June 15, 1954 M. L. ROBINSON 2,680,855

ATTACHMENT FOR LIFTING INVALIDS IN AND OUT OF BATHTUBS

Filed Oct. 23, 1951

Fig. 1.

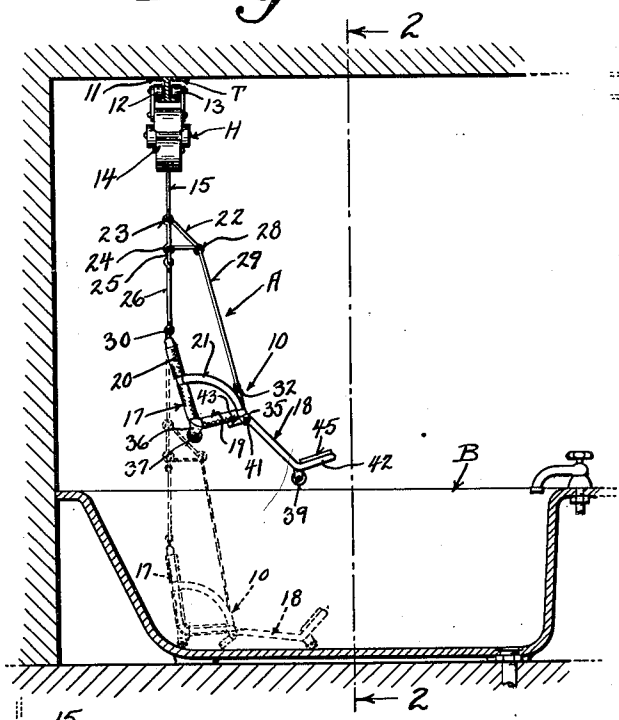


Fig. 2.

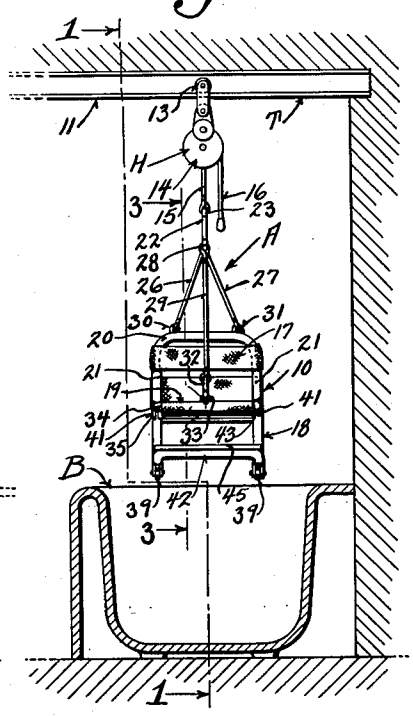


Fig. 3.

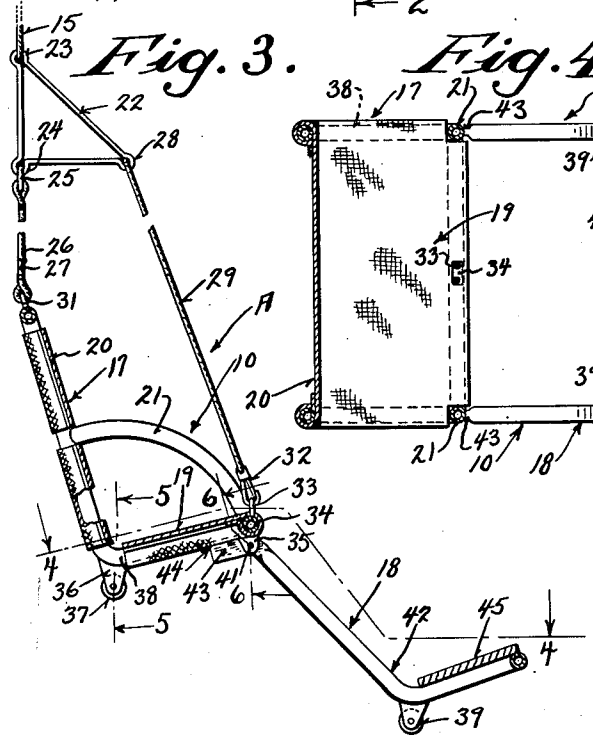


Fig. 4.

