

May 26, 1942.

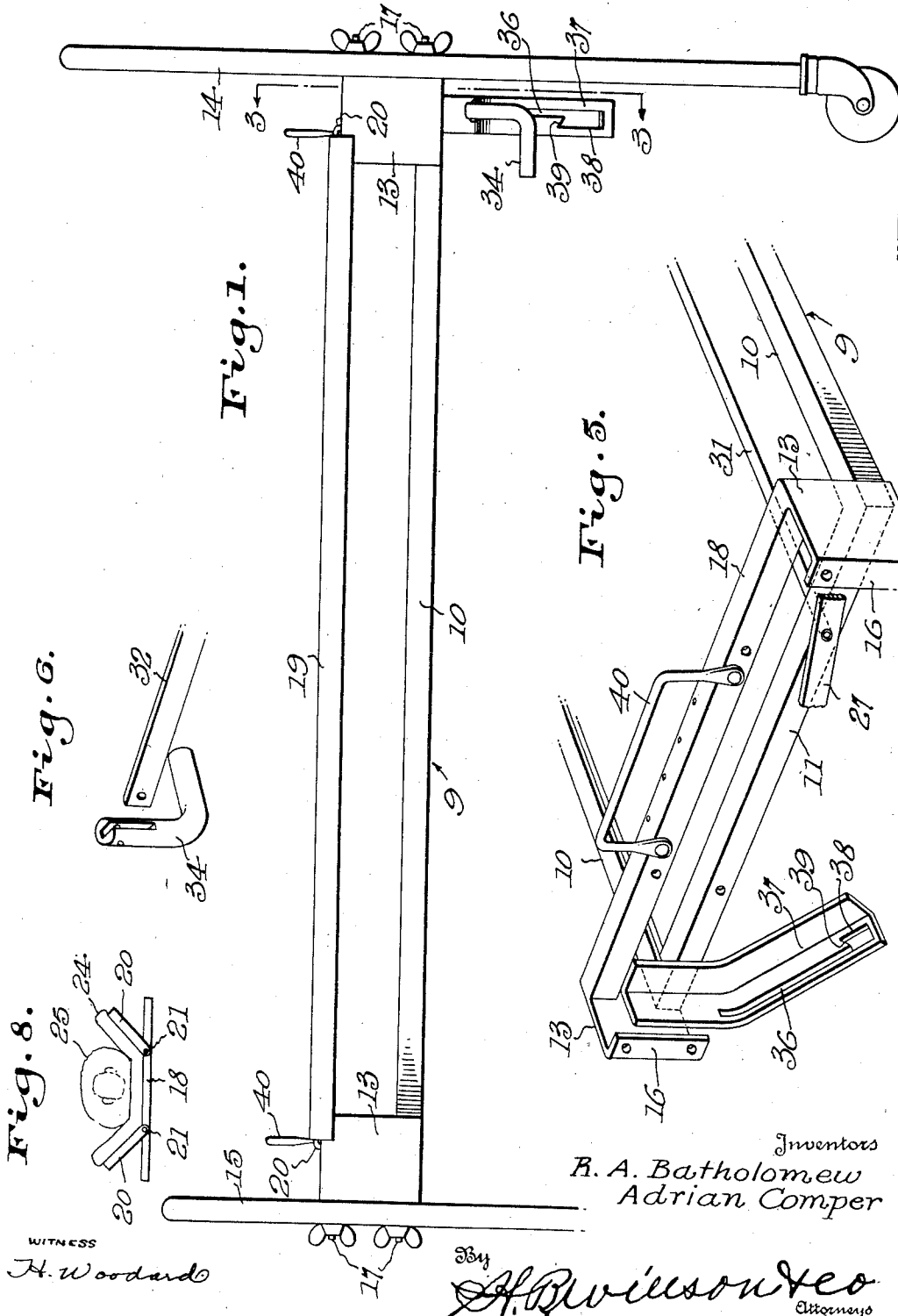
A. COMPER ET AL

2,284,470

LABOR OR SIMILAR BED

Filed March 20, 1941

