J. A. DEWEY.

FOLDING BED.

APPLICATION FILED JAN. 25, 1915.

1,214,284.

Patented Jan. 30, 1917

2 SHEETS—SHEET 1.

Fig. 1

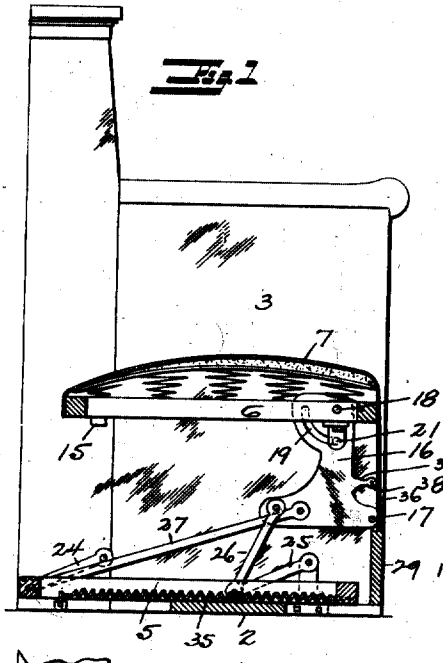
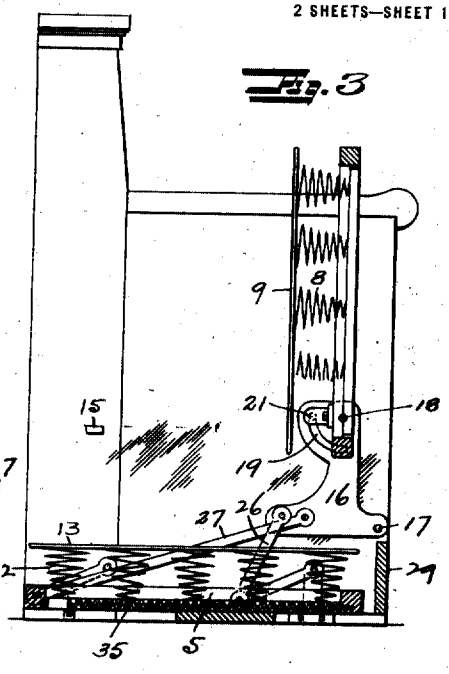


Fig. 3



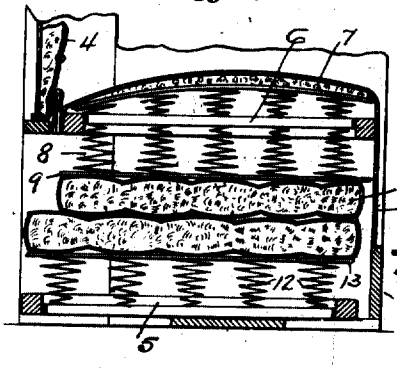


Fig. 2

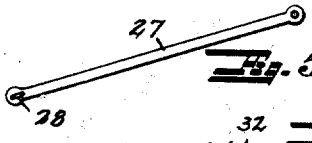


Fig. 5

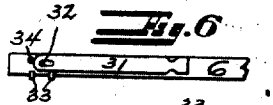


Fig. 6

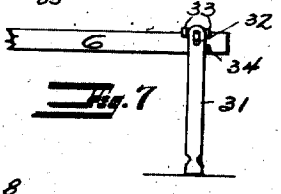


Fig. 7

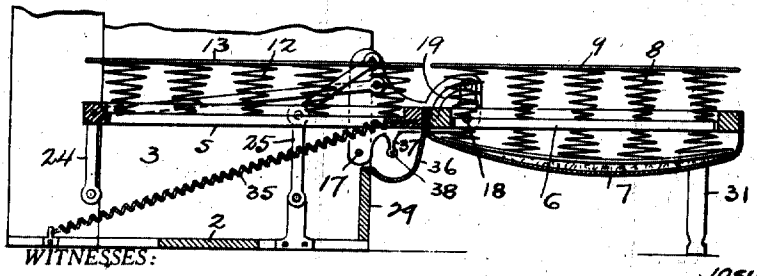


Fig. 4

WITNESSES:

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2 SHEETS—SHEET 2.

