May 23, 1961 A. E. F. JOHNSON 2,984,843

PATIENT BED AND TRANSFER STRETCHER

Filed Oct. 23, 1957 2 Sheets-Sheet 1

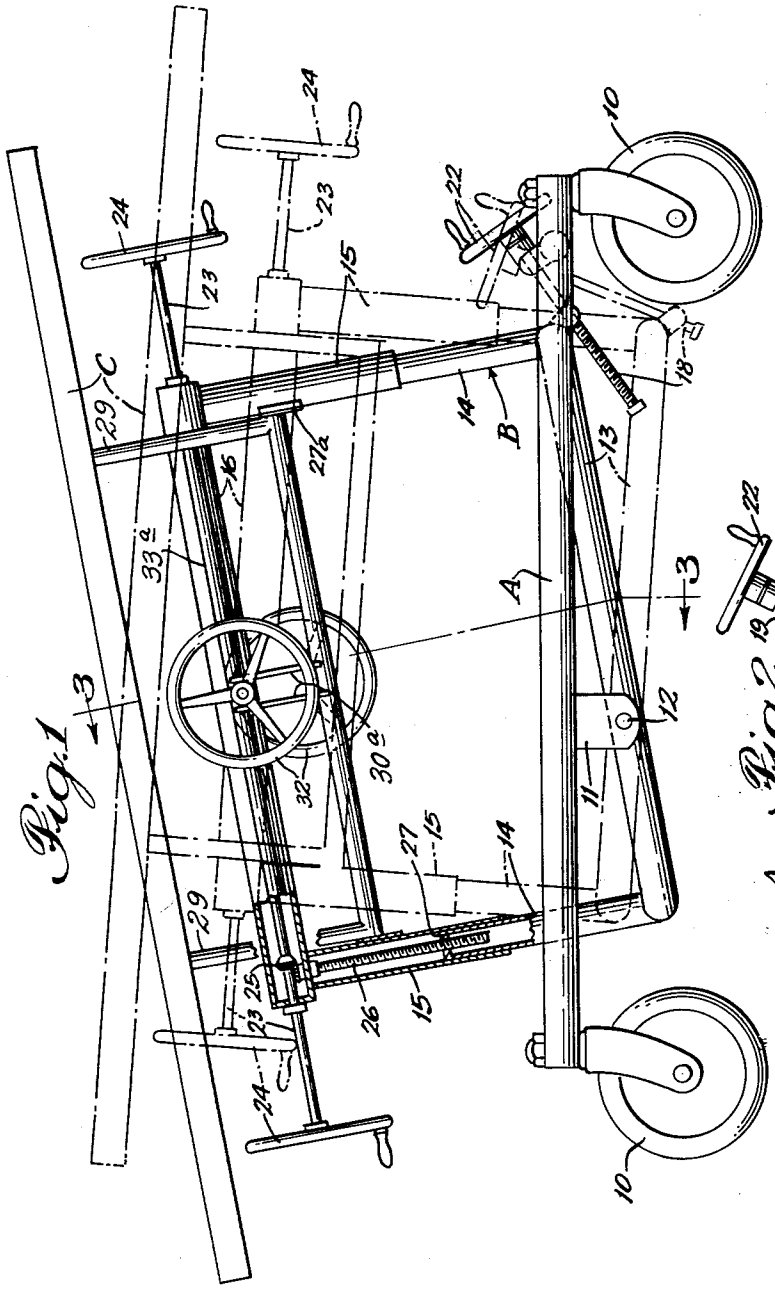

Fig. 1

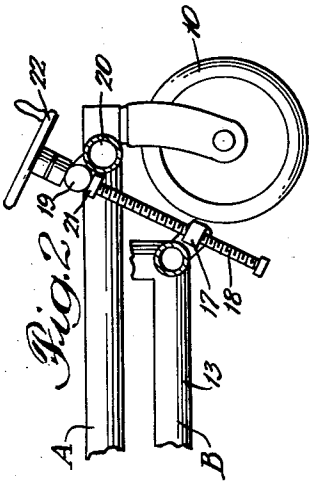

Fig. 2

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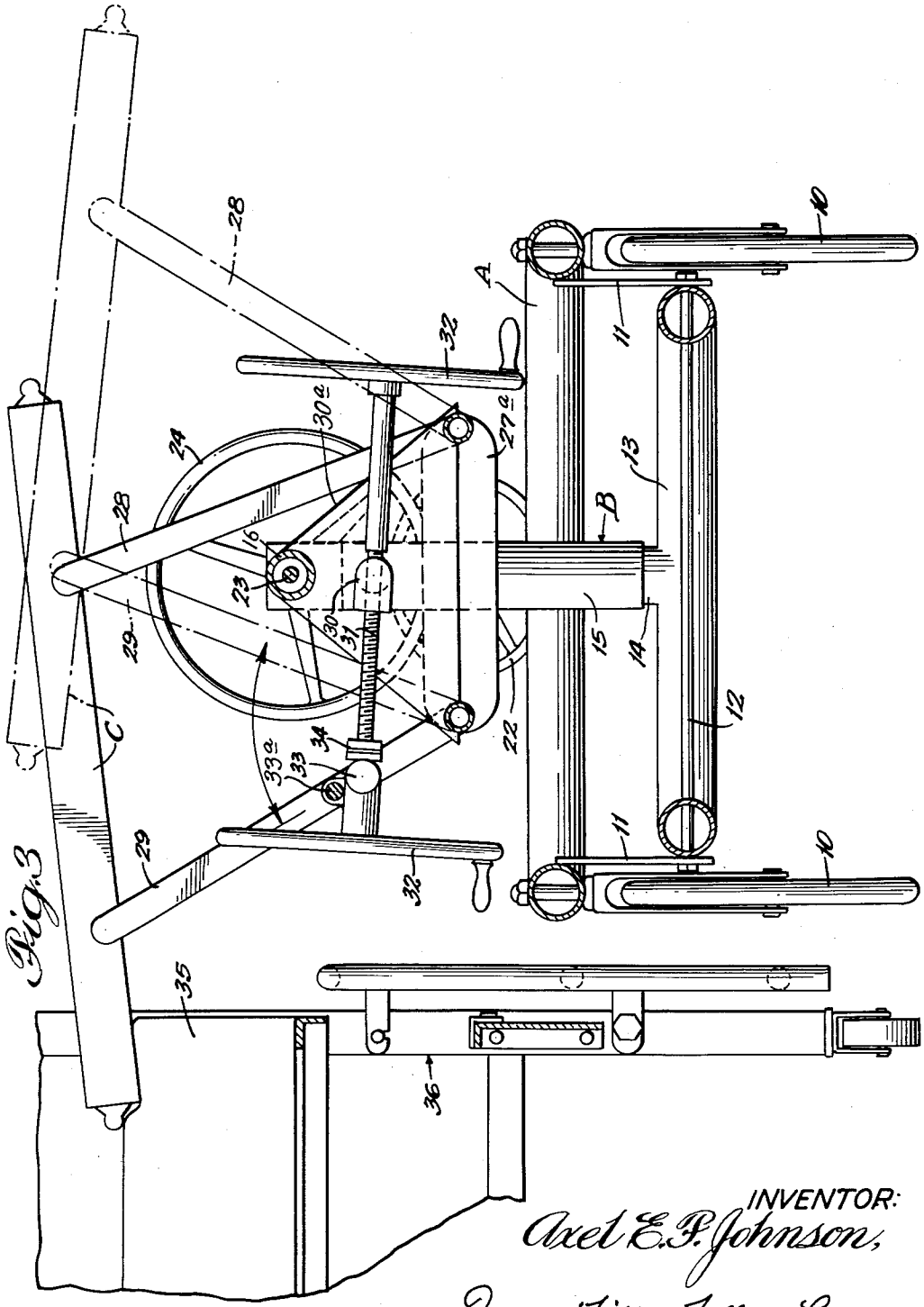

Fig. 3

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PATIENT BED AND TRANSFER STRETCHER

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3 Claims. (Cl. 5—86)

This invention relates to a patient bed and transfer stretcher, and is particularly useful in the treatment of patients while on the bed and also for transferring patients from the bed or stretcher onto a regular hospital bed.

An object of the invention is to provide a bed and stretcher device in which movement of the bed or stretcher can be accomplished in many directions while at the same time employing a highly simplified structure having a minimum of parts. A further object is to provide such a structure in which tilting of the bed, raising of the bed, and movement of the struuture to bring about a Trendelenburg or a reverse Trendelenburg position can be accomplished, with each of the operations accomplished independently of the other movements or simultaneously therewith. A still further object is to provide a bed and support structure therefor in a unique arrangement by which a Trendelenburg or a reverse Trendelenburg position can be accomplished while at the same time effecting a lateral tilting of the bed or stretcher or the raising of the bed or stretcher. Other specific objects and advantages will appear as the specification proceeds.

