Aug. 9, 1938. J. MARTIN 2,125,940

COUCH BED

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Fig. 2.

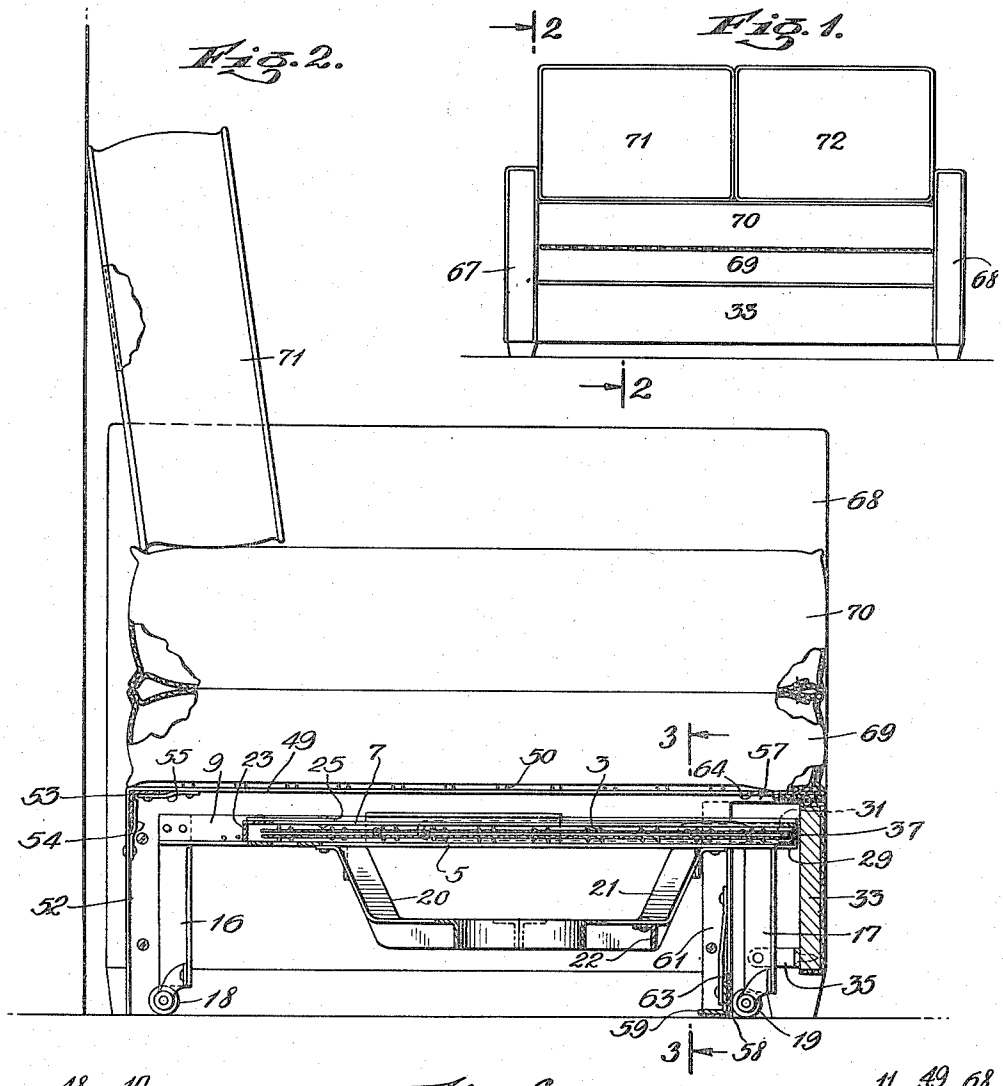
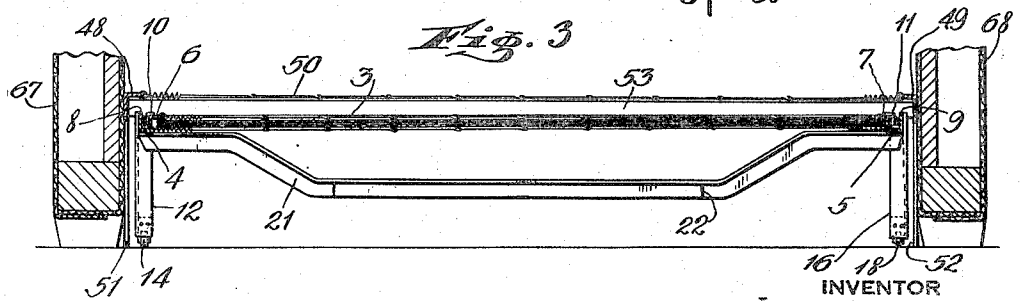


