

Aug. 2, 1960

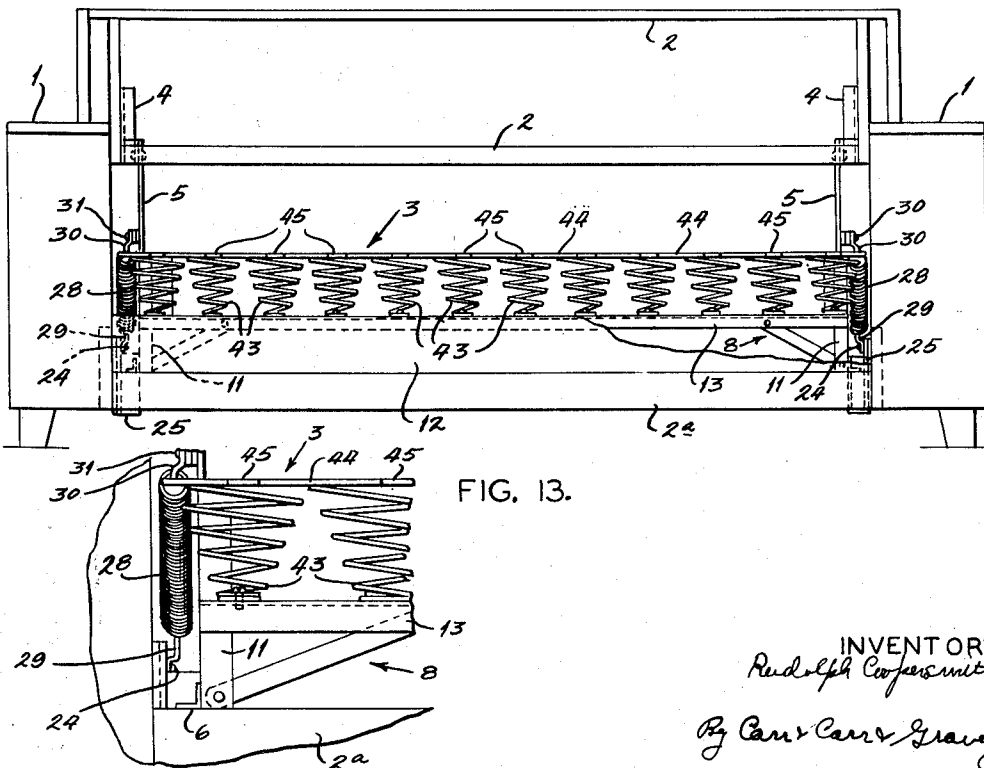
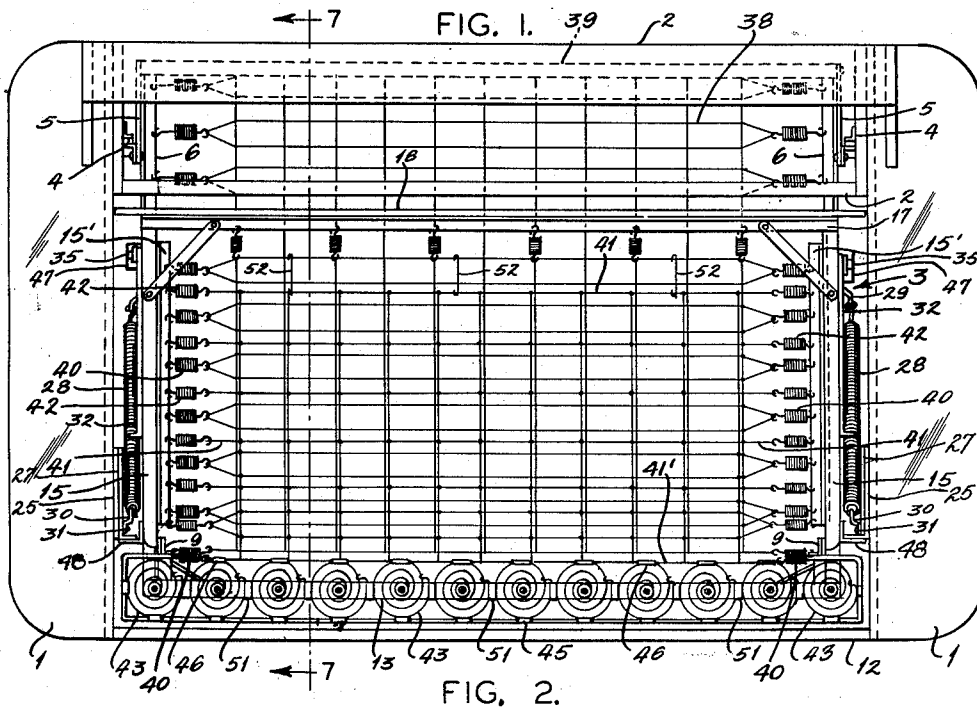
R. COOPERSMITH

2,947,006

SOFA BED

Filed Dec. 24, 1948

4 Sheets-Sheet 1



INVENTOR:
Rudolph Coopersmith,
By Carl Carr & Gravelly
 HIS ATTORNEYS.

