

No. 669,217.

Patented Mar. 5, 1901.

J. HANSON.
INVALID-BED.

(Application filed June 4, 1900.)

(No Model.)

2 Sheets—Sheet 1.

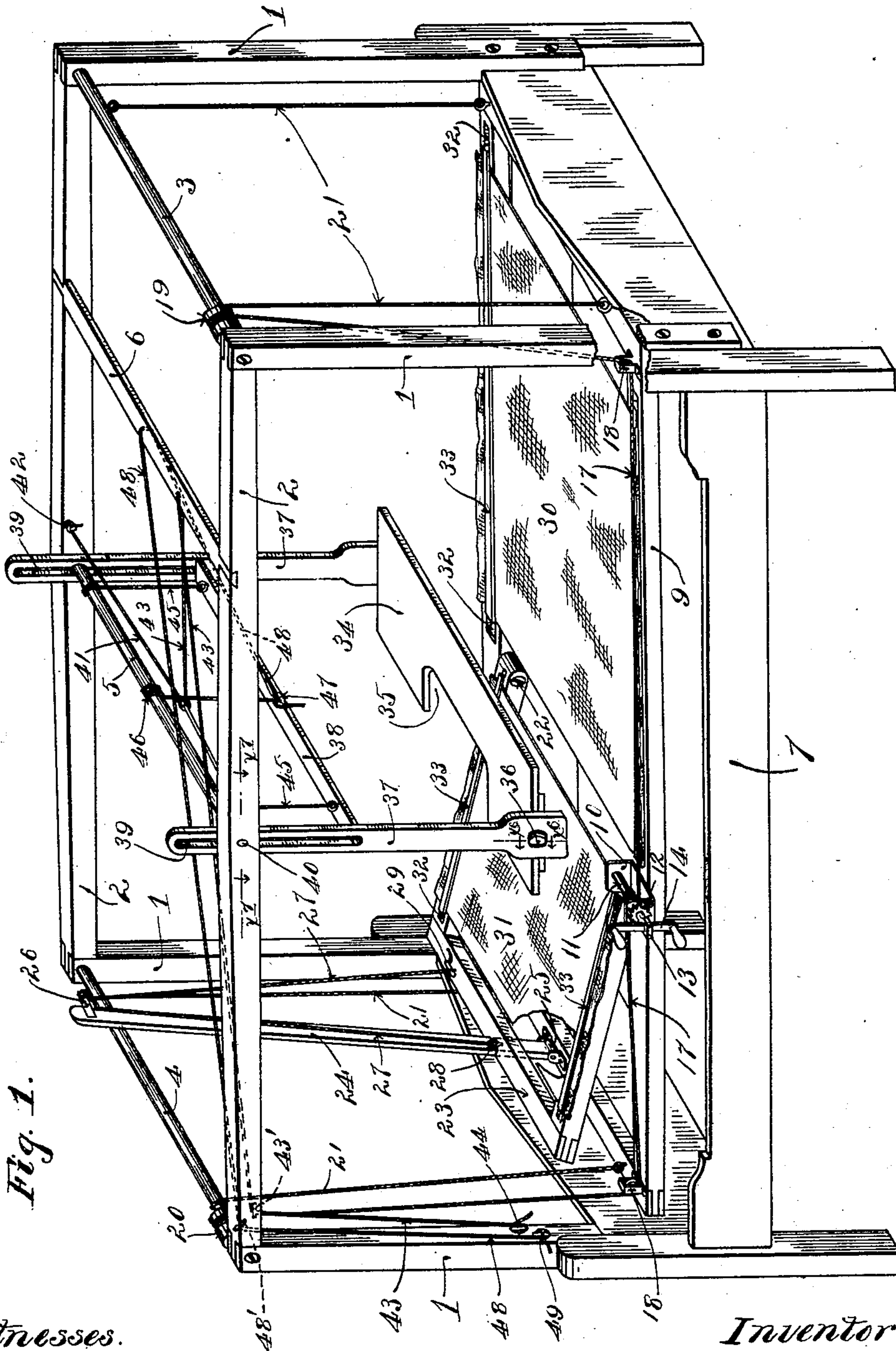


Fig. 1.

