J. BUCKLEY.

INVALID BED.

APPLICATION FILED JUNE 23, 1915.

1,185,054.

Patented May 30, 1916.

3 SHEETS—SHEET 1.

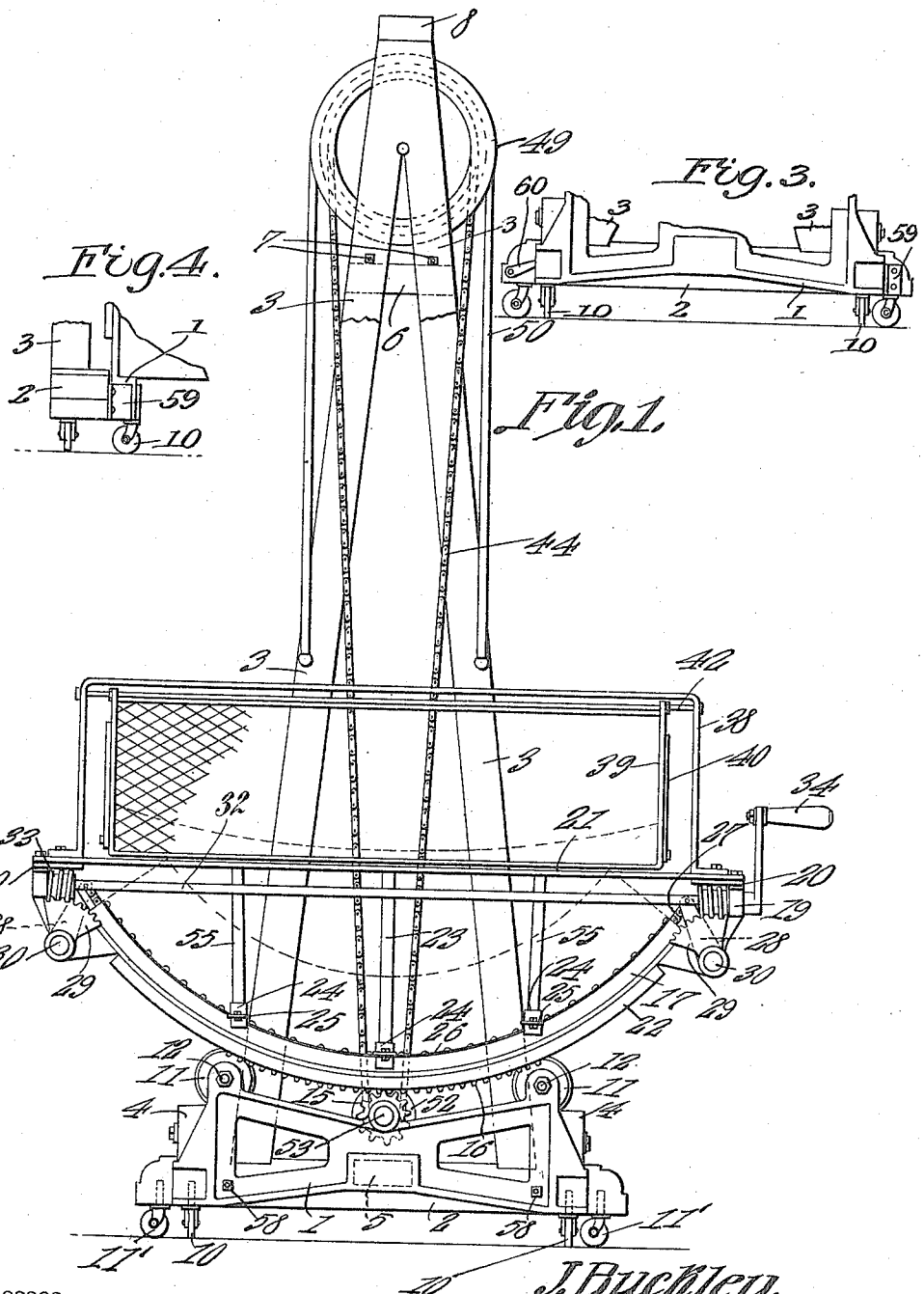

Fig. 1.

Fig. 3.

Fig. 4.

Witnesses

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J. Buckley, Inventor

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3 SHEETS—SHEET 2.

