J. MORTIMORE.

INVALID'S BED.

APPLICATION FILED MAY 7, 1921.

1,432,777.

Patented Oct. 24, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

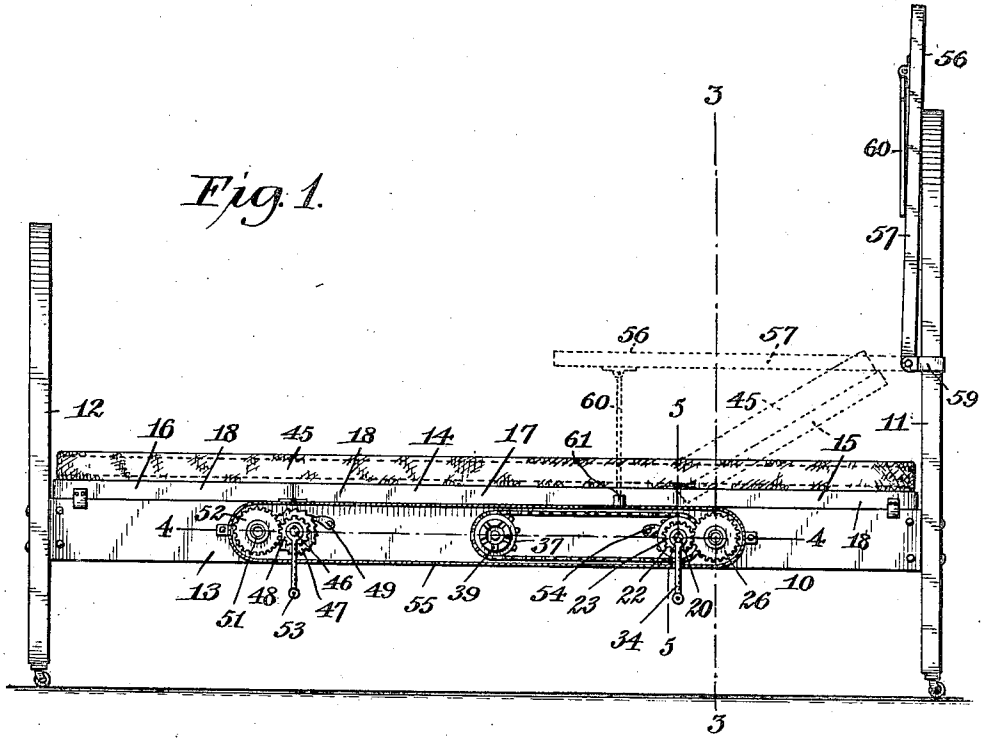
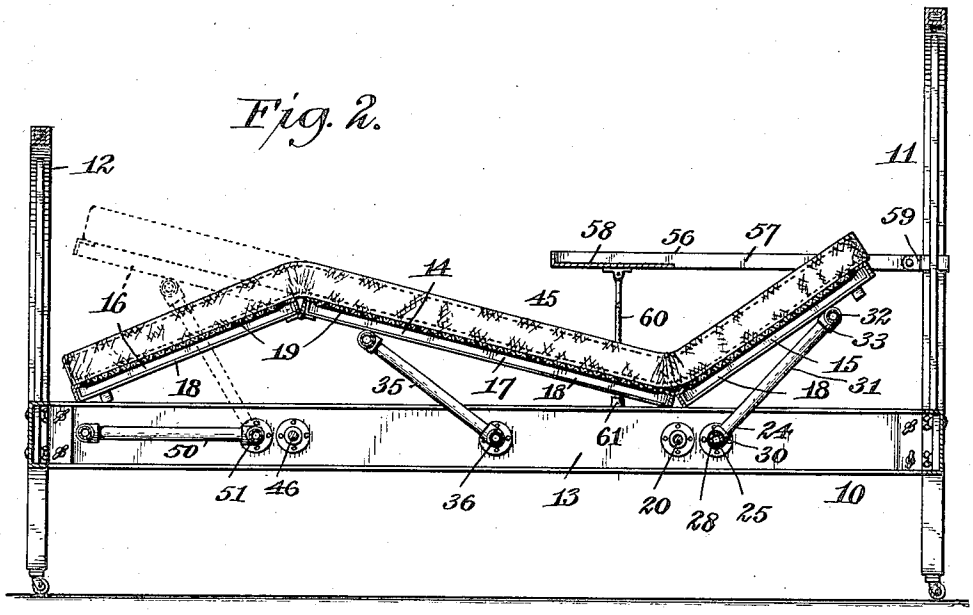