Aug. 2, 1960

R. COOPERSMITH

2,947,006

SOFA BED

Filed Dec. 24, 1948

4 Sheets-Sheet 2

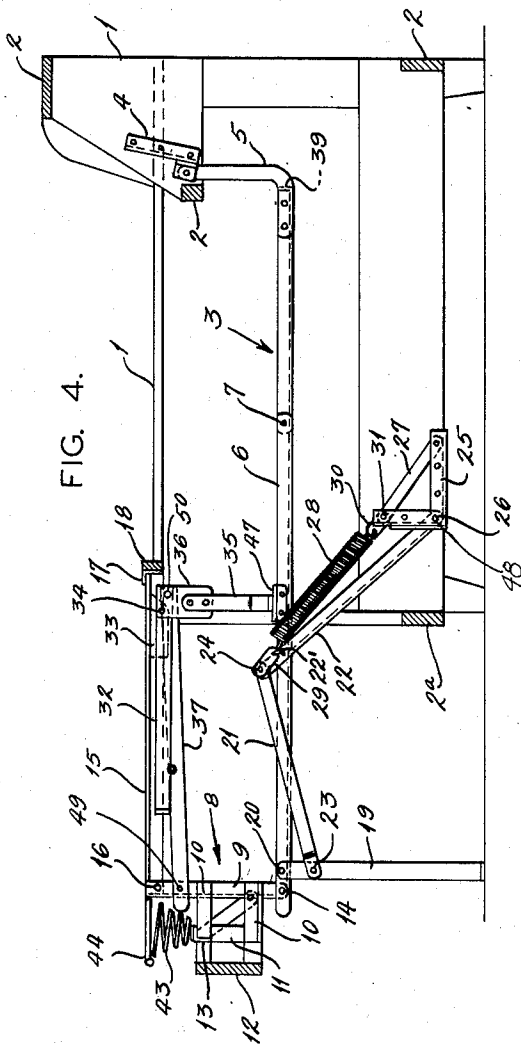


FIG. 4.

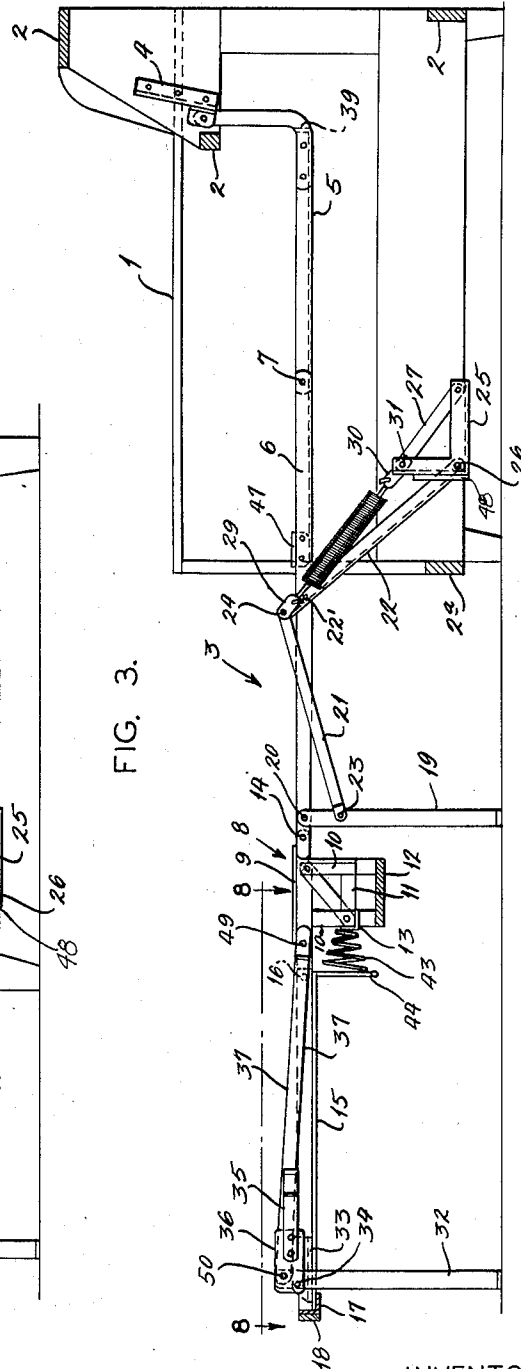


FIG. 3.

INVENTOR:
Rudolf Coopersmith,
 By *Carl Carr & Grady*
 HIS ATTORNEYS.

Aug. 2, 1960

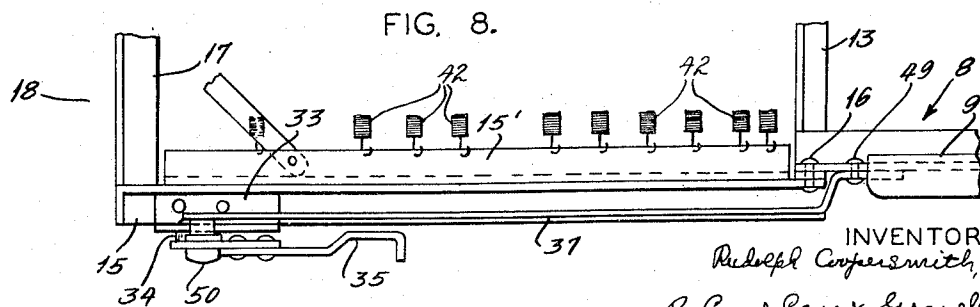
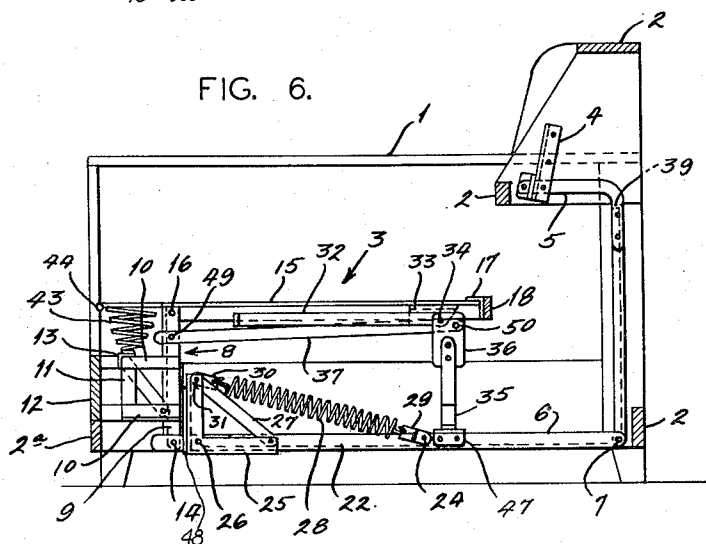
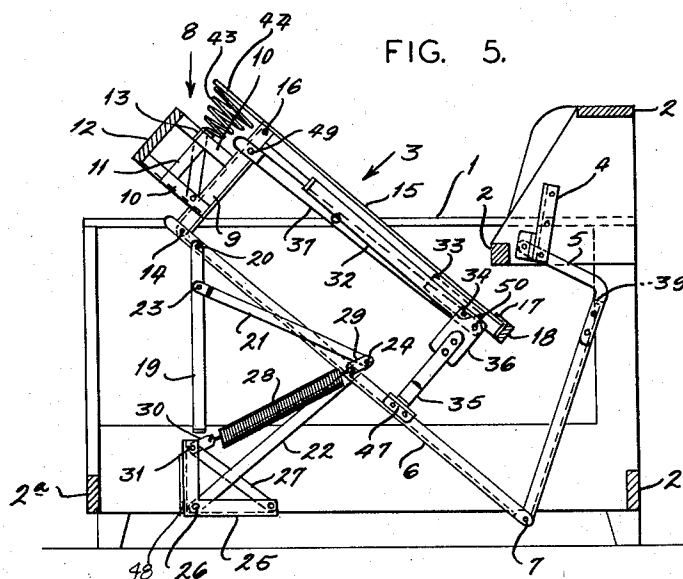
R. COOPERSMITH

