

Oct. 22, 1940.

C. F. JONES

2,218,883

INVALID LIFTING AND TRANSFERRING DEVICE

Filed Dec. 8, 1938

4 Sheets-Sheet 1

Fig. 1.

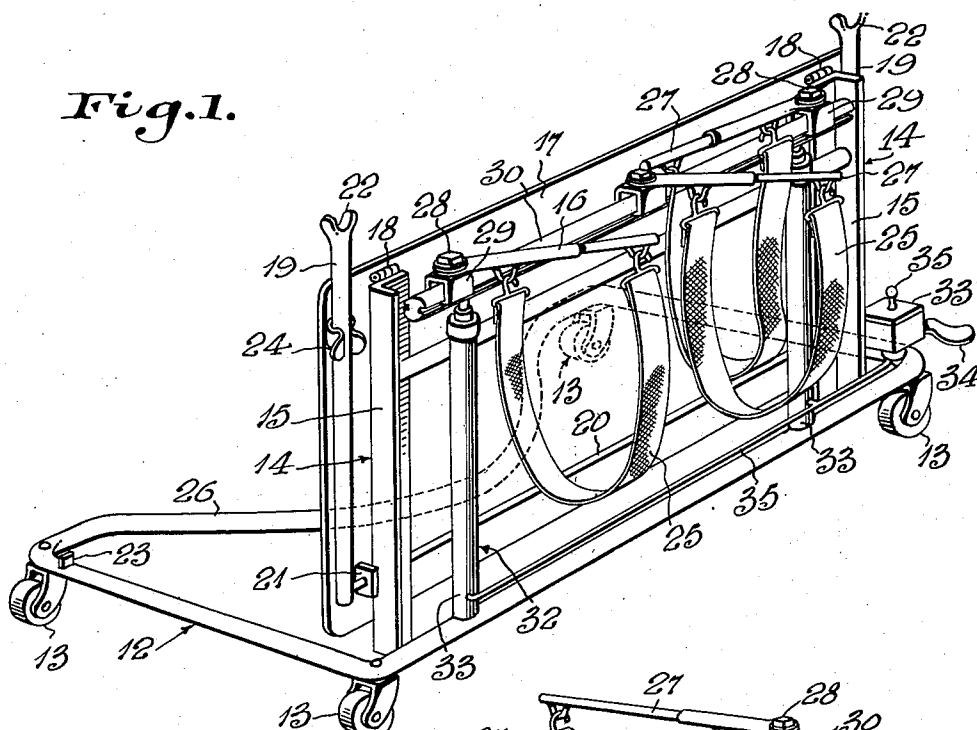
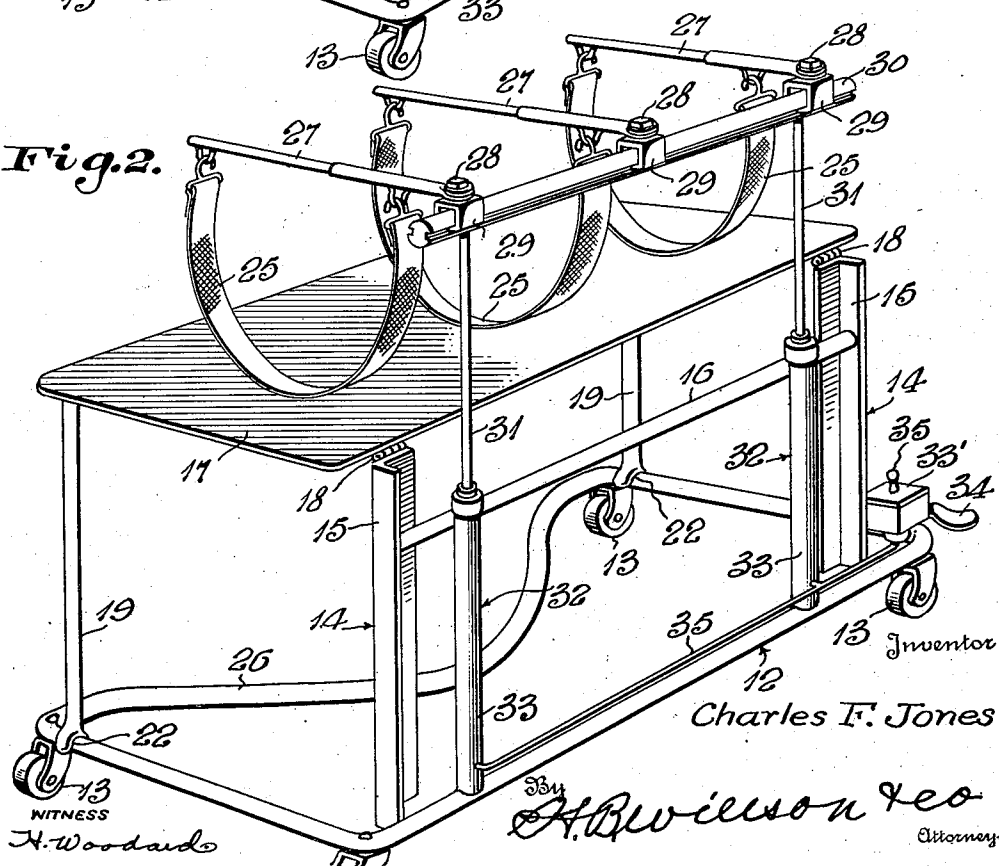


