

Feb. 7, 1928.

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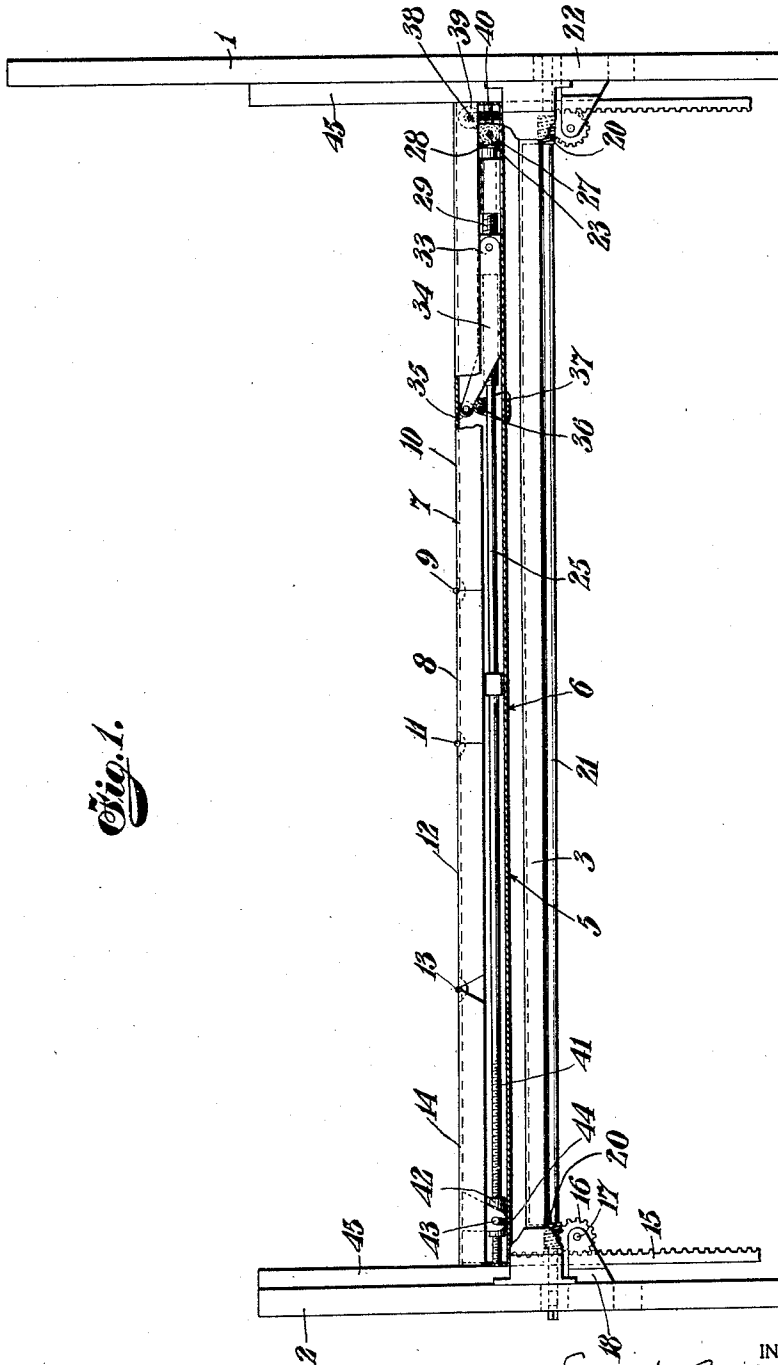
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Fig. 1.