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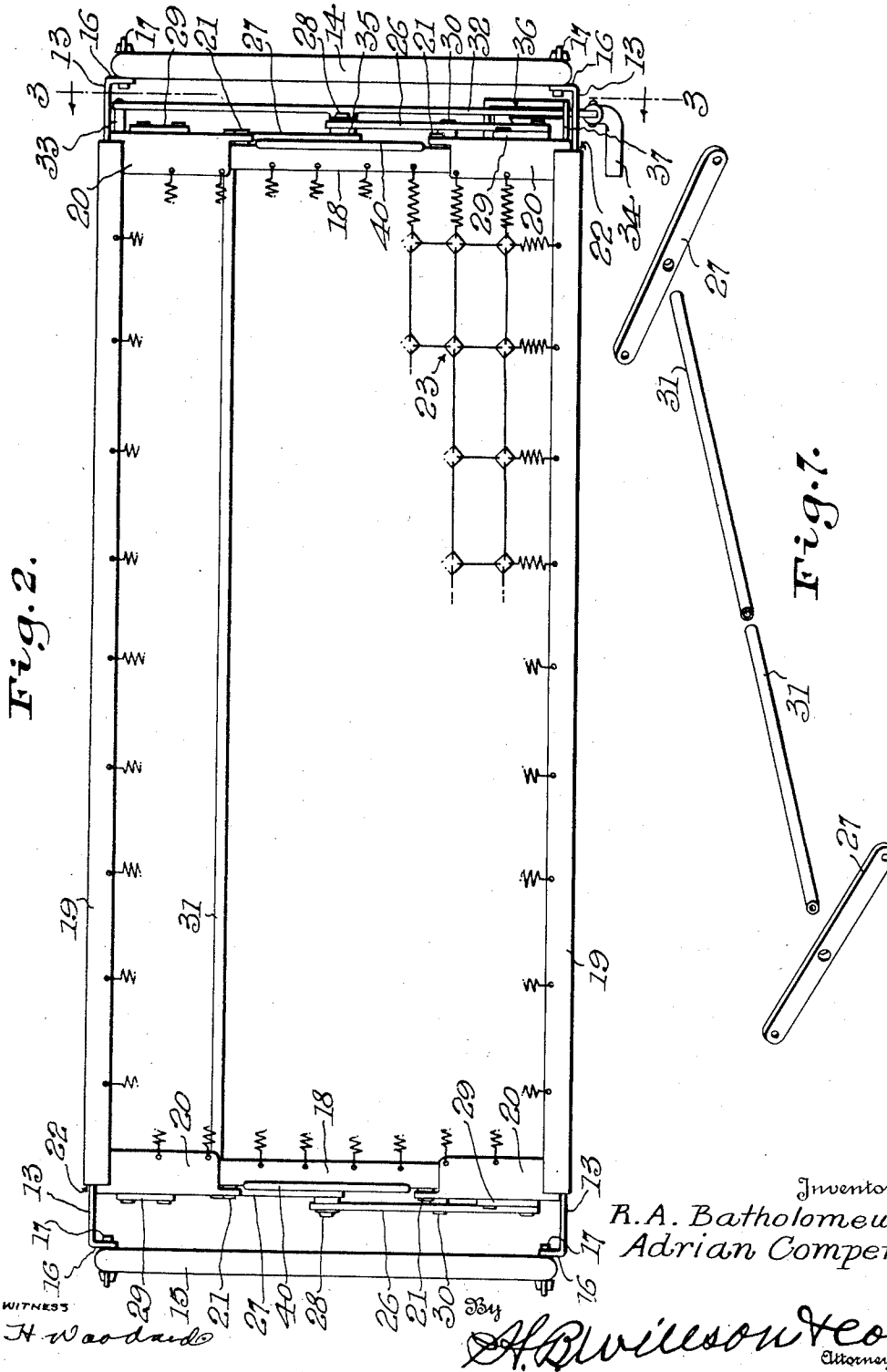