Witnesses.

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2 Sheets—Sheet 2.

Fig. 2.

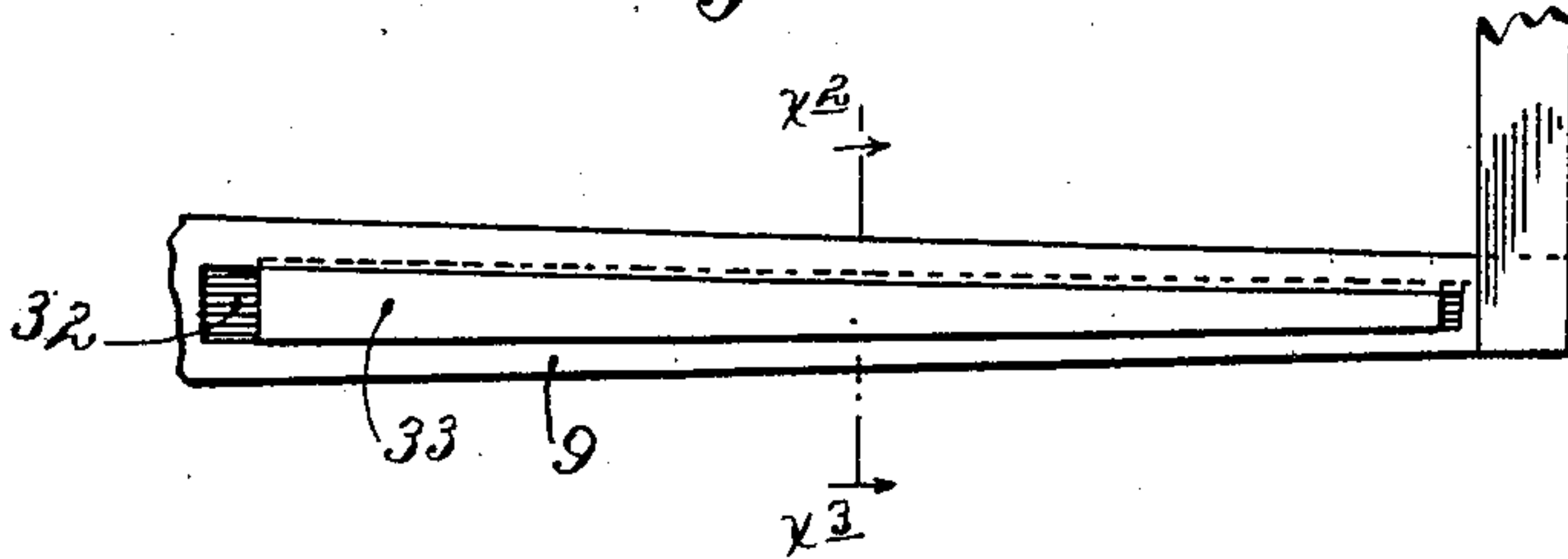


Fig. 3.

