

J. B. YOUNG.
INVALID AND SURGICAL BED.

No. 566,114.

Patented Aug. 18, 1896.

Fig. 1.

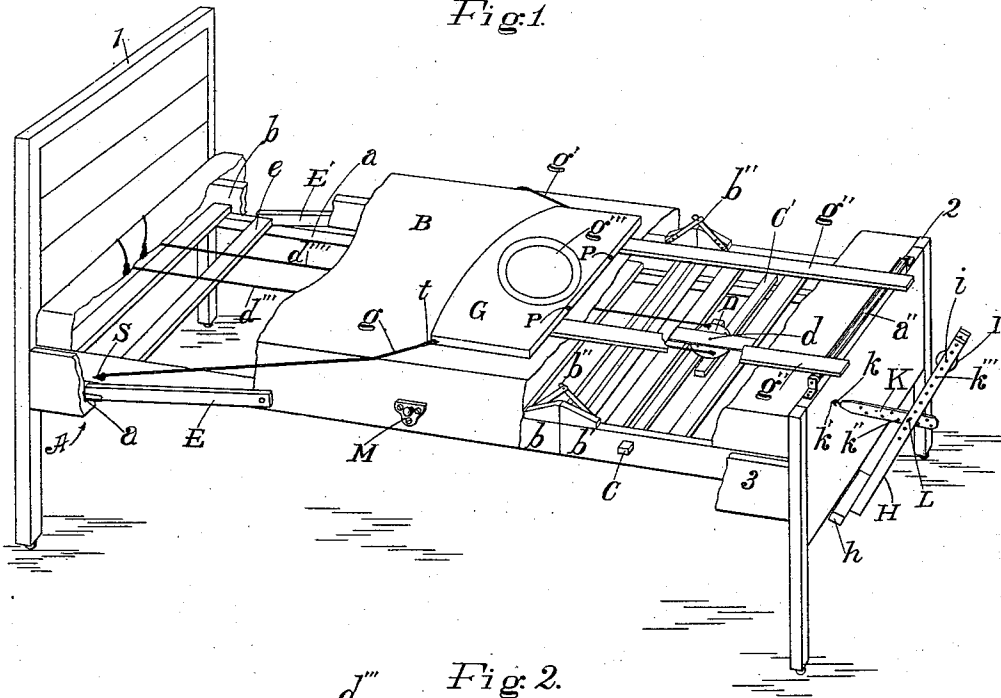
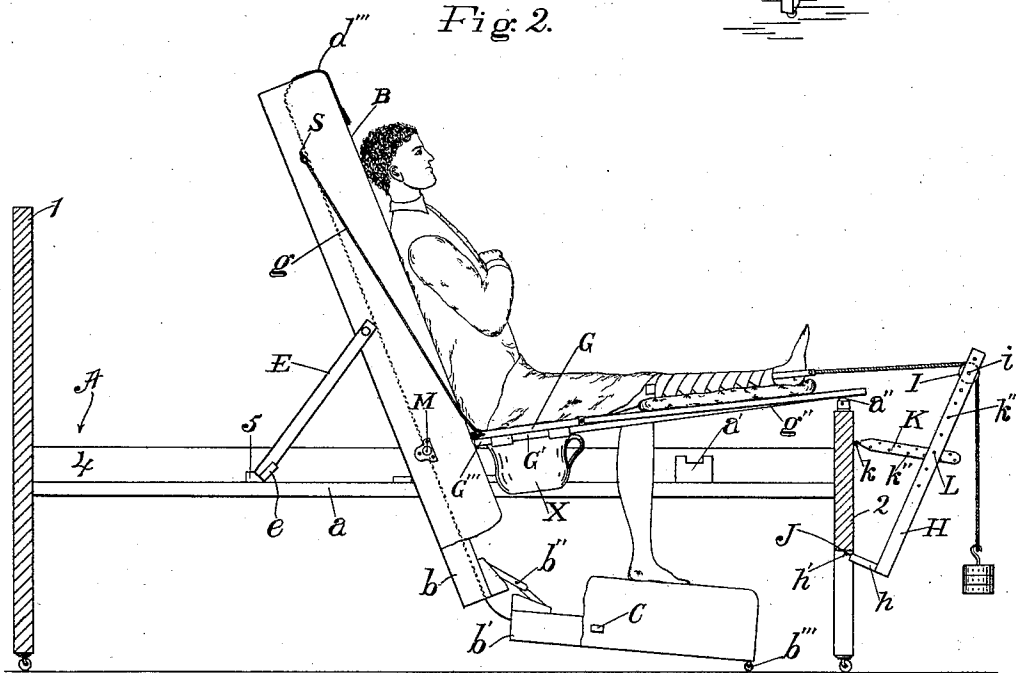