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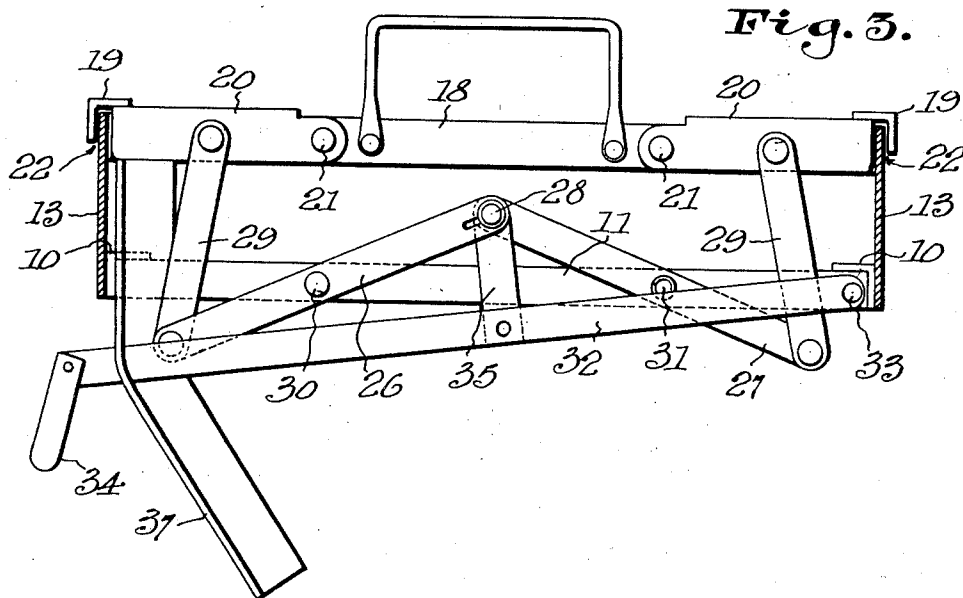
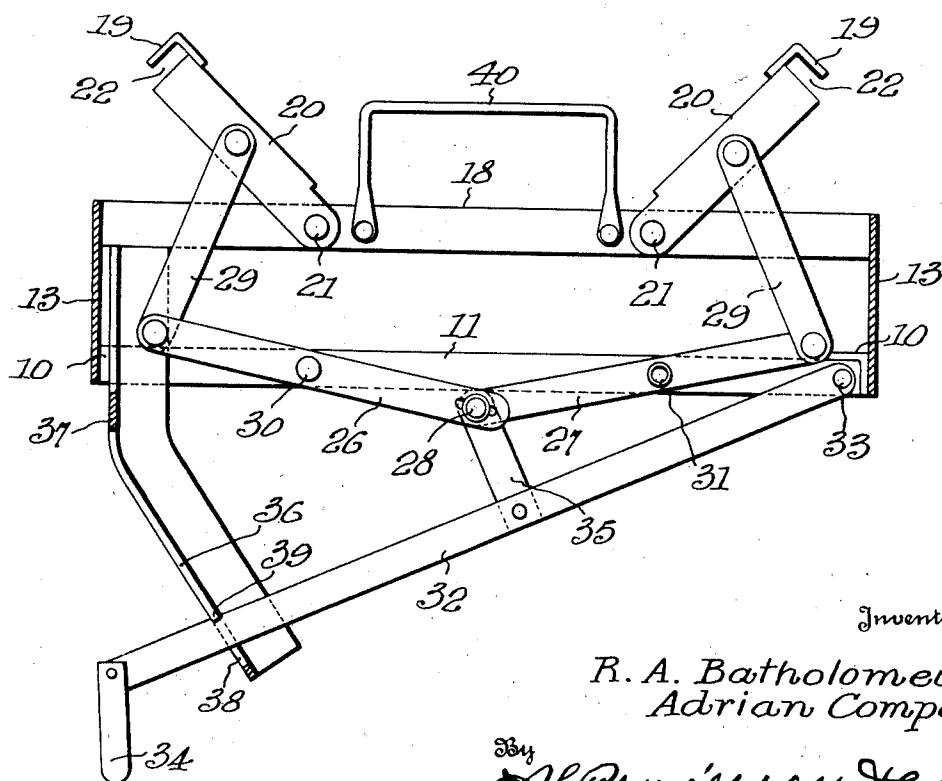


