M. TAUBER.

FOLDING DAVENPORT OR COUCH.

APPLICATION FILED JUNE 30, 1915.

1,216,882.

Patented Feb. 20, 1917.

3 SHEETS—SHEET 1.

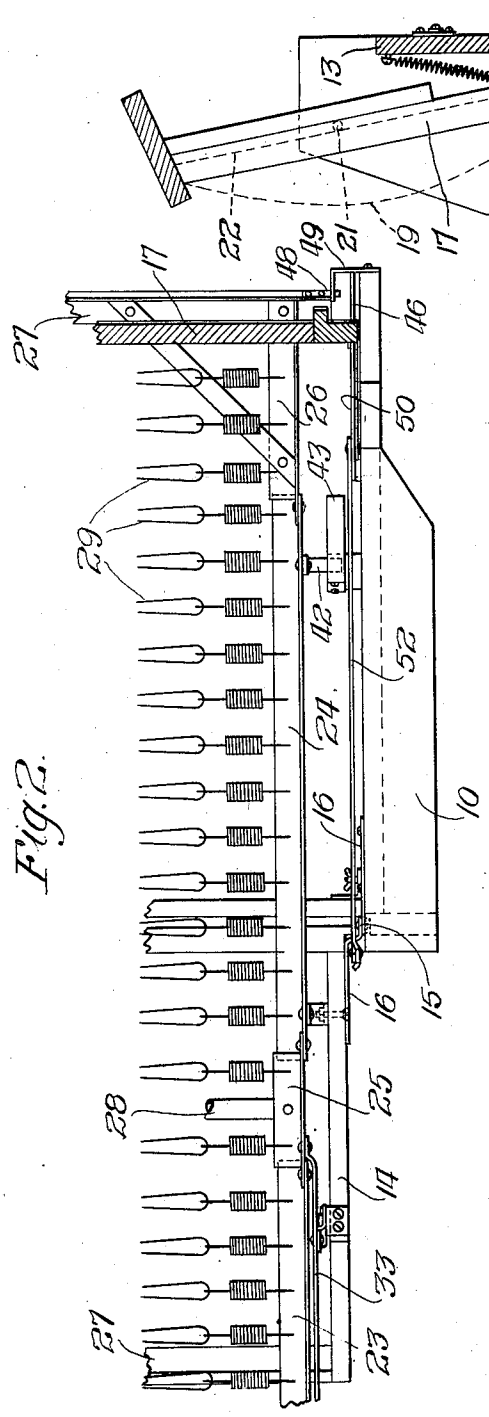


Fig. 2.

