(No Model.)

2 Sheets—Sheet 1.

C. F. REED.

APPARATUS FOR HOLDING AND MOVING INVALIDS.

No. 292,048. Patented Jan. 15, 1884.

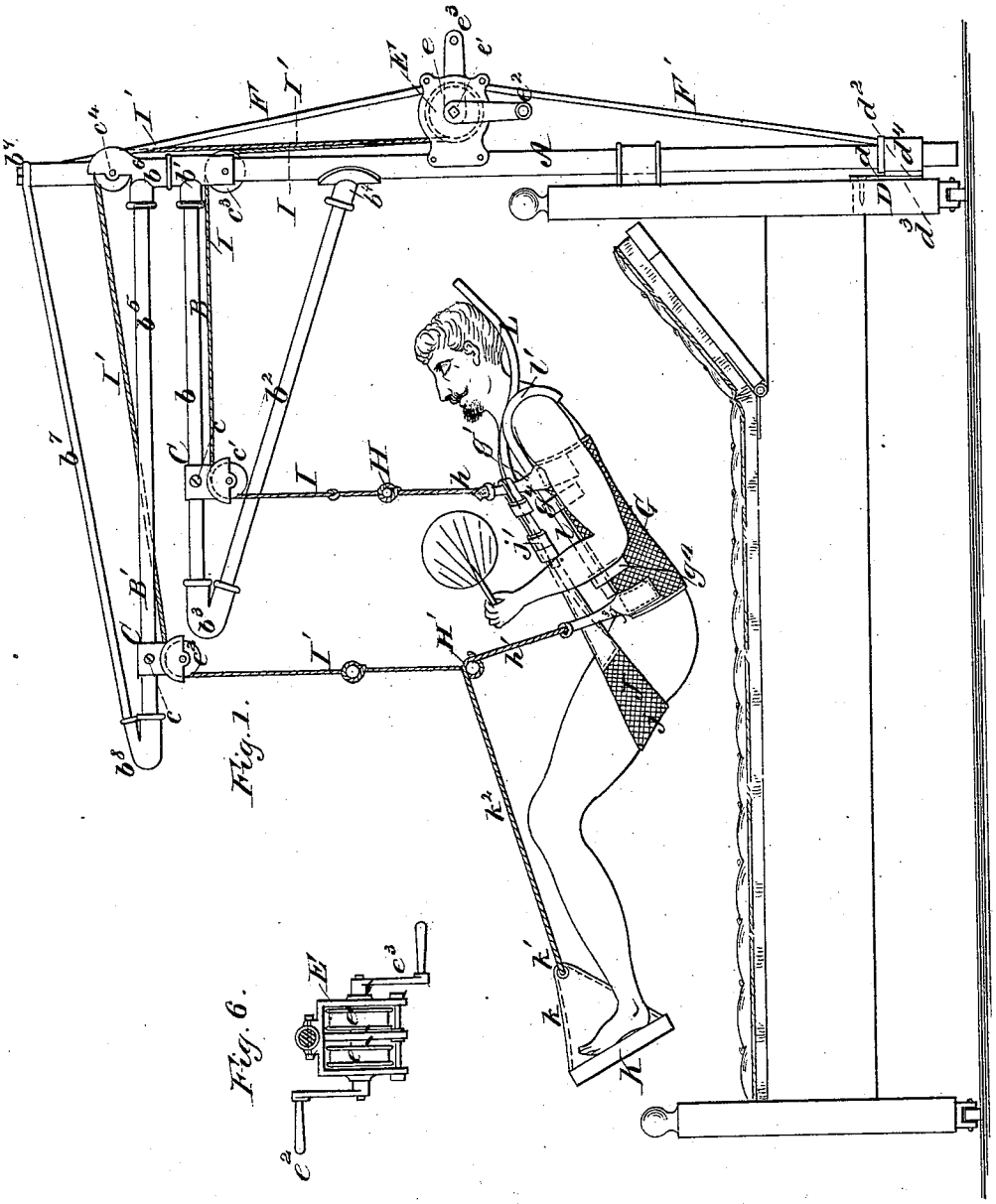


Fig. 1.

Fig. 6.

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(No Model.) 2 Sheets—Sheet 2.