Fig. 1.

Fig. 3



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Fig. 4

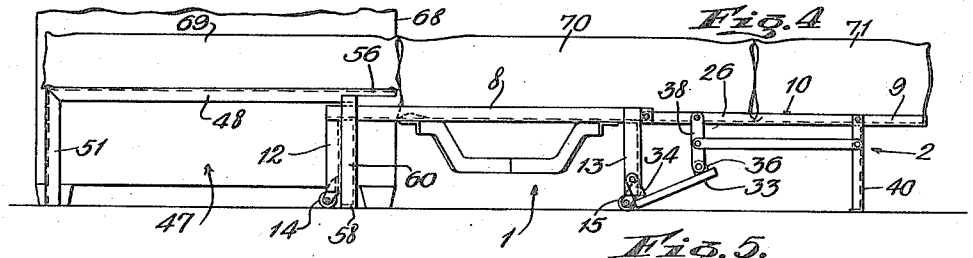


Fig. 5.

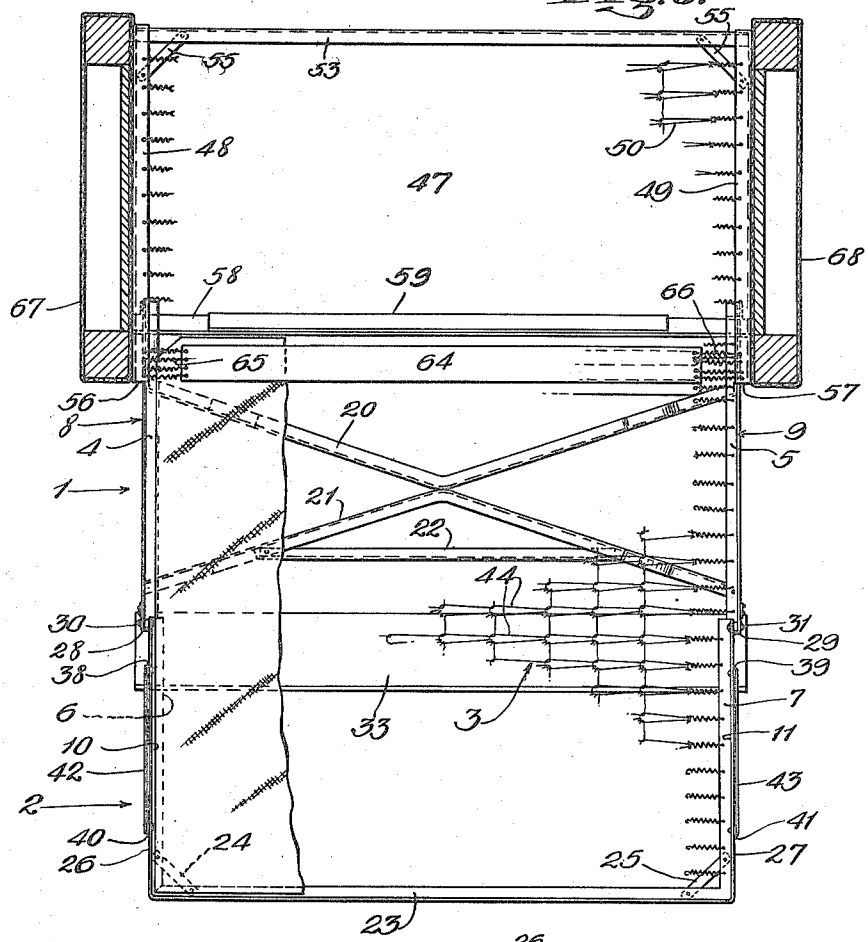
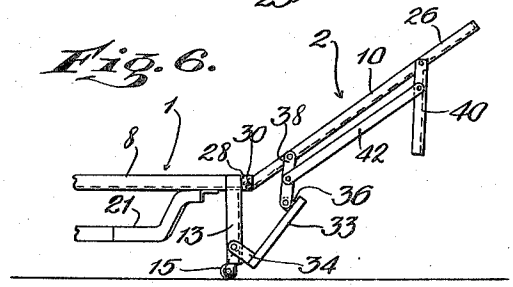