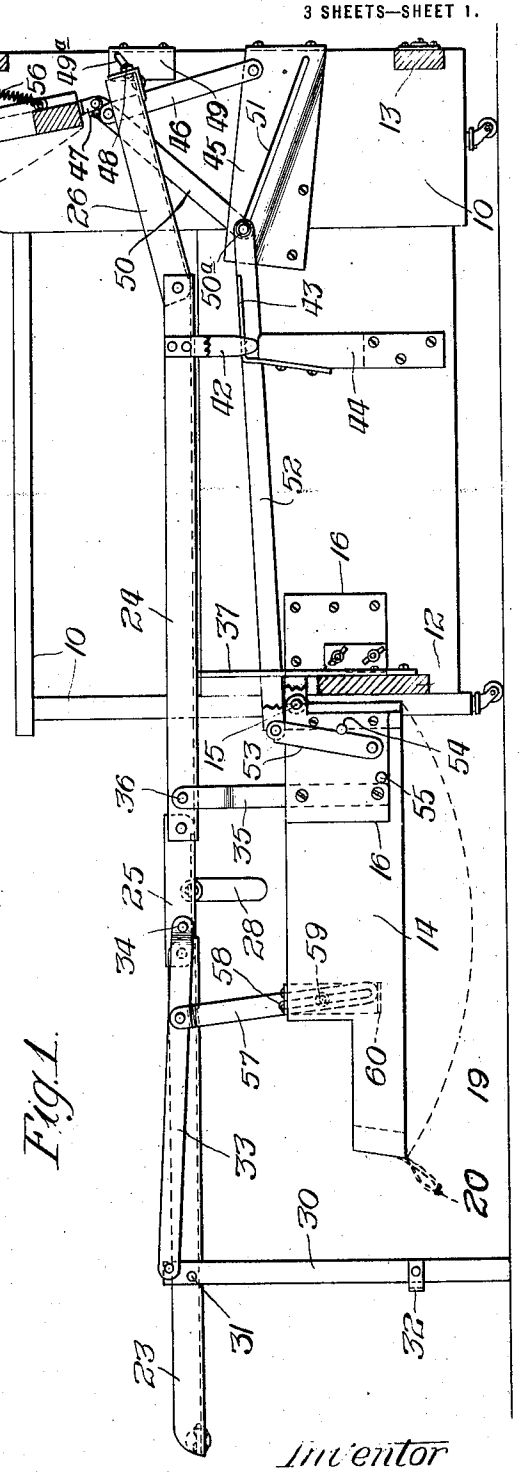


Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 3.