Fig. 4



Inventors

R. A. Batholomew
Adrian Comper

By *H. B. Wilson & Co.*
Attorneys

UNITED STATES PATENT OFFICE

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LABOR OR SIMILAR BED

Adrian Comper, Pittsfield, Mass., and Rudolph A. Bartholomew, Atlanta, Ga., assignors, by mesne assignments, to The American Sterilizer Company, Erie, Pa., a corporation of Pennsylvania

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4 Claims. (Cl. 5—60)

Increasing use of the amnesic method of relief of pain in labor by the use of drugs which obliterate the memory of events in labor, has necessitated more constant nursing supervision of the patient, to prevent infection from self-contamination of the vulva and injury from accidental rolling off the bed.

Mental excitation under this treatment varies with the temperament of the patient and the drugs used, but in some cases the patient may be very restless, trying to sit up and flinging her arms and legs about in forcible, incoordinate movements. During the pains she may subconsciously try to alleviate her discomfort by pressing her fingers against the vulva and thus infect herself unless restrained by the nurse.

Heretofore, accidental rolling off the bed, has been prevented by fastening boards or rails to the sides of the bed or using the crib type of bed with perpendicular metal sides which can be raised into position.

The objections to this type of bed are that the patient may become apprehensive prior to the induction of amnesia by the implied necessity of restraint and after she has been rendered amnesic, she may bruise her arms or legs by striking them against the metal sides. Furthermore, there is the added objection of the interference with the nursing and medical care of the patient, offered by the perpendicular metal sides.

It has been to overcome such difficulties as those above discussed, that the present invention has been devised. With this object in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawings.

Figure 1 is a side elevation of a bed constructed in accordance with the invention.

Figure 2 is a top plan view.

Figure 3 is a vertical transverse sectional view on line 2—3 of Figs. 1 and 2 showing the upwardly swingable frames of the mattress-supporting means in lowered position.

Figure 4 is a view similar to Fig. 3 but showing the frames swung upwardly.

Figure 5 is a perspective view showing one end of the rigid frame structure upon which the upwardly swingable frames and their operating means are mounted.

Figure 6 is a fragmentary disassembled perspective view showing the preferred manner of connecting the foot lever and its pedal.

Figure 7 is a perspective view illustrating the

manner in which power for raising the upwardly swingable frames is transmitted from one end of the bed to the other.

Figure 8 is a diagrammatic end view showing the manner in which the ordinary hospital-bed-size mattress used on the bed may be converted into a flat-bottom trough to confine a patient upon the central longitudinal portion of said mattress.

A preferred construction has been illustrated and will be rather specifically described, with the understanding, however, that variations may be made within the scope of the invention as claimed.

A rectangular frame 9 is provided, said frame having parallel side bars or rails 10 and parallel end bars 11 welded or otherwise rigidly secured to said side bars. At the four corners of the frame 9, vertical plates 13 are secured to and rise from the ends of the side bars or rails 10, said plates 13 being disposed in planes extending longitudinally of the bed and projecting beyond the ends of said frame 9 for attachment to head and foot frames 14 and 15 of any desired form. It is preferable that the outer ends of the plates 13 be bent laterally inward to provide flanges 16 which may be secured to the head and foot frames 14 and 15 by suitable bolts 17. Additional end bars 18 are spaced well above the end bars 11 and are secured at their ends to the upper ends of the plates 13 by welding or in any other suitable manner. Two additional side bars 19 are disposed well above the side bars or rails 10 and the ends of said additional side bars 19 are provided with inwardly directed arms 20 which normally rest upon the end portions of the upper end bars 18, the inner ends of said arms 20 being pivoted at 21 to said end bars 18 on axes extending longitudinally of the bed, thus permitting upward swinging of the arms 20 and the side bars 19 secured thereto, as shown in Figs. 4 and 8. In the present showing, the arms 20 and side bars 19 are formed from angle iron or steel welded together, and notches 22 are left at the junctures of 19 and 20, to receive the upper end portions of the plates 13 when the two swingable frames (formed by 19 and 20) are in lowered position. These frames carry the longitudinal side portions of a conventional bed spring or other mattress support 23 (see Fig. 2), and the central longitudinal portion of this spring or the like 23 is carried by the central portions of the upper end bars 18. From Fig. 2, it will be seen that the longitudinal edges of the spring or the like 23 are secured in a conven-

