Nov. 8, 1966 A. N. ENGELMEIER 3,284,093

CHAIR LIFT

Filed March 19, 1964 2 Sheets-Sheet 1

FIG. 1

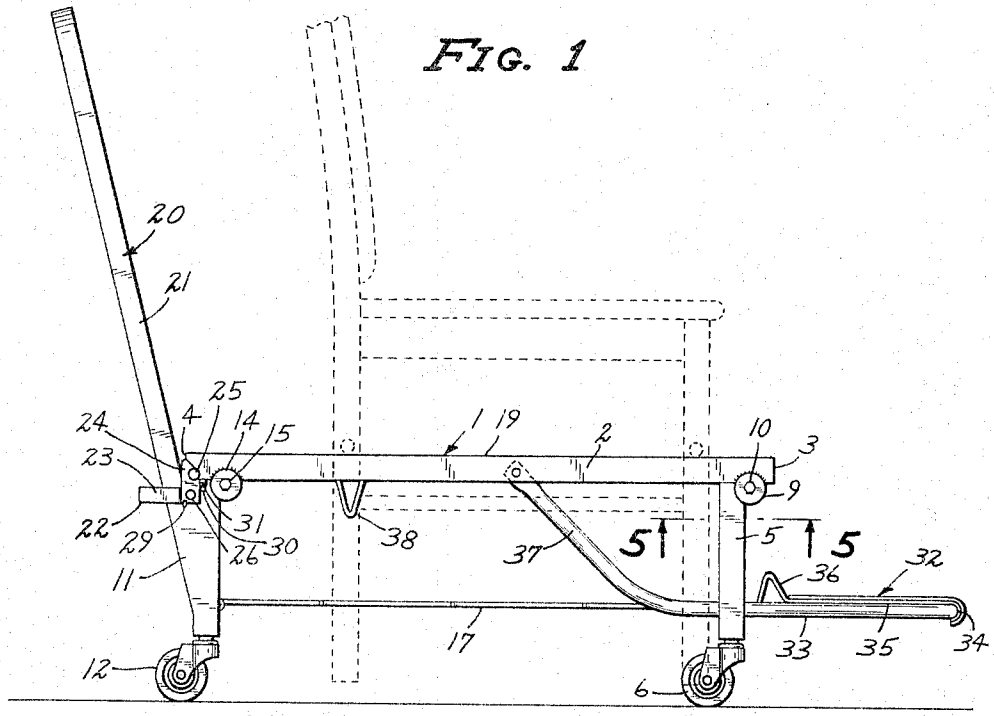


FIG. 2

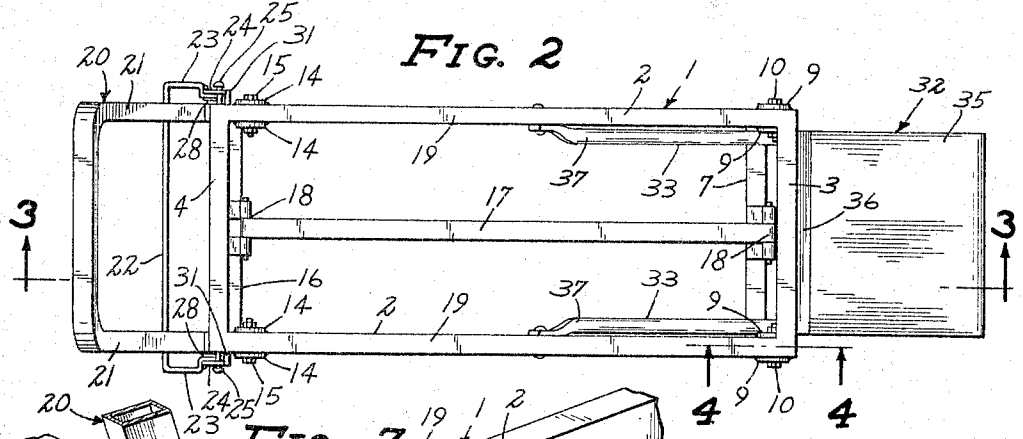
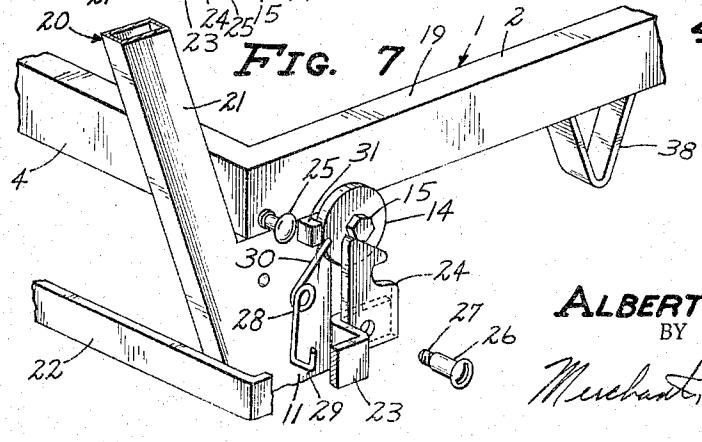