The invention is shown, in an illustrative embodiment, by the accompanying drawings, in which—

Figure 1 is a side view in elevation of apparatus embodying my invention, positions of the apparatus being indicated in dotted lines; Fig. 2, a detail sectional view of the front lower portion of the structure shown in Fig. 1; and Fig. 3, an enlarged sectional view, the section being taken as indicated at line 3—3 of Fig. 1, the bed or stretcher being shown in tilted position to engage a regular hospital bed for the transfer of a patient.

In the illustration given, I provide a main frame or carriage indicated by the letter A, the frame being supported upon wheels **10**. The perimetric or oval frame is provided along its sides with depending straps **11** which support between them a pivot shaft **12**.

Pivotally mounted upon the pivot shaft **12** is a generally elliptical or oval base member **13** providing, with other members, a vertical standard generally in the shape of a rectangle or trapezoid when viewed from the side as in Figure 1. The pivotal standard or frame, which is designated generally by the letter B, comprises the lower frame member **13** which is pivotally mounted upon the shaft **12**, the vertically-extending legs **14** which telescopically engage the depending legs **15**, as shown best in Fig. 1, and a top, generally horizontal beam or tube **16**. All of these members provide a generally vertical rectangular frame which pivots upon the shaft **12**. The pivot **12** may be located at either end of the structure B, but I prefer to have the pivot slightly off-center, as shown in Fig. 1, so as to effect a fairly rapid but not too rapid Trendelenburg position, as indicated in dotted lines in Fig. 1.

To support the vertical standard B and to move it in a vertical direction, I equip one end of the member **13** with a pivotally-mounted nut **17** adapted to receive an

actuating threaded shaft **18**. The other end of the threaded shaft passes through a nut **19** pivotally mounted upon a strap **20** carried by the frame A, as shown more clearly in Fig. 2, the shaft **18** preferably being equipped with a thrust bearing **21**. For actuating the shaft **18**, I provide a handle emmber **22**. With this structure, the frame B may be swung to the positions indicated in solid and dotted lines in Fig. 1, giving thus a double Trendelenburg position.

I provide independent means for raising the upper telescoping legs **15**, and such means is shown best in Fig. 1. A shaft **23**, equipped at each end with a handle member **24**, extends through the tube **16** and is rotatably supported therein and provided preferably at each end with a gear member **25**. The gear **25** meshes with a gear carried by a threaded shaft **26**, and the shaft **26** extends through a threaded fixed nut **27** secured within each leg **15**. Thus, when the shaft **23** is rotated, the upper sleeves or legs **15** are raised and lowered according to the direction of movement of shaft **23**.

Above the rectangular standard B is supported a bed or stretcher C. The stretcher C is supported in such a manner that it may be tilted laterally so as to provide a means for transferring a patient from the stretcher to a bed, or vice versa. In transferring the patient from the stretcher to a bed, a tilting position, as shown in Fig. 3, is preferred. When the patient is to be transferred from the bed to the stretcher, the bed C may be lowered to make the transfer easier. Any suitable means for supporting the bed C and for tilting it may be employed. In the illustration given, I provide the upper leg or sleeve **15** with a laterally-extending mast or bar **27***a*, as shown best in Fig. 3. Pivotally mounted upon the ends of the bar **27***a* at each end of the bed are a pair of links **28** and **29**. The links **28** and **29** are pivotally connected at their upper ends to the bed C. To rigidify the links and to effect their movement, I provide means connecting the frame B with one of the links. The frame is provided with a nut **30** which is pivotally carried by plates **30***a* and which receives a threaded shaft **31** equipped at either end with a handle **32**. The link **29** is provided with a pivotally-mounted nut **33** receiving the threaded shaft **31**, and the shaft is preferably provided with a thrust bearing **34**. As shown in the drawings, nut **33** is pivotally carried by a horizontal bar **33***a* secured to links **29** intermediate the upper and lower ends thereof. Upon the operation of either of the wheels **32**, shaft **31** is rotated, engaging simultaneously the nut **30** of the frame B and the nut **33** of the link **29** so as to move the links to the various positions shown in solid and dotted lines in Fig. 3.

