

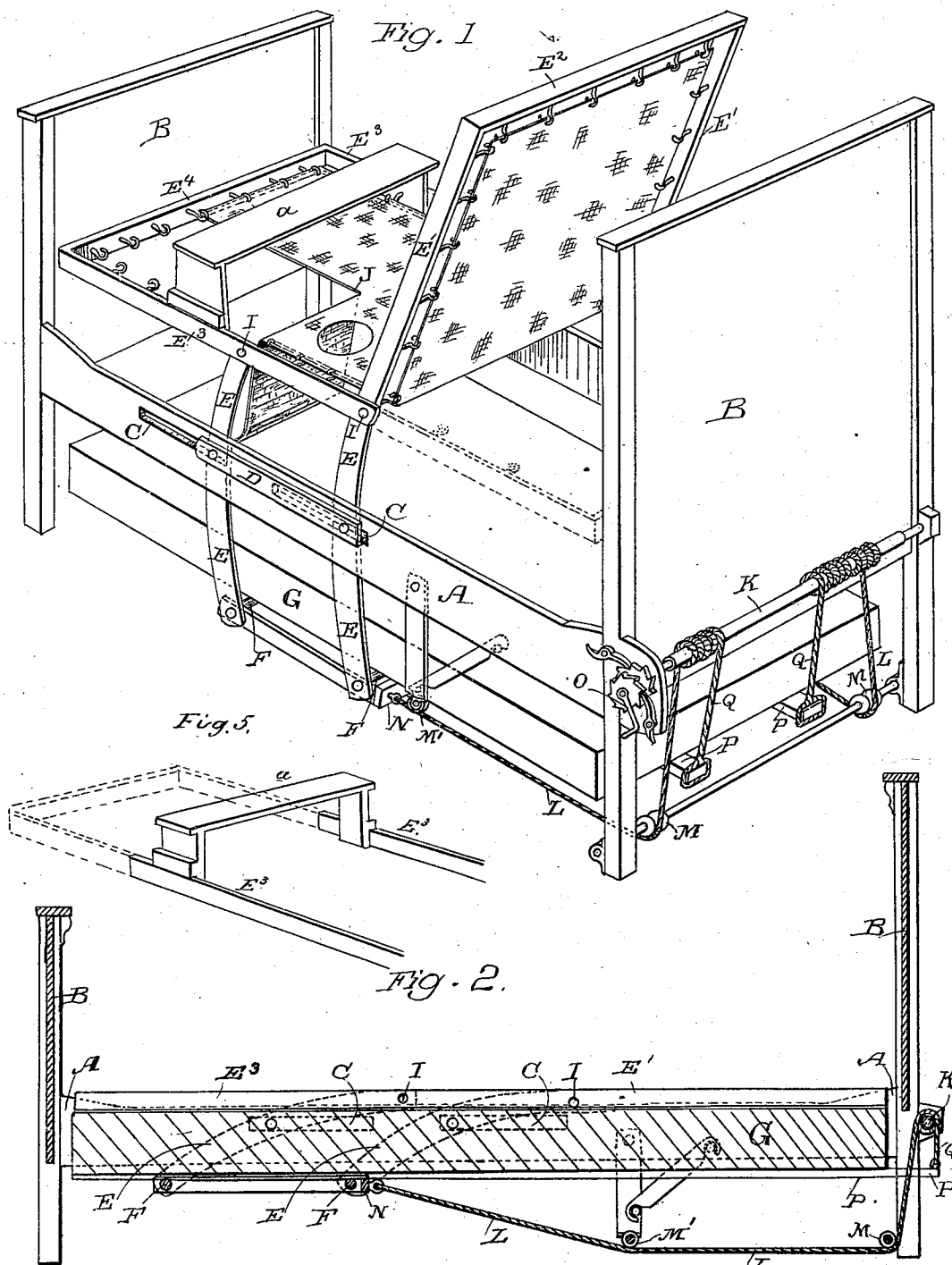
(No Model.)

2 Sheets—Sheet 1.

A. BODEN, J. PEERS & S. SAXON.
INVALID BED.

No. 504,515.

Patented Sept. 5, 1893.



Witnesses,
J. A. Bayless

Inventors,
Annie Boden
Joseph Peers
Samuel Saxon
D. W. V. Co. attys.