C. F. REED.

APPARATUS FOR HOLDING AND MOVING INVALIDS.

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Fig. 2.

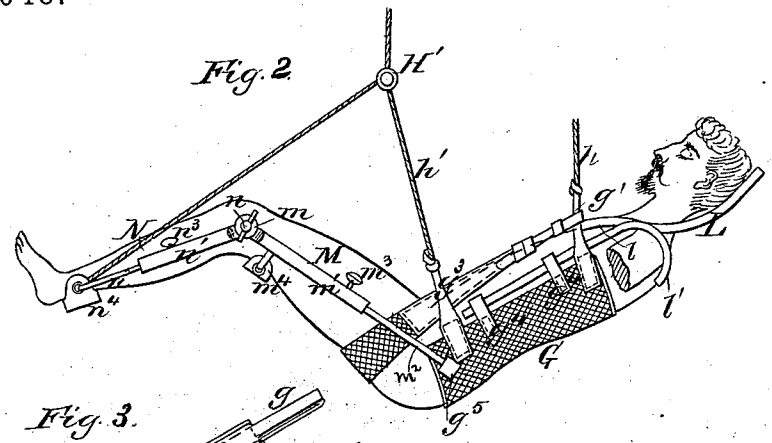


Fig. 3.

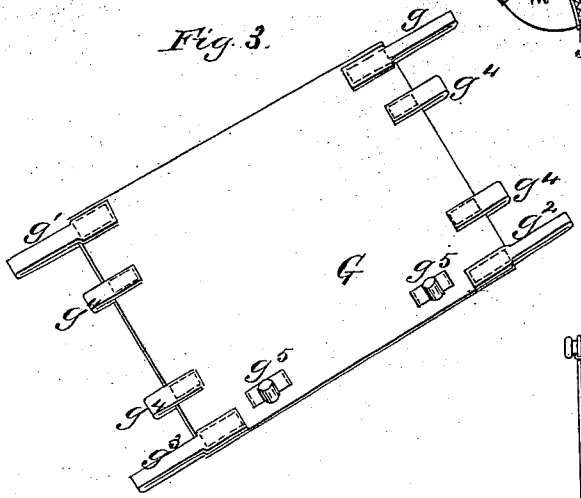


Fig. 5.

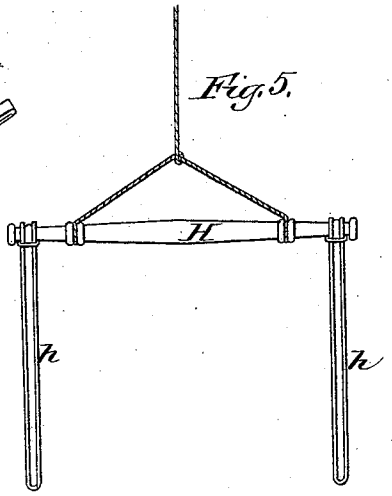


Fig. 4.



Fig. 7.

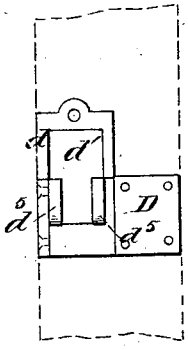


Fig. 8.

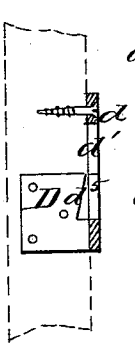


Fig. 9.

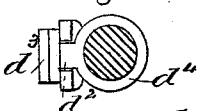
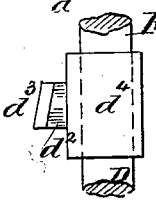


Fig. 10.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR HOLDING AND MOVING INVALIDS.

SPECIFICATION forming part of Letters Patent No. 292,048, dated January 15, 1884.

Application filed September 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. REED, of Brooklyn, county of Kings and State of New York, and a citizen of the United States, have invented an Improved Apparatus for Holding and Moving Invalids, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an apparatus for sustaining and holding in any desired position the body of an invalid, and for changing such position, and for moving the invalid in or from a bed; and my invention consists in such an apparatus composed of the parts and devices hereinafter particularly described, and arranged to operate as and for the purposes set forth.

