H. HIPKOE.

BED.

APPLICATION FILED MAY 18, 1914.

1,151,014. Patented Aug. 24, 1915.

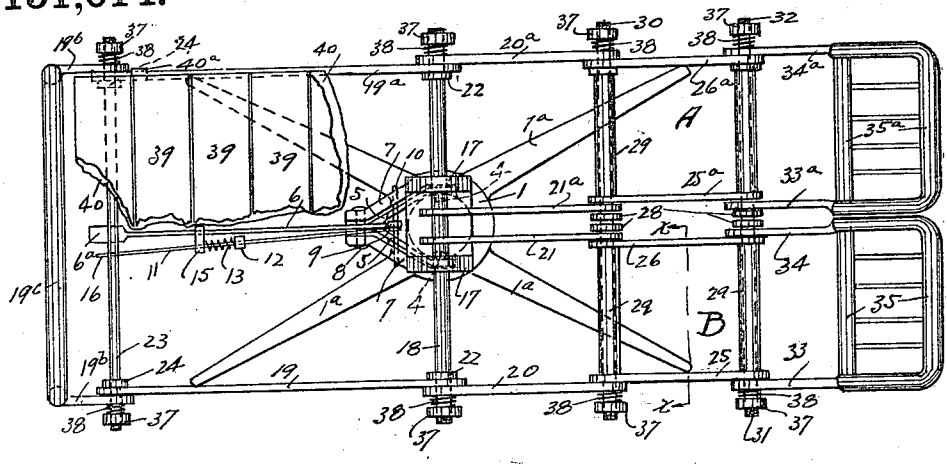


Fig. 2.

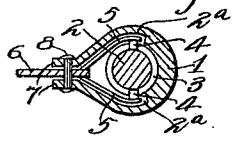


Fig. 4.

Fig. 1.

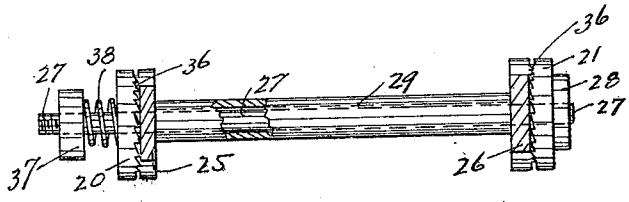


Fig. 3.

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BED.

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To all whom it may concern:

Be it known that I, HETTIE HIPKOE, a citizen of the United States, and a resident of the city of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Beds, of which the following is a full, true, and exact specification.

The principal object of this invention is to provide an adjustable bed for hospital or other uses where it is desired that the occupant shall lie at any desired angle with respect to the horizontal, or that any part of the body of the occupant should be lowered or elevated with respect to his main body.

My invention provides means for inserting a bed-pan, hot-water bottle or the like under the occupant of the bed without raising or otherwise moving him, and the entire bed may be rotated in its horizontal plane, raised or lowered as desired without disturbing the occupant.

The invention will be more fully described in the following specification, illustrated in the accompanying drawings and pointed out in the appended claim.

In the drawings, Figure 1 is a side elevation on my improved bed with one end partially lowered. Fig. 2, is a plan view of the same with all but a fragment of the springs and spring supports broken away. Fig. 3 is a partial sectional elevation of one half of the bed taken through the partially open joint shown in Fig. 2. Fig. 4 is a sectional plan view on the line y—y of Fig. 1.

Referring now more particularly to the drawings, reference numeral 1 designates a support having legs 1^a extending radially from it, and which may be provided with casters such as indicated at 1^d. The said support is of hollow cylindrical form, as shown, the interior of said support being indicated at 1^b. The bottom end of the said support is closed with the exception of the small vent holes indicated at 1^c, which are provided to allow the slow escape of air from the interior of the support 1, as will be presently explained.

2, designates a plunger having the annular groove 3 into which the pins 4 project, said pins being secured to the forked arm 5 of a lever 6 which is pivotally mounted upon the projecting lugs 7 extending from the support 1, by means of a pin 8. The support 1 is channeled as indicated at 2^a, to allow working space for the arms 5.