FIG. 7



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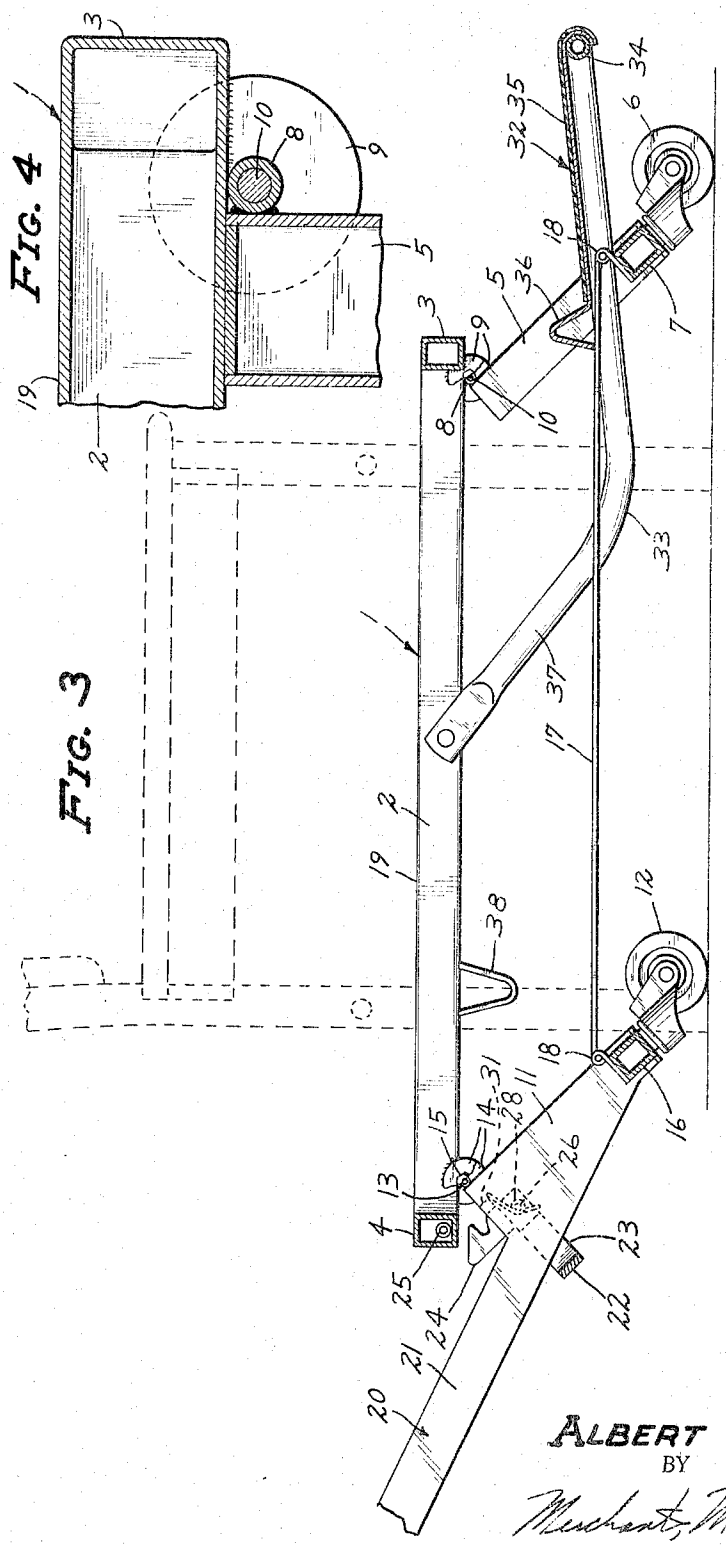