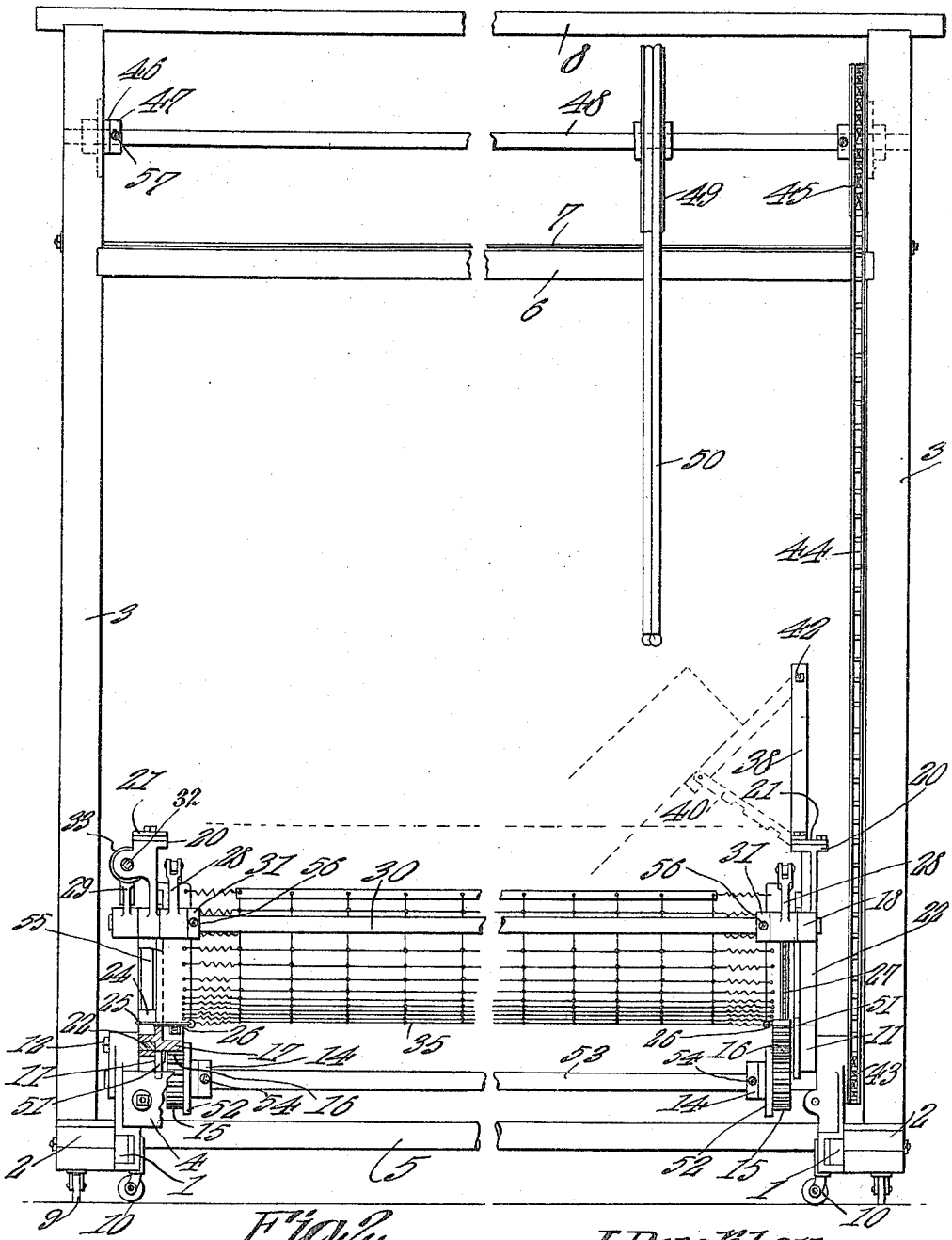

Fig. 2.

Witnesses

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3 SHEETS—SHEET 3.