Fig. 6.



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Fig. 9

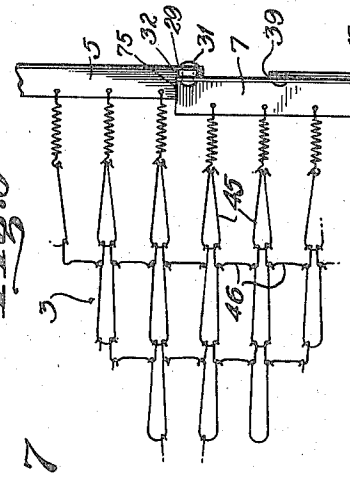


Fig. 8

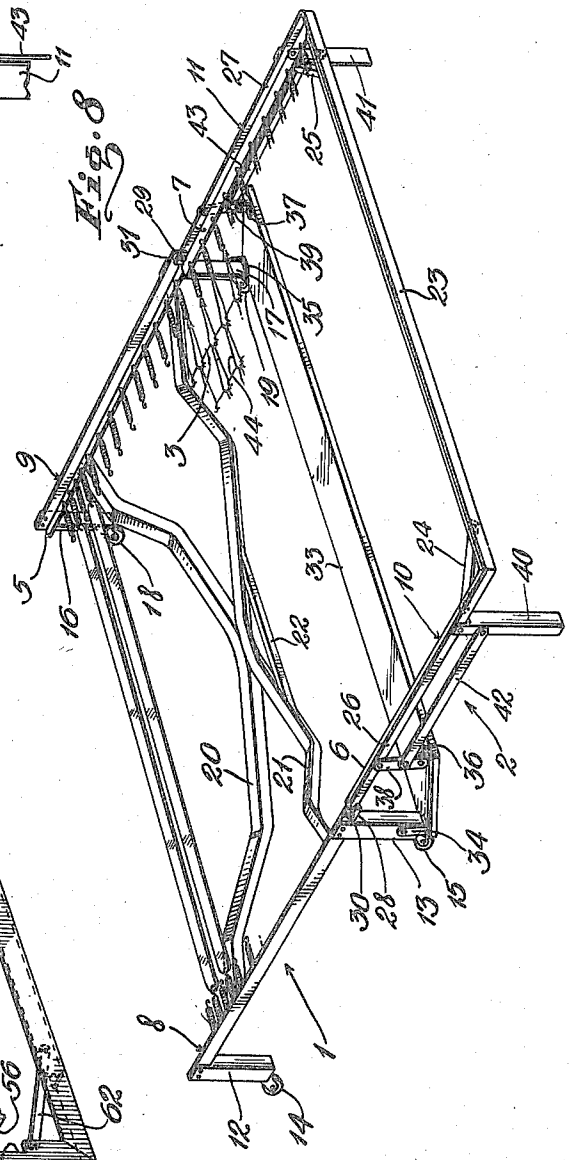
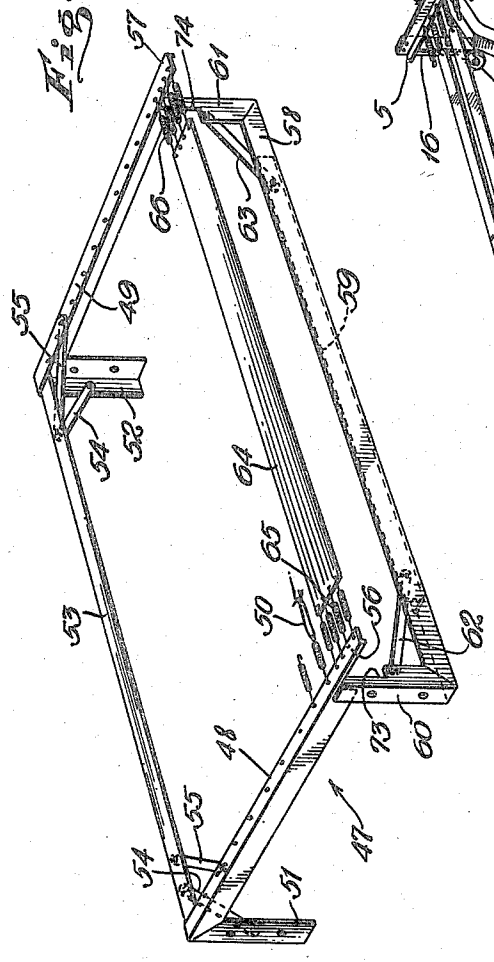


