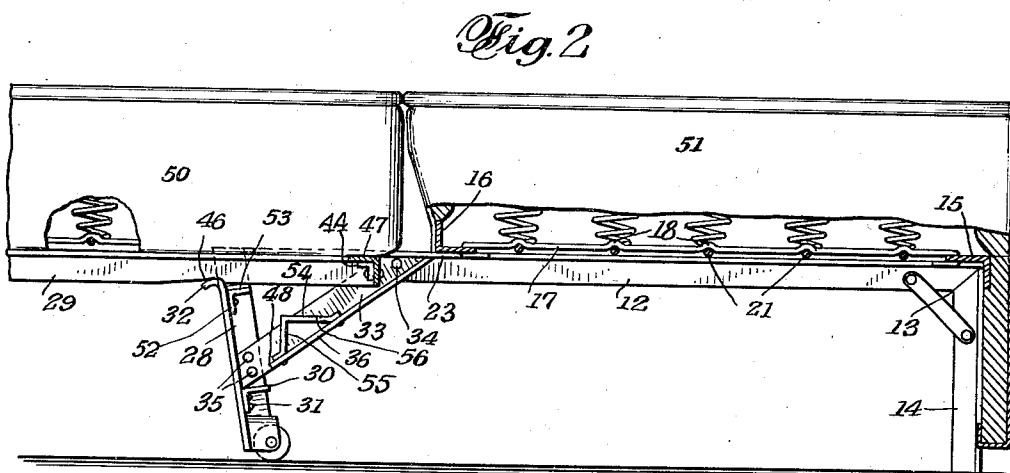
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2,175,991

FOLDABLE COUCH BACK STRUCTURE

Filed May 29, 1937

2 Sheets-Sheet 1



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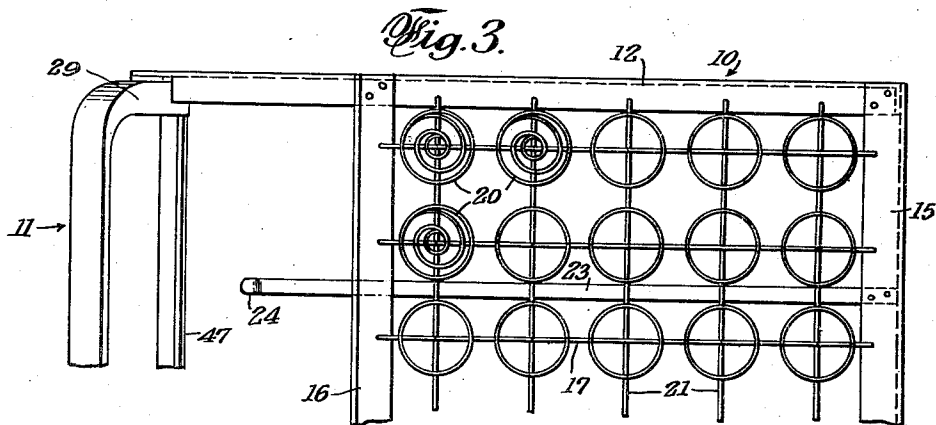
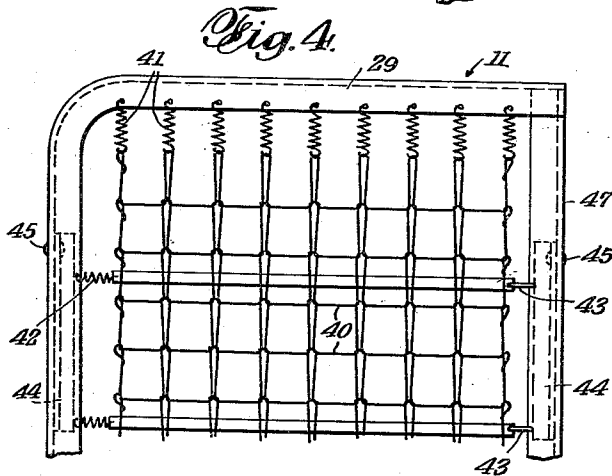
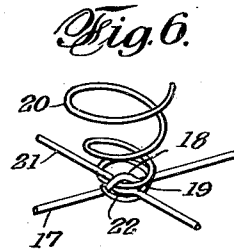
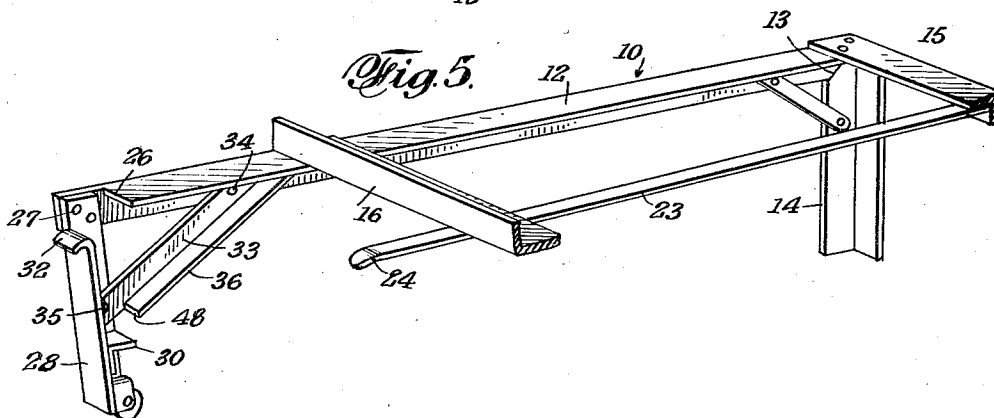
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FOLDABLE COUCH BACK STRUCTURE