2,947,006

SOFA BED

Filed Dec. 24, 1948

4 Sheets-Sheet 3



INVENTOR:
Rudolph Coopersmith,
By Carr & Carr & Gravelly,
HIS ATTORNEYS

Aug. 2, 1960

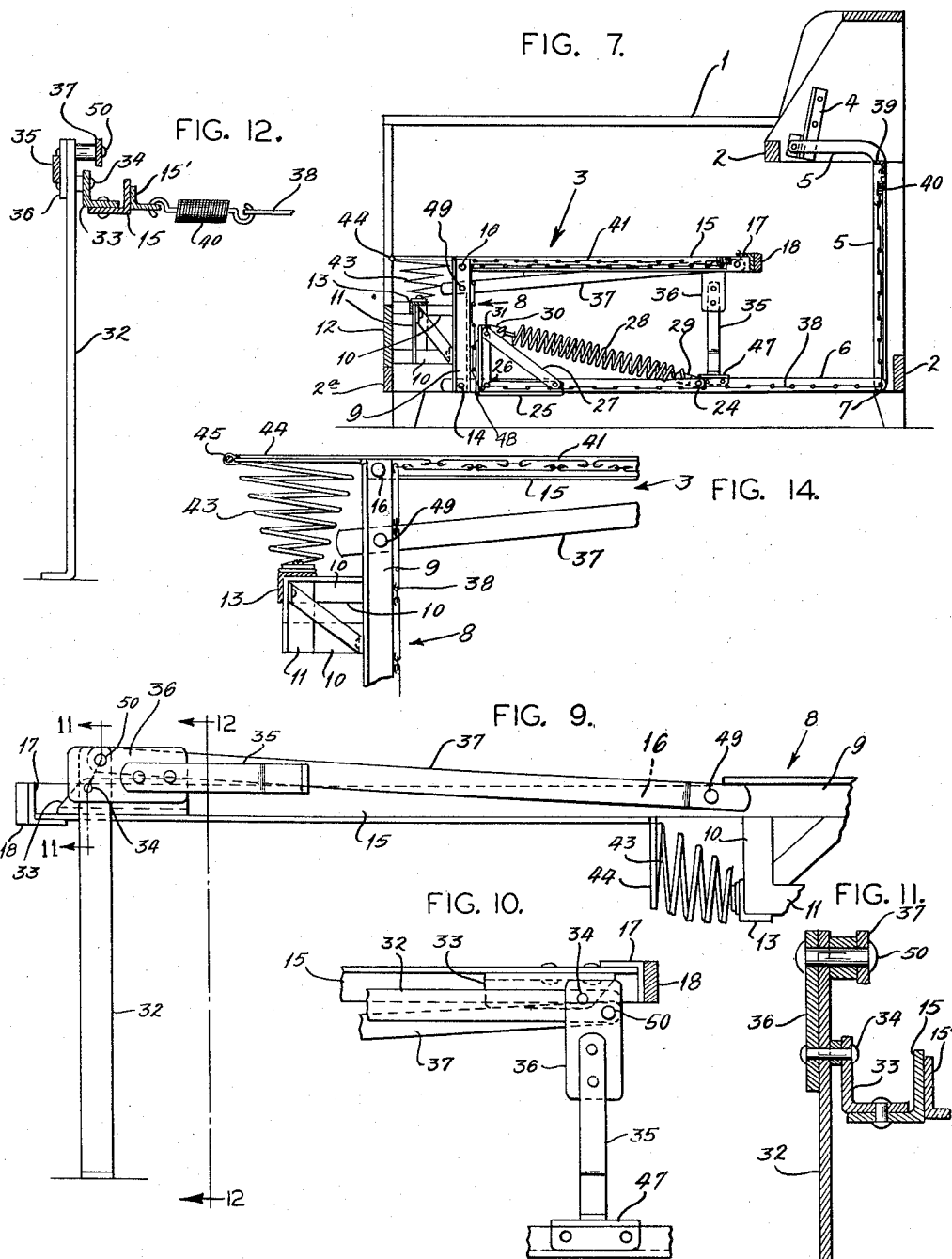
R. COOPERSMITH

2,947,006

SOFA BED

Filed Dec. 24, 1948

4 Sheets-Sheet 4



INVENTOR:
Rudolph Coopersmith,
& Carl Carr & Gravelly,
HIS ATTORNEYS.

1

2,947,006

SOFA BED

Rudolph Coopersmith, Clayton, Mo., assignor, by mesne assignments, to Gerald W. Froemke and Julius Greenblatt, as trustees

Filed Dec. 24, 1948, Ser. No. 67,183

17 Claims. (Cl. 5—13)

This invention relates to articles of furniture and is more particularly directed to a sofa bed having a mattress supporting frame that is convertible into a bed and, when used as a sofa, is provided with a resilient upper forward edge for cushions and has means on the unpivoted end of a foldable frame member for supporting it when within or without the sofa frame.

