

Jan. 14, 1958

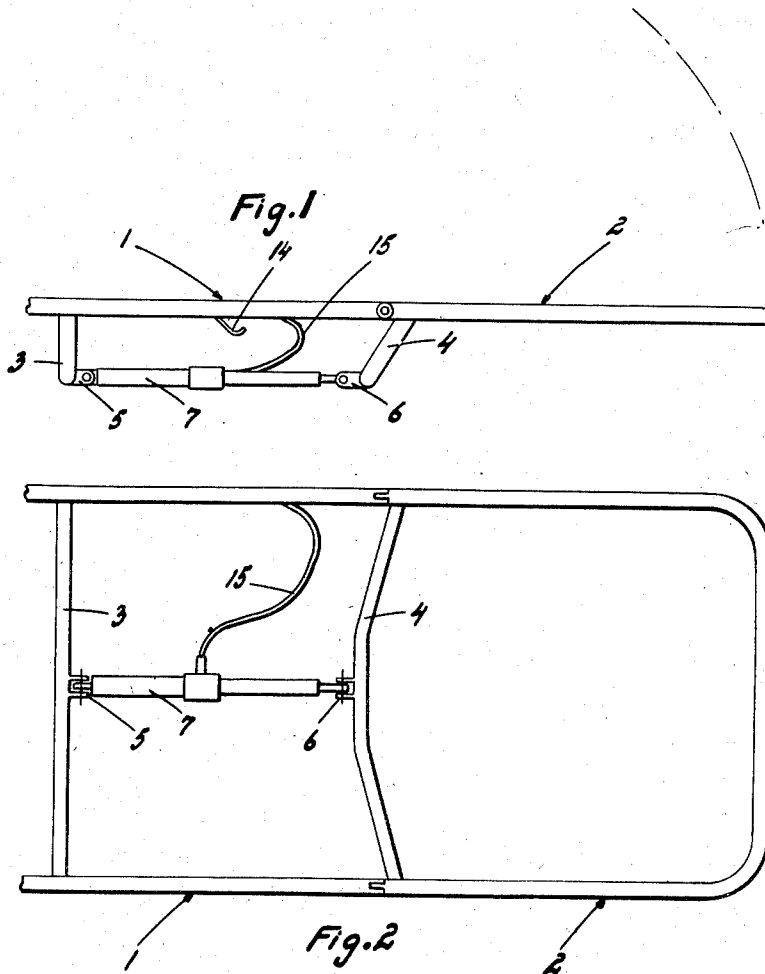
T. ERICSSON

2,819,475

HOSPITAL BEDS OR THE LIKE

Filed July 7, 1954

2 Sheets-Sheet 1



INVENTOR
TORE ERICSSON

BY

Hendroth Lind & Orack
Attorneys

Jan. 14, 1958

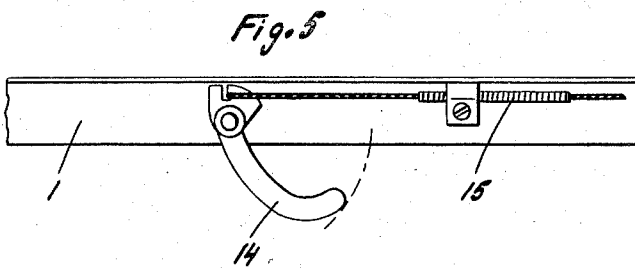
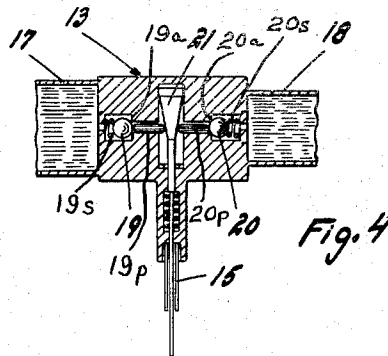
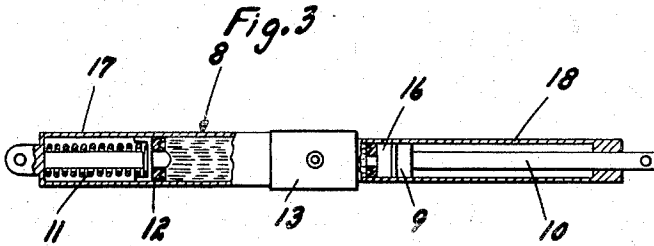
T. ERICSSON

2,819,475

HOSPITAL BEDS OR THE LIKE

Filed July 7, 1954

2 Sheets-Sheet 2



INVENTOR
TORE ERICSSON

BY

Hendrich, Lind & Rosack
Attorneys

1

2,819,475

HOSPITAL BEDS OR THE LIKE

Tore Ericsson, Djursholm, Sweden, assignor to Aktiebolaget Sangfabriken, Stockholm, Sweden, a corporation of Sweden

Application July 7, 1954, Serial No. 441,863

Claims priority, application Sweden April 7, 1954

5 Claims. (Cl. 5-78)

This invention relates to a hospital bed or the like which has a back rest tiltable into various positions of inclination in which it can be locked by means of a locking mechanism. The hospital bed according to the invention is characterized in that the back rest cooperates with at least one spring which tends to move the back rest towards its vertical position of inclination, but against the action of which spring the back rest can be moved in the direction towards its horizontal position by the patient in the bed, and in that the locking mechanism is arranged between the back rest and the bed proper and can be released by means of an operating member which is placed in such a way that it is operable by the patient in the bed.

Further features and advantages of the invention will appear from the following description, reference being had to the accompanying drawing illustrating two embodiments thereof which have been chosen by way of example. In the drawing:

Fig. 1 is a side view of one end of the hospital bed.