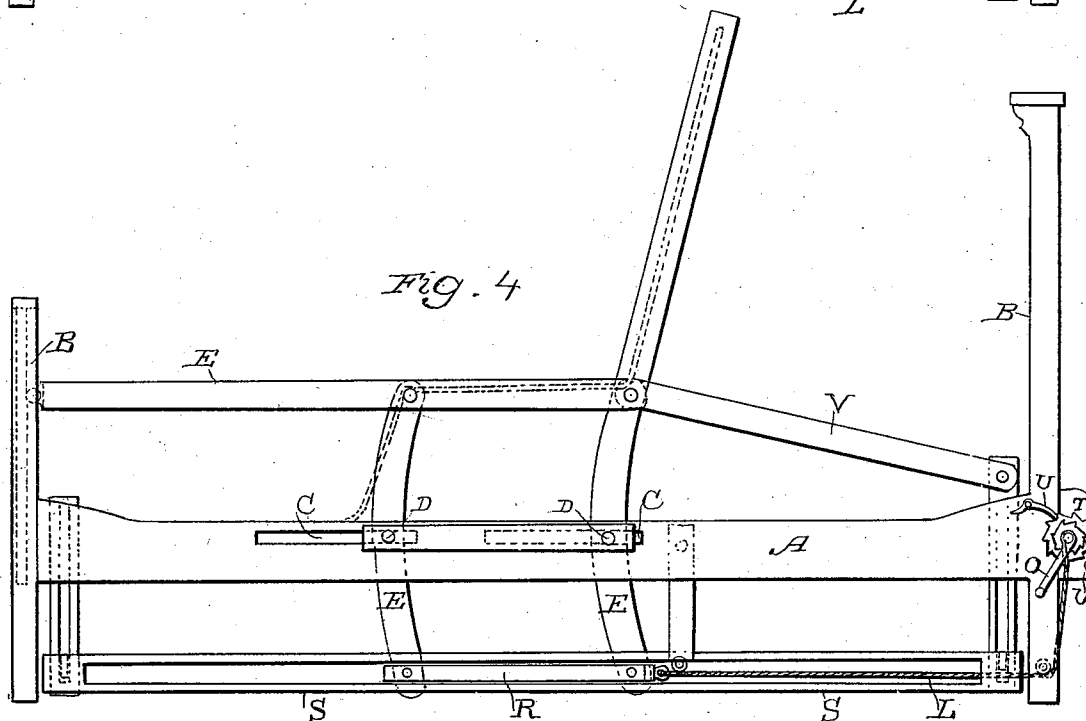
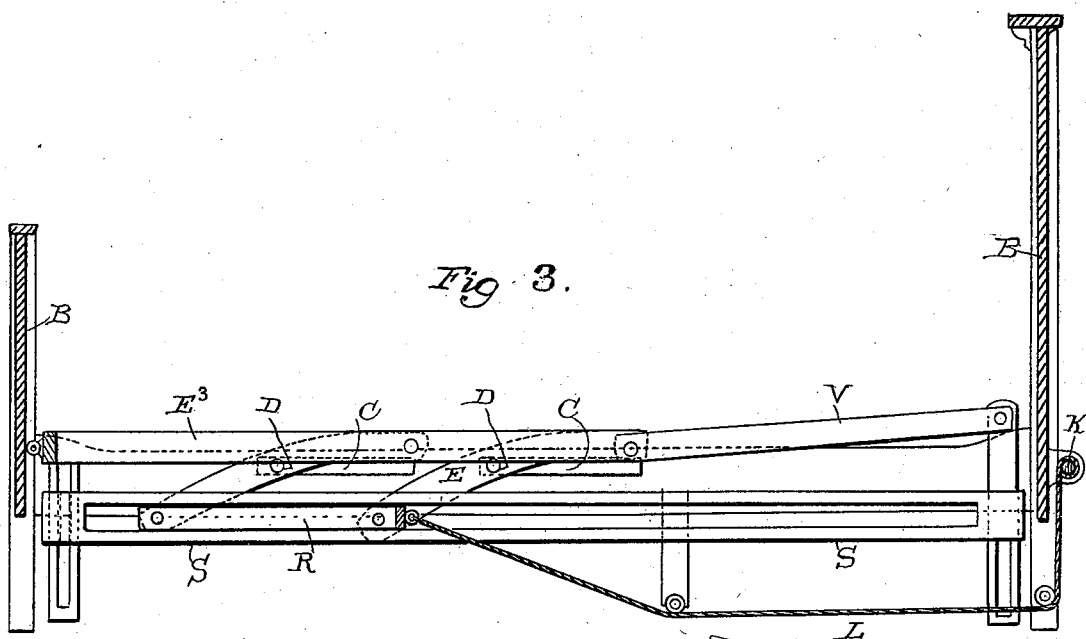
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2 Sheets—Sheet 2.

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INVALID BED.

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Patented Sept. 5, 1893.



Witnesses,
J. A. Bayless

Inventors,
Annie Boden
Joseph Peers
Samuel Saxon
Dewey & Co., atty

UNITED STATES PATENT OFFICE.