Fig. 2.



Witnesses.

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INVALID AND SURGICAL BED.

SPECIFICATION forming part of Letters Patent No. 566,114, dated August 18, 1896.

Application filed October 16, 1895. Serial No. 565,820. (No model.)

To all whom it may concern:

Be it known that I, JACKSON B. YOUNG, a citizen of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented new and useful Improvements in Invalid and Surgical Beds, of which the following is a specification.

The object of this invention is to facilitate all necessary or desired changes in the position of sick or invalid persons, and to conveniently care for their wants without removing them from the bed.

Another object of my invention is to provide a bed that serves all the purposes of a common bed for domestic use, and that can also be made to serve all the purposes of an invalid and surgical bed.

A very important characteristic of my bed is that it is a combination of a common domestic bed and an invalid-bed. To ordinary appearance and in ordinary use it is a common bed, but it can be arranged for use as an invalid-bed at a moment's notice, and it is practically no heavier than an ordinary bed and has no unsightly, expensive, or complicated machinery.

One object is to provide an invalid-bed which is so cheap and is so fully adapted for common use that it will be brought within the reach of all, will be constantly useful, and ready for sudden emergencies.

Another object of my invention is to provide simpler, cheaper, and more convenient means for doing away with the use of bed-pans and permitting the use of a common chamber-mug without any hole or opening in the mattress or bedding.

I accomplish all these objects and do away with various complications of former inventions of this class by pivoting the mattress-frame at the middle of its length to the sides of the bedstead, providing a separate and independent seat-board, ordinarily detached, but when in use arranged to rest upon or against the mattress, and seat-board-supporting means arranged to hold the seat-board in an approximately horizontal position when the mattress-frame is tilted to an upright position.

By my invention I provide simple, inexpensive, and convenient means whereby a helpless patient can be brought into a comfort-

able sitting posture without inconvenience to the patient and with but little effort on the part of the attendant. By my novel and simple arrangement, when the seat-board is in place and the mattress is tilted sufficiently for the purpose, the occupant will be supported in sitting posture and his legs will be allowed to hang down in a natural and comfortable manner.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective view of a bed embodying my invention in its preferred form with all convenient appliances and showing the seat-board in the position in which it will be placed while the patient is recumbent and preparatory to bringing him to a sitting posture. Portions of the supporting-frame of the bedstead and portions of the mattress are broken away to expose the interior construction. Fig. 2 is a side elevation of the bed with an occupant. The mattress is thrown into position for holding the patient in a sitting posture. Portions of the bed are broken away to show interior construction of the bed. Fig. 3 is a fragmental detail showing the locking-bolts that support the foot of the mattress and the operating mechanism for extending and contracting them to either support the mattress in a horizontal position or withdraw such support to allow the mattress to be tilted. Fig. 4 is a vertical section on line 4 4, Fig. 3. Fig. 5 is a detached detail of the device for forming pivotal connections between the mattress-frame and the bedstead. Fig. 6 is a detail of the under side of the seat-board, showing the appliance for holding the mug in position. Fig. 7 is a longitudinal section of the same on line 7 7. Fig. 8 is a view of the leg-rest. Fig. 9 is a detail of the lower portion of the foot-board and tension-cord support.

A indicates a supporting-frame or bedstead. This supporting-frame is composed of the head-board 1 and a foot-board 2 and side rails 3 and 4. The side rails are provided on their lower inner edges with the usual ledges *a* and also with the shoulders *a'* to receive the transverse slats or mattress-supports. *a''* is an antifriction-roller on the top of the foot-board to support the arms *g''*, hereinafter mentioned.

