

INVALID BED.

933,323.

3 SHEETS—SHEET 1.

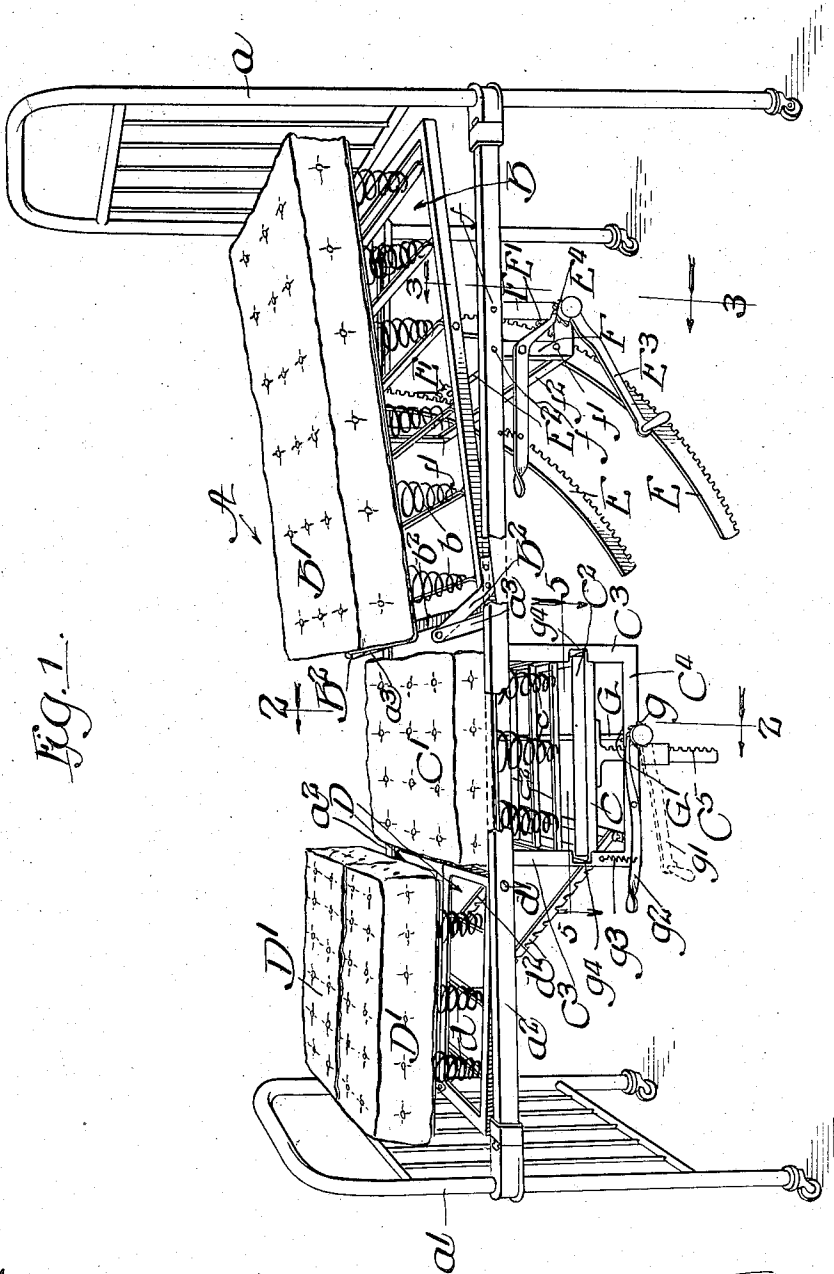


Fig. 1.

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Inventor:
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INVALID BED.
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933,323.

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3 SHEETS—SHEET 2.