One of the objects of the invention is to provide a sofa bed having a mattress supporting frame therein that is foldable into a sofa frame and which provides means at the outer end of the foldable frame for supporting the unpivoted end thereof when folded within the sofa and when it is unfolded.

Another object of the invention is to provide a sofa having a foldable mattress supporting frame therein and an upholstery board alignable with a toe-board on the sofa that supports the upholstery board and its supporting frame when the mattress frame is folded into the sofa frame, the upholstery board supporting frame being also provided with a plurality of coil springs adjacent to the upholstery board and means interconnecting and framing the coil springs for forming a yieldable front edge support on which sofa cushions may rest after the mattress frame has been folded into the sofa.

The invention consists of a sofa frame in which a foldable mattress frame member is pivotally mounted. The foldable frame member is made up of a plurality of bar members forming sections thereof that are pivotally connected together and between two of which an upholstery board supporting frame is inserted to which frame a plurality of conical coil springs is secured for providing a resilient edge for the support of sofa cushions. The unpivoted end of the foldable frame is provided with rotatable plates to which legs are secured that are rotated about pivot pins mounted in the unpivoted end of the extensible frame and so arranged that the unpivoted end of the extensible frame is supported thereby whether in extended or folded condition. A mattress supporting fabric is resiliently suspended between the side and end bar members of the extensible frame and the outermost bar members have a resiliently suspended sofa cushion fabric therein connected to the conical coil springs forming the resilient upper forward corner of the sofa bed.

In the drawings:

Fig. 1 is a plan view of a sofa bed showing the extensible frame folded therein,

Fig. 2 is a front elevational view of the sofa frame,

Fig. 3 is a side elevational view thereof, partly in section, with the extensible frame unfolded,

Fig. 4 is a side elevational view, similar to Fig. 3, showing the extensible frame partially folded,

Fig. 5 is a side elevational view similar to Fig. 4 but with the frame tilted preparatory to positioning it in the frame,

Fig. 6 is a side elevational view similar to Fig. 4 but with the extensible frame completely folded,

2

Fig. 7 is a sectional view taken substantially along the line 7—7 of Fig. 1,

Fig. 8 is an enlarged detail view of one portion of the extensible frame taken along the line 8—8 of Fig. 3,

Fig. 9 is a side elevational view of the structure illustrated in Fig. 8,

Fig. 10 is a side elevational view of an enlarged portion of the outer end of the extensible frame member,

Fig. 11 is a sectional view taken substantially along the line 11—11 of Fig. 9,

Fig. 12 is a sectional view taken substantially along the line 12—12 of Fig. 9,

Fig. 13 is an enlarged detail view of the conical helical springs for the upholstery board; and

Fig. 14 is an enlarged detail view of a portion of the structure shown in Fig. 7.

The sofa bed has a frame consisting of two arms 1 connected together by means of a plurality of transverse members 2 and toe board 2a. A mattress supporting or foldable frame 3 is mounted in the sofa frame, one end thereof being pivotally supported on a pair of brackets 4 secured to arms 1.

The mattress supporting or foldable frame 3 comprises a plurality of pivoted frame sections having side and end frame bars and arranged to be rectangular in shape for supporting a mattress when in unfolded position. The frame has a pair of arms 5 having a right angle bend in each arm so that a long sub-arm thereof forms part of the mattress frame 3, the short sub-arm thereof being pivoted to brackets 4. One end of a pair of side bars 6 of an innermost frame section is pivoted to the end of the long sub-arm by means of pivots 7. The next frame section includes the side bars 9. A board supporting frame or bracket 8 is made up of suitable structures comprising opposite end assemblies, each having a pair of bars 10 secured to and extending at right angles to bars 9. Bar 11 of each end assembly is disposed parallel to bar 9 and is connected to bars 10 at the outer ends thereof. A board 12 is suitably secured to the structures 8 so that it is alignable with and rests on the toe board 2a of the sofa frame. The board 12 is provided as a base for upholstery material so that the sofa will present a uniform appearance when viewed from the front. An angle bar or rigid member 13 is connected between the end assemblies for frame 8 and has a length equal to the width across the front of frame 3. Braces are provided in frame 8 between said structures and bar 13 for strengthening the frame 3. The board supporting frame 8 is fixedly or non-collapsibly secured on the side bars 9 of the intermediate mattress supporting frame section, and the bars 9 are connected to one end of each bar 6 by means of pivot pins 14. Another pair of bars 15, forming parts of an outermost frame section, has one end of each bar pivotally connected to the other ends of bars 9 by means of pivot pins 16 (Fig. 8), the free ends of bars 15 being connected by means of a transverse angle bar 17 having a length equal to the width of frame 3. The forward face of this angle bar has a piece of wood 18 secured thereto. One leg of each of bars 9 has a portion of the end thereof removed so that the other leg may thereof engage the adjoining ends of bars 6 and 15 for the purpose of preventing buckling of frame 3 when it is unfolded.

The mattress frame 3 is supported on foldable legs at spaced points thereon. One set of legs 19 has one end thereof pivoted to one end of bars 6 by means of pins 20 disposed adjacent to pivot pins 14. Each leg 19 is folded into the plane of bars 6 by means of links 21 and 22. One end of link 21 is pivoted to each leg 19 by means of a pin 23 at a point adjacent pin 20, the other end of link 21 being pivoted to one end of link 22 by means of pin 24. The other end of link 22 is pivoted to a right angle

3

bracket 25 by means of a pin 26. An intermediate pivot 22' is provided to connect the link 22 to the bar 6 to coordinate the folding action of the frame 3 into and out of the sofa frame. Each of the brackets 25 is suitably secured to arms 1 and a reinforcing bar 27 is disposed diagonally across the legs of brackets 25 and is secured to the ends of said legs. A counter balancing spring 28 has one end connected to a link 29 pivoted to pin 24, the other end of the counter balancing spring being connected to a link 30 pivoted to pin 31 secured to one end of one of the legs of bracket 25.