B indicates the mattress or bed-bottom, the

frame of which is pivoted at its sides to the supporting-frame in the middle of its length, and is formed of the long head-section *b* and the short foot-section *b'*, hinged together by hinges *b''* to fold upward but not downward. The mattress-frame or bed-bottom is thus practically rigid when in a horizontal position and resting on its pivotal bearings, but it is adapted to bend upward when the mattress is tilted on its hinges and the foot-section comes in contact with the floor. Casters *b'''* are provided on the under side of the lower end of the mattress-frame to hold it off the floor and allow it to move freely on the floor when the mattress is tilted and returned.

C C' indicate two reciprocating bolts attached to the under side of the shorter section of the mattress-frame for holding the mattress in a horizontal position. These bolts are arranged to have a limited reciprocal movement laterally, so they can be made to project through holes in the opposite sides of the mattress-frame, and rest upon the shoulders *a'*, which are located on the inner sides of the side rails of the bedstead. I provide suitable means of operating these bolts.

D indicates a wheel (but it may be square or any other convenient shape) pivoted at its center to the mattress-frame by a pivot *d*, arranged between the reciprocating bolts C C'. The wheel is pivoted to the reciprocating bolts, respectively, by pivots *d'* *d''*, arranged on opposite sides of the center pivot *d*. Two operating-cords *d'''* *d''''* are also fastened to said wheel on opposite sides of its central pivot and midway between the bolt-pivots *d'* *d''*, and the free ends of these cords lead to the head of the mattress or to any other convenient place where they can be easily reached to operate the bolts. In practice, to throw the bolts outward, the cord *d'''* is pulled to rotate the wheel in one direction, and to retract said bolts the cord *d''''* is pulled to rotate the wheel in the other direction. By reason of this construction, the mattress-frame being pivoted at its center within the supporting-frame, the entire mattress-frame may, by withdrawing the reciprocating bolts C C', be hung in a suspended or balanced condition upon its pivots within the supporting-frame in such a manner that only the slightest movement is necessary to change the angle of inclination of the entire mattress and consequently of the patient.

It is to be noted that for all practical purposes the mattress is rigid until its foot-section has touched the floor, and that when the bolts are drawn the mattress can be tilted to cause it to slope from head to foot at any inclination the occupant may wish, and is thus made capable of adjustment to many various restful positions.

In the drawings I have shown a box-spring mattress in sections.

E E' indicate mattress-supporting braces pivoted at one end to the opposite sides of the longer section of the mattress-frame, and

having their other ends respectively permanently attached to a cross-bar *e*, that rests on the ledges *a* at the head of the bed and supports the head end of the mattress-frame when the frame is in a horizontal position. This cross-bar connecting said braces is arranged to be drawn along the ledges *a* by said braces when the mattress is being raised to an upright position and to catch behind the blocks 5, provided on said ledges, thus holding the foot of said braces, so as to lock and hold the mattress in an upright position.

The means which may be employed for sustaining the seat-board in a horizontal position, when the mattress is tilted, may consist simply of the side rails of the bedstead. The seat-board, in that case, would be made of sufficient length to project beyond the mattress and rest upon the side rails; but for greater convenience and comfort to the patient I have provided the seat with other means of support, which I will fully describe.

G is an independent seat-board having its upper edge curved outward at its middle to fit the depression made in the mattress by the patient, so that no space will intervene between the bed and the seat-board, which might give discomfort to the patient when the mattress is tilted. This seat-board is placed on the mattress when in a horizontal position, with its curved upper edge at the pivotal line of the mattress, and suitable seat-board-supporting means are arranged to hold the seat-board in approximately the same horizontal position when the mattress is tilted.

The means which I have illustrated for supporting the seat consists of two suspending-cords *g g'*, fastened to the opposite sides of the main section of the mattress-frame and connecting them to corresponding ends of the seat-board at its upper edge. These cords serve to hold the upper edge of the seat at the pivotal line of the mattress. The lower edge of the seat-board is provided with one or more rigid but detachable arms or bars *g''*, extending to and resting upon the roller of the foot-board of the bedstead. These arms, in conjunction with the suspending-cords *g g'*, serve to support the seat in an approximately horizontal position when the head-section of the mattress is raised to an upright position.