Fig. 7



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UNITED STATES PATENT OFFICE

2,125,940

COUCH BED

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Application May 22, 1935, Serial No. 22,708

7 Claims. (Cl. 5—17)

This invention relates to couch beds in general and more especially to combination seats and beds.

Among the objects of the present invention, it is aimed to provide an improved combination seat and bed having a fixed bed section and two extension bed sections in which the two extension bed sections may be folded upon one another and shifted under said fixed bed section in seat formation and in which the two extension bed sections may be shifted transversely of their length into position adjacent to said fixed bed section and then said extension bed sections unfolded to form a three section bed to support a person lying transversely of the lengths of said bed sections.

It is still another object of the present invention to provide an improved two bed section structure, one of which is pivotally connected to the other to be folded upon the other into seat or single bed position or unfolded away from the other into unfolded position which bed sections together support a single flat spring fabric folded in the middle half upon half in seat position and support said spring fabric stretched out in unfolded position.

It is still another object of the present invention to provide an improved two bed section structure having a main bed section and an extension bed section pivotally connected to said main bed section, a longitudinally extending end board pivotally connected to the front face of the main bed section and a flat spring fabric supported by both bed sections, the end board being anchored against the longitudinal side of said main bed section and the spring fabric folded in the middle half upon half when the extension bed section is folded upon the main bed section and the end board being tilted out of the path of movement of the flat spring fabric when depressed and the flat spring fabric stretched out when the extension bed section is folded away from the main bed section into unfolded position.

It is still another object of the present invention to provide an improved two bed section structure having a main bed section and an extension bed section pivotally connected to said main bed section, a longitudinally extending end board pivotally connected to the front face of the main bed section, legs pivotally connected to said extension bed section and a flat spring fabric supported by both bed sections, the end board being anchored against the longitudinal side of said main bed section, the legs folded upon said extension bed section and the spring fabric folded in the middle half upon half when the extension bed section is folded upon the main bed section and the end board being tilted out of the path of movement of the flat spring fabric, the legs extended into supporting position and the flat spring fabric stretched out when the extension bed section is folded away from the main bed section into unfolded position.

It is still another object of the present invention to provide an improved two bed section structure having a main bed section supported upon rollers and an extension bed section pivotally connected to said main bed section, a longitudinally extending end board pivotally connected to the front face of the main bed section and a flat spring fabric supported by both bed sections, the end board being anchored against the longitudinal side of said main bed section clearing the adjacent rollers and the spring fabric folded in the middle half upon half when the extension bed section is folded upon the main bed section and the end board being tilted out of the path of movement of the flat spring fabric when depressed and engaging the adjacent rollers to anchor them against movement and the flat spring fabric stretched out when the extension bed section is folded away from the main bed section into unfolded position.