Fig. 2.



Charles F. Jones

By *A. B. Wilson & Co.*
Attorneys

WITNESS
H. Woodard

Oct. 22, 1940.

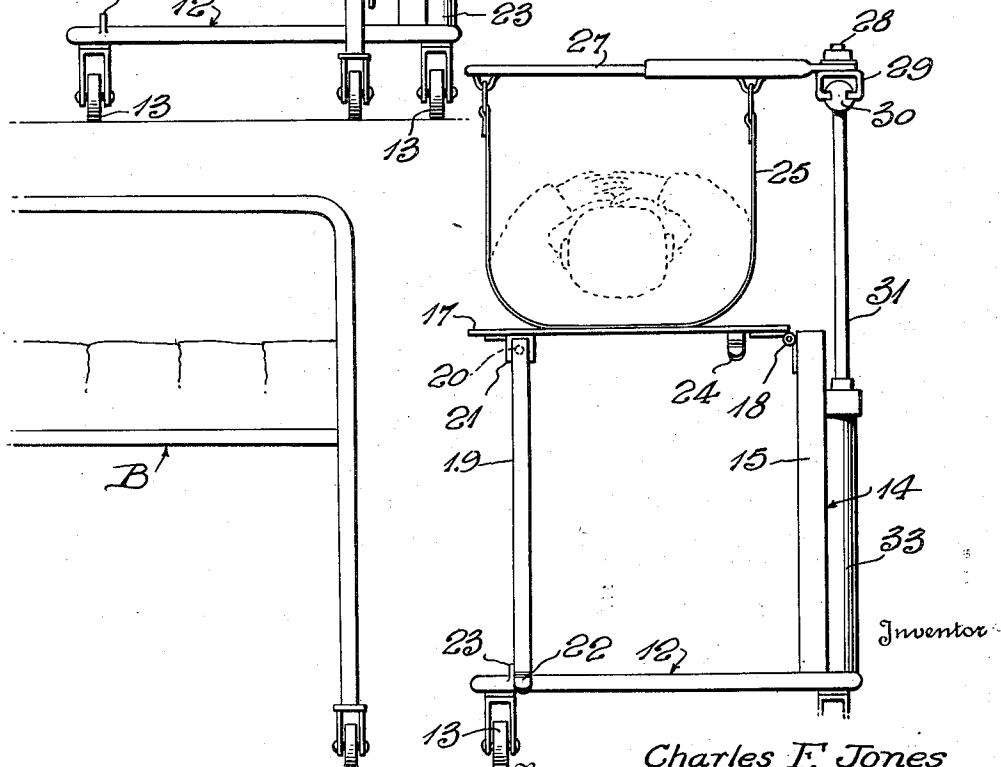
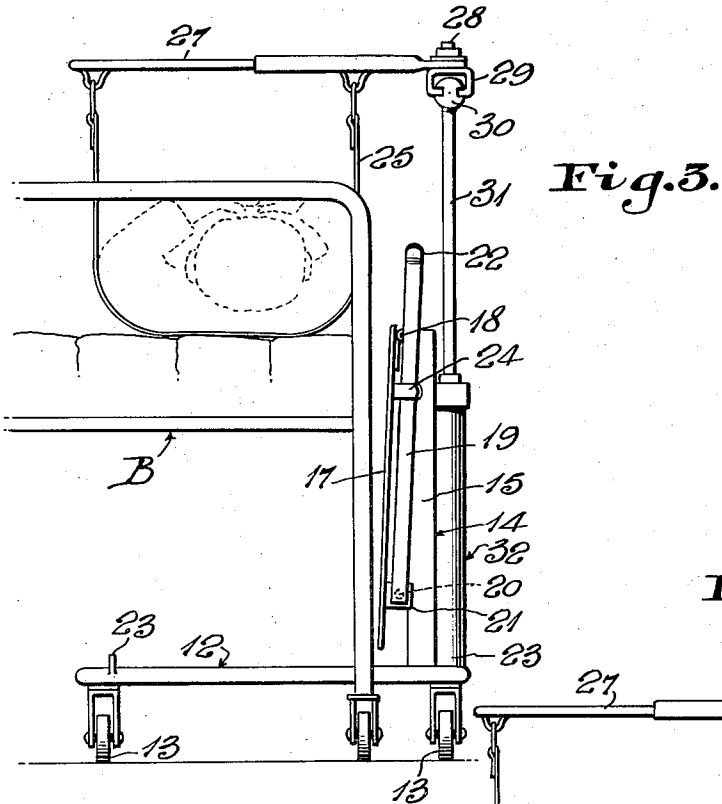
C. F. JONES

2,218,883

INVALID LIFTING AND TRANSFERRING DEVICE

Filed Dec. 8, 1938

4 Sheets-Sheet 2



WITNESS
H. Woodard

Charles F. Jones
H. B. Wilson & Co.
Attorneys

Oct. 22, 1940.

C. F. JONES

2,218,883

INVALID LIFTING AND TRANSFERRING DEVICE

Filed Dec. 8, 1938

4 Sheets-Sheet 3

Fig. 5.