The seat-board is provided with the hole *g'''*, and on its under side with the mug-securing clasps or latches *G' G''*. These clasps are curved and channeled on their edges (see Figs. 6 and 7) to receive the rim of the chamber-mug X, and are pivoted at their centers to the under side of the seat-board, and so arranged that when the mug is slid into its place beneath the hole *g'''* between said clasps *G' G''* they will clasp and hold it in that position.

G''' indicates a stop fixed to the under side of the seat-board, in rear of the hole *g'''*, and its front side is curved and channeled to correspond with the clasps *G' G''* to receive the rim of the mug when pressed into the clasps beneath the hole.

G''' indicates a button adapted for locking one of the clasps in the closed position for holding the mug.

In the use of this feature of my invention the clasps are thrown open at the front side, as indicated by the dotted lines in Fig. 6. The mug X is then inserted between them, with its flanged rim in the channels of the clasps, and it is then pushed back until it engages the channeled edge of the stop G''' and becomes centered beneath the hole. As the mug is pressed in it first engages the rear ends of the clasps G' G'' and turns them on their pivots, bringing the curved edges of said clasps close about the mug, so as to clasp it firmly. The button G''' is then thrown into place by the attendant to lock the clasps in their closed position.

The mattress-frame being pivoted in the bedstead at the center of its length, and the seat-board, when in position for use, being on the mattress with its upper edge at the pivotal line, the operation of tilting the head-section of the mattress to an upright position, as shown in Fig. 2, causes that portion of the mattress immediately below the seat-board to swing back out of the way of placing a chamber-mug under the opening in the seat-board.

H indicates a tension-cord support having an adjustable pulley I at its upper end and provided at its lower end with a short cross-bar h, having hooks h', which hook in the screw-eyes J, which are placed in the under edge of the foot-board for that purpose.

K indicates a brace pivoted to the foot-board by hook k and screw-eye k' and provided with holes k'' for a pin L, by which the cord-support can be adjusted in different positions. The cord-support is also provided with holes k''', in which the pin i, on which the pulley is journaled, can be inserted and the location of the pulley changed to various angles of support.

The main section of the mattress-frame is so pivoted to the supporting-frame or bedstead as to allow the mattress-frame to be lifted bodily from the supporting-frame. M indicates pivots fastened to the mattress-frame.

O indicates pivot-seat plates which are attached to the inner sides of the respective side rails of the bedstead. Each pivot has an enlarged diameter at its outer end, as shown at m in Fig. 5, and each pivot-seat has a corresponding socket O' to receive it. Each pivot-seat has an opening at the top which slants from the top of the plate downward and toward the foot of the bed, so as to allow the pivots M to be let into them from above and from toward the head of the bed, and such slanting opening prevents the pivots from being lifted out of their bearings in raising the head-section to an upright position.

The seat-board is provided on its lower edge with screw-eyes P, and Q is a leg-rest which is provided with a hook q to hook into either of said eyes P, and is arranged to extend from

the seat-board to the foot-board and rest upon the antifriction-roller of the foot-board.

In practical use the mattress will ordinarily be in a horizontal position, and for all practical purposes be the same as an ordinary bed, but when the patient desires to sit up the seat-board (and leg-rest, if the patient has a broken leg) is placed in the position indicated in Fig. 1. The reciprocating bolts that support the foot of the mattress-frame may then be withdrawn and the mattress tilted. The braces E E' will draw the cross-bar e along the ledges a and over the block 5, so as to catch and hold the mattress in an upright position, as shown in Fig. 2. Then to again return the patient to a recumbent position the braces E will be lifted over the blocks 5 by the attendant, and as the mattress is returned the cross-bar at the lower end of the bar e will be slid back and take its place as a bed-slat to support the head end of the mattress-frame.