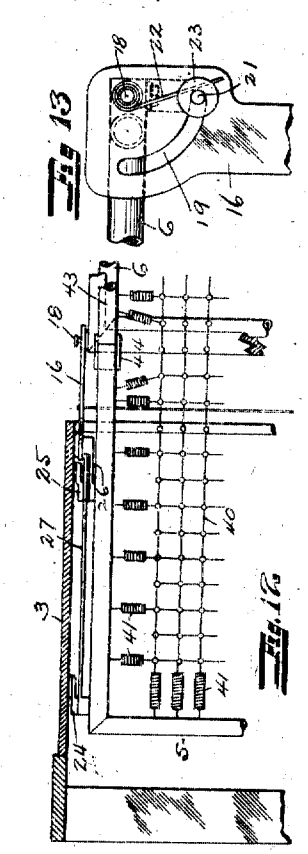
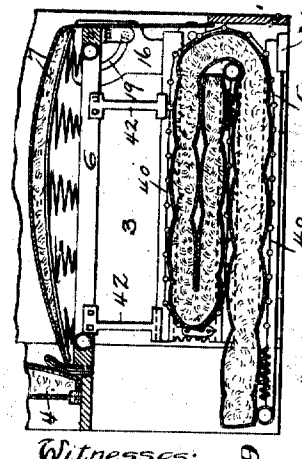


Fig. 13

Fig. 12



Witnesses:
L. B. Gardner.
H. G. Prost.

Fig. 9

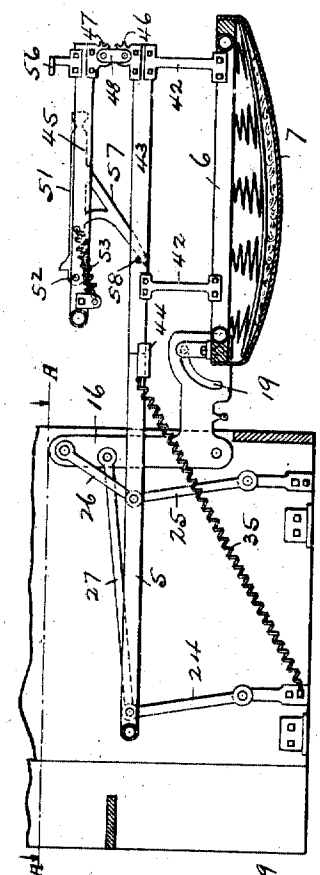


Fig. 10

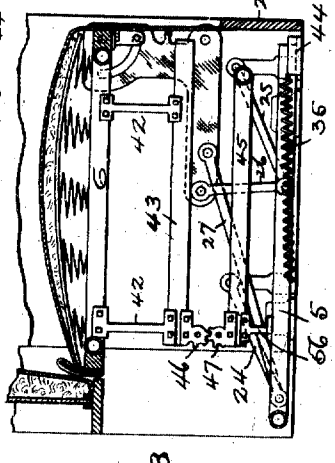


Fig. 8

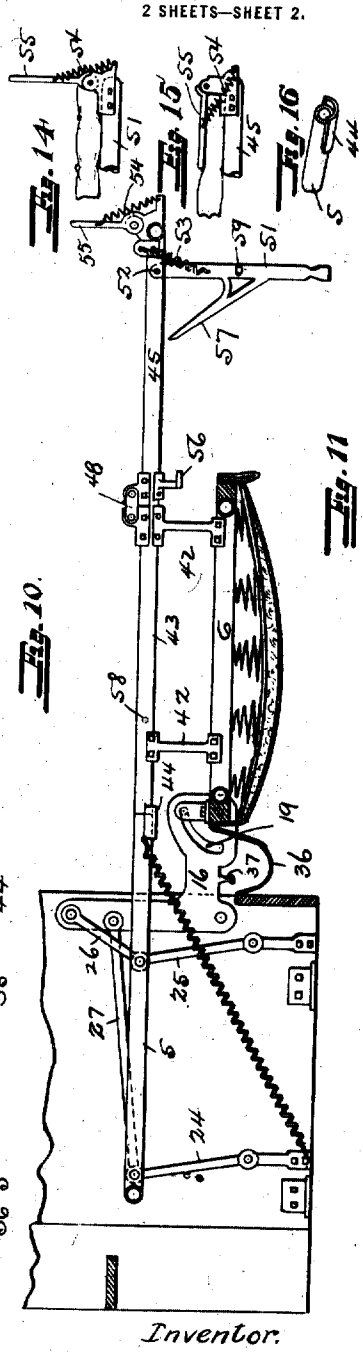


Fig. 14

Fig. 15

Fig. 16

Fig. 11

Inventor.
JOSIAH A. DEWEY
By White & Prost
his Attorneys

UNITED STATES PATENT OFFICE.

JOSIAH A. DEWEY, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO DEWEY DAVENPORT COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

FOLDING BED.

