

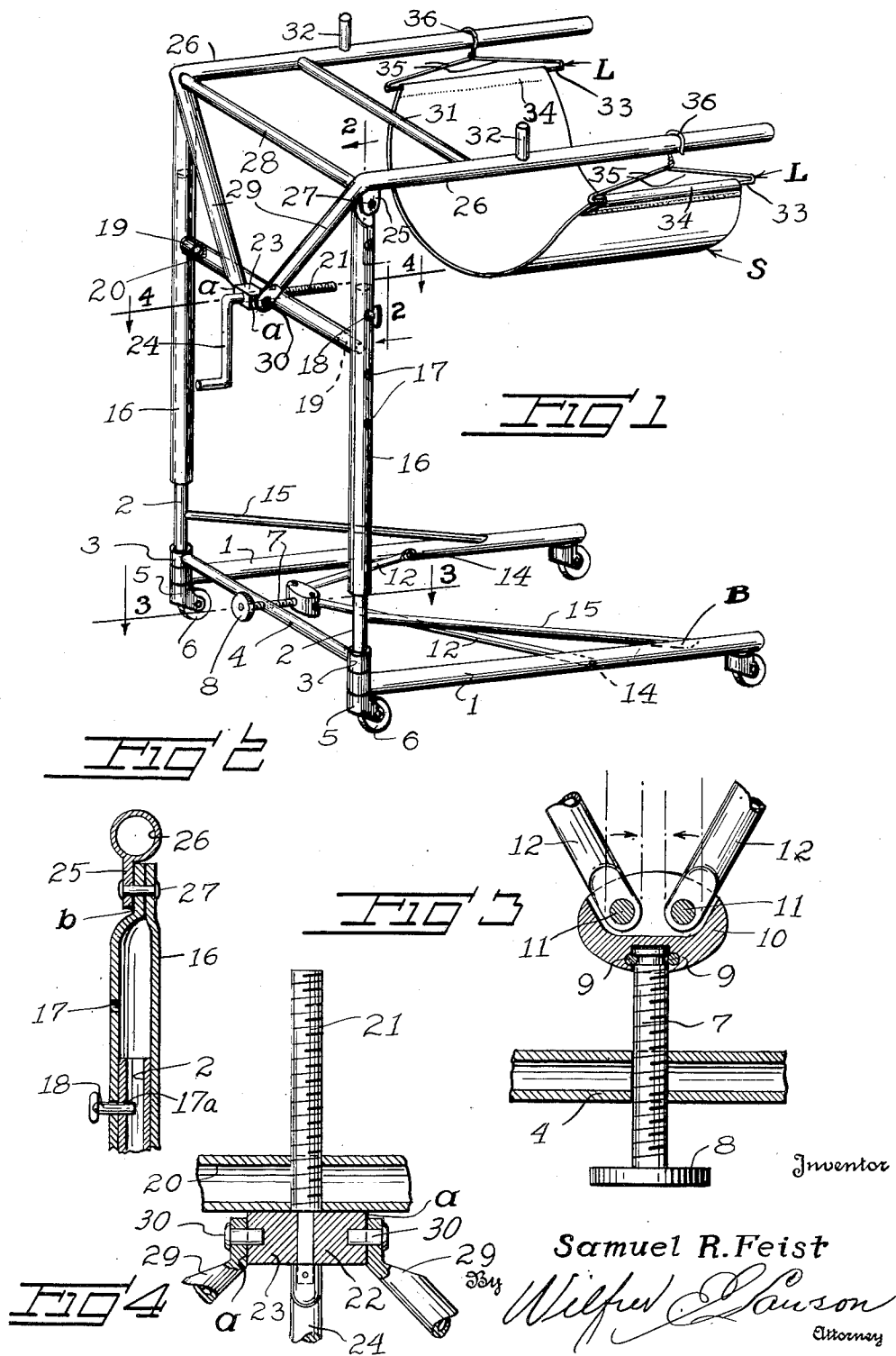
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INVALID HANDLING APPARATUS

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## UNITED STATES PATENT OFFICE

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## INVALID HANDLING APPARATUS

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This invention relates to an invalid handling apparatus and it is primarily an object of the invention to provide an apparatus of this kind which can be employed to advantage as either a lift or a walker.