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7 Claims. (Cl. 5—38)

This invention relates to couches and the like intended for sleeping as well as for sitting and resting purposes, and particularly to that type in which a swingable back part is provided, which part is adapted for use as a bed either separately or in connection with a seat part.

My invention contemplates the provision of simple, economical and efficient supporting means for the movable back of a couch or the like, said means permitting easy and rapid swinging of the back into and out of its bed-forming and back-forming positions and easy removal thereof for the formation of a separate bed if desired.

My invention further contemplates the provision of an economical and efficient couch structure including a movable back provided with a spring structure and of inexpensive but efficient means for supporting and guiding the back and its parts for easy control of the movement thereof, and for bracing the legs of the couch.

The various objects of the invention will be clear from the description which follows and from the drawings, in which:

Fig. 1 is a vertical section of my improved couch as it appears when the movable frame is in its back-forming position.

Fig. 2 is a similar view, partly in elevation, of a modified form of the same showing the movable frame in its horizontal bed-forming position.

Fig. 3 is a fragmentary top plan view of the seat frame and of the parts adjacent thereto.

Fig. 4 is a similar view of the back-forming frame.

Fig. 5 is a fragmentary perspective view of the relatively stationary seat-forming frame and of the back guiding and supporting means thereof, it being understood that both ends of the frame are alike.

Fig. 6 is a perspective view of a typical spring support for use with either frame.

In the practical embodiment of my invention which I have shown by way of example, the couch or the like comprises the relatively stationary seat or bed part 10, and the swingable back part 11 which is movable into auxiliary bed forming or horizontal position. Each of said parts may be provided with a spring structure of any suitable type, the particular spring structure forming no part of the present invention. The spring structure may be upholstered and finished to form a "built-in" mattress or cushion if desired, as illustrated in connection with the seat part 10, or it may be of the type which requires a separate mattress or cushions as illustrated in connection with the movable back part 11. It will be under-

stood, however, that any suitable spring structure may be provided for either part 10 or 11. In other words, my improved couch operates and functions equally as well if both parts are designed for use with loose mattresses or cushions or both designed for built-in mattresses or cushions, or if either part is designed for a loose mattress or cushion and the other for a built-in mattress or cushion.