ANNIE BODEN, JOSEPH PEERS, AND SAMUEL SAXON, OF SAN FRANCISCO,
CALIFORNIA.

INVALID-BED.

SPECIFICATION forming part of Letters Patent No. 504,515, dated September 5, 1893.

Application filed May 22, 1893. Serial No. 475,133. (No model.)

To all whom it may concern:

Be it known that we, ANNIE BODEN, JOSEPH PEERS, and SAMUEL SAXON, citizens of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Invalid-Beds; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to an improved bed for invalids.

It consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view showing the upper part of the bed elevated, and the mattress depressed. Fig. 2 is a longitudinal vertical section of the same, with parts extended and mattresses in contact. Fig. 3 is a longitudinal section showing lower frame slotted with sliding travelers and parts extended. Fig. 4 is a similar view with the upper frame elevated and the mattresses separated. Fig. 5 is a modification to be referred to.

The object of our invention is to provide a means whereby the invalid may be raised into a sitting position, the feet extended or dropped down, and a lower mattress upon which the invalid is normally supported when extended at full length, is dropped away from the upper one when the invalid is raised into a sitting position, so as to leave a considerable space between the two for the purpose of changing bed linen, or for other services.

A are the side rails; B B the head and foot-board of the bed.

The mechanism may be attached directly to the main frames or it may be connected with a supplemental frame which may be either attached to the main frame or arranged to be taken out, and independent of the main bedstead. This latter construction allows it to be used in conjunction with any ordinary bed which it will fit.

In the side rails A are horizontal slots as shown at C, and in these slots the travelers D are fitted to slide backward and forward. To these travelers are fulcrumed the lever arms E, to the lower ends of which are attached transverse rods F extending from one side to the other, and these serve to support the lower

mattress G, or a supplemental frame-work upon which it rests. The rearmost of the levers E extends upwardly as shown at E', and the webbing or canvas forming the head portion of the uppermost cot or support, is stretched between the side frames E', and the end frame E² of this portion of the upper mattress.

The side bars E³ of the upper mattress are pivoted to the upper part of the levers E, as shown at I, so that when the levers E are turned to stand in a vertical direction, the lower mattress G will be correspondingly depressed by the downward movement of the lower ends of the levers E, while the upper mattress or cot which is stretched across the frames E', E² and E³, will be correspondingly raised, so that there will be a clear space between the upper and lower mattresses. At the same time, by reason of the part E' forming an extension of the lever E, that portion of the upper mattress which supports the head and shoulders of the invalid, will be turned upward until it stands at an angle with the part E³, and the invalid will be brought into a more or less complete sitting posture, according to the degree to which this part of the bed is raised. The canvas which extends between the sides E³ and the lower end E⁴ of the upper frame-work, is also cut away or separated longitudinally, as shown at J, so that by unhooking a portion of it, it may be allowed to drop down, so that as the invalid is raised into a sitting posture, the feet may be dropped to rest upon the lower mattress, while a sufficient portion of the web which extends between the side bars E³, will remain in position to form a seat and the head and shoulders will be supported by the up-turned back portion of the web which is attached to the parts E' and E² of the frame. The seat portion has an opening made in it as shown and when this is uncovered, a bed-pan may be placed beneath it for the use of the patient, who is supported as previously described. If desired, the whole of the lower portion of this webbing may remain attached, in which case the legs will remain extended, or one may remain extended and the other dropped. This feature is especially useful in case of broken or injured limbs. When the invalid is again

lowered into a horizontal position by the movement of the levers E E, the same action which depresses and straightens out the upper cot or bed, raises the lower mattress G until the two are in contact, and the mattress G supports the whole weight of the invalid.

In cases where it is not necessary to keep the legs extended, the frame E³ may be shortened toward the foot, see Fig. 5, leaving only a sufficient length to support a small table *a* which unites and braces the side rails E³ and the end rail E⁴ is dispensed with. The side rails E³ are extended toward the head as shown in dotted lines Fig. 1, and the webbing attached to these sides instead of E' where the patient cannot be raised into a sitting posture.

