J. M. RICHARDSON.

DAVENPORT.

APPLICATION FILED JAN. 6, 1919.

1,366,419.

Patented Jan. 25, 1921.

3 SHEETS—SHEET 1.

Fig. 2.

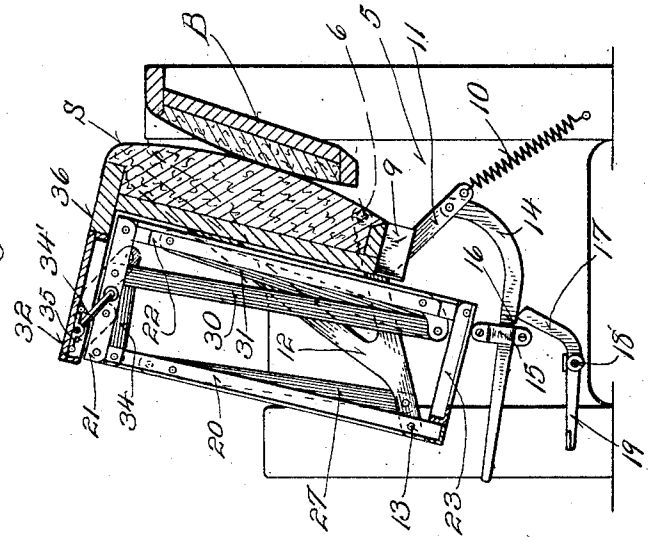
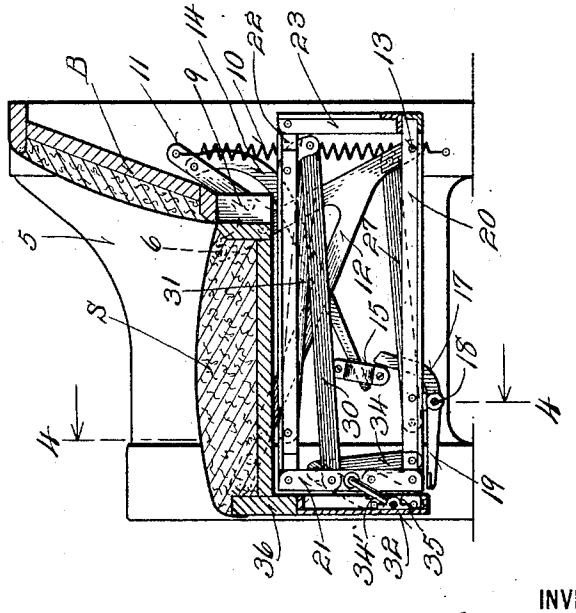


Fig. 1.



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3 SHEETS—SHEET 2.