Fig. 5

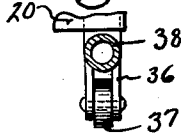
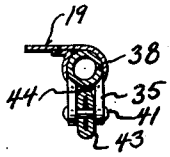


Fig. 6.



INVENTOR
MAUDIE L. ROBINSON

BY Young & Wright

ATTORNEYS

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ATTACHMENT FOR LIFTING INVALIDS IN AND OUT OF BATHTUBS

Maudie L. Robinson, Kenosha, Wis.

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2 Claims. (Cl. 4—185)

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This invention appertains to a self-operated invalid lift, and has for its principal object the provision of a simple and highly efficient device by means of which an invalid or patient can lift and transport himself from a bed or wheelchair, and lower himself into and out of a bathtub or the like without outside assistance and without injury or disturbance of the patient's body.

In the handling or treating of prolonged illnesses of patients or invalids, it is often necessary to raise the patient or invalid from his bed, stretcher, or wheelchair, and to transport him or place him in a bathtub. In general, the patient has to be moved by hand, necessitating the attendance of several persons, and in the case where the patient or invalid suffers a serious illness or is relatively heavy, it may easily happen that injury or discomfort is caused to the patient or invalid. In the past, various mechanical means have been suggested for lifting patients or invalids from their beds or wheelchairs, but such devices are complicated, usually requiring an attendant, and are in general insufficient to insure simple mechanical operation thereof and complete comfort and safety to the patient or invalid.

Therefore, another important object of my invention is to provide a device for supporting the invalid or patient while taking a bath, and allowing him to lower himself into a bathtub and out of the same without any outside assistance.

A further object of my invention is the provision of means for lowering a patient or invalid into a bathtub to any desired depth and raising him out of the tub, and to allow the moving of the support on which the patient or invalid rests from his bedstead or wheelchair directly over the bathtub.

A more specific object of my invention is to provide a self-operated invalid lift which includes a chair portion and a pivoted leg and foot rest, the bottoms of which are provided with rollers so that when the chair portion and leg and foot rest are lowered into the tub, the leg and foot rest may be pivoted to any desired position relative to the chair portion. A further object of my invention is to provide a simple, practical and reliable construction that is economical to manufacture, easy to assemble and positive in its operation.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangements of parts hereinafter more fully described, illustrated and claimed.

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A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a side elevational view of my improved invalid lift illustrated in its position for use over a bath tub, and looking in the direction of the arrows of line 1—1 of Figure 2;

Figure 2 is a front elevational view of the device, the view being taken on the line 2—2 of Figure 1, and looking in the direction of the arrows;

Figure 3 is an enlarged side elevational view in section, of the invalid support, the section being taken on the line 3—3 of Figure 2, and looking in the direction of the arrows;

Figure 4 is a top plan view of the invalid support, partly in section, clearly showing the seat and foot rest portions, the section being taken on the line 4—4 of Figure 3, and looking in the direction of the arrows;

Figure 5 is a detailed section showing one of the supporting rollers, the section being taken on the line 5—5 of Figure 3, and looking in the direction of the arrows;

Figure 6 is a detailed sectional view showing in particular the pivot support for the leg and foot rest, the section being taken on the line 6—6 of Figure 3, and looking in the direction of the arrows.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates my improved invalid lift which includes broadly the invalid support 10, hoist H and track-way T. The track-way T is positioned transversely across the bath tub B, and is in the form of an I-beam 11. This I-beam 11 may be secured adjacent the ceiling of a bathroom as illustrated, or it may be part of a movable or portable frame. The hoist H is movably supported on the I-beam by the provision of two rollers 12 and 13, which are fastened to the motor housing 14 of the hoist H in any desired manner.

The motor housing 14 contains any conventional type of hoist motor which is provided with a hoisting cable 15 and a control cable 16.

The invalid support 10 includes a chair portion 17 and a leg and foot rest portion 18 pivoted thereto. While the invalid support 10 may be constructed of any desired material, in the preferred form it is constructed primarily of steel tubing. The chair portion 17 has a seat 19 and

a back 20 made from one continuous length of tubing, which is suitably covered with any type of material as shown. Arm rest 21 may or may not be provided if desired.

