

No. 740,867.

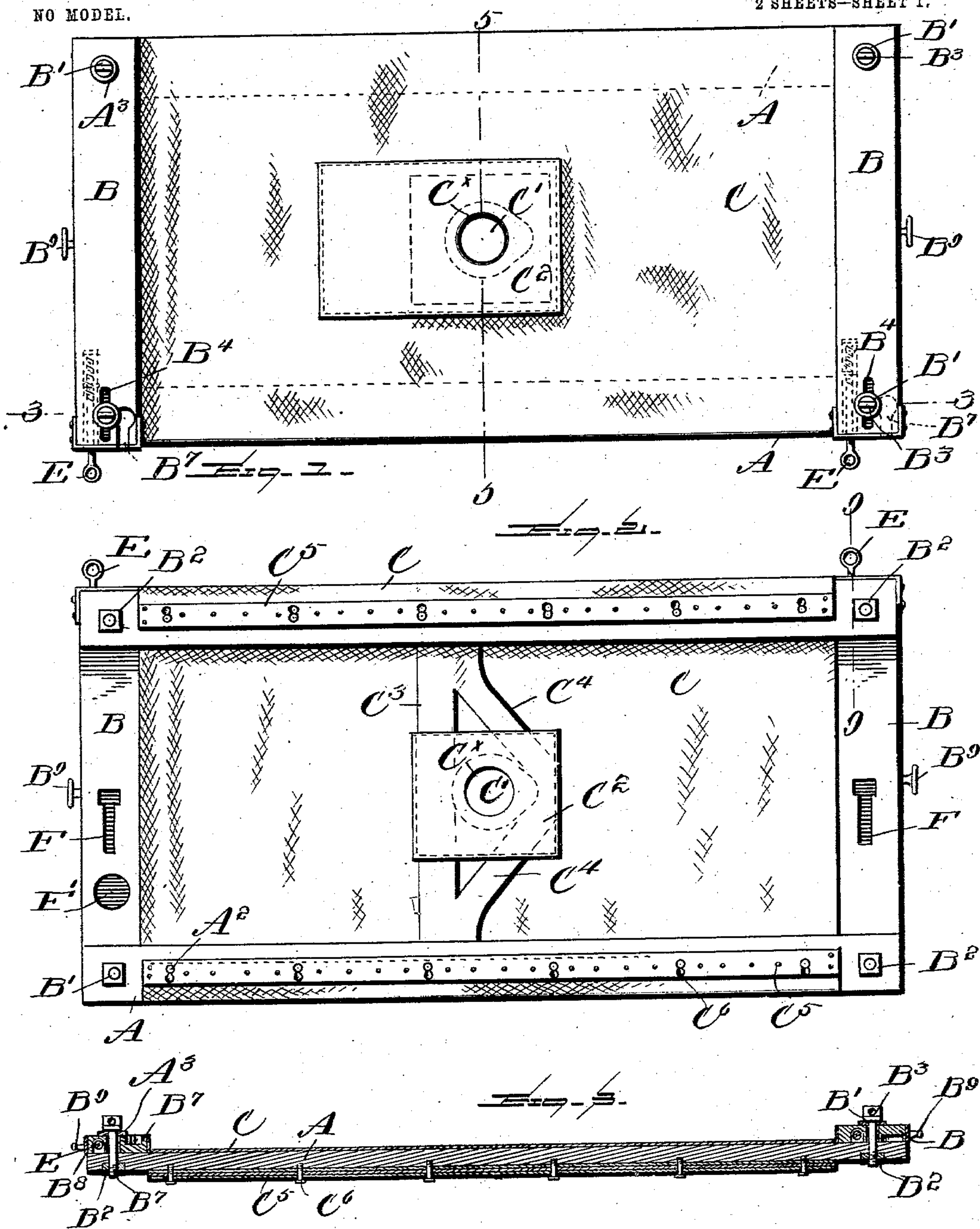
PATENTED OCT. 6, 1903.