Fig. 2 is a plan view of said end of the hospital bed.

Fig. 3 is a side view, partly in section, of the locking mechanism shown in Figs. 1 and 2.

Fig. 4 is a section of a valve mechanism included in said locking mechanism.

Fig. 5 shows the operating member for the locking mechanism.

The mattress carrying frame 1 has a back rest 2 pivotally mounted on one end thereof. The mattress carrying frame 1 is provided with a transverse stay 3, which is preferably bent downwardly, and the back rest 2 is also provided with a transverse stay 4 preferably bent downwardly. Midway between their ends said stays 3 and 4 have attachments 5 and 6 for the locking mechanism 7.

In the embodiment shown in Figs. 1-5 a cylinder 8 is hingedly connected to the attachment 5. Movable in the cylinder 8 is a piston 9, the piston rod 10 of which is hingedly connected to the attachment 6. Arranged within the cylinder 8 at the inner end thereof is a compression spring 11 cooperating with a second piston 12 located in the cylinder 8. Between the two pistons 9 and 12 is arranged a shut-off valve mechanism 13 which is operable with the aid of a Bowden cable 15 having an operating handle 14.

According to this embodiment the cylinder 8 furthermore has a third piston 16 which is arranged on the same side of the valve mechanism 13 as is the piston 9. The piston 16 is arranged behind the piston 9 and the latter piston can therefore be moved independently of the locking mechanism to permit adjustment of the back rest independently of the locking mechanism.

The portion 17 of the cylinder 8 situated between the attachment 5 and the valve mechanism 13 is of a larger diameter than the portion 18 situated outside the valve mechanism 13, and as a result thereof the capacity of the portion 17 is relatively large even though the length thereof is relatively small.

2

The valve mechanism 13 includes two valve bodies 19 and 20, one of which, 19, faces the portion 17 of cylinder 8, whereas the other, 20, faces the portion 18 of the cylinder 8. The valve bodies 19 and 20, which preferably consist of balls, are provided with springs 19s and 20s tending to move said valve bodies against their seats 19a and 20a. The valve bodies 19 and 20 are furthermore so positioned that the pressure in the portions 17 and 18 of the cylinder 8 tends to move the valve bodies against their seats. Movable between the valve bodies 19 and 20 is a wedge means 21 which is adapted to actuate the valve bodies through the sliding pins 19p and 20p so that they are moved from their seats 19a and 20a when the handle 14 is operated and moves the Bowden cable 15 connected to the wedge means 21.

As will appear from the drawing the handle 14 is arranged at the side of the mattress carrying frame 1 so that the patient can actuate the same.

The spring 11 is so dimensioned that it is able to lift the back rest 2 and the bed clothes thereon. The patient must, however, be able to compress the spring 11 by exerting a pressure against the back rest, and he is therefore able to lower the back rest in a simple way. Moreover, the spring 11 is so arranged that its compression decreases as the back rest 2 is tilted towards its vertical position.

When the back rest 2 is to be raised the patient diminishes his pressure against it and at the same time he operates the handle 14 so that the valve bodies 19 and 20 are lifted from seats 19a and 20a. The piston 12 now pushes the pressure medium in the cylinder 8 in front of it so that the piston 9 is moved towards attachment 6, whereby the back rest 2 is swung upwardly. This continues as long as the handle 14 is operated, and the speed with which the back rest swings is dependent on how much the valve bodies 19 and 20 are spaced from their seats. When the handle is released, the valve bodies seat, and the back rest 2 is thereby automatically locked in the new position of inclination. When the back rest 2 is to be lowered the patient exerts pressure against the back rest and at the same time he operates the handle 14, whereby the pressure medium is forced back into the cylinder 8 so that the spring 11 is compressed. When the handle 14 is released, the back rest is again locked.

While the invention has been described with reference to the embodiments shown in the drawing, it must not be considered as limited thereto, since many modifications can be resorted to within the scope of the appendant claims.

What I claim and desire to secure by Letters Patent is:

1. In combination a hospital bed frame, a back rest pivoted on said frame tiltable to various positions of inclination, a cylinder, a first piston movable in said cylinder, a piston rod attached to said first piston, a spring in the cylinder at the end thereof opposite the piston rod, a second piston in said cylinder between said spring and said first piston, locking means comprising a shut-off valve device disposed in said cylinder between the two pistons, and an operating member for said valve device having an operating handle, and transverse stays on the bed frame and the back rest extending below the plane of the frame and the back rest, said piston rod and cylinder being hingedly secured between the stays on the back rest and the bed frame, and said spring being compressed when the frames and the back rest are aligned, whereby the spring tends to move the back rest toward its vertical position of inclination and against the action of which spring the back rest can be moved towards its horizontal position by the patient in the bed.

2. The combination as claimed in claim 1 further comprising a third piston in said cylinder on the same side

3

of said valve device as said first piston between said valve device and said first piston.

3. The combination as claimed in claim 1 in which the portion of the cylinder on the side of the valve device on which the second piston is positioned has a larger diameter than the portion of the cylinder on the same side of the valve device as said piston rod.

4. The combination as claimed in claim 1 in which the valve device comprises two spring loaded valve bodies and two seats, and wedge means operable by the operating member for moving the valve members of said valves from the valve seats.

5. The combination as claimed in claim 4 in which

4

said valves are positioned with valve seats towards said wedge means and with valve bodies toward said pistons, whereby pressure of a medium in the cylinder on either side of the valve device tends to close the valves.

References Cited in the file of this patent

UNITED STATES PATENTS

838,697	Donaldson	Dec. 18, 1906
2,751,606	Benker	June 26, 1956

FOREIGN PATENTS

28,680	Denmark	Nov. 25, 1919
--------	---------	---------------