FIG. 3

FIG. 4

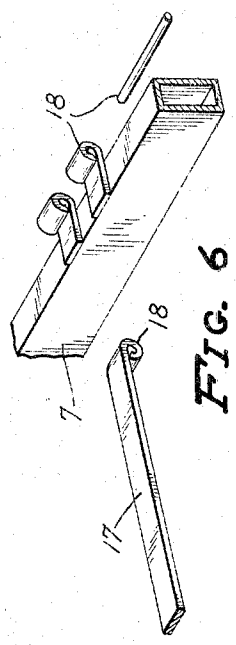


FIG. 6

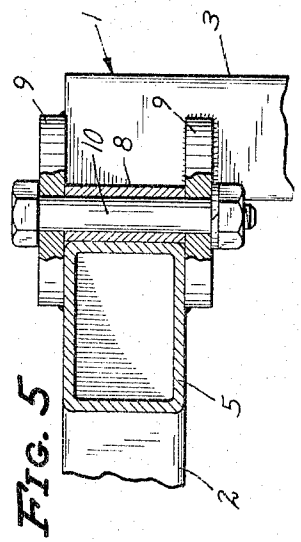


FIG. 5

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CHAIR LIFT

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3 Claims. (Cl. 280—43.13)

This invention relates generally to hoisting and lifting trucks, and more particularly it relates to a novel chair lifting device equipped with wheels.

The novel chair lift device of the present invention generally comprises a generally horizontal frame having legs which are movable between collapsed positions to permit movement of the frame under a chair, and generally upright positions for elevating, supporting and transporting a chair.

It is well known that it is often very difficult for patients in hospitals, sanitariums, homes for the elderly, etc., to move about. One can well appreciate, however, the desires of persons in such institutions for a change of scenery, such as even from one room to another. However, it is often difficult to move the patients from place to place in such institutions, sometimes because of the lack of adequate devices, equipment for accomplishing the same, or because of the particular infirmities of the patient. This is often true, notwithstanding the fact that patients can often sit comfortably in a chair, and sometimes even one particular chair, and may derive appreciable benefits and pleasure from doing so.

With the above in mind, an important object of the present invention is the provision of a novel chair lift which may be quickly and simply operated for transporting patients in their chairs from one place to another.

Another object of the present invention is the provision of a novel chair lift device which is of greater utility in transfer and moving of patients than a wheel chair since in using the device of the present invention, the patients do not have to move or be moved from the chair; and the novel lifting device of the present invention may be manufactured at a fraction of the cost of wheel chairs.

Another object of the present invention is the provision of a chair lifting device which includes front and rear legs movable between collapsed positions to permit movement of the same under a chair, and generally upright positions for elevating and supporting the chair.

Another object of the present invention is the provision of a chair lift and patient transporting device which includes a novel forwardly projecting foot rest member conveniently disposed and arranged to support the feet of the patient.

Still further objects and advantages of the present invention reside in the provision of a chair lift which remains strong and durable throughout long periods of continued use, may be manufactured at a relatively low level of cost, and which may be compactly folded for storage.

The above and still further objects and advantages of the present invention will become apparent from a consideration of the following detailed specification, attached claims and appended drawings.

