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(54) A bed

(57) A bed of the type home care bed is adjustable between a position in which the bed is by means of support elements (24) firmly supported on a floor surface (26) and a position in which the bed is by means of wheels (28) engaging the floor surface (26) and the bed is thereby movable on the floor surface. The support elements (24) as well as the wheels (26) are positioned at the lower end portions of angular adjustable elements (12), the support elements (24) and the wheels (28) being displaced to and from their positions engaging the floor surface (26) by adjusting the angular position of the elements (12).

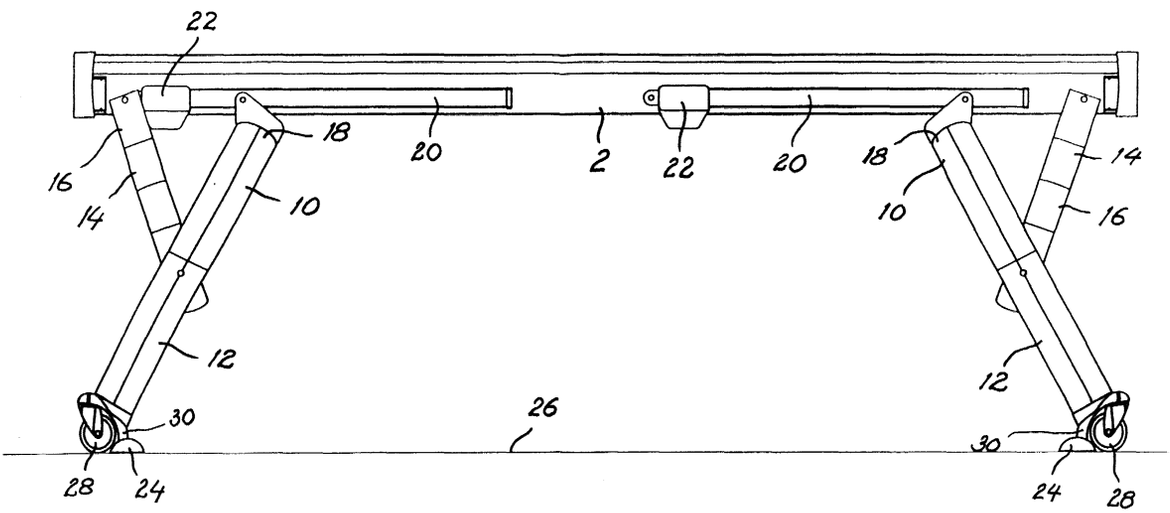

Fig. 2

EP 1 138 226 A2

Description

[0001] The present invention relates to a bed of the home care bed type, the bed being adjustable between a position in which the bed is by means of support elements firmly arranged on a floor surface and a position in which the bed by means of wheels engages the floor surface and the bed is thereby movable on the floor surface.

[0002] At previously known home care beds of this kind the beds are provided with legs and wheels connected with the frame of the bed, the wheel being rotatably journalled in elements connected with the bed frame, the elements being displaceable vertically for moving the wheels to and from a position in which the bed is supported by the wheels and the legs, respectively. The movable elements connected with the bed frame and supporting the wheels can be constituted by telescopical elements, toggle joint mechanisms, swingable elements and the like. The previously known devices for displacing the wheels to and from active positions are complicated, difficult to adjust and unreliable. It is extremely important that home care beds of said kind are extremely reliable and easy to adjust as accidents otherwise easily can appear.

[0003] The object of the invention is to provide a bed having wheels which are adjustable between a position in which the bed is supported by the wheels and thereby is movable and a position in which the bed is supported by rigid support elements, in which the device for displacing the wheels is simple, easy to adjust and is extremely reliable.

[0004] In order to comply with this object the bed according to the invention is characterized in that the support elements as well as the wheels are positioned at the lower end parts of angular adjustable elements, the support elements and the wheels being displaced to and from the position engaging the floor surface by adjusting the angular position of said elements.

[0005] A bed of this kind is extremely simple to adjust between the firm position and the movable position and is also extremely reliable which prevents accidents.