It is also an object of the invention to provide an apparatus of this kind including a base member and an upper member, said upper member and base member being operatively connected in a manner to allow the upper member to be vertically adjusted to facilitate lifting or lowering of the patient as the requirements of practice may desire.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved invalid handling apparatus, whereby certain advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawing, wherein:

Figure 1 is an isometric view of an invalid handling apparatus constructed in accordance with an embodiment of the invention;

Figure 2 is a fragmentary sectional view taken substantially on the line 2—2 of Figure 1;

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 1; and

Figure 4 is a sectional view taken substantially on the line 4—4 of Figure 1;

In the embodiment of the invention as illustrated in the accompanying drawing, B denotes a base frame or member comprising the elongated side members 1 which are preferably tubular and which at similar ends are rigid with the upstanding posts 2 of considerable length. The lower end portions of the posts 2 are freely surrounded by the collars 3 carried by the extremities of an interposed reinforcing or spacing rod 4. The base frame B is one whereby the arms or members 1 may be readily swung laterally as desired and particularly to facilitate the placing of the base frame in proper position with respect to a chair and under which conditions it is important that the members or arms 1 readily pass beyond opposite sides of the chair.

The opposite end portions of these members or arms 1 of the base frame B are provided with the underhung casters 5 or other preferred ground engaging members, whereby the frame B or the apparatus in its entirety may be readily and conveniently transported from one location to another, particularly when carrying a patient.

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The wheels 6 of the casters 5 are preferably rubber-tired, although I do not wish to be understood that I am limiting myself as to this particular detail as it is only incidental to the apparatus as a whole.

Threading through the central portion of the bar 4 is an elongated shank 7 substantially at right angles to the bar 4 and which is provided at its forward or outer end with a hand-wheel 8 whereby the shank 7 may be readily rotated in order to effect the desired endwise movement thereof with respect to the rod 4.

The opposite or inner end portion of this shank 7 is swiveled as at 9 to a block or head 10 to which is also pivotally connected as at 11 the elongated rigid arms 12. The arms 12 are pivotally or hingedly connected as at 14 to the arms or members 1 at points substantially midway of the ends thereof. Upon rotation of the shank 7 in a preferred direction, the arms or members 1 may be swung outwardly or inwardly as the requirements of practice may necessitate. In other words, the members or arms 1 may be brought closely together or into substantially parallel position when it is desired to use the apparatus in connection with a patient occupying a bed or the members or arms 1 may be swung outwardly with respect to each other a distance sufficient to facilitate the same to extend beyond opposite sides of a chair so that the patient may be readily placed on the chair or removed therefrom.

To further strengthen the base member, the posts 2 at a desired distance above the lower ends thereof and the outer extremities of the members or arms 1 have rigid therewith the bracing rods 15. These rods 15 are of particular advantage in assuring the posts 2 being maintained in desired vertically disposed position.

Freely insertable over the posts 2 from above are the elongated tubular posts 16 of desired length and which have the upper portion of their walls provided with the transversely directed openings 17 of desired number. The posts 2 have therein a similar opening 17a for selective registration with one of the openings 17 for the reception of a holding bolt 18. By means of these openings 17 and 17a and the bolt 18 or the like, the posts 16 may be positively maintained in desired vertical adjustment or adjustment lengthwise of the post 2 as the requirements of practice may necessitate.

The upper portions of the posts 16 are provided with the inwardly directed trunnions 19 which snugly fit within the opposite end portion of a sleeve 20 of a length to substantially bridge

between said teeth. By this mounting the sleeve 20 is free to rotate.

Threaded through the central portions of the sleeve 20 is an elongated shank 21 and which shank 21 outwardly or forwardly of the sleeve 20 has its periphery smooth and unobstructed as at 22, and which portion 22 is snugly but freely engaged through a central portion of a block 23 having the opposite flat side faces *a*.

Operatively engaged with the shank 21 outwardly of the block 23 is a hand crank 24 to provide means whereby the shank 21 may be rotated as desired to extend or to effect movement of the block 23 towards or from the sleeve 20. While is herein disclosed a hand crank 24 for rotating the shank 21, it is to be understood that it is within the scope of the invention to provide any other means as may be preferred to effect such operation.

The upper extremities of the posts 16 have outer flat side faces *b* over which are disposed the lugs 25 depending from similar extremities of the elongated parallel side members 26. These lugs 25 are pivotally connected as at 27 to the upper extremities of the posts 16 whereby the arms 26 may have up and down swinging movement and in order that such movement may be unitary and in the same direction the inner portions of the arms 26 are rigidly connected by the interposed connecting rod 28.

The pivotally connected end portions of the arms 26 are continued by the inwardly and downwardly converging arms 29 terminating and having their converging or free extremities overlying the side faces *a* of the block or head 23 and pivotally connected therewith as at 30.