Referring to the drawings, wherein like reference characters indicate like parts or elements throughout the several views:

FIG. 1 is a view in side elevation of the chair lift device of the present invention in its upright operative position, and showing by dotted lines a chair supported thereon;

FIG. 2 is a view in top plan thereof;

FIG. 3 is an enlarged view in longitudinal section taken on the line 3—3 of FIG. 2, some parts being broken away;

FIG. 4 is an enlarged detail view in section taken on the line 4—4 of FIG. 2;

FIG. 5 is an enlarged detail view in section taken on the line 5—5 of FIG. 1, some parts being broken away;

FIG. 6 is an enlarged and exploded view in perspective showing in greater detail some portions of the present structure; and

FIG. 7 is an enlarged and exploded view in perspective showing in greater detail portions of the structure of this invention.

Referring more particularly to the drawings, the chair lift structure of the present invention comprises a horizontal frame, represented generally by the reference numeral 1. The frame 1 is elongated and is generally rectangular in configuration and more particularly, comprises a pair of side frame members 2 and front and rear frame members 3, 4, respectively. Although it will be appreciated that the frame 1, as well as many of the other structural components of this invention, may be constructed from bar stock of suitable rigidity and configuration, the frame 1 is specifically constructed from square tubing.

The chair lift further comprises a pair of spaced front legs 5 equipped at their lower end portions with caster-type wheels 6. The legs 5 are disposed adjacent the front portion of the horizontal frame 1, and the upper end portions of the legs 5 are mounted for pivotal movements to the frame 1, in a manner which will be more particularly described hereinafter. As shown particularly in FIG. 3, bar means, specifically and in the form of a cross bar 7, extends inwardly from both of the front legs 5. More specifically, the generally horizontal cross bar 7 is rigidly secured, as by welding or the like, at its opposite end portions to the lower portions of the front legs 5.

A pivotal mounting of the front legs 5 to the frame 1 is shown particularly in FIGS. 3–5, wherein it will be noted that each of the front legs 5 is provided with a bearing sleeve 8 rigidly secured thereto such as by welding or the like, as noted in FIG. 4. The horizontal frame 1 defines a pair of depending ears 9 for each of the front legs 5, with all of the ears 9 having generally coaxial apertures. The ears 9 for each of the front legs 5 coaxially receive the associated bearing sleeve 8 and journal a bolt or pivot pin 10.

The chair lift structure of the present invention further comprises a pair of spaced rear legs 11 equipped with caster wheels 12, in a manner similar to the front legs 5, and disposed adjacent the rear portion of the horizontal frame 1. The rear legs 11 are mounted for pivotal movements to the frame 1 about a generally laterally and horizontally extending axis generally parallel with the axis of pivotal connection of the front legs 5. More particularly (the rear legs 11 are mounted by means of bearing sleeves 13 secured to the legs 11, depending ears 14 secured to the frame 1 and corresponding pivot pins 15, in a manner similar to the previously described pivotal connection of the front legs 5. The rear legs 11 are also provided with a cross bar 16 rigidly secured between the lower end portions of the legs 11. In order to secure the front legs 5 to the rear legs 11 for concerted movement thereof, an elongated tie bar 17 is secured between the cross bars 7, 16 by means of a pair of hinges 18. With the above described arrangement, it will be noted that the front and rear legs 5, 11 are mounted to the frame 1 for pivotal movements about spaced generally laterally and horizontally extending generally parallel axes and between collapsed positions defining a lower position of the frame and generally upright positions for elevating and supporting a chair. The upright positions of the legs 5, 11 are illustrated in FIGS. 1 and 2, with FIG. 1 showing a chair by dotted lines resting upon the upper supporting surface or surfaces 19 defined by the members

2 of the horizontal frame 1. A partially collapsed position of the legs 5, 11 is shown in FIG. 3, and a chair is also shown therein by dotted lines to illustrate the manner in which the lifting structure of this invention may be moved under a chair prior to lifting or supporting the same.

As shown in the drawings, a generally upright handle 20 has its depending side portions 21 rigidly secured to the rear legs 11. Of course, the lower ends of the handle side portions 21 may be secured to the legs 11 by welding, or the like, or they may be formed integrally with the legs 11. The handle 20 is manually operative to move the legs 5, 11 of the structure between their collapsed and upright positions.