The unpivoted or free ends of bars 15 are supported on L-shaped legs 32, one end of each leg being connected to plates 36 pivotally mounted on brackets 33 by means of pins 34, the brackets being secured to bars 15. Another leg 35 is secured to each of the plates 36 for supporting the unpivoted or free ends of bars 15 when folded to the position shown in Figs. 1, 2 and 4 to 7. One end of link 37 is pivoted to one end of bar 9 by means of pins 49, and the other end of link 37 is pivotally secured to plates 36 by means of pins 50, the arrangement being such that when bars 15 and the transverse angle bar 17 are pivoted about pins 16, the plate 36 will rotate about pins 34, thereby causing the legs 32 and 35 to selectively support the unpivoted ends of bars 15.

A mattress supporting fabric 38 is suspended from arms 5, bars 6 and 15' secured to bars 15, transverse bar 17 and from a second transverse bar 39 (Fig. 7) connected between arms 5 adjacent to brackets 4. The fabric is connected to the several bars by means of a plurality of helicals or springs 40 whereby the flexible fabric forms a flat spring supported area for supporting a mattress. The fabric 38 extends over the entire surface of the foldable mattress supporting frame, but folds into sections corresponding to the frame sections. A cushion supporting fabric 41 is suspended from the transverse bar 17 and bars 15' by means of springs 42. One side of the fabric 41 is secured to a yieldable support made up of a plurality of conical upholstery coil springs 43 supported on transverse bar 13 of the upholstery board supporting frame 8. A heavy wire 44 is positioned along the forward edge of springs 43 and the unsupported edges of springs 43 are connected to wire 44 by means of clips 45. The ends of wire 44 (Fig. 1) encircle the end springs 43 and are then intumed to be connected to the outermost springs 40 that suspend the fabric 38 from the bars of the foldable frame. This connection with springs 40 is effected by loosely inserting the intumed end of wire 44 into the center space of the spring. One end 41' of fabric 41 is connected to each of the coil springs 43 by means of clips 46, each clip being positioned diametrically opposite to clips 45 and each of the springs 43 is connected together by clips 51. The unsupported end of fabric 41 is clipped to fabric 38 adjacent to bar 17 by suitable clips 52. The fabric 41 is so arranged above fabric 38 that it presents the smooth side thereof upwardly. The function of the coil springs 43 is to provide a resilient forward upper corner support for the sofa cushions when the mattress supporting frame is folded into the sofa, thereby eliminating the non-yieldable corner or edge that characterizes the prior art. The resiliency is further attained by the movement of the frame wire 44 turning within the helical springs 40 to which end wire 41' is connected. Accordingly, a flexible frame for the springs 43 is composed of the heavy wire 44 and the wire 41' of the fabric, both of which extend across the front edge of the structure.

Referring to Figs. 1 and 14, the above structure is seen to include two layers (Fig. 14) of the flexible link fabric in the seat section 15. The upper layer of fabric 41 has its innermost longitudinal wire connected by clip means 52 to the last wire of the underlying layer of fabric 38. The outermost longitudinal wire of the fabric 41 is directly connected to the conical springs 43 by clips 46. The transverse wires of the fabric layer 41 (those wires

4

running perpendicular to the above referred to innermost and outermost wires) are seen to stabilize the set of front edge springs 43 for yielding movement with the frame wire 44 about a radius or hinge axis which is in the outermost wire of the fabric 41. This outermost wire (Fig. 1) has its opposite ends connected to the springs 40 which suspend the fabric 38, since the ends of this wire extend beyond the clips 46 on each of the next to last springs 43 at the ends of the front edge. The layer of fabric 41 has some swinging action from its innermost wire at clips 52, but because of the underlying fabric 38, the fabric 41 is restricted so that the yielding front edge springs 43 and frame wire 44 actually hinge about the axis of the outermost wire of this fabric 41 which is connected to the springs 43 by clips 46.

Assuming that the mattress supporting frame is in the extended position shown in Fig. 3, the transverse bar 17 is grasped and rotated about pins 16 to the Fig. 4 position. This will bring the cushion supporting fabric 41 to the top and, as bars 15 are rotated about pins 16, the leg members 32 and 35 will rotate about pins 34, placing leg 32 in alignment with bars 15 and causing legs 35 to support the unpivoted or free ends of bars 15. Brackets 47 secured to bars 6, support legs 35, thereby providing a rigid base on which legs 35 may rest for supporting the unpivoted ends of bars 15.

The board supporting frame is next grasped and lifted upwardly and somewhat rearwardly so that legs 19 may be moved to a position in alignment with bars 6. The links 21 and 22 move pivot pins 22', 23, 24 and 26 and will cause legs 19 to be rotated to the position shown in Figs. 5 to 7 and simultaneously stretch springs 28. As soon as the mattress supporting frame has reached the position shown in Fig. 5, the pivot pins 23 and 24 will be positioned to the right of pivot pin 26, thereby enabling the board supporting frame 8 to drop downwardly while arms 5 are pivoted on brackets 4 and align the board 12 with the toe board 2a. When the mattress supporting frame has been moved into the position shown in Fig. 6, the cushion fabric 41 will be in its permanent position for receiving the sofa cushions. For the purpose of preventing any possible movement of brackets 25, they are reinforced by angle bars 48 secured to the leg of each bracket, thereby providing additional support for the sofa bed.

From the foregoing it will be observed that a simplified foldable leg support for the unpivoted or free ends of bars 15 has been provided in both the extended and folded condition of the frame. The moving parts of the mattress frame have been reduced in number, thus clearing the mattress so that the rubbing and pinching thereof which characterizes prior art constructions, has been eliminated. All pivoted supports are placed outside of the mattress supporting frame so that the pivoted legs, in either the unfolded or folded condition, are parallel to the bars 6 and 15 or at right angles thereto, depending upon the folded or unfolded condition of the mattress frame.

