R. S. BROWN.

INVALID BED.

APPLICATION FILED JULY 13, 1915.

1,193,354.

Patented Aug. 1, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

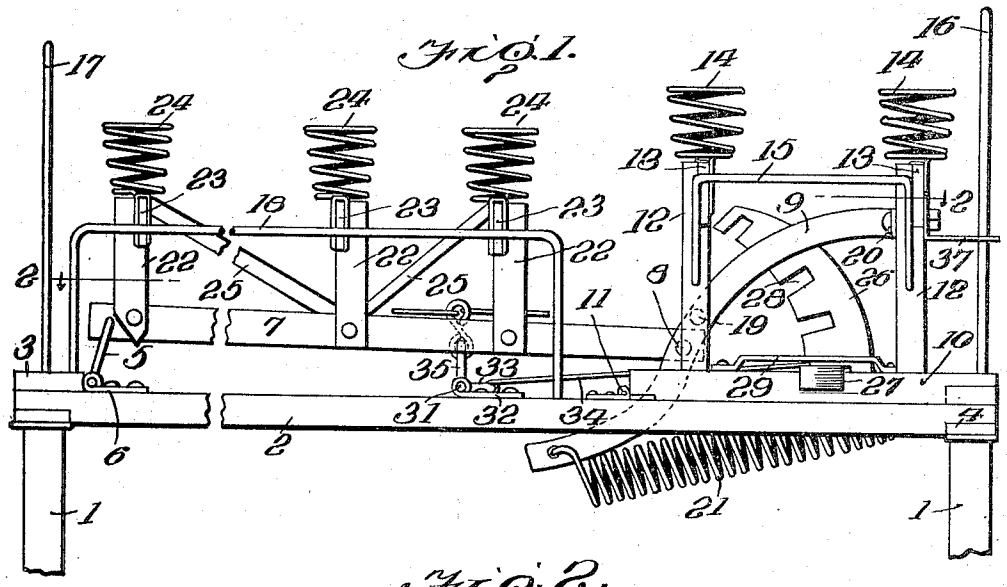
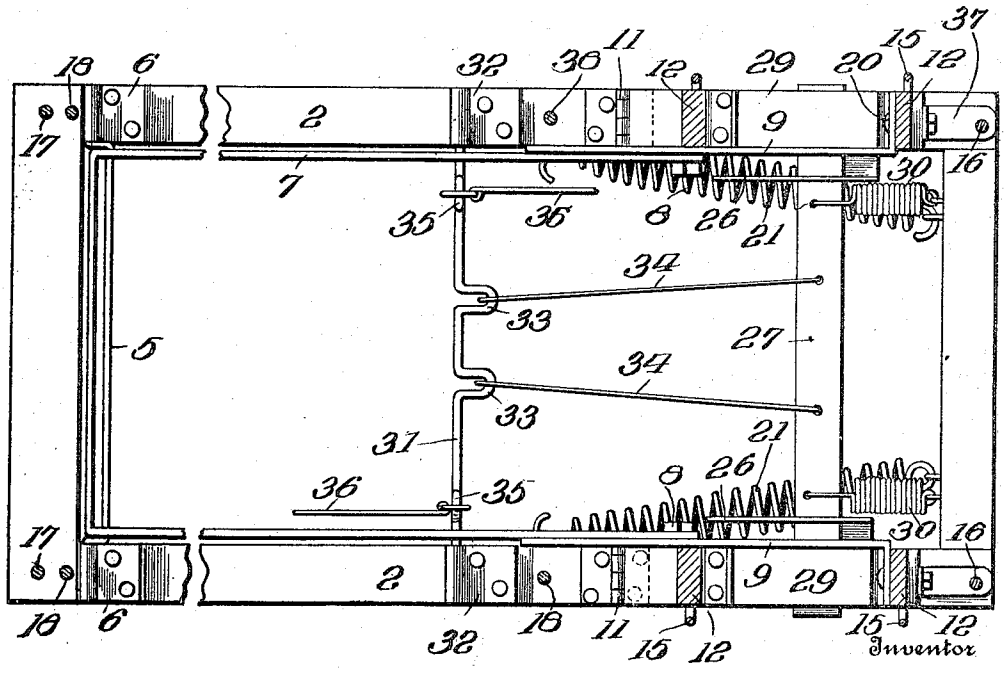