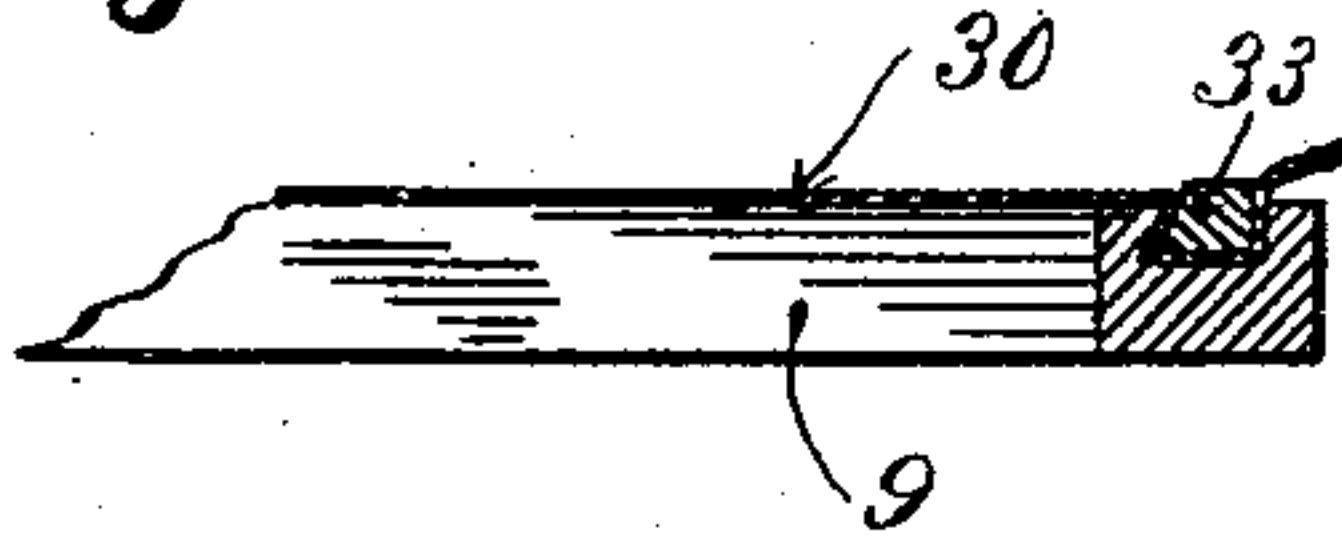


Fig. 4.

