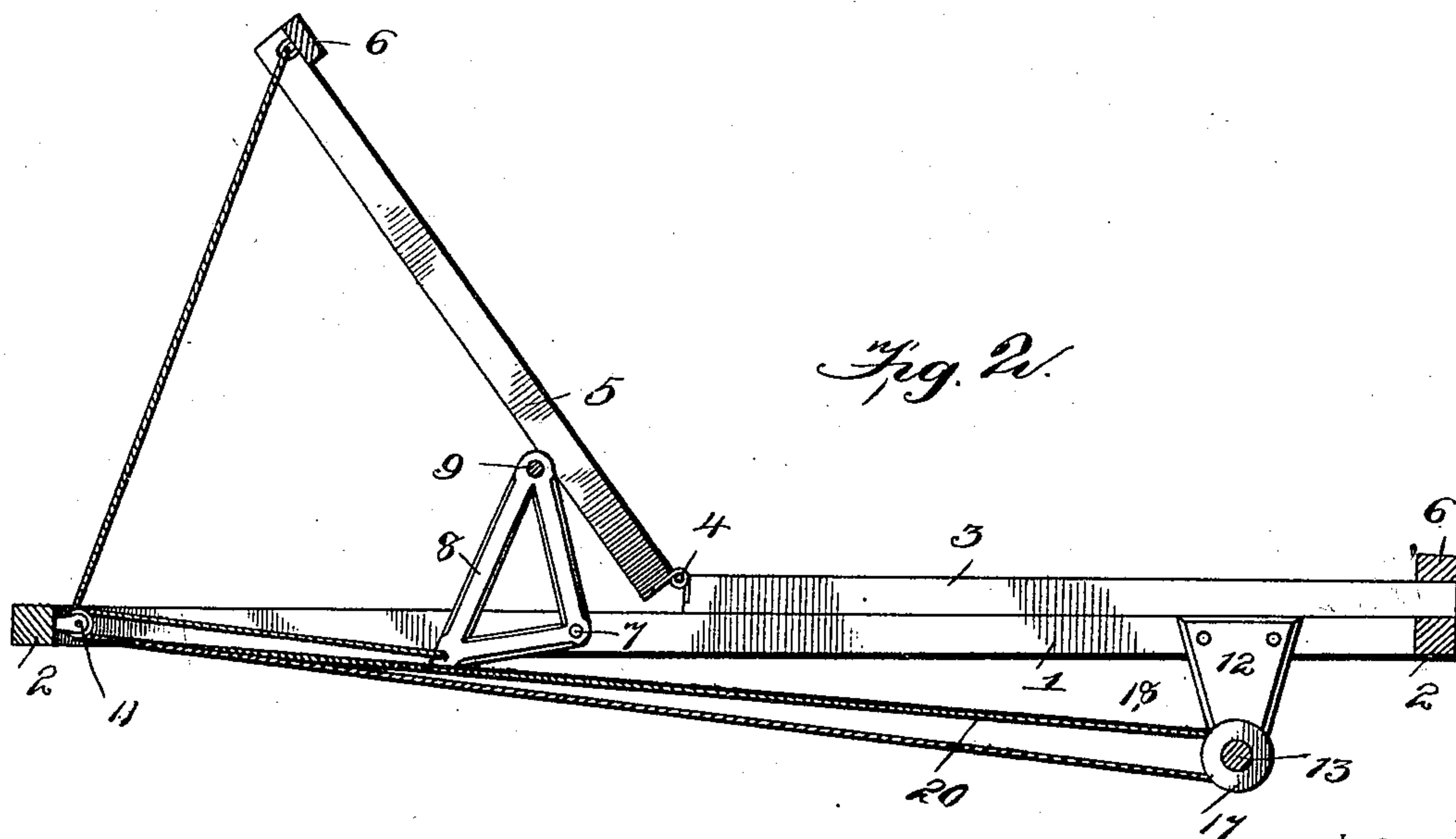
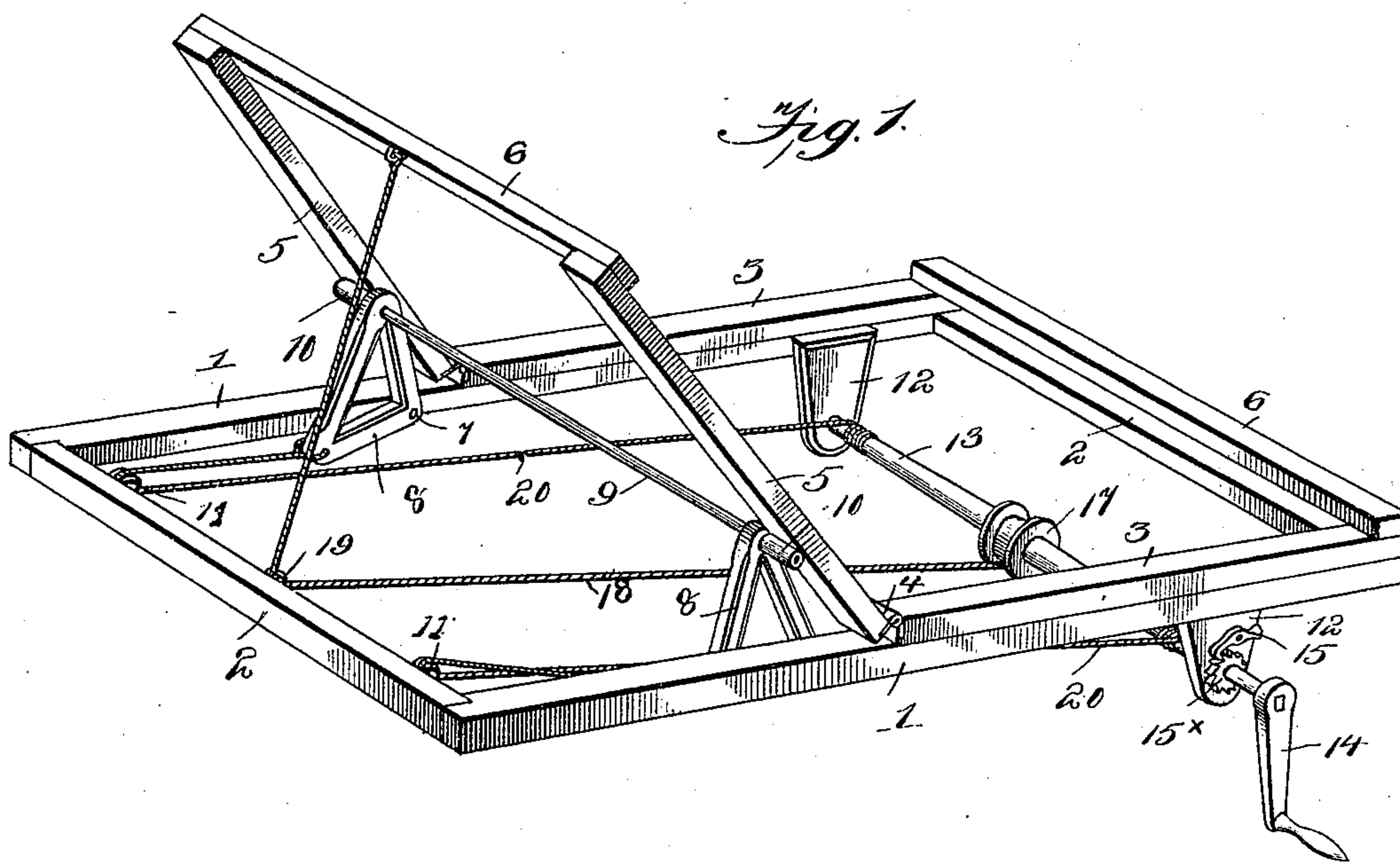