What I claim is:

1. A folding sofa bed, comprising, a series of articulated frame sections including a front section and an adjacent section hinged thereto, a flexible fabric secured to and foldable with said sections from extended to folded positions to form a support for a bed and a seat respectively and in which when folded with said sections the flexible fabric secured to said front section forms the support for the seat, and a resilient device connected to one of said sections and movable with said one section into a position extending along and forwardly of the front section at the junction of said sections and in the plane of said fabric to flex downwardly with respect thereto when said front section is folded to form the seat, said device comprising a support fixed to said adjacent section, springs mounted on said support, and a frame carried by said springs and connected to said front sec-

tion, said frame forming the leading edge of said resilient device and being adapted to flex with said springs.

2. In a sofa bed combination operatively carried by a casing: a foldable frame pivotally connected to the casing and including a series of frame sections pivoted together to move between a folded seat arrangement in which first and second sections are angularly related to form the seat and an unfolded bed arrangement in which said series of frame sections cooperate to form the bed; mattress supporting fabric attached to said frame sections and adapted to fold and unfold therewith and present a folded margin across the front of the sofa in the said folded seat arrangement of said first and second sections; and a resilient front edge forming structure for said sofa effective in the said seat arrangement thereof and adapted to be moved by said first and second sections to an out of the way position in said unfolded bed arrangement of said sections, said front edge forming structure including a support member rigidly attached to one of said first and second sections to be presented in front of said folded margin across the front of the sofa when in the seat arrangement, a plurality of springs anchored from one end at spaced intervals along the length of said support member and standing in position to have the opposite ends thereof initially all at substantially the same elevation to form a forward continuation of that portion of said mattress supporting fabric in the other one of said first and second sections, and flexible front edge framing means connected between said opposite ends of the coil springs and said portion of said mattress supporting fabric to retain said springs and fabric portion in continuing adjacency while yielding under weight imposed upon the same in the seat arrangement.

3. A sofa bed comprising: a sofa frame; a mattress supporting frame composed of a series of pivoted frame sections adapted to fold into and out of said sofa frame, an innermost frame section being pivoted to said sofa frame, an outermost frame section having a free outer end, and an intermediate frame section being foldable into a vertical position inwardly of the front edge of said sofa frame with said mattress supporting frame folded into said sofa frame; an upholstery supporting frame connected to said intermediate frame section in fixed relation so as to move with said intermediate frame section: leg means on said outermost frame section adapted to support the latter frame section selectively in one position from the floor with said mattress supporting frame folded out of said sofa frame and in a second position from within said sofa frame with said mattress supporting frame folded into said sofa frame, said leg means in said second position determining the position of said upholstery supporting frame adjacent the front edge of said sofa frame; spring means carried by said upholstery supporting frame and adapted in said second position of said leg means to form a forward resilient cushion support across the front edge of said sofa frame; mattress supporting fabric carried in said frame sections and resiliently suspended therein to fold with said frame sections; and frame means connected to said spring means and to said resiliently suspended mattress supporting fabric in said outermost frame section, said frame means coordinating the supporting action of said spring means and mattress supporting fabric across the front edge of said sofa frame.

4. The sofa bed of claim 3, including plate means pivotally supported at the free end of said outermost frame section, said leg means comprising a first leg connected to each plate means and a second leg connected to each plate means at an angle to said first leg, said first legs supporting said outermost frame section in one position from the floor and said second legs supporting said outermost frame section from within said sofa frame, and means connected to said plate means and to said mattress supporting frame to pivot said plate

upon folding of the latter frame into and out of said sofa frame.

5. The sofa bed of claim 3, wherein said upholstery supporting frame includes a member extending along the front of said sofa frame below the front edge thereof in the said second position of said mattress supporting frame folded within said sofa frame, and said spring means are carried by said member in spaced relation across the front edge of said sofa frame, said spring means extending upwardly from said member and together with said frame means forming the front edge of said sofa frame.

6. A sofa bed comprising a sofa frame and a mattress supporting frame foldable into and out of the sofa frame: said mattress supporting frame including an arm pivoted to each end of the sofa frame; a side bar having one end thereof pivoted to an end of each of said arms; an end bar connected between said arms; a third bar having one end pivoted to the other end of said side bars; an upholstery board supporting frame rigidly attached to each of said third bars; a fourth bar having one end thereof pivoted to an end of each of said third bars; a second end bar connected between the other ends of said fourth bars, all of said connected bars forming the mattress supporting frame; a pair of legs pivoted to each of the fourth bars, one leg of each pair supporting said mattress supporting frame when unfolded; means for folding said last mentioned legs parallel to said fourth bars when said frame is folded into said sofa; means for supporting the ends of each of said side bars when said frame is unfolded and at a point adjacent the upholstery board frame; and other means carried by the side bars for supporting the other leg of each pair when said mattress frame is folded into said sofa frame.

7. A sofa bed comprising: a sofa frame; a mattress supporting frame composed of innermost, outermost and intermediate frame sections pivotally connected and arranged to fold into a sofa arrangement within said sofa frame and unfold in a bed arrangement extending from said sofa frame, said innermost frame section being pivotally connected to said sofa frame, said intermediate frame section being arranged to assume a front position in said sofa frame and extend between said innermost and outermost frame sections in the folded sofa arrangement thereof, and said outermost frame section having a free end in the unfolded bed arrangement and being adapted to lie uppermost relative to the other frame sections in the folded sofa arrangement thereof; a movable upholstery board for the front of said sofa frame extending across the width of said mattress supporting frame; a non-collapsible frame fixed to said intermediate frame section to move therewith in the folded sofa and unfolded bed arrangements, said upholstery board being carried by said non-collapsible frame; a series of springs fixed on said non-collapsible frame in spaced, upstanding arrangement along the front of said sofa frame in the folded sofa arrangement; a yieldable frame connected to all of said springs to form with said springs a resilient forward upper edge support for the folded sofa arrangement; mattress supporting fabric means carried by said mattress supporting frame and arranged to fold and unfold with the latter frame; and means secured to said yieldable frame and to said outermost frame for said mattress supporting fabric for restricting deformation of said yieldable frame and upstanding springs, said means being arranged to underlie said mattress supporting fabric means in the unfolded bed arrangement of said outermost mattress supporting frame.

