May 3, 1932. E. PHILLIPS 1,856,785

INVALID BED

Filed Aug. 20, 1931

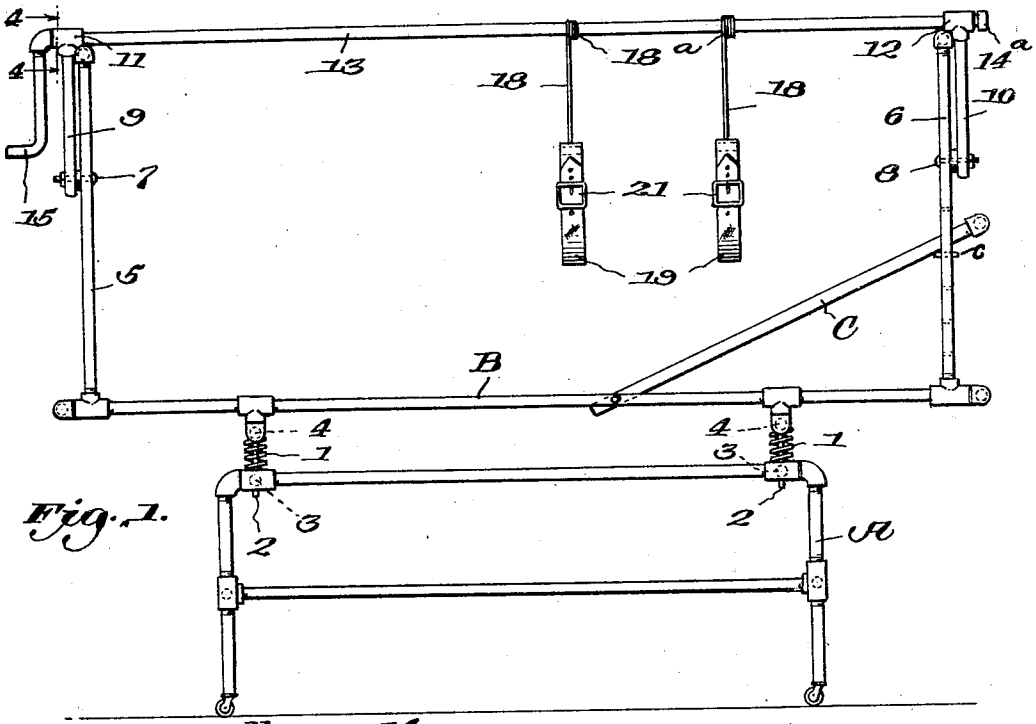

Fig. 1.

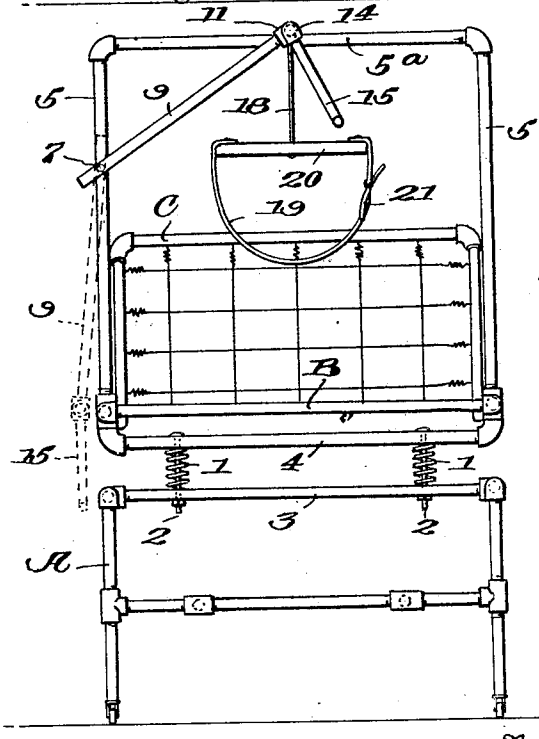

Fig. 2.