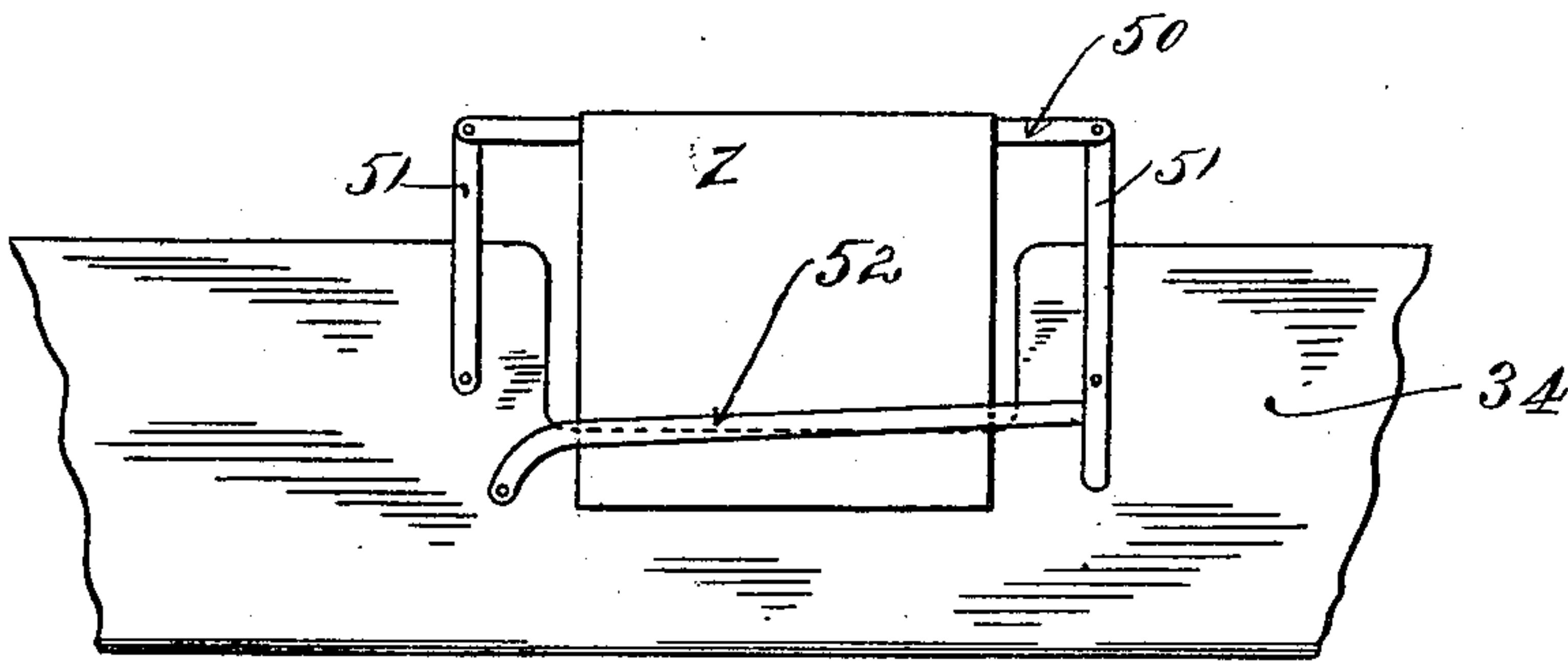


Fig. 5.

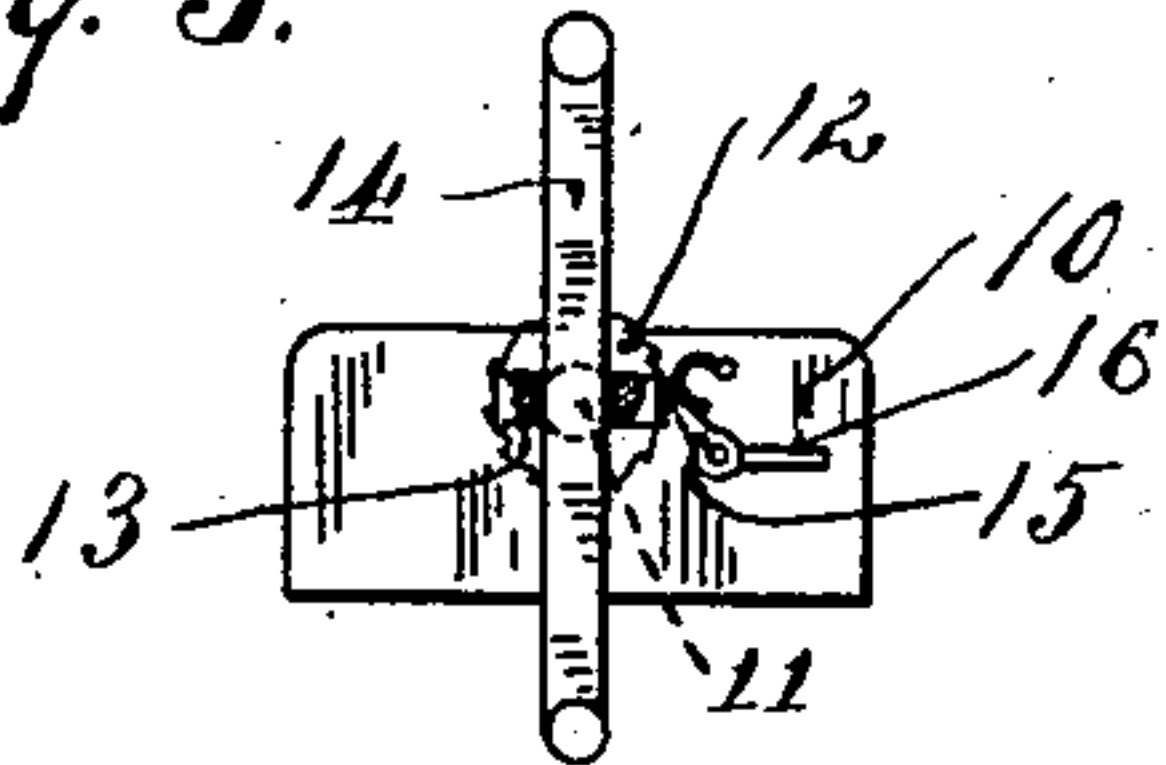


Fig. 6.

