(No Model.) 2 Sheets—Sheet 1.

M. F. HARDY.

INVALID BEDSTEAD.

No. 382,872. Patented May 15, 1888.

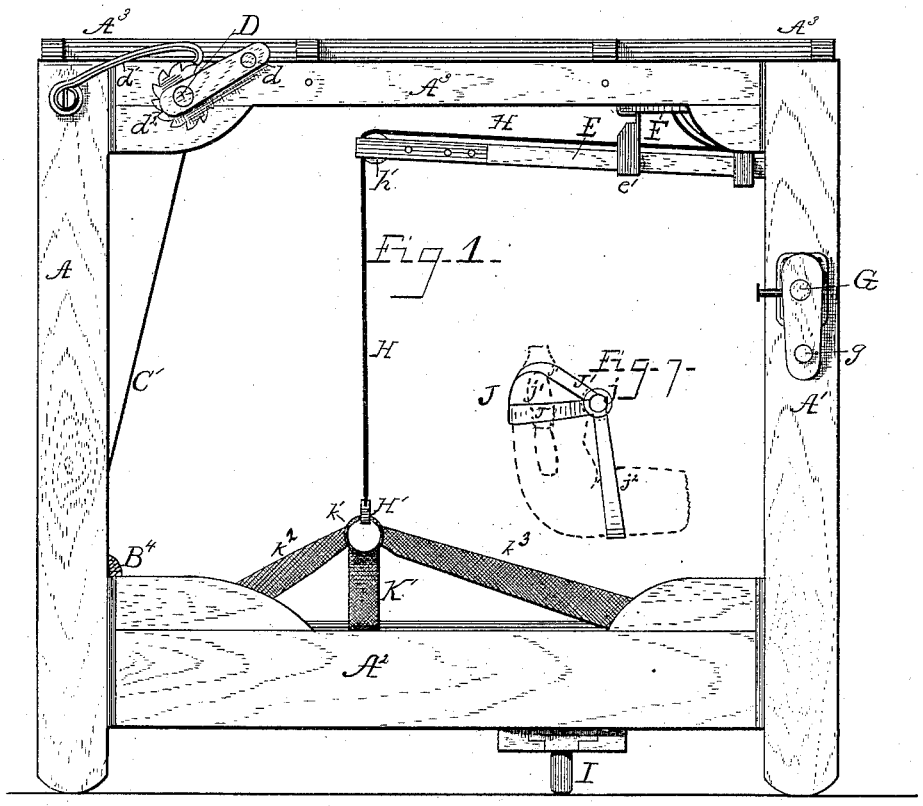
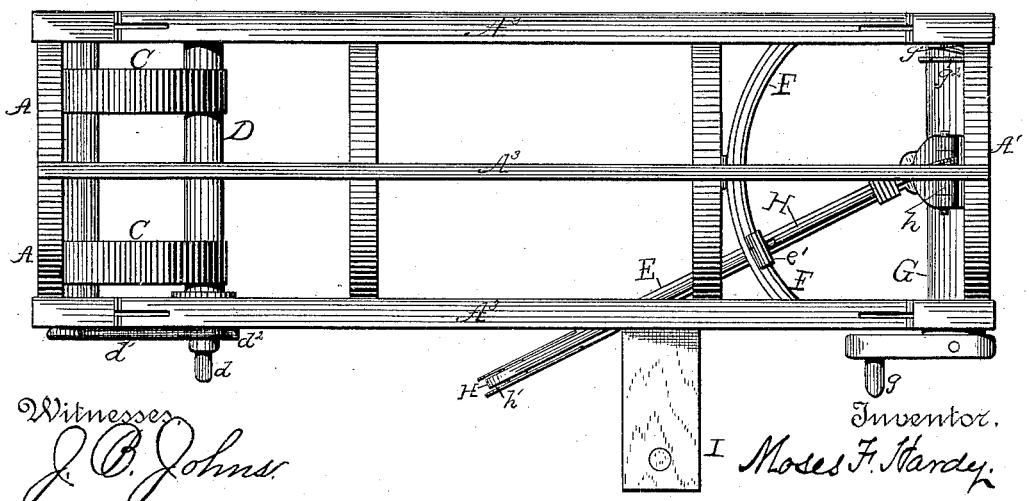


Fig. 1.

Fig. 2.



Witnesses.
J. B. Johns.
Wm. F. Brereton.

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Moses F. Hardy.
By his Attorney
Henry Wise Garnett.

(No Model.) 2 Sheets—Sheet 2.

