Orrin B. Thompson, of Jersey, Ohio.

Invalid Lifter and Conveyor.

To all whom it may concern:

Be it known that I, Orrin B. Thompson, a citizen of the United States, residing at Jersey, in the county of Licking and State of Ohio, have invented a certain new and useful Improvement in Invalid Lifters and Conveyors, of which the following is a specification.

The object of the present invention is to provide an improved apparatus for lifting invalids from beds and conveying them away therefrom, so as to facilitate the making up of the beds, as well as to provide for moving the invalid to another room or to another part of the same room.

With this and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the present invention.

In the drawings, Figure 1 is an elevation of an invalid lifter and conveyor embodying the features of the present invention. Fig. 2 is a rear elevation thereof. Fig. 3 is a plan section on the line 3 3 of Fig. 1. Fig. 4 is a detail plan view of the stretcher member of the apparatus. Fig. 5 is a detail sectional view taken through one corner of the stretcher-frame. Fig. 6 is an enlarged sectional view of a detail feature of the device.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

The present apparatus is made up of two main members, one of which is the frame or crane member and the other the stretcher member, which is carried and elevated by the crane. The crane member has a base consisting of a horizontal longitudinal bar 1, at the forward end of which is a front cross-head 2, with a shorter cross-head 3 at the rear end of the bar, the latter and the cross-heads being in the form of T-irons. At each end of each cross-head there is a caster 4, whereby the apparatus may be conveniently rolled over the floor. Near the rear end of the base is an upward socketed bracket 5, the rear side of which is pierced by a set-screw 6. Fitted within and rising from the bracket is a tubular standard 7, that is rigidly and detachably held in place by means of the set-screw 6. Upon the top of the standard is a horizontal transversely-disposed and semitubular seat 8, in which a horizontal crane-arm 9 is fitted and projected beyond opposite ends thereof. A suitable fastening 10 pieces the arm 9 and the seat 8 to rigidly connect these members. A brace-bar 11 extends downwardly and inwardly from the rear end of the arm 9 to an intermediate portion of the standard 7, and downwardsly-divergent brace-rods 12 extend from said intermediate portion of the standard to the opposite ends of the rear cross-head 3. Upon the front end of the frame 9 is a yoke 13, carrying a vertically-disposed grooved pulley 14, and a similar yoke 15 is provided upon the rear end of the arm and carries a grooved pulley 16. Upon an intermediate portion of the standard 7, preferably where the braces 11 and 12 meet, is a horizontally-disposed yoke-shaped bracket 17, which projects rearwardly from the standard and carries a drum 18, which is provided with a crank-handle 19 for rotating the same. A suitable ratchet-wheel 20 is provided upon one end of the drum, and a gravity-dog 21 is carried by the bracket and disposed for cooperation with the ratchet-wheel.

The stretcher member of the apparatus (best indicated in Fig. 4 of the drawings) embodies a rectangular frame made up of a pair of longitudinal side members 22, preferably in the form of metallic tubes or pipes, with elbows 23 fitted to the ends of the members 22. In the transversely-disposed terminal of each elbow 23 is a plug 24, which is screw-threaded into the elbow and has its outer projected portion made smooth and cylindrical for the reception of the adjacent tubular end member 25 of the frame, as clearly indicated in Fig. 5 of the drawings. By this arrangement the side members 22 can be conveniently slid from the end members 25 without removing any fastening devices, while the weight of the invalid will tend to draw the sides of the frame inwardly, and thereby hold the frame together without the employment of fastenings, as will...
be hereinafter explained. The body or mattress portion of the stretcher is made up of three transversely-disposed strips or sheets A, B, and C, of canvas or other suitably strong and flexible material, of which the intermediate sheet or member B is overlapped by the inner edges of the end members A and C. These members A, B, and C lie wholly within the frame of the stretcher and are provided at opposite ends with spreader-bars a, b, and c, each of which is connected to its respective member by means of lacing 26, and each bar is connected to the adjacent side of the frame by means of a pair of loops 27, preferably in the form of buckled straps. It will here be noted that the mattress-sections are entirely independent one of the other, with the intermediate section underlapping and supporting the inner edges of the end sections, so as to present a practically continuous mattress. It will now be understood that as the mattress is connected to the sides only of the frame said sides will be drawn together by the weight of the occupant of the stretcher, and thereby hold the frame in its assembled condition.