tional manner to the upper side bars 19, and that the ends of said spring or the like 23 are similarly secured to the arms 20 and the central portion of the end bars 18. When the frames are lowered, the conventional mattress 24 (Fig. 8) will be in a normal horizontal position throughout its area and when said frames are swung upwardly to substantially 45° to the horizontal, as seen in Figs. 4 and 8, the mattress will be converted into the shape of a flat-bottomed trough with its inclined longitudinal side portions in contact with the patient 25 lying upon the central longitudinal portion, the patient being thus confined in the most desirable position and being prevented from rolling off the bed. In the preferred construction, the pivots 21 are spaced inwardly from the edges of the mattress a distance substantially equal to one-third the width of said mattress. Thus, when the frames (formed by 19 and 20) are upwardly swung, the outer two-thirds of the mattress will coact with the central third in forming the trough-like support to confine the patient as fully indicated in Fig. 8.

There are two levers 26 and 27 at each end of the frame 9, said levers being disposed transversely of said frame at the outer sides of the lower end bars 11. These levers are fulcrumed between their ends to the bars 11, the inner ends of said levers are pivotally and slidably connected with each other as denoted at 28, and the outer ends of said levers are connected by upstanding pivoted links 29 with the arms 20, so that by operation of the levers 26 and 27, the two longitudinal side portions of the mattress may be simultaneously raised or simultaneously lowered, as required. The fulcrums of the levers 26 are denoted at 30 and they may be in the form of rivets or the like. To fulcrum the levers 27, however, we have illustrated a longitudinal rock shaft 31 which passes through suitable openings in the end bars 11 and is welded or otherwise secured to said levers 27. Due to this rock shaft, it is insured that operation of the levers and links at one end of the bed will occur simultaneously with operation of the corresponding links and levers at the opposite end of said bed.

For the purpose of operating the levers 26 and 27 and the connected links 29 at one end of the bed, we have disclosed a foot lever 32, one end of which is fulcrumed at 33 to one of the lower end bars 11, the other end of said foot lever being suitably connected with an appropriate pedal 34. The intermediate portion of lever 32 is linked to the connected inner ends of the levers 26 and 27 by a link 35 hanging from the connection 28 above described. The outer end portion of the foot lever 32 is operable in a slot 36 in an angular bar 37 which is suitably welded to the frame 9, or otherwise secured thereto, and at the lower end of said slot 36, a notch 38 is provided having a hook-like upper end 39. When the parts are in position to support the mattress 24 horizontal, the lever 32 is in the upper end of the slot 36. When the mattress shape, however, is to be converted into the form shown in Fig. 8, it is simply necessary to depress the pedal 34. This moves the parts from the positions shown in Fig. 3 to those shown in Fig. 4 and said parts will be held in these positions when the lever 32 is sprung into engagement with the notch 38. To restore the mattress to horizontal, it is simply necessary to laterally spring the lever 32 out of engagement with the notch 38 and thus permit return of the parts to normal positions.

While it is preferable to tie the mattress to the spring or the like 23 at various points, we also prefer to provide mattress stops 40 on the end bars 18, and said stops may also act as handles when carrying the frame 9 and the parts thereon, disconnected from the head and foot frames 14 and 15.

On admission of a prospective mother to a labor room equipped with the invention, she notes nothing particularly unusual about the appearance of the bed which she is to occupy and thus, she is not frightened nor excited in any manner. When she has reached the stage of labor indicated for induction of amnesia, administration of the desired drug is effected and when the patient begins to sleep, the foot pedal 34 is quietly operated to simultaneously raise both longitudinal side portions of the mattress 24 as seen in Fig. 8, thus forming a flat bottomed trough upon which she is confined in the most advantageous position for periodic examination and for comfort. Obviously, she is now prevented from rolling off the bed and furthermore, she cannot injure herself in any way no matter how violent she may become during sleep, in which connection please observe from Fig. 8 that the edges of the mattress slightly overlap or extend beyond the side bars 19 preventing the patient from striking her hands, wrists, knees or feet against said side bars. Use of the invention not only confines the patient in the most advantageous position for attention by the nurse and doctor but if desired or necessary, the patient may be literally held down in the trough without injury by using rolled-up sheets or suitable canvas straps across chest and legs when restraint is needed. When she is to be taken to the delivery room, the sides of the mattress may be lowered by simple operation of the foot lever and during descent of the upper side bars 19, there is no danger of these bars clamping the hanging sides of the bed clothing against the underlying side bars or rails 10.