R. L. JOHNSON.
INVALID BED.

APPLICATION FILED SEPT. 29, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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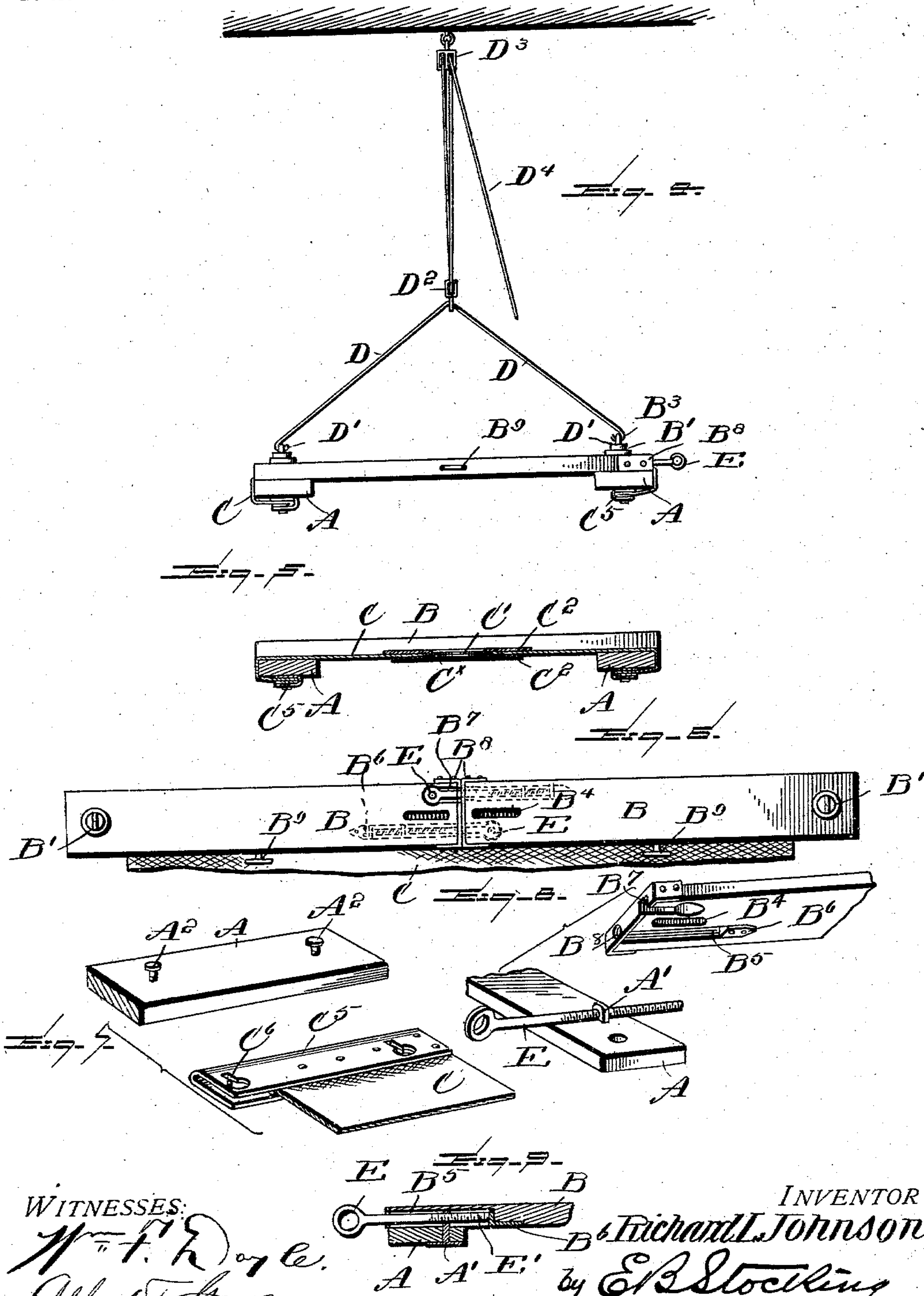
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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

RICHARD L. JOHNSON, OF ROLLA, MISSOURI, ASSIGNOR OF ONE-HALF TO
STUART L. BAYSINGER, OF ROLLA, MISSOURI.

INVALID-BED.

SPECIFICATION forming part of Letters Patent No. 740,867, dated October 6, 1903.

Application filed September 29, 1902. Serial No. 125,185. (No model.)

To all whom it may concern:

Be it known that I, RICHARD L. JOHNSON, a citizen of the United States, residing at Rolla, in the county of Phelps, State of Missouri, have invented certain new and useful Improvements in Invalid-Beds, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to invalid lifts or beds adapted to be packed for transportation and stretched for use.

The invention has for an object to provide a lift adapted to rest upon an ordinary bed and to be raised therefrom to allow defecation of the patient without changing the relations of the patient to this apparatus or any attached fracture apparatus and for remaking or changing the bed whenever desired, and also provides means for stretching the supporting fabric of the lift, so that it will be tense in a single plane, and thereby support the patient in the most desirable and comfortable position.