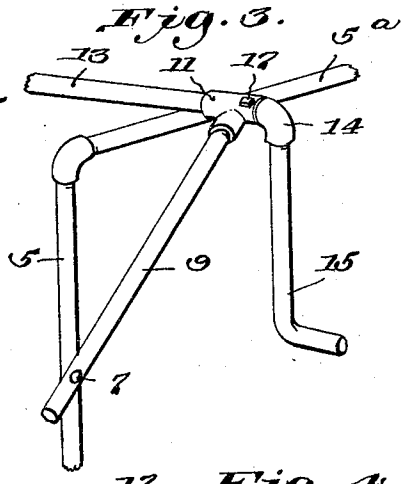

Fig. 3.

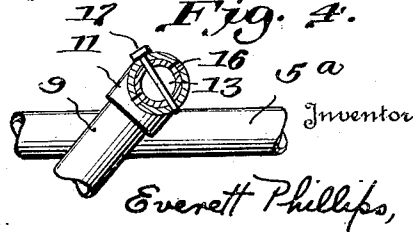

Fig. 4.

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UNITED STATES PATENT OFFICE

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INVALID BED

Application filed August 20, 1931. Serial No. 558,384.

This invention relates to invalid beds and more particularly to means for lifting or hoisting the patient.

Numerous devices for this purpose have heretofore been proposed, but most of them have proven impractical or unsatisfactory in operation.

An object of the present invention is to provide hoisting mechanism which shall be exceptionally inexpensive in construction, and simple and effective in operation.

Another object is to provide a hoisting device of this character which may be readily shifted out of the way to an inoperative position when not required for use. In order that the invention may be readily understood, reference is had to the accompanying drawings, forming part of this specification, and in which:

Figure 1 is a side elevation of an invalid bed showing my improved hoisting or lifting mechanism applied thereto;

Figure 2 is an end view thereof, the inoperative position of the hoisting device being indicated in dotted lines;

Figure 3 is a fragmentary perspective view of one end of my improved hoisting mechanism, showing the operating crank; and

Figure 4 is an enlarged transverse section on the line 4—4 of Figure 1, the adjacent parts being shown in elevation and broken away.

Referring to the drawings in detail, I have shown a construction of bed which I prefer to employ, although it will, of course, be understood that my improved hoisting device can be used in connection with any bed having head and foot boards of the same height.

In the preferred arrangement shown in the drawings, I provide a support or sub-frame A which may be mounted on rollers or the like, and on which the main bed frame B is carried. The bed B is preferably supported on the sub-frame A by means of a plurality of springs 1, shown as helical springs. These are interposed between transverse frame members 3 forming part of the sub-frame and transverse members 4 forming part of the bed frame proper, and the springs may be maintained in position by means of bolts 2 extending through the same and through the frame members 3 and 4.

The bed B comprises the usual spring bottom, the head section C of which may be adjustable into a more or less inclined position, as is usual.

The bed comprises foot and head board frames 5 and 6, each being of rectangular shape, and having an upper cross bar or rail such as 5^a. The bottom section C may be supported in adjusted position by means of a pin *c* fitting into any one of a series of holes in the head board frame 6.

Pivotally secured as at 7 and 8 to one of the vertical members of the head and foot board frames 5 and 6 respectively are a pair of inclined arms 9 and 10. These are pivoted to the bed frames at their lower ends and carry at their upper ends bearing members which may conveniently consist of plumber's T's 11 and 12.

Journalled in these bearing T's and extending horizontally from end to end of the bed is a shaft 13. In practice, it is found that this shaft may conveniently consist of a piece of ordinary wrought iron pipe, and it will, of course, be understood that it is of such size as to pass freely through the T's 11 and 12.

At one end, and at a point just beyond the bearing T, such as 11, a crank 15 is secured to the shaft 13. The means for attaching this crank may conveniently consist of an ordinary plumber's elbow 14, into which both the crank and shaft are screwed.

At the other end, a cap 14^a or the like is preferably screwed to the end of the shaft where it projects through the T 12 in order to secure the parts together. It is desirable to provide means to lock or hold the shaft against rotation, and for this purpose, I have devised the arrangement shown in Figure 4. As illustrated in this figure, the sleeve of the T, such as 11, is provided with a plurality of spaced diametrically opposed pairs of holes 16 and similarly spaced pairs of holes are provided in the shaft 13 where it passes through the T so that these holes may be caused to register. The shaft may thus be locked to the T and held against rotation by

inserting through a pair of aligned holes a locking pin such as 17.