It is still another object of the present invention to provide an improved combination seat and bed having a fixed bed section and two extension bed sections pivoted to one another which are shiftable under said fixed bed section in seat formation and shiftable outward and unfolded into bed formation for a person to lie transversely of the length of said sections and two hinged mattress members, one hinged parallel to the length of said bed section and folded in seat formation onto said fixed bed section and folded to cover not only said fixed bed section but also all of one extension bed section and part of the second extension bed section and the other mattress member being hinged transversely of the length of said bed sections and supported on end in seat formation and supplementing said other mattress member to cover the remaining part of the second bed section.

These and other features, capabilities and advantages of the invention will appear from the subjoined detail description of one specific embodiment thereof illustrated in the accompanying drawings in which

Figure 1 is a front elevation of a couch bed made according to the present invention;

Fig. 2 is a transverse section on the line 2—2 of Fig. 1;

Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2;

Fig. 4 is a fragmental end elevation showing the bed couch in bed formation;

Fig. 5 is a fragmental plan view similarly showing the bed couch in bed formation;

Fig. 6 is a fragmental end view showing collapsing legs associated with the invention partly collapsed;

Fig. 7 is a perspective of the fixed bed section;

Fig. 8 is a perspective of the two extension bed sections unfolded; and

Fig. 9 is a fragmental plan view showing another form of spring fabric than that illustrated in Figs. 5 and 8.

The bed sections 1 and 2 shown in Fig. 8 may either form the framework of a completed combination single and double bed or else part of the framework of a three bed section structure convertible from a seat formation suitable to accommodate two seating spaces to a full length bed suitable for a person lying thereon transversely of the lengths of the sections. These two bed sections furthermore constitute the main part of the present invention and therefore will first be described.

These two bed sections 1 and 2 constitute the support for an uninterrupted continuous flat spring fabric 3, the ends of which are connected to the inwardly extending horizontal flanges 4, 5, 6 and 7, the flanges 4 and 5 being part of the transversely extending angle irons 8 and 9 respectively of the section 1 and the flanges 6 and 7 being part of the transversely extending angle irons 10 and 11 of the section 2.

The vertically extending flange of the angle iron 8 is connected at its ends to the legs 12 and 13 having the rollers 14 and 15 respectively secured to the lower ends thereof, and the vertically extending flange of the angle iron 9 is connected at its ends to the legs 16 and 17 having the rollers 18 and 19 respectively secured to the lower ends thereof.

The lower faces of the flanges 4 and 5 are further connected to the horizontally extending flanges of the bent angle irons 20 and 21. The ends of the angle irons 20 and 21 are preferably connected to the flanges 4 and 5 at a point spaced from the ends of the angle irons 8 and 9 and then are bent inwardly intermediate the angle irons 8 and 9 to engage one another where they are connected to one another in any suitable manner, such for instance as by welding or the like.

In order to further reinforce the bent angle iron 21, the bracing angle iron 22 connects portions thereof intermediate its middle and its ends as indicated. In order to clear the spring fabric 3 when depressed, the bent angle irons 20 and 21 are furthermore bent downward, see particularly Fig. 3.

The laterally extending angle irons 10 and 11 of the section 2 are preferably connected or form an integral part as shown of the longitudinally extending angle iron 23, the corners formed by the latter with the angle irons 10 and 11 being preferably braced by the inclined strips 24 and 25. The section 2 in unfolded position, see Fig. 8, has the angle irons 10, 11 and 23 extended to form a U-shaped frame with the angle irons 8 and 9 of section 1 in turn to support the flat spring fabric 3 in an uninterrupted, continuous plane. In closed position, the section 2 is folded upon the section 1, the fabric 3 being woven as shown to permit a fold between the sections 1 and 2.