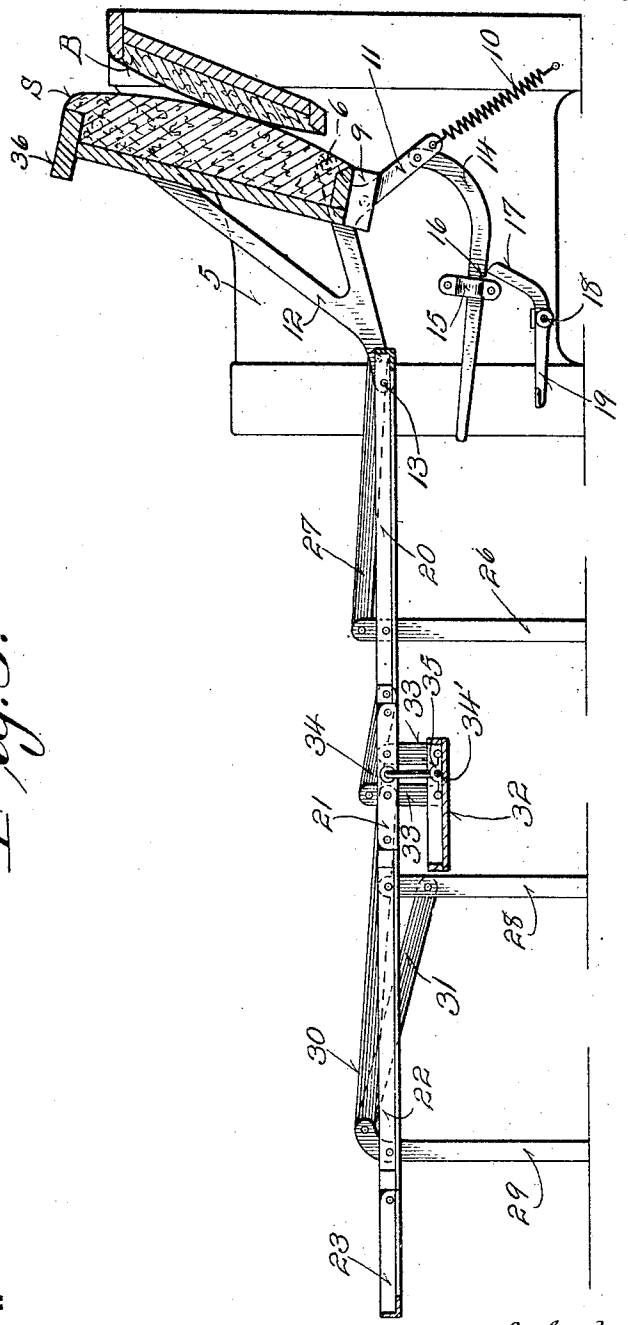


Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 5.

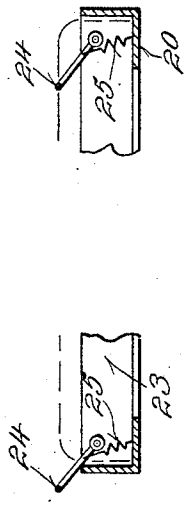


Fig. 6.

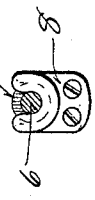
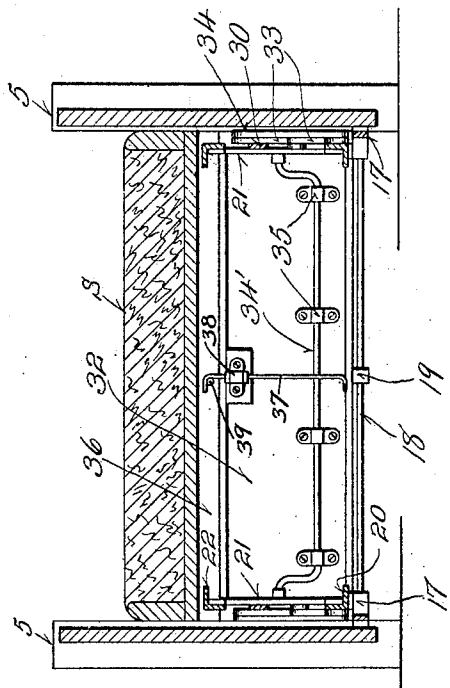


Fig. 4.



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UNITED STATES PATENT OFFICE.

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DAVENPORT.

1,366,419. Specification of Letters Patent. **Patented Jan. 25, 1921.**

Application filed January 6, 1919. Serial No. 269,831.

To all whom it may concern:

Be it known that I, JOHN M. RICHARDSON, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Davenports; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to new and useful improvements in foldable couch beds or davenports, more particularly of that type wherein the seat member of the couch or davenport may be swung upwardly to permit the unfolding of a bed bottom frame which is housed beneath the seat in the couch forming relation of parts.

It is in general the object of my invention to procure a maximum compactness and simplicity of structure in devices of this character without sacrificing any of the desired features of such devices, and particularly affording a large expanse of bed surface and a maximum degree of comfort afforded thereby.

It is further an important object of my invention to provide an arrangement whereby the folding bed frame is carried entirely by the seat structure in folded position of said frame, so that in swinging the seat to raised position, the bed frame is simultaneously swung to a position whereby it may be most conveniently unfolded and extended.

A further object resides in the provision of an arrangement wherein the facing member which normally seals the bed bottom frame when folded under the seat, is carried by the frame so as not to interfere with free swinging movement of the frame, thus permitting a maximum size of the frame, said facing member also forming a brace for the bed frame in its extended position.

With the above and other objects and advantages in view, which will be apparent as the description proceeds, my invention resides in the novel features of construction, combination and arrangement of parts as hereinafter more particularly described and defined by the appended claims.

In the accompanying drawings:

Figure 1 is a vertical sectional view through my improved davenport with the parts arranged in couch forming position.

Fig. 2 is a similar sectional view, but showing the seat raised in the initial step to procure the bed forming relation of parts.

Fig. 3 is a sectional view on a plane similar to the planes of Figs. 1 and 2 and showing the bed forming relation of parts.

Fig. 4 is a longitudinal sectional view through the davenport in couch forming position on planes indicated by the broken line 4—4 of Fig. 1.

