June 3, 1941. I. M. PINK ET AL 2,243,882

TWIN UNIT COUCH

Filed Jan. 6, 1939 3 Sheets-Sheet 1

Fig. 1.

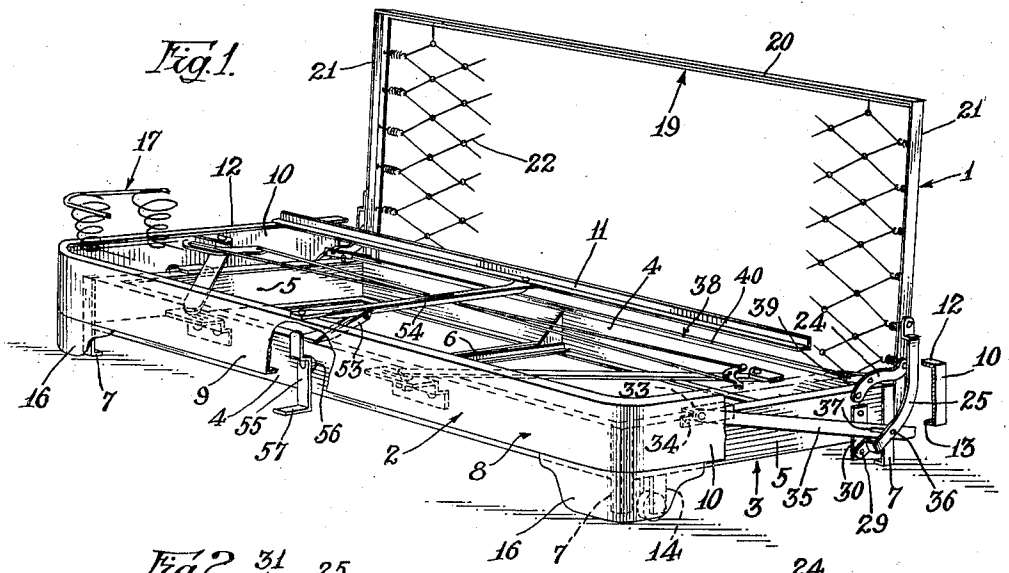


Fig. 2.

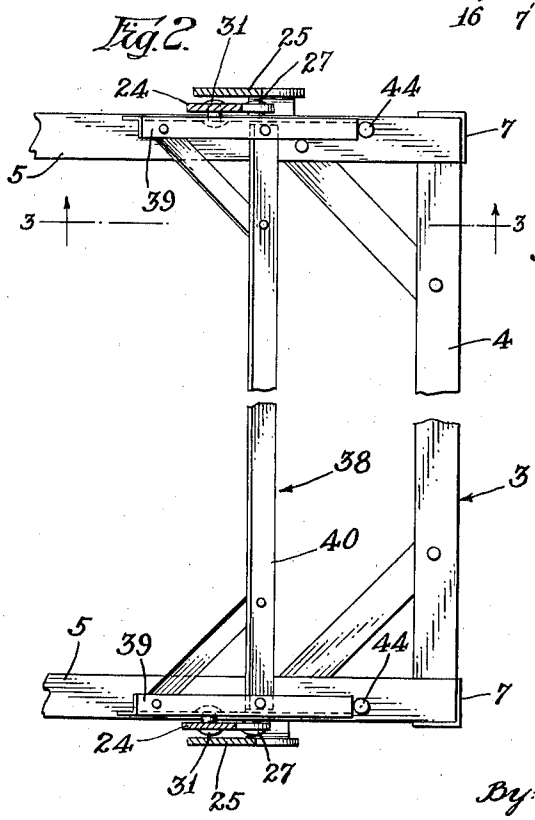
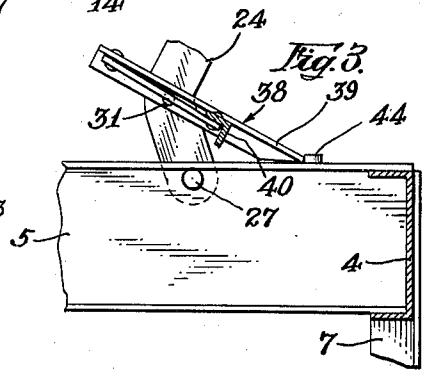


Fig. 3.