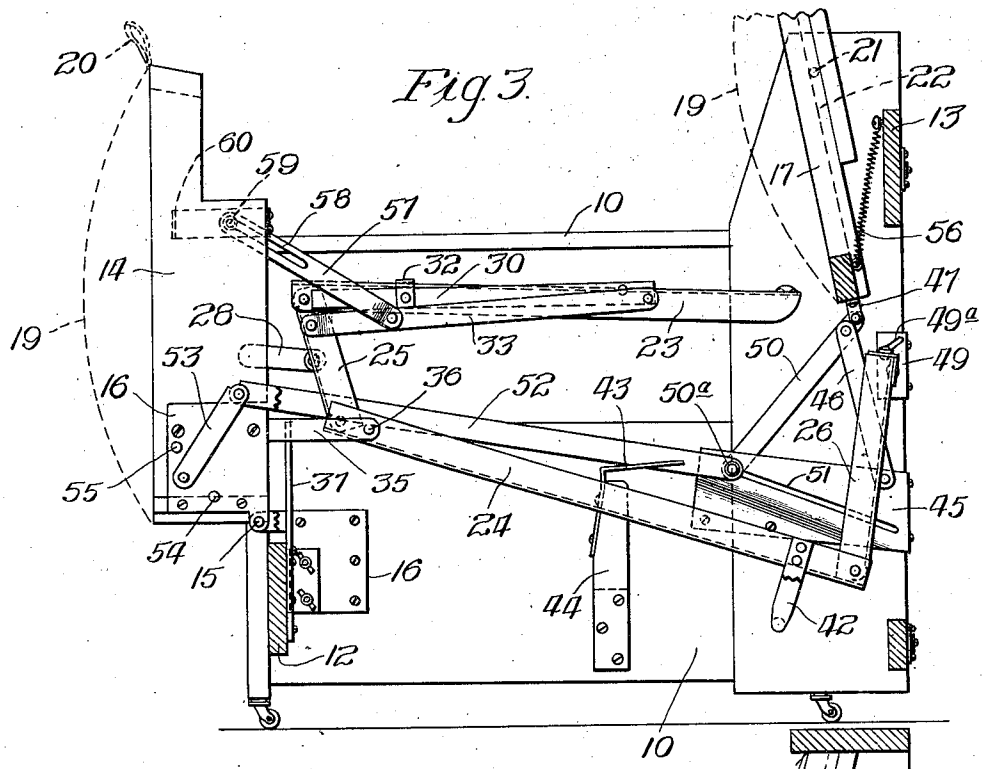
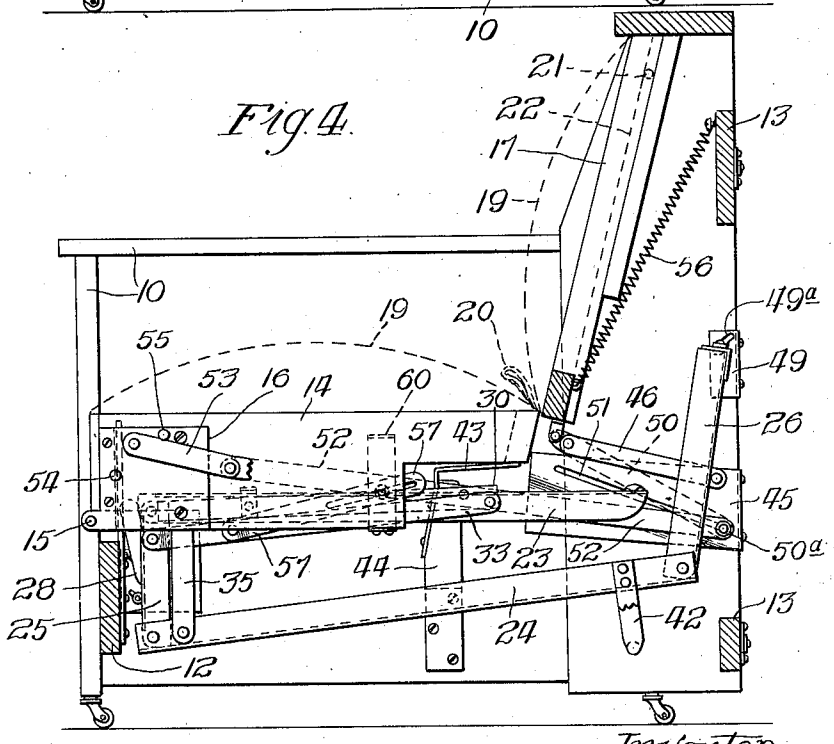