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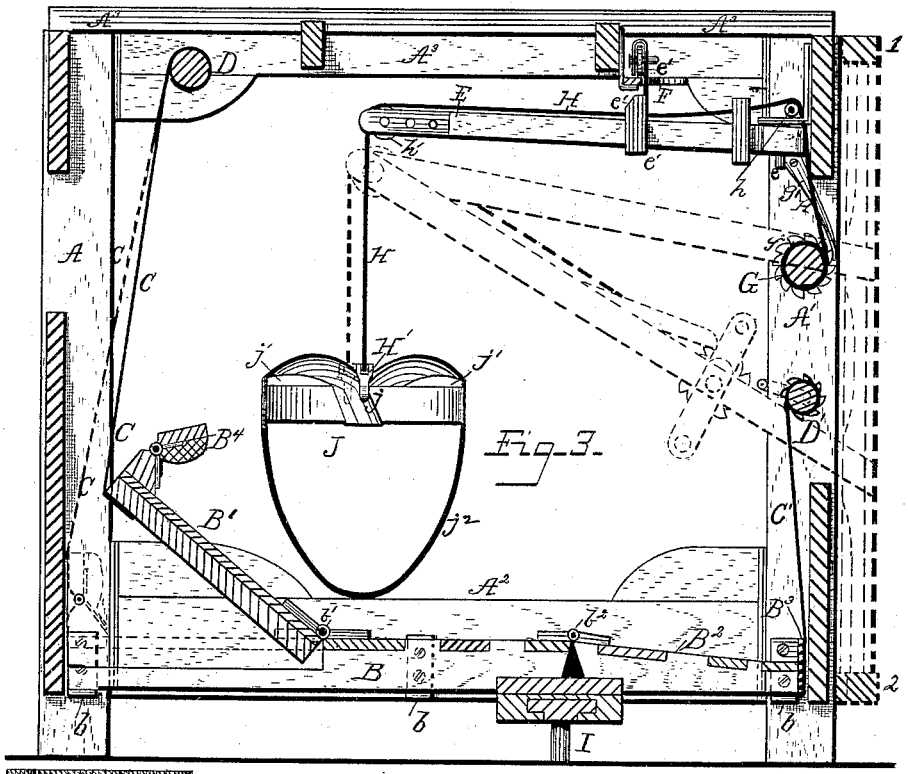

Fig. 3.

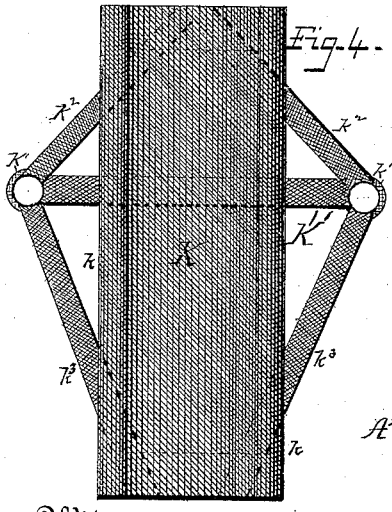

Fig. 4.

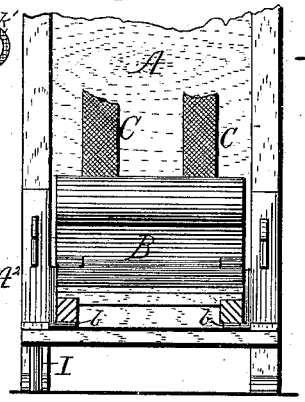

Fig. 5.

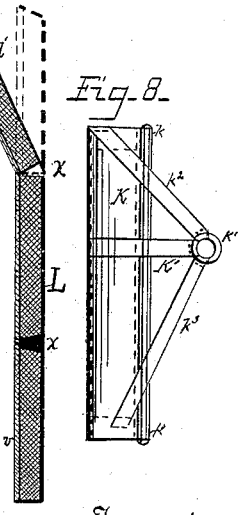

Fig. 6.

Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

MOSES F. HARDY, OF REMSEN, NEW YORK.

INVALID-BEDSTEAD.

SPECIFICATION forming part of Letters Patent No. 382,872, dated May 15, 1888.

Application filed September 24, 1887. Serial No. 250,548. (No model.)