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Filed Jan. 6, 1939 3 Sheets-Sheet 2

Fig. 4.

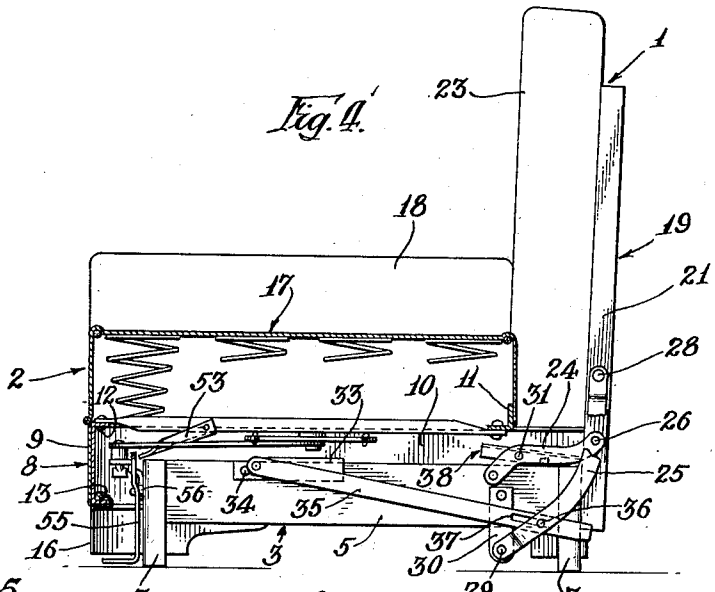


Fig. 5.

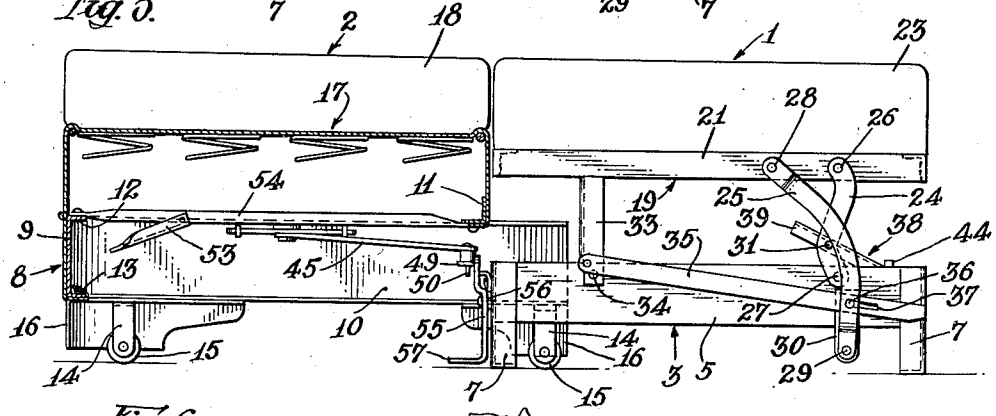


Fig. 6.

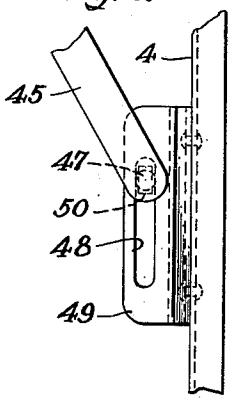


Fig. 7.

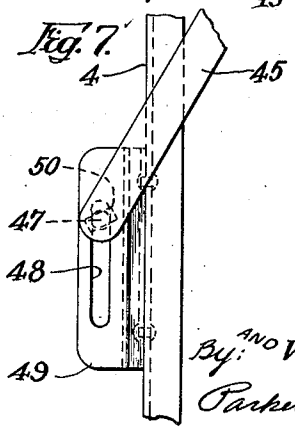
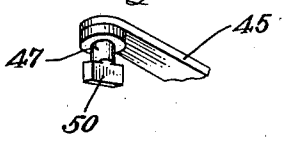


Fig. 8.