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

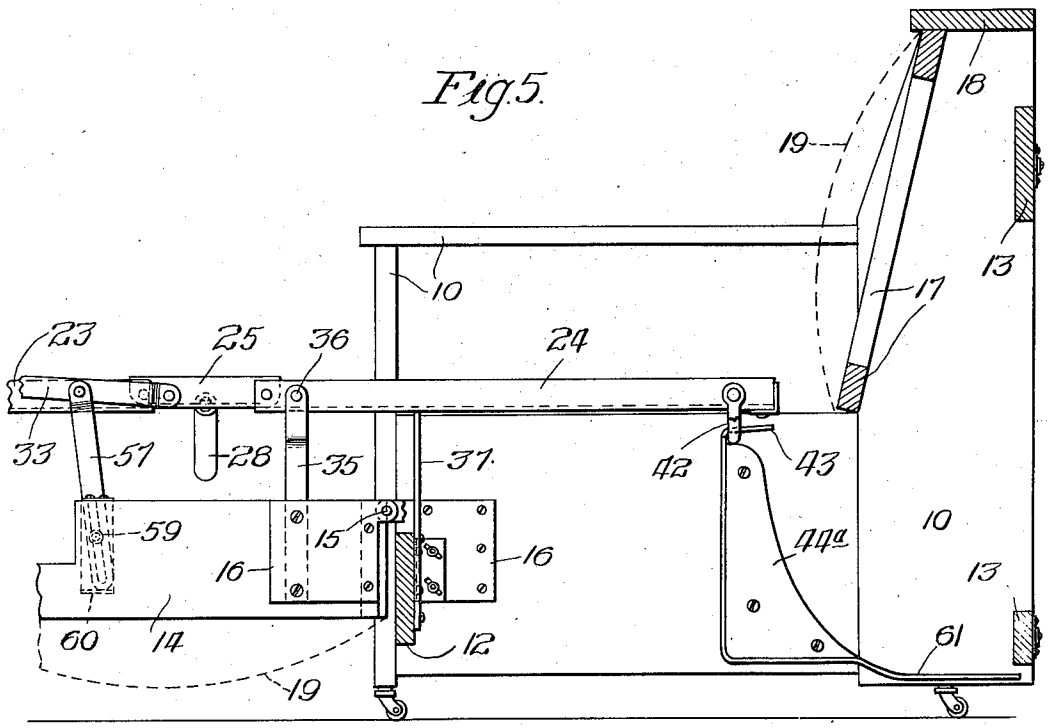


Fig. 7

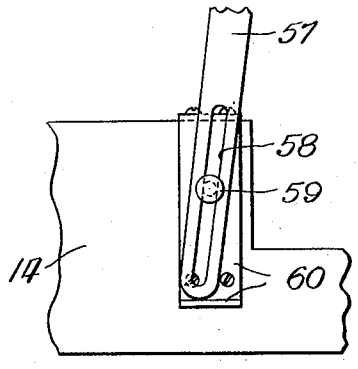
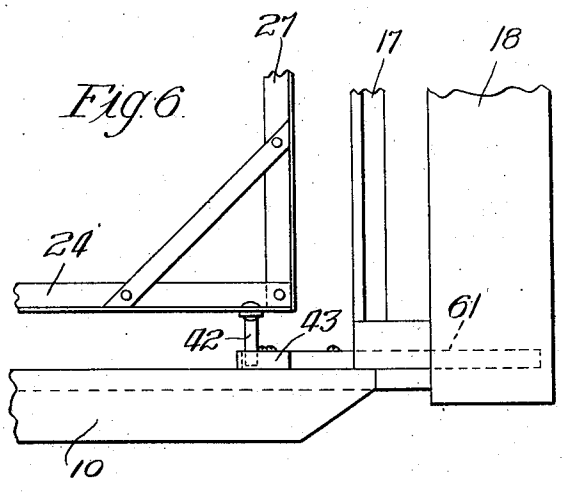


Fig. 6



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UNITED STATES PATENT OFFICE.

MAURICE TAUBER, OF CHICAGO, ILLINOIS.

FOLDING DAVENPORT OR COUCH.

1,216,882. Specification of Letters Patent. Patented Feb. 20, 1917.

Application filed June 30, 1915. Serial No. 37,143.

To all whom it may concern:

Be it known that I, MAURICE TAUBER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Folding Davenports or Couches, of which the following is a specification.

Folding davenports as now marketed are of two general styles, one of which is of sufficient length so that the unfolded bed permits a person to sleep lengthwise of the davenport, the other style having the long dimension of the collapsible bed structure running transversely to the davenport framework. Certain of the features of my present invention are applicable to either of these styles, while other features refer more particularly to the type last mentioned.

Referring to both types, it is one of the objects of the invention to produce a davenport or couch which is arranged to be folded or unfolded by a single or continuous movement, the purpose being to produce a couch which is constructed to operate in the very simplest and easiest manner. The seat is hinged at its forward edge to the davenport framework and the collapsible bed structure is connected to the seat in such a manner that said structure and seat fold and unfold together in one continuous movement.

Another object of the invention is to provide a novel and improved means of associating the inner portion of the bed structure with the framework.

As applied to a davenport of the second mentioned type, a further object is to provide improved means for supporting the inner bed section, for raising and lowering and guiding the back, and for causing the proper coöperative movement of the parts.

Further objects, relating to details of construction, will be apparent from the following description.

In the accompanying drawings, Figure 1 is a transverse sectional view through one end of a davenport embodying the features of my invention, the view illustrating the position of the parts when unfolded or set up ready for use as a bed. Fig. 2 is a fragmental plan view with portions in section showing the structure in the same position as in Fig. 1. Figs. 3 and 4 are views similar to Fig. 1, but showing the parts respectively in partially folded and fully folded positions. Fig. 5 is a similar view of the type of davenport in which the long dimension of the unfolded bed runs parallel with the davenport. Fig. 6 is a fragmentary plan view showing a portion of the structure illustrated in Fig. 5. Fig. 7 is a detail elevation illustrating the connection between the bed structure and the seat of the davenport.

I will herein describe in detail the preferred embodiment of my invention illustrated in the drawings, without intending, however, to limit the invention to the forms disclosed, except as recited in the appended claims.

The framework of the davenport comprises two end frames 10 which are connected together by a horizontal front crossbar 12 and two rear bars 13. The seat section 14 is hinged near its forward edge at 15 by means of pairs of hinge plates 16 so as to swing from its normal position upwardly and forwardly into an inverted position. 20 indicates a strap fixed to the seat section and adapted to be grasped by the operator for operating the seat.