[0006] It is preferred that the wheels are adapted to be displaced to their engagement position with the floor surface by the fact that the angular adjustable elements are adjusted so that the rest surface of the bed is displaced upwards in relation to the floor surface. At the bed according to the invention the height position of the rest surface in relation to the floor surface can be adjusted by adjusting the angular position of the angular adjustable elements when the support elements are in the position in which they engage the floor surface.

[0007] The angular adjustable elements are suitably constituted by two U-shaped frames, the shanks of which form four as legs designed, angular adjustable elements, one support element and one wheel being arranged at the free end portions of each of the angular adjustable elements formed as legs.

[0008] Preferably the U-shaped frames are at their as legs designed, angular adjustable elements pivotably connected with the bed5 by means of bars which at their ends are pivotably connected with the bed frame and to each of said legs at the central portion thereof. The U-shaped frames are at their web portions connected with an adjustment device for adjusting the angular position of the elements formed as legs. The adjustment device is suitably constituted by a rotatable screw and nuts cooperating with the screw and connected with the web portions of the U-shaped frames. It is preferred that the screw is adapted to be driven by a motor.

[0009] The angular adjustable elements have at their end portions suitably arc-shaped elements which at one end portion support a support element and at its other end portion support a wheel. It is suitable that the support elements are pivotably connected with the end portions of the angular adjustable elements so as to engage the floor surface by means of a support surface when the support elements engage the floor surface independently of the angular position of the angular adjustable elements.

[0010] An embodiment of the bed according to the invention shall in the following be more closely described with reference to the accompanying drawings.

[0011] Fig. 1 shows in a perspective view a bed according to the invention with support elements engaging a floor surface.

[0012] Fig. 2 shows the bed according to Fig. 1 from the side without ends, side supports and mattress, the bed being supported on the support elements on the floor surface.

[0013] Fig. 3 shows the bed according to Fig. 2 supported on wheels engaging the floor surface.

[0014] Fig. 4 shows the bed in a lowered position supported by the support elements on the floor surface.

[0015] Fig. 5 shows on an enlarged scale the lower end portion of one of the legs of the bed.

[0016] The bed according to the invention and shown in Fig. 1 has a bed frame 2 with ends 4, a side support 6 and a mattress 8. The bed frame 2 is supported by two U-shaped supports 10 the shanks of which form the four legs 12 of the bed. The legs 12 are at their central portions pivotably connected to the shanks 14 of two U-shaped toggles 16. The free ends of the shanks 14 are pivotably connected with the bed frame 2.

[0017] The web portions 18 of the two U-shaped supports 10 which by means of their shanks form their legs 12 of the bed are connected with the bed frame in a displaceable way which makes it possible to adjust the angular position of the legs 12. The web portions 18 of the U-shaped supports 10 are provided with one nut each. The nuts of the web portions 18 are connected with one rotatable screw and these screws are rotatably journalled in longitudinally extending beams 20 at the bottom of the bed frame. The screws in the beams 20 are connected with one motor 22 each, the motors being adapted to rotate the screws in the beams 20 so as to

displace the nuts connected with the web portions of the U-shaped supports 10 in the longitudinal direction of the beams so as to provide for a change of the angular position of the legs 12 forming the shanks of the U-shaped supports.

[0018] The adjustment of the angular position of the legs 12 has the object of adjusting the bed between a position in which the bed is by means of support elements 24 firmly supported by a floor surface 26 and a position in which the bed by means of wheels 28 engages the floor surface 26 and the bed is thereby displaceable on the floor surface.

[0019] As most clearly shown in Fig. 5 the support elements 24 and the wheels 28 are connected with the free ends of the legs 12 by means of arc-shaped elements 30 which at one end support the support elements 24 and at its other end support the wheels 28 by means of retainers 32 which are rotatable around a vertical shaft. It is realized that one by means of the motors 22 rotating the screws in the beams 20 and thereby moving the upper web portions of the legs 12 in horizontal direction by means of the nuts connected with the web portions 18 of the frames 10 provides for a changing of the angular position of the legs 12 and that either the support elements 24 or the wheels 28 are in engagement with the floor surface 26 dependent on the angular position. In Figs 1, 2 and 4 the legs 12 are in such an angular position that the support elements 24 rest on the floor surface 26 and thereby provide for a firm support of the bed on the floor surface. According to Fig. 3 the legs 12 are in such an angular position that the wheels 28 engage the floor surface 26 so that the bed is displacable on the floor surface.