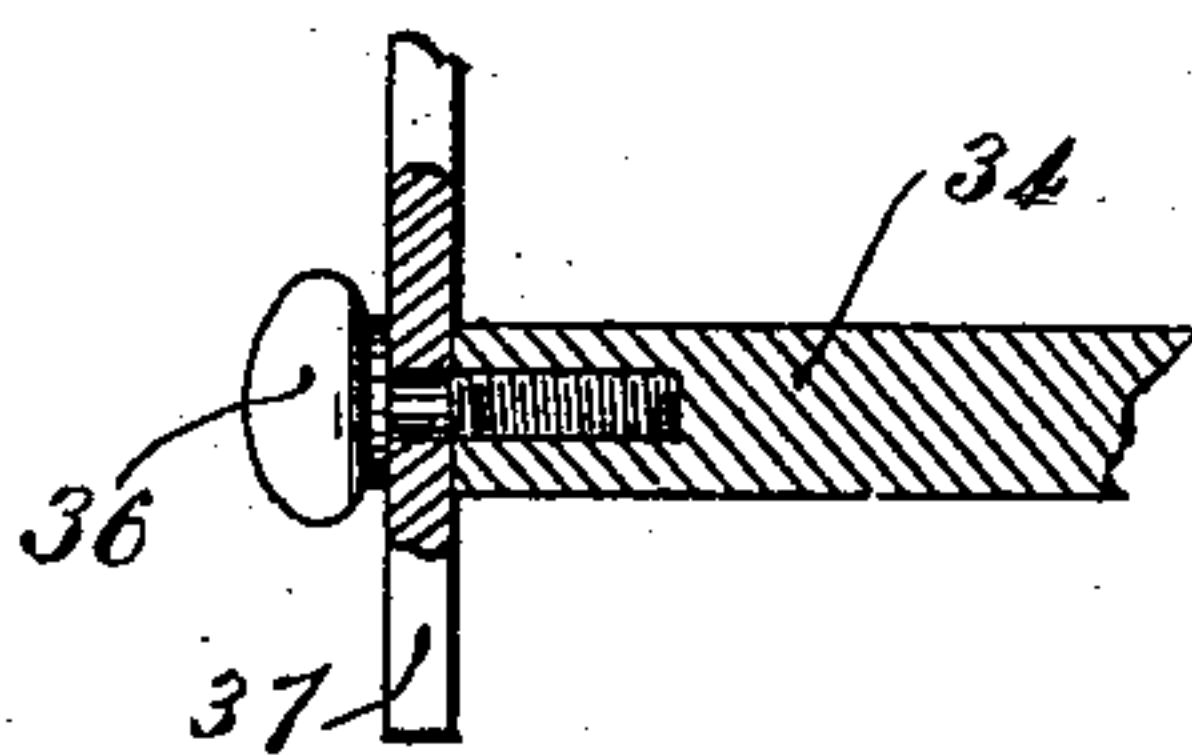
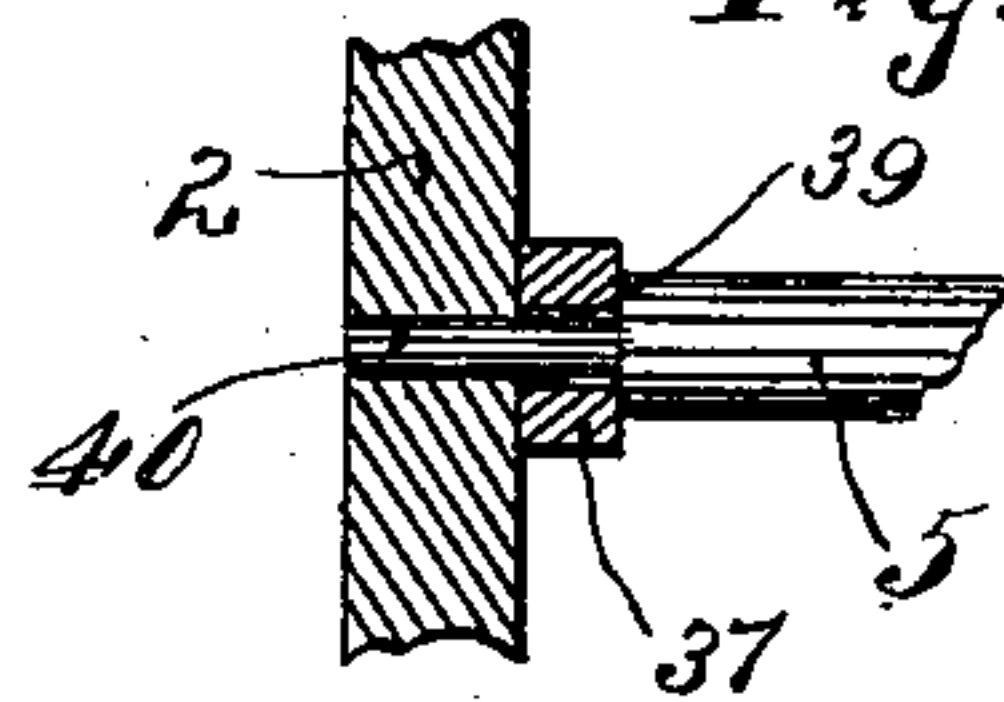