The back section of the davenport is shown at 17, and at its upper edge is a board 18 arranged to overlie the ends of the upwardly projecting portions of the end frames 10. In the long type of davenport, shown in Fig. 5, the back 17 and board 18 are stationarily mounted in the framework. In the short type, however, it is desirable to utilize the space beneath and behind the back for the inner portion of the bed structure, and for this reason the back is mounted for movement bodily up and down with relation to the end frames 10, the board 18 in the present instance being rigid with the back and moving therewith. In the drawings, only the frames of the seat and back sections are shown, the upholstery being indicated by the dotted lines 19. The back section is guided in its movement up and down by similar means at each end thereof, said means comprising an inwardly projecting stud 21 fixed on the end frame 10 and extending into a groove 22 in the end of the back section.

The seat section and the bed-forming elements (and the back section in the short type of davenport shown in Figs. 1 to 4) are all connected together in such a manner that

the bed structure and the back section are operated by the swinging movements of the seat section. The elements of the bed structure and the coöperating connecting elements are duplicated at opposite sides of the bed, and for the sake of clearness the following description will refer to the parts at only one side of the bed, or at one end of the davenport.

Referring to Figs. 1 to 4, the bed-forming elements proper comprise a relatively long outer section 23, a relatively long middle or central section 24, a short intermediate section 25 pivotally connecting said outer and central sections, and a relatively short inner section 26 pivoted directly to the central section. These parts at opposite sides of the bed are connected by suitable end bars 27, one or more intermediate bowed braces 28, and suitable spring material 29, as shown in Fig. 2.

The outer section 23 has a supporting leg 30 pivoted at 31 thereto, the two legs at opposite sides of the bed being connected by a brace 32. A link 33 is connected at one end to the leg 30 above its pivot 31, the other end of the link being pivoted at 34 to the short section 25. This link is arranged to fold and unfold the leg in the swinging movements of the outer bed section 23.

A link 57 is pivoted at one end to the link 33 and has an elongated slot 58 (Fig. 7) in its other end to receive a stud 59 rigid with a stop or bracket 60 which is fixed to the inner side of the seat frame of the davenport. By means of the slot 58 and stud 59 the link 57 is slidably and pivotally connected to the seat. The bracket 60 has an angular end against which the end of the link 57 is arranged to abut, as shown in Fig. 7, when the bed is unfolded, whereby the link acts as a leg to support the bed structure near the joint between the outer section 23 and the short section 25 so as to insure that this joint will be straightened out in horizontal position when the bed is unfolded. A further function of the link 57 is to connect the bed structure to the seat section 14 so that folding or unfolding movements of either one will operate the other.

A bracket 35 rigidly fixed to the seat 14 has its free end pivotally connected at 36 to the central section 24 near the joint between the latter section and the short section 25. Another bar or bracket 37 is rigidly fixed to the front cross-bar 12 of the framework and extends upwardly to abut against the central section 24 when the bed is unfolded so as to support the bed structure at this point.

On the inner portion of the central section 24 is mounted a depending bracket 42 having an angular end adapted to hook beneath an angular bar 43 fixed to a bracket 44 which is rigidly mounted on the end frame 10. When the bed is in its unfolded position, the angular end of the bracket 42 fits snugly between the bar 43 and the upper end of the bracket 44. The bed section is thus securely locked against movement either up or down. The bracket 37 acts as a fulcrum, in front of which the weight of the seat and bed sections pulls down on the section 24 and thereby tends to tilt the inner end of the latter section up, this being prevented by the stop brackets 42 and 43.

On the extreme inner corner of the inner section 26 is a horizontal projection 48 which lies in a slot 49^a in a plate 49 fixed to the end frame. By this means the inner section is supported, and when the structure is in folded position as in Fig. 4, the central section is suspended by said inner section. The slot 49^a permits the necessary movement of the bed section 26 in folding and unfolding.

