Jan. 22, 1929.

1,700,088

F. T. SMITH ET AL

MECHANICAL CHAIR

Filed Dec. 5, 1927

3 Sheets-Sheet 1

Fig. 1.

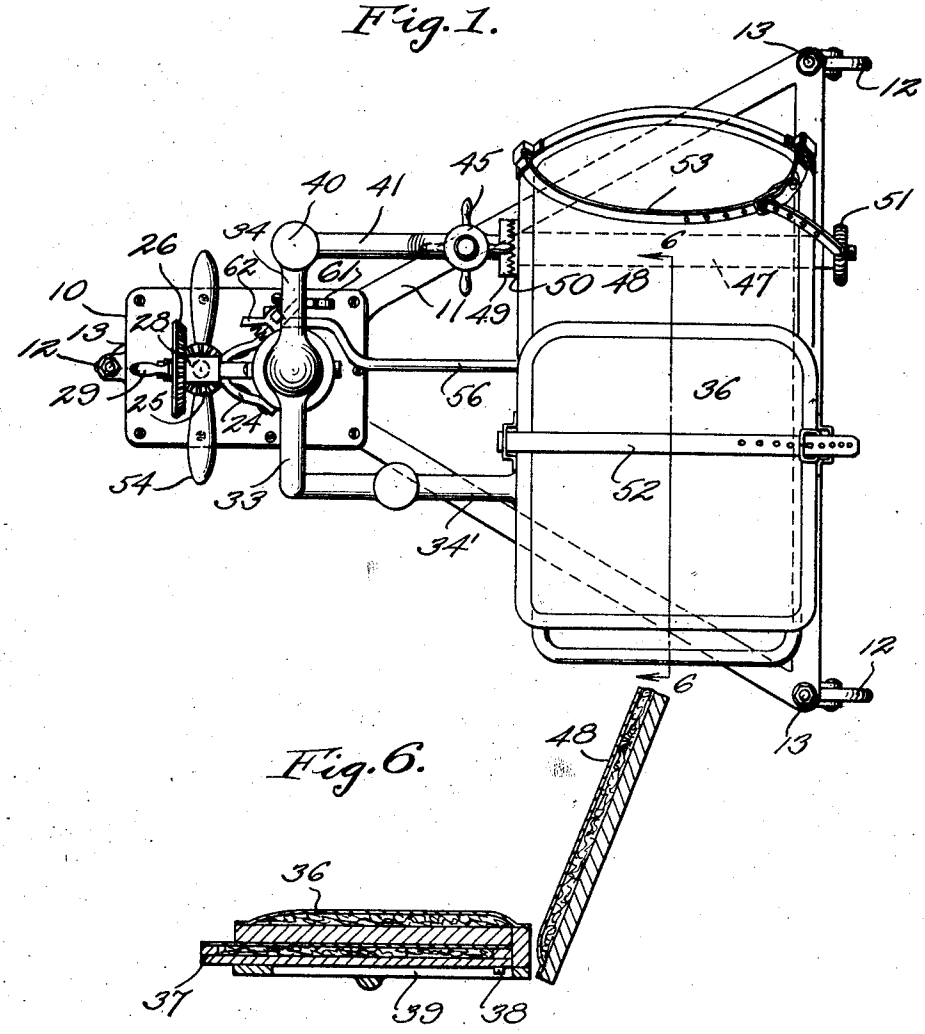


Fig. 6.

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Fig. 5.