In the case of a broken limb the leg-support Q will be hooked to the seat-board in the proper place to sustain the leg. I provide three screw-eyes on the under side of the foot-board, so that the pulley-support can be adjusted for either leg.

It is to be understood that the cords or other suspending devices for holding the seat-board in a horizontal position should be readily detachable either from the mattress or from the seat-board. In the form shown the cords are tied to screw-eyes s, which are fastened to the mattress-frame and the cords are provided with snap-hooks t, which snap in the screw-eyes u, attached to the end of the seat-board.

I am aware that it is not new to pivot a sectional mattress-frame within a bedstead, such a construction being shown in Letters Patent No. 56,211, granted July 10, 1866, to William A. Guyer, and No. 202,936, granted April 30, 1878, to Doll, Rieder, and Diehlman. I am also aware that it is not new to apply a removable seat to a pivoted section of mattress-frame, such a construction being shown in Letters Patent No. 248,132, granted October 11, 1891, to J. P. Brown. I therefore do not wish to be understood as claiming either of these features broadly.

It is to be understood that in so far as my invention relates to adjusting the inclination of the occupant of the bed, for restful changes of position, it is immaterial whether the mattress be or be not made in two sections hinged together, as shown, or otherwise, but it is important that the mattress be pivoted at the middle, so as to practically balance on the pivots when occupied, so that the occupant or attendant can easily adjust the mattress to any desired inclination. My entire mattress or bed-bottom is supported on a pivotal axis at or near the mid-length of both the bed-bottom and the bedstead, and in the case of convalescents the occupant can change the inclination by taking hold of the side-rails and pushing down or pulling up to shift his weight, or he can shift himself toward or from

the foot of the mattress and can so place himself on the bed that a very slight change of position will enable him to change the inclination as desired. The removable supports for the foot of the bed-bottom or mattress can be withdrawn to allow this freedom of movement and when the occupant wishes the bed to be fixed in its horizontal position the mattress is so adjusted and the bolts are shot into place to hold the mattress horizontal.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bed, the combination of the mattress-frame pivoted at its middle to a support, and formed of a long main section and a short foot-section hinged together to fold upward but not downward; a separate and independent seat-board arranged to rest on the mattress and extending from the middle thereof toward the foot-section; and seat-board-supporting means arranged to hold the seat-board in an approximately horizontal position when the mattress-frame is tilted.

2. In a bedstead, the combination of the support; the mattress-frame pivoted at its middle to the support and formed of a long main section and a short foot-section hinged together to fold upward but not downward; a separate and independent seat-board arranged to rest on the mattress; the suspending-cords fastened to the main section of the mattress-frame and to opposite ends of the seat-board; and the rigid seat-board supports fastened to the seat-board and arranged to rest upon the foot-board of the supporting-frame, substantially as set forth.

3. The combination of the mattress-frame formed of a long main section pivoted to a support and a short foot-section hinged to the main section to fold upward but not downward; means for supporting the upper end of the main section; two laterally-reciprocating bolts connected with the foot-section; supporting-shoulders arranged to catch the reciprocating bolts when shot outward, and means for operating such bolts.

4. In a bedstead, the combination of the supporting-frame provided with an antifriction-roller on its foot-board; the mattress-frame pivoted to the supporting-frame; the independent seat-board arranged to rest upon the mattress and provided with the support-arms arranged to rest upon the roller; and the cords fastened to the opposite ends of the seat-board and to the upper end of the mattress-frame, substantially as set forth.

5. In a bed, the combination of the supporting-frame; a mattress-frame pivoted to such supporting-frame; an independent seat-board arranged to rest upon the mattress when in its horizontal position; means for supporting the seat-board in an approximately horizontal position when the mattress is tilted; the mattress-supporting braces pivoted to the mattress and arranged to engage the supporting-frame to hold the mattress in its tilted

position; and the cross-bar connecting the lower ends of the braces together and arranged to extend across under the mattress-frame to form a rest for the upper end of the mattress-frame when in its horizontal position, substantially as set forth.