Figure 1, Sheet 1, is a side elevation of the apparatus embodying my invention. Fig. 2, Sheet 2, is a side elevation of the parts or devices employed immediately in holding and sustaining the invalid's body, and shows, in combination with the frame, hereinafter described, whereby the lower limbs of the invalid are held fixedly in a desired position. Fig. 3, Sheet 2, is a plan or flat view of the part denominated the "jacket" or "back-strap." Fig. 4, Sheet 2, is a similar view of the part called the "thigh-strap." Fig. 5, Sheet 2, is a front view of one of the eveners employed in the apparatus. Fig. 6, Sheet 1, is a front view in detail of the reel device. Figs. 7, 8, 9, and 10 are enlarged detail views of the devices for attaching and pivoting the apparatus to a bedstead, as will be hereinafter at length described.

A is an upright or post, which is pivotally mounted at its lower end, and it is designed to be thus secured upon the frame or post of a bedstead at one of the head-corners of the bedstead, by means of the devices shown in Figs. 7, 8, 9, and 10, to be presently described. Upon the upright A, and extending horizontally from it over the bed, is an arm, B, which is preferably fixed rigidly to the upright. Above the arm B, from the upright A, extends the arm B′, which is somewhat longer than the arm B, and is furthermore arranged to turn freely in its horizontal plane on the upright. It is preferable that the upright A be made of piping, and that the arm B be formed of pieces of piping, the piece b constituting the horizontal arm, as shown, and being united to the upright by means of a T, b', while the piece b^2 constitutes the diagonal brace, being united at the outward end to the piece b by the angle-elbow b^3, and secured to the upright by the flanged union b^4; also, that the arm B′ be composed of the piping b^5, forming the horizontal arm, joined to the T b^6, which latter is passed over the upper end of the upright A, down to and rests upon the shoulder or bearing formed by the T b', thus enabling the arm B′ to be swung round on upright A, as hereinbefore stated, while the piping or rod b^7 constitutes the diagonal brace for the arm B′, said brace extending from the outward end of B′, to which it is there united by the elbow b^8 to the top of the upright A, where it is held by a pin or bolt, b^9, as shown. By this means a light and strong upright and arms—one of the latter being fixed on the upright and the other movable thereon—are secured.

Upon each of the horizontal arms B and B′ is a runner, C, which may be adjusted in any desired place along the arms, and there held by a set-screw, c, as shown, and these runners on the arms B and B′ carry, respectively, the pulleys c' and c^2, and the arm B is provided with a pulley, c^3, at its fixed end, as shown, the pulley being preferably mounted on the upright A, while the pulley B′ is in like manner provided with a pulley, c^4, which may be mounted or have its bearings cast on the T b^6, as shown.

The upright A, carrying the arms, as described, is to be attached to a bedstead, and the preferable means of accomplishing this are shown in Fig. 1, Sheet 1, and Figs. 7, 8, 9, and 10, Sheet 2. Upon one of the corner-legs at the head of the bed are bolted the angle-iron sockets D, the leg of the bed being suitably recessed for this purpose. The face-plate d is cut away, as shown at d', to permit the shank d^2, carrying the wedge-like angular flanges d^3 of the sleeve d^4 to wholly enter the recess, and the face-plate d is provided at its lower portion with the angular flanges d^5, which are wedge like, correspondingly to d^3, so that when the shank d^2 and flanges d^3 have entered the recess they will be enabled to pass downward there-

in, and the flanges d^3 be locked against the flanges d^5. The sleeve d^4 being suitably collared to the lower end of the upright A, the latter is thus securely attached to the bed-post, and is enabled to be readily revolved on its longitudinal axis more or less, as may be desired, working in the said sleeves.

Upon the rearward side of the upright A, and at a convenient height, is fixed a frame, E, in which are journaled the independent reels e and e', respectively, provided with cranks e^2 and e^3. Brace-rods F and F', extending, respectively, upward and downward from the reel-frame to the ends of the upright, may be advantageously employed.