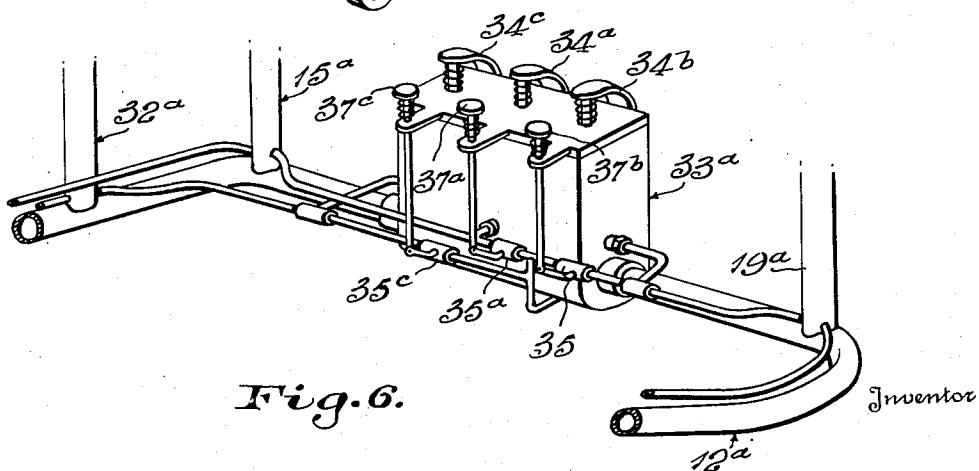
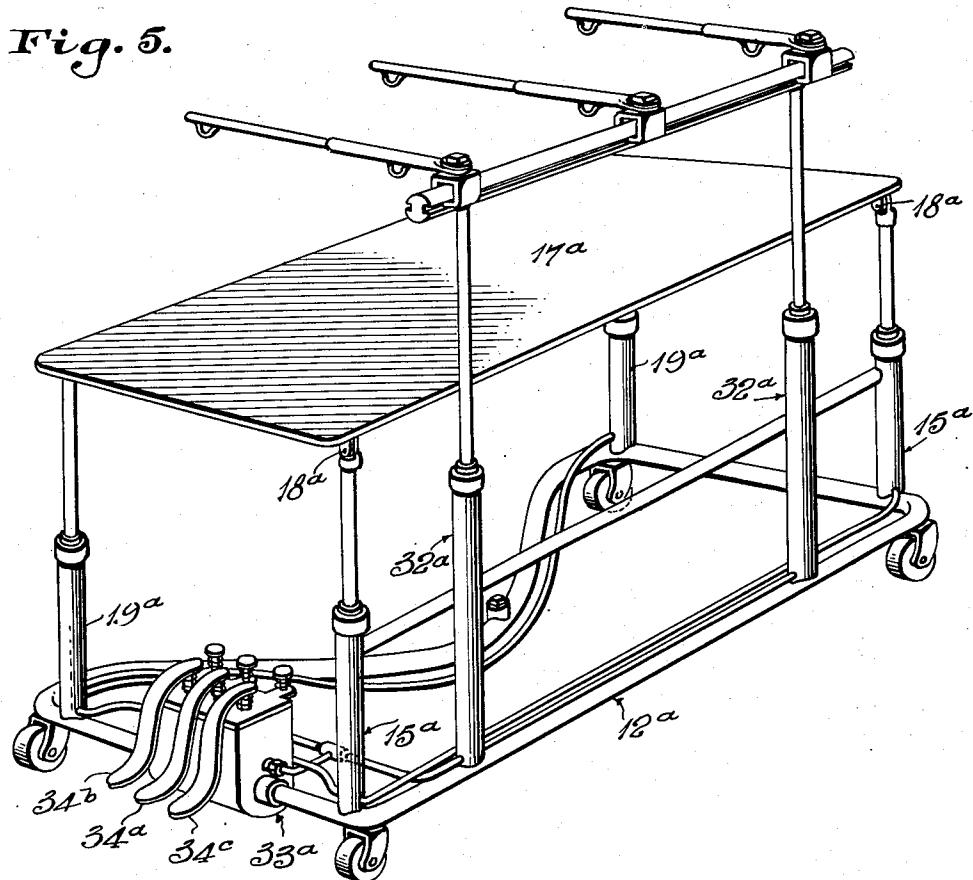


Fig. 6.

Charles F. Jones

WITNESS
H. Woodard

By
H. B. Wilson & Co. Attorneys

Oct. 22, 1940.

C. F. JONES

2,218,883

INVALID LIFTING AND TRANSFERRING DEVICE

Filed Dec. 8, 1938

4 Sheets-Sheet 4

Fig. 7.

