

July 29, 1952

J. L. JUNKIN

2,604,640

HYDRAULIC LIFT PLATFORM TRUCK

Filed Dec. 11, 1945

2 SHEETS—SHEET 1

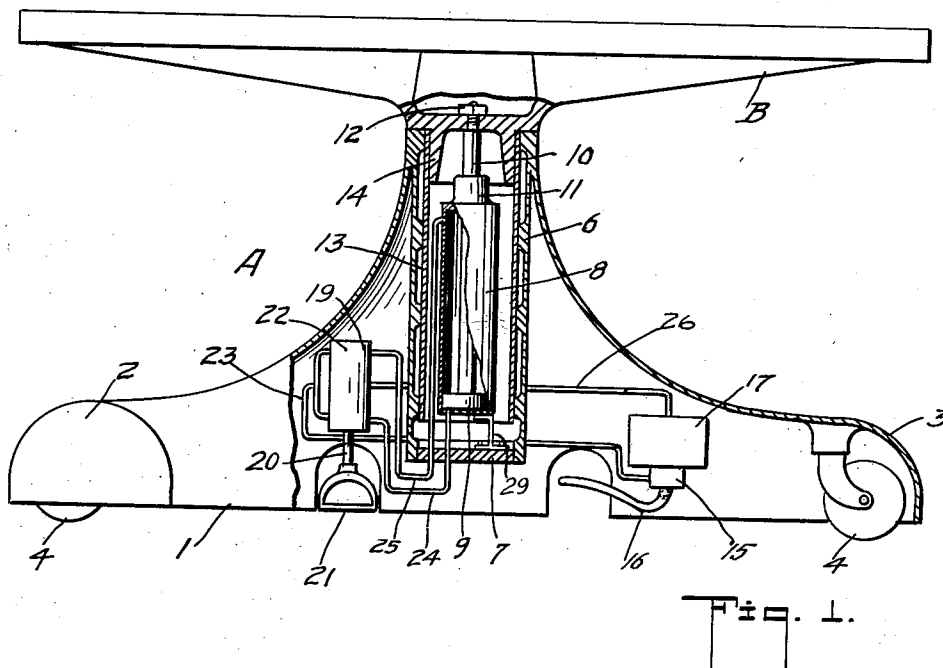


Fig. 1.

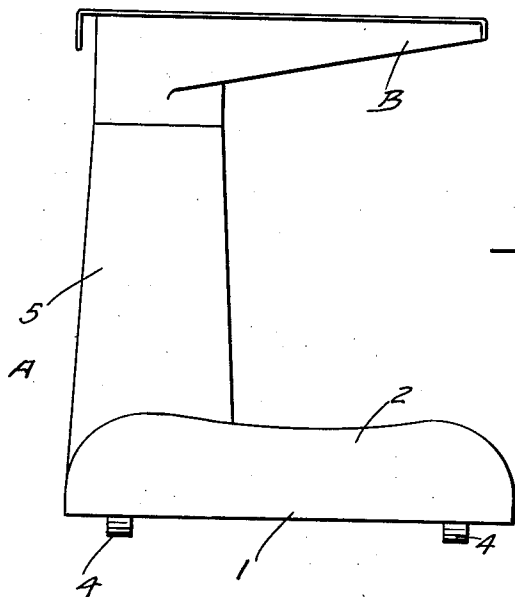


Fig. 2.

INVENTOR:

BY J. L. Junkin

O'Martin

ATTORNEY.