(No Model.)

J. M. LIECHTY.
INVALID BED.

No. 517,928.

Patented Apr. 10, 1894.



Inventor

Jacob M. Liechty.

Witnesses:

John C. Shaw.
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UNITED STATES PATENT OFFICE.

JACOB M. LIECHTY, OF STERLING, OHIO.

INVALID-BED.

SPECIFICATION forming part of Letters Patent No. 517,928, dated April 10, 1894.

Application filed July 31, 1893. Serial No. 481,958. (No model.)

To all whom it may concern:

Be it known that I, JACOB M. LIECHTY, a citizen of the United States, residing at Sterling, in the county of Wayne and State of Ohio, have invented a new and useful Invalid-Bed, of which the following is a specification.

My invention relates to invalid beds; and the invention may be applied directly to the bedstead itself, or to a frame to be seated within the bedstead.

In either instance the objects of my invention are to provide for a raising and lowering of the upper or head-portion of the bed and its mattress, so that invalids occupying the same may be raised or elevated or lowered to comfortable and convenient positions; to provide means for locking the frame and mattress in any of their adjusted positions, and also for conveniently operating the same.

With these and other objects in view the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 represents a perspective view of an invalid bed embodying my invention. Fig. 2 is a vertical longitudinal sectional view thereof.

Like numerals of reference indicate like parts in both the figures of the drawings.

1—1 and 2—2 designate the opposite side and end-rails of what may be a bed-frame, or, as shown in the present instance, a frame designed to be inserted in an ordinary bed-frame, the said frame being oblong as shown. The bars 1—1 have one half of their upper sides toward their foot-portions surmounted by stationary rails or bars 3, which extend at their inner ends to points midway the rails 1 and are hinged as at 4 to corresponding bars 5 which occupy the remaining portions of the bars 1. The bars 3 and 5 are connected by cross bars 6. Thus it will be seen that the bars 3 being stationary upon the rails 1 and the bars 5 hinged to the inner ends of the bars 3, the former bars constitute a frame that is capable of raising and lowering. These bars 3 and 5 of course have secured thereto any suitable flexible mattress, (not herein shown,) as the same forms no part of my invention, but it is preferably formed of woven

wire, and it may be constructed of head and foot sections, or homogeneous, as desired.