Fig. 2

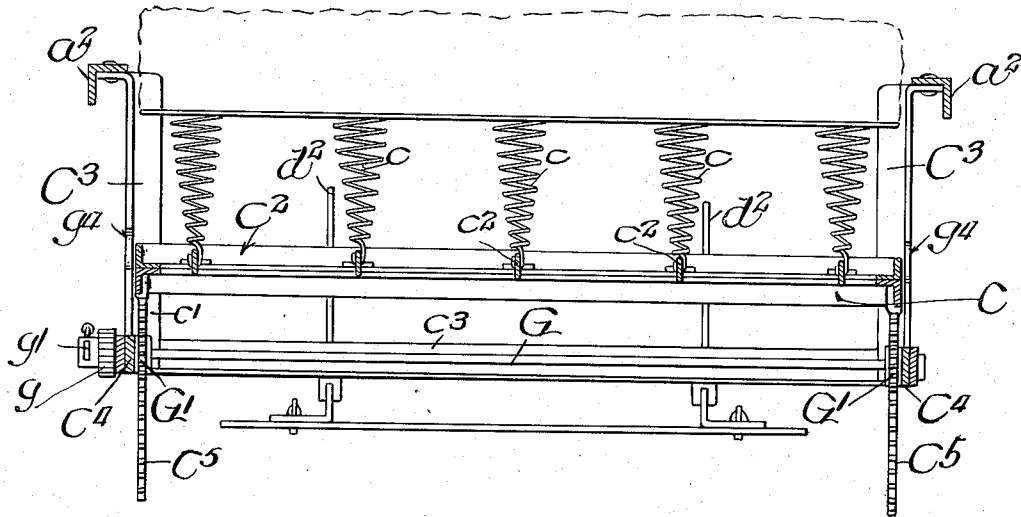
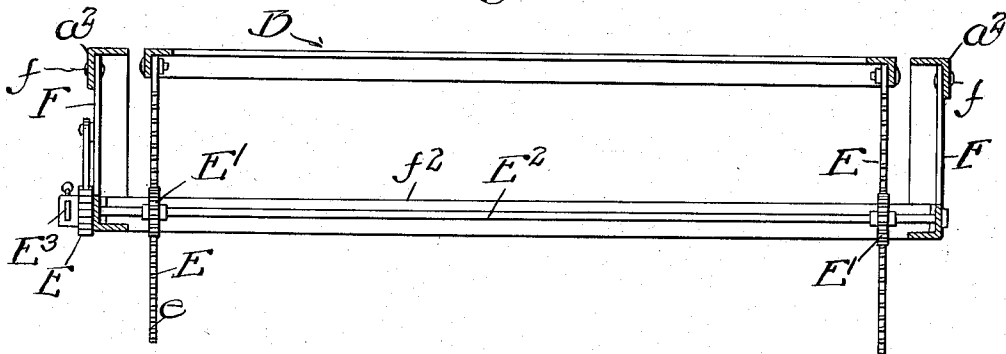


Fig. 3.



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J. H. Alfuda
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UNITED STATES PATENT OFFICE.

FREDERICK W. MITCHELL, OF VALPARAISO, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE WALLACE INVALID BED COMPANY, A CORPORATION OF SOUTH DAKOTA.

INVALID-BED.

933,323.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed August 15, 1908. Serial No. 448,647.

To all whom it may concern:

Be it known that I, FREDERICK W. MITCHELL, a citizen of the United States, and a resident of Valparaiso, in the county of Porter and State of Indiana, have invented certain new and useful Improvements in Invalid-Beds; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My present invention relates to invalid beds of the class generally illustrated in my U. S. Letters Patent No. 829,481, dated August 28th, 1906, and involves improvements which render the bed, as a whole, more easily handled by the operator, which increases its range of adjustability and utility, which reduce the liability to get out of order and which reduces the cost of manufacture to a minimum.

The invention consists in the parts and combination of parts herein described and shown in the accompanying illustrations and will be more particularly pointed out in the appended claim.

In the drawings:—Figure 1 is a perspective view of a bed embodying my invention. Fig. 2 is a transverse sectional view of the middle section, taken upon line 2—2 of Fig. 1, looking in the direction indicated by the arrow. Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1 looking in the direction indicated by the arrows, showing the bed section in normal position. Fig. 4 is a top plan view of the bed, with the mattress and mattress spring frames removed. Fig. 5 is a horizontal sectional view of a portion of the middle frame section taken on line 5—5 of Fig. 1. Fig. 6 is a perspective view of the middle section detached from the bed frame.

