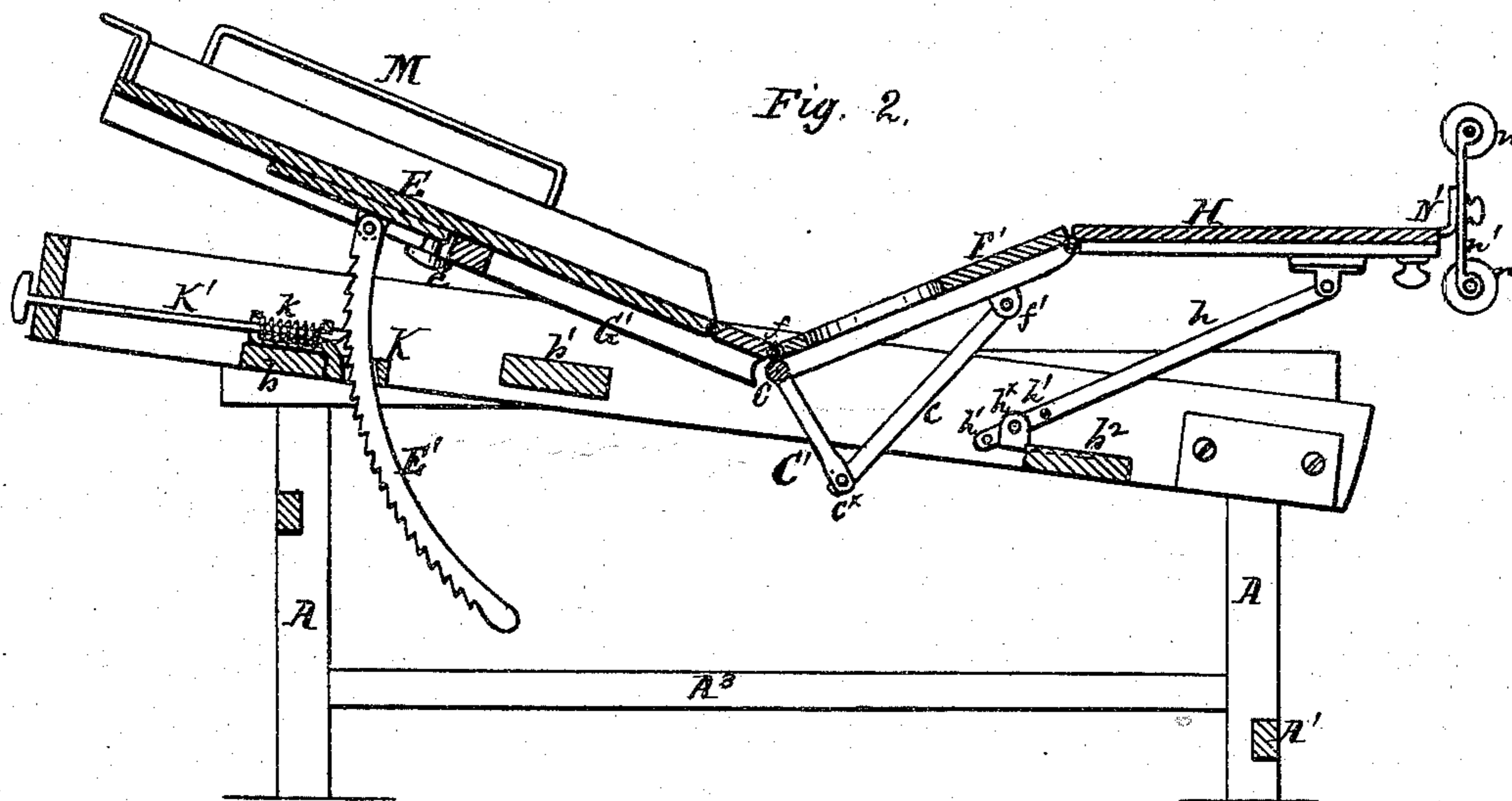