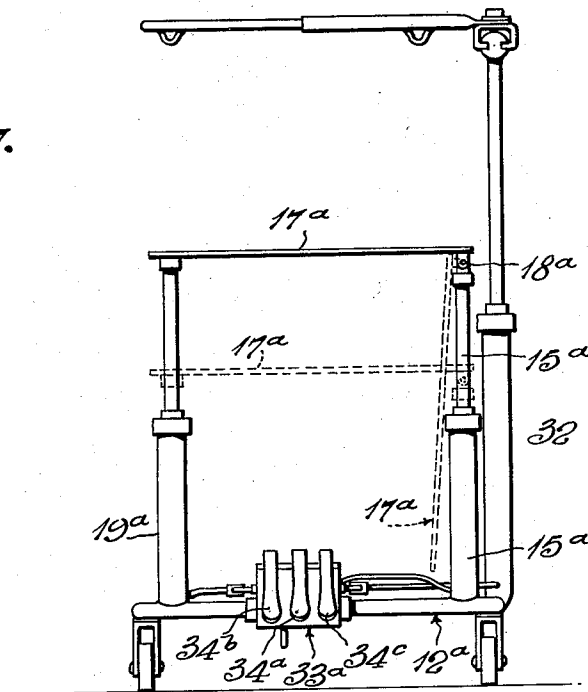
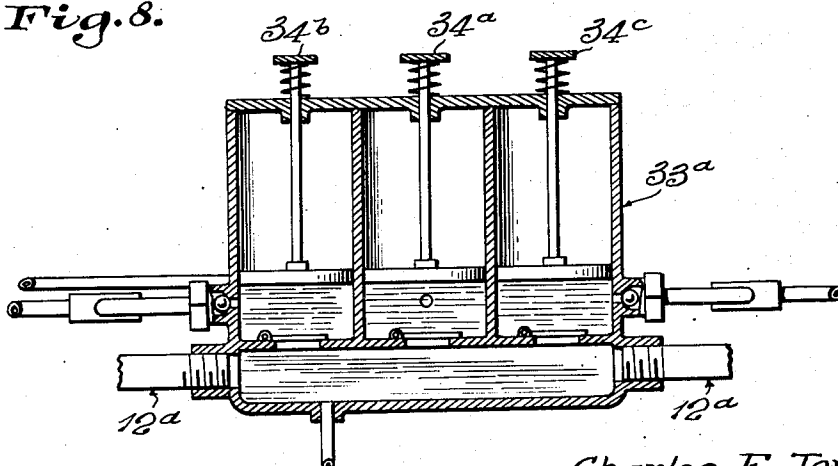


Fig. 8.



Inventor

Charles F. Jones

WITNESS

H. Woodard

By *H. R. Williams* Attorneys

UNITED STATES PATENT OFFICE

2,218,883

INVALID LIFTING AND TRANSFERRING
DEVICECharles F. Jones, Coatesville, Pa., assignor of one-
half to Joseph Price, Coatesville, Pa.

Application December 8, 1938, Serial No. 244,681

7 Claims. (Cl. 5—81)

The invention aims to provide a new and improved wheeled device for use in the easy handling and moving of patients in hospitals and the like, for instance, in lifting a patient from a bed, supporting him comfortably on a stretcher, transferring him to another point, lifting him from the stretcher and lowering him onto another bed, an X-ray table, or an operating table.

Another object is to provide a device of the class above mentioned in which the stretcher may be lowered sufficiently to permit a patient to sit thereon, and may then be elevated in convenient position to place him on a bed, table or the like, without danger of the attendants injuring themselves by lifting the patient by hand, often in more or less awkward positions.

With the foregoing and minor objects in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawings.

Figure 1 is a perspective view showing one form of construction, the parts being so positioned as to permit the base frame to be pushed under a bed.

Figure 2 is a perspective view illustrating the relation of parts when the invalid is to be lowered onto or raised from the stretcher.

Figure 3 is an end elevation illustrating the manner in which the device is associated with the bed when a patient is to be moved from the latter or placed thereon.

Figure 4 is an end elevation illustrating the device in spaced relation with the bed, which position it assumes just after a patient has been removed from the bed or when preparing to place him upon the bed.

