May 13, 1958 L. P. JONES 2,834,030

WHEELED STRETCHER

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Fig. 1.

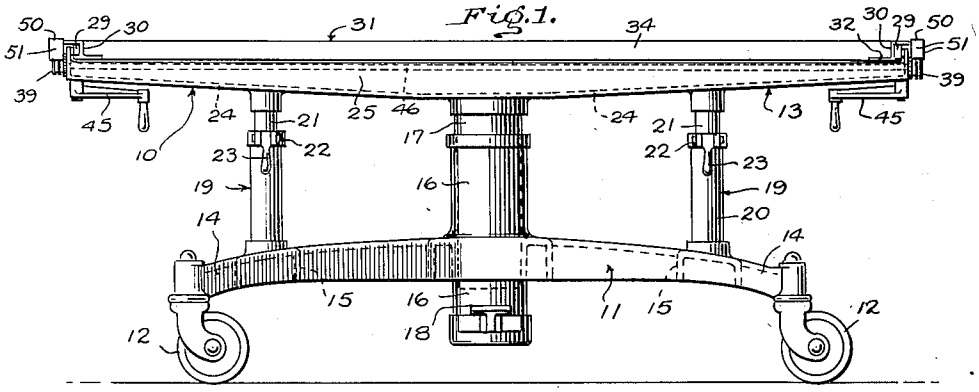


Fig. 2.

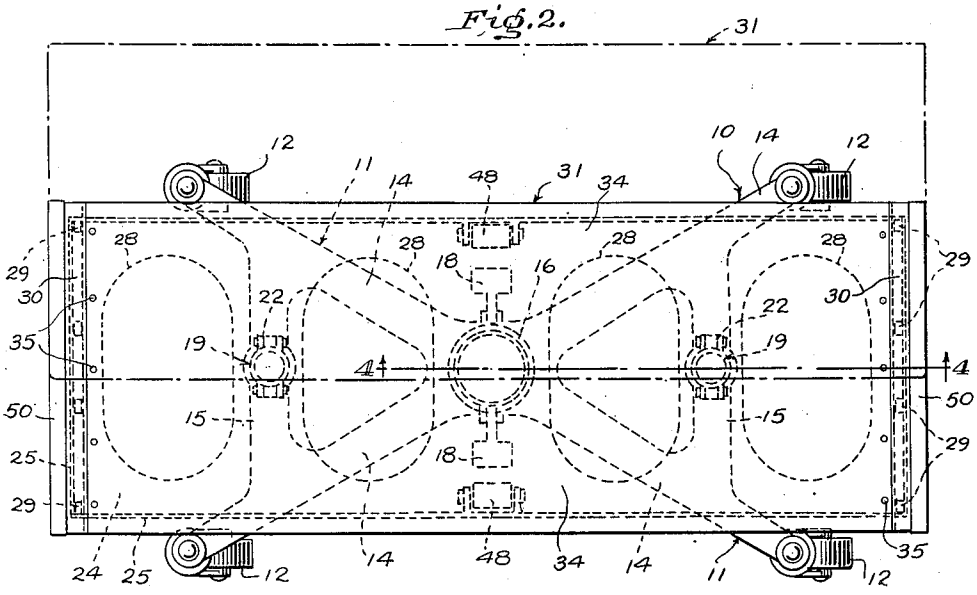
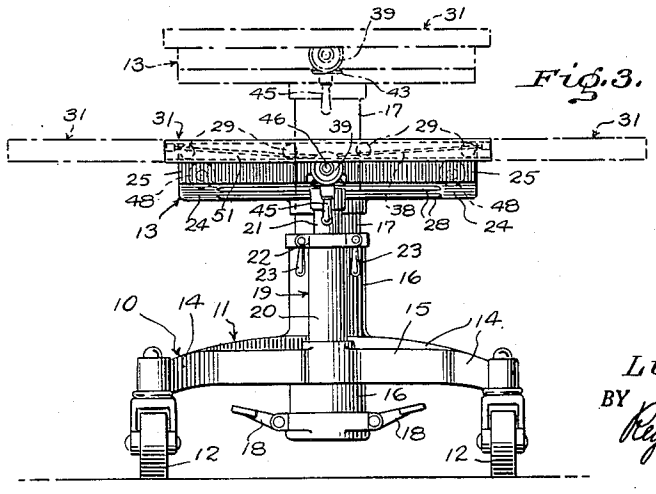


Fig. 3.