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

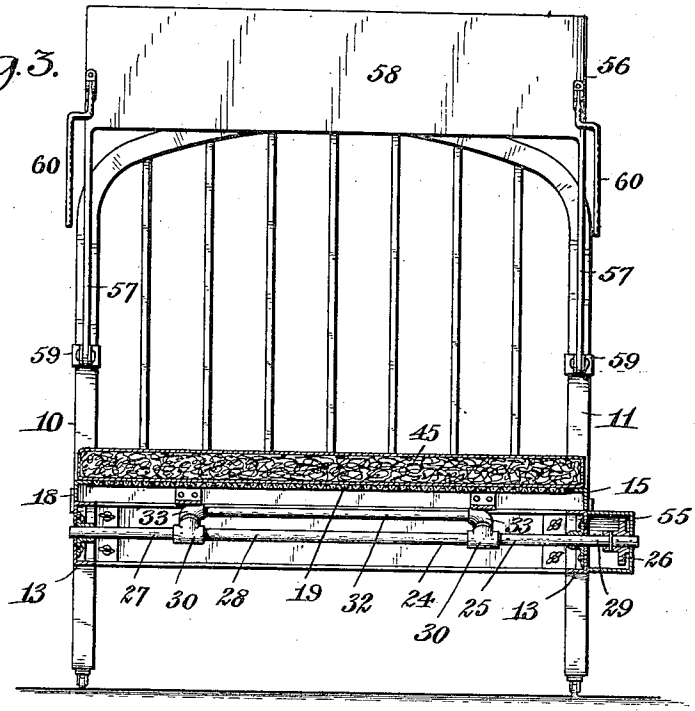


Fig. 4.

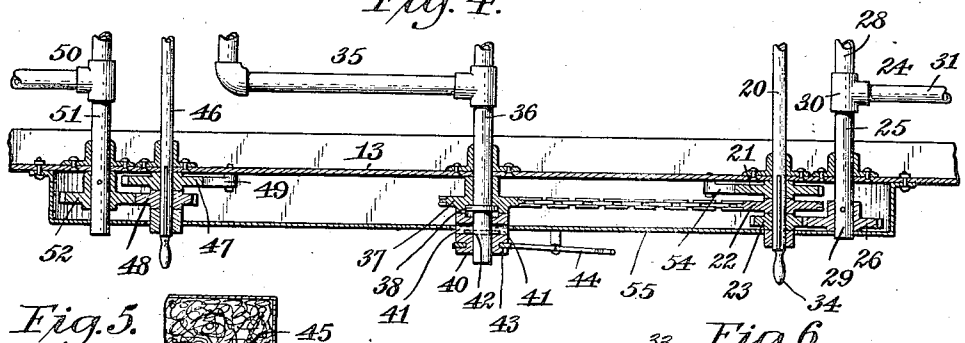


Fig. 5.

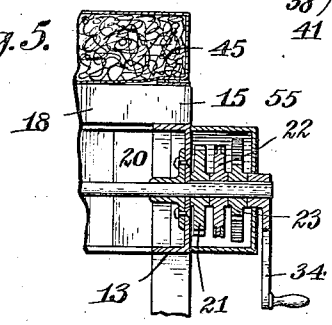
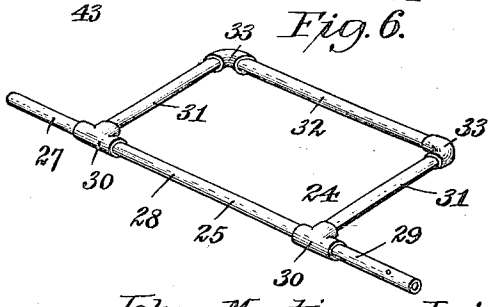


Fig. 6.