It will be apparent that upon rotation of the threaded shank 21 in one direction the head or block 23 will be forced to move forwardly and upwardly in a wide arc so as to swing the convergent arms 29 in the same direction, thereby turning such arms and the arms 26 on the pivot centers 27 to cause the arms 26 to move downwardly from the position shown in Figure 1. Such movement of the block 23 in the described arcuate path will be permitted by reason of the fact that the sleeve 20, through which the shank 21 is threaded, is supported to turn on its long axis. The stated movement of the shank, the arms and the sleeve 20 with the block 23 will thus cause the shank to shift from the substantially horizontal position in which it is shown in Figure 1 to an inclined position where it will be directed downwardly and rearwardly. Obviously reverse rotation of the shank will effect the swinging of the arms 21 upwardly to return them to the substantially horizontal position in which they are shown in Figure 1.

It has also been found preferable and desirable to have the pivoted end portions of the arms 26 further connected by the interposed rigid bar 31 and the arms 26 at a desired point thereon and preferably inwardly of their longitudinal centers provided with the upstanding hand-holds 32. While the interposed bar 31 further assures rigid relative maintenance of the arms 26 it is to be stated that it also serves as a further important function of providing a hand-hold when the device or apparatus is used as a walker and at which time the patient, of course, is between the arms 26 with the arms 1 of the base B outwardly separated sufficiently to allow the patient to tread the floor or other surface between said arms 1 without hinderance or obstruction to the stepping.

When the apparatus is used for raising or lowering a patient either from a bed or chair, the flexible seat S is used. This seat S is of a length considerably in excess of the space between the arms 26 and the end portions of the seat S are operatively engaged with the rigid loop members L, each including a bar 33 which is disposed through the casings 34 at an end of the seat S. The member L also comprises the upwardly converging top bars 35 which extend from the extremities of the bar 33 and terminate in an upstanding hook member 36 adapted to be operatively engaged at a desired point along an arm 26. By this means it will be readily evident that the seat S can be readily and conveniently applied to or removed from the bars or arms 26.

When the seat S is employed with the patient occupying a bed, the seat S is laid flat upon the bed in such position that the patient may be caused to sit upon the flat seat with the lower limbs hanging over the side of the bed. After this placing of the patient has been accomplished, the members L are engaged with the arms 26 of the apparatus which has, of course, been moved into proper position to have the arms or members 26 overlie the bed at opposite sides of the patient.

It is believed to be readily apparent that the arms 26 may be with equal facility withdrawn from the seat S after the patient has been returned to the bed or placed upon a chair or otherwise as may be required.

From the foregoing description it is thought to be obvious that an invalid handling apparatus constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

1. An invalid handling apparatus comprising a base frame including side members, ground engaging elements carried by said side members at the opposite extremities thereof, upstanding posts carried by similar ends of said side members, a rigid member interposed between the posts provided with collars at its opposite end portions through which the posts are freely directed from below, a member having endwise movement through said rigid member and an operative connection between said endwise movable member and the side members for swinging said side members outwardly or inwardly upon requisite endwise movement of said movable member, and means carried by the posts for supporting a patient.

2. An apparatus as set forth in claim 1, wherein the operative connection between the endwise movable member and the swinging arms comprises a head with which the endwise movable member has swivel connection and rigid members pivotally connected with the head and with the arms.

3. An invalid handling apparatus comprising a base structure, a pair of spaced upstanding posts carried thereby, a top structure comprising two spaced parallel arms each terminating at one end in a right angularly extended portion, a rigid coupling between said arms at the ends thereof connected with the right angular extension, means pivotally coupling the arms with the upper ends of the posts at the ends of the arms adjacent to the right angular extensions, the said right angular extensions being directed downwardly and inwardly in convergent relation, a bar disposed transversely between the posts and con-

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nected with the posts for turning on its long axis, a block member between the convergent lower ends of said arm portions and pivotally connected with the same, said block member being disposed substantially in the plane of said last mentioned bar, a threaded shank freely rotatably extended through the block member and extending through and having threaded connection with the last mentioned bar, and a crank upon one end of the shank, said arms being designed for the support of a seat.

4. An invalid handling apparatus of the character stated in claim 3, with upstanding hand holds carried by said arms.

5. An invalid handling apparatus of the character stated in claim 3, with a second bar disposed across, between and rigidly coupling together the arms, and hand holds secured to the arms to be grasped by an occupant of a seat supported between the arms.

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