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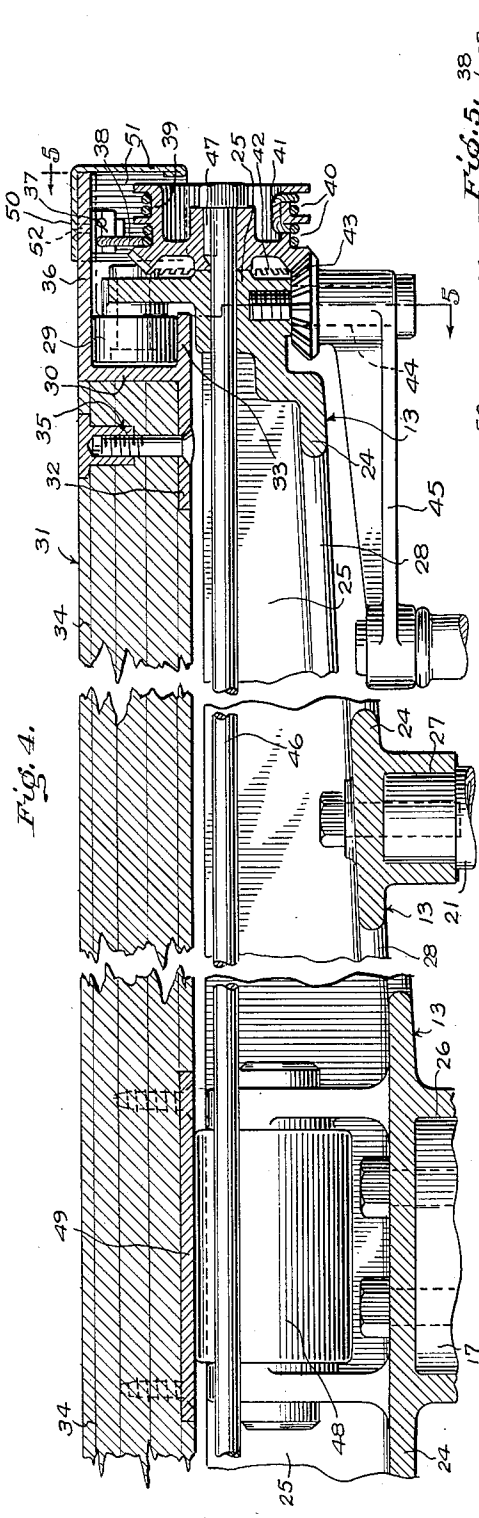


Fig. 4.

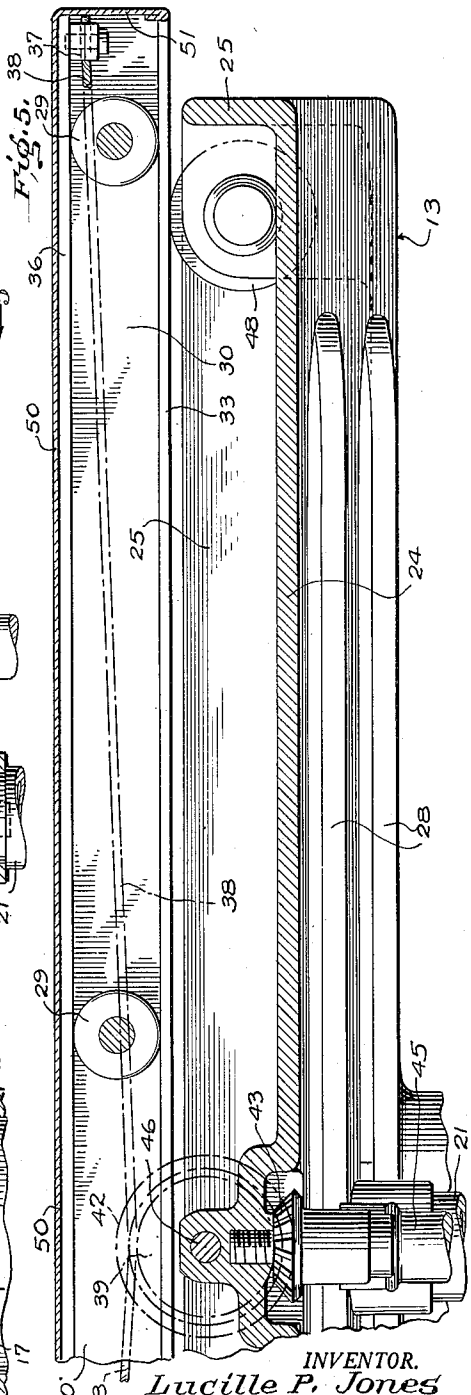


Fig. 5.