1,214,284. Specification of Letters Patent. Patented Jan. 30, 1917.

Application filed January 25, 1915. Serial No. 4,189.

To all whom it may concern:

Be it known that I, JOSIAH A. DEWEY, a citizen of the United States, and a resident of the city and county of San Francisco, State of California, have invented a certain new and useful Folding Bed, of which the following is a specification.

The invention relates to that type of folding bed generally known as the davenport or sofa bed.

An object of the invention is to provide an easily operated folding bed.

Another object of the invention is to provide a folding bed of simple and sturdy construction and which possesses a high degree of comfort when used either as a sofa or a bed.

A further object of the invention is to provide a folding bed in which the mattress frames or supports are independently movable in one position and conjointly movable in another position.

The invention possesses other advantageous features, some of which, with the foregoing, will be set forth at length in the following description where I shall outline in full that form of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. In said drawings, I have shown one specific form of my generic invention, but it is to be understood that I do not limit myself to such form because my invention may be embodied in a multiplicity of forms, each being a species of my said invention. It is also to be understood that by the claims succeeding the description of my invention, I desire to cover the invention in whatever form it may be embodied.

Referring to said drawings, Figure 1 is a vertical section of the bed in the folded position, the bed springs being removed to better disclose the construction. Fig. 2 is a vertical section of the bed in the folded position showing the bed springs and mattress. Fig. 3 is a vertical section of the bed in the partly unfolded position, the springs and upholstery of the seat being omitted. Fig. 4 is a vertical section of the bed in the open position. Fig. 5 is a detail of one of the operating links. Fig. 6 is a side view of a portion of the folding bed frame, showing the position of the leg when the bed is closed. Fig. 7 is a similar view showing the position of the leg when the bed is open. Fig. 8 is a vertical section of the frame of a two-fold bed in the folded position. Fig. 9 is a similar view showing the metallic mattress and the upholstered mattress in place. Fig. 10 is a vertical section of the frame of a two-fold bed, partly unfolded. The footboard is not shown. Fig. 11 is a vertical section of the frame of a two-fold bed completely open. Fig. 12 is a top or plan view of a portion of the two-fold bed when unfolded. Fig. 13 is a detail of the connection between the two bed frames. Fig. 14 is a detail of the end of the bed showing the foot rail raised. Fig. 15 is a similar view showing the foot rail in its folded position. Fig. 16 is a detail of a portion of the bed frame in the two-fold bed.

In the drawings I have shown a one-fold bed and a two-fold bed, the construction of the two-fold bed being similar to that of the one-fold bed with the exception of the additions necessary to effect the operation of the two-fold bed. I shall first describe the one-fold bed and then the additional features of the two-fold bed.

When the invention is embodied in a davenport, the device consists of a suitable stationary body comprising a base 2, the sides 3 and the back 4 which may or may not be upholstered as desired. The back is stationary and is arranged at the upper portion of the body only, allowing the space within the body and below the back to be used for receiving the folded bed. One of the objects of this invention is to so arrange the bed frames, that when they are folded within the body, sufficient space is provided for an upholstered mattress, and so that the seat is not too high to be comfortable. Arranged in the body are two mattress frames 5 and 6, the upper frame 6 being provided on its upper side when folded with a seat 7, preferably upholstered. Secured to the under side of frame 6 are a plurality of coil springs 8 which are connected together at their free ends by a flexible metallic structure 9, producing a spring mattress. Secured to the upper side of frame 5 are a plurality of coil springs 12, the free ends of which are also connected together by a flexible metallic structure 13 producing another spring mattress. The upper frame 6 is pivoted at its ends so that it may be moved from the folded to the unfolded position, and in passing from one position to the

other, the frame is turned over, so that when unfolded, the mattress formed by the springs 8 lies on the upper side of the frame and the seat 7 lies below the frame. When the frames 5 and 6 are in the folded or superposed position, sufficient space is left between the structures 9 and 13 to accommodate a folded upholstered mattress 14, and the upper frame is supported at its inner end by stops 15 secured to the sides 3.