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

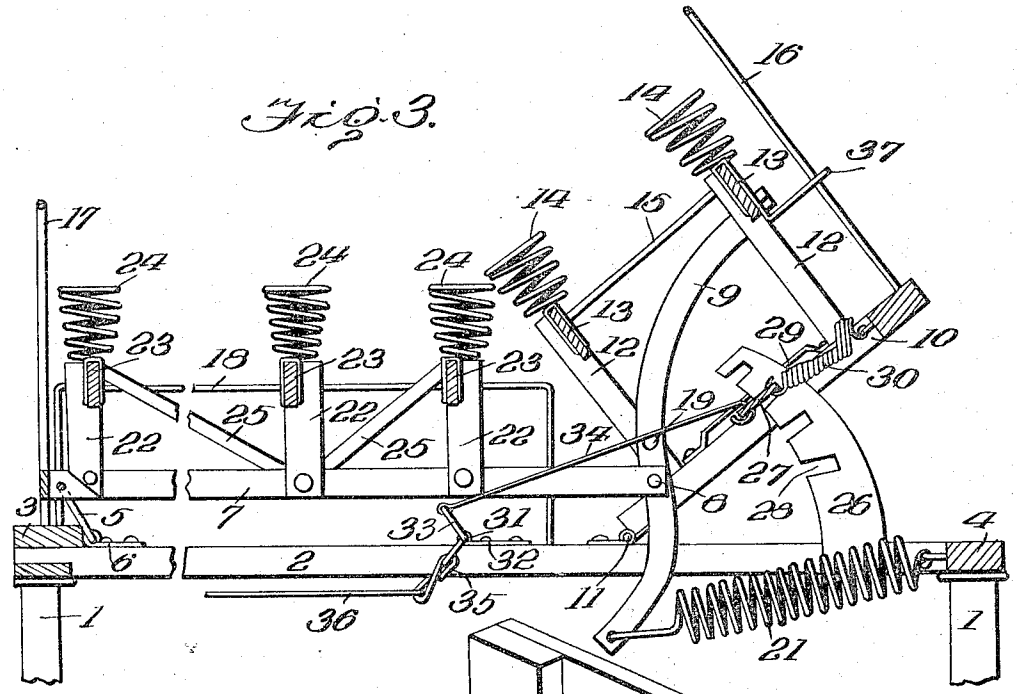
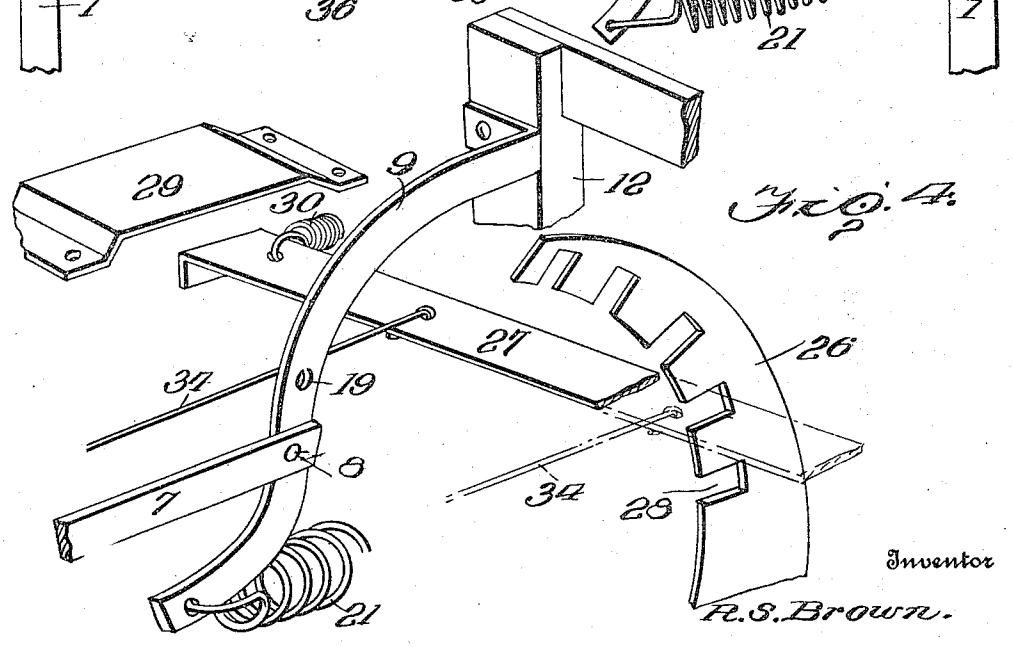


Fig. 4.