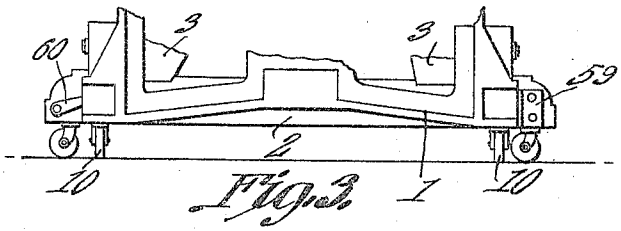

Fig. 3.

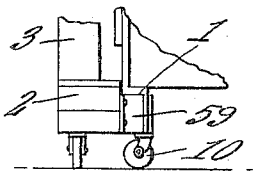

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN BUCKLEY, OF BLUE LAKE, CALIFORNIA.

INVALID-BED.

1,185,054. Specification of Letters Patent. Patented May 30, 1916.

Application filed June 23, 1915. Serial No. 35,907.

To all whom it may concern:

Be it known that I, JOHN BUCKLEY, a citizen of the United States, residing at Blue Lake, in the county of Humboldt and State of California, have invented a new and useful Invalid-Bed, of which the following is a specification.

The device forming the subject matter of this application is a bed, and one object of the invention is to provide novel means whereby a person reclining in the bed may operate the bed by rocking the same, thereby to render easy the shifting of the position of the person in the bed.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawing:—Figure 1 shows the invention in end elevation, parts being broken away; Fig. 2 is a side elevation, parts being broken away; Fig. 3 is a fragmental end elevation showing one means whereby relative transverse movement between the bed supporting frame and the movable frame which carries the operating mechanism may be prevented; Fig. 4 is a fragmental side elevation depicting a portion of the structure shown in Fig. 3.

In carrying out the present invention there is provided a bed supporting frame embodying a pair of end members 1 connected by side sills 4 and by a central sill 5, the end members 1 being equipped with casters 10. Carried by the end members 1 of the bed supporting frame are shafts 12 on which are journaled for rotation supporting rollers 11 equipped at their inner ends with circumferential flanges 51.

The invention contemplates the use of a pair of curved end frames 17, each frame 17 comprising a track 22 resting on the rollers 11, each end frame embodying a rack 16 meshing into pinions 15 having flanges 52, the pinions 15 being mounted on the shaft 53 journaled in the end members 1 and held in place by collars 14 retained by set screws 54.

The extremities of the end frames 17 are denoted by the numeral 20 and secured thereto are transverse tie bars 21. Central guides 23 extend between the tie bars 21 and the curved end frames 17, the central guides 23 being radially disposed with respect to the curved end frames. Located on each side of the central guides 23 are side guides 55 extended between the tie bars and the end frames, the side guides 55 diverging as they extend upwardly, for a purpose which will be set forth hereinafter. Mounted to reciprocate on the guides 23 and 55 are thimbles 24 connected by means of wire loops 25 or in any other suitable manner with end members 26 of a mattress 35, the end members 26 being flexible, and preferably being in the form of steel strips or ribbons. With the end members 26, the mattress 35 is directly connected, the mattress 35 being flexible, but being of any conventional or approved form, as indicated in the drawings.

The flexible end members 26 of the mattress 35 rest upon and may be secured to flexible elements 27 in the form of sprocket chains if desired, the sprocket chains 27 being secured to crank arms 28 mounted on shafts 30 journaled for rotation in bearings 18 on the curved end frames 17, collars 31 being mounted on the shafts 30 and coöperating with the crank arms 28 to hold the same in place, the collars 31 being retained by set screws 56.

Attached to the shafts 30 are sectors or worm wheels 29 meshing into worms 33 on a shaft 32, operated by a crank 34 and journaled for rotation in bearings 19 on one end frame 17. Fixed to and upstanding from one of the tie bars 21 is a head frame 38 carrying a pivot rod 42 on which is mounted to swing a head support 39 provided with pivotally mounted latch arms 40 adapted to coöperate with the tie bar 21 on which the frame 38 is mounted.

A supporting frame for a part of the operating mechanism of the bed is provided, the supporting frame including end sills 2 carrying uprights 3 united by a separator bar 6 and by tie rods 7, the uprights 3 being connected by a cap 8. The end sills 2 are provided with casters 11′ so that the frame may be trundled about readily.