[0020] Raising and lowering of the bed when the support elements 24 engage the floor surface 26 can be constituted by means of a control device which the person using the bed can control. Displacement of the legs to the position in which the wheels 28 engage the floor surface 26 can however not take place by means of this control device but only by means of a control device positioned at the end of the bed, the last mentioned control device being not accessible to the person who is positioned in the bed.

[0021] The described construction of the bed according to the invention means that the bed is easy to control between a firm and displaceable position at the same time as the bed presents a great security of being unintentionally displaced to a movable position, i.e. the position in which the wheels 28 engage the floor surface 26.

[0022] The invention can be modified within the scope of the following claims.

Claims

1. A bed of the home care bed type, the bed being adjustable between a position in which the bed is by means of support elements (24) firmly supported by a floor surface (26) and a position in which the bed by means of wheels (28) engage the floor surface (26) and the bed is thereby displaceable on the floor surface, **characterized in that** the support elements (24) as well as the wheels (28) are positioned at the lower end parts of angular adjustable elements (12), the support elements and the wheels being displaced to and from the position engaging the floor surface by adjusting the angular positions of said elements (12).

2. A bed as claimed in claim 1, **characterized in that** the wheels (28) are adapted to be displaced to their position engaging the floor surface by adjusting the angular position of the angular adjustable elements so that the rest surface of the bed is raised in relation to the floor surface (26).

3. A bed as claimed in claim 1 or 2, **characterized in that** the height position of the rest surface of the bed is adjustable in relation to the floor surface (26) by angular adjustment of the angular adjustable elements (12) when the support elements (24) are engaging the floor surface.

4. A bed as claimed in any of the preceding claims, **characterized in that** the angular adjustable elements (12) are constituted by two U-shaped frames (10) the shanks thereof forming four as legs designed, angular adjustable elements and that one support element (24) and one wheel (28) are positioned at the free end portions of each of the angular adjustable elements (12) designed as legs.

5. A bed as claimed in claim 4, **characterized in that** the U-shaped frames (10) at their as legs designed, angular adjustable elements (12) are pivotably connected with the bed by means of bars (14) which at their ends are pivotably connected with the bed frame (2) and to each of the legs (12) at the central part thereof and that the U-shaped frames (10) at their web portions (18) are connected with an adjustment device for swinging the U-shaped frames for providing an angular adjustment of the elements (12) designated as legs.

6. A bed as claimed in claim 5, **characterized in that** the adjustment device is constituted by rotatable screws and nuts cooperating with the screws and connected with the web portions (18) of the U-shaped frames (10).

7. A bed as claimed in claim 6, **charactarized** in that the screws are adapted to be driven by motors (22).

8. A bed as claimed in claim 6 and 7, **characterized in that** the screws and the motors (22) are posi-

tioned in beams (20) extending in the longitudinal direction of the bed.

9. A bed as claimed in any of the preceding claims, **characterized in that** the angular adjustable elements (12) at their end portions have arc-shaped elements (30) and that the arc-shaped elements at one end portion supports a support element (24) and at its other end portion supports a wheel (28).

10. A bed as claimed in any of the preceding claims, **characterized in that** the support elements (24) are rotatably connected with the end portions of the angular adjustable elements (12) so as to engage the floor surface with a support surface independently of the angular position of the angular adjustable elements when the support elements engage the floor surface (26).