Fig. 7.



Witnesses.

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UNITED STATES PATENT OFFICE.

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INVALID-BED.

SPECIFICATION forming part of Letters Patent No. 669,217, dated March 5, 1901.

Application filed June 4, 1900. Serial No. 19,074. (No model.)

To all whom it may concern:

Be it known that I, JOHN HANSON, a citizen of the United States, residing at Hansonville, in the county of Lincoln and State of Minnesota, have invented certain new and useful Improvements in Invalid-Beds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved invalid-bed which may be easily adjusted by the occupant of the bed; and to this end the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a perspective view showing the bed constructed in accordance with my invention. Fig. 2 is a detail view in plan, showing a portion of the hanging couch-frame. Fig. 3 is a section on the line $x^2 x^3$ of Fig. 2. Fig. 4 is a detail in bottom plan, showing a portion of the table or shelf with a paper-holder applied thereto. Fig. 5 is a detail in vertical section, showing the pawl-and-ratchet device for locking the hoisting windlass-shaft. Fig. 6 is a detail view approximately on the section-line $x^6 x^6$ of Fig. 1, and Fig. 7 is a detail in horizontal section on the line $x^7 x^7$ of Fig. 1.

In the preferred construction of my invention I employ a rectangular skeleton framework 1 2, the sides of which are shown as connected by three transverse windlass-shafts 3, 4, and 5 and also by a transverse guide-bar 6. The skeleton framework 1 2 is applicable to a bedstead of ordinary construction, such as illustrated in the drawings, Fig. 1, by the numeral 7. In the illustration given an ordinary wooden bedstead is shown, and the framework 1 2 is of wood, the vertical corner-posts 1 thereof being detachably securable at their lower ends to the foot and head of the bedstead by means of screws or other suitable devices. Suspended, as presently noted, within the rectangular primary frame formed by the bedstead 7 is a rectangular elongated supplemental frame 9, which serves as a frame for a vertically-adjustable couch or cot. At one