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WHEELED STRETCHER

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4 Claims. (Cl. 5—81)

The present invention relates to wheeled stretchers of the type used to transfer patients to or from beds, operating tables, or like articles of support usually found in hospitals.

At present, the ordinary practice is to roll, lift, and slide a patient to the side of the article of support upon which he is resting, onto the side of the other article of support, and then to the center of said last-mentioned article of support. Such methods are objectionable not only because of the manual effort required, but because of possible harm or discomfort to the patient as a result of such excessive handling.

My invention generally provides a wheeled stretcher having a movable platform upon which a patient lies that may be conveniently and efficiently elevated to different heights and moved laterally to either side and to a position either abutting or overlapping the side of the bed, operating table, etc., and with the resting surface thereof on a horizontal plane of substantially the same level as that of said bed, operating table, etc., thus minimizing effort on the part of the person or persons handling the transfer of the patient, as well as subjecting the patient to less discomfort or likelihood of harm. The apparatus includes a low base frame supported on swiveled ground wheels and having a central pillar with a telescoping member and a lifting means thereon for raising and lowering an upper horizontal frame and a platform movable laterally on said upper frame. Manual operating mechanisms are arranged at both ends of the upper frame and are connected to the platform for moving said platform to either side of said upper frame by operation of said mechanism from either end of said frame.

It is accordingly an object of the invention to provide a wheeled stretcher-supporting structure having a movable platform thereon and novel means for actuating said platform to various positions relative to said stretcher-supporting structure.

Another object of the invention is to provide, in a device of the above-indicated character, a novel construction and arrangement of a lower frame, upper platform, and a supporting and elevating structure therebetween, whereby the frame and the platform may be moved to a position with a portion of said lower frame beneath a horizontally arranged article of support and the upper platform partially above the article of support.

Another object of the invention is to provide, in an apparatus of the character set forth, novel track and roller construction for horizontal movement of a platform on and relative to a supporting frame structure for said platform.

Another object of the invention is the provision, in an apparatus of the character set forth, of a cable and drum arrangement for moving a platform to either of opposite sides of a frame structure.

A further object of the invention is to provide, in an apparatus as above-outlined, supports in addition to an elevating structure between a lower frame and an upper

frame for preventing turning of the upper frame relative to the lower frame and for locking the upper frame in various elevated positions.

It is also an object of the invention to provide a novel and improved wheeled stretcher of the above-indicated character which is substantial in construction, economical to manufacture, and thoroughly efficient and practical in use.

These, together with various auxiliary features and objects of the invention which will later become apparent as the following description proceeds, are attained by the present invention, a preferred embodiment of which has been illustrated, by way of example only, in the accompanying drawings, wherein:

Figure 1 is a side elevation of the improved wheeled stretcher;

Figure 2 is a top plan thereof, showing in dotted lines parts obscured from view and showing in dash and dot lines the platform positioned to one side of the supporting frame structure;

Figure 3 is an end view of same, also showing in dash and dot lines different positions of various parts of the apparatus;

Figure 4 is a fragmentary longitudinal vertical section taken on line 4—4 of Figure 2 with areas broken away; and

Figure 5 is a fragmentary transverse vertical section taken substantially on line 5—5 of Figure 4, and showing in dash and dot lines the position of a cable and drum structure therewith.

Referring more particularly to the drawings wherein like numerals designate similar parts throughout the various views, there is indicated generally by the numeral 10 a carriage frame which includes a lower or base frame structure 11 supported on casters 12 and an upper frame structure 13 supported by and above said lower frame srtucture for movement to various elevations relative to said lower frame structure. As shown in dotted lines in Figure 2, the lower frame structure is substantially X-shaped in plan with the pairs of adjacent legs 14 thereof that extend in directions generally toward each end of said frame connected by a rigid cross member 15. It is beneath and at the extreme end of each of the legs 14 that a caster 12 is mounted for swivel movement.