To facilitate folding the section 2 upon the section 1 and connecting the same thereto, vertically extending flanges 26 and 27 of the angle irons 10 and 11 engage the inner faces of the vertically extending flanges of the extensions 28 and 29 of the section 1 and are there hingedly connected by the bolts 30 and 31 respectively. To reinforce the extensions 28 and 29, portions 32 of the horizontally extending flanges 4 and 5 extend to the ends of the extensions 28 and 29 with intervening right-angular notches forming the opposing shoulders 75 for the ends of the flanges 6 and 7 of the bars 10 and 11 as shown particularly in Fig. 9.

In order to form a longitudinally extending end board for the section 1 in seat formation, there is provided the end board 33 which is fixed to the brackets 34 and 35 at its lower end, the free ends of which brackets being pivotally connected to the legs 13 and 17 so that in inclined position, that shown in Figs. 4 and 8, the lower edge of the board 33 will engage the rollers 15 and 19 to act as a brake, that is to anchor the same against movement, and which in erect position, that shown in Fig. 2, will clear the rollers 15 and 19 with the upper inner face of the board 33 lying flush with the outer ends of the extensions 28 and 29, see Fig. 2. So that the upper edge of the end board 33 will clear the spring fabric 3 when the sections 1 and 2 are unfolded, the position shown in Fig. 8, the end board will be inclined to clear the fabric 3 when depressed.

In order to facilitate actuating the end board 33 into and out of an inclined position with the unfolding and folding respectively of the section 2 relative to the section 1, the end board 33 is provided with abutments 36 and 37 adjacent its inner upper end, which abutments 36 and 37 are pivotally connected by the links 38 and 39 with the outer faces of the vertically extending flanges 26 and 27. In order to support the section 2 spaced from the supporting floor or base, there are provided the collapsible angle iron legs 40 and 41 which are pivotally connected at their upper ends to the outer faces of the vertically extending flanges 26 and 27 respectively.

In order to facilitate swinging such legs 40 and 41 into collapsed position when folding the section 2 upon the section 1, and into extended position when unfolding the section 2, the legs 40 and 41 are pivotally connected by the links 42 and 43 to linkage, such for instance as the links 38 and 39, the links 42 and 43 as an instance moving along the outer faces of the flanges 26 and 27 and of the legs 40 and 41.

From the foregoing, it will appear that when the section 2 is folded upon section 1, a movable frame for a seat is provided freely movable on the rollers 14, 15, 18 and 19, and that when the section 2 is unfolded, an anchor for the bed structure is provided, the rollers 15 and 16 being anchored against movement by the end board 33 and by the rollerless legs 40 and 41. It will also appear that a continuous, uninterrupted spring fabric 3 extending in a single plane is provided in extended or bed formation and that the end board 33 will clear the fabric 3 to permit the latter to be depressed in supporting the person lying upon the same.

Any number of different types of weave may be used for the fabric 3 to facilitate folding the same along the division between the sections 1 and 2 without interfering with its flexibility and require-

ment as a spring, the weave shown in Fig. 8 consisting mainly of a plurality of interlocking wires 44 of the same formation, whereas the weave shown in Fig. 9 consists of longitudinally extending loops 45 and transversely extending loops 46.

The aforesaid sections 1 and 2 may of course also be used as the two extension sections of a three section bed in which they nest inside of the fixed bed section 47. This section 47 may assume any number of shapes or conformations without departing from the general spirit of the invention. In the present instance this bed section 47 has two transversely extending angle irons 48 and 49, the upper inwardly extending flanges of which are connected to the ends of the flat spring fabric 50. The rear ends of the angle bars 48 and 49 are provided with downwardly extending legs 51 and 52 and are connected by the longitudinally extending angle iron 53 which is preferably reinforced at its corners with the legs 51 and 52 and with the transversely extending angle irons 48 and 49 by the inclined bracing strips 54 and 55.