A plate 45 is fixed to the end frame 10 below the plate 49 and has a long inclined slot 51 therein running forwardly and upwardly from the rear end of the plate. If desired, the two plates 49 and 45 may be formed integral with each other. A link 50 has in its lower end a cross-pin 50^a which extends through the slot 51, and the upper end of this link is pivoted to a bracket 47 which is fixed to the lower edge of the back section 17 of the davenport. Another link 46 is pivoted at its lower end to the plate 45 and at is upper end to the link 50 adjacent to the bracket 47. The links 46 and 50 constitute a toggle. A long horizontal link 52 has its rear end attached to the cross-pin 50^a, and the forward end of this long link is pivoted to one end of a short link 53, the opposite end of which short link is pivoted to the hinge plate 16 on the seat section. The links 46, 50, 52, 53, provide an operating connection between the seat and the back which is independent of the bed structure. Two stop pins 54 and 55 fixed in said hinge plate limit the swinging movement of the short link 53. The connection between the two links 52 and 53 is preferably in the form of a rule joint which provides shoulders to abut against each other and limit the relative swinging movement of the links in one direction, as indicated in Fig. 4. If desired, coiled tension springs 56 may be attached to the back section 17 to counterbalance the weight thereof and thus facilitate operation of the parts.

Assuming the davenport to be in its normal or folded position, as shown in Fig. 4, if it is desired to unfold the structure, the operator grasps the strap 20 and swings the seat upwardly and forwardly. In this movement the stationary bracket 35 on the seat raises the bed structure; the slotted link 57 also acts to cause the outer bed section to unfold along with the seat into their horizontal or extended position; the link 33 unfolds the supporting leg 30; and the slotted

link 57 finally abuts against the angular end of the bracket 60 and supports the bed structure at this point. During the latter portion of the unfolding movement the angular end of the bracket 42 abuts against the projecting end of the bar 43 and then slides along the bar into the space between the bar and the upper end of bracket 44. When fully unfolded, the bed-section 24 abuts against the bracket 37 and the bracket 35 on the seat maintains the bed-sections 24 and 26 in position with the bracket 42 in engagement with its coöperating stop members, 43, 44. All parts of the bed are then rigidly supported.

The unfolding movement of the seat 14 acting through the links 52 and 53 causes the pin 50[a] to travel forwardly and upwardly in the slot 51, and thereby swings the links 50 and 46 to raise the back section 17 into its upper position, in which it is out of the way of the bed structure. The space beneath and behind the normal position of the back may thus be occupied by the inner end of the bed structure, so that the structure projects a minimum distance into the room and thus economizes space. As the seat approaches a horizontal position, the stop pin 54 engages the short link 53, breaking the joint between the links 53 and 52 and drawing link 52 forward to the limit of its movement.

The folding operation is just the reverse of that described, and need be referred to only briefly. The operator grasps the end of the outer bed section 23 and raises it, the supporting leg 30 being thereby folded alongside said section. When the section has been moved a short distance, the slotted link 57 engages the stud 59 so that continuing movement of the bed section will raise the seat 14. When the seat has been raised to a convenient height, the operator grasps the strap 20 and controls the further folding movement thereby. As will be understood from Fig. 3, the back 17 remains in its elevated position until after the seat has passed a vertical position. Owing to the triangular relation of the links 46 and 50 and the slot 51, said links do not tend to collapse, and it is not until the stop pin 55 on the seat engages the short link 53 and thereby starts to straighten out the links 53 and 52 that the cross-pin 50[a] will be moved rearwardly in its slot 51 so as to lower the back section.

In the embodiment illustrated in Figs. 5 and 6, wherein the long dimension of the bed structure runs parallel to the davenport framework, the back section 17 is stationary in the framework, as before stated, and therefore the means for raising and lowering the back, which comprises the parts 45 to 47 and 50 to 55 are not present in this form.