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Filed Jan. 6, 1939 3 Sheets-Sheet 3

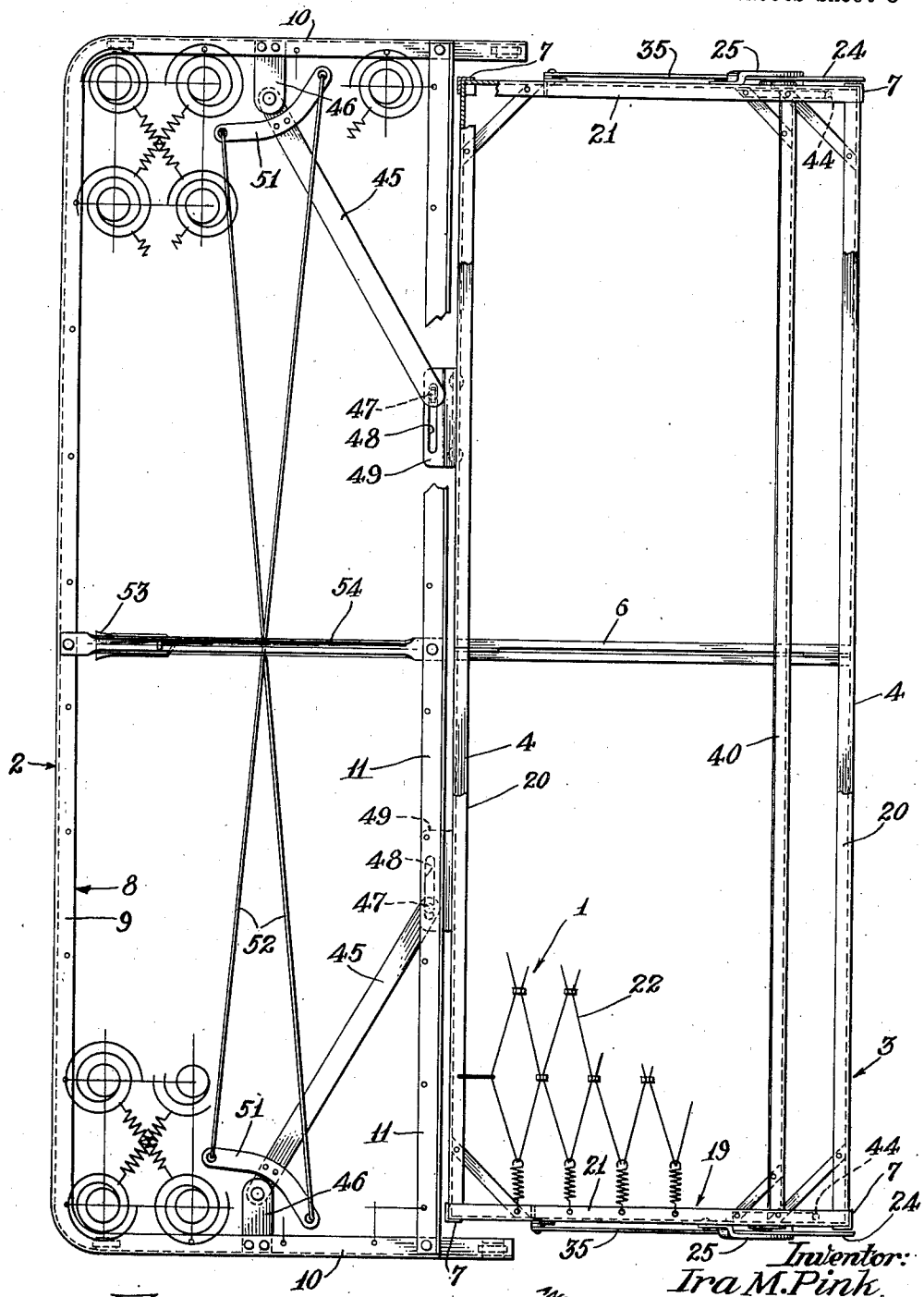


Fig. 9.