At the central location where all the legs 14 of the lower frame structure are joined, a rigid vertical pillar 16 extends both above and below the horizontal plane of said legs. The pillar 16 is of tubular construction and, together with a depending shaft 17 secured to the underside of the upper frame structure 13 and slidably received in said tubular pillar, forms the outer stationary casing and ram, respectively, of a hydraulic jack structure. Foot levers 18 are mounted at opposite sides on the lower end of the pillar 16 for actuation of the plunger (not shown) of the jack structure to effect the lifting operation.

On the longitudinal center line of the carriage and extending vertically between and connected to the lower and upper frame structures is a pair of telescoping braces 19 for locking and stabilizing the upper frame structure relative to the lower frame structure. Each brace 19 consists of an upstanding stationary tube 20 mounted on a cross member 15 of the lower frame structure, a rod 21 projecting downwardly from the upper frame structure and slidable in the tube 20, and a manually actuated clamping element 22 mounted on the upper end of the tube and frictionally engaging the rod. There are two handles 23, one on each clamping element 22, for operation thereof from either side of the carriage frame.

The upper frame structure 13, which is of a rectangular tray-like shape, has a bottom wall 24 with upwardly directed flanges 25 extending along both sides and ends

thereof. It is on the underside of the bottom wall 24 that sockets 26 and 27 are provided which receive and have secured therein, respectively, the upper ends of the depending central shaft 17 of the hydraulic jack structure and the downwardly projecting rods 21 of the telescoping braces 19. In areas of the bottom wall 24 between the locations of attachment of the shaft 17 and rods 21 and at locations adjacent the ends of the frame, large openings 28 are provided for the purpose of saving material and reducing the weight of said frame. The bottom wall 24 is slightly declined from its opposite ends while extending toward its center where the hydraulic jack is attached. This materially increases the height of the side flanges 25 at the central portion of the frame which, in turn, adds rigidity to said frame with a minimum increase of weight.

The flanges 25 along opposite ends of the upper frame structure extend upwardly to a greater height than the side flanges and rotatably support on horizontal axes inwardly of their inner sides a plurality of spaced rollers 29 which project into channel rails 30 on opposite ends of a platform 31 for supporting said platform for lateral horizontal movement. Each channel rail 30, as best shown in Figure 4, has an additional flange 32 on its side opposite the grooved side which is on the same horizontal plane as that of the lower side wall 33 of the channel and which is rabbeted into an end of a plywood board 34 and held in place by countersunk bolt and nut fasteners 35 extending through said flange and board. Also, each channel rail 30 has its upper side wall 36 flush with the top surface of the board 34 and of considerably greater width than its lower side wall 33 for overhanging the end flange 25 of the upper frame structure. The plywood board 34 which extends from channel to channel forms the major surface of the platform 31 upon which a patient lies, and may, if desired, have a detachable pad on its upper surface for the comfort of the patient.

At opposite ends of each channel 30 and to the underside of the upper side wall 36 thereof are attached, as at 37, the opposite ends of a cable 38 which has its intermediate portion fastened to and wound on a drum 39 rotatably mounted on an end flange 25 of the frame 13. The drum 39 is rotatable on a horizontal axis lengthwise of the frame and is constructed with a pair of annular grooves 40 in each of which the cable 38 is wound after being passed, as at 41, from one groove to the other. Either constructed on or attached to the drum 39 is a bevel gear 42 which meshes with another bevel gear 43 rotatable on a stud 44 which extends downwardly from the underside of the frame 13. A manually operated crank 45 is fixed to the bevel gear 43 for imparting rotary motion to the drum 39 to cause winding thereon of additional cable leading to one end of the channel rail 30 and at the same time to unwind therefrom cable leading to the opposite end of said channel rail. This winding and unwinding of cable portions on and from the drum 39 moves the platform 31 laterally on a horizontal plane. A shaft 46 extending the full length of the upper frame structure and with its opposite end portions journaled in the end flanges 25 of said frame has keyed, as at 47, to each end thereof a drum 39 for rotatably mounting and connecting said drums to cause rotation of both upon rotation of either.