8. The sofa bed set forth in claim 7, wherein said non-collapsible frame includes a rigid member extending the width of said mattress supporting frame, said series of springs is fixed to said rigid member in position to extend upwardly therefrom in the folded sofa arrange-

7

ment, and said yieldable frame connects the upper ends of said series of springs.

9. In a sofa bed structure, the combination, with a casing, of a bed frame pivotally secured at one end to said casing and comprising a series of pivotally connected sections folded within said casing into a seat forming arrangement, said bed frame being also unfoldable into a bed forming arrangement in which the sections extend outwardly of said casing and are substantially co-planar with each other, the seat forming arrangement providing a first section extending horizontally in position to serve as a support for seat cushions and having a free end, a second substantially horizontally extending section parallel to and spaced below said first section, a third vertically extending section connecting and spacing said first and second sections in the seat forming arrangement, a non-collapsible frame fixed to said third section, resilient front edge forming means carried by said non-collapsible frame and extending across the width of said bed frame, an L-shaped leg pivoted to said first section near the free end thereof and having one branch lying alongside of said first section and a second branch shorter than said first branch and extending downwardly from and substantially perpendicular to said first section, a rest portion on said other substantially horizontally extending section, the shorter branch of said leg engaging said rest portion to support the free end of said first section in position to locate said third section in vertically extending position with said non-collapsible frame supporting said resilient front edge forming means across the front in the seat forming arrangement, and means connecting said leg and a section other than the first section effective, during the unfolding of said bed frame into the bed forming arrangement, to move the longer branch of said leg to a position perpendicular to said first section to contact the floor and support the free end of the first section when the bed frame is unfolded to fully extended bed forming arrangement.

10. In a folding davenport bed having a frame, a folding structure, comprising, a series of articulated sections each having side bars, a flexible flat bed-spring fabric connected to said bars, means for mounting said sections in the davenport frame to selectively extend and fold said sections, said sections when extended forming the mattress-supporting area of a bed, said sections when folded positioning an end section and its fabric horizontally to form the cushion-supporting area of a davenport seat, positioning an intermediate section and its fabric adjacent said end section vertically at the front of said end section, and positioning a third section and its fabric adjacent said intermediate section and underneath said end section, a support fixed to the bars of one of said sections, extending across the intermediate section, and movable therewith to extended and folded positions, said support being constructed and arranged to extend across and forwardly of said end section when folded and being then open and unobstructed at its front and top, and a resilient device mounted on said support, movable downwardly thereon but held in permanent relation with respect to said end section and extending across and forwardly of the seat-forming fabric on said end section when folded, adapted to form in effect a cushion-supporting extension thereof, said device having means for yieldingly sustaining said device against downward movement on said support, constructed and arranged to permit said device to flex downwardly from adjacent said seat-forming fabric to and including the forward edge of said device in order to present a soft forward edge support for the cushion.

11. In a folding davenport bed having a frame, a folding structure, comprising, a series of articulated sections each having side bars, a flexible flat bed-spring fabric connected to said bars, means for mounting said sections in the davenport frame to selectively extend and fold

8

said sections, said sections when extended forming the mattress-supporting area of a bed, said sections when folded positioning an end section and its fabric horizontally to form the cushion-supporting area of a davenport seat, positioning an intermediate section and its fabric adjacent said end section vertically at the front of said end section and positioning a third section and its fabric adjacent said intermediate section and underneath said end section, a support fixed to the bars of one of said sections, extending across said intermediate section and movable therewith to extended and folded positions, said support being constructed and arranged to extend across and forwardly of said end section when folded and being then open and unobstructed at its front and top, and a resilient device mounted on said support, movable downwardly thereon but held in permanent relation with respect to said end section and extending across and forwardly of the seat-forming fabric on said end section when folded to form in effect a cushion-supporting extension thereof, said device having a series of coil springs spaced along and carried by said support at the bottom thereof when the connected intermediate section is folded, constructed and arranged to yieldingly sustain said device against downward movement on said support to permit said device to flex downwardly from adjacent said seat-forming fabric to and including the forward edge thereof in order to present a soft forward edge support for the cushion.

12. In a folding davenport bed having a frame, a folding structure, comprising, a series of articulated sections each having side bars, a flexible flat bed-spring fabric connected to said bars, means for mounting said sections in the davenport frame to selectively extend and fold said sections, said sections when extended forming the mattress-supporting area of a bed, said sections when folded positioning an end section and its fabric horizontally to form the cushion-supporting area of a davenport seat, positioning an intermediate section and its fabric adjacent said end section vertically at the front of said end section and positioning a third section and its fabric adjacent said intermediate section and underneath said end section, brackets fixed to the bars of one of said sections, a cross bar fixed to and connecting said brackets below the top of said intermediate section when folded and movable therewith to extended and folded positions, adapted to form a support movable with and extending across and forwardly of said end section when folded and being then open and unobstructed at its front and top, and a resilient device mounted on said cross bar, movable downwardly thereon and held in permanent relation with respect to said end section and extending across and forwardly of the seat-forming fabric on said end section when folded, adapted to form in effect a cushion-supporting extension thereof, said device having means for yieldingly sustaining said device against downward movement on said cross bar, constructed and arranged to permit said device to flex downwardly from adjacent said seat-forming fabric to and including the forward edge of said device in order to present a soft forward edge support for the cushion.