In order to hoist or lift the patient from the bed when desired, I provide a plurality of slings. Each of these preferably consists of a strap or the like 19, having a buckle 21 and secured at its ends to the ends of a rigid cross bar 20 suspended by means of a strap or cord 18 from the shaft 13 around which shaft the strap or cord 18 is adapted to be wound, as indicated at 18[a] when the shaft is rotated. Two of such slings are illustrated in the drawings, and these will ordinarily be sufficient, but obviously any desired number can be employed.

In operation, it will be understood that the straps 19 are placed around and under the patient at the proper points and then, upon turning the crank 15, the cords or straps 18 will be wound upon the shaft 13, and the patient will be lifted or hoisted, as required, and may be held in such elevated position by locking the shaft by means of the locking pin 17.

It will be understood that the weight of the shaft and of the patient is borne by the upper frame members, such as 5[a] of the head and foot boards. So far as the invention is concerned, it is immaterial whether the shaft 13 itself actually rests upon the frame members such as 5[a], or whether the sleeve of the T, such as 11, rests upon the frame member. However, from a practical standpoint, it is preferred that the T itself rest upon the frame member and thus keep the shaft itself out of contact therewith, and this is illustrated in Figure 1. I wish to point out, however, that where, in the specification and claims, the shaft 13 is described as supported on or resting upon the head and foot board frames, it is intended to include both an arrangement in which the shaft itself contacts with the frame and an arrangement in which only the sleeve of the T's contacts with the frame.

From a consideration of the manner in which my improved and simplified hoisting mechanism is constructed, it will be apparent that when it is not desired to use the same, the arms 9 and 10, and with them the shaft 13, may be swung to the left, as viewed in Figure 2, laterally and downwardly into an inoperative position at the side of the bed, as shown in dotted lines. When in this position, it is entirely out of the way, and leaves the space above the bed free and unobstructed. When wanted for use, the shaft and its associated parts can be quickly swung upwardly into position again and will be ready to operate immediately without the necessity for making any adjustments whatsoever or releasing or tightening any screws, clamps or the like.

What I claim is:

1. The combination with a bed having the usual vertical head and foot board frames, of a hoisting device comprising a pair of arms pivotally secured one to the head and one to the foot board frame respectively, at one side of said frames and carrying bearings at their free ends, a shaft journalled in said bearings and supported on the upper edges of said frames, slings suspended from said shaft, and a crank secured to one end of the shaft, by which it may be turned.

2. The combination with a bed having the usual vertical head and foot board frames, of a hoisting device comprising a shaft extending between said head and foot board frames and arranged to be supported thereon, a crank secured to said shaft for rotating the same, slings suspended from said shaft and constructed to be hoisted when the shaft is rotated, and connections between said shaft and bed whereby the former, when not in use, may be shifted laterally and downwardly into inoperative position at one side of the bed and supported from the latter in such position.

3. The combination with a bed having the usual vertical head and foot board frames, of a hoisting device comprising a shaft extending between said head and foot board frames and arranged to be supported thereon, a crank secured to said shaft for rotating the same, slings suspended from said shaft and constructed to be hoisted when the shaft is rotated, and a pair of inclined arms pivoted at their lower ends one to the head and one to the foot board frame, respectively, and having at their upper ends bearings in which said shaft is journalled, whereby, when said shaft is not in use, said arms, carrying the shaft, may be swung on their pivots laterally and downwardly, into inoperative position.

4. The combination with a bed having the usual vertical head and foot board frames, of a hoisting device comprising a pair of arms pivotally secured one to the head and one to the foot board frame respectively, at one side of said frames and carrying bearings at their free ends, a shaft journalled in said bearings and supported on the upper edges of said frames, slings suspended from said shaft, a crank for turning said shaft to wind up said slings, and means for locking said shaft to hold the slings in any desired elevated position.

In testimony whereof I affix my signature.

EVERETT PHILLIPS.