At G is shown the back-strap or jacket, which is composed of a piece or square of stout cloth or webbing, adapted to extend across and around the back of the invalid from about the line of the arm-pits down to the hips, and to extend somewhat around the invalid on each side, as shown in Figs. 1 and 2. Extending from the four corners thereof, and at right angles to the side edges, are arranged the long loops g, g', g^2, and g^3, while intermediate the said loops, on each of the side edges, are the small loops, two or more on each side, as seen at g^4. To each one of the long loops g and g', at the upper end of the jacket, is secured the lower end of a cord, h, and the upper ends of these cords h are attached to the ends of an evener H. The cords h are preferably double, so that they may be slip-noosed to the loops, as shown, and also around the evener, in order that these connections may be readily and easily made. A similar connection is made between the long loops g^2 and g^3 at the lower end of the jacket, and an evener, H', by cords h'. From the evener H a rope, I, extends upward to the pulleys c' on the arm B, and thence along the said arm to the pulley c^3, and thence down to the reel e, to which its end is secured. In like manner a rope, I', extends from the evener H' to the pulleys c^2 and c^4 of the arm B', and thence to the reel e'.

J is the thigh-strap, composed, preferably, of a central piece of cloth or webbing, as at j, adapted to pass under and support the thighs of the invalid, as seen in Figs. 1 and 2, and having at its opposite ends, as seen in Fig. 4, the fastening-straps j', provided with suitable buckles or other detaining devices, and these fastening-straps are passed upward, at either side of the invalid, and above and along the side edges of the jacket, to and around the long loops g and g' at the upper end thereof, as shown, where they are secured by their buckles. By this means the thighs and legs, or the body below the hips, are firmly held and supported, and at the same time the upper edge of the jacket is drawn downward, and the strain in lifting by the rope I is borne by the straps j', and the liability of the jacket G to be drawn upward and cause a binding or cutting of the armpits of the invalid is wholly avoided.

K is a sling or rest for the feet, and is composed of a suitably-padded board, or a webbing, upon which the soles of the feet may be set, and cords k at either side, which pass to an evener, k', from whence a cord or cords, k^2, extend to the evener H'. By adjusting the length of the cord k^2 the position of the legs, with the knees more or less bent, may be fixed.

L is a head-rest composed of a suitable frame and webbing or padding, and curved to fit the back of the neck and head, as shown; and it is carried by rods l, which extend down along the side edges of the jacket G and are passed through and seated in the small loops g^4 on said edges of the jacket. At the upper end of these side rods is a curved arm, l', which passes backward around and over the shoulder, thus preventing the rods from slipping downward, and also assisting to support the weight of the head.

There is also provided a leg rest and brace, as shown in Fig. 2, which is composed of the two sections M and N, which extend alongside the legs of the invalid on the outward sides, and which are hinged together, as at m, at the line of the knees, said hinge being provided with a set-screw, n, as shown. Each of these sections is composed of two parts, the section M, extending along the thighs, being formed of a hollow cylinder, m', and a rod, m^2, the rod telescoping into the cylinder, and there being a set-screw, m^3, to hold the parts in the desired relative position, and the section N, extending from the knees to the feet, being similarly formed of the cylinder n', rod n^2, and having the set-screw n^3. By this means the sections may be lengthened or shortend to adjust them to the legs of the invalid. The section M has a cross-piece, m^4, adapted to support the thighs near the knees, and the section N has a similar cross-piece, n^4, adapted to support the legs at the ankles. These cross-pieces are hinged to the sections. The section M has its upper end on each side seated in a socket, g^5, which is provided for that purpose at the lower edge of the jacket G, while the section N has its lower end fixed to the leg-rest K, and is provided with a cord which extends to the evener H', as shown.

The purpose of this invention is to provide means by which an invalid, that is not only incapable from disease or injury of moving or turning himself in his bed, or removing himself therefrom, but is also sensitive to the touch and handling of attendants in being moved by hand, may be moved into and held and sustained in any desired position in the bed, or may be lifted above the bed or removed therefrom to a chair or other place, or replaced on the bed, without being touched by the hands, and may also be held in any desired position while being moved, and may be moved with ease and celerity.

It is evident that the described jacket, thigh-strap, foot-rest, head-rest, and the leg-braces M N, when constructed and placed upon the patient, as described, will co-operate to firmly

support the body, head, and legs in the desired position, and that by adjusting the several parts in the manner described the attitude may be altered, and then the body again firmly held.