13. In a folding davenport bed having a frame, a folding structure, comprising, a series of articulated sections each having side bars, a flexible flat bed-spring fabric connected to said bars, means for mounting said sections in the davenport frame to selectively extend and fold said sections, said sections when extended forming the mattress-supporting area of a bed, said sections when folded positioning an end section and its fabric horizontally to form the cushion-supporting area of a davenport seat, positioning an intermediate section and its fabric adjacent said end section vertically at the front of said end section and positioning a third section and its fabric adjacent said intermediate section and underneath said end section, brackets fixed to the bars of one of said sections, a cross bar fixed to and connecting said brackets

below the top of said intermediate section when folded and movable therewith to extended and folded positions, adapted to form a support movable with and extending across and forwardly of said end section when folded and being then open and unobstructed at its front and top, and a resilient device mounted on said cross bar, movable downwardly thereon and held in permanent relation with respect to said end section and extending across and forwardly of the seat-forming fabric on said end section when folded, adapted to form in effect a cushion-supporting extension thereof, said device having a series of coil springs spaced along and carried by said cross bar, constructed and arranged to yieldingly sustain said device against downward movement on said cross bar in order to permit said device to flex downwardly from adjacent said seat-forming fabric to and including the forward edge thereof in order to present a soft forward edge support for the cushion.

14. A folding bed frame structure for a convertible bed and couch, comprising a series of articulated frame sections including an end section, an intermediate section and a third section arranged to unfold to form a bed with said frame sections in extended relation and fold to form a seat with said end section generally horizontal serving as a seat support located above said third section and said intermediate section generally vertically disposed at the front of said end section, flexible mattress supporting fabric connected to said series of frame sections to fold and unfold therewith, the fabric connected to said end section forming the seat cushion supporting area of the couch, a support fixed to said intermediate section to move therewith and arranged to extend across and forwardly of said end section when folded and being then open and unobstructed at its front and top, a resilient device mounted on said support to yield downwardly thereon and extending across and forwardly of the seat cushion supporting area in said end section to form a cushion supporting extension thereof, said device being constructed and arranged to move and flex downwardly from adjacent said seat area to and including the forward edge of said device, and flexible means operatively connected to said resilient device and said end section to control the yielding and flexing motion of said device with flexing of said fabric in said seat cushion area of said end section.

15. A folding bed frame structure for a convertible bed and couch, comprising a series of articulated frame sections including an end section, an intermediate section and a third section arranged to unfold to form a bed with said frame sections in extended relation and fold to form a seat with said end section generally horizontal serving as a seat support located above said third section and said intermediate section generally vertically disposed at the front of said end section, flexible mattress supporting fabric connected to said series of frame sections to fold and unfold therewith, the fabric connected to said end section forming the seat cushion supporting area of the couch, a support fixed to said intermediate section to move therewith and arranged to extend across and forwardly of said end section when folded and being then open and unobstructed at its front and top, a resilient device mounted on said support to yield downwardly thereon and extending across and forwardly of the seat cushion supporting area in said end section to form a cushion supporting extension thereof, said device being constructed and arranged to move and flex downwardly from adjacent said seat area to and including the forward edge of said device, and flexible means operatively connected to said resilient device and said end section to control the yielding and flexing motion of said device with flexing of said fabric in said seat cushion area of said end section, said device having a series of coil springs spaced along and carried by said support at the bottom thereof when the connected intermediate section is folded, constructed

and arranged to yieldingly sustain said device against downward movement on said support to permit said device to flex downwardly from adjacent said seat-forming fabric to and including the forward edge thereof in order to present a soft forward edge support for the cushion.

16. A folding bed frame structure for a convertible bed and couch, comprising a series of articulated frame sections including an end section, an intermediate section and a third section arranged to unfold to form a bed with said frame sections in extended relation and fold to form a seat with said end section generally horizontal serving as a seat support located above said third section and said intermediate section generally vertically disposed at the front of said end section, flexible mattress supporting fabric connected to said series of frame sections to fold and unfold therewith, the fabric connected to said end section forming the seat cushion supporting area of the couch, a support fixed to said intermediate section to move therewith and arranged to extend across and forwardly of said end section when folded and being then open and unobstructed at its front and top, a resilient device mounted on said support to move downwardly thereon and extending across and forwardly of the seat cushion area in said end section to form an extension thereof including the top area of said device, said device flexing downwardly with weight applied on the seat cushion area and extension thereof to and including the forward edge of said device, and link means operatively connected between said resilient device and said end section to coordinate the flexing motion of said device with flexing of said fabric in said seat cushion area of said end section.

17. A folding bed frame structure for a convertible bed and couch, comprising a series of articulated frame sections including an end section, an intermediate section and a third section arranged to unfold to form a bed with said frame sections in extended relation and fold to form a seat with said end section generally horizontal serving as a seat support located above said third section and said intermediate section generally vertically disposed at the front of said end section, flexible mattress supporting fabric connected to said series of frame sections to fold and unfold therewith, the fabric connected to said end section forming the seat cushion supporting area of the couch, a support fixed to said intermediate section to move therewith and arranged to extend across and forwardly of said end section when folded and being then open and unobstructed at its front and top, a resilient device mounted on said support to move downwardly thereon and extending across and forwardly of the seat cushion area in said end section to form an extension thereof including the top area of said device, said device flexing downwardly with weight applied on the seat cushion area and extension thereof to and including the forward edge of said device, and link means operatively connected between said resilient device and said end section to coordinate the flexing motion of said device with flexing of said fabric in said seat cushion area of said end section, said device having a series of coil springs spaced along and carried by said support at the bottom thereof when the connected intermediate section is folded, constructed and arranged to yieldingly sustain said device against downward movement on said support to permit said device to flex downwardly from adjacent said seat-forming fabric to and including the forward edge thereof in order to present a soft forward edge support for the cushion.

References Cited in the file of this patent

UNITED STATES PATENTS

1,095,465	Morris	May 5, 1914
1,095,466	Morris	May 5, 1914

(Other references on following page)

11

UNITED STATES PATENTS

1,155,779	Andren	Oct. 5, 1915
1,214,284	Dewey	Jan. 30, 1917
1,265,073	Freedman et al.	May 7, 1918
1,383,485	Richardson	July 5, 1921
2,293,964	Bell	Aug. 25, 1942

2,345,624

2,352,989

2,407,864

2,445,241

2,505,989

12

Paladino	Apr. 4, 1944
Woller	July 4, 1944
Arzt	Sept. 17, 1946
Pokorny et al.	July 13, 1948
Pokorny et al.	May 2, 1950