In said drawings, A represents the bed, as a whole, comprised of a metal head piece a , a foot piece a^1 and two side frame pieces a^2 , a^2 , the same being of familiar construction. Upon this frame mattress supporting frame sections are located, indicated by the letters B, D D, each carrying a plurality of springs b , d , respectively, in sufficient number to properly support the mattresses B^1 , D^1 , the frame B being at the head and the frames D D being side by side at the foot.

Near the lower end of the head frame B, and attached one on each side, are two upwardly extended arms B^2 , the inclination of the arms being such that when the frame is in its normal or horizontal position, the ends of said arms extend beyond the lower end piece b^2 of the frame B, as clearly seen in Fig. 4. Extending upwardly from the main frame side bars a^2 are corresponding arms a^3 , to the upper ends of which pivotal or hinged connection is made with the bars B^2 , as shown at a^4 . By means of this arrangement the head frame B with its springs and mattress may be moved into any desired angular position with respect to the main frame above or below the normal or horizontal position. The location of the pivotal connections a^4 at points between the member b^2 and the adjacent part of the middle frame C and also at a considerable distance above the horizontal plane of the side bars a^2 , prevents any binding of the mattress B^1 upon the mattress C^1 or the frame C as would be the case if there was practically no space between the frames B and C. I regard the location of this pivotal connection a^4 as an important feature of my invention.

The mechanism for raising and lowering the free or head end of the head frame B is substantially the same as that shown in my said former patent No. 829,481, comprising, as it does, depending segmental racks E, E secured one upon each side of the head frame B in operative engagement with rotatable pinions or gear wheels E^1 , E^1 that are secured to a shaft E^2 transversely and rotatably mounted upon the main frame, the shaft being operated by means of a crank E^3 adapted to be locked from rotation by a spring controlled pawl and ratchet E^4 . In my said former patent, however, I secured the shaft directly upon side bars of the main frame, and the concave side of segmental rack bar was directed toward the head of the bed. In practice this has been found to be a faulty construction possessing difficulties and inconveniences which the present construction entirely overcomes. It will be noted, see Fig. 1, that the free ends of the segmental racks E, E extend away from the head a of the bed and that the rack teeth e are located upon the convex edges thereof, and rest upon the gear pinions

E^1 , E^1 , thus being in constant mesh with said pinions and insuring immediate results the instant the crank E^3 is operated.

Upon each side bar a^2 of the main frame is a depending journal bearing for the shaft E^2 consisting in suitable transverse apertures in the lower end of a flat metal U-shaped bar F . These two bearing bars F , F are riveted at their upper ends at f , f to the side bars a^2 and are connected together at f^1 by a transversely arranged stiffening bar f^2 . By this arrangement the position of the gear pinions, E^1 , E^1 considerably below the frames a^2 and the free end of the head frame B may be given a greater range of movement both below, as well as above, the normal or horizontal position. This arrangement also permits of greater facility in getting at the parts for any purpose, as for example, the removal of the mattress B^1 lengthwise through the head frame a when the section B is lowered below the horizontal position, and also the placing of the pawl and ratchet E^4 in a more convenient position to be manipulated by the operator.

The two foot frames D D are substantially as shown in my said former patent, each being pivotally connected at its head and to a transversely positioned pivot rod d^1 mounted in the two side bars a^2 , a^2 of the main frame whereon the position of the foot frame may be readily moved by the operator, each frame D being independently locked in the desired angular position by notched lock bars d^2 . If desired to move the free ends of either or both of the foot frames by a crank, instead of by the hand of the operator, the lock bars d^2 may be dispensed with and each foot frame provided with a segmental rack bar engaging a crank operated pinion precisely as shown herein and described for operating the head frame or section B , and which, therefore, need not be further illustrated or described. By positioning the rod d^1 upon the side bars a^2 , a^2 , the frames D D are brought normally into the horizontal plane of the side bars, which is an advantage over the construction shown in my former patent, and the free ends thereof may be raised as well as swung below the horizontal position.