For the support of the stretcher member there is provided a hanger or sling consisting of a horizontal bar 28, preferably a tube or pipe, from the ends of which depend ropes 29, which are connected with the side members 22 of the stretcher-frame. While each of these ropes may be connected to the bar 28 in any suitable manner, I prefer the arrangement shown in Fig. 6, wherein it will be seen that the rope 29 is looped and passed through a tubular plug 31, with the latter fitted into the end of the bar 28, or, to be more correct, into an internally-screw-threaded tubular sleeve 32, fitted to the bar. The inner end of the looped rope 29 is provided with a knot or button 33 to prevent the loop from being pulled through the plug, and the outer pendent end portion of the loop carries a ring 30. From the ring 30 depends a strap 36, which carries at its remaining end a snap-hook 37. The strap 36 is adapted to be looped or wound about the adjacent side of the stretcher-frame, after which the snap-hook 37 thereof is made to engage the ring 30. By this means the stretcher is suspended from the bar 28, and the point of suspension afforded by the strap 36 may be adjusted to any position along the longitudinal side 22 of the frame. When the straps 36 are at the transverse center of the frame, the stretcher will be hung in a horizontal plane, and by moving the straps to one side of the transverse center the stretcher will assume an inclined position. When the stretcher is supported in an inclined position, the greater portion of the weight of the invalid will come upon the intermediate mattress-section B, whereby the latter will sag more than the end sections A and C, and thereby form a depressed seat and permit the support of the invalid in substantially a sitting position.

When necessary for the use of a bed-pan, it is obvious that the pan may be supported on the bed proper or other convenient support and the necessary opening in the mattress provided by disengaging the supporting straps of one end of the central mattress-section from one of the side members 22. It will be seen that the height of the stretcher-frame may be easily adjusted so that the weight of the hips of the patient will be carried by the canvas instead of resting on the pan.

In order that the stretcher may be conveniently elevated, there is provided a cable 38, one end of which is fixed to the front-end portion of the frame-arm 9, from which it depends, and runs through a pulley 39, carried at the intermediate portion of the sling-bar 28, from which it extends upwardly over the pulley 14, thence rearwardly across the top of the arm 9, and downwardly over the pulley 16 to the drum 18, so that by manipulating the latter the stretcher may be raised and lowered. While the pulley 39 may be connected to the sling-bar 28 in any suitable manner, it is preferred to employ a rope or strap 40, used in the manner described for the strap 36.

It will be understood that the invalid-support herein described is designed to be so arranged as to bring the mattress-sections immediately over or on a bed and that when elevated the weight of the patient is transferred from the bed to the sectional mattress, and, if desired, the stretcher-frame may be strapped or otherwise secured to the mattress of the bed, so that the latter will be raised with and continue to act as a support for the patient.

From the construction and operation described it will be seen that my improved invalid-support may be conveniently utilized in sick-rooms or hospitals and that the patient may be easily lifted or conveyed from the bed or so supported as to assume a desirable inclination.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. A stretcher embodying an open frame, and end and intermediate mattress-sections carried by the frame, the intermediate section underlapping and supporting the inner edges of the end sections and also detachable independently of said end sections.

2. A stretcher embodying an open frame, end and intermediate mattress-sections, terminal stretcher-bars laced to the ends of the respective mattress-sections, and loose detachable connections between the respective stretcher-bars and the frame, the intermediate section underlapping and supporting the inner edges of the end sections.

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In presence of—

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