Figure 5 is a perspective view of another embodiment of my invention.

Figure 6 is a detail perspective of parts shown in Fig. 5.

Figure 7 is an end elevation of the form shown in Fig. 5.

Fig. 8 is a sectional view through the pump.

In the form of construction shown in Figures 1 to 4, a horizontal base frame is shown at 12, preferably formed from metal tubing, said frame being provided with supporting wheels 13 preferably in the form of casters. A vertical back frame 14 is rigidly secured to and rises from the base frame 12 near one longitudinal edge thereof, said frame 14, in the present disclosure, consisting of two vertical angle metal posts 15 having their lower ends welded or otherwise secured to the frame 12, and a horizontal tube or the like

16 extending between the upper portions of said posts 15 and welded or otherwise secured thereto.

A suitably constructed stretcher 17 is provided over the base frame 12, said stretcher being hinged at one of its longitudinal edges to the upper ends of the posts 15, as shown at 18, permitting said stretcher to occupy a vertically hanging position as seen in Figs. 1 and 3, when the base frame 12 is to be pushed under a bed B in readiness for removing a patient therefrom or placing a patient thereon. Two pivoted legs 19 are provided to cooperate with the posts 15 in supporting the stretcher 17 in the horizontal operative position shown in Figs. 2 and 4. In the present showing, these legs are secured to a rock shaft 20 mounted in suitable bearings 21 on the lower side of the stretcher 17, the free ends of said legs 19 being bifurcated at 22 to straddle the end bars of the base frame 12 when the legs are operatively positioned. To limit the movement of the legs 19 to this position, suitable stops 23 may be provided on the base frame. To hold the legs 19 in inoperative positions, against the lower side of the stretcher 17 when the latter is to be downwardly folded as in Figs. 1 and 3, spring clips 24 may be provided on said stretcher to engage said legs, as seen in Figs. 1 and 3.

Provision is made for lifting or lowering the patient as required, with the aid of slings 25 and raising and lowering means for said slings. When the patient is to be removed from the bed for example (see Fig. 3), the slings are passed under him and the lifting means is operated to raise him from the bed, the stretcher 17 being then in its downwardly hung position and the base 12 being under the bed. After lifting the patient free from the bed, the entire device is moved outwardly away from said bed, whereupon the stretcher 17 is swung upwardly and held by the legs 19. Then, the raising and lowering means is lowered to lay the patient comfortably upon the stretcher 17. The entire device may then be rolled to the point to which the patient is to be transferred, for instance, to an X-ray table, to an operating table, or to another bed. When the destination is reached, the lifting means is again operated to raise the patient from the stretcher 17, the legs 19 are swung upwardly and engaged with the clips 24, the stretcher 17 is again lowered and the device is pushed toward the bed, table or the like onto which the patient is to be placed. The lowering means is then operated to lower the patient, whereupon the slings 25 are detached and the entire device moved away until further needed. In order that

the device may be moved into proper cooperative relation with operating tables, X-ray tables and the like having a supporting pedestal, one side bar 26 of the base frame 12 is preferably bowed inwardly to receive said pedestal.

While any appropriate means could be provided for raising and lowering the slings 25, I prefer to make use of the construction shown. Horizontal supporting arms 27 are provided for these slings, said arms being preferably of telescopic nature in order that they may be extended and retracted as desired. These arms are connected by suitable vertical pivots 28 with slides 29 which are slidable but non-rotatable on a horizontal bar 30. This bar is rigidly carried by the upper ends of two shanks 31 forming parts of hydraulic jacks 32, the cylinders 33 of which may be welded or otherwise secured to the base frame 12 and to the horizontal tube or the like 16. A suitable pump 33' having an operating treadle 34 is shown to force the hydraulic fluid through a line 35 to the cylinders 33 for the purpose of forcing the shanks 31 upwardly. A suitable release valve for the hydraulic fluid may be provided, and for illustrative purposes, an operating button 35 is shown for this release valve. If desired, the base frame 12, being tubular, may constitute a reservoir for the fluid handled by the pump 33 to effect raising and lowering of the patient-lifting and lowering means.