A further object of the invention is to provide means for adjusting one of the side bars relative to the other for maintaining the fabric of the lift under tension and also means for folding the bars forming the frame of the lift and detaching therefrom the supporting fabric.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings, Figure 1 is a top plan of the invention; Fig. 2, a bottom plan; Fig. 3, a vertical section on the line 3 3 of Fig. 1; Fig. 4, an end elevation showing the supporting means for the lift; Fig. 5, a vertical cross-section on the line 5 5 of Fig. 1; Fig. 6, a plan showing the opposite end bars folded upon the side bar; Fig. 7, a detail perspective of the means for attaching the supporting fabric to the side bar; Fig. 8, a similar view of the adjusting means for one of the side bars, and Fig. 9 a detail vertical section on the line 9 9 of Fig. 2.

Like letters of reference refer to like parts in the several figures of the drawings.

The lift or bed is composed of opposite side bars A and end bars B, connecting the same

at opposite ends, while a supporting body or fabric C, for instance, of canvas, extends from one side bar to the other. One end of each of the end bars is secured to a fixed side bar by means of a bolt B', having at one end a suitable securing-nut B² and at the opposite end an eye B³, adapted to receive the supporting means for the lift, which may be of any desired character—for instance, rods D, having hooks D' extending through the eyes B³ and provided between their ends with a block or pulley D², while a double block D³ is secured to an overhead point of support, so that the lifting-rope D⁴, extending through the blocks or pulleys, may be operated to raise the lift from the bed or support upon which it rests and then secured, for instance, to the belaying-pins B⁹ to maintain the lift in its raised position. The opposite end of each of the end bars is secured to an adjustable side bar by a similar bolt B' and nut B², which pass through a slot B⁴, provided in the end bar, so as to permit a lateral adjustment of the side bar A thereon. For the purpose of securing this adjustment a screw E is provided and adapted to pass through a threaded lug or projection A' upon the cross-bar A, as shown in Figs. 8 and 9, the inner threaded end E' of said screw being adapted to operate in a recess B⁵ in the under face of the end bars B and to abut against a plate B⁶ at the end of said recess. The opposite face of each end bar is also provided with a recess B⁷, adapted to receive the projecting heads of the screws E when the end bars are folded together, so that the end of one bar is lifted and dropped upon the other, as shown in Fig. 6, while this end of each end bar is provided with a guard-plate B⁸, having a guiding-aperture for the screw E. It will thus be seen that a rotation of the screw will adjust the side bar A laterally of the opposite bar to hold the fabric C tightly in a single plane and support the patient without any sagging of the fabric.

At the center of the supporting fabric an aperture or opening C' is provided to allow defecation by the patient without moving the body and by simply raising the lift above the bed, so that a suitable receptacle can be placed beneath the opening. In order to both protect the fabric about this opening

and also protect the patient from the coarse fabric, a waterproof covering C², of any desired material, preferably oil-cloth, may be stitched to the opposite faces of the fabric adjacent to the opening C' therein in order to permit its removal whenever desired. The opening in the oil-cloth is of less diameter than that in the fabric, so that the extended free edges of the oil-cloth at the opening may be cemented together, as at C^x, to provide a smooth finish and obviate the use of stitching or other securing devices. Upon the under side of the fabric adjacent to this opening bracing-strips C³, of strong cloth, are extended laterally of the frame and similar strips C⁴, disposed diagonally thereto, as shown in Fig. 2, so as to prevent stretching or tearing of the opening, which would allow a slack in the surface of the fabric adjacent to the opening. The edges of the supporting fabric C may be secured in any desired manner—for instance, as shown, they are bound by a metal strip C⁵, having therein buttonhole-slots C⁶, adapted to fit over holding-pins A² upon each of the side bars A, which pins may be adjusted in position. When the bars composing the frame are folded upon each other for transportation, the two bolts B', on one side of the frame, which are removed, may be disposed within properly-shaped pockets F, formed on the under face of the end bars, and the washers or plates A³, removed from these bolts, may be placed within a pocket F', so that when the end bars are swung toward each other upon the remaining bolts B' the upper surface of the side bar A will retain the articles within the pockets, while the projecting heads of the screws E will seat within the aperture B⁷, formed in the end of each bar, as shown in Fig. 6, by slightly lifting the free end of the end bar to spring the screw into the aperture. The adjustable side bar A, which has been removed to permit this folding, may be laid upon the other bars and the supporting fabric wrapped around all of the bars, so as to form a very simple and convenient package, which can be easily transported for use in any place desired.