Bearings 46 are mounted on the uprights 3 and journaled for rotation in the bearings 46 is a shaft 48 having collars 47 preventing an endwise movement of the shaft, the collars 47 being retained by set screws 57. Secured to one end of the shaft 48 is a sprocket wheel 45 about which is trained a sprocket chain 44, the chain 44 being engaged around a sprocket wheel 43 which is removably mounted on the end of the shaft 53, it being recalled that this shaft is journaled for rotation in the end members 1 of the bed supporting frame. Secured to the shaft 48 intermediate its ends is a sheave 49 about which are trained in opposite directions, depending flexible elements 50.

It is to be observed that the end sills 2 of the frame which supports a part of the operating mechanism, are located on the outside of the end members 1 of the bed supporting frame. Therefore, the frame of which the sills 2 constitute a part may be trundled into position above the mattress 35 and the frame whereon the same is supported. Likewise, the frame of which the uprights 3 and the sills 2 constitute a part may be trundled to one side, if desired, when the occasion for the use of this portion of the structure has passed, the removable sprocket wheel 43 being slipped off the end of the shaft 53. If desired, both of the frames above mentioned may be permanently connected, so as to form a united structure. With this end in view, bolts 58 or other suitable connecting elements, indicated in Fig. 1, may unite the end sills 2 with the end members 1. When it is desired, however, that the frame 3—2 shall be removable, so that it may be trundled aside, abutment plates 59 coacting with the end members 1 of one frame may be mounted on the end sills 2 of the other frame, as clearly shown in Fig. 3, pivotally mounted latches 60 being carried by the sills 2, the latches 60 coacting with the end members 1 to prevent the two frames from moving transversely with respect to each other, all as will be understood clearly from Fig. 3.

The device forming the subject matter of this application is adapted peculiarly for use as an invalid bed and when desired, the attendant, or more probably, the patient who is occupying the bed, may seize the depending flexible elements 50 or either of them, and impart a rotation to the shaft 48. When the shaft 48 is rotated, motion is transmitted by means of the sprocket chain 44 and the sprocket wheels 45 and 43 to the shaft 53, the same through the medium of the pinions 15 and the racks 16 imparting a rocking movement to the end frames 17, the end frames and the mattress 35 carried thereby, thus being given a rocking or cradling movement, the tracks 22 coacting with the supporting rollers 11 on the shafts 12. Owing to the concaved or trough-like form of the end bars 17 and the mattress 35, the occupant of the bed may be rolled over axially, without materially shifting his position with respect to a vertical plane. It is thus possible for a person occupying the bed, or an attendant, to shift a patient from his back to his side, or from his side to his back, without appreciable effort on the part of the operator or without pain or inconvenience to the patient.

The concavity of the mattress 35 may be altered at any time, it being possible to tighten up the mattress until the same lies approximately flat. This operation is carried out by rotating the shaft 32 by means of the crank 34, the worms 33 meshing into the sectors 29 and rotating the shafts 30, the same swinging the crank arms 28 outwardly or inwardly in opposite directions, thereby tightening up or loosening the sprocket chains 27 and the flexible end members 26 of the mattress.

Having thus described the invention, what is claimed is:—

1. In a device of the class described, a supporting structure; a bed mounted to rock transversely thereon; a shaft journaled for rotation in the supporting structure above the bed; means for operatively connecting the shaft with the bed; and depending means operatively connected with the shaft and located above the bed, for operating the shaft.

2. In a device of the class described, a supporting structure; a bed mounted to rock transversely thereon; a pair of shafts journaled in the supporting structure, one shaft being located above the bed; means for operatively connecting the other shaft with the bed to impart a rocking movement to the bed; sprocket wheels on the shafts; a sprocket chain trained around the sprocket wheels; a sheave carried by the first specified shaft; and depending flexible elements wound in opposite directions around the sheave, the depending flexible elements being accessible for manipulation from the bed.

3. In a device of the class described, a bed carrying frame; a bed mounted to swing transversely thereon; a second frame mounted to move toward and away from the bed supporting frame; means for connecting the frames detachably; operating means for

swinging the bed carried by the second frame and including a part accessible to a person upon the bed; and a driving connection between the bed and the operating means, the driving connection including a detachable element whereby the frames may be separated.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN BUCKLEY.

Witnesses:
MILTON HARLAN,
GUS. PERIGOT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."