J. L. JUNKIN

HYDRAULIC LIFT PLATFORM TRUCK

Filed Dec. 11, 1945

2 SHEETS--SHEET 2

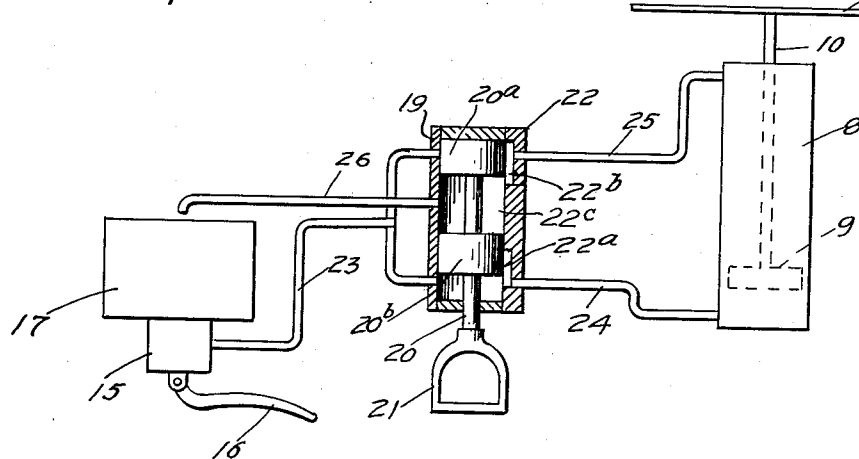
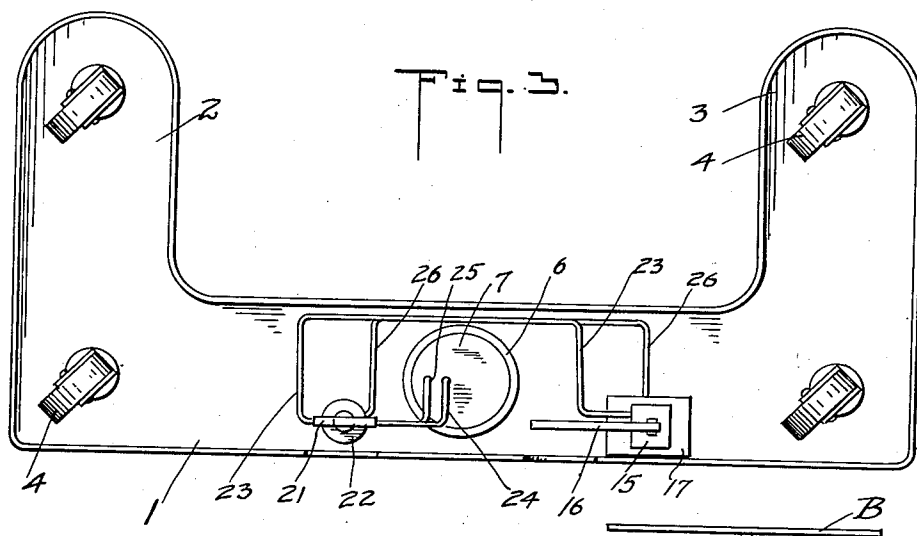


Fig. 4.

**INVENTOR:**

BY *J. L. Jenkins*  
*O'DMartin*

ATTORNEY.

## UNITED STATES PATENT OFFICE

2,604,640

## HYDRAULIC LIFT PLATFORM TRUCK

John L. Junkin, Los Angeles, Calif.

Application December 11, 1945, Serial No. 634,380

4 Claims. (Cl. 5—86)

1

This invention relates to a device for transporting invalids or patients from bed to bed or to the operating table.

It is the object of my invention to provide a simple and conveniently operable device which may be moved close to the bed or table to or from which the invalid or patient is to be transferred. It is a further object to provide a device having a laterally projecting platform thereon, the greater portion whereof overhangs the bed or table against which the device is movable. A still further object is to provide, within the device, foot pressure operated means for raising the platform above the table or bed before moving the device thereagainst and subsequently lowering the platform until it comes to rest on the bed or table.

These and other objects of the invention will be apparent upon perusal of the following detailed description and referring to the accompanying drawings, in which:

Fig. 1 is a front view of a device embodying the invention;

Fig. 2 is an end view of the device of the invention;

Fig. 3 is a plan view of the device as viewed from the bottom thereof; and

Fig. 4 is a diagrammatic view illustrating the operating mechanism of the device.