Means are provided whereby the bed may be easily unfolded, the weight of the upper frame serving during part of its movement to raise or assist in raising the lower frame to its operative level. In order that the folded bed may lie as close to the floor as is possible, the lower frame is movable from an elevated position when in use as a bed, to a depressed position when folded. In the opening or unfolding movement of the bed, the upper frame is movable independently of the lower frame, through a certain arc, so that it is necessary to lift only one frame and when the upper frame has moved through said arc, the further movement of the upper frame produces a raising movement of the lower frame. Arranged at each side of the structure is a plate 16, which is pivoted at 17 to the side 3, the pivot being located below the upper frame. The upper frame is pivoted at 18 to the plate 16, the pivot 18 being located adjacent the forward edge of the frame. The plate 16 is provided with a slot 19 concentric with the pivot 18 and disposed in this slot is a pin 21 which is secured to the upper frame. The slot, in the present construction, subtends an angle of 90 degrees, permitting the upper frame to be moved from the position shown in Fig. 1 to the position shown in Fig. 3, without producing any movement of the lower frame 5.

Fixed to the pivot 18 (Fig. 13) which is fixed to the plate 16 is a strong coiled leaf spring 22, the free end of which presses against the pin 21 and assists in raising the upper frame 6 from its horizontal folded position. A disk 23 secured to the end of the pin insures engagement between the pin and the spring.

The lower frame 5 is supported at the opposite ends on links 24—25, which are pivoted to the side 3 or other stationary part of the structure, the links being similarly disposed so that the frame remains horizontal as it is moved. Connected to the pivot between the link 25 and the frame is a link 26 which is pivoted at its other end to the plate 16, in such position that as the plate is moved about its pivot 17, the link 25 is moved to a substantially vertical position. In order to accomplish this movement and to prevent the links and parts from binding, the rear end of the frame 5 is lifted by the link 27, which is pivoted at one end to the link pin at the rear end of the frame and at the other end to the plate 16. The link 27 is provided with a slot 28 in which the link pin on the frame engages, so that as the plate 16 is moved, the link 27 is raised above the fixed pivot of the link 24 before it exerts its raising effort on the frame.

The lower frame in raising swings about the fixed link pivots and sweeps forward and upward in an arc, so that in its raised position it extends out over the base board 29, and the inner edge of the frame swings forward and clears the back 4. When in the unfolded position the frames 5 and 6 abut against each other and are alined, and the mattress surfaces 9 and 13 are alined.

The upper or folding frame, is supported at its outer end, when unfolded, by legs 31 which are pivoted to the frame in such manner that they are substantially rigid when in contact with the floor. The legs are slotted at their upper ends and engage pins 32 on the frame. Secured to the frame above the pin 32 are two stops 33 between which the upper end of the leg slides and the stops prevent the leg from moving about the pin when the leg is in contact with the floor, and one of the stops holds the leg parallel to the frame when the frame is in the folded position. A stop 34 on the frame holds the leg in a substantially vertical pendent position as the leg approaches the floor, so that when the leg contacts with the floor the upper portion of the leg is directed between the stops 33.

Secured to the sides 3 and to the lower frame 5 at the center is a long coiled spring 35 arranged diagonally of the base which is placed in tension as the bed is unfolded. This spring tends to pull the lower frame backward and assists in raising the upper frame from its unfolded horizontal position. In order to prevent the upholstery 36 from folding up and getting caught between the two frames when they are unfolded, I provide means for pushing the upholstery outward and away from the frames. This means consists of a projection 37 on each plate 16 and a wire or rod 38 connecting the projections.

In Figs. 8 to 12 inclusive I have shown the invention as applied to a two-fold bed. In this construction, instead of employing the coil spring mattress, as in the prior construction, I employ a linked metallic structure 40 which is supported by coiled springs 41 attached to the frames. The construction of the lower frame 5 remains substantially as before, with the exception that the links 24 and 25 are made longer, whereby the frame 5 is raised to a greater height. Secured to each side rail of the frame 6, by suitable supports 42, are bars 43 which, when the bed is unfolded, are alined with

the side rails of the frame 5, forming a continuation thereof and to which the metallic fabric 40 is attached. Secured to the ends of the side rails of the frame 5 are blocks 44 which project from the side rails on the under side and form seats and supports for the rails 43, insuring their alinement with the side rails of frame 5.

Attached to the rails 43 at their outer ends is the folding frame 45 which is foldable from a position of superposition with relation to the rails 43 to a position of alinement. Secured to each side rail 43 at the ends is a segmental gear 46, which is engaged by a similar segmental gear 47 secured to the end of the side rail or frame 45. Passing through the center of each segmental gear is a pin and the pins are connected by the links 48, whereby the gears are held in mesh. By employing this form of connection, the fabric 40 is pulled taut as the frame 45 is unfolded. When the frames 43 and 45 are alined, the link 48 lies above the level of the fabric 40, so that the tension of the fabric supporting springs holds the frame 45 from folding backward.