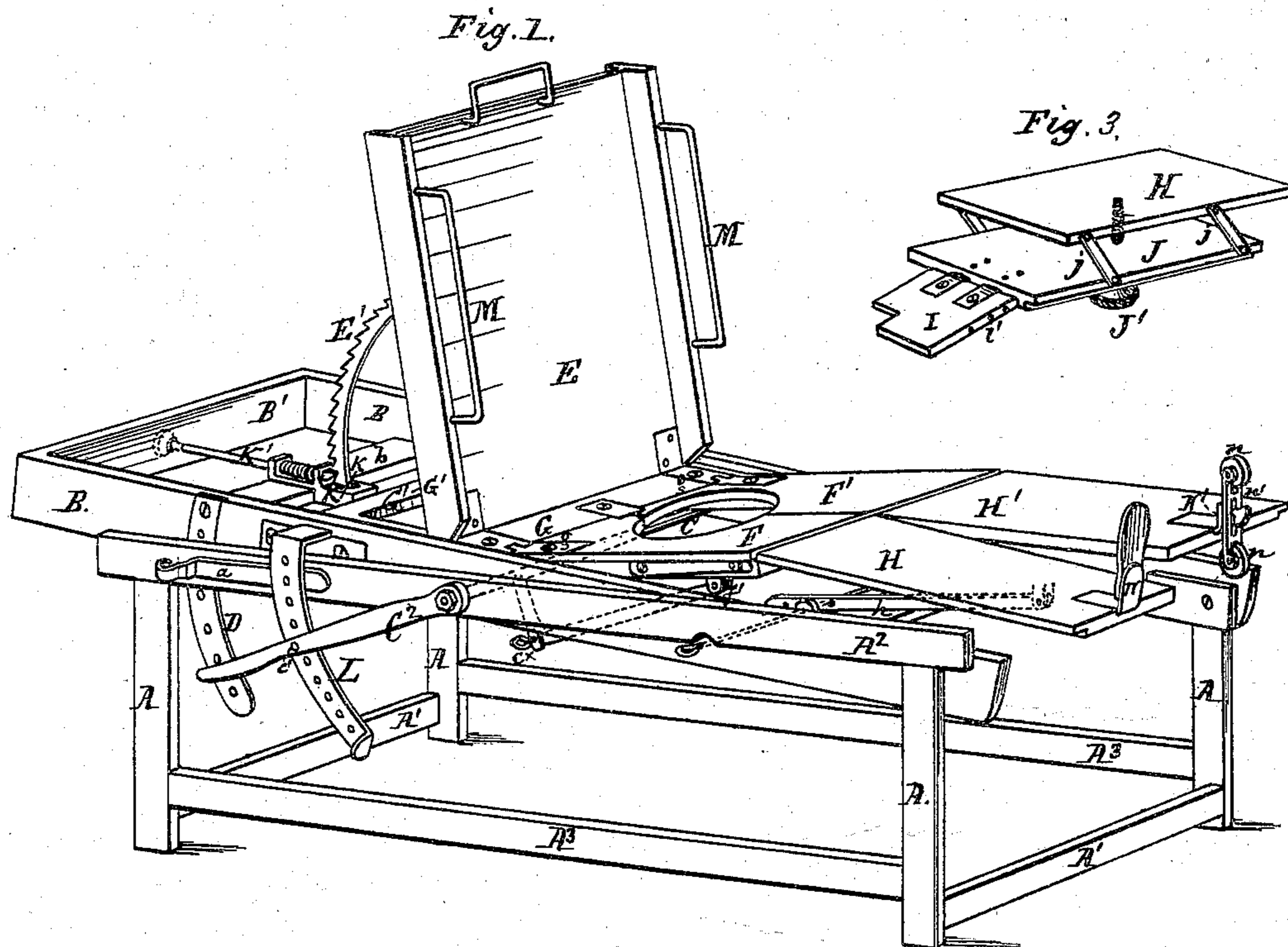