The inner bed section 26 and its supporting plate 49 are also omitted. The inner end of the section 24 is provided with a hooked bracket 42 which is adapted to engage between the angular bar 43 and the bracket 44, the same as in the construction previously described. Suitable means is provided for supporting the section 24 when the structure is in its folded position, said means in the present instance comprising a rail 61 at the lower rear corner of the framework upon which the hooked bracket 42 may rest. The member 44[a] is preferably curved to merge with the rail 61 and to form a guide along which the hooked bracket 42 may travel in moving from one position into another.

Except for the differences described, the structure shown in Figs. 5 and 6 is the same as that of the other figures. It will be noted that all locks of whatsoever nature have been eliminated from the present structure, for the reason that locks are usually a source of annoyance and are apt to get out of order.

Referring to the short type of davenport, in some of these which have been heretofore produced, the outer bed section was folded over on the adjacent bed section and the two were then folded again in the same direction onto a third section, or the like. This arrangement is objectionable, because in the second folding movement the outermost bed section drops down and interferes with the folding. I obviate this difficulty by arranging the bed structure to fold completely with only a single movement of the outermost section, the latter lying on top of the central section when collapsed beneath the seat and the two short sections occupying an upright position. Thus the bed is virtually a two-section bed, that is to say, there are only two main or long sections, the others being relatively quite short sections. It requires only a single continuous movement in either folding or unfolding the bed.

I claim as my invention:

1. In a folding couch, the combination of a main framework, a seat pivotally connected at its forward edge to said framework, a bed structure comprising two long sections and a connecting short section, a pair of brackets fixed on the seat and in which the inner one of said long bed sections is pivotally supported, and links operatively connecting the outer one of said bed sections to the seat.

2. In a folding couch, the combination of a main framework, a seat pivotally connected at its forward edge to said framework, two relatively long bed sections, a short section connecting the two, the inner long section being pivotally mounted on the seat, a pair of legs pivoted to the outer section for supporting the latter, a pair of links pivotally connecting said legs to the short section for folding and unfolding the legs, and a pair of links connecting the last

mentioned links to the seat, whereby the outer bed section and the seat are arranged for folding movement together.

3. In a folding couch, the combination of a framework, a seat pivotally connected at its forward edge to said framework, two long bed sections, a short section connecting said two long sections, a pair of brackets fixed on the seat in which the inner long section is pivotally supported, additional means positioned inwardly from said brackets for supporting said inner long section, a pair of legs pivoted to the outer long section and adapted to rest upon the floor to support said outer section, a pair of links connecting said legs to the short section for folding and unfolding the legs, another pair of links each having one end pivoted to one of the first links and having a slot in its other end, a pair of brackets against which the latter ends of the links are arranged to abut to assist in supporting the said structure, and a pair of studs fixed in the seat and lying in the slots in said links.

4. A folding couch having, in combination, a main framework, a seat pivotally connected at its forward edge to said framework, a collapsible bed structure comprising a plurality of sections pivotally connected together, a pair of pivoted links operatively connecting the outermost bed section to the seat, a pair of brackets rigid with the seat in which the forward end of one of the inner bed sections is pivotally supported, a fulcrum on the framework for supporting said inner section at a point rearwardly of said brackets, and means rearwardly of said fulcrum for limiting upward tilting movement of the rear end of said inner section.

5. In a folding couch, the combination of a main framework, a seat pivotally connected at its forward edge to said framework, a pair of brackets projecting from the bottom of the seat, a pair of stops and a pair of pins fixed to the seat at a point farther distant from its pivotal center than said brackets, a pair of links each having a slot in one end receiving said pins and adapted to abut against said stops, a folding bed structure comprising two long sections and an intermediate short section pivoted together, the outer long section being connected to the ends of said links whereby movement of either the section or the seat will operate the other, the inner long section being pivoted in said brackets, and additional supporting means for said inner section.

6. A folding couch having, in combination, a main framework, a seat pivotally connected at its forward edge to said framework, two relatively long bed sections, a short section connecting the two, the outer end of the inner long section being connected to the seat, a pair of legs pivoted to the outer section for supporting the latter, a pair of links pivotally connecting said legs to the short section for folding and unfolding the legs, and a connection between the links and the seat, whereby the outer bed section and the seat are arranged for folding movement together.