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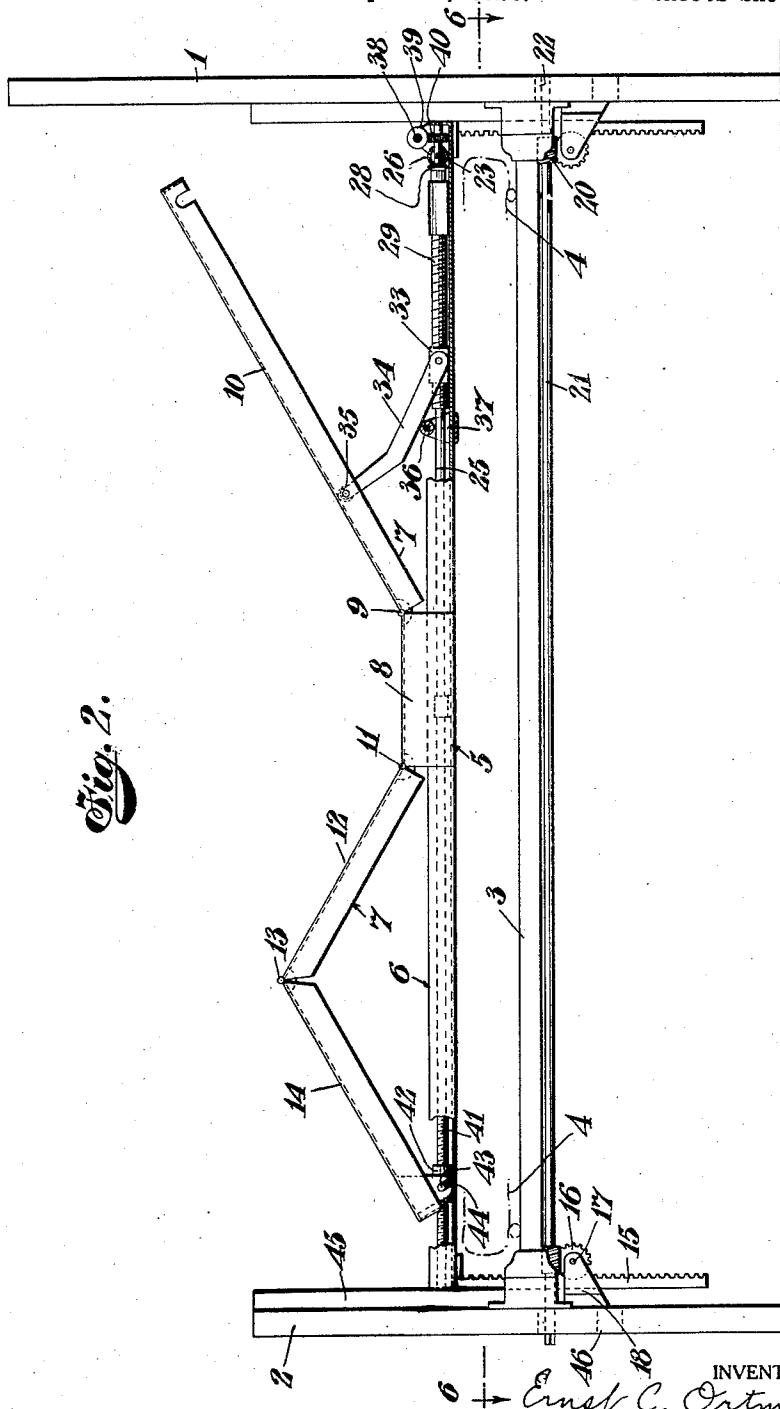
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Fig. 2.



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Fig. 3.