From the foregoing taken in connection with the accompanying drawings, it will be seen that novel and advantageous provision has been made for attaining the desired ends, and attention is again invited to the possibility of making variations within the scope of the invention as claimed. Moreover, it is to be understood that the invention is not restricted to use for labor purposes but may be employed for any other purpose whenever advisable.

We claim:

1. In a labor or similar bed, a rigid frame, mattress-supporting means mounted on said rigid frame and having two upwardly swingable longitudinal side frames, two levers below one end of said mattress-carrying means and fulcrumed between their ends on said rigid frame for movement in a vertical plane extending transversely of the bed, said levers having inner ends near the longitudinal center of the bed and outer ends under said side frames, links pivoted to said outer ends of said levers and to said side frames for upwardly swinging the latter when said levers are operated, means pivotally connected with said inner ends of said levers for operating said levers, and releasable means for holding said last named means in the position which it occupies when said side frames occupy their upwardly swung positions.

2. In a labor or similar bed, a rigid frame, mattress-supporting means mounted on said rigid frame and having two upwardly swingable lon-

5 longitudinal side frames, two levers below one end of said mattress-carrying means and fulcrumed between their ends on said rigid frame for movement in a vertical plane extending transversely of the bed, said levers having inner ends near the longitudinal center of the bed and outer ends under said side frames, links pivoted to said outer ends of said levers and to said side frames for upwardly swinging the latter when said levers are operated, a third link pivoted to and hanging 10 from the inner ends of said levers, a foot lever to which the lower end of said third link is connected, one end of said foot lever being fulcrumed to said rigid frame, the other end of said foot lever being provided with a pedal, and releasable means for holding said foot lever in frame-raised position. 15

3. In a labor or similar bed, a rigid frame, mattress-carrying means mounted on said rigid frame and having two upwardly swingable longitudinal side frames, two levers below one end of said mattress-carrying means and fulcrumed between their ends on said rigid frame for movement in a vertical plane extending transversely of the bed, said levers having inner ends near the longitudinal center of the bed and outer ends under said side frames, links pivoted to said outer ends of said levers and to said side frames for upwardly swinging the latter when said levers are operated, means pivotally connecting the inner ends of said levers, a substantially duplicate pair of connected levers mounted on the other end of said rigid frame and linked to said side frames, a longitudinal rock shaft mounted on said rigid frame and secured to two of the corresponding 35

levers at opposite ends thereof to insure joint movement, means for operating the levers and shaft to upwardly swing said side frames, and releasable means for holding said operating means in frame-raised position.

4. In a labor or similar bed, a rigid frame, mattress-carrying means mounted on said rigid frame and having two upwardly swingable longitudinal side frames, two levers below one end of said mattress-carrying means and fulcrumed between their ends on said rigid frame for movement in a vertical plane extending transversely of the bed, said levers having inner ends near the longitudinal center of the bed and outer ends under said side frames, links pivoted to said outer ends of said levers and to said side frames for upwardly swinging the latter when said levers are operated, means pivotally connecting the inner ends of said levers, a substantially duplicate pair of connected levers mounted on the other end of said rigid frame and linked to said side frames, a longitudinal rock shaft mounted on said rigid frame and secured to two of the corresponding levers at opposite ends thereof to insure joint movement, a link hanging from the connected ends of the levers at one end of the bed, a transverse foot lever connected between its ends to said link, one end of said foot lever being fulcrumed to said rigid frame and the other end of said foot lever being provided with a pedal, and means for holding said foot lever in frame-raised position.

ADRIAN COMPER.
RUDOLPH A. BARTHOLOMEW.