A pair of relatively large rollers 48 is mounted on the upper frame structure substantially midway of its length and is in engagement with a metallic cross plate 49 imbedded in and secured to the underside of the plywood board 34 for aiding the rollers 29 in the support of the platform 31. Each roller 48 is located adjacent a side flange 25 of the upper frame structure, and while both support the platform when in its center wheeling position, as shown in Figure 2, only one is active as a support when the platform is moved laterally to one side of the upper frame structure.

A thin walled hood 50 having skirts 51 on three sides thereof is secured, as at 52, to the overhanging upper side wall 36 of each channel rail 30 for eliminating to a great extent the likelihood of bedding or clothing from becoming entangled in the cable and drum mechanism.

In a transfer operation of a patient either to or from the platform 31 of the wheeled stretcher, said wheeled stretcher is first moved alongside the bed, operating table, or other article of support for the patient and the platform 31 is elevated by the hydraulic jack to a position slightly above the elevation of the supporting surface of the other article. By cranking the platform sidewise to a position overlying the other article of support and then lowering the platform to rest with the undersurface of the overlying portion on the top of the lying surface of the other article of support, the patient may be conveniently moved from one article of support to the other. One practical method is to place a canvas sheet under the patient, and by then pulling on the sheet, the patient is drawn from one article of support to the other. After a patient has been transferred onto the platform 31, said platform is slightly elevated and then laterally moved to the center of the carriage frame before being lowered to a position for wheeling the patient away from the other article of support.

By reference to Figure 3, it will be observed that all supports extending upwardly from the lower frame structure 11 to the upper frame structure 13 are along the longitudinal center line of the apparatus which permits portions of the lower frame structure to be rolled under a bed or the like, while portions of the shallow upper frame structure overlie portions of the bed. Also, the spread X-shaped formation of the lower frame structure, as shown in Figure 2, allows legs of said structure to extend to opposite sides of a leg of a bed, or the like, thus permitting closer association of the wheeled stretcher with a bed or like article of support.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the construction, operation, and advantages of the apparatus will be quite apparent to those skilled in this art, and a more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, various changes may be made without departing from the spirit and full intendment of the invention.

What is claimed is:

1. A wheeled stretcher comprising a lower frame structure, an upper frame structure substantially rectangular in plan, a vertical adjusting and supporting mechanism connected to both frame structures for raising and lowering said upper frame structure relative to said lower frame structure, casters on said lower frame structure for moving the stretcher bodily so as to position it alongside of a bed, an upstanding transversely extending flange at each end of said upper rectangular frame structure, spaced rollers supported on horizontal axes mounted laterally along said rectangular upper frame structure and positioned inwardly of and upon said end flanges, a substantially rectangular horizontally arranged platform of less length than said upper frame structure positioned between said upstanding flanges at opposite ends of said upper frame structure, a transversely extending channel rail fixed to each end of said platform, said channel rails having the outer surfaces of their parallel flanges substantially flush with the upper and lower surfaces of said platform and having their cavities open outwardly and receiving therein said rollers so as to guide the platform in lateral horizontal movement relative to said upper frame structure, said platform and channel rails being of uniform minimum thickness and free from obstructions on their under sides so as to minimize the amount of elevation of the upper surface of said platform above the mattress of a bed when said platform is in a position pressing on and overlapping said mattress, and manually

operated means for imparting lateral movement to said platform.

2. A wheeled stretcher as defined in claim 1 wherein said channel rails have the upper flanges of their parallel flanges overlying the upstanding end flanges on the upper frame structure so as to minimize entanglement of bedding in the lateral guiding mechanisms for said platform.

3. A wheeled stretcher as defined in claim 2 wherein said manually operated means comprise a drum rotatably mounted at each end of said upper frame structure, cables wound about each of said drums and having ends thereof attached to opposite ends of the upper overlying flanges of said channel rails for unwinding from said drums, cable portions that lead to one side of the platform for winding on said drums, cable portions that lead to the other side of the platform, said upper overlying flanges also extending beyond said drum and cable mechanisms for also minimizing entanglement of bedding in said last mentioned mechanisms, and crank means for rotating said drums.

4. A wheeled stretcher as defined in claim 3 further

characterized by the provision of depending aprons carried by the overlying upper flanges of the channel rails and covering at least the upper portions of said cables and drums.

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