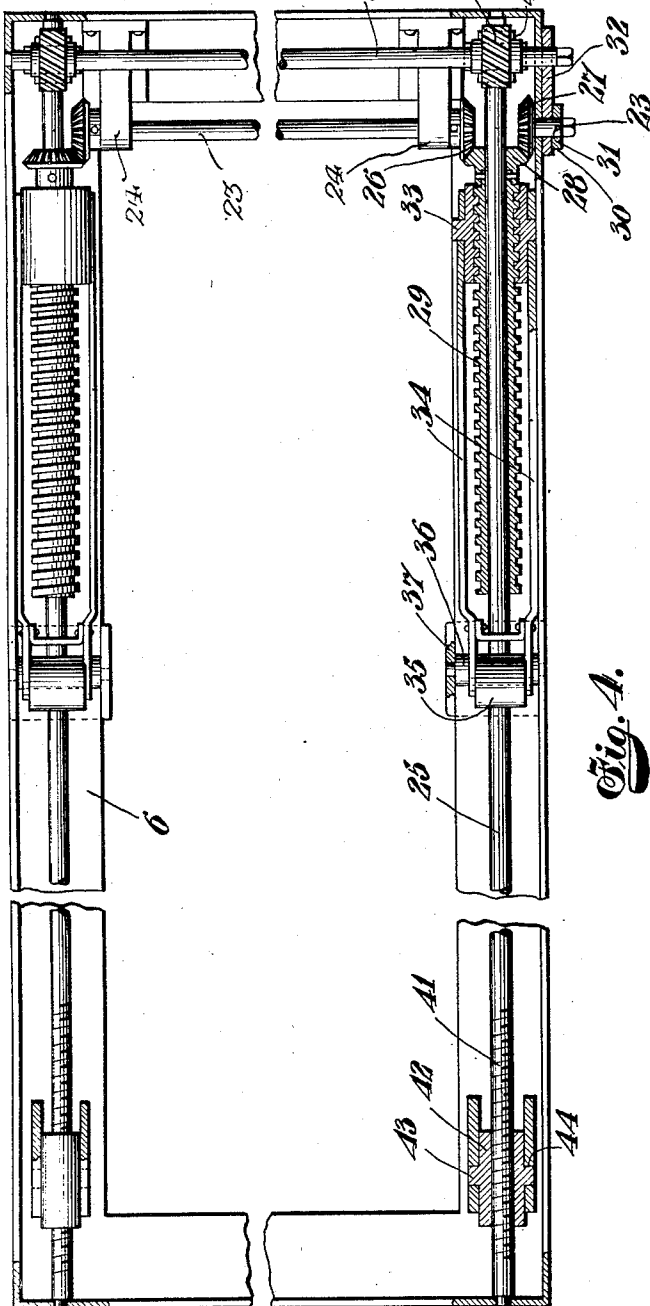
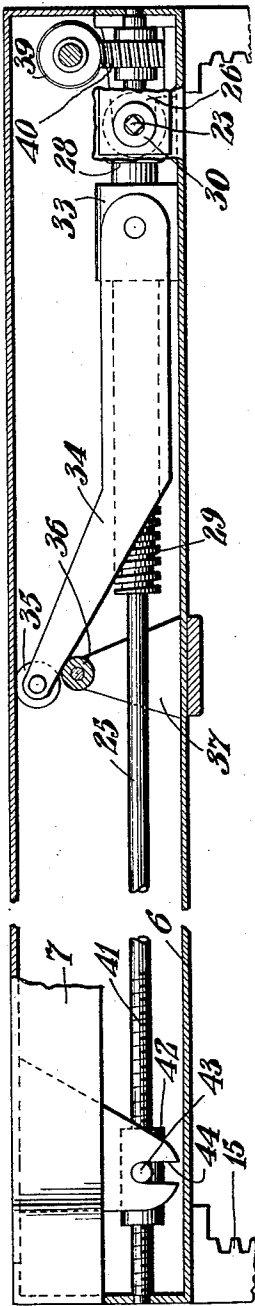


Fig. 4.



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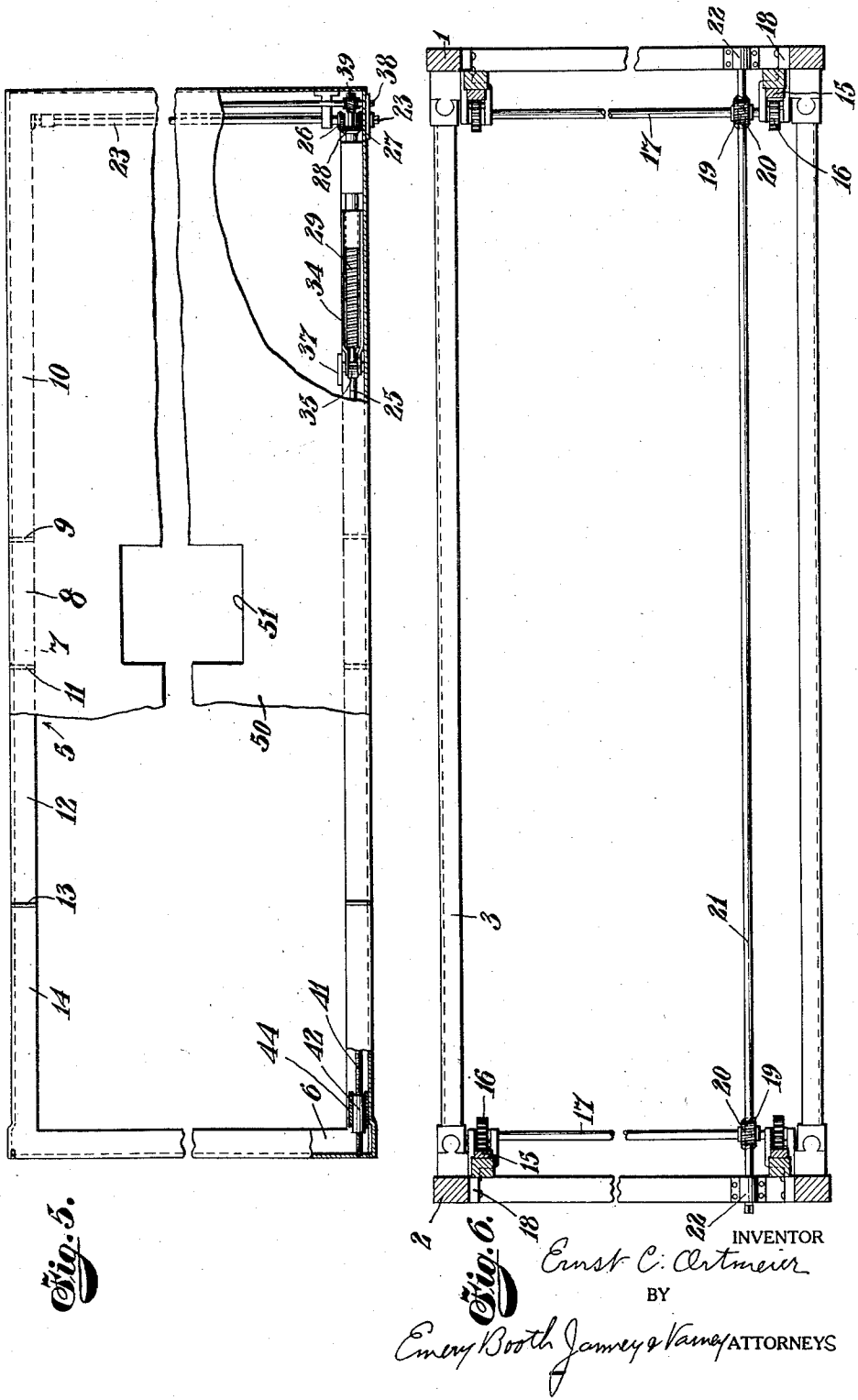
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UNITED STATES PATENT OFFICE.