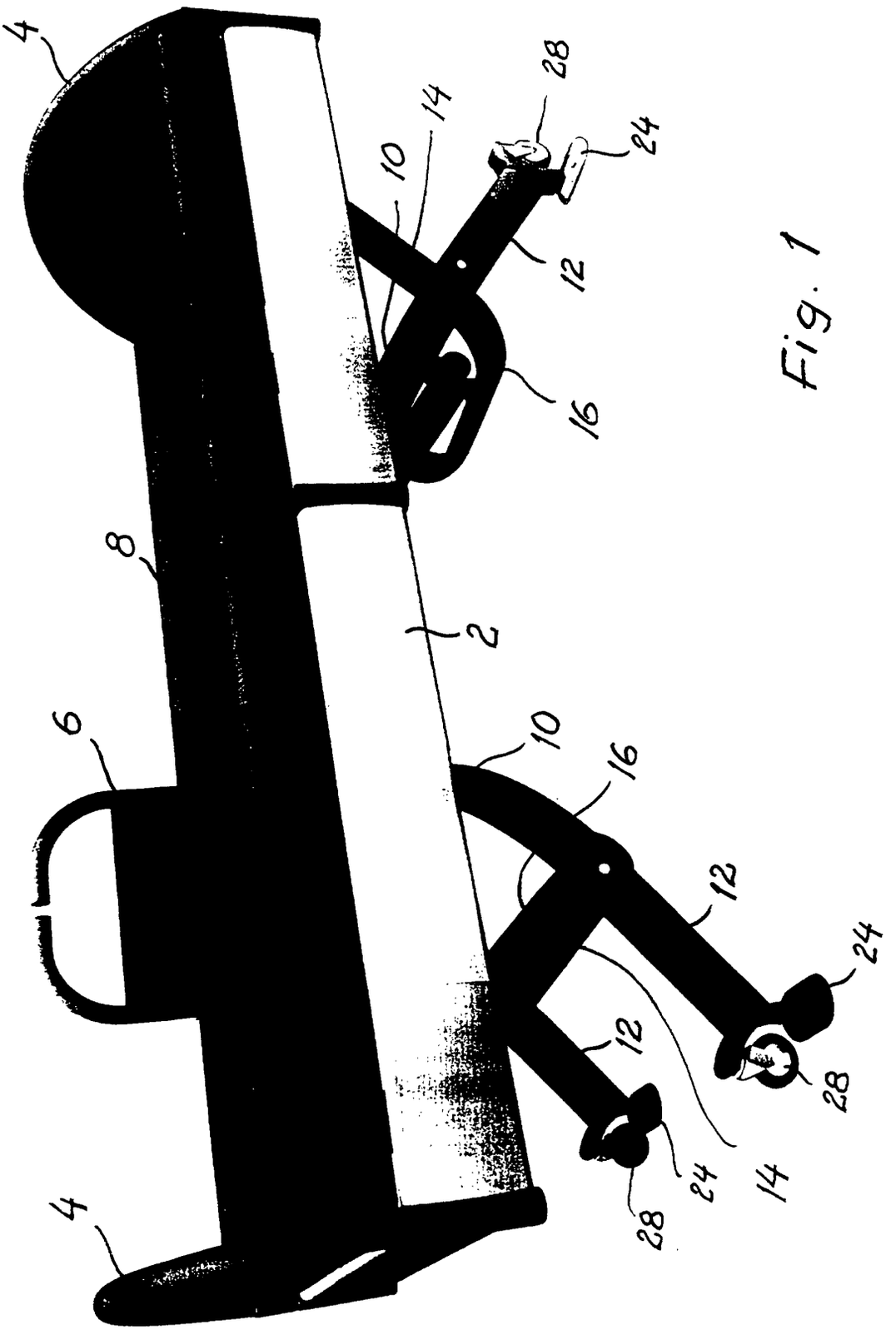

Fig. 1