In Figs. 5 to 8, a wheeled base frame 12^a is provided of substantially the same construction as the frame 12. Over this base frame is a stretcher 17^a which is hinged at 18^a to the upper ends of supporting posts 15^a which are in the form of jacks, preferably hydraulic jacks. Two additional jacks 19^a, preferably also of hydraulic nature, are provided to cooperate with the jacks 15^a in supporting the stretcher 17^a in a horizontal position, and whereas said stretcher is hinged to the jacks 15^a, it merely rests upon the upper ends of the jacks 19^a. By operating all of the jacks 15^a and 19^a simultaneously, the stretcher 17^a may be raised and lowered as required. By lowering only the jacks 19^a, the stretcher 17^a is free to swing downwardly to the position shown in Fig. 3 in connection with the form of construction first described, enabling close relation of the device with a bed or the like. The jacks 19^a may be lowered sufficiently to prevent them from striking any of the usual adjusting means for the head and/or foot sections of the bed, and if desired, the jacks 15^a may be capable of lowering to the same extent. Thus, the entire stretcher 17^a may simply be lowered to the maximum while remaining in a horizontal position, if desired, and said stretcher and the base frame may both move under the bed.

Associated with the construction above described, are two hydraulic jacks 32^a similar to the jacks 32 and associated in the same manner with the arms 27 and slings 25, etc.

For operating the various hydraulic jacks, I have shown a "triple pump" 33^a having three foot pedals, 34^a, 34^b and 34^c. The pedal 34^a operates one piston of the pump to supply fluid to the jacks 15^a to raise them. The treadle 34^b operates another piston of the pump to effect raising of the jacks 19^a. The pedal 34^c operates the third piston of the pump to force the fluid which operates the jacks 32^a. The pedals 34^a and 34^b are preferably so closely associated that they may be both simultaneously operated with one foot if it be desired to simultaneously raise all of the jacks 15^a and 19^a. However, by operating either pedal

independently of the others, any set of the jacks may be operated independently of the other set.

The base frame 12^a may well constitute a reservoir for the hydraulic fluid to be used in operating the jacks, and when these jacks are to be lowered, it is of course necessary to effect return of the fluid to the reservoir. Suitable release valves 35^a, 35^b and 35^c are illustrated for this purpose, said valves having appropriated foot-operated buttons or the like 37^a, 37^b and 37^c, by which any of said valves may be opened to effect lowering of the desired jacks.

With the construction shown in Figs. 4 to 8 either with the stretcher 17^a hanging downwardly as seen in Fig. 7 or with said stretcher and the base 12 both under the bed, the patient-lifting means may be operated to lift the patient from the bed or the like. Then, when the device is moved clear of the bed, the stretcher may be operatively positioned to support the patient, said stretcher being either raised against the patient by the hydraulic jacks or the patient being lowered upon the stretcher by the lowering means. After being thus placed upon the stretcher, the device and the patient may be rolled to the required designation and the patient transferred to the operating table, X-ray table or the like. This form of the invention also permits lowering of the stretcher 17^a to such a position that a patient may be seated upon the same from a standing position upon the floor. He may then be eased to a lying position on the lowered stretcher, the stretcher raised, and the entire device used to easily transfer him to a bed or the like, without discomfort.

All operations effected by either form of construction are so performed that there is no danger of the attendants injuring themselves by lifting the patient, whereas quite serious strains, ruptures and the like often occur when the attendants must occupy awkward positions and lift the patients. Moreover, in cases where operations have been performed and the wounds stitched and bandaged, breaking of stitches often occurs when the patients are handled by the attendants under present-day practice, and the broken stitches are not discovered until the bandage is some days later removed for inspection of the wound. By using the invention, no such occurrences will take place as the patient is not moved by any chance to any awkward or injurious positions.