At a distance from the front ends of the extensions 56 and 57 of the angle irons 48 and 49, there is formed a supporting frame consisting of the longitudinally extending angle iron 58 preferably reinforced by the inner longitudinally extending angle iron 59, which angle iron 58 rests on the floor or base and is provided with upwardly extending angle irons 60 and 61 connected to the outer faces of the vertically extending flanges of the angle irons 48 and 49. The corners between the uprights 60 and 61 and the angle iron 58 are preferably reinforced by the braces 62 and 63. The extensions 56 and 57 preferably support the flat flexible metal strip 64 connected to the extensions 56 and 57 by the coil springs 65 and 66 and forming the outer continuation of the spring fabric 50.

The fixed frame 47 is connected to the superstructure consisting of the upholstered arm portions 67 and 68 in the usual way.

To the upper face of the section 47, there is preferably secured the mattress consisting of the mattress member 69 hingedly connected to the mattress member 70. The mattress member 70 is preferably deeper than the mattress member 69 to account for the slight difference in level between the levels of the fabrics 3 and 50, the mattress member 70 being folded over from the ends of the extensions 56 and 57 onto the section 1 and part of the section 2, see Fig. 4, leaving a short space to be covered by the hinged mattress members 71 and 72 which constitute the upright pillows for the bed couch when forming a seat. The hinge connecting the mattress members 69 and 70 in the present instance extends longitudinally of the bed couch while the hinge member connecting the mattress members 71 and 72 extends transversely of the couch bed.

When the sections 1 and 2 are formed as part of a three section bed couch, the legs 12 and 16 are positioned to travel under the fixed bed section 47 with the legs 60, 61 and the horizontally extending bar 59 serving as a stop or abutment for limiting the outward movement of the extensions 1 and 2, the legs 60 and 61 being cut away at 73 and 74 to clear the path of movement of the angle irons 8 and 9.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. In a bed couch, the combination with a main bed section mounted upon rollers, a secondary bed section pivotally connected to said main bed section, a single flat spring fabric supported by said bed sections and folded upon itself when said secondary bed section is folded upon said main bed section and stretched out when said secondary bed section is unfolded into bed formation, an end board pivotally connected to the lower end of the outer longitudinally extending vertical face of said main bed section, and linkage connecting said end board with said secondary bed section to tilt said end board to clear said spring fabric when depressed in bed formation and to anchor said end board erect adjacent the outer longitudinally extending vertical face of said main bed section in seat formation, the lower edge of said end board extending into engagement with adjacent rollers of said main bed section in bed formation to anchor them against movement in such position but clearing said rollers in seat formation to permit movement of said bed sections.

2. In a bed couch, the combination with a main bed section having transversely extending bars and a connecting framework bent downward, of a secondary bed section having transversely extending bars pivotally connected at their inner ends to the outer ends of the transversely extending bars of said main bed section, a longitudinally extending bar connecting the outer ends of the transversely extending bars of said secondary bed section, a single flat spring fabric connected at its ends to the transversely extending bars of said bed sections and folded upon itself in seat formation along the division between said bed sections, the connecting framework clearing said spring fabric when depressed in bed formation, an end board pivotally connected to the lower outer longitudinally extending vertical face of said main bed section, linkage connecting said end board to said secondary bed section to tilt said end board to clear said spring fabric at the division between said bed sections in bed formation and to anchor said end board adjacent the outer longitudinally extending vertical face of said main bed section in seat formation, legs for supporting said main bed section, and rollers on which said legs are supported, the lower edge of said end board extending into engagement with adjacent rollers of said main bed section in bed formation to anchor them against movement in such position but clearing said rollers in seat formation to permit movement of said bed sections.

3. In a bed couch, the combination with a main bed section, a secondary bed section pivotally connected to said main bed section, bed spring means supported by said bed sections, an end board pivotally connected to the lower end of the outer longitudinally extending vertical face of said main bed section, and linkage connecting said end board with said secondary bed section to tilt said end board to clear said spring means when depressed in bed formation and to anchor said end board erect adjacent the outer longitudinal face of said main bed section in seat formation, the lower edge of said end board extending into engagement with adjacent rollers of said main bed section in bed formation to anchor them against movement in such position but clearing said rollers in seat formation to permit movement of said bed sections.