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2,243,882

UNITED STATES PATENT OFFICE

2,243,882

TWIN UNIT COUCH

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Application January 6, 1939, Serial No. 249,578

6 Claims. (Cl. 5—44)

The present invention relates to improvements in twin studio couches or davenports, and has particular reference to a new and improved couch having two relatively movable sections adapted to be positioned in angular relation for use as a seat and back rest respectively of a lounge, and to be moved into relatively projected position with both units horizontal to provide a double sleeping surface.

One of the objects of the invention is to provide a couch of the foregoing character in which both of the couch sections are disposed at bed height when arranged as sleeping surfaces.

A further object is to provide a twin section couch of the foregoing character in which one of the couch sections is provided in the form of a swinging back connected to a stationary base structure by a linkage mechanism which serves to lock the swinging couch section firmly, though releasably, in either upright or horizontal position.

A further object is to provide a twin section couch of the foregoing character in which the couch sections can be operatively disconnected from each other only when the sections are in extended horizontal sleeping surface position, so that the sections may be separated for independent use.

A general object of the invention is to provide a novel twin section couch having a supporting mechanism for swingably supporting one of the sections in either a back rest position or sleeping surface position, which is simple and inexpensive in construction, which is easy to operate, and which is substantially concealed from view when the sections are in assembled relation.

Further objects and advantages of the invention will become apparent as the following description proceeds, taken in connection with the accompanying drawings in which:

Figure 1 is a general perspective view of a couch embodying the invention, the cushions being removed and the spring structure as well as various other parts being broken away to expose the interior construction.

Fig. 2 is an enlarged fragmentary plan view of the rear of the base frame structure.

Fig. 3 is a fragmentary sectional view along the line 3—3 in Fig. 2.

Figs. 4 and 5 are end elevations, partly in section, showing the couch respectively in its contracted and projected positions.

Figs. 6 and 7 are fragmentary detail plan views of a portion of the interconnecting mechanism between two relatively movable units of the couch.

Fig. 8 is a detail perspective view of one of the parts included in the interconnecting mechanism of Figs. 6 and 7.

Fig. 9 is a plan view of the two couch section frames in their projected positions.

While the invention is susceptible of various modifications and alternative constructions, a preferred embodiment has been shown in the drawings and is herein described in detail, but it is to be understood that there is no intention to thereby limit the invention to the specific form disclosed, but on the other hand, the intention is to cover all modifications and alternative constructions falling within the spirit and scope of the invention by the appended claims.

Referring more particularly to the drawings, the couch illustrated (Figs. 1 and 4) comprises two relatively movable couch sections 1 and 2 adapted to be disposed in angular relation to form, respectively, a back rest and seat of a lounge (Fig. 4), or to be adjusted into separated or relatively projected position and horizontal position (Fig. 5) for use as twin sleeping surfaces or beds. The back rest section 1 is swingably mounted, by a novel mechanism hereinafter described, on a stationary base unit 3 which rests on the floor. This base unit comprises a rectangular reenforced frame including longitudinal channels 4 (Fig. 1) and end channels 5, as well as a central angle bar cross brace 6. The frame is borne by angle-iron corner posts or legs 7.

The horizontal or seat couch section 2 is telescoped in nested relation over the base unit 3. To condition the couch for sleeping purposes the couch section 2 is pulled rectilinearly forward away from the base unit 3. This couch section 2 comprises a border frame 8 open at the rear to receive the stationary base unit 3, and more particularly comprising a longitudinal front channel member 9 (Figs. 5 and 9) and end channel members 10. A rear longitudinal angle bar 11 spans and is secured to the top of the rear ends of the frame members 10. Each of the frame members 9 and 10 has upper and lower flanges 12 and 13 extending inwardly in vertically spaced relation.