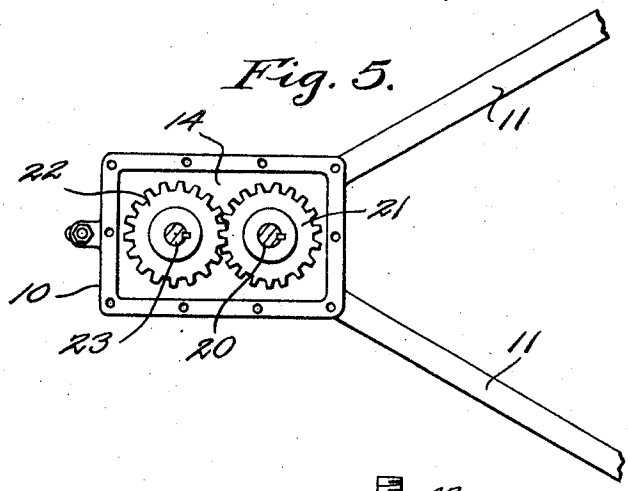
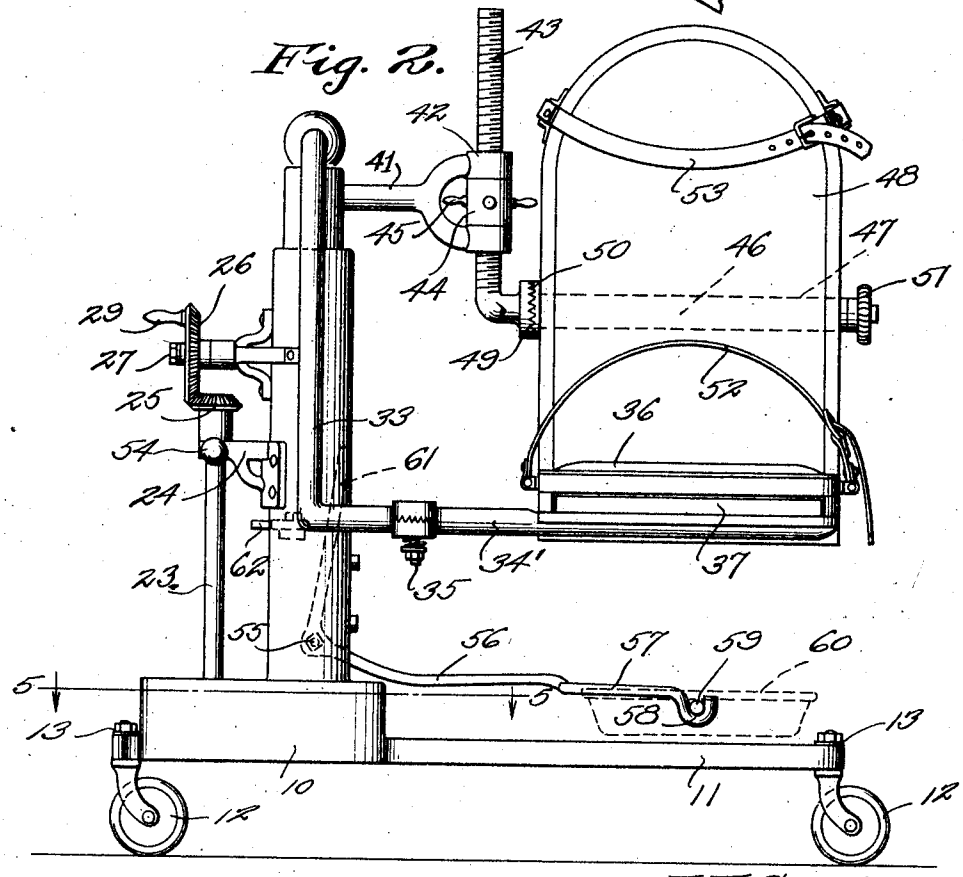


Fig. 2.