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UNITED STATES PATENT OFFICE.

RICHARD S. BROWN, OF AMBOY, ILLINOIS.

INVALID-BED.

1,193,354. Specification of Letters Patent. Patented Aug. 1, 1916.

Application filed July 13, 1915. Serial No. 39,613.

To all whom it may concern:

Be it known that I, RICHARD S. BROWN, a citizen of the United States, residing at Amboy, in the county of Lee and State of Illinois, have invented certain new and useful Improvements in Invalid-Beds, of which the following is a specification.

This invention has relation to the type of beds, cots and the like for supporting a person in a recumbent position and which are adjustable so that the occupant may assume any posture from a sitting to a recumbent position as may be required to obtain comfort and ease.

The invention provides a bed particularly adapted for invalids so that it may be adjusted to various positions, the construction admitting of the adjustment being effected without requiring the patient to be removed from the bed.

The invention provides a bed comprising relatively upper and lower sections which are simultaneously adjustable, the part being so disposed as to move in a given relation so as not to occasion any discomfort to the patient or occupant of the bed during the adjustment to secure any desired position.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly claimed.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention as claimed may be resorted to when desired.

Referring to the drawings, Figure 1 is a side view of an invalid bed embodying the invention; Fig. 2 is a horizontal section on the line 2—2 of Fig. 1; Fig. 3 is a vertical central longitudinal section showing the relation of the parts when adjusted; Fig. 4 is a detail perspective view of the elements for holding the bed in an adjusted position.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings, by the same reference characters.

The bed comprises a main frame which is supported upon legs 1, said frame comprising longitudinal bars 2 and end bars 3 and 4. These several bars may be secured in any substantial manner. A bail 5 is located at one end of the main frame and is journaled at its ends in bearings 6. A supplemental frame 7 is supported at one end upon the swinging portion of the bail and its opposite end is pivotally connected at 8 to opposed arms 9 which have rigid connection with a frame 10 which is hinged at 11 to the main frame. The frame 7 may be of any formation and as indicated in Fig. 2 is preferably of U-shape, the free ends of the side members being pivoted to the arms 9 by fastenings 8 of any character. The frame 7 constitutes the support for the lower section of the bed bottom. The frame 10 is likewise of U-shape and constitutes the support for the upper section of the bed bottom. Uprights 12 project vertically from the frame 10 and are connected at their upper ends by transverse bars 13. Springs 14 are mounted upon the bars 13 and serve to cushion the pallet or other covering upon which the patient may rest. Side rails 15 are connected to the uprights 12 and provide convenient means for the patient to grip so as to assist materially in shifting from one position to another. A head piece 16 is attached to the swinging end of the frame 10. A foot piece 17 is attached to the lower end of the main frame. Side rails 18 are attached to the longitudinal bars 2 and extend along the lower section of the bed bottom.

The arms 9 curve throughout their length, as indicated most clearly in Figs. 1, 3 and 4, and are attached to the inner uprights at 19 and to the outer uprights 12 at 20. The inner ends of the arms 9 curve downwardly and rearwardly and terminate some distance below the plane of the main frame. Contractile springs 21 connect the inner lower ends of the arms 9 with the end bar 4 of the main frame and such springs normally exert a pulling force which tends to elevate the upper or head section of the bed bottom, as indicated in Fig. 3. The springs 21 are of such strength as to materially assist in the adjustment of the head section so that little or no exertion is required to be exerted by the patient when adjusting the bed to obtain a comfortable position. The frame 10 of the head section is hinged at 11 to the

main frame and the axis of the hinge connection 11 is some distance from the axis or pivotal connection 8 of the frame 7 of the foot section with the arms 9. As a consequence of this arrangement a pivotal movement of the frame 10 effects a corresponding movement of the frame 7.