C. M. CLINTON & E. J. MORGAN.
Invalid Bedsteads.

No. 137,596.

Patented April 8, 1873.



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IMPROVEMENT IN INVALID-BEDSTEADS.

Specification forming part of Letters Patent No. 137,596, dated April 8, 1873; application filed February 24, 1873.

To all whom it may concern:

Be it known that we, CHARLES M. CLINTON and EDWARD J. MORGAN, of Ithaca, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Invalid-Bedsteads, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a perspective view of our improved invalid-bedstead. Fig. 2 is a vertical longitudinal section through the same, and Fig. 3 is a perspective view of the double leg-plane detached.

Similar letters of reference denote corresponding parts wherever used.

Our invention relates to a novel construction of the bed, adapting it particularly to the treatment of fractures of the thigh and diseases and injuries of the hip-joint, and also to a more perfect adaptation of the bed to invalids generally; and to this end the invention consists, first, in combining with the independent jointed or hinged thigh and leg planes of a rock-shaft and connecting-links or their equivalents, in such manner that either limb may be elevated, so that, while the fractured limb remains quiet in a horizontal position, the other may be raised and maintained at any desired height above the other upon a level corresponding to the axis of the body. The object of this part of our invention is to fix the pelvis and obtain perfect counter extension by means of the sound thigh, thereby enabling the surgeon to dispense with perineal bands of every description, and to save the patient from the irritation and discomfort which they occasion. The second part of our invention consists in the employment of a double-inclined plane, (see Fig. 3,) composed of two parallel planes connected by parallel links and adjusted by a set-screw or equivalent device in such a manner that, as the planes are separated or adjusted further apart, the thigh-plane is lengthened and the desired extension is effected, affording a convenient arrangement for the treatment of fractured thighs. The third part of our invention relates to the construction of the bed, adapting it to be converted into an invalid-chair, whereby the patient is enabled

readily and easily to change his position from a horizontal to an upright position, and to elevate or depress or vary the position of his lower extremities, as his comfort or convenience may dictate or require. The invention further relates to certain details of construction and arrangement of parts, as hereinafter fully set forth.

In the accompanying drawing, $A A^1 A^2 A^3$ represent the frame pieces or bars of an upright rectangular frame of any suitable construction, A representing the uprights or posts, A^1 the transverse bars, and $A^2 A^3$ the upper and lower longitudinal bars. Within the said frame, and between the upper longitudinal bars A^2 , we place a second rectangular frame, composed of longitudinal parallel bars $B B$, connected by a transverse head-bar, B' , and by any desired number of transverse stiffening bottom slats or bars $b b^1 b^2$. This second frame $B B'$ is supported upon a central transverse shaft, C , mounted in bearings in the bars A^2 of the main frame or bedstead, and may be adjusted on said shaft, and held either in a horizontal position or at any desired angle of inclination by means of a perforated arc or sector plate, D , attached to one of the side bars B , and a pin connected with a spring-plate, a , attached to bar A^2 , the pin passing through said bar A^2 , and made, by the pressure of the spring-plate a , to enter any desired perforation in the arc or sector plate D . Within the frame B , and supported upon or by its several bottom slats or bars, we place what we call the back-plane E , the divided thigh-plane $F F'$, an intermediate extension, G , which may be made part of either the back or the thigh plane, and a divided leg plane or planes, $H H'$, these several planes being connected by straps or other suitable form of hinge, as hereinafter explained. The thigh and thigh-extension plane F, F' , and G are connected with each other by strap-hinges, and with the side bars B by a through-pin, f , and are provided on their under sides with straps or ribs, which, at their adjacent ends, where the thigh and extension planes are connected by strap-hinges g , are hollowed out to embrace between them the rock-shaft C . The thigh-plane is divided longitudinally centrally into two parts, $F F'$,

and to the outer ends of these planes F F' the leg-planes H H' are connected by hinges and an intermediate slide-plate, (see I, Fig. 3,) by the adjustment of which in or out in sockets in the thigh-planes, the leg-planes may be varied in length and held at any desired adjustment by means of a spring-pin or a pin on a spring-plate, *i*, entering any one of a series of holes in the slide shown at *i'*. A modification in or a supplementary means for elongating the leg plane or planes is shown in Fig. 3, where a double plane, J H, having a parallel link-connection, is employed. Thus J is lower plane, which is connected by the strap or slide I with the thigh-plane, as described. To this lower plane or board the leg-plane proper H (or H') is connected by parallel links *j j* in such manner that when the planes J H are brought or folded together, the upper or leg plane will nearly or exactly cover the lower plate or plane J, and where the planes are separated by means of a set-screw, J', or equivalent device, the upper plane H, controlled by its links *j*, will move toward the foot and away from the thigh-plane, thereby effecting the desired extension. The intermediate plane G is connected with a lever-frame, G', which extends underneath the back-plane, and may be connected therewith by a spring-catch or button, *e*, in such manner as to make the plane G form an extension of the back-plane E, as shown in Fig. 2, or said frame may rest on bottom slat *b*¹ when the back-plane is raised, and plane G thus made to form an extension of the thigh-plane, as in Fig. 1.