ERNST C. ORTMEIER, OF CHATTANOOGA, TENNESSEE.

BED.

Application filed September 25, 1924. Serial No. 739,754.

My invention relates to beds. An object of my invention is to provide a bed which will furnish the maximum amount of comfort to the occupant thereof, especially where the condition of his health requires that a large amount of his time be spent in rest.

It is a further object of my invention to provide a bed of such nature that a bedpan may be placed under a patient and removed therefrom after use without any discomfort or soiling of the bedclothes, and without liability of injury to a patient who may have undergone a serious operation, where to move certain parts of the body would be harmful or even dangerous.

It is a further object to provide means whereby a person convalescing from a long illness may be permitted to be raised to any desired angle; hence a patient may be permitted, having been suffering from a long illness, to accustom himself gradually to sitting up, without the annoyance of having to be propped up with pillows.

Further objects and uses of my invention will suggest themselves to those skilled in the art, from the accompanying drawings and description. As one use of my invention is as a cot for hospitals, sanitariums or like institutions the foregoing discussion will be carried on with especial reference thereto, but it is understood that I am by no means limiting myself to such use by this specific reference to it.

In the drawings:

Fig. 1 is a side view of my improved bed, with some parts broken away, showing the auxiliary frame in normal position.

Fig. 2 is a side view showing the auxiliary frame in raised position and the head and foot sections partly raised.

Fig. 3 is a fragmentary plan view, parts broken away, of the lower portion auxiliary frame, showing the interrelation of the mechanisms for raising the head and feet.

Fig. 4 is a plan view partly in section of the front portion of the frame showing the interrelation of the parts.

Fig. 5 is a plan of the top portion of the frame, parts broken away.

Fig. 6 is a section on the line 6—6 of Figure 2.

Referring more particularly to Figs. 1 and 2, 1 represents the headboard of a bed made according to my invention; 2 represents the footboard, and 3 the spring frame upon

which rests the mattress 4. Superposed on the frame 3 is an auxiliary support 5 preferably made in two sections, a stationary frame 6 and a movable frame 7. The frame 7, across which may be stretched sheet canvas or similar material so that a patient may lie thereon, is secured to the portion 6 at 8, substantially in the middle of the bed by being riveted thereto. The canvas or other material may be slit here for the convenience of a patient occupying the bed. Pivoted to the section 8 at 9 is a head and trunk rest portion 10. To the other end of section 8 is pivoted at 11 the thigh rest portion 12. This is in turn connected by toggle 13 to leg rest portion 14.

The support 5 rests on racks 15 placed at each corner of the bed. These racks engage pinions 16 mounted on latitudinal shafts 17. Brackets 18 mounted on the head and foot of the bed act as a bearing for the shafts 17. At the right of these shafts are mounted worm wheels 19 which engage with worms 20 mounted on shafts 21 extending longitudinally of the bed and supported by brackets 22.