Fig. 5 is a detail view showing the pivotal mounting for the seat member.

Fig. 6 is a detail sectional view through the end portion of one of the bed frame sections, showing the means for holding a mattress thereto.

Referring now more particularly to the accompanying drawings, the main davenport frame in the present embodiment of my invention comprises a pair of end walls 5, between the rear upper portions of which extends a rigid back member B. The seat member S is pivotally mounted between the end walls, having outwardly extending pintles 6 at its rear corner portions provided with heads 7 engageable in recesses formed in fulcrum blocks 8 secured to the end walls 5, said recesses being open at the tops of the blocks whereby the structure may be most readily assembled by simply dropping the pintles into the blocks. The fulcrum blocks are located slightly forwardly of the lower edge of the back member, and thus when the seat member is in horizontal position, its rear edge coincides with the lower edge of the back member, the seat member having rearward extensions 9 of its end frame bar which engage under the back member. As shown in Fig. 2, the seat member may swing upwardly to a position slightly past the vertical, and to facilitate this upward swinging movement of the seat member and the bed frame carried thereby, counter-balance springs 10 are provided having their lower ends secured to the lower rear corners of the end walls 5, and having their upper ends secured to arms 11 extending obliquely upward and rearward from the rear corners of the seat member in its horizontal position. These arms form preferably integral portions of end pivot frames for the seat member, said frames carrying the pivot pintles 6 of the seat member

and including bars 12 secured to the ends of the seat member adjacent its corners and extending convergently downward and rearward from the seat member in its horizontal position, said bars being preferably integrally connected at their lower end portions, and the rearmost bars being extended to form the pivot connections 12 of the bed frame with the seat member. The seat member is locked in raised position by bars 14 having angular end portions pivoted to the arms 11, said bars being slidably passed through the inwardly bowed portions of keeper plates 15 secured to the end walls 5, and having recesses 16 in the lower intermediate portions into which the keeper plates lock when the seat member is swung to raised position. For releasing these bars 14 to permit the seat member to be lowered, crank arms 17 are mounted on the ends of a journaled shaft 18 connecting the lower forward portions of the end walls 5, whereby upon rocking movement of the shaft said arms will engage the bars 14 to lift the same, and this rocking movement of the shaft is procured by a treadle arm 19 extending forwardly from the central portion of the shaft.

The folding bed frame comprises an inner section 20, of angle iron bent in the form of a wide U, and the sides of this inner section comprise inner side rail portions to the ends of which are pivoted short intermediate side rail portions 21 having pivoted thereto in turn relatively long side rail portions 22 to which are pivoted the ends of an outermost bed bottom section 23, also bent in the form of a relatively wide U, but having its leg portions slightly shorter than the intermediate side rail portions 21. The length of the side rail portions 22 is equal to the length of the inner side rail portions formed by the legs of the section 20, and thus as shown in Figs. 1 and 2, the frame may fold to define a rectangular cage within the confines of which may be disposed the mattress and bedding, it being noted that by reason of the space afforded between the relatively long side rail portions in the folded position of the bed frame, a 40-lb. mattress may be used, which insures a maximum degree of comfort. The mattress and the bed bottom fabric are omitted in the major figures of the drawing for the purpose of clarity, but as shown in Fig. 5, I secure the ends of the mattress to the inner and outer bed bottom sections by clamp bars 24 having their end portions directed laterally and pivoted to the side rail portions of the bed frame. Contractile springs 25 are secured to the bed frame sections and to the laterally turned portions of the bars, and thus when the bars are swung inwardly the spring connections will move past the pivots of the bars and exert clamping pressure to bind the mattress and hold it in place in the folding movements of the bed frame.

The pivotal connections 13 of the seat end frames with the bed frame are disposed adjacent the junctures of the legs of the inner bed bottom section with the bight portion thereof, said pivotal connections being disposed a sufficient distance from the bottom of the seat to permit disposition of the bed frame therebetween.

Inner supporting legs 26 are pivoted to the outer portions of the legs of the inner bed frame section 20, said legs being extended past the legs of the bed frame section for pivotal connection with links 27 pivoted to the seat end frames adjacent the bed frame pivots 13 whereby upon swinging movement of the bed frame relative to the seat, said legs will be swung to extended position or to retracted position lying along the legs of said section 20. Intermediate and outer pairs of supporting legs 28 and 29 respectively are pivoted to the end portions of the side rail sections 22, the outer legs being extended past their pivotal connections with the side rail sections for connection with links 30 pivoted to the intermediate side rail sections 21, whereby upon relative pivotal movement of the side rail sections, the legs 29 will be swung to and from retracted position lying along said side rail sections 22, the intermediate legs 28 being simultaneously swung in opposite direction by links 31 pivoted thereto and to the extended portions of the outer legs 29.