A novel latch arrangement is provided in accordance with this invention for removably securing the legs 5, 11 in their upright position. The latch means is associated with the rear legs 11 and more particularly, comprises a latch foot bar or bail 22 having forwardly projecting offset end portions 23 which define generally upright latch hooks 24. The latch hooks 24 cooperate with a pair of latch pins 25 projecting outwardly from the opposite sides of the frame 1. The latch bail 22 is pivotally secured to the upper end portions of the rear legs 11 by means of pivot pins 26 which project through aligned apertures in the end portions 23 of the bail 22 and are secured to the legs 11. For this reason, the pins 26 are provided with screw threaded end portions 27. A torsion spring 28 is positioned on each of the pivot pins 26, as particularly shown in FIG. 7. The lower end portions 29 of the springs 28 engage the bail 22, and the upper end portions 30 thereof are retained by suitable lugs 31. With this arrangement, it will be apparent that when it is desired to unlatch the legs 5, 11, the operator merely presses the bail 22 with his foot so as to disengage the latch hooks 24 from the pins 25 against the bias of the torsion springs 28. The operator may then manually lower the handle 20, as illustrated in FIG. 3, to permit movement of the horizontal frame 1 to a lower position thereof sufficient to permit the frame 1 to pass beneath the cross members of the chair to be moved. When desiring to lift and support the chair by returning the legs 5, 11 to their upright positions, the operator merely raises up on the handle 20 until the biased latch hooks 24 snap into engagement with the pins 25.

An important feature of the present structure resides in the provision of a generally flat foot rest member, represented generally by the numeral 32, positioned adjacent the front legs 5 and projecting forwardly therefrom, as shown particularly in FIGS. 1–3. The foot rest member 32 has a U-shaped frame in the form of a pair of elongated generally rearwardly extending support bars 33 and a front bar 34. The projecting forward portions of the bars 33 and the front bar 34 support a foot plate 35 having a heel stop 36. The rear end portions 37 of the elongated bars 33 are pivotally connected by suitable pivot pins to the side frame members 2 of the horizontal frame 1. Referring particularly to FIGS. 1 and 3, it will be noted that the rear end portions 37 of the elongated bars 33 are upwardly and rearwardly bowed, and the lower surfaces of the front portions of the bars 33 engage the cross bar 7 for sliding movements thereon when the structure is moved between its collapsed and upright positions.

As particularly shown in the drawings, a pair of depending stop brackets 38 are secured to the underside of the frame side members 2, 3 for engagement with the

front surfaces of the rear legs 11 when in the completely collapsed condition.

Having specifically described the structure and operation of the present invention, it should be noted that this invention has been satisfactorily tested. Furthermore, while a preferred embodiment thereof, in which the principles of the present invention have been incorporated, has been shown and described herein, it should be specifically understood that the same may be modified without departure from the scope and spirit of the appended claims.

What is claimed is:

1. A chair lift comprising:

(a) a horizontal frame having a supporting surface and defining front and rear portions,

(b) a pair of spaced front legs equipped with wheels and disposed adjacent the front portion of said frame, at least one of said front legs having a support portion extending in a lateral direction,

(c) a pair of spaced rear legs equipped with wheels and disposed adjacent the rear portion of said frame,

(d) means mounting said front and rear legs to said frame for pivotal movements about spaced generally laterally and horizontally extending axes and between collapsed positions defining a lower position of said frame, to permit movement of the frame under a chair, and generally upright positions for elevating and supporting a chair,

(e) means connected said front legs to said rear legs for concerted movement thereof,

(f) a generally flat foot rest member positioned adjacent said front legs and projecting forwardly thereof, said foot rest member being pivotally mounted to said frame at a position rearwardly of said front legs and also engaging said support portion of said one of the front legs for sliding movement with respect to said front legs upon pivotal movement of the latter.

2. The structure defined in claim 1 in further combination with an upright handle which comprises an extension of said rear legs and which is formed integrally with the latter, said handle being operative to move the legs between their collapsed and upright positions.

3. The structure defined in claim 1 in further combination with bar means extending inwardly from both of said front legs, and in which said foot rest member comprises a pair of elongated generally rearwardly extending support bars pivotally connected at their rear end portions to said frame and having intermediate portions of said support bars in engagement with said bar means.

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