As shown in Figure 3, links **28** and **29** are not parallel but, instead, diverge slightly in an upward direction. Because of this divergence, bed C will assume a horizontal position only when it is centered, with respect to lateral movement, directly above frame or standard B. As wheel **32** is manipulated to shift the bed laterally, one of the links **28** or **29** will assume a more nearly upright condition than the other and the bed will tip towards one side or the other, depending upon the direction of wheel rotation.

When the links are swung to the position shown in solid lines, the bed C is lowered into engagement with the mattress **35** of the ordinary hospital bed **36** so that a solid fixed locking of the stretcher and the bed is accomplished. On the other hand, when the patient is to be transferred to a bed on the other side, the bed C may be swung to the position shown in dotted lines and, of course, when the patient is being moved from room to room, the shaft **31** is manipulated to bring the links to their most nearly upright positions, maintaining the bed C in a horizontal plane.

Operation

In the operation of the structure, the patient may be transferred to the stretcher C and for this purpose a tilting position of the bed C with respect to the usual hospital bed is brought about. After the transfer and after the bed or stretcher is brought to a horizontal position, either of two Trendelenburg positions may be brought about by manipulation of the wheel **22**, the parts being swung upon pivot **12** to the positions indicated in solid and dotted lines in Fig. 1. When it is desired to raise the bed, this is accomplished by moving the wheels **24** at either end of the device, and it will be noted that the wheels **22** and **24** at one end of the device are in alignment so that the same operator can very rapidly manipulate both of these wheels. For tilting the bed C, the operator may stand on either side and operate one of the wheels **32** so as to move the traveling nut **33** on shaft **33***a* and link **29** to effect the movements indicated in solid and dotted lines in Fig. 3.

In all of the foregoing operations, it will be noted that the movements in the different directions are accomplished independently while, at the same time, the various control wheels may be operated simultaneously or concurrently. The employment of the generally rectangular standard, tiltably mounted upon the main frame A, enables the various operations to be employed with a minimum of parts, thus providing open areas below the bed through which there is ready access to the patient carried by the bed or stretcher.

While, in the foregoing specification, I have set forth specific structure in considerable detail, it will be understood that such details of structure may be varied widely by those skilled in the art without departing from the spirit of my invention.

I claim:

1. In a patient bed device, a mobile carriage equipped with a transverse pivot shaft, a horizontally elongated frame mounted upon said pivot shaft for longitudinal tilting movement along a vertical plane, means adjustably connecting one end portion of said frame to said carriage, said frame being provided with telescoping upper and lower vertical legs, means for raising and lowering the upper legs, a bed disposed above said frame and extending longitudinally thereof, and pairs of transversely-spaced links extending between and being pivotally connected to said upper legs and said bed, said links of each pair being transversely swingable with reference to said bed and frame and diverging upwardly at substantially equal angles with reference to the plane of movement of said frame when said bed is horizontally disposed, and means carried by said frame and operatively associated with said links for pivoting said links and for simultaneously tipping and laterally shifting said bed to either side of said carriage, said last-mentioned means comprising a threaded handle-equipped transverse shaft rotatably carried by said frame and a nut pivotally carried by one of said links and threadedly receiving said shaft.

2. In a patient bed device, a mobile carriage, a frame mounted upon said carriage for pivotal movement along a vertical plane and about a transverse pivot axis, adjustment means connected to said frame and said carriage for controlling the angular position of said frame, an elongated bed disposed above said frame, at least one pair of upstanding transversely-spaced links extending between and being pivotally connected to said bed and frame, said links being transversely swingable with reference to said bed and frame and diverging upwardly at equal angles with reference to the vertical longitudinal mid plane of the bed when said bed is horizontally disposed, and means for pivoting said links for simultaneously tipping and laterally shifting said bed to either side of said carriage, said last-mentioned means comprising a threaded handle-equipped transverse shaft rotatably carried by said frame, and a nut pivotally carried by one of said links and threadedly receiving said shaft.

3. In a patient bed device, an elongated horizontal carriage equipped with wheels, a frame extending the vertical longitudinal mid plane of said carriage, a bed spaced above said frame and extending longitudinally thereof, pairs of upstanding transversely-spaced links connecting said bed and frame, said links of each pair diverging upwardly at equal angles with reference to the longitudinal mid plane of said carriage when said bed is horizontally disposed, a threaded transverse shaft rotatably carried by said frame and operatively associated with at least one of said links for pivoting said links laterally when said shaft is rotated, said frame being pivotally mounted upon said carriage for longitudinal pivotal movement about a transverse pivot axis and along the carriage's longitudinal vertical mid plane.

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