O. PEARCE.

FOLDING BED.

APPLICATION FILED JAN. 22, 1917.

1,234,798. Patented July 31, 1917.

Fig. 1

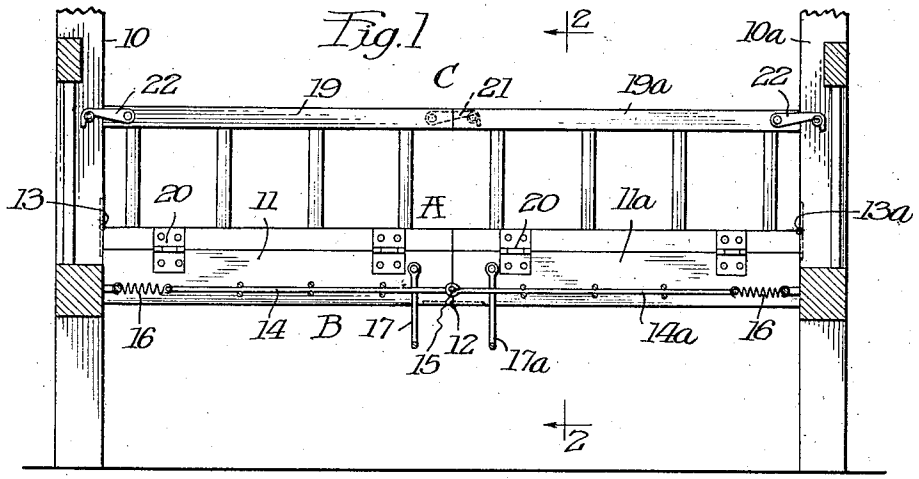


Fig. 2

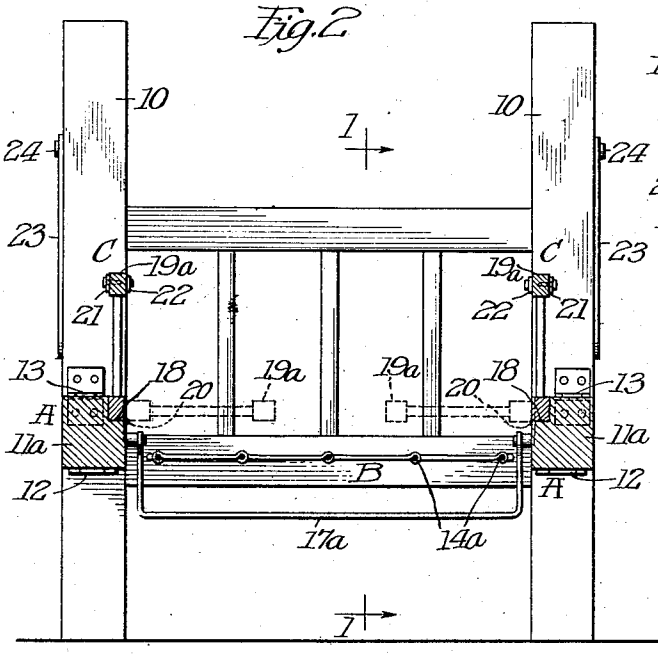
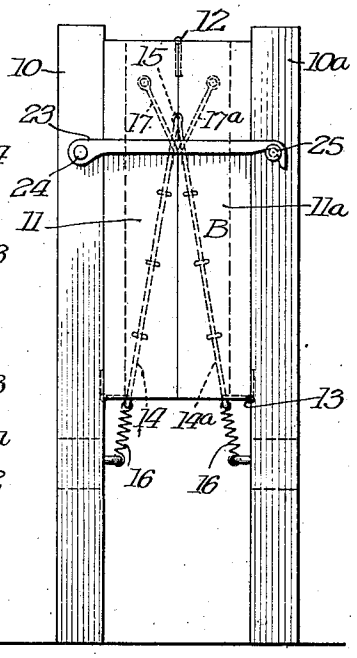


Fig. 3



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FOLDING BED.

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To all whom it may concern:

Be it known that I, OTIS PEARCE, a citizen of the United States, residing at Benton, in the county of Franklin and State of Illinois, have invented certain new and useful Improvements in Folding Beds, of which the following is a specification.

My invention relates to folding beds and has for its primary object the provision of improved means whereby the head and foot boards of said bed may be prevented from folding inwardly toward each other during the initial movements employed in closing the bed and preceding the final movements necessary to fully open the bed.