Excellent results may be obtained from the general construction shown and described, and such construction is therefore preferably followed. However, within the scope of the invention as claimed, variations may be made.

I claim:

1. An invalid lifting and transferring device comprising a wheeled frame having a base to extend under a bed, a stretcher hingedly supported on said frame to occupy a downwardly hanging position at one side of the bed when said base is to underlie the latter, patient-lifting means mounted on said frame for lifting a patient from the bed while said stretcher occupies said downwardly hanging position, and means for supporting said stretcher in a horizontal position under the elevated patient when said frame is moved away from the bed, whereby the patient may be lowered onto said stretcher to be transferred to any required point.

2. A structure as specified in claim 1; said frame having vertically extensible and retractable

portions carrying said stretcher to permit raising and lowering of the patient as required.

3. An invalid lifting and transferring device comprising a horizontal wheel supported base frame to extend under a bed, a vertical back frame rising rigidly from said base frame, a stretcher over said base frame and hinged at one edge to said back frame to occupy a downwardly hanging position at one side of the bed when said base frame is to underlie the latter, vertical jacks secured to said back frame and having upwardly extensible shanks, means carried by and operated by said shanks for lifting a patient from the bed, and pivoted legs for holding said stretcher in a horizontal position under the elevated patient when the device is moved away from the bed, said legs then extending from the base frame to the stretcher.

4. An invalid lifting and transferring device comprising a wheeled base frame to extend under a bed, a stretcher above said base frame, a plurality of vertical jacks carried by said base frame for jointly supporting said stretcher, said stretcher being hinged for downward folding to part of said plurality of jacks and merely resting upon the remainder of said plurality of jacks, whereby lowering of the latter will permit said stretcher to occupy a downwardly hanging position at one side of the bed when the base frame is to extend under the bed, additional jack means carried by said base frame at the hinged edge of said stretcher, and means carried by and operated by said additional jack means for lifting a patient from the bed while said stretcher occupies said downwardly hanging position, whereby when the device is moved from the bed and said stretcher is horizontally supported under the patient, he may lie upon said stretcher while being transferred from one point to another.

5. An invalid lifting and transferring device comprising a wheeled base frame to extend under a bed, a stretcher above said base frame, hy-

draulic jack means on said base frame to which one edge of said stretcher is hinged to occupy a downwardly hanging position at one side of the bed when said base frame is to extend under the bed, additional hydraulic jack means on said base frame to engage the other edge of said stretcher to coact with the first mentioned jack means in horizontally supporting the stretcher or raising and lowering the same when desired, and two pumps for said hydraulic jack means respectively, said pumps having closely positioned operating pedals which may be simultaneously operated with one foot or selectively operated as required.

6. A patient-lifting and transferring device comprising a wheeled base frame to extend under a bed, means mounted upon one edge portion of said frame for lifting a patient from the bed when said base frame underlies the latter, a stretcher over said base frame, and means for raising and lowering said stretcher, said stretcher being lowerable to a position in which it may extend under the bed and being raisable to a position in which it may support the elevated patient when he is being transferred to another point.

7. In an invalid lifting and transferring device, a wheeled base frame to extend under a bed, jack means rising from said base frame, a horizontal bar secured to the upper end of said jack means to be raised and lowered thereby, said bar being positioned to extend longitudinally of the bed, slides slidably and non-rotatably mounted on said bar for adjustment longitudinally thereof, inner arm sections connected with and projecting laterally from said slides to transversely overlie the bed, outer arm sections unidirectional with said inner arm sections and slidably engaged therewith, and patient-lifting slings connected at one end with said inner arm sections and at their other ends with said outer arm sections.

CHARLES F. JONES.