The section 2 is supported by four corner legs 14 (Fig. 5) which are secured to the lower flanges 13 of the end members 10, and which are provided with casters 15 adapted to roll on the floor. Aprons 16, also secured to the lower flanges 13

of the frame, serve to conceal the legs 14 substantially from view.

Mounted on the top of the border frame 8 is a box spring structure 17 (Figs. 4 and 5). A cushion 18 may be removably or fixedly positioned on the spring structure 17 to provide a seating surface or a sleeping surface of suitable height from the floor.

The other, or swingably mounted, couch section 1 has been shown herein (Figs. 1 and 4) as embodying a rectangular border frame 19 made of longitudinal and transverse angle bars 20 and 21, respectively. On this frame is stretched what is commonly known as a "flat spring" structure 22. An upholstered cushion 23, similar to the cushion 18, is removably positioned in front of the frame 19 when the couch is contracted for use as a lounge (Fig. 4). This cushion 23 rests on the rear portion of the base unit frame 4—5 and is pressed against the front face of the upright frame 19 by the box spring structure 17 on the horizontally slidable couch section 2. The parts are so dimensioned that when the couch section 2 is in its retracted or nested position over the stationary base 3 a channel or space will be left at the rear of the couch section 2 to receive the lower edge of the cushion 23. On the other hand, when the frame 19 is positioned horizontally (Fig. 5) for sleeping purposes, the cushion 23 is laid on the top side of the frame 19 so as to form a suitable sleeping surface thereon. The cushions 18 and 23 may, if desired, be made interchangeable.

In order to support the frame 19 for swinging movement on the base unit 3, a linkage is provided such that when the frame 19 is in horizontal position the upper surface of the cushion 23 on it will be substantially flush with the top of the cushion 18. In this way two sleeping surfaces, on the cushions 18 and 23, are provided, and both are at bed height. This is to be distinguished from various prior studio couch constructions in which a plurality of sleeping surfaces are provided but all at a comparatively low height from the floor. The couch unit of the present construction provides what are known as "bed high" sleeping surfaces.

The particular linkage shown herein for supporting the frame 19 embodies a pair of crossed links 24 and 25 (Figs. 1, 4 and 5) at one end of the couch. A similar linkage is provided at the opposite end, but since the two are substantially identical a description of one will suffice for both. The link 24 is somewhat shorter than the link 25 and is of an elongated S-shape, being pivoted to the rear portions of the frame 19 and base unit frame at 26 and 27, respectively. The other link 25 is somewhat curved (see Fig. 5) and is fashioned with offset ends (see Fig. 1) which are pivoted, respectively, to the frame 19 at 28, and at 29 to a bracket 30 which is fixed to the end channel 5 on the frame of the base unit 3. The pivot 28 is located inwardly of the pivot 26 on the frame 19. With the links 24 and 25 fashioned and pivoted as shown, the link 25 swings across the link 24, when moving from the position of Fig. 4 to that of Fig. 5, and finally engages the stop pin 31 fixed on the link 24. In this way the links 24—25 and the frame 19 are locked against further forward movement when the frame 19 reaches its horizontal position.

For supporting the front of the frame 19 at the desired height when the frame is horizontal retractable legs 33 are utilized (Figs. 4 and 5). These legs are pivoted on the base unit frame at 34 and are interconnected with the linkage supporting the rear of the frame 19 in such manner that the legs are retracted to a horizontal position when the frame 19 is upright, and are projected into a vertical position when the frame 19 is horizontal. In particular, a link 35 is pivotally connected to the lower portions of the leg 33 at a point eccentric with respect to the pivotal connection of the leg to the base frame. The other end of the link 35 has a lost motion connection with the link 25 by means of a pin 36 on the link 25 and a slot 37 in the link 35. Consequently, when the link 25 is swung clockwise (as viewed in Fig. 4) the link 35 is pivoted generally endwise to the right and pulls the leg 33 down to a horizontal position. The legs 33 are made of angle iron so that when in this horizontal position they fit snugly about the top of the frame of the base unit and out of the way of the horizontally slidable couch section 2. Similarly, when the link 25 is shifted in the opposite direction, to the position shown in Fig. 5, the link 35 is thrust generally endwise to the left and turns the leg 33 to its upright position so that the descending frame 19 rests firmly on its flat upper end.