It is also evident that the patient may be lifted up above the bed, without changing the relative position of the parts of his body, by turning the reels *e* and *e'*, and thus drawing upward the suspension-cords; also, that by reeling up the cord I the trunk of the patient may be raised, or by reeling up the cord I' the legs and lower portion of the body may be raised; also, that if it is desired to change the position of the patient on the bed the body may be raised by means of both cords I and I', and then be turned or swung in a horizontal plane by either swinging the upright A on its axis, or by swinging the long arm B' to one side or the other on the upright; also, that the patient may be raised above the bed, and then by swinging the upright to one side the patient may be carried beyond the edge of the bed, and may then be lowered into a chair. The independent motions of the two arms B and B' enable the patient to be lifted, sustained, and moved into any desired position either on or off the couch. Furthermore, the patient may be turned to either side in the bed by slipping the link-cords *h h'* on that side toward the center of the eveners, and then lifting by the suspension-ropes, the tendency then being to cant the body sidewise by the pull upon the link-cords *h* and *h'*, which are on the extremities of the eveners.

In utilizing this invention the upright A, with its arms B B' and their operating devices, may be employed in connection with a supporting-jacket and straps varying in form and structure from those herein described, and the foot-rests, head-rest, and adjustable leg braces and supports may be either dispensed with or be altered in their form and arrangement, as the occasion may require.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the pivotal upright A, the horizontal arm B, fixed on said upright, and the longer horizontal arm B', revoluble independently on the upright, together with the adjustable runners C, carrying the pulleys c' and c^2 on said arms, respectively, the pulleys c^3 of the fixed arm, the pulley c^4 of movable arm, the cords I and I', and the reels *e* and *e'*, and means, attached to said cords, for holding and sustaining the human body, as described, and for the purpose specified.

2. The combination of the upright of piping A, the piping *b*, T *b'*, piping b^2, elbow b^3, union b^4, and the piping b^5, T b^6, rod b^7, elbow b^8, and pin b^9, constituting, respectively, the fixed horizontal arms B and the movable arm B' of the said upright, together with pulleys c', c^2, c^3, and c^4, reels *e* and *e'*, and cords I and I', and a jacket or straps for holding and sustaining a human body, all constructed and arranged to operate as and for the purpose specified.

3. The combination, with the upright A, having the fixed arm B and movable arm B', and the hoisting-tackle described, together with means for holding and sustaining a human body, as set forth, of the angle-plates D, mounted upon the leg of a bedstead, as specified, and having the face-plate *d*, recessed at *d'*, and carrying the flanges d^5, together with the sleeves d^4, having shanks d^2, and lock-flanges d^3, all constructed and arranged to operate as and for the purpose set forth.

4. The combination, with the pivotal upright A, having the fixed arm B and movable arm B', and the hoisting-tackle described, of the jacket G, provided with the side-edge corner-loops *g g'* and g^2 g^3, the cords *h* and *h'*, the eveners H and H', attached to the tackle-ropes I and I', respectively, and the thigh-strap J, composed of the central supporting-part, *j*, and the fastening-straps *j'*, the latter being secured to the loops *g g'* of the jacket, as described, and for the purpose specified.

5. The combination, with the supporting-jacket G, which is attached to the lifting-tackle, and devices described, of the head-rest L, carried by rods *l*, seated in loops g^4, on the edge of the jacket, and the curved shoulder-pieces *l'*, together with the thigh-strap J and its fastenings *j'*, attached to loops *g g'* of the jacket, all as set forth, and for the purpose specified.

6. The combination, with the supporting-jacket G and the thigh-strap J, as described, attached to the hoisting-tackle set forth, by the eveners, of the foot-rest K, its cords *k*, evener *k'*, and adjustable cord k^2, extending to the evener H', as and for the purpose specified.

7. The combination, with the supporting-jacket G and thigh-strap J, as described, carried by the lifting-tackle set forth, of the leg-brace composed of the sections M N, hinged at *m* by set-screw *n*, the upper ends of sections M being seated in sockets g^5 on the jacket, and said section having cross-piece m^4, and section N, having cross-piece n^4, and the sections being adjustable as to length, all as and for the purpose specified.

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