Pivoted to the frame 45 at its outer end are the legs 51 upon which the outer end of the frame is supported. Attached to each leg 51 and to the frame 45 at a point adjacent the leg pivot 52 is a coiled spring 53. The points of attachment of the spring to the leg and to the frame are such, that as the leg is moved from one position to the other, the spring moves past the pivot 52, thereby serving to hold the leg either in its folded or operative position. The spring 54, secured to the pivoted foot frame 55 is similarly arranged, so that it operates to hold the foot board vertically, as shown in Fig. 14, or operates to press it against the mattress, in which position it operates as a clamp, as shown in Fig. 15. A stop 56 secured to the frame 45 rests against the frame 5, when the bed is folded and supports the inner ends of frames 45 and 6.

Means are provided for securing the frame 45 and the frame 43 together, so that they may be readily folded as one piece. Secured to each leg 51 is an extension 57, which when the frame 45 is superposed on frame 43 engages under a pin 58 on rail 43 when the leg is moved into parallelism with the frame 45. This locks the frame 45 to the rails 43, so that the frame may not move relatively to the rails. The legs 51 on opposite sides of the bed are preferably connected together by a rod 59, and when it is desired to unfold the frame 45, the rod 59 is pulled, causing the legs to swing about their pivots and thereby unlatching the locking means, so that the frame 45 may be lifted over.

I claim:

1. In furniture of the class described, a stationary structure, two superposed bed frames arranged on said structure, a plate pivoted to said structure, the upper bed frame being pivotally supported on said plate and being capable of limited turning movement with respect thereto, links pivoted to said structure, the lower frame being carried by said links, and links connecting said plate with the lower bed frame arranged to cause the lower bed frame to move upwardly and forwardly as the plate is moved about its pivot.

2. In furniture of the class described, a stationary structure, two superposed bed frames arranged on said structure, a plate pivoted to said structure on which the upper bed frame is pivotally supported, links pivoted to said structure, the lower frame being supported on said links, means for limiting the amount of rotation of said upper frame with respect to said plate, and links connecting said plate with the lower bed frame arranged to raise the lower frame as the plate is rotated.

3. In furniture of the class described, a stationary structure, two superposed bed frames arranged on said structure, vertically disposed plates pivoted to said structure at opposite ends, the upper bed frame being pivoted to said plates adjacent its forward side, means for limiting the amount of rotation of said upper bed frame with relation to said plates, parallel links pivoted at each end of said stationary structure and adapted to support the lower frame and a plurality of links connecting each plate with the corresponding end of the lower bed frame.

4. In furniture of the class described, a stationary structure, a lower bed frame arranged in said structure, parallel links upon which said bed frame is mounted, plates pivoted to opposite sides of said structure, a pair of crossed links connecting said plates with the corresponding sides of said frame, an upper bed frame pivoted to said plates, and means for limiting the movement of said upper frame with relation to said plates and causing the upper frame and plates to move about the pivots upon which the plates are supported.

5. In furniture of the class described, a stationary structure, parallel links pivoted directly to said structure at each end, a lower bed frame supported on said links, an upper bed frame in superposed relation therewith, plates pivotally mounted on opposite sides of said structure, links connecting said plates with said lower bed frame, the upper bed frame being pivoted to said plates, and means for limiting the movement of said upper bed frame with relation to said plates.

6. In furniture of the class described, a stationary structure, a pair of links pivoted directly to said structure at each end, a lower

bed frame pivoted on said links, means including plates upon which the upper frame is pivotally supported connecting said frames whereby the initial movement of the upper frame is independent of the lower frame, and the final movement of the upper frame is accomplished by an upward and forward movement of the lower frame into alinement with the upper frame, and a spring opposing the movement of the lower frame.

7. In furniture of the class described, a stationary structure, a lower bed frame horizontally arranged in the lower portion of said structure, pivots on said frame, links connecting said pivots and structure, a plate pivotally attached to the side of said structure, links connecting said plate with the pivots on the said lower frame, a superposed bed frame pivotally connected to said plate above its pivotal point of support, and means for limiting the movement of said superposed bed frame with respect to said plate.

8. In furniture of the class described, a stationary structure, a plate pivoted to said structure, an upper bed frame pivoted to said plate, a lower bed frame arranged in said structure, and crossed links pivotally connecting said plate and said lower frame whereby said lower frame is moved upwardly and forwardly into alinement with the upper frame as said upper frame is turned about its pivots.

In testimony whereof, I have hereunto set my hand at San Francisco, California, this 19th day of January, 1915.

JOSIAH A. DEWEY.

In presence of—
H. G. PROST.
NETTIE THREW.