In any case, the couch part 10 includes a frame and legs preferably made of angle iron, and is provided with a suitable spring structure extending throughout its length but only part of its width and not reaching completely across the seat part. As shown, the end rail member 12 forms one end of the seat frame and is bent as at 13 to provide the preferably upright leg 14 and suitably braced. An end rail member substantially identical with the member 12 forms the other end of the frame and a similar leg, and hence need not be shown nor further discussed. Said members are joined, at the front by the front member 15, and forwardly of their rear ends by the angle member 16. The space enclosed by the end members 12 and the front and rear members 15 and 16 is provided with a mattress-supporting or upholstered spring structure. As illustrated, said spring structure takes the form of a series of spaced transverse wires 17 each provided with a raised portion 18 at the points where it crosses the longitudinal wires 21. Said wires 21 are each provided with a correspondingly depressed portion 22 at the points of crossing of the wires 17, one of the coils of an upright spring 20 being held between said portions 18 and 22 and resting on the adjacent portions of said wires. The ends of the wires 17 and 21 are passed through suitable holes in the members 15, 16 or the end rails 12 respectively.

Suitable additional spaced, parallel transverse braces 23 for the wires 21 are secured to the members 15 and 16 and extend rearwardly past the member 16 and into the mattress-receiving space between the rear extensions of the end members 12 and at the rear of the member 16. At their free ends 24, each of said braces 23 is preferably curved downwardly and the free end portions serve to support the loose mattress where such loose mattress is used in connection with the back.

It will be understood that the above description of one of the end members 12 and of the parts connected thereto applies equally as well to the corresponding end member at the other end of the couch part 10. The horizontal flange on the

rear extension of said end member, at the extreme rear end 26 thereof, is cut away and the leg 28 is secured as at 27 to the vertical flange of the extension at the cut-away portion by suitable means and in a forwardly and downwardly inclined direction. Said leg serves to support the seat frame, and also serves as a support and guide for the movable back-forming frame 29.

A bracket 30 having a substantially horizontal flange is secured to the rear flange of the leg 28 by suitable means such as the rivets 31. At its upper end part, the rear flange of said leg 28 is also cut away, and part of the material thus removed is preferably bent rearwardly to form the stop 32 arranged just below the vertical flange of the member 12. To brace the leg 28 to the extension of said member 12, and furthermore to act as a guide for the frame 29 during its swinging movement, is an angle member 33, the vertical flange of which is secured as by the rivets 34 to the inside of the vertical flange of the extension of the member 12. The lower end of said brace and guide 33 is secured to the end flange of the leg 28 as by the rivets 35. Near its lower end, the lower inclined flange 36 of the brace 33 is cut away to provide an opening for the passage of the frame 29 on to the bracket 30.

It will thus be seen that said frame 29 may be inserted in nearly upright position, as indicated in Fig. 1, forwardly of the rear flange of the leg 28 and through the openings provided by the removal of parts of the flanges of the members 12 and 33, so that the lowermost edge part of said frame is received in the legs 28 and may rest on the bracket 30, to be suitably supported thereby and thereby to serve as a back for the couch in the normal position of the parts. The space between the frame 29 and the rear member 16 is normally occupied by a spring and mattress structure secured to said frame and upholstered if desired, or as shown, by the loose mattress 25, said mattress preferably extending above the top of and concealing said frame 29.

As has been indicated, said frame may be provided with any suitable spring structure, but as shown in Fig. 4, a mattress-supporting spring structure is provided within said frame. The structure comprises a series of wires 40 suitably bent and interlaced and connected to the frame by suitable helical springs 41. The wires 40 may be additionally supported by cross straps connected to the frame by helical springs 42 and suitable links 43. The back-forming frame is preferably made of angle iron and is provided with any desired number of foldable legs as 44 pivoted to the frame as by means of a rivet 45 and adapted to be extended vertically from and at right angles to the frame to have one end thereof rest on the floor and thereby to support the couch part 11 when it is moved into the horizontal bed-forming position of Fig. 2. To aid in arranging the frame 29 in its proper horizontal position when used as a bed, a notch as 46 may be made in the edges of the end parts of the frame 29, the edges of said notch being adapted for engagement with the stop 32. (Figs. 1 and 2.)