4. The combination of a main bed section having downwardly extending front and rear legs, a secondary bed section having a pair of end bars, pivots fixed relative to said front legs piv-

otally connecting the end bars of said second bed section at one end to the ends of said main bed section at one end, an end board pivotally connected at its lower end to the front legs of said main bed section at a distance removed from the upper ends of said latter legs, a link pivotally connecting the upper end of each side of said end board to one of the end bars of said extension bed section, collapsible legs pivotally connected to the end bars of said extension bed section at positions removed from said main bed section, and a link pivotally connecting each collapsible leg to one of the links connected to said end board.

5. The combination of a main bed section having fixed end frames, each frame including an end bar and a downwardly extending leg at each end of each end bar and a framework connecting the end bars to one another, a secondary bed section having a pair of end bars, fixed pivots pivotally connecting the end bars of said second bed section at one end to the end bars of said main bed section at one end, a longitudinally extending bar connecting the other ends of the end bars of said secondary bed section, an end board pivotally connected at its lower end to the legs at the front side of said main bed section at a distance removed from the upper ends of said latter legs, a link pivotally connecting the upper end of each side of said end board to one of the end bars of said extension bed section, a collapsible leg adjacent to the longitudinally extending bar pivotally connected to each end bar of said extension bed section, and a link pivotally connecting each collapsible leg to one of the links connected to said end bpard.

6. The combination of a main bed section including a pair of end angle irons with their vertically extending webs extending upwardly from the outer edges of their horizontally extending webs, legs at the ends of said angle irons, and a spring fabric connected to said horizontally extending webs, a secondary bed section including a pair of end angle irons with their vertically extending webs extending upwardly from the outer edges of their horizontally extending webs, a longitudinally extending angle iron with its vertical web extending upwardly from the outer edge of its horizontal web and connected to the outer ends of the end angle irons of said secondary bed section, the vertically extending webs of said secondary bed section extending parallel to, spaced from, and inside of the vertically extending webs of said main bed section, and a spring fabric connected to the horizontally extending webs of the end angle irons of said secondary bed section, flat stock legs pivotally connected to the outer faces of the end bars of said secondary bed section, an end board pivotally connected to the lower ends of the front legs of the main bed section, flat stock links pivotally connecting the upper ends of said end board to the outer faces of the end angle irons of said secondary bed section, and secondary flat stock links connecting said latter links to said flat stock legs so that in folded position the end angle irons of said secondary bed section may rest on the horizontally extending webs of the end angle irons of said main bed section with the connecting links disposed inside of the vertically extending webs of said main bed section.

7. The combination of a main bed section including a pair of end angle irons with their vertically extending webs extending upwardly from the outer edges of their horizontally extending webs, legs at the ends of said angle irons, and a spring fabric connected to said horizontally extending webs, a secondary bed section including a pair of end angle irons with their vertically extending webs extending upwardly from the outer edges of their horizontally extending webs, a longitudinally extending angle iron with its vertical web extending upwardly from the outer edge of its horizontal web and connected to the outer ends of the end angle irons of said secondary bed section, the vertically extending webs of said secondary bed section extending parallel to, spaced from, and inside of the vertically extending webs of said main bed section, and a spring fabric connected to the horizontally extending webs of the end angle irons of said secondary bed section, flat stock legs pivotally connected to the outer faces of the end bars of said secondary bed section, means including flat stock links pivotally connecting the front legs of the main bed section to the outer faces of the end angle irons of said secondary bed section, and secondary flat stock links connecting said latter links to said flat stock legs so that in folded position the end angle irons of said secondary bed section may rest on the horizontally extending webs of the end angle irons of said main bed section with the connecting links disposed inside of the vertically extending webs of said main bed section.

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