side the supplemental frame 9 is shown as provided with a bearing-bracket 10, in which is loosely journaled a short windlass-shaft 11, provided at its outer end with a ratchet-wheel 12 and a perforated head 13, through the latter of which a sliding handpiece or double-ended crank 14 is mounted to work. A spring-pressed retaining-pawl 15 on the bracket 10 coöperates with the ratchet-wheel 12 to prevent unwinding movement thereof, except when the said pawl is released by pressing on its tailpiece 16. The lower ends of a pair of suspending cords or connections 17 are secured to the windlass-shaft 11 and are run in opposite directions over guide-sheaves 18, mounted on the ends of the frame 9. The cords or ropes 17 are then passed upward and are secured to and wound upon drum or sheave sections 19 and 20 on the windlass-shafts 3 and 4, respectively. To each windlass-shaft 3 and 4 are attached the upper ends of a pair of suspending cords or ropes 21, the lower ends of which are secured to the ends of the vertically-adjustable supplemental or couch frame 9.

Between the sides of the upper end portion of the frame 9 is pivoted at 22 a frame-section 23, which is adapted to be thrown into different inclined positions. To support the frame-section 23 at different inclines, an upright bar 24 is pivotally secured at its lower end to the transverse head-bar of the frame 9, as shown at 25, and is held upward by engagement with the transverse bar of the said frame 23. At its upper end the bar 24 is provided with a guide-sheave 26, over which a cord or rope 27 is passed, said cord being permanently secured at one end, as shown, by an eye 28 to the frame 23 and detachably secured to a button 29 on said frame 23 at its other end. By means of the cord or rope 27 and the button 29 the frame-section 23 may be set and held in any inclined position with respect to the frame 9.

Canvas sheets 30 and 31, respectively, are secured to the sides of the frames 9 and 23. To thus detachably secure the said sheets, the sides of the said frames 9 and 23 are formed with longitudinal tapered key-seats 32, which are dovetailed on their inner edges, and for coöperation with these key-seats long tapered

keys 33, which are dovetailed on their inner edges only, are provided. By means of the keys 33 the edges of the sheets 30 and 31 are tightly pressed into the seats 32, and in virtue of the dovetailed sides of said seats and keys strains from weight on the said sheets will not force the said keys out of their seats, while, on the other hand, the keys may be quite readily rolled out of their seats by pulling upward on the outer edges of the said sheets.

From the upper portion of the framework 1 2 I suspend an adjustable shelf or table 34, which is preferably notched or cut out, as shown at 35, so that said shelf may be closely adjusted to the occupant of the bed. At its ends the shelf 34 is pivoted by means of thumb-screws 36 to the lower ends of a pair of arms 37, that are connected at their intermediate portions by a transverse bar 38 and are provided at their upper sections with long slots 39. Trunnions 40 of the windlass-shaft 5 work through the slots 39 of the arms 37, and the ends of the said windlass-shaft bear against the inner faces of the said arms.

The horizontal frame-beams 2 are adapted to be sprung slightly toward each other to thereby frictionally clamp the arms 37 between their inner faces and the ends of the said windlass-shaft 5. To thus draw the beams 2, I employ a toggle-link or connecting-rod 41, the ends of which are attached by hooks and eyes 42 or other suitable devices to the said beams 2. The intermediate joint of the toggle-link 41 is connected to one end of a cord or rope 43, which passes through a suitable perforation in the bar 6, over a suitable guide 43' on the frame-beams 2, and is adapted to be secured at its lower end to a button 44 on one of the vertical posts 1. By drawing on the cord 43 the beams 2 are drawn inward, due to the buckling action of the toggle-link 41, so that the arms 37 may be frictionally set and held in any desired position.

To raise and lower the arms 37, the windlass-shaft 5 is connected by a pair of cords 45 to the tie-bar 38, and the said windlass-shaft is provided with a third cord or connection 46, which is wound on the windlass-shaft 5 in a reverse direction from the cords 45 and is detachably securable to a button 47 on said bar 38.

To move the arms 37 pivotally, one end of a cord or rope 48 is connected to the bar 38 and is passed through a guide eye or perforation in the bar 6, thence through a suitable guide 48' on the beams 2, and is securable at its lower end to a button 49 on one of the posts 1.