To all whom it may concern:

Be it known that I, MOSES F. HARDY, a citizen of the United States, residing at Remsen, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Invalid-Bedsteads; 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 is an improvement in invalid-bedsteads; and my said invention consists in certain details of construction and arrangement of the parts composing the same, whereby an invalid may be adjusted in bed or removed therefrom without the exercise of great manual labor on the part of the attendant or annoyance and pain to the patient, as will be hereinafter more fully described, and illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation, Fig. 2 a plan, and Fig. 3 a vertical central longitudinal sectional elevation, of an invalid-bedstead constructed according to my invention. Fig. 4 is a detail plan view of the stretcher for raising the invalid while in a reclining position. Fig. 5 is a detail sectional view illustrating the removable bottom of the bedstead. Fig. 6 is a detail view of the mattress, showing the construction of the same. Fig. 7 is a view in side elevation of the sling for raising the patient while in a sitting position, the sling being shown in front elevation in Fig. 3. Fig. 8 is a view in side elevation of the stretcher shown in Fig. 4 in position when raising a patient.

A designates the head and A′ the foot portions of the bedstead-frame, and A^2 the side rails thereof, which are made in removable or separable sections, as is common with ordinary bedsteads, for convenience in transportation and packing. A top, as at A^3, is also provided, whereby the invalid may be entirely inclosed by curtains or netting.

B is the bottom of the bedstead, which is made separable from the frame and rests upon cleats *b*, secured to the side rails, A^2. This bottom B is also made in three sections, B B′ B^2, hinged together at *b′* b^2, and with an angled foot-rest, as at B^3, and in addition to this a hinged head-rest is also provided, as at B^4. Beneath the head portion B′ of the bottom are secured two straps, C C, which extend upward and are fastened to a drum, D, which is supplied with a crank-handle, *d*, and pawl and ratchet *d′* d^2, whereby said head portion of the bed-bottom may be raised, so as to bring the patient to an inclined or sitting posture, and a similar drum and straps, as at D′ C′, are also provided for the foot portion, B^2, whereby it may be adjusted.

To raise the patient entirely from off the bed, an elevating or hoisting crane is supplied at the foot of the bedstead, which is composed of the following parts:

E is the crane-arm, which is pivoted, as at *e*, to the top end of the bedstead, and is supported by a hanger, *e′*, upon a curved way, F. Beneath the rear end of this arm E, in the foot-uprights A′, is journaled a drum, G, having a crank-handle, *g*, at one end and a pawl, *g′*, and ratchet g^2 at the other. To this drum a rope, H, is secured, which extends upward over a roller, *h*, at the inner end of the arm E, and then outward and down over a pulley, *h′*, at the outer end of said arm, and terminates in a hook, H′. If, therefore, the drum G, be turned by the crank *g*, the line H is wound thereon, and with it the patient, who is suspended upon the hook H at its outer end, is elevated. The arm E, over which the elevating-rope passes, being pivoted, it may be adjusted to either side of the bedstead to remove the patient entirely from the bed, should which be done, to prevent the tilting of the bedstead, a rest, as at I, is supplied beneath the bedstead, which may be adjusted upon either side thereof, and thus prevent any tilting of the bedstead upon removing the patient therefrom. As before stated, when removing the patient from the bed, he is suspended upon the hook H′ at the end of the rope H—that is to say, the said hook engages a sling within which the patient rests, and which sling, as shown in Figs. 3 and 7, may be in the form of a yoke, J, to pass around the shoulders and beneath the limbs, so that the patient may be elevated while in a sitting posture; or it may be secured to a stretcher or frame, K, Fig. 4, in which instance the elevation of the patient while in a reclining position is provided for.

The yoke J is composed of a broad strap or

band of some stout material made to fit the form, and with eyes *j* in the top edges to receive the hook H′ of the elevating-rope. From the eyes *j* depends a strap, j^2, upon which the patient sits when being elevated, and at the top is secured a strap, J′, which passes over the shoulders of the patient, and at the rear is secured to the back strap, J, the ends of which are also secured to the eyes *j*, as shown in Fig. 7.

The stretcher K may be of canvas or other flexible material, along the sides of which are secured bars *k*, and beneath which the band K′ passes and is secured, and which band is also provided with eyes, as at *k′*, for the engagement of the hook H′ of the elevating-rope.

k^2 k^3 designate flexible bands or straps which extend from the eyes *k′* to the head and foot, respectively, of the stretcher, whereby the elevation of the same in a horizontal position is assured.

L is the mattress, which is made so as to be capable of being folded—that is to say, the mattress is divided to correspond with the hinged sections of the bed-bottom, as at *l l′*, and to accomplish which the bottom portion only of the covering of the mattress is divided, while the top portion remains whole and acts as a hinge.