The intermediate side rail portions 21 carry a facing board 32 which conceals the bed frame in folded position, and this facing board is movable toward and away from the side rail sections in swinging movement thereof, whereby said board is spaced below the bed frame in extended position thereof so as not to interfere with free yielding movement of the mattress under the weight of a person lying thereon, and is disposed against the frame in folded position thereof so as to procure a maximum compactness of the folded structure. Thus, each end of said facing board is connected with the corresponding intermediate side rail portion by a pair of spaced links 33 and one link at each end of the facing board is extended past its pivotal connection with the side rail portion for connection with a link 34 which is pivoted to the adjacent end portion of the corresponding leg of the inner bed frame section 20. The facing board 32 is also pivotally connected with the side rail portion 21 by the bent end portions of a shaft 34′ which extends longitudinally of the facing board and is journaled in bearings 35 thereon, said shaft bracing the facing board. The front of the seat member S carries an upper facing plate 36 which

abuts the main facing plate 32 when the bed frame is folded against the seat member, the width of said upper section being such as not to interfere with swinging movement of the seat member.

The bed frame is normally locked to the seat member when in folded position by a rod 37 rotatably mounted in a bearing 38 on the inner face of the facing board 32, one end of this rod being laterally bent to afford a handle while its other end is bent for interlocking engagement with a pin 39 carried by the seat member preferably on the inner face of its facing plate 36. This locking means is shown in Fig. 4, being omitted from the remaining figures for the purpose of clarity, and it is noted that when the seat member is swung to raised position, the rod may be readily manipulated to lock or release the bed frame.

Thus, in operation, assuming that the parts of my structure are in couch forming position, the first step in procuring the bed forming position is to lift the seat member and bed frame carried thereby to the position shown in Fig. 2, the bars 14 automatically engaging their keepers 15 to lock the parts in this position. The rod 37 is then rotated to unlock the bed frame from the seat member and the entire frame is then swung downwardly, this swinging movement extending the legs 26 to support the inner bed bottom section. The remaining bed bottom sections are then unfolded to extended position and it is noted that in this unfolding movement of the remaining bed bottom sections, the facing plate 32 is swung away from the bed frame whereby not to interfere with the resilient yielding of the mattress and springs. In folding the parts to couch forming position, the outer bed frame sections are folded, the entire bed frame is then swung upwardly and locked to the seat member and the pedal 19 is then depressed to raise the locking bars 14 and the seat member is lowered, thus procuring the couch forming position of parts, the seat member being counterbalanced in its movements by the spring 10. My structure may thus be most readily manipulated for its various uses.

What is claimed is:

1. A structure of the class described including a main frame, a seat member mounted in the main frame and movable upwardly from its normal seat position, a foldable bed frame adapted for disposition under the seat member and a facing member carried by the foldable bed frame for disposition below the forward edge of the seat member when said frame is folded under the seat member.

2. A structure of the class described including a main frame, a seat member mounted in the main frame and movable upwardly from its normal seat position, a foldable bed frame adapted for disposition under the seat member and a facing member carried by the foldable bed frame and movable toward and away from the frame, and means for moving the facing member in folding movement of the frame portions.

3. A structure of the class described including a main frame, a seat member pivoted at its rear portion to the main frame, pivot members extending from the rear portion of the seat member, and a bed bottom frame including an inner section pivoted to said pivot extensions, and intermediate and outer sections pivoted to the inner bed frame section.

4. A structure of the class described including a main frame, a seat member pivoted at its rear portion to the main frame, a foldable bed frame pivotally connected with the seat member, bars pivoted to the seat member, keepers on the main frame engageable by said bars to hold the seat members in raised position, and means for releasing the bars from the keepers.

5. A structure of the class described including a main frame, a back member extending between the sides of the main frame, a seat member pivoted at its rear portion adjacent the lower edge of the back member, arms extending from the rear portion of the seat member behind the back member, counterbalance springs secured to said arms and to the main frame, a foldable bed frame connected with the seat member, and means for locking the bed frame in folded position to the seat member.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

JOHN M. RICHARDSON.