

UNITED STATES PATENT OFFICE.

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BEDSTEAD.

960,486.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ALVIN BERG and ROBERT BERG, citizens of the United States, residing at Sparta, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Bedsteads, of which the following is a specification.

Our invention relates to improvements in hospital, or invalids' beds, cots &c., and its objects are: first, to provide a means whereby the patient may be easily and readily changed from a lying position to a sitting or reclining position, and vice versa. Second, to so construct a bed or cot that an invalid may be removed therefrom without the necessity of lifting him bodily, and, third, to provide a means whereby the adjustable portion of the bed or cot may be readily removed from, or replaced upon a bedstead, and will lock the parts firmly together when being placed upon the bedstead.

We attain these objects by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is a sectional elevation of a bedstead, on the line *x x* of Fig. 2, with our adjustable appliance in place. Fig. 2 is a plan of the same with the bed clothes and ticking removed to show the frame construction of the adjustable appliance, and its relative position in the bedstead. Fig. 3 is a side elevation of the foot post of a bedstead shown partly in section to disclose the latch that supports the foot of the bed when raised up to place. Fig. 4 is a perspective of the frame that supports the adjustable portion of the bed, and Fig. 5 is a like view of a metal clamping plate designed to be attached to a wooden side rail of a bedstead for receiving and supporting the frame that carries the adjustable portion of the bed.

Similar letters refer to similar parts throughout the several views.

When using iron rails in the construction of these beds, the clamping device shown in Fig. 5 is extended, each way from the lugs *l l* to engage the head post *A* and the foot post *C*, as indicated in Fig. 1, to form the full length side rails of a bedstead, but when using wooden side rails the clamping device, *L*, is made short, as in Fig. 5, and bolted or screwed to the rail. The frame *K* is so constructed that the ends *l'* may be readily slipped into the space between the

lugs *l* and the body of the rails and, being made upon an incline, will become firmly locked to place. This frame is, preferably, made integral. That is, the portions *K* are connected by integral slats or bars *k k*, so that it will act as a firm support for the bedstead, which would, otherwise, be likely to be very weak on account of the unsupported condition of the foot posts *C*, which are not connected by a rail, the space between them being left open so that the patient may be allowed to walk, or be moved out between them, when the adjustable portion, *D, F, E*, is in the position shown by solid lines in Fig. 1.

The adjustable portion of this bed is made up of three elements, consisting of the back or head portion, *D*, the seat or stationary portion *E*, and the foot portion *F*. The head portion, *D*, is pivotally secured to the seat portion, *E*, or frame, *K*, by means of a shaft *d*, or any other available device. When a shaft is used it is advisable to have projecting lugs or bearings, as *k'*, to receive the shaft or pivotal bearing. In the accompanying drawings we have shown the supporting arms of this portion of the adjustable device, provided with a segment *H*, and a small gear wheel *H'*, arranged to be actuated by any available form of a lever, or hand wheel, as *J'*, and have also shown a pawl, *J* arranged to hold this head portion firmly to place, but do not desire to restrict ourselves to this particular appliance for actuating the adjustable portion of the bed, as there are many other forms of actuating devices that may be used without departing from the spirit of our invention.

The seat portion *E* is secured to the frame *K* in any available manner, and the foot portion *F* is pivotally secured to the seat portion *E* or to the frame portion *K* by means of a shaft *e*, or by any other available means, and is connected with the head portion *D* by means of a connecting rod *I* attached at one end to the segment *H* and at the other end to the side arm of the foot portion, as at *i i'*, so that any motion of the head portion will be transmitted to the foot portion in the opposite direction. That is to say, if the head portion is raised toward the position indicated by the solid lines in Fig. 1 the foot portion will be lowered accordingly, and if the head portion is lowered toward the position indicated by the dotted lines in

said figure, the foot portion will be raised accordingly, thus rendering the adjustable portion of the bed capable of being readily and easily placed in any desired position from a directly horizontal position, as indicated by the dotted lines in Fig. 1, to a perpendicular, position, or nearly so, as indicated by the solid lines in said figure, and by the use of the pawl J, engaging the segment, as shown, or any other form of pawl and ratchet attachment, the back and foot portions may be held to any desired position.