From the foregoing construction the operation of the invention will be clearly understood, and it will be apparent that the lift may be quickly assembled by any inexperienced person and by the simplicity of its construction and operation is adapted for use in any private dwelling as well as in hospitals and similar institutions. The patient should be laid upon the supporting fabric, so that the end of the backbone will be above, not over, the margin of the aperture and the supporting fabric stretched tightly in a single plane, which holds the patient level, so that an examination by an attending surgeon can be made in the most convenient and thorough manner possible and the patient kept in the same relative position to both the lift and the various surgical ap-

pliances which are attached thereto. The lift is adapted for use above an ordinary bed or couch and to be rested thereon when desired for warmth or change of pressure, but when it is desired to relieve the patient from resting upon the bed for the purpose of treatment or otherwise the lift and patient thereon can be readily raised by means of the block and tackle to permit the treatment or for remaking the bed without disturbing his relations to the lift or to the surgical extension apparatus used thereon whether screws, weights, or Hodgkin apparatus, all of which go up and down with him and the lift. This apparatus is particularly important for use in connection with fractures or broken limbs, in which the patient must be supported in one position for an extended time by stretching the cloth so tense as to hold the patient practically motionless or in a single plane, while the points of pressure are so changed as he is let down on different surfaces as to obviate bed sores and give great comfort.

It will be obvious that changes may be made in the details of construction and configuration without departing from the spirit of the invention and that the invention may be used in various manners for the treatment of invalids as conditions may suggest, it being especially designed to allow the use of various apparatus, whether inclined planes, pulleys, and weights, (Hodgkin apparatus,) or screw extension, all of which can be easily attached to the woodwork of the frame and all of which go up and down with the patient and the lift.

Having described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In a foldable invalid-lift, a fixed side bar, end bars pivoted to the opposite ends of the side bar to fold thereon and lie parallel therewith, an adjustable side bar removably connected with the free ends of the end bars and adapted to lie parallel with the end bars when folded, means for adjusting said adjustable bar longitudinally of said end bars, and a flexible support secured to the fixed side bar and detachably connected to the adjustable side bar so as to form an inclosing wrapper for all of the said bars when nested.

2. In an invalid-lift, a fixed side bar, end bars pivoted thereto at the opposite ends thereof, an adjustable side bar carried by the free ends of the end bars, means for moving said adjustable side bar longitudinally of the end bars, a flexible support carried by said frame and having an aperture therein, a waterproof covering for said support comprising independent sheets secured to the opposite faces thereof and having their free edges extended beyond the edge of the aperture and secured together, metallic strips secured to the edges of said support and provided with slots therein, pins carried by each of the side bars and adapted to enter said slots, reinforcing-strips secured to said support and

extending transversely thereof adjacent to the said aperture, securing-bolts at the intersection of the side and end bars and provided with eyes, a supporting-rod having hooked ends extended toward each other and engaging the bolts at the opposite ends of the end bars, and a block-and-tackle connection extending from said rod to an overhead support; substantially as specified.

3. In an invalid-lift, a frame composed of side and end bars pivoted together at one end, a covering extending between the side bars, threaded lugs secured to one side bar at its opposite ends, and a screw passing through said lugs and bearing against a portion of the free end of each end bar; substantially as specified.

4. In an invalid-lift, side bars, end bars pivoted thereto having a recess therein at their free end, a covering extending between the side bars, threaded lugs secured to the upper face at each end of one side bar, a screw passing through said lugs and bearing against a portion of the free end of each end bar within a recess in the under face of the bar, and a securing-bolt extending through a slot in said end bar for securing the same to the adjustable side bar; substantially as specified.

5. In an invalid-lift, side bars, end bars having a recess therein, a covering extending between the side bars, threaded lugs secured to one side bar, a screw passing through said lugs and bearing against a portion of the end

bar within a recess in the under face of the bar, a securing-bolt extending through a slot in said end bar for securing the same to the adjustable side bar, pivots for the opposite end of the end bars to the fixed side bar to permit the folding of the end bars thereon, and means for removably connecting the covering to the adjustable side bar; substantially as specified.

6. In an invalid-lift, a frame comprising a fixed side bar, end bars pivoted at the opposite ends thereof and provided upon one face with a screw-recess, a receiving-pocket for the head of a screw, and a bolt-receiving pocket; and an adjustable side bar secured to the free ends of the end bars; substantially as specified.

7. In an invalid-lift, a frame comprising a fixed side bar, end bars pivoted at the opposite ends thereof and provided upon one face with a screw-recess, a receiving-pocket for the head of a screw, and a bolt-receiving pocket; an adjustable side bar secured to the free ends of the end bars, a threaded lug carried by said adjustable bar, and a screw extended into the recess in said bar and through said lug; substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD L. JOHNSON.

Witnesses:

S. L. BAYSINGER,
THOS. M. JONES.