It will be understood that when the back part 11 is to be used as a bed, the mattress 25 is first removed to free the frame 29, whereafter said frame is lifted slightly to remove it from the bracket 30 and to carry the lower edge 47 of the frame upwardly past the end edge 48 of the flange 36 of the combined brace and guide member 33. Such slight lifting of the frame 29 brings the lowermost part of the frame in position so that

slight tilting of the frame causes it to rest on the flange 36 and causes the stop 32 to enter the notch 46. Continued rotary or swinging movement of the frame 29 carries the edge part 47 thereof upwardly along the flange 36 as shown by the dash-dot lines of Fig. 1, the frame preferably though not necessarily pivoting on the stop 32 during such movement. The movement may be continued until the edge 47 of the frame reaches and contacts with the under surface of the horizontal flange of the extension of the member 12, whereby the frame becomes adequately supported in horizontal position for the replacement of the mattress 25 thereon, and bridges the space in the seat frame behind the member 16, the parts 24 resting on the cross straps of the frame 29 with which they are preferably aligned. If the legs 42 have been unfolded, said legs serve to additionally support the frame and the weight of a person thereon. It will further be understood that if desired, the frame 29 may be removed entirely from the couch part 10 by merely lifting it out through the opening provided adjacent the parts 26 and 48.

It will further be understood that the frame 29 may be removed even after the notch 46 thereof has been engaged by the stop 32 by merely moving the frame bodily sufficiently to remove the stop from the notch and then pulling said frame rearwardly. To restore the frame from its horizontal to its back-forming position, the rear edge of the frame need merely be lifted whereupon the lowermost edge 47 thereof engages the flange 36 and the frame may readily be swung into its proper position, said frame dropping past the edge 48 and on to the bracket 30 on the completion of the turning movement.

It will be seen that I have provided a simple and efficient couch structure, particularly for guiding a back frame into and out of its back-forming position and for adequately supporting it in its bed-forming position, and that my structure, being comparatively inexpensive, is well adapted to meet the requirements of practical use.

In the modified form shown in Fig. 2, a built-in mattress 50 is used for the frame 29, said mattress being similar to the mattress and spring construction 51 of the couch part 10. In this case, the members 23 terminate at the rail 16, the extensions including the part 24 of said members 23 being omitted to provide a clear space through which the mattress 50 may pass in the back-forming position of the frame 29. It will be understood that said mattress 50 is of a length just sufficient to pass between the extensions of the end rail 12.

I have found that in some cases it is advisable to prevent the frame from being lifted too high off the bracket 30 since such excessive movement of the frame may disconnect it completely from the legs 28. For this purpose I have provided an additional bracket 52 secured to the inside of the leg 28 and having a substantially horizontal flange 53 adapted to engage the inside of the lowermost rail 47 of the frame 29 when said frame is lifted while in its back-forming position. The bracket 52 therefore, acts as a stop to limit the upward movement of the frame 29 and to determine when the swinging movement thereof may be begun, being narrower than the leg.

Similarly, to insure that the frame 29 when used in connection with the built-in mattress 50 is raised sufficiently high to clear the mattress 51 during the swinging movement of the frame 29

from its back-forming to its horizontal positions, the stop 54 may be secured to the brace 33. Said stop includes an upright portion 55 preventing engagement of the part 47 with the flange 36 until said part has first been lifted above the stop portion 55 and on to the horizontal part 56 of said stop, whereafter, the swinging movement of said frame 29 from its back-forming to its horizontal positions may be begun or continued.

Similarly, in moving the frame 29 and its connected mattress 50 from the position shown in Fig. 2 to its back-forming position, said frame is first swung in a clockwise direction as viewed in Fig. 2, whereby the frame member 47 first engages the flange 36 then slides along the horizontal portion 56 of the stop 54 and then, the rotation thereof having been substantially completed, the frame drops on to the bracket 30 and the mattress 50 thereby becomes arranged in the space between the member 16 and said frame 29 and extends in a downward direction substantially as far as the frame 29.

While I have shown and described certain specific embodiments of my invention, I do not wish to be understood as limiting myself thereto, but intend to claim my invention as broadly as may be permitted by the state of the prior art and the scope of the appended claims.

I claim:

1. In a couch having a back-forming frame movable into back-forming and horizontal positions, and having a seat-forming frame, rearwardly projecting extensions at the ends of the seat-forming frame, an inclined leg on each of the extensions determining the normal inclination of the back-forming frame, means on said legs for supporting the back-forming frame in its normal back-forming position, and fixed means extending between the legs and said extensions for engaging and maintaining the back-forming frame in its back-forming position and adapted, when said back-forming frame is above and in spaced relation to said supporting means and rotated, to engage and guide said back-forming frame into and out of its back-forming and horizontal positions.