The chair portion 17 is supported in its upright position to the hoist cable 15 by means of a novel triangular shaped supporting link 22, the apex of each angle being enlarged as shown. The cable 15 is secured to the upper enlarged portion 23, and the lower enlarged portion 24 of link 22 is provided with a ring 25 to which is secured two supporting cables 26 and 27. The outer enlarged portion 23 of the link 22 has secured thereto cable 29. The back 20 of the chair portion 17 is provided with upstanding eyes 30 and 31, to which the respective ends of the cables 26 and 27 are secured. Cable 29, by means of snap hook 32, is fastened to an upstanding eye 33 which is welded or otherwise secured to the forward tubing section 34 of the seat 19.

The under corners of the seat portion are each provided with a pair of downwardly extending ears. The forward ears 35 form a pivoted support for the leg and foot rest portion 18, and the rear ears 36 form a support for the rubber rollers 37. Figure 5 illustrates in detail the ears 36 and the roller 37. The ears extend downwardly from the tube length 38 as shown. It is also to be noted that the bottom portion of the leg and foot rest 18 is provided with rollers 39 which are similar to the above described rollers 37.

Figure 6 of the drawings illustrates in detail the manner of securing the ears 35 to the tubing 38, and the pivot bolt 41 extends across the ears 35. The pivoted leg and foot rest 18 is formed from a continuous U-shaped length of tubing 42, each leg of which is flattened at its upper end 43, and it is through this flattened portion 43 that the pivot bolt 41 extends. The flattened portion 43 also extends rearwardly and its upper surface rests against the lower surface of the tubing 38 at 44, to hold the leg and foot rest 18 in the position illustrated by the full lines of Figure 1 and Figure 3. The foot rest 45 may be made of wood or rubber composition, and is fastened to the tubing 42 by means of screws 46, as shown in particular in Figure 4.

In using the lift, the invalid or patient lowers the support into position next to his bed or wheelchair by manipulating the control cable 16, which operates the hoist. After he has seated himself properly in the device, he then fastens cable 29 to the upstanding eye 33, and raises himself to the desired height by again actuating control cable 16. He may then hand-propel himself along the I-beam 11 until he is in a position over the bath tub as illustrated in Figures 1 and 2. Here he again actuates the control cable 16 and lowers himself from the full line position (Figure 1) to the dotted line position.

It is to be noted that the hoist motor is of a very sensitive type, and very fine adjustments may be made by proper manipulation of the control cable 16. The patient or invalid may lower himself to any depth in the tub and be firmly supported in that position. If, however, he desires to remove some of the strain from the hoist motor, he may lower himself almost completely into the tub as shown by the dotted lines of Figure 1, and in so doing, the rollers 37, 39 will touch the tub bottom and the foot rest will pivot upwardly. If it becomes necessary, the entire invalid support 10 may rest upon the tub bottom, and in this position the flattened portions 43 of the leg and foot rest will provide a third point of support on the bottom of the tub.

From the foregoing, it is believed that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will, of course, be understood that changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. In an apparatus for hoisting invalids into and out of a bath tub of the type having a transverse supporting frame, a hoisting mechanism free to travel thereon, a hoisting cable associated with the hoisting mechanism, and a control cable for operating the hoist; an invalid support in three-point suspension with said hoist cable, said invalid support including a chair portion having a covered seat and back formed from a continuous length of steel tubing and a U-shaped length of steel tubing forming a hinged leg and foot rest, a pair of rollers secured to the under surface of said chair portion, a pair of rollers secured to the under surface of said leg and foot rest, and means including flattened extensions of said leg and foot rest for limiting the pivotal arc of swing of the leg and foot rest.

2. In an apparatus for hoisting invalids into and out of a bath tub of the type having a transverse supporting frame, a hoisting mechanism free to travel thereon, a hoist cable associated with the hoisting mechanism, and a control cable for operating the hoist; an invalid support in three-point suspension with said hoist cable, said invalid support including a back section, a seat section and a leg and foot rest pivotedly secured to the forward portion of said seat section, a triangular link suspended between said hoist cable and said invalid support, a pair of cables secured to the back section of the invalid support and extending convergingly upward and secured to said triangular link, said triangular link being so constructed and arranged that all of its legs lie in the same vertical plane with its lower leg extending horizontally from a point in alignment with the back section of the invalid support to a point toward the forward end of said seat section, said converging cables being secured to the inner end of said lower leg, a cable secured at one end to the forward end of said seat section and having its other end secured to the outer end of said lower leg of the triangular link, and a series of rollers secured to the under surface of said seat section and said leg and foot rest.

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