6. A surgical bed having in combination substantially as set forth, a pivoted mattress-frame and an independent seat-board arranged to rest upon the mattress when in its horizontal position; suspending-cords attached to the seat-board and to the upper end of the mattress-frame; support-bars fastened to the seat-board and arranged to rest upon the bedstead preferably the foot-board of the bedstead; and a pulley-support pivoted to the foot of the bedstead and adapted and arranged to carry the tension-cord.

7. In an invalid-bed having a tilting mattress and an independent seat-board with means for supporting the same; the combination of the seat-board provided with the leg-rest eye; the leg-rest provided with a hook to hook in such eye and arranged to rest upon the foot of the bedstead; the cord-support sustaining eyes fastened to the lower part of the foot-board; the cord-support brace pivoted to the upper part of the foot-board; the cord-support provided at its upper end with a cord-sustaining pulley and at its lower end with the hooks arranged to hook into the cord-support eyes; and the pin for limiting the movement of the cord-support arranged in the brace to hold the cord-support, substantially as and for the purpose set forth.

8. In an invalid-bed, the seat-board provided with a hole and with the pivoted mug-clasps curved and channeled in their edges to receive the rim of the mug, substantially as set forth.

9. The combination of the board provided with the hole; the stop fixed to the under side of the board and having one edge curved and channeled to receive the rim of a mug; the two clasps pivoted to the under side of the board and provided with the curved and channeled edges arranged to receive the rim of the mug; and means for locking one of the pivoted latches in the closed position substantially as set forth.

10. In an invalid-bed, a bedstead, in combination with a mattress-frame pivoted in the bedstead at or near the center of its length, and a seat-board connected to the mattress-frame by cords extending toward the head of the mattress-frame and provided with one or more arms reaching to and resting upon the bedstead, preferably on the foot-board, to retain the seat in approximately a horizontal position when the mattress is tilted, and removable supports for the foot end of said mattress-frame.

11. A bedstead in combination with a bed-bottom constructed in two sections of unequal length, removably pivoted in said bedstead at or near the center of its length, the shorter section provided with rollers, and the

longer section provided with braces to support it in an upright position when tilted, said sections hinged together to fold upward only, and so that the longer section may while continuing to rest in its pivotal bearings, be raised to an upright position, all in combination with a removable seat flexibly suspended to the head end of the mattress-frame, and arms extending to and resting on the bedstead and arranged to hold the seat in practically a horizontal position.

12. In an invalid-bed, the combination of a bedstead; a mattress-frame pivotally connected at its sides, to the bedstead at or near the center of its length, and constructed in two sections of unequal length, hinged together to fold upward only; a removable seat provided with flexible means of supporting it in, approximately, a horizontal position when the mattress is tilted; reciprocating bolts and means for extending and retracting them; mattress-supporting braces, one pivoted on each side of the mattress-frame, and connected together for simultaneous movement, and so as to be operated from either side of the bed.

13. A removable seat provided with a hole and with clasps on its under side, one on each side of the opening, adapted to clasp and hold a chamber-mug, said seat arranged to rest horizontally on the mattress when the mattress is in a horizontal position; in combination with a bedstead; and a bed-bottom made in two sections of unequal length, hinged together to fold upward only, said bed-bottom pivoted at or near its center, in said bedstead, so as to

permit the head end of said bed-bottom to be raised to an upright position, and flexible means for supporting the seat in a horizontal position at the pivotal line of the mattress when the mattress is tilted.

14. The combination of a common bedstead; a bed-bottom made in sections of unequal length hinged together so as to fold upward only, said bed-bottom pivoted to the side rails of the bedstead, at or near the center of its length, so as to permit the longer section to be raised to an upright position; reciprocating bars pivotally connected to each other and to the bed-bottom, and means for extending or retracting both bars simultaneously; braces, one on each side of said bottom, and connected together so as to be operated together from either side of the bed.

15. In an invalid-bed, the combination of a bedstead; a bed-bottom having two sections of unequal length hinged together so as to fold upward only, said bed-bottom pivotally connected at its sides, to the bedstead at or near the center of its length; reciprocating bolts and means for extending or withdrawing them; a removable seat and means for holding it in, approximately, a horizontal position against and at the pivotal line of the mattress when the bed-bottom is raised to an upright position.

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