In Fig. 4 I have indicated a device in the nature of an attachment to the table or shelf 34 for holding a newspaper or book in a position over the invalid or occupant of the bed, so that it may be easily read without requiring the invalid to support or hold the said paper or book. Of the parts of this holder 50 indicates a light metal bar pivoted to the

free ends of a pair of links 51, which in turn are pivoted at their inner ends to the under side of the table or shelf 34.

52 indicates a pivoted retaining-arm which is applied to the under side of the shelf 34.

The character *z* indicates a newspaper held by the device just described. To thus hold the paper, it is folded over the bar 50 and is supported and held by the pivoted arm 52.

A newspaper held as above described may be read on both sides simply by turning the shelf 34 upside down on its pivots 36 after one side of the paper is read or after the column is read to the folding-line of the paper. By tightening the thumb-screws 36 the shelf 34 may be frictionally held in any desired adjustment with respect to the arms 37. By moving the parts 51 and 52 pivotally the device may be adjusted to a paper or to a book of almost any size.

A person lying or reclining on the bed may adjust the table or shelf 34 into any desired position by manipulations already described and may also raise or lower the frame-section 23, as he may desire. Furthermore, he may by the handpiece 14 and windlass-shaft 11 raise and lower the frame 9 as an entirety. When the frame 9 is quite low down, it is necessary to slide the handpiece 14 from end to end through the head 13 in order to give clearance between the same and the side rails of the bed 7. The vertically-adjustable frame and its sheets 30 and 31 are also serviceable where an ordinary spring and mattress are employed, as they serve to raise the patient above the mattress, thereby permitting the bed to be made and the bedclothes to be changed when desired.

When the frame-section 23, with its canvas 31, is turned upward nearly into a vertical position, it may be used as a back, against which the invalid may sit, and the frame made up of the arms 37 and table 34 may be adjusted toward the same, so that the person's body below the arms fits in the cut-away portion 35, and the body is thus supported at both sides and at the back and at the front.

It will of course be understood that the invention above described is capable of considerable modification in its details of construction and arrangement of parts.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with a bedstead, of a framework extending above the same, and provided with windlass-shafts, of a supplemental frame, flexible connections suspending said supplemental frame from said windlass-shafts, and means for operating said windlass-shafts, comprising a flexible connection and a windlass mounted on said supplemental frame, substantially as described.

2. The combination with a bedstead, of a framework detachably secured thereto, the windlass-shafts mounted on said frame, the suspending connections 21 from said wind-

lass-shafts, the supplemental frame 9 suspended by said connections 21, the connections 17 secured to said windlass-shafts, the sheaves 18 on said frame 9 guiding said connections 17, the windlass-shaft 11 mounted on said supplemental frame and operating said connections 17, the ratchet-wheel on said shaft 11, and the pawl cooperating to lock said ratchet-wheel, substantially as described.

3. The combination with a bedstead, of a framework above the same, windlass-shafts mounted on said frame, a supplemental frame 9, flexible connections 21 suspending said frame 9 from said windlass-shafts, the guide-sheaves 18 on said frame 9, the flexible connections 17 attached to said windlass-shafts guided by said sheaves 18, the windlass-shaft 11 to which said connections 17 are attached mounted on said frame 9 and provided with the sliding handpiece 14, and the pawl-and-ratchet device for holding said shaft 11

against unwinding movement, substantially as described.

4. The combination with a bedstead and framework secured above the same, of the supplemental frame 9, devices adjustably suspending said supplemental frame 9 from said framework, the frame-section 23 hinged to said frame 9, the upright bar 24 carried by said frame 9 and provided with the guide-sheave 26, and a flexible connection 27 secured to said frame-section 23 at one end, passed over said guide-sheave 26 and detachably secured at its other end to said frame-section 23, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN HANSON.

Witnesses:

J. G. LUND,

GUSTAV ERICKSON.