2. In a couch having a back-forming frame movable into back-forming and horizontal positions, a seat-forming frame, rearwardly projecting extensions on the seat-forming frame, means for normally supporting the back-forming frame in an inclined back-forming position, and means for normally maintaining said back-forming frame in its back-forming position and for also guiding said back-forming frame in its movement, said means including an inclined angle-iron member secured at one end to one of the extensions, said back-forming frame engaging said extensions in the horizontal position thereof.

3. In a couch having a seat-forming frame and a back-forming frame movable into and from back-forming and horizontal positions, intermediate spaced parallel mattress-supporting extensions on the seat-forming frame arranged to support a loose mattress on the back-forming frame, end leg-supporting extensions on said seat-forming frame, means arranged to engage the lowermost edge of the back-forming frame for supporting the back-forming frame in its back-forming position, said back-forming frame being removable from said seat-forming frame and from said means by a lifting movement, and means including an angle-iron member extending in an inclined position from each of said extensions for engaging and guiding the frame

in its movement, and an edge on said member above the supporting means for normally preventing movement of the back-forming frame into its horizontal position until the back-forming frame has first been lifted therepast.

4. In a couch, a movable back-forming frame including end members each having an edge notch therein, inclined legs for the couch adapted to receive the lower part of the frame therein, brackets on and near the lower ends of the legs, and inclined frame-guiding and leg-bracing members extending forwardly and upwardly from the legs above the brackets, said members engaging the frame and guiding said frame in its movement into and out of its back-forming position, and being cut away adjacent the legs to permit the passage of the frame therepast and to provide a frame-engaging edge cooperating with the bracket to support the frame in its back-forming position, and stop means on the legs adapted to enter said notches during movement of said frame.

5. In a couch, a seat frame, a spring structure on said frame, extensions projecting rearwardly of the end parts of said frame, said spring structure terminating forwardly of said extensions and thereby providing a mattress-receiving space rearwardly of said structure, a movable back-forming frame, and fixed elongated means on said extensions for engaging the front edge of the back-forming frame and for supporting and guiding the back-forming frame in its movement, said means guiding the back-forming frame into position to bridge said mattress-receiving space in the horizontal position of the back-forming frame, said back-forming frame engaging and being retained by said extensions in said horizontal position and being completely removable from said means and from the seat-forming frame by a lifting movement from the back-forming position thereof.

6. In a couch, a seat-forming frame, a spring structure on the frame and of less width than that of the frame to provide a mattress-receiving space rearwardly of the spring structure, a pair of spaced downwardly and forwardly inclined legs at the rear edge of said frame, a back-forming frame adapted to enter the space between said legs, brackets on the legs for supporting the back-forming frame, a spring structure carried by said back-forming frame, and leg-bracing angle-iron members extending from said legs at points above said brackets upwardly and forwardly to the seat-forming frame at the front edge of said mattress-receiving space, one of the flanges of each of said members being cut away to permit the passage of said back-forming frame therepast and on to said brackets and to provide an edge supporting the back-forming frame in its back-forming position, said brackets being below said edge and said edge preventing movement of the back-forming frame from its back-forming position into horizontal position until the back-forming frame is lifted off the brackets past said edge.

7. In a couch having a back-forming frame movable from back-forming position to horizontal position, a relatively fixed seat-forming frame, means for removably supporting and guiding said back-forming frame, including an angle-iron leg at each end of the seat-forming frame, a pair of inclined angle-iron braces each having one flange thereof arranged in a vertical plane and secured at its upper end to the seat-forming frame and at its lower end to the ad-

5 jacent leg, the other flange of the brace being cut away adjacent the leg to permit the passage of the back-forming frame therepast and to provide an edge engaging the back-forming frame in the back-forming position thereof, and a bracket secured to each of the legs below said edge, the back-forming frame resting removably on the brackets and held thereby against down-

ward movement in its back-forming position, said brackets, edges and legs forming the sole supporting means for the back-forming frame in its back-forming position, and the back-forming frame being completely removable from said sole supporting means by upward movement in a direction longitudinally of the legs. 5

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