To further aid in locking the links 24 and 25 while the frame 19 is in horizontal position a latch frame, designated generally by the numeral 38 (Figs. 2 and 3), is pivoted on the links 24 by the stop pins 31. The frame 38 is made up by a pair of angle bars 39 pivoted on the inner ends of the pins 31, and a longitudinal reenforcing bar 40. The lengths of the frame end bars 39 are so dimensioned with respect to a pair of upstanding stop pins 44, on the stationary base unit frame channels 5, as to lodge against the forward faces of these pins when the links 24 and 25 are swung forwardly to the position of Fig. 5. With the ends of the latch frame bars 39 wedged against the pins 44, as shown in Fig. 5, the links 24 are held against clockwise movement. As was previously noted, the links 25 are held against movement in the opposite or counter-clockwise movement by their abutment or stop pins 31. As a result the cross links 24 and 25 are firmly fixed in position so that there is no danger of the couch unit frame 19 swinging inadvertently out of position. To release the links 24 and 25 so that the frame 19 can be swung back to its upright position, it is only necessary to grasp the latch frame 38, push it slightly forward to disengage it from the pins 44, a motion which is permitted by the looseness of the pivotal connections of the latch frame, and then swing it upward a short distance so as to clear these pins.

A suitable interconnection is provided between the horizontal sliding couch section 2 and the stationary base unit 3 in order to guide the former and releasably secure it against separation from the base unit 3. In general, the mechanism is the same as that embodied in the twin studio couch disclosed in copending application Serial No. 220,632 of Ira M. Pink and Victor Bergstrom, filed July 22, 1938.

As shown in Fig. 9, this mechanism embodies a pair of links 45, each of which has its forward end pivoted on a corresponding bracket 46 fixed to an end channel 10 of the sliding couch unit 2. The other end of each of the links 45 is connected by a pin 47 to the front channel member 4 of the stationary base unit 3. The pins 47 (Figs. 6, 7 and 8) are rigidly fixed to the corresponding links 45 and extend downwardly

through elongated slots 48 in the upper forwardly projecting flanges of angle brackets 49 riveted to the front of the frame member 4. The lower ends of the pins 47 are flattened to provide flared keys 50, which are rotatable as an incident to the swinging of the links 45 into locking relation with the slot 46. Except when the couch section 2 is substantially in full projected position, the pins 47 are not readily accessible and the locking keys 50 are not in parallel alinement with the slots 48, and, hence, prevent separation of the levers 45 from the brackets 49. The slots 48 permit relative shifting of the pins 47 to accommodate the arcuate movements of the latter as the levers 45 are swung from either extreme position to the other. When the couch section 2 is in its fully projected position, the keys 50 register with the slot 48 so that they may be lifted upwardly through the same and the couch section 2 completely detached from the stationary base unit 3, with the result that the couch section 2 can be positioned independently anywhere in the room, as desired.

The two links 45 at the opposite ends of the couch (Fig. 9) are interconnected by equalizing means to insure straight line movement of the couch section 2 as it is moved into and out of nested relation with the base 3. This means consists of two cross bars 51, secured respectively to the links 45 adjacent the brackets 46, and cross cables 52 connecting the ends of each bar respectively to the reverse ends of the other bar. Inadvertent forward sliding of the couch section 2 is prevented by a releasable latch connection between it and the stationary base unit 3. This latch connection has been shown herein (Figs. 1, 4 and 5) as including a stop member 53 fixed on a cross brace 54 of sliding couch unit frame 6, and projecting downwardly and forwardly therefrom. A cooperating latch 55 is pivoted on the stationary frame member 4 at 56, and is fashioned with a forwardly projecting operating extension 57. When in upright position (Fig. 4) the latch 55 lies in the path of the stop member 53 and engages it so as to prevent forward displacement of the couch section 2 relative to the base unit 3. The operator has but to kick the latch 55 to one side or the other, however, in order to free the stop member 53 so that the couch section 2 can be slid forwardly.