A further object of my invention is the provision of means whereby the bed is resiliently held in closed position by means of its own springs and parts coacting therewith.

A further object of my invention is the provision of a bed of this character which shall be collapsible into a compact form and a narrow space.

A further object of my invention is the provision of a bed of this character which shall have side frames, wherein said side frames shall serve rigidly to brace said bed when it is in open position, and one wherein said side frames shall be collapsible within the bed when it is, as above stated, compactly folded into a narrow space.

With the above and other objects in view this invention consists substantially in the combination, arrangement and construction of parts all as hereinafter more fully described, shown in the accompanying drawings, which form a part of this specification and illustrate the preferred embodiment of my invention, and more particularly set forth in the subjoined claims.

In the drawings:

Figure 1 is a vertical section through my improved bed taken substantially on line 1—1 of Fig. 2;

Fig. 2 is a vertical section taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a side elevation of my invention showing the same in folded position.

My improvement comprises a bed having a head board 10 and a foot board 10^a connected by a pair of discontinuous side bars, generally indicated at A, each comprising alined pieces 11—11^a. The pieces 11—11^a are pivotally connected substantially in the plane of their lower surfaces, preferably by means of a hinge 12. The side bars A thus constituted are pivoted to the respective head and foot boards by hinges 13 and 13^a substantially in the common plane of their upper surfaces. By means of these pivotal connections the side bars and head and foot boards are foldable into the compact position shown in Fig. 3, in which position they occupy a small space. Obviously were not some means provided to prevent it, the action of folding the bed, which is begun by elevating the hinges 12, would normally result in an inward collapsing of the upper portions of the head and foot boards. Means to prevent such collapsing when the hinges 12 are first elevated and also during the opening movements when the pieces 11 and 11^a are approaching alinement are found in a collapsible bed spring generally indicated at B, comprising alined nets 14 and 14^a, each pivotally connected to a central transverse rod 15, the spring B being pivotally connected to the respective head and foot boards through the medium of helical springs 16, which serve to tense the spring B between the head and foot boards when the bed is in open position—the pivotal connection between the spring B and the head and foot boards is in a plane parallel to the common plane of the hinges 13 and 13^a and below the same, although preferably slightly above the plane of the hinges 12. It will be seen from this description that when hinges 12 are first elevated the tension of the spring B between the head and foot boards holds the lower portions of those boards from separating, the fulcrum for this holding movement being at the hinge 13 or 13^a.

To provide means for holding the lower portions of the head and foot boards from outward movement when the bed is folded, I provide a pair of keepers 17 and 17^a, which also operate to elevate the central portion of the spring B when the bed is folded. These keepers traverse the bed below the spring B and are pivoted respectively to the two pieces 11 and to the two pieces 11^a at points adjacent the meeting ends of those pieces. When the bed is folded the folding of the nets 14 and 14^a over the horizontal portions of the keepers 17 and 17^a results in drawing the keepers together, as seen in Fig. 3, and in causing a tension of springs 16 in the folded position of the bed—see Fig. 3—the tensing resulting from the fact that pieces 11 and 11^a are pivoted to the head and foot boards at points well

above the pivotal connections between those boards and the spring B.

To accommodate my bed for the use of small children I preferably cut a longitudinal angular section out of the side boards A, as at 18, and hinge to the side boards at each side of the bed a discontinuous side frame, generally indicated at C, each comprising alined pieces 19 and 19ª which are hinged, as at 20, to cause their lower ends to stand in the cut-away portions 18 while permitting the frames to fold inwardly of the bed into the space between the upper and lower surfaces of the side bars A. When the bed is in open position, with the side frames standing vertical, the frames are fastened together at the upper edges of their meeting ends by latches 21, thus causing them to constitute a rigid brace between the head and foot boards at points well above the common plane of the hinges 13—13ª. To further rigidify the bed structure I provide end latches 22, which connect the ends of the upper edges of the side frames to the head and foot boards, thus causing the frames to act as tie-rods as well as braces between the head and foot boards. The inward folding feature of the side frames C is illustrated in dotted lines in Fig. 2. Inasmuch as these frames are discontinuous they conform to the fold of the side bars A and therefore lie entirely within the folded bed.

When the bed is completely folded, as in Fig. 3, the tension of the springs 16 would cause the upper ends of the head and foot boards to separate. To prevent such separation I provide a latch bar 23 hinged, as at 24, to one of the boards and engaging a catch 25 on the other board.