Uprights 22 project vertically from the side members of the frame 7 and are connected at their ends by means of cross bars 23 which support springs 24 corresponding to the springs 14. It is to be understood that the springs 14 and 24 are connected at their upper ends in any well known manner so as to hold the several springs in proper position and at the same time form ample support for the pad, mattress or other covering. The uprights 22 are strengthened by suitable braces 25.

It is necessary to provide means for holding the head section in the required adjusted position. For this purpose notched bars 26 are provided, the same being secured at their lower ends to the side members of the main frame. The bars 26 curve in a manner so that the center of the circle coincides approximately with the axis 11 of the head section of the bed bottom. A latch bar 27 is slidably mounted upon the supplemental frame and is adapted to engage one in a plurality of notches 28 of the bars 26 so as to hold the swinging head section of the bed bottom in the required adjusted position. The latch bar 27 is mounted upon the frame 10 and is movable thereon toward and away from the notched bars 26. Keepers 29 are secured to the side bars of the frame 10 and extend over the ends of the latch bar 27 and hold the latter in place and direct it in its movements. The ends of the latch bar 27 are bent downwardly so as to engage the edges of the side bars of the frame 10 and thereby prevent endwise movement of the latch bar. Contractile springs 30 normally hold the latch bar 27 in engagement with the selected notches of the bars 26. The springs 30 are contractile and are attached to the latch bar and to the cross bar of the frame 10. For operating the latch bar a shaft 31 is provided, the same being journaled at its ends in bearings 32 provided upon the side bars 2 of the main frame. The shaft 31 is formed with crank portions 33 which are connected by rods 34 with the latch bar. Rotation of the shaft 31 in the bearings 32 effects a movement of the latch bar 27 whereby the same may be withdrawn from engagement with the notches 28 of the bars 26 so that the head section of the bed may be raised or lowered as required. The shaft 31 is formed with other crank portions 35 to which rods 36 are connected, such rods extending to a convenient point to be pulled upon when required for operating the shaft 31 and the latch bar 27. When the shaft 31 is actuated so as to disengage the latch bar 27 from the notched bar 26 the springs 21 may be permitted to come into play to raise the head section, this being effected by the patient or occupant of the bed slightly raising the upper portion of the body so as to relieve the head section of excessive weight whereupon the tension of the springs 21 may exert a pulling force sufficient to elevate the head section. If it be required to lower the head section, the same may be pressed downward by the patient exerting sufficient weight to overcome the tension of the springs 21. After the head section has reached the required adjusted position the latch bar 27 is released and is drawn into engagement with the notched bars 26 by the action of the springs 30.

It will be understood from the foregoing, taken in connection with the accompanying drawings, that the head and foot sections of the bed are so mounted and connected that both receive a proportionate movement in the adjustment of the bed and, furthermore, that the springs 21 assist materially in the adjustment of the bed provided the patient or occupant properly exerts the weight of the body so as to permit of the head section rising under the action of the springs 21 or lowering by the weight of the body when the same is exerted to overcome the tension of the springs 21. The latch bar may be conveniently operated either by the occupant or by an attendant since the rods or connections 36 may extend to any convenient point. The head piece 16 may be strengthened by brackets 37 which are attached to the outer uprights 12 and engage the vertical members of the part 16.

Having thus described the invention, what is claimed as new is:—

1. In combination, a main frame, a swinging section mounted upon the main frame, notched bars rising from the main frame at the sides of the swinging section, a latch bar slidably mounted upon the swinging section and adapted to engage the notched bars to hold the swinging section in adjusted position, and operating means for the latch bar mounted on the main frame.

2. In combination, a main frame, a swinging section mounted upon the main frame, means normally tending to elevate the swinging section, notched bars projecting from the main frame, a latch bar mounted upon the swinging section and adapted to engage the notched bars to hold the swinging section in adjusted position, an operating member mounted upon the main frame, and connecting means between the operating member and latch bar for throwing the latter into and out of engagement with the notched bars.

3. In combination, a main frame, a sec-

tion hinged to the main frame, spring means normally tending to elevate the hinged section, a notched bar attached to the main frame, a latch mounted upon the hinged section and adapted to coöperate with the notched bar to hold the hinged section in an adjusted position, a shaft mounted upon the main frame and having crank portions, connecting means between one of the crank portions and the latch, and operating means connected with the other crank portion.

In testimony whereof I affix my signature.

RICHARD S. BROWN. [L. S.]

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