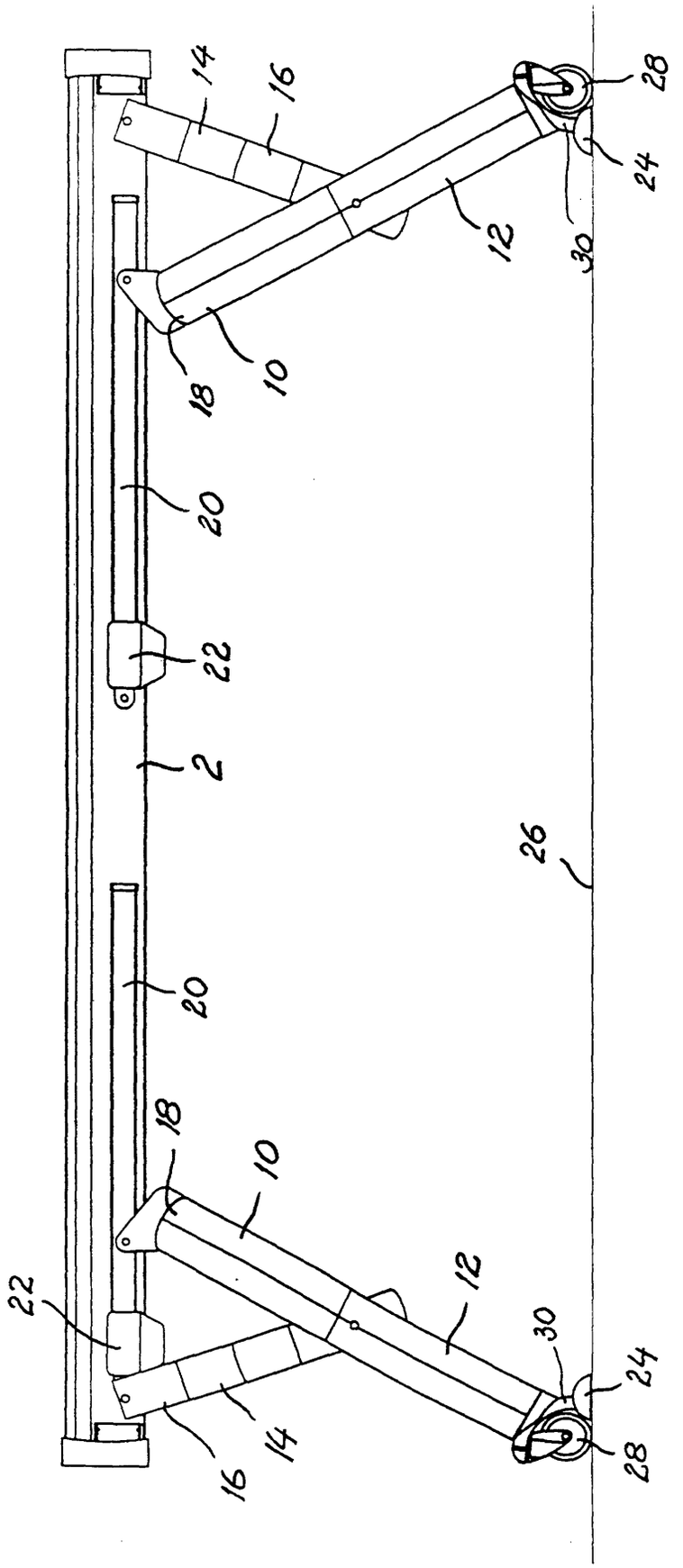

Fig. 2

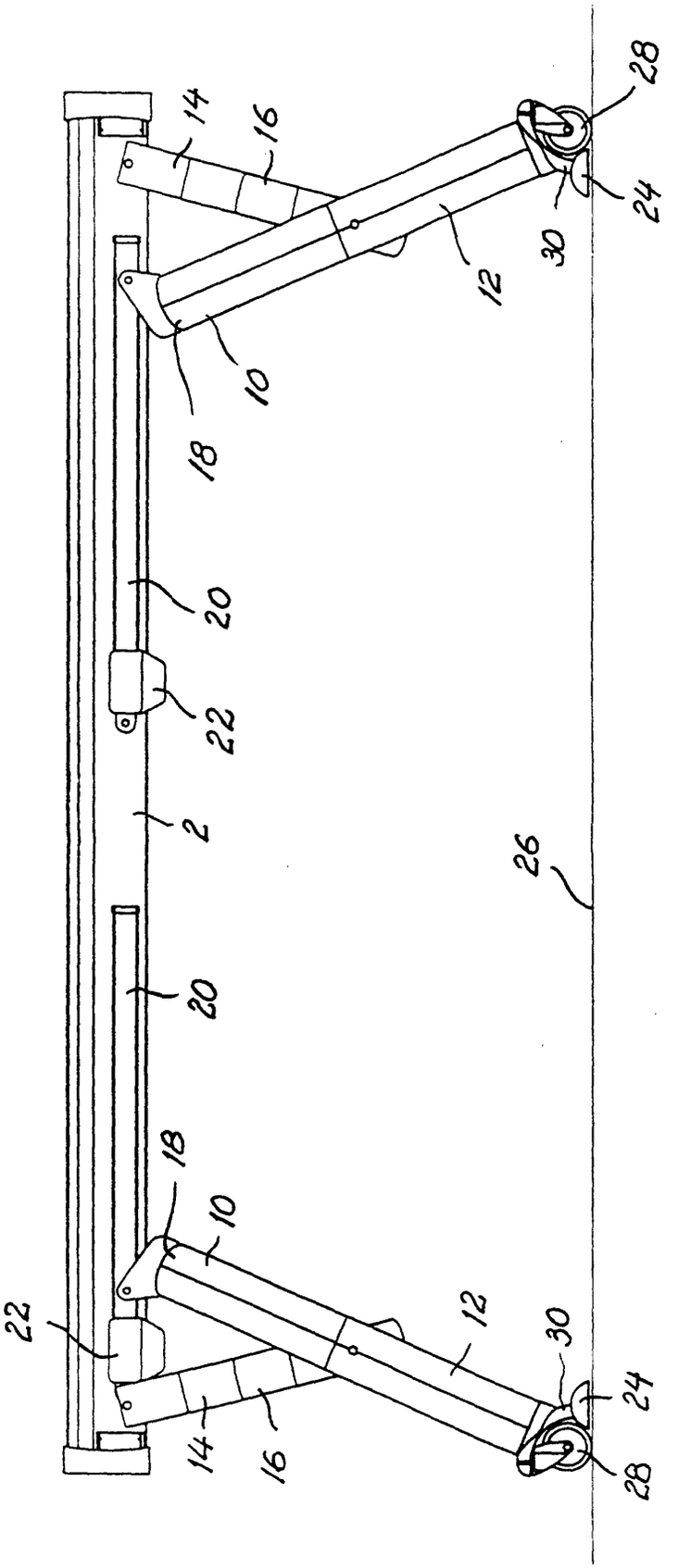