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Patented Oct. 24, 1922. 1,432,777

UNITED STATES PATENT OFFICE.

JOHN MORTIMORE, OF ROCHESTER, NEW YORK.

INVALID'S BED.

Application filed May 7, 1921. Serial No. 467,554.

To all whom it may concern:

Be it known that I, JOHN MORTIMORE, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Invalids' Beds, of which the following is a specification.

My invention relates to improvements in beds, and more particularly to a bed adapted for the care of invalids.

The primary object of my invention is the production of an invalid's bed having a sectional support or spring so arranged that each section may be inclined from one end thereof to the other.

A further object of my invention is to provide a bed having a support or spring with a tiltable head section, a foot section and an intermediate section, said head section being capable of being tilted with or independent of the intermediate section.

A still further object of my invention is to provide an invalid's bed in which a sectional support is provided in which the sections are hinged together, and means for tilting one or more of said sections so that the support may be arranged in several different positions, with one or more elevated portions.

A still further object of my invention is to provide a table member and so arrange the same that it may be conveniently placed into a position that the occupant of the bed can conveniently write thereon, or so that food may be placed thereon within convenient reach of the occupant.

A still further object of my invention is to provide an invalid's bed having simple and inexpensive means for elevating portions of a support or spring so as to place the invalid into different positions.

With the above and other objects in view, the invention consists in the novel features of construction and in the arrangement and combination of parts to be hereinafter described and more particularly pointed out in the subjoined claims.

In the drawings:—

Fig. 1 is a side elevation of an invalid's bed constructed in accordance with this invention.

Fig. 2 is a central longitudinal section through the bed showing the support or spring formed in sections and having parts thereof elevated.

Fig. 3 is a transverse section taken on line 3—3, Fig. 1.

Fig. 4 is an enlarged horizontal section taken on line 4—4, Fig. 1.

Fig. 5 is an enlarged transverse section through a portion of the bed taken on line 5—5, Fig. 1.

Fig. 6 is a detached perspective view of one of the lifters whereby different sections of the support or spring are elevated.

The reference numeral 10 designates the bedstead, which has a head section 11, a foot section 12, and side rails 13 connecting said head and foot sections. These parts may be of any ordinary construction.

Resting upon the side rails 13 is what I broadly term a support in the form of a spring 14 having a head section 15, a foot section 16, and an intermediate section 17, the upper end of said intermediate section being hinged to the lower end of said head section, and the lower end of said intermediate section being hinged to the upper end of said foot section. Each section of said spring comprises a suitable frame 18 and coiled wire 19 connected to said frame. While I have shown this special form of spring, it is apparent that any other suitable support, although preferably a spring support, may be substituted therefor, it is nevertheless to be understood that the support will necessarily have the sections so arranged that one or more may be tilted, as will be clear from the description to follow.

Journaled transversely in the side rails 13 of the bedstead is an actuating shaft 20, one end thereof extending from the side of the bed a suitable distance to permit of keying or otherwise fastening thereon a ratchet wheel 21, a sprocket wheel 22 adjacent said ratchet wheel, and a gear wheel 23 adjacent said sprocket wheel.

Between the actuating shaft 20 and the head section 11 of the bedstead is a lifter 24 which includes a rocker bar 25, said rocker bar having a gear wheel 26 secured thereon which is in mesh with the gear wheel 23 on the actuating shaft 20.

The rocker bar 24 is formed of three lengths of pipe 27, 28, 29, the length 28 being connected to the length 27, 29 by T-fittings 30 and the two lengths 27 and 29 being journaled in the side rails 13. Threaded into said T-fittings 30 are two lengths of pipe 31, which are parallel, and have connection with a pipe 32 arranged

parallel with the rocker bar 25 by elbows 33. The lifter, so formed may therefore be said to comprise a rock shaft and a frame extending from said rock shaft, the rocker bar 25 forming the rock shaft, and the lengths of pipe 31 and the pipe 32 connected to said pipes 31 forming the frame.

