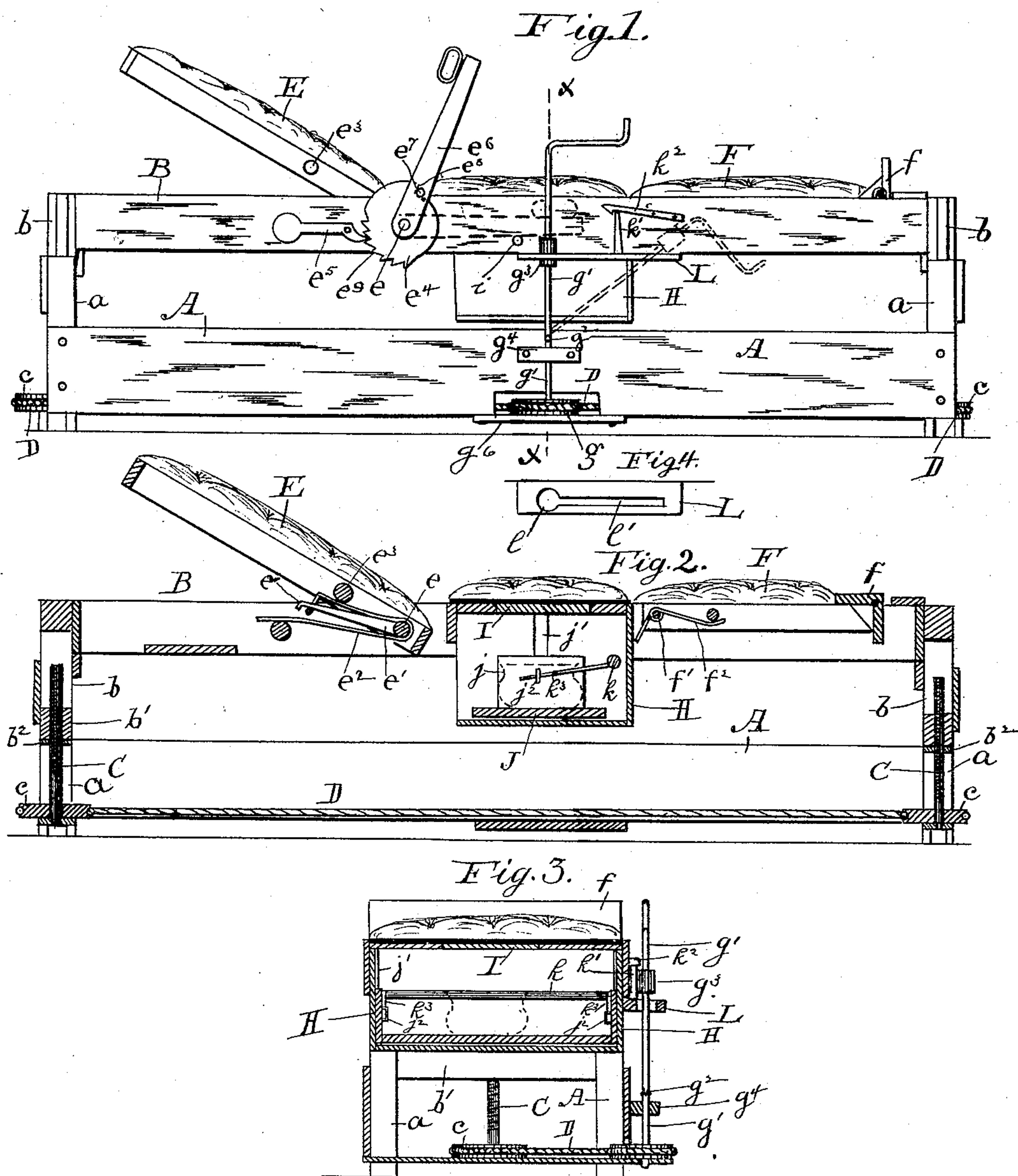


(No Model.)

C. S. JOHNSON & M. E. MOORE.
INVALID BED.

No. 452,304.

Patented May 12, 1891.



Witnesses:

Albert D Boyd
J P Smith

Inventors:

Caroline S Johnson
Myron E. Moore
by S. M. Bates their atty.

UNITED STATES PATENT OFFICE.

CAROLINE S. JOHNSON AND MYRON E. MOORE, OF DEERING CENTER,
MAINE; SAID MOORE ASSIGNOR TO SAID JOHNSON.

INVALID-BED.

SPECIFICATION forming part of Letters Patent No. 452,304, dated May 12, 1891.

Application filed April 19, 1890. Serial No. 348,733. (No model.)

To all whom it may concern:

Be it known that we, CAROLINE S. JOHNSON and MYRON E. MOORE, citizens of the United States, residing at Deering Center, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Invalid-Beds; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to invalid-beds and to raising and lowering mechanism for the same, which mechanism is so constructed that the invalid may from his position on the bed raise and lower himself by means of a crank or handle which rises at the side of the bed and which is so constructed that it may be turned down and put out of sight when not in use.

The novel features of our invention are pointed out in the accompanying claims.

In the accompanying drawings we have illustrated a bed which embodies our invention.

In the drawings, Figure 1 is a side elevation. Fig. 2 is a central longitudinal section. Fig. 3 is a section on $x x$ of Fig. 1, and Fig. 4 is a detail of the shelf or ledge for retaining the vertical shaft.

A main frame A, having end posts $a a$, rests on the floor. A frame B, having uprights b at its ends, is so connected to the frame A as to be capable of moving vertically relative to the frame A. This we accomplish, as here shown, by tongues and grooves formed in the posts a and b , whereby they slide longitudinally on each other.