The foot piece G is mounted upon arms G' which are pivotally secured to the sides of the foot portion, F, as at g, so that when the foot portion is in the position shown in Fig. 1, the foot piece may be thrown up to the position indicated by its dotted lines, to form a table or platform upon which the patient may rest the arms, when sitting up, or place a book, or work, or victuals may be served thereon, or the physician may utilize it as a receptacle for surgical tools, medicines, &c., though when used for the latter purpose the patient would, probably, be required to be lying down or sitting in a reclining position. This device may be held firmly to place by the use of any available form of brace, as, for instance, that indicated at G'', which is shown as pivoted to the side of the head portion D, as at d, and as engaging the outline of the foot piece, by dotted lines extending from said pivotal point to the dotted outline of the foot piece. When in its normal position this foot piece, G, serves as a foot rest for the patient, when the bed is being used to support the patient in a sitting position, and when the bed is adjusted to a horizontal position, the foot piece acts as a foot board between the foot posts, C, of the bedstead.

We deem it well, when the bed is in a horizontal position, to provide some means, apart from the adjusting mechanism, to prevent the head portion from dropping below the horizontal, and of holding it in the desired position, and for this purpose we place a narrow ledge, or ledges, as a, in position to receive and support it; by which means all strain is taken from the adjusting mechanism and the bed is held firmly to place so that the patient will be relieved of all nervousness that might, otherwise, be induced from a fear that the bed was not secure.

To support the foot portion of the bed it is necessary to provide some means whereby the upward motion of this portion will force the supporting element back as it passes, and for this purpose we find the latch M, pivoted to the post C, as at m, in position so that it may be made to pass back into the post when the rail is passing, and will fall, or be forced, back to position so that the shoulder m' will pass immediately under the rail, as indicated in Fig. 3, and hold the rail,

or rails, firmly to place. With this construction, it is advisable to form a mortise, as at c, to receive the latch M.

When using the segments H for adjusting the bed, we prefer the use of a shaft, as H', as with it segments may be placed at each end so that there will be no danger of the back of the bed becoming lop sided when a patient is sitting up in it.

g represents a support that is secured to the side rails of the foot portion and extends upward, parallel with the end of the side to form a support for the foot piece G when it is being utilized as a foot rest for the patient when sitting up, or for a foot board to the bedstead.

C' represents a cross rail between the foot posts, C, of the bedstead, placed there to strengthen the posts, but if used it must be placed down low enough so that the foot portion may be raised and lowered without striking it.

We prefer that the springs for use upon these beds be of the woven wire and cable pattern, as the strain of the spring coils will assist, materially, in the adjustment of the bed, though any other available form of spring may be used, or the bed may be operated without spring actuation of any kind.

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

1. In combination with a bedstead, a seat portion securely attached to the side rails of the bedstead, said bedstead being open between the foot posts, a head portion pivoted to one end of the seat portion, a foot portion pivoted to the other end of the seat portion, a segment and gear for actuating the head portion, a connecting rod connecting the segment with the sides of the foot portion, a foot rest pivoted to the sides of the foot portion in position to be adjusted from a horizontal position to a vertical position, a brace to hold said foot rest in vertical position, a latch pivoted in each foot post to hold the foot portion in position when horizontal and a pawl and ratchet to hold the head portion to any desired position above the horizontal.

2. In combination with a bedstead, a seat portion, side rails on said bedstead, lugs on said side rails for securing said seat portion firmly thereto, said bedstead open between the foot rails, means for adjusting the head portion and the foot portion from a horizontal position to a vertical position, a ledge for supporting the head portion, and a latch pivoted in each foot post for supporting the foot portion when the body of the bed is in a horizontal position, and an adjustable foot rest pivotally secured to the foot portion.

3. In combination with a bedstead and its side rails, lugs secured to the side rails, a seat portion having lugs to engage the lugs

on the rails, a head portion and a foot portion pivotally secured to the seat portion, a segment and gear to adjust the head portion from a horizontal to a vertical position, a pawl and ratchet to hold the head portion to place, means for adjusting the foot portion from a horizontal position to a vertical position, said bedstead open between the foot rails, a ledge at the head of the bed to support the head portion when in horizontal position, latches pivotally supported in the foot posts in position to catch and support the foot

portion when in horizontal position, a foot rest pivotally secured to the sides of the foot portion, supports on the foot portion to hold the foot rest firmly to position, and a pawl and ratchet for holding the adjustable portion of the bedstead to position. 15

Signed at Sparta Michigan May 10, 1909.

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In presence of—

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