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MECHANICAL CHAIR

Filed Dec. 5, 1927 3 Sheets-Sheet 3

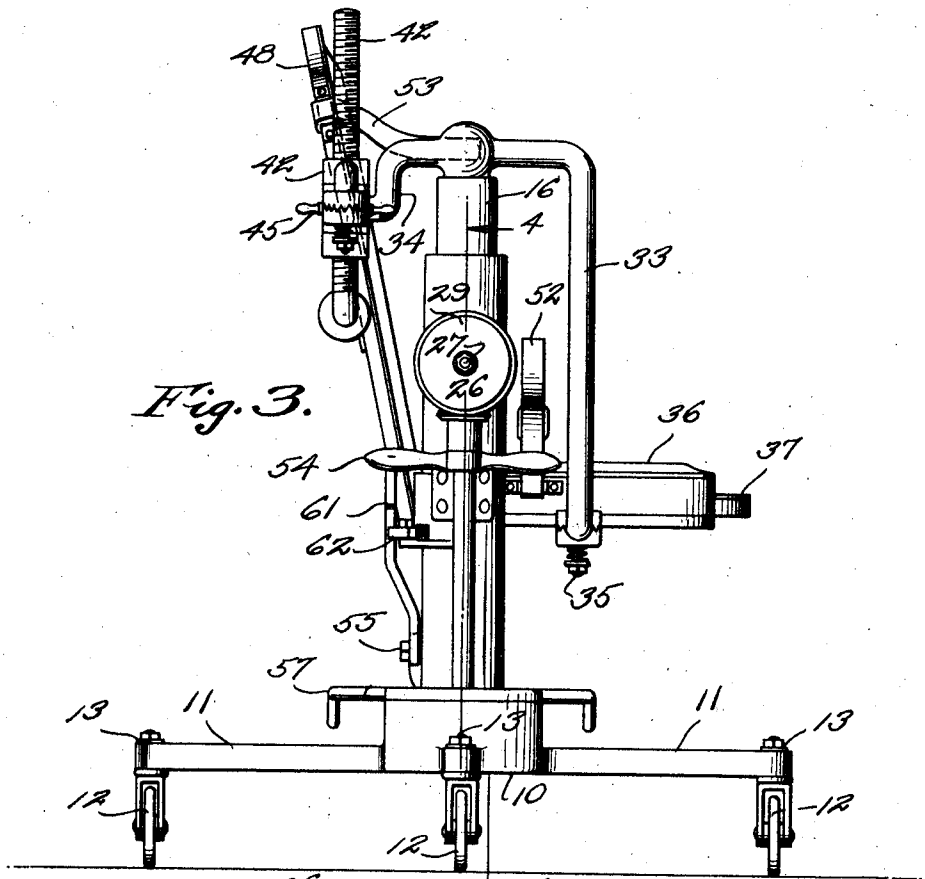


Fig. 3.

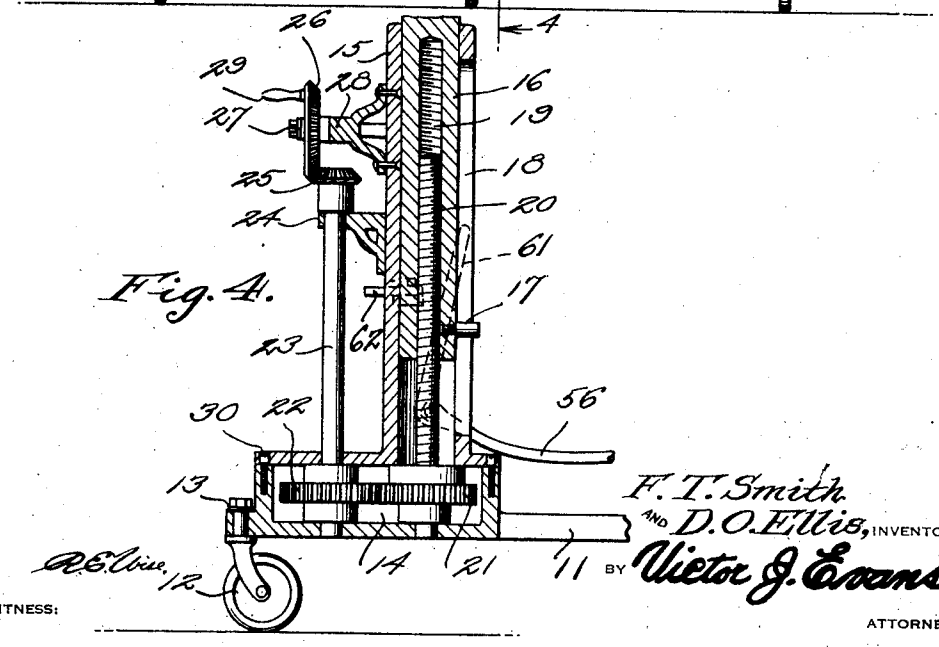


Fig. 4.