A shaft 23 extends latitudinally of the bed near the head thereof and underneath frame 7. This shaft turns in brackets 24 and is broken to permit the passage of longitudinal shaft 25 between its parts. Mounted on this shaft are two parallel gears 26 and 27 arranged so as to mesh with gear 28 mounted on sleeve screw 29, which in turn is rotatably mounted on shaft 25 in such a way that each may rotate freely and independently of the other. The gears 26, 27 and 28 are held together by collar 30 fastened to shaft 23 by screw 31 and firmly held by a piece of metal 32.

Trunnion nuts 33 adapted to slide along the threaded portion of sleeve screw 29 act as pivots for a sliding arm 34 which carries at its further end a roller 35 adapted to support the head rest portion 10.

A second roller 36 supported by bracket 37 is placed at the end of the sleeve screw 29 towards the foot of the bed. This roller acts as a support for the arm 34 and as an aid to the raising of the roller 35.

Placed above and to the right of the shaft 23 is a second latitudinal shaft 38 which engages spiral gear 39 which in turn engages with spiral gear 40 mounted on shaft 25.

The shaft 25 is threaded near the foot of the bed as at 41, and carries bracket 42

slidable on trunnions 43 in slot 44. This bracket 42 is pivoted to the leg portion 14 and its motion along the threaded portion 41 regulates the raising of the portions 12 and 14 by action of the toggle 13.

Between the toothed racks 15 and the head and foot of the bed are guide rails 45 on which slide guides 46 which keep the parts of the frame 5 in alignment and ensure that all portions of the frame 5 or of any section thereof will be raised an equal amount when it is desired to adjust it.

The longitudinal shaft 25 is duplicated on the opposite side of the bed, together with the mechanism it carries and the latitudinal shaft 17 is also duplicated at the foot of the bed. The racks 15, pinions 16, guide rails 45 and guides 46 are found at all four corners of the bed.

The operation of the bed is as follows: When the attendant desires to raise the patient off the mattress he inserts a crank onto the end of shaft 21 the end of which is squared to receive the same and turns in one direction. This brings the rack 18 into motion through its engagement with worm wheel 19 and worm 20 and may be done from any corner of the bed. The guides 46 sliding along guide rails 45 serve to keep all parts of the frame 5 in alignment so the part 5 will be raised an equal distance throughout. The distance the frame is raised is, as will be seen, regulated by turning the crank through a greater or a less arc. To lower the frame the crank is turned in the opposite direction.

To raise the head portion 10, the crank is inserted onto the squared end of the shaft 23, which projects beyond the collar 30. The crank is turned, which throws the gears 26, 27 and 28 into action, turning the sleeve 29 but not the shaft 25. The rotation of the sleeve moves the nut 33 along the sleeve 29. The roller 35 on the end of arm 34 passes over the roller 36 pushing the arm 34 forward and upward, the arm 34 as it passes upward resting on this roller, whereby it is prevented from breaking under the strain and causing the headpiece to fall, thus jarring and perhaps seriously injuring the

patient. The distance through which the headpiece is raised is regulated by the arc through which the crank is turned. To lower, the crank is turned in the opposite direction.

If it is desired to flex the knees the attendant inserts the crank into the shaft 38, which sets the gears 39 and 40 in motion, turning the shaft but not the sleeve. The nut 42 moves along the threads 41 to any desired distance, which again may be regulated by the arc through which the crank is turned. To lower, the crank is turned in the opposite direction as before.

The advantages provided by my novel cot for the comfort of the patient will be readily observed. The easy adjustability of the device, its ability to retain its position without slipping, having been once adjusted, the ease with which a patient may be assisted to accustom himself to sitting up during convalescence and while he is still too ill to be removed from his bed;—all these features combine to make my device highly comfortable and useful.

It is understood that I do not limit myself to the specific embodiment discussed herein, which is merely for the sake of illustration, as it is obvious that many changes in details of the construction may be made within the scope of the appended claim.

I claim as my invention:

In a cot of the type described, in combination, means to raise a pivoted portion adapted to support the head and trunk of a patient, said means comprising an arm carrying at one end a supporting roller arranged to engage the pivoted portion and being pivoted at the other end to trunnion nuts slidable along a sleeve screw mounted on a shaft, and a second roller at the end of said sleeve screw to support said arm when the head and trunk supporting portion is in raised position and to act as a fulcrum for the aforementioned arm, on which it may slide, and means to operate the sleeve screw.

In testimony whereof, I have signed my name to this specification this 12th day of July, 1924.

ERNST C. ORTMEIER.