The structure of the invention, in the form illustrated in the drawings, comprises an elongated, hollow base 1, made with extensions 2, 3 horizontally directed from the ends thereof at right angles thereto so as to form a substantially U-shaped base, from the center of which rises a tubular column 5. The base is mounted to ride on casters 4 for convenient movement of the device. The shape of the base is important for reasons which will be hereinafter explained. The column is shown squared at the top to support a hollow platform B and it is seen that a cylindrical guide member 6 extends downward from the squared top thereof nearly to the bottom of the base. The bottom of the member is shown closed by a plate 7.

A cylinder 8 is in any suitable manner, as by a bracket 29, coaxially mounted within the member 6 in vertically spaced relation to the closure 7 and it extends nearly to the top of the column. A piston 9 is mounted for reciprocation within this cylinder and the rod 10 of this piston is fitted to slide in a bearing 11 at the closed top of the cylinder. The platform B is by means of a nut 12 within the platform shown rigidly secured to the upper end of the piston rod.

Within the base is mounted a pump 15 of any

2

suitable well known construction and it is fitted with a pedal 16 for foot operation to draw fluid from a reservoir 17, which also is placed within the base. A conduit 23 leads from this pump to a four-way valve 19 to deliver fluid under pressure to the bottom or top of the cylinder 8, thereby positively to raise or lower the platform B. Such valve and the operation thereof are diagrammatically illustrated in Fig. 4. The cylindrical stem 20 of this valve is shown fitted with a stirrup 21, by means of which the valve may be moved vertically within the casing 22. The conduit 23 leads from the pump 15 to the bottom and the top of this casing. The stem is shown made with two heads, 20<sup>a</sup> and 20<sup>b</sup>, which are so placed on the stem that, when one head is at one end of the space within the casing, the other head is a short distance from the other end thereof.

As shown in Fig. 4, the valve has been moved into its upper position and it is seen that pressure fluid from the conduit 23 is free to pass under the head 20<sup>b</sup> into a port 22<sup>a</sup> of the casing and through a conduit 24 to the space below the piston 9 of the cylinder 8. Operation of the pump 15 now forces the piston 9 upward to elevate the platform B. It is noticed that a conduit 25 extends downward from the top of the cylinder 8 through plate 7 and that this conduit communicates through a port 22<sup>b</sup> of the valve casing with the space 22<sup>c</sup> between the two valve heads. A discharge conduit 26 extends from this space to the reservoir 17 to open a passage for return of the fluid to the reservoir.

When the valve thereupon is moved down to the bottom of the valve casing, it is seen that the passage for the pressure fluid below the head 20<sup>b</sup> is cut off and that the fluid from the pump is free to pass over the head 20<sup>a</sup> into the port 22<sup>b</sup>. It is also noticed that this port now is cut off from the space 22<sup>c</sup> but that the pressure fluid is free to pass through the conduit 25 to the cylinder 8, above the piston 9, thereby positively to return the platform B to its initial position. Since, in this position of the valve, the space 22<sup>c</sup> opens into the port 22<sup>a</sup>, it is seen that the pressure fluid from below the piston 9 is free to return to the reservoir 17. As shown in Fig. 1, recesses are cut into the bottom edge of the base to form openings through which access may be had to said pedal and to the said stirrup.

It is important to note that a cylindrical sleeve 13 extends downward from a pendent flange 14 of the platform B and that it is fitted to slide within the guide 6 so as to support the platform laterally and to take the strain off from the piston

rod 10. The sleeve is rigidly secured to the flange 14 in any suitable manner which will not interfere with the vertical movement of the sleeve and platform.

The platform B is rectangular and of a size to support thereon a patient or invalid for transportation from bed to operating table and back. It is noticed that the platform overhangs to one side, following substantially the contour of the base, and this is done in order that the platform may be carried over the top of the bed or table until the column of the base comes to a stop against the side of the bed. The platform may then be lowered, as above described, until it rests on the bed, thereby to facilitate transfer of the patient from one to the other. The importance of the U-shaped base should now be apparent to anyone familiar with the handling of patients. In so shaping the base, it is possible to move the column close to the side of the bed or table and to clear the legs thereof, either by moving the base extensions 2, 3 between the legs thereof or by causing the extensions to straddle the legs.