6, indicates a lever which is provided at one of its ends with a foot-piece 6^a and at its opposite end are teeth 6^b, any one of said teeth being adapted to be engaged by the point 9^a of the pawl 9 which is pivotally supported upon the cylindrical support 1, by means of a pin 10. The said pawl 9 is held into engagement with any one of the teeth 6^b by means of a rod 11, collar 12 and spring 13, the said spring acting against the said collar (held to the rod 11 by a screw 14) and an arm 15 through which the rod 11 passes, the said rod terminating in a handle portion 16. The plunger 2 terminates in a forked head 17 through which a shaft 18 passes. Mounted upon said shaft are links 19, 19^a, 20, 20^a, 21, and 21^a, and to the said shaft collars such as indicated at 22 are firmly secured. Passing through the links 19 and 19^a and the head extensions 19^b, which are integral with the head 19^c, is a shaft 23 to which collars 24 are secured. Passing through the links 20 and 21 and similar links 25 and 26 is a shaft 27 to one end of which is secured a collar 28. A tube 29 which fits loosely over the shaft 27 acts as a filler between the links 25 and 26. A shaft 30 passes through the links 20^a, 21^a, 25^a and 26^a and is equipped in every respect as is the shaft 27. Similarly equipped shafts 31 and 32 pass through the links 25 and 26 and 25^a and 26^a, respectively, and the foot-piece extensions 33 and 34 and 33^a and 34^a, respectively and are equipped similarly to the shaft 27. The said foot-piece extensions are all built rigidly with the foot-pieces 35 and 35^a respectively. The ends of the links 19, 19^a, 20, 20^a, 25, 25^a and 26 and 26^a, and the head and foot extensions 19^b, 30 and 30^a, 34 and 34^a, which come into contact with each other, have their faces scored radially, as at 36 (see Fig. 3). The shafts 18 and 23 are threaded at each of their ends. Shafts 27 and 30 and 31 and 32 are threaded on their outer ends only to receive the hand nuts 37 which force the compression springs 38 against the various links, which links are held from sliding along their shafts by the collars 22 and 24 attached thereto. On the shafts 27, 30, 31 and 33 the inner pairs of links are held in contact by means of the hand nuts 37 acting against the springs 38, the said springs acting against the outer pairs of the links which bear against the tubes 29 loosely fitted over the shafts. The inner pairs of links are thus securely held

between the tubes 29 and the collars 28. The mattress is in convenient sections, as is plainly shown, and each section is composed of springs 39ª and padding 39ᵇ, and the various sections of the said mattress rest loosely upon supports 40 which are carried by the links hereinabove referred to by means of forked legs 40ª which straddle the various links and are integral with the support 40.

From the above description it is believed that the construction and operation of my device will be fully understood by others skilled in the art. It is obvious that by loosening the hand nuts on any particular shaft that that portion of the bed thus loosened from the scored face of the links will be free to be revolved manually about its shaft as a center to any desired position. By means of a division of a part of the bed along its longitudinal center into separate sections A and B, as shown at the foot-end of the bed, it is possible to elevate either one of the said divisions and depress the other. It is also obvious that by pressing downwardly upon the foot-piece 6ª that the lever 6 will operate about its pivot 8 causing the pin 4, acting in the annular groove 3, to force the plunger 2 upwardly when the pawl 9 will engage any one of the teeth 6ᵇ and hold the said plunger in any desired position. The said plunger may be lowered by first pressing downwardly upon the foot-piece 6ª and then actuating the handle 16 so as to disengage the pawl 9 from the teeth 6ᵇ. By now slowly releasing the foot pressure upon the said foot-piece the plunger will gravitationally descend, being meanwhile cushioned by the impounded air within the interior 1ᵇ of the support 1, the air slowly escaping through the small vent holes 1ᶜ. By releasing the handle 16 at any desired time the pawl point 9ª will again engage some one of the teeth 6ᵇ, thus preventing farther downward movement of the plunger 2. Due to the annular groove 3 and the plunger 2, which is cylindrical in cross section to fit the interior 1ᵇ of the support 1, and the projecting pins 4, it is clear that the said plunger and all its connected parts are free to be manually revolved about the vertical axis of the said plunger. It is also clear that any one, or more, sections of the mattress 39 may be drawn from under the occupant of the bed without disturbing him. Likewise, any one of the sections of the mattress 39 may be replaced by simply thrusting a fresh section under the occupant. This feature of my invention is of obvious advantage because when it is desired to place a bed-pan, hot-water bottle, or the like beneath the patient all that is necessary is to remove a section of the mattress, which provides a space for such bed-pan, hot-water bottle or the like. From the foregoing it is plain that my improved bed will obviate much of the work heretofore necessary in caring for a patient, and at the same time provide a much more comfortable bed than has heretofore been known in the art.

I have shown and described a particular form of embodiment of my invention but am aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of the invention, and I therefore desire to avoid being limited to the exact form shown and described.

Having described my invention, what I claim as new and desire to protect by Letters Patent is—

In an adjustable bed, the combination of a rigid hollow cylindrical support, a rotatable and vertically movable plunger fitted within the said support and to the upper end of which is pivotally mounted the bed frame, the said plunger having an annular groove there around, a forked lever pivoted upon the said support the terminals of which fork enter the said annular groove, means for holding the said lever in its various adjusted positions, said means including teeth upon the said lever, a coöperating pawl upon the said support and a spring controlled rod.

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