The construction and mode of operation of the middle frame C are entirely different from anything shown or described in the prior art as illustrated in my said former patent or elsewhere, the said frame C having vertical, sliding movement which is accomplished by means of the following construction. Attached to the frame C proper and depending therefrom (see Fig. 6) one at each corner thereof, are four angle bars c^1 the outer faces of which form bearing surfaces. Depending from each of the end bars or members of the frame C is a rack bar C^5 . Resting upon the two side bars or members

of the frame C is a supplemental frame C^2 provided with transverse rods or bars c^2 which support the mattress springs c , c . Secured to the side bars a and depending therefrom, two to each bar a^2 , are the angle bars C^3 , the two on each side being joined at their lower ends by a connecting bar C^4 , thus forming a U-shaped frame below each side bar a^2 . These two frames are joined by stiffening bars c^3 , c^3 running transversely of the bed from the lower ends of the bars C^3 . As seen in Figs. 4 and 5, the outside surfaces of the four angle bars c^1 fit nicely within the inside surfaces of the angle bars C^3 of the open frame, and thus an easy sliding movement of the middle section or frame C is possible. The means for accomplishing such movement comprises the following parts: Rotatably mounted in the two connecting bars C^4 , C^4 is a shaft G upon which is secured two gear pinions G^1 , G^1 in such position as to register with and be in mesh with the teeth of the two rack bars C^5 , C^5 of the frame C . One end of the shaft G extends beyond the side of the bed somewhat and is provided with a ratchet g and a hand crank g^1 , whereby the shaft G may be operated. A pawl g^2 is pivoted conveniently upon the connecting bar C^4 and is held normally in engagement with the ratchet g by a spring g^3 . When it is desired to raise the middle section or frame C , above the normal or horizontal position, or to lower it below the level of the bars a^2 , the operator first releases the ratchet g by moving the pawl g^2 , then grasps the handle of the crank g^1 and rotates the shaft G in the desired direction, whereby the pinions G^1 , G^1 in mesh with the rack bars C^5 , C^5 will give the desired raising or lowering movement to the frame C . With a patient upon the bed, the frame C may be slightly lowered, the mattress may be removed and any desired article, such as a bath tub or the like, placed upon the frame C . In using a bed-pan, the frame C may be slightly lowered and the pan slipped under the patient and placed upon the mattress, and then the frame adjusted to suit the convenience of the patient. It will be noticed also that the vertical bars C^3 are recessed or cut away at g^4 by which means, when the frame C is lowered, the frame C^2 carrying the spring c may be moved endwise through said cut away portions g^4 .

Although I have shown and described my invention in a form which I have demonstrated by practical tests to be adapted to successful use, yet I do not intend to be limited to the precise details of constructions shown, except as the same may be made the subject of specific claims herein.

Having thus described my invention, I claim:

An invalid bedstead comprising head and foot pieces and two side bars, in combination

with a plurality of auxiliary mattress-supporting frames or sections, the head section or frame being provided near the lower end thereof upon each side with bracket arms 5 which project upwardly therefrom and a distance beyond the lower end thereof, bracket arms secured to the side bars, extending upwardly and forwardly, means for pivotally uniting the head frame to the 10 bed by said sets of bracket arms, a flat topped, vertically movable, auxiliary mattress supporting frame or section extending transversely across the bedstead at or near the middle of the main frame, vertical guides 15 secured to said vertically movable frame, comprising angle bars secured to the four corners thereof, a second set of angle bars vertically secured to the said side bars,

means for bracing said second named angle bars in vertical and parallel position with reference to each other, the angle bars of the vertically movable frame being arranged to move in engagement with the inner surfaces of the angle bars attached to the side bars of the bed frame, and means for raising and 25 lowering said vertically movable frame and locking it in any desired position.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 5th day of 30 August A. D. 1908.

FREDERICK W. MITCHELL.

Witnesses:

TAYLOR E. BROWN,
GEORGE R. WILKINS.