In order to operate this device we have shown a drum shaft K journaled in suitable bearings, near the head of the bed, and having ropes or straps L adapted to coil around it. The drum shaft is shown upon the outside of the main frame for convenience of illustration, but it will usually extend across the head of the removable frame and inside of the head of the main bedstead. These straps pass around guide pulleys M M' at the lower part of the bed, thence extend underneath the bed and connect with the frame-work N which unites the lower ends of the levers E, so that when these straps are coiled upon the drum K, by turning the crank O, the lower ends of the levers E will be drawn toward the head of the bed, and as they turn about the fulcrum points upon the sliding bar D, the upper ends will be correspondingly thrown toward the foot of the bed. This movement, at the same time, depresses the lower ends of the levers, and raises the upper ends of the levers, and the tendency of the movement would naturally be to throw the upper mattress or support over the foot of the bed, but by reason of the slides D moving in the slots C, as the levers are turned about their fulcrum supports, the fulcrums will be moved toward the head of the bed, as the upper mattress or invalid support is turned up to raise the invalid into the sitting posture as previously described, and the whole frame-work will be correspondingly drawn backward so as to retain it all within the limits of the bed-frame, and when it is let down, it correspondingly moves in the opposite direction.

In order to control the movements of the head of the lower mattress we have shown longitudinal bars P extending beneath the lower mattress and across the transverse bars H. The ends of these bars, at the head of the bed, are supported by ropes or straps Q which coil about the drum shaft K in the opposite direction from the straps L, so that when one set of straps is being wound up, the other is being uncoiled. Therefore, when the straps L are being wound up, the straps Q are being uncoiled, and thus the lower mattress will be depressed while the upper mattress will be raised and the two separated. When the re-

verse operation takes place, the lower mattress will be raised, while the upper mattress is being straightened out and depressed, until it finally rests upon and is entirely supported by the lower mattress.

In Figs. 3 and 4 we have shown a modification of the mechanism, in which the lower ends of the levers E are also connected with longitudinally sliding travelers R upon each side which are guided and move in longitudinal slots in the side bars S, and the latter are guided so as to move vertically within the frame of the bed.

V V are links which connect the side rails with stationary points near the head of the bed, and these act, when the frame is raised or depressed, to move the fulcrum slides D in their guiding slots as the levers E turn about their fulcrum points.

T is a ratchet wheel, and U are pawls which hold the ratchet at any point desired.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an invalid bed, vertically separable frames, the lower one carrying the principal mattress, and the upper one a supplemental mattress or support, and mechanism connecting the frames whereby the lower one is depressed and the upper one raised simultaneously, substantially as herein described.

2. In an invalid bed, a main frame, a supplemental frame vertically movable within the main frame and adapted to support a mattress, lever arms fulcrumed above said frame, having the lower ends connected therewith, a second frame connected with said lever arms above their fulcrum points, a winding drum, straps adapted to coil thereon having their opposite ends connected with the lower ends of the levers and movable frame, whereby a movement of the levers about their fulcrum points acts to depress the lower mattress and raise the upper one, substantially as herein described.

3. In an invalid bed, a mattress supporting frame vertically movable within the main frame of the bed, levers fulcrumed above said frame having the lower ends connected therewith, a second frame connected with the levers above their fulcrum points and carrying a flexible mattress or support for an invalid, extensions of the pairs of levers nearest the head of the bed, to which extension the upper portion of said support is attached, a winding drum with straps adapted to coil thereon having their opposite ends connected with the lower ends of the lever connecting frames whereby the winding of the straps upon the drum moves the mattresses vertically in opposite directions simultaneously, and tilts the upper end of the upper mattress to bring the invalid into a sitting posture, substantially as herein described.

4. In an invalid bed, the vertically separable mattresses, levers between which said mattresses are supported, winding mechan-

ism and straps connected with the movable frames, whereby the lower mattress is depressed and the upper mattress is raised, and the invalid simultaneously raised into a sitting posture upon the upper mattress, attachments for the foot end of the upper mattress, longitudinally separable sections of said end of the mattress whereby either portion may be disengaged and dropped after the mattress has been raised so as to leave the invalid in a sitting posture upon the remaining portion of the mattress, substantially as herein described.

5. In an invalid bed, a supplemental mattress supporting frame, vertically movable within the main frame of the bed and having longitudinal slots made in its sides, slides adapted to travel longitudinally in said slots, horizontal movable slides adapted to travel upon the sides of the main frame above the movable frame, levers fulcrumed in pairs to said slides and having their lower ends connected with the slides of the mattress sup-

porting frame, a second vertically movable frame attached to the upper ends of the levers above their fulcrum points, extensions of the head portion of the levers, a webbing or mattress attached to the supplemental frame and the lever extensions, a winding drum and straps coiled thereon and connected with the lower ends of the levers whereby said levers are turned upon their fulcrum points so as to depress the lower mattress and raise the upper one when the straps are coiled upon the drum and to raise the lower mattress and depress the upper one when the straps are uncoiled, substantially as herein described.

In witness whereof we have hereunto set our hands.

ANNIE BODEN.
JOSEPH PEERS.
SAMUEL SAXON.

Witnesses:

S. H. NOURSE,
LINCOLN SONNTAG.