Secured to the outer end of the actuating shaft is a crank 34. In preferred form the point of connection of the head section 15 with the intermediate section 17 of the support or spring is directly above the actuating shaft and normally the lifter 24 is arranged horizontally or almost horizontally underneath the head section 15.

35 designates a lifter constructed similar to the lifter 24 underneath the head section 15 of the support or spring, and the rocker bar 36 thereof is journaled for rotary movement in the side rails 13 of the bedstead, said rocker bar serving as a rock shaft for the lifter and having a sprocket wheel 37 loosely mounted thereon and held against outward movement by a collar 38 on said rock shaft, and against inward movement by the adjacent side rail 13, as clearly shown in Fig. 4.

The sprocket wheel 37 has clutch teeth 39 formed thereon, which are adapted to be engaged by a clutch member 40 slidable on the rock shaft 36 but rotatable therewith. As clearly shown in Fig. 4, said clutch member has slots 41 at opposite sides of its shaft-bore, into which a pin 42 passing through said shaft extends, said slots being of sufficient length to allow the clutch member to slide into or out of engagement with the teeth on the sprocket wheel 37, but at all times cause rotation of said rock shaft when rotated itself. The clutch member is provided with a circumferential groove 43 into which is fitted the ring portion of a clutch lever 44 pivotally secured to the side member 13 of the bed, said clutch lever serving to move the clutch member 38 longitudinally on the shaft into engagement with or out of engagement from the teeth of the sprocket wheel 37.

The lifter 35 is situated underneath the intermediate section 17 of the support or spring, and when the support or spring is in lowered position and resting against the side rails 13 of the bedstead, the lifter 35 will be in horizontal or substantially horizontal position with the outer end thereof positioned close to the lower end of said intermediate section.

Upon rotating the actuating shaft 20 clockwise by means of the crank 34, the ratchet wheel 21, the sprocket wheel 22, and the gear wheel 23 on said shaft will be rotated in a like direction, and by reason of the gear wheel 26 being in mesh with the gear wheel 23 and secured to the rock shaft of the lifter 25, said lifter will be swung upwardly, as shown in Fig. 2, thus tilting the head section 15 of the support or spring, and any bedding thereon.

When the clutch member 40 is out of engagement with the clutch teeth 39 on said sprocket wheel 37, actuation of the lifter 35 will not take place. When, however, it is desired to lift the lower end of the intermediate section 17 of the support or spring, and necessarily the upper end of the foot section 18 which is hinged to the lower end of said intermediate section, the clutch member 40 must be moved inwardly on the rock shaft 36 to engage the teeth thereof with the clutch teeth 39 on the sprocket wheel 37, thus the rotation of the sprocket wheel 37 will, through the medium of clutch member 40, cause the rock shaft 36 to rotate and elevate the lifter 35 into the position shown in Fig. 2, with the result that the support or spring 14 will assume the position shown in said figure. It is clear, therefore, that when manipulating the actuating shaft 20, one of the sections of the support or spring may be lifted while retaining the remainder of said support or spring in horizontal position, or that the head section and the intermediate and foot sections may be lifted, the intermediate section inclining downwardly from its lower end and the foot section inclining downwardly from its upper end.

In the drawings I have shown a mattress 45 placed over the support or spring 14, it being of course understood that other bedding will be placed over the mattress, and that the mattress and other bedding, being flexible, will yield to assume the angular positions of the sections of the support or spring.

Between the rock shaft 36 of the lifter 35 and the foot section 12 of the bed, an actuating shaft 46 is positioned, said shaft being journaled in the side rails 13 of the bedstead. Keyed to said shaft is a ratchet wheel 47 and a gear wheel 48, a dog 49 being pivoted to one of the side rails 13 for co-action with the ratchet wheel 47.