In the use of the couch described above, the couch sections 1 and 2 are positioned as shown in Figs. 1 and 4 when the couch is to be used as a lounge or seat. To make up the couch into twin beds the latch 55 is swung out of the way of the stop member 53 and couch section 2 pulled forward away from the stationary base unit 3 so as to expose the top of the latter. In the extreme forward position of the couch section 2 the keys 50 are in registry with their corresponding bracket slots 48 so that they can be pulled free from the same and the couch section 2 moved about the room to any position desired.

After having exposed the upper surface of the base unit 3 by pulling out the telescoped couch section 2, as described above, the couch section 1 is swung into the horizontal position of Fig. 5. To accomplish this it is simply necessary to remove the cushion 23, grasp the frame 19, and swing the latter forwardly and downwardly. During this forward swinging movement of the frame 19 the legs 33 are automatically projected into upright position by their associated links 35. Finally, the latch frame 38 is wedged against the forward faces of the stop pins 44. In this way the frame 19 is rigidly fixed in horizontal position above the stationary base unit 3. The cushion 23 is then placed on top of the frame 19 and a second sleeping surface is thus provided at bed height from the floor.

To reassemble the couch into its contracted position (Fig. 4) for use as a seat or lounge, the cushion 23 is removed and the latch frame 38 (Fig. 5) pulled forwardly and upwardly to release it from the pins 44. Then the frame 19 is swung to its upright position and in the course of such movement the legs 33 are automatically retracted. This return swinging movement of the frame 19 is limited by the engagement of the pins 36 with the outer ends of the slots 37 in the links 35 (Fig. 4), and also by the engagement of the rear bar 20 of the frame 19 with the back of the base unit 3. If the couch section 2 has been previously completely disengaged from the base unit 3, it is rolled back to position at the front of the base unit and the keys 50 thrust into the slots 48. Thereafter the couch unit 2 is pushed toward the base unit 3 so as to telescope it over the latter and in this return movement the links 45 and equalizer cables 52 guide the couch section 2 for straight line movement. The cushion 23 is replaced in front of the upright frame 19 (Fig. 4) and the couch section 2 pushed to its fully retracted position and in which position it is latched by the latch 55. In that way the couch is quickly and easily assembled in the form of an attractive lounge or studio couch.

We claim as our invention:

1. A twin couch or the like comprising, in combination, a generally rectangular and low stationary base embodying transverse end members, a first couch section presenting a generally horizontal seating surface and shiftable from a position overlying said base to a second position clear of the same, a second couch section embodying a frame, means supporting said frame on said base for swinging movement from an upright back rest position at the rear of said base to a horizontal sleeping surface position over said base, said last named means including a linkage mechanism pivotally connected to the rear portion of said frame and to said base, a pair of legs pivoted on said base end members adjacent their front ends, said legs being fashioned of angle iron and arranged to fit snugly about the top edges of said end members when retracted out of the way of said first couch section, and means operable by said linkage mechanism for swinging said legs from their retracted positions into vertical position to support the front of said frame in response to movement of the latter from its upright position to its horizontal position.

2. A twin couch or the like comprising, in combination, a stationary base, a first couch section overlying said base to form a seating surface thereover and shiftable to clear the base, a second couch section embodying a generally flat border frame including spaced end bars, means supporting said frame for swinging movement from an upright back rest position at the rear of said base to a horizontal sleeping surface position over said base, said last named means including pairs of first and second crossed links at each end of said frame, each link in each pair being pivotally connected at its opposite ends to said frame and to said base, said first link in each pair being of an elongated S-shape and arranged when said frame is horizontal with the pivotal connections at its opposite ends in substantial vertical alinement with and above the

adjacent pivotal connection of the second link in the pair to said base, said second link in each pair being fashioned to extend forwardly across the adjacent first link when said frame is horizontal, and said links in each pair presenting opposed abutment means on their central portions engageable with each other when the frame is horizontal to prevent further downward movement of the latter.