Instead of the particular form of crane shown in Fig. 1 being employed, such a one as that illustrated in dotted lines in Fig. 3 may be used, in which instance the bearing therefor is at the top and bottom of the bedstead-frame, as at 1 2; but the form shown in Fig. 1 is preferred, as it occupies less space.

The operation is as follows: To raise the patient to a sitting posture the drum D is operated, whereby the bands C C are wound thereon, which bands being secured to the hinged head-section of the bed-bottom, said portion is elevated, and with it the body of the patient reclining thereon. After adjustment the parts are held in position by the pawl and ratchet *d′* d^2. To remove the patient entirely from the bed, if sufficiently strong to sit up, the sling shown in Fig. 3 is employed, which is placed around the back and shoulders of the patient, whose arms are passed through the openings *j′*, and who sits upon the part or large loop j^2. The hook H′ is now inserted in the eyes *j*, which brings the sling tight around the front of the patient and prevents their slipping out. Upon operating the drum G of the crane E the rope H is wound upon said drum, and with it the elevation of the patient is accomplished, after which the pawl and ratchet *g′* g^2 will hold the parts in place. The patient may now be swung outward upon either side of the bed and placed in an adjoining bed or upon a chair.

If the patient is to be removed from the bed while in a reclining position, the stretcher K, Fig. 4, is slipped beneath him and the hook H′ of the elevating-rope on the crane E engaged in the eyes *k′* of the straps K′ k^2 k^3, to which the stretcher is secured, when, upon operating the drum G, the frame with the patient thereon is raised, and may be adjusted to one side of the bed, if desired, or simply held in an elevated position while a change of the bedclothing is being effected.

By reason of the construction of the stretcher K the patient, while being elevated therein, in addition to having a yielding rest that gives to the form, is securely held from rolling out thereof because of the side bars, *k*, and straps K′, k^2, and k^3, which inclose him at each side. The angularly-placed straps k^2 and k^3, which pass from the head and foot to the transverse strap K′, also act to prevent the stretcher tipping while being elevated, and yet permit such movement, if desired, and there being but a single attachment of the elevating devices to the stretcher, and that, too, at about the center, said elevating devices are out of the way, and the stretcher may also be turned around at will.

By operating the drum D′ so as to drop the foot portion B^2 downward, and at the same time adjust the head portion so as to raise the same upward, the bottom of the bed is made to assume any desired angularity, similar to an easy chair. When made in three sections, the head or foot portions may be adjusted as desired; but said bed-bottom may only be formed in two hinged sections—that is, with the hinged head portion; but should the bottom be in three sections the mattress must be correspondingly made—that is, with two hinges across its middle portion, as at *x x*, Fig. 6.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States, is as follows, viz:

1. In an invalid-bedstead, the combination, with the frame A A′ A^2 A^3, of the crane-arm E, pivoted at *e* to the top portion of said frame midway between the rails A^3, hanger *e′*, secured about midway of said arm E, curved track F, upon which the hanger *e* travels, extending transversely across the bedstead-frame and secured to the top rails, A^3, thereof, drum G, with crank-handle *g* and pawl and ratchet *g′* g^2, pulleys *h h′*, and rope H, with hook H′, all constructed and arranged substantially as described, for the purposes specified.

2. In an invalid-bedstead, the combination, with a suitable frame and means for elevating the patient, substantially such as described, of the sling or yoke composed of a broad band, J, adapted to fit around the back, loop j^2, upon which the patient sits, straps J′, passing across the shoulders and united at the back to the strap J to form the openings *j′* for the arms, and ring *j*, uniting the ends of the straps and forming a means of suspension of the sling, as described, for the purposes specified.

3. In an invalid-bedstead, the combination, with a suitable frame and means for elevating the patient, substantially such as described, of the stretcher K, formed of flexible material, with the side bars, *k*, band or strap K′, secured transversely about midway across the stretcher, head-straps k^2 and foot-straps k^3, extending

at an angle from the outer ends of the strap K′ to the head and foot, respectively, of the stretcher, and ring or eyes *k′*, which unite the ends of the straps and form a means of attachment of the stretcher to the elevating devices.

4. In an invalid-bedstead, the combination, with the side rails, A^2, formed with a slotted guideway transversely across the bottom thereof, of the counter-support I, fitting within said slotted guideway and adapted to be adjusted upon either side of the bedstead, for the purposes specified.

MOSES F. HARDY.

In presence of—
JOSEPH I. FRANCIS,
JOHN P. SAMUEL.