Fig. 3

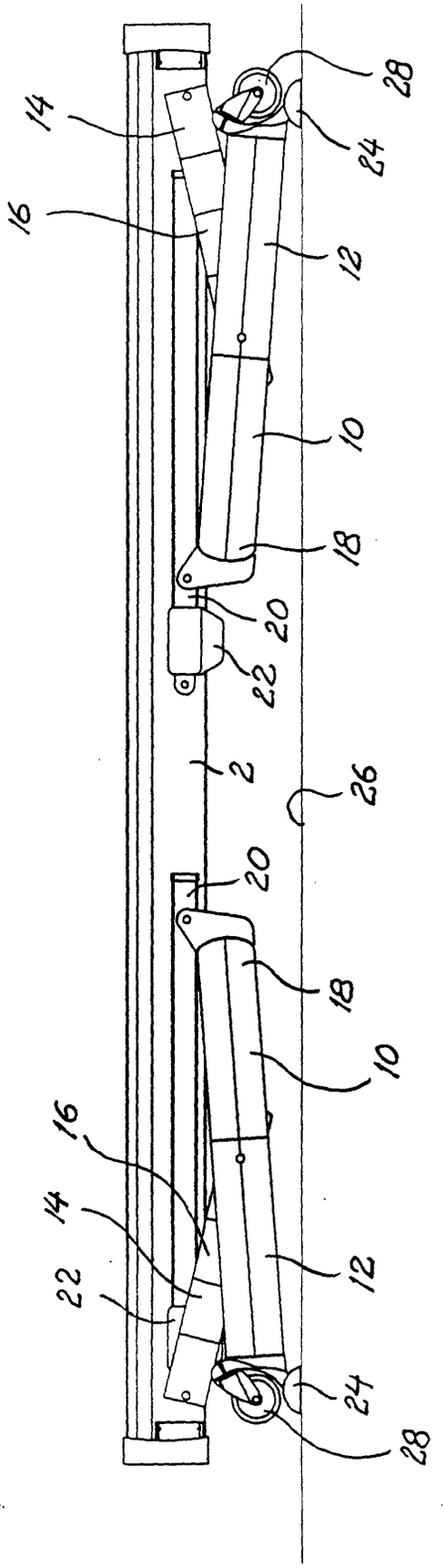