3. A twin couch or the like comprising, in combination, a base, a first couch section presenting a generally horizontal seating surface and shiftable from a position over said base to a second position clear of the same, a second couch section embodying a frame, means supporting said frame on said base for swinging movement from an upright back rest position at the rear of said base to a horizontal sleeping surface position over said base, said last named means including a link pivotally connected at its opposite ends to said frame and to said base and with its pivotal connection to the frame disposed forwardly of its pivotal connection to the base when the frame is horizontal, a leg pivotally mounted on the front portion of said base, and means for swinging said leg from vertical to horizontal position in timed relation with the swinging of said frame from its horizontal to its vertical position, said last named means including a second link pivotally connected at one end to said leg and at a point eccentric to the pivotal support of said leg on said base and connected at its opposite end to an intermediate portion of said first named link by a lost motion connection.

4. A twin couch or the like comprising, in combination, a generally rectangular and low stationary base embodying transverse end members, a first couch section presenting a generally horizontal seating surface and shiftable from a position overlying said base to a second position clear of the same, a second couch section embodying a frame, means supporting said frame on said base for swinging movement from an upright back rest position at the rear of said base to a horizontal sleeping surface position over said base, said last named means including a linkage pivotally connected to the rear portion of said frame and to said base, said linkage mechanism including a pair of links disposed respectively at opposite ends of the base and arranged to swing forwardly in the motion of said frame from said upright position to said horizontal position, a pair of legs pivoted on said base end members adjacent their front ends, said legs being fashioned of angle iron and arranged to fit snugly about the top edges of said end members when retracted out of the way of said first couch section, and means operable by said linkage mechanism for swinging said legs from their retracted positions into vertical position to support the front of said frame in response to movement of the latter from its upright position to its horizontal position, said last mentioned means including intermediate links connected at their opposite ends respectively to said legs and to the first mentioned links.

5. A twin couch or the like comprising, in combination, a base, a first couch section overlying said base to form a seating surface thereover and shiftable to clear the base, a second couch section embodying a frame, means supporting said frame on said base for swinging movement from an upright back rest position at the rear of said base to a horizontal sleeping surface position over said base, said last named means including a pair of links pivoted at their opposite ends to said frame and to said base and swingable forwardly about their pivotal connections to the base to a position overlying each other when the frame is horizontal, means including interengaging portions on said links for locking said frame against further downward movement when said frame is horizontal, an abutment on the rear portion of said base, and means including a latch member pivotally mounted on one of said links and swingable downward into engagement with said abutment to prevent a rearward swing of said one link and thereby prevent upward swinging movement of said frame from its horizontal position.

6. A twin couch or the like comprising, in combination, a base, a first couch section overlying said base to form a seating surface thereover and shiftable to clear the base, a second couch section embodying a frame, means supporting said frame on said base for swinging movement from an upright back rest position at the rear of said base to a horizontal sleeping surface position over said base, said last named means including two pairs of links arranged with the pairs disposed at opposite ends of said base, the links in each pair being pivoted at their opposite ends to said frame and to said base and swingable forwardly about their pivotal connections to the base to a position overlying each other when the frame is horizontal, means including interengaging portions on said pairs of links for locking said frame against further downward movement when the frame is horizontal, an upstanding abutment on the rear portion of said base, and a latch frame pivoted on links in respective ones of said pairs and including a longitudinal member extending along the rear portion of said base, said latch frame being engageable releasably with said abutment to prevent a rearward swing of the links upon which said latch frame is mounted and thereby prevent upward swinging movement of said frame from its horizontal position.

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