7. In a folding couch, the combination of a supporting framework, a seat mounted therein for swinging movement about its forward edge into an inverted position in front of the framework, a folding bed structure comprising two long sections, an intermediate short section pivoted thereto, and an inner short section pivoted to the inner long section, means pivotally supporting said inner short section in the framework, means pivotally supporting the inner long section from the seat, additional supports near the forward end of the framework upon which the inner long section is arranged to bear, coöperating stop portions on the framework and the inner portion of the inner long section, respectively, arranged to limit upward movement of the latter, and means for supporting the outer long section.

8. A folding couch comprising a supporting framework, a seat section pivoted at its forward edge thereto, a collapsible bed structure comprising two long sections, an intermediate short section and an inner short section pivoted together, a pair of brackets fixed on the seat section and pivoted to the outer end of the inner long section, another pair of brackets upon which the latter section is arranged to bear at a point inwardly from the first mentioned brackets, coöperating stop members on the framework and the inner portion of the latter section adapted to limit upward movement of said inner portion, means pivotally supporting the inner corners of the short inner section in said framework, a pair of legs pivoted to the outer long section and adapted to bear against the floor for supporting the latter section, a pair of links pivotally connecting said legs to the intermediate short section, and a pair of links pivotally connecting the last mentioned links to the seat section, whereby operation of either the outer bed section or the seat section will operate the other one of the latter sections.

9. A folding couch having, in combination, a supporting frame, a back mounted for movement up and down with relation to said frame, a toggle pivoted at one end to the supporting frame, the middle portion of the toggle being connected to the lower end of said back, a seat pivoted to the supporting frame, and a link connecting the other end of the toggle to said seat.

10. A folding couch having, in combination, a framework, a seat pivotally con-

nected at its forward edge to said framework, two long bed sections, a short section connecting said two long sections, a pair of brackets attached to the seat in which the inner long section is pivotally supported, additional means positioned inwardly from said brackets for engaging said inner long section, a pair of legs pivoted to the outer long section and adapted to rest upon the floor to support said outer section, a pair of links connecting said legs to the short section for folding and unfolding the legs, another pair of links each having one end pivoted to one of the first links and having its other end slidably and pivotally connected to said seat, and a pair of stops on the seat against which the latter ends of the second mentioned links are arranged to abut to assist in supporting the bed structure.

11. In a folding couch, the combination of a supporting frame, a seat pivotally mounted thereon, a back mounted for movement up and down with relation to said frame, a pair of plates mounted on the frame and each having an inclined slot therein, and means comprising a plurality of links connecting the seat and the back, said links carrying portions adapted to travel in said inclined slots, whereby pivotal movement of the seat will act to raise and lower the back.

12. In a folding couch, the combination of a supporting frame, a seat pivotally mounted therein, a back mounted for movement up and down with relation to the frame, a pair of plates mounted in said frame and having inclined slots therein, two links connected to said back and each having a pin adapted to travel in one of the said slots, another pair of links connecting the first mentioned links to stationary pivots in the frame, and means connecting said pins to the seat, whereby the pivotal movement of the seat will slide the pins along their slots and cause the back to be raised and lowered.

13. In a folding couch, the combination of a supporting frame, a seat mounted therein for pivotal movement, a back mounted for movement up and down in said frame, a pair of plates mounted in the frame beneath said back and having slots inclined forwardly and upwardly, a pair of links attached at their upper ends to the lower edge of the back and having pins in their lower ends adapted to travel in said slots, another pair of links attached at their upper ends to the first mentioned links and pivoted at their lower ends on stationary pivots in the frame near the rear ends of said slots, a pair of short links pivoted to the seat, two pairs of stop pins fixed in the seat for said short links to abut against, and a pair of long links connecting said short links to the said pins in said slots, whereby pivotal movement of the seat will act to raise and lower the back.

In testimony whereof, I hereunto set my hand in the presence of two witnesses.

MAURICE TAUBER.

In the presence of—

MAURICE A. LEVY,

SIDNEY P. O'ROONY.