On each end of the frame B, connecting the lower ends of the uprights b , are cross-pieces b' . (See Fig. 2.) These cross-pieces have secured to their under sides nuts b^2 , which engage the lifting-screws C. These lifting-screws are pivoted at their lower ends in the frame A, and secured near the lower end of each is a band-pulley c . The pulleys c and

the screws are manipulated by means of an endless band D, which runs over them and over an actuating-pulley g , pivoted at the side of the bed and on the same level with the pulleys $c c$. This pulley g is secured to the lower end of a vertical shaft g' , held in bearings $g^6 g^4$, and having on its upper end a crank. The shaft g' has a joint g^2 above the upper bearing g^4 , by which it may be turned down from its upright position and concealed from the sight of the patient, as shown by dotted lines in Fig. 1. The upper portion of the shaft g' passes through a ledge or shelf L. (Shown in plan in Fig. 4.) A sleeve g^3 , capable of longitudinal motion on the shaft g' , fits into an opening l in the ledge L, and from the opening l extends a narrower slit or groove l' , of sufficient size to allow the shaft g' to pass through. The head portion of the bed or back-rest E is pivoted to the frame B by a horizontal shaft e . The back-rest is raised by means of a spring e^2 , coiled about the shaft e and acting upward on the cross-bar e^3 . The spring is contracted and the back-rest allowed to drop by means of an arm e' , projecting outward at right angles from the shaft e , and bearing downward on the end of the spring e^2 . Secured to the end of the shaft e , at the outside of the frame, is a ratchet-wheel e^4 , having ratchet-teeth e^9 extending around a portion of its perimeter. A weighted pawl e^3 engages the teeth e^9 and prevents the ratchet-wheel from so turning as to lift the back-rest. A lever e^6 is loosely pivoted to the end of the shaft e , and it is provided with a pin e^7 , which impinges against a stop, or, as here shown, a shoulder e^8 , in the perimeter of the ratchet-wheel e^4 . The lever is so connected as to be capable of rotating the ratchet-wheel e^4 to depress the back-rest, while it will turn down in the opposite direction when released to the position shown in dotted lines in Fig. 1, resting on a stop i . The foot-rest F is pivoted by a rod f , and is lifted and kept in a horizontal position by the spring f^2 . A foot-board f is provided capable of tilting down to a position where it will be flush with the top of the bed, as in Fig. 2. The center of the bed is occupied by a commode-seat I, beneath which is a cabinet H, having an open end or

side, as shown in Fig. 2. Within the cabinet II is a vertically-moving platform J, on which the vessel is to be set. This platform has sides j , which slide up and down in grooves j' . A horizontal rod k extends through the cabinet II, and connects at the side of the bed with a lever k' , by which it is rotated. Arms k^3 extend outward from the rod k , and pass loosely through loops j^2 in the sliding sides of the platform J. The rotation of the rod k thus raises and lowers the platform J. A catch k^2 is provided to hold the lever k' in an upright position and to hold up the platform J.

The operation of our bed is evident from its construction. When it is desired to raise and lower the bed, the vertical shaft g' is turned, and the motion is transmitted from the pulley g to the pulleys c c by means of the band D, which is so adjusted as to turn both pulleys in the same direction. The screws c thus raise or lower the bed with an easy motion and without any jar or noise. When the shaft g' is no longer in use, the sleeve g^3 is slid up and the shaft turned down to an inclined position, as in dotted lines in Fig. 1, where it will be concealed from the view of the patient. If it is desired to lift the back-rest, the lever e^6 is lifted from its normal position, as shown in dotted lines, to the position shown in full lines in Fig. 1, and the ratchet-wheel is slightly turned until the pawl is released, when the back-rest will rise of itself to the desired position. It is designed to have the spring by which this back-rest is raised somewhat stiffer than will be needed to lift the heaviest person who will come on it. To lower the back-rest it is pressed down, and the lever e^6 is also pulled backward if any additional force is required. When the commode is in use, the lever k' is raised to the position shown in Fig. 1, raising the vessel to a position immediately beneath the seat. It

may be removed through the opening in the cabinet II, if desired.

The bed herein shown is intended to be used by placing it alongside of an ordinary bed, raising the top to the proper level, and removing the patient onto it. It may also be placed inside of an ordinary bed, a suitable space being provided for it.

As usually constructed, our invalid-bed is about one-half the width of an ordinary bed.

We claim--

1. In an invalid-bed, a frame and raising and lowering mechanism for the same, a vertical shaft for operating said raising and lowering mechanism, a joint in said shaft to permit its being turned down, a sleeve on said shaft above said joint, forming an upper bearing for the same and adapted to slide longitudinally thereon, a support or ledge at the side of the bed-frame, having an opening for receiving and retaining said sleeve, and a horizontal slot connecting with said opening, whereby the said shaft is permitted to be turned down when said sleeve is displaced, substantially as described.

2. A frame and a back-rest pivoted thereto by means of a horizontal shaft, a spring coiled on said shaft for raising said back-rest, an arm on said shaft for compressing said spring, a ratchet-wheel rigidly connected with the outer end of said shaft, a pawl engaging the teeth of said ratchet-wheel and adapted to hold said back-rest down, a lever pivoted to the end of said shaft, a pin in said lever, and a stop on said wheel, whereby the same may be rotated to lower said back-rest, substantially as described.

CAROLINE S. JOHNSON.
MYRON E. MOORE.

Witnesses:

S. W. BATES,
GEO. W. JOHNSON.