50 is a lifter constructed similar to the lifters 25 and 35, and having a rock shaft 51 journaled for rocking movement in the side rails 13 of the bedstead. Pinned or otherwise secured to said rock shaft 51 is a gear wheel 52 which is in mesh with the gear wheel 48 on the actuating shaft 46. Applied to shaft 46 is a crank 53 by means of which said shaft may be rotated. When rotating said shaft the gear wheel 48 thereon will cause rotation of the gear wheel 52, which, being secured to the rock shaft 51 of the lifter 50, will elevate or lower said lifter, depending upon the direction in which the shaft 46 is rotated.

It is to be noted that a dog 54 is pivoted to one of the side rails 13 and adapted to

engage the ratchet wheel 21 on the actuating shaft 20, thus the lifter 25 may be retained in any desired position. The lifter 35 is also retained in desired position, due to the fact that it is controlled by the actuating shaft 20 when the teeth of the clutch member 40 engage the teeth on the sprocket wheel 37.

The lifter 50 is also retained in any desired position by the dog 49 engaging the ratchet wheel 47 on the actuating shaft 46.

As clearly shown by dotted lines in Fig. 2, when the lifter 50 is elevated it will elevate the foot section 16 of the support or spring, and whether or not the intermediate section is elevated by the lifter 35, the raising of the foot section by the lifter 50 will cause said intermediate section to assume the position shown in Fig. 2.

It is apparent from the foregoing that the foot section and intermediate sections may be retained in horizontal position while the head section 15 is tilted, as shown by dotted lines in Fig. 1, or the lower end of the intermediate section may be elevated, also the upper end of the foot section and the upper end of the head section, thus inclining the foot section from its upper end to its lower end, the intermediate section from its lower end to its upper end, and the head section from its upper end to its lower end. In this position the head and, if desired, trunk of the invalid, may be elevated, while the legs may be raised at the knees, with the portions of the legs below the knees inclining with the foot section, as indicated by said foot section in Fig. 2; or, the foot section may be elevated as shown in Fig. 2 in which it forms a continuous inclined portion from the lower end of the foot section to the lower end of the head section. The ratchet wheels, sprocket wheels and gear wheels are enclosed within a casing 55 fastened to one of the side rails 13 in any suitable manner.

56 designates a table formed of two side members 57 connected at their outer ends by a table portion 58, said side members being pivotally connected at their inner ends to clips or brackets 59 secured to the head section of the bedstead. This table is normally retained in the position shown in Fig. 1, but may be swung downwardly to the position shown in dotted lines in said figure. It is provided with a pair of legs 60 pivotally connected at their upper ends to the table and adapted to enter sockets 61 on the side rails 13, thus preventing movement of the lower ends of the legs when the table is swung to horizontal position, and when the upper section 15 of the support or spring is tilted, as shown by lines in Fig. 1, the occupant of the bed will be in reclining position and may conveniently use the table for any purpose desired.

Having thus described my invention, what I claim is:—

1. The combination with a bedstead having two spaced side rails, of a support comprising two sections hinged together, an actuating support journaled in said bedstead and having a sprocket wheel and a gear wheel thereon, a lifter underneath one of said sections having a rock shaft parallel with said actuating shaft and a gear wheel on said rock shaft in mesh with the gear wheel of said actuating shaft, means to prevent retrograde movement of said actuating shaft, a lifter underneath the other section having a rock shaft, a sprocket wheel on said last-mentioned rock shaft, a sprocket chain surrounding said sprocket wheel and the sprocket wheel on said actuating shaft, and means for rotating said actuating shaft.

2. The combination with a bedstead having two spaced side rails, of a support comprising a head section, a foot section and an intermediate section, said head section being hinged to the upper end of said intermediate section and said foot section being hinged to the lower end of said intermediate section, a lifter underneath each of said sections, means for operating the lifters under said head section and said intermediate section simultaneously or for operating the lifter under said head section separately, and means for operating the lifter under said foot section independently of the remaining sections of said support.

In testimony whereof I affix my signature.

JOHN MORTIMORE.

Witnesses:

JOHN H. CHADSEY,

ROY P. CHADSEY.