To the inner sides of the rails 1 there are pivoted beyond the hinges 4 as indicated at 7 bell-crank levers 8, the same having their upper rear angles connected by a cross-rod 9 whose ends project beyond the bell-crank levers and take under the bars 5, where they terminate in spindles and are provided with anti-friction rollers 10, which ride against the under sides of said bars 5. The cross-bar 2 at the head of the frame is provided near its opposite ends with pulleys 11, whose functions will hereinafter appear.

A pair of depending hangers 12 are secured to the inner sides of the bars 1 near their lower or foot-ends, and in the same is journaled a transverse winding or windlass-shaft 13, one end of which projects beyond one of the hangers and is squared and provided with a removable crank 14. It is also provided with a ratchet-wheel 15^x in which works one end of a pawl 15 pivoted to the hanger. The shaft 13 is provided at its center with a small drum 17 around and to which one end of a rope 18 is passed and secured, the remaining end passing toward the head of the frame around a guide pulley 19 at the center of the rail 2, and being secured thereabove to the cross-bar 6 of the head section. Side ropes 20, are secured to the winding or windlass-shaft 13, pass forward to the head-rail 2, around the pulleys 11, and are connected to the lower angles of the bell-cranks 8. These ropes 18 and 20 are reversely wound upon the shaft 13, so that when the latter ropes are winding upon the shaft, the former rope 18 is unwinding upon the drum, and vice versa.

By applying the crank to the end of the shaft 13 it will be seen that when the same is operating in one direction the ropes 20 wind upon the windlass shaft, while the rope 18 is paid out from its drum and the former ropes drawing upon the lower angles of the bell-cranks, will cause the latter to swing upward, their anti-friction rollers riding against the under sides of the bars 5 and hence elevating said bars together with the mattress carried thereby and raising the occupant of the bed at any desired angle, even to a sitting posture. The pawl engaging with the ratchet

wheel will prevent any retrogression of the shaft, and hence any accidental lowering of the head frame. By swinging the pawl out of engagement with the ratchet-wheel it will
5 be seen that the shaft may be reversed so that the rope 18 will wind upon the drum, thus drawing downward upon the swinging frame, and at the same time the side ropes 20 will be paid out from the winding-shaft.

10 From the foregoing description in connection with the accompanying drawings it will be seen that I have provided an extremely simple construction of bed, the same being adapted to be constructed independent of the
15 bedstead or as a part of the same as may be desired. It will be seen furthermore that the operator may raise and lower the patient with expedition and ease and without any jarring or jolting of the patient, the whole working
20 smoothly and noiselessly and with but little friction.

I do not limit my invention to the precise details of construction herein shown and described, but hold that I may vary the same to
25 any degree and extent within the knowledge of the skilled mechanic.

Having described my invention, what I claim is—

1. In a bed of the class described, the combination with a suitable supporting-frame,
30 and bars hinged to the upper side of the same between the ends of the side-rails thereof, of bell-crank levers pivoted to the supporting-frame in advance of the hinge point, a cross-bar connecting the bell-crank levers, project-
35 ing beyond the same, and taking under the hinged bars, guide-eyes in the upper end of the supporting-frame, bearings in the lower

end, a winding-shaft mounted in the bearings, and a series of three ropes passed through
40 the guide-eyes, the two outer ropes being connected to the bell-cranks at their lower ends and the central rope to the swinging frame and reversely wound upon the windlass-shaft with relation to the said side ropes, substan-
45 tially as specified.

2. The combination with the rails 1 and 2 forming the oblong frame, the stationary bars 3 surmounting the same, the rails 5 hinged to the forward ends of the stationary bars 3, the
50 cross-bars 6 for the bars 3 and 5, of the hangers 12, windlass-shaft 13 having a central drum 17 and square at one end to receive a removable crank, a ratchet-wheel carried by the
55 shaft, a pawl upon one of the hangers for engaging the wheel, a pair of bell-crank levers pivoted to the rails 1 in advance of the hinges between the bars 3 and 5, the cross-rod 9
60 mounted in and connecting the bell-cranks and projecting beyond the same and provided with anti-friction rollers, and the guide-pul-
65 leys 11 and 19, the ropes 18 and 20 wound reversely with relation to each other upon the shaft and drum and passed through the guide-pulleys, the central rope 18 being connected
to the cross-bar between the bars 5, and the ropes 20 connected to the lower ends of the bell-cranks, substantially as specified.

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

JACOB M. LIECHTY.

Witnesses:

HIRAM SWARTZ,
ANNA M. GRAETER.