The means for effecting the desired adjustment of the several planes is as follows: The back-plane E has pivoted to it centrally, on its under side, a segment-rack, E', which passes through a perforated guide-block, K, attached to bottom slat *b*'. K' is a spring-latch sliding in bearings in block K or other suitable support, the shank of said latch extending through the head-bar B, and being provided with a button or handle for convenience in operating. A spring, *k*, surrounding the sliding latch, serves, by its tension, to hold the latch engaged with the rack E' for holding said rack, and the head-plane supported thereon at any desired point of adjustment, as will be readily understood.

The adjustment of the intermediate plane G has already been described. The thigh-planes F F' are each provided, on their under faces, with a perforated lug or ear, *f*', which is connected, by a link, *c*, with an arm, C¹, on the rock-shaft C, as shown, and the movement of said shaft, actuated by a spring-lever arm, C², serves to adjust the angle of the thigh-planes F F', as desired. The lever-arm C² is provided with a pin at *c'*, which, by the tension of the spring-arm C², is made to engage with the perforated arc or segment L for holding the thigh plane or planes at the desired angle of adjustment. Either of the thigh-planes F or F' may be operated independently,

or both may be operated together by connecting either one or both of the links *c* with the rock-shaft C¹, by means of pins at *c*^x. For maintaining the leg planes or supports in lines parallel, or thereabout, with the back-plane E when the thigh plane or planes are thus adjusted, we connect said planes with bottom slat *b*² by means of links *h*, which are arranged so as to operate in connection with the thigh-planes F F' somewhat like the links of a parallel rule, thereby maintaining the leg-plane in a horizontal position, or in a plane parallel, or nearly so, with the frame-bars B. They may be varied somewhat from this parallel relation by lengthening or shortening the links *h*, as provided for by perforations at *h'* and sustaining-pin *h*^x; or these links may be adjusted to correspond with the adjustment in length of the leg-plane H by its sliding-strap connection I. The back-plane E is provided with wire rods or handles M M, by means of which the patient, by placing his hips well on the thigh-plane, can raise the back-plane, and, by the movement of the spring-lever C², he can elevate or depress the lower extremities, thereby enabling him to vary his position from a horizontal to an easy, upright, or inclined sitting posture, as desired. The leg-planes H H' are provided with removable foot-pieces N N', one of which, N', is provided with friction-pulleys *n n*, applied to a slotted vertically-adjustable plate *n'*, through which, by means of a cord running over the pulleys and weights applied thereto, any required extension of the fractured limb may be attained.

The adjustment of the several planes, as described, are not only such as to add to the comfort of the patient, but they also greatly facilitate and aid the labors of the surgeon by diminishing the irritation consequent upon the movement of the patient upon the beds in ordinary use.

By the adjustment of the thigh and leg planes, also, the surgeon is enabled to readily lay the sound limb by the side of, and thereby to make an accurate measurement of, the fractured limb without in the least disturbing the fracture, in a manner that will be understood without further description.

Having now described our invention, what we claim, and desire to secure by Letters Patent as improvements in invalid-bedsteads, is—

1. The rock-shaft C for adjusting the thigh-planes F F', in combination with the spring-lever C² and sector-plate L for holding said thigh-planes at any desired adjustment, substantially as described.

2. The rock-shaft C provided with the actuating-lever C², arm C¹, and detachable links *c*, in combination with the longitudinally-divided thigh-planes, whereby either or both of said planes may be adjusted, as described.

3. The longitudinally-divided thigh-planes and links *h*, in combination with the divided leg-planes for adjusting said leg-planes, as described.

4. The double leg-plane J H, in combination

with the parallel links or rods *j* and set-screw *J'* for effecting the extension of the leg-plane, as described.

5. The tilting-frame *B*, in combination with the sector-plate *D* or rack and spring retaining-pin for holding the tilting-frame, as described.

6. The adjustable back-plane *E*, in combina-

tion with the pivoted rack *E'* and latch *K'* for holding the back-plane, as described.

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