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Patented Jan. 22, 1929. 1,700,088

UNITED STATES PATENT OFFICE.

FRED T. SMITH AND DAVID O. ELLIS, OF WOODVILLE, PENNSYLVANIA.

MECHANICAL CHAIR.

Application filed December 5, 1927. Serial No. 237,881.

This invention relates to improvements in chairs especially adapted for the use of invalids, an object being to provide a chair which may be easily and quickly adjusted to any convenient height or position, either sitting or reclining, for the purpose of moving or treating the occupant, or for any other purpose.

Another object of the invention is the provision of a chair of this character which may be readily adjusted and moved into position beside a bed for the transfer of a patient with a minimum amount of pain or discomfort to the patient, and with a minimum amount of effort on the part of the attendant or attendants.

With the above and other objects in view, the invention further includes the following novel features and details of construction, to be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings:—

Figure 1 is a plan view of the invention.

Figure 2 is a front elevation of the same.

Figure 3 is a side elevation.

Figure 4 is a fragmentary sectional view taken substantially on the line 4—4 of Figure 3.

Figure 5 is a section on the line 5—5 of Figure 2.

Figure 6 is a fragmentary section taken substantially on the line 6—6 of Figure 1.

Referring to the drawings in detail wherein like characters of reference denote corresponding parts, the invention is shown as comprising a platform or base which includes a housing 10 and a substantially triangular frame 11 which extends from the housing. The platform or base is supported upon casters 12 which are mounted as shown at 13 and which may if desired be provided with anti-friction bearings at their points of connection with the platform or base.

The housing 10 provides a compartment 14 from which extends a lifting jack. This jack includes a vertically disposed sleeve 15 within which moves a post 16, the latter having extending therefrom a stud 17 which operates in a slot 18 disposed longitudinally of the sleeve 15. The post 16 may thus be permitted vertical sliding movement but is held against rotation.

The post 16 is provided with an internally threaded bore 19 which receives a threaded shaft 20. This shaft extends downward into the compartment 14 and has secured thereon a gear 21. This gear is engaged and driven by a gear 22 which is secured upon a vertically disposed shaft 23 rising from the compartment 14. The upper end of the shaft 23 is mounted in a bearing bracket 24 and has secured thereon a beveled pinion 25. This pinion is engaged and driven by a beveled gear 26 which is mounted for rotation as shown at 27 upon a bearing bracket 28 extending from the sleeve 15. A handle 29 serves to provide means for operating the gear 26. Access may be had to the interior of the compartment 14 by removing the top which is normally held in place by means of screws 30.

By operating the gear 26, the threaded shaft 20 will be rotated through the operation of the gears 21 and 22, so that vertical sliding movement will be imparted to the post 16.

Mounted upon the upper end of the post is a frame which includes oppositely extending arms 33 and 34. The arm 33 extends downwardly and is provided with a right-angled extension which is connected to an arm 34′ by means of a pivotal connection 35. The connection 35 is of such character as to yieldingly hold the arm 34′ against horizontal pivotal movement, so that normally the arm 34′ will remain in adjusted position until manually moved. This arm 34′ has secured thereon a seat 36 which may be covered with a suitable rubber or other waterproof pad and which is provided with a sliding extension 37. This extension may be housed within the seat, but may be projected therefrom, movement being limited by means of a stop 38 which operates in a slot 39 provided in the seat.

The arm 34 has pivotally secured thereto as shown at 40, an arm 41. The connection 40 is preferably similar to the pivotal connection 35. The outer end of the arm 41 is provided with spaced bearings 42 through which operates a vertically disposed threaded arm 43. A nut 44 is mounted upon the arm 43 between the bearings 42 and this nut is provided with operating handles 45. By rotating the nut, the arm 43 may be vertically adjusted. It may also be rotatably positioned as desired.