In folding the bed from the position illustrated in Figs. 1 and 2, the latches 21 and 22 are loosened and the side frames folded into the dotted line position of Fig. 2, following which the side bars are elevated by upward pressure on hinges 12. The tension of bed spring B prevents collapsing of the upper portions of the head and foot boards, causing those boards to approach each other in parallel planes. As the inner ends of the pieces 11 and 11ª are elevated the keepers 17—17ª engage and elevate the inner ends of the nets 14—14ª and when the bed is in fully closed position the tension of these nets between the keepers and the head and foot boards holds the lower ends of the boards in collapsed position. Finally, the latch 23 is hooked over the catch 25 completing the folding process. The unfolding of the bed is, of course, the reverse of the process just described.

While I have illustrated and described the preferred embodiment of my invention it is possible for one skilled in the art to construct modifications thereof, without departing from the spirit of the invention. I wish, therefore, not to be limited to the precise embodiment shown, except in so far as the same is limited in the appended claims.

I claim:

1. In a folding bed the combination with head and foot boards, of a pair of collapsible side bars pivoted at their ends in a common plane to said boards, and collapsible springs pivoted to said boards below said common plane.

2. In a folding bed the combination with head and foot boards, of a pair of collapsible side bars pivoted at their ends in a common plane to said boards, and collapsible springs pivoted to said boards below said common plane and normally tensed between the boards.

3. In a folding bed the combination with head and foot boards, of a pair of collapsible side bars pivoted at their ends and substantially in the common plane of their upper surfaces to said boards, and collapsible springs pivoted at opposite ends to said boards below said common plane and normally tensed between the boards.

4. In a folding bed the combination with head and foot boards; of a pair of discontinuous side bars each comprising two alined pieces having their meeting ends pivoted together substantially in the plane of their lower surfaces; said bars being pivoted at their ends and substantially in the common plane of their upper surfaces to said boards; and collapsible springs pivoted to said boards below said common plane and normally tensed between the boards.

5. In a folding bed the combination with head and foot boards, of a pair of collapsible side bars pivoted at their ends and substantially in the common plane of their upper surface to said boards, collapsible, normally tensed springs pivoted to said boards below said common plane, and collapsible side frames normally constituting rigid braces between said boards at points above said common plane.

6. In a folding bed the combination with head and foot boards, of a pair of collapsible side bars pivoted at their ends and substantially in the common plane of their upper surfaces to said boards, collapsible, normally tensed springs pivoted to said boards below said common plane, and discontinuous side frames normally constituting rigid braces between said boards at points above said common plane, said frames being carried by the bars and collapsible into the space between the upper and lower surfaces thereof.

7. In a folding bed the combination with head and foot boards, of a pair of collapsible side bars pivoted at their ends to said boards, and discontinuous side frames normally fitting snugly between said boards to consti-

tute rigid side braces between the same, said frames being pivoted to the bars and collapsible into the space between the upper and lower surfaces thereof.

8. In a folding bed the combination with head and foot boards, of a pair of collapsible side bars pivoted at their ends to said boards, discontinuous side frames normally fitting snugly between said boards to constitute rigid side braces between the same, and detachable fastening means normally securing the upper edges of the frame pieces of each side to each other and to the respective boards, said frames being hinged to the respective bars and collapsible into the space between the upper and lower surfaces of said bars.

9. In a folding bed the combination with head and foot boards, of a pair of discontinuous side bars each comprising two alined pieces having their meeting ends pivoted together substantially in the plane of their lower surfaces, said bars being pivoted at their ends and substantially in the common plane of their upper surfaces to said boards, collapsible springs pivotally connected to the boards below said common plane, a pair of transverse keepers each secured to opposite pieces of said bars adjacent their said meeting ends and depending below said springs a distance sufficient to tense the springs between the keepers and the head and foot boards when the bed is folded, and a latch joining said boards at points above said common plane when the bed is folded.

10. In a folding bed the combination with head and foot boards, of a pair of discontinuous side bars each comprising two alined pieces having their meeting ends pivoted together substantially in the plane of their lower surfaces, said bars being pivoted at their ends and substantially in the common plane of their upper surfaces to said boards, collapsible springs pivotally connected to the boards below said common plane, a pair of transverse keepers each secured to opposite pieces of said bars adjacent their said meeting ends and depending below said springs a distance sufficient to tense the springs between the keepers and the head and foot boards when the bed is folded, and a latch joining said boards at points above said common plane when the bed is folded, said springs being tensed when the bed is is open position.

OTIS PEARCE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."