From the foregoing description it will be apparent that I have provided an elevating truck for invalids which is easy to operate, highly efficient for its intended purposes and economical to manufacture.

I claim:

1. In a hydraulic lifting truck for invalids having a hollow base made with a tubular column rising from the center thereof and a platform resting on said column, the column having a cylindrical guide downwardly extending through the center thereof, said guide having a closure for the bottom thereof, in combination, a stationary cylinder supported on and rising from said closure in axial alignment with the guide, a sleeve depending from said platform and fitted to slide within the guide, a piston in said cylinder, a piston rod extending from said piston to the said platform, means within the platform clamping the latter in position on the end of said rod, a fluid pressure pump, a valve, conduit means connecting said pump through said valve with both ends of said cylinder, all of said elements being within the column below the platform, and means for operating said valve to carry fluid under pressure through said conduits to one end of the cylinder or the other thereby positively to raise and lower the platform.

2. In a hydraulic lifting truck for invalids made with a hollow base having a tubular column rising therefrom and a platform normally resting on said column, in combination, a cylindrical guide downwardly extending through the center of the column, a closure for the bottom of said guide, a stationary cylinder supported on and rising from said closure in axial alignment with the guide, a sleeve depending from the platform and fitted to slide within the guide, a piston in said cylinder, a piston rod extending from said piston to the said platform, means within the platform clamping the latter in position on the end of said rod, a fluid pressure pump, a valve, both within said base, conduit means connecting said

pump through said valve with both ends of said cylinder, and means within the bottom of the base accessible from the outside to operate said pump and valve to carry fluid under pressure through said conduits to one end of the cylinder or the other thereby positively to raise and lower the platform.

3. In a hydraulic lifting truck for invalids made with a hollow base having a tubular column rising from the center thereof and a platform normally resting on said column, in combination, a cylindrical guide downwardly extending through the center of the column, a closure for the bottom of said guide, a stationary cylinder supported on and rising from said closure in axial alignment with the guide, a sleeve depending from said platform and fitted to slide within said guide, a piston in said cylinder, a piston rod extending from said piston to the said platform, means within the platform clamping the latter in position on the end of said rod, a fluid reservoir, a valve, a pump for forcing fluid from said reservoir through said valve to the bottom or top of said cylinder, the reservoir, valve and pump all being mounted within said base, conduit means connecting said pump through said valve with both ends of said cylinder, and means for operating said valve to carry fluid under pressure through said conduits to one end of the cylinder or the other and to open a return passage to said reservoir.

4. In a hydraulic lifting truck for invalids made with a hollow base having a tubular column rising therefrom and a platform normally resting thereon, in combination, a stationary cylinder within said column, a piston and piston rod in said cylinder, means within the platform rigidly clamping the upper end of said piston rod to the platform, a valve casing within the base having a valve slidable therein, a fluid pressure pump within the base, a pedal at the bottom of the base for operating said pump, a conduit from the pump to both ends of said casing, conduits from the ends of the casing to the top and bottom of said cylinder, and a stirrup at the bottom of the base connected to move said valve to pass pressure fluid through said conduits to the top or bottom of the cylinder, the bottom edge of the base being recessed to provide access to said pedal and stirrup.

JOHN L. JUNKIN.

#### REFERENCES CITED

The following references are of record in the file of this patent:

#### UNITED STATES PATENTS

| Number    | Name            | Date           |
|-----------|-----------------|----------------|
| 935,170   | Smith           | Sept. 28, 1909 |
| 1,003,890 | Eveleth         | Sept. 19, 1911 |
| 1,033,277 | Seashole        | July 23, 1912  |
| 1,857,031 | Schaffer        | May 3, 1932    |
| 2,035,840 | Sechrist et al. | Mar. 31, 1936  |
| 2,218,883 | Jones           | Oct. 22, 1940  |
| 2,361,197 | Hallinan        | Oct. 24, 1944  |
| 2,375,908 | Farmer          | May 15, 1945   |