Fig. 4

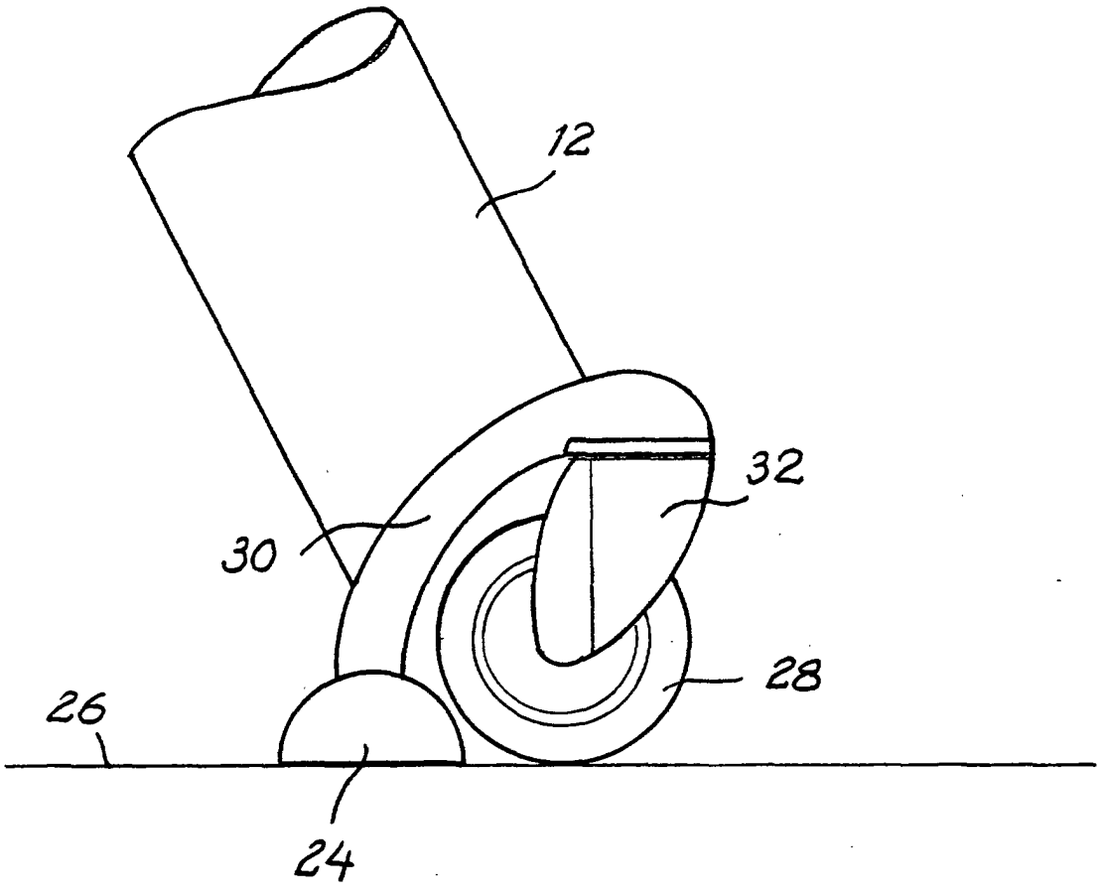

Fig. 5