Extending from the lower end of the arm 43 is a horizontally disposed arm 46. This arm is surrounded by a sleeve 47 which is secured to a back 48, the latter cooperating

with the seat 36 to provide a chair. The inner end of the arm 46 is provided with a toothed or serrated disk 49 which is adapted to be engaged by a similar toothed or serrated disk 50 fast upon the sleeve 47. An adjusting nut 51 is mounted upon the outer end of the arm 46 and bears against the adjacent end of the sleeve 47 so as to hold the teeth of the disks 49 and 50 engaged. By loosening the nut, the teeth may be disengaged and the back 48 adjusted pivotally. The back of the chair is thus capable of vertical and pivotal adjustment independent of the seat. The seat is provided with a strap 52 while the back carries a strap 53, so that the patient may be secured within the chair when desired. The bracket 24 has extending therefrom handles 54 to provide for conveniently moving the chair.

It will be apparent from the foregoing description and accompanying drawings that the invention provides a chair which will provide a maximum amount of comfort for the occupant and by means of which a patient may be transferred from a bed to the chair and vice versa. When it is desired to transfer a patient from a bed, the chair is pushed under the bed with the jack positioned as near the side of the bed as is possible, the chair being in a reclining position with the extension 37 extended. The patient may then be moved from the bed onto the chair and the straps may be adjusted in place if desired. If it is desired to raise the patient to sitting position, this can be easily done.

The chair may be advantageously employed for the convenient use of a bed pan, so that the patient may use the same in a natural position. For this purpose there is pivotally secured to the sleeve 15 as shown at 55, an arm 56 which carries at one end a yoke 57. This yoke is provided with oppositely located seats 58 which receive pivot studs 59 extending radially from the pan 60. Rigid with the arm 56 is an operating handle 61, by means of which the arm 56 may be swung upward. A latch 62 which is carried by the sleeve 15 is arranged in convenient position to be engaged by the lever 61 so as to hold the lever 56 elevated.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

Having described the invention what is claimed is:—

1. In an invalid chair, a platform, a lifting mechanism supported thereon, a chair carried by said mechanism and including a seat and a back separated from the seat, means connecting the lifting mechanism and seat to permit of independent horizontal adjustment of the latter, means connecting the lifting mechanism and back to permit of independent horizontal pivotal adjustment of said back, and means to operate the lifting mechanism to provide simultaneous vertical adjustment for the seat and back.

2. In an invalid chair, a platform, a lifting mechanism supported thereon, a chair carried by said mechanism and including a seat and a back separated from the seat, means connecting the lifting mechanism and seat to permit of independent horizontal adjustment of the latter, means connecting the lifting mechanism and back to permit horizontal swinging adjustment of the back and vertical pivotal adjustment of the back independent of the seat and means to operate the lifting mechanism to provide simultaneous vertical adjustment of the seat and back.

3. In an invalid chair, a platform, a lifting mechanism supported thereon, a chair carried by said mechanism and including seat and a back separated from the seat, means connecting the lifting mechanism and seat to permit of independent horizontal adjustment of the latter, means connecting the lifting mechanism and back to permit of independent vertical adjustment of said back and means to operate the lifting mechanism to provide simultaneous vertical adjustment of the seat and back.

4. An invalid chair comprising a base, a lifting mechanism mounted thereon, said mechanism including a vertically adjustable post, spaced arms extending from the post, a seat carried by one of the arms, means to adjust said arm to regulate the position of the seat, a back support carried by the other arm, a back carried thereby, said back being separate from and adapted to cooperate with the seat to provide a chair, means to adjust said other arm to regulate the position of the back and means to operate the lifting mechanism.

5. An invalid chair comprising a base, a lifting mechanism mounted thereon, said mechanism including a vertically adjustable post, spaced arms extending from the post, a seat carried by one of the arms, means to adjust said arm to regulate the position of the seat, a vertically adjustable horizontally disposed member carried by the other arm, a back, means to secure the back to the horizontally disposed member for pivotal movement thereon whereby the back may be adjustably positioned with respect to the seat to cooperate with the latter and provide a chair and means to operate the lifting mechanism.

In testimony whereof we affix our signatures.

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DAVID O. ELLIS.