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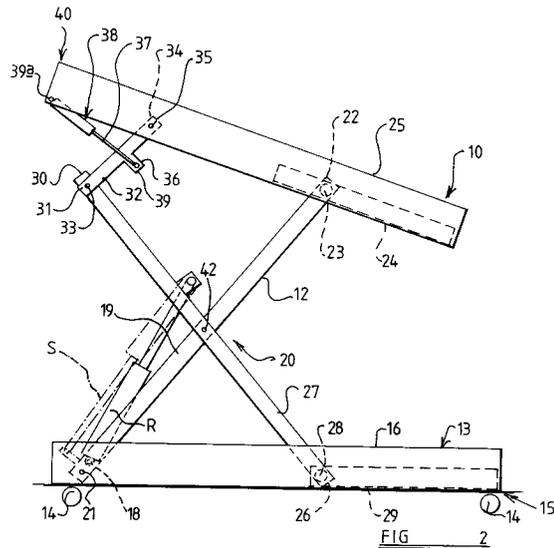
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Supporting appliance.

A supporting appliance (10) comprising a generally upwardly presented platform (11), a support structure (12) for supporting the platform (11) and tilt means to permit of the platform (11) being tilted relative to the support structure (12), wherein the platform (11) is connected to the support structure (12) at first (35) and second (23) positions spaced apart longitudinally of the platform (11), the connection at the first position (35) being provided by a link member (32) pivotally connected at least at one end to the platform (11) or the support structure (12) whereby pivotal movement of the link member (32) about said pivotal connection permits of tilting of the platform (11) relative to the support structure (12) at said second position (23).



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This invention relates to a supporting appliance, hereinafter referred to as being of the kind specified, comprising a bed, couch, table, stretcher, chair or the like, having a generally upwardly presented platform to support, for example, a patient in medical applications or an animal in veterinary applications or any other object, a support structure for supporting the platform and tilt means to permit of the platform being tilted relative to the support structure, for example, to a head down or "negative tilt" position and/or a foot down or "positive tilt" position.

An object of the invention is to provide a supporting appliance of the kind specified having a new and improved tilt means.

Another object of the invention is to provide a new and improved suspension means particularly, but not exclusively, for a supporting appliance of the kind specified.

According to one aspect of the present invention, we provide a supporting appliance comprising a generally upwardly presented platform, a support structure for supporting the platform and tilt means to permit of the platform being tilted relative to the support structure, wherein the platform is connected to the support structure at first and second positions spaced apart longitudinally of the platform, the connection at the first position being provided by a link member pivotally connected at least at one end to the platform or the support structure whereby pivotal movement of the link member about said pivotal connection permits of tilting of the platform relative to the support structure at said second position.

Preferably the link member is pivotally connected at said one end to the support structure and is pivotally connected at its other end to the platform, whilst the connection, of the platform to the support structure, at the second position permits of relative pivotal and sliding movement between the platform and support structure.

An actuator may be associated with the link member to cause or aid tilting of the platform relative to the support structure.

The actuator may comprise a compression or tension locking gas spring or a pneumatic or hydraulic ram or an electric motor operated jacking means or any other power or manually operable device for causing or aiding pivotal movement of the link member to provide said tilting of the platform relative to the support structure.

The actuator may comprise a drive member movable generally longitudinally relative to the platform and disposed beneath the platform and connected to the link member by an arm assembly which is fixed relative to the link member.

The platform may comprise a pair of transversely spaced longitudinally extending frame

members and the link member may be pivotally connected thereto so as to be disposed therebetween. If desired, a pair of link members may be provided, one disposed adjacent each longitudinally extending frame member. The link members may be interconnected adjacent one end thereof by a transversely extending member and said arm assembly comprising a pair of spaced arms which are fixed to said transversely extending member inwardly of said link members and said arms being spaced apart to permit of passage of a part of the actuator therebetween. The actuator may comprise a body and said drive member is movable inwardly and outwardly relative to the body, the drive member being connected to said arms by a yoke assembly which is connected to the drive member adjacent a free end of the drive member and which extends from said free end towards the body, the yoke assembly comprising a pair of arms which are spaced apart sufficiently to permit passage of at least part of said body therebetween.

In this case one or both of the link members may be provided with said actuator. If desired, one link member may be provided with a locking actuator and the other link member provided with some other form of actuator to compliment the effect of the first mentioned actuator.

The support structure may comprise an 'X' configuration linkage having two legs, pivotally inter-connected intermediate their ends, one end of one leg being pivotally and non-slidably connected to a base, whilst the other end of said one leg is slidably connected to the platform at said second position and the one end of the other leg is slidably connected to the base whilst the other end of said other leg is pivotally connected to said link member.

An operating means may be operatively engaged with the linkage to move the legs to move the platform relative to the base.

The operating means may comprise a fluid operated piston and cylinder ram means connected between the linkage and the base.

Alternatively, the operating means may comprise a screw jack means connected between the linkage and the base which may be electrically or manually or otherwise operated.

A gas or other resilient biasing means may be provided to compliment said operating means and may be connected, for example, between the base and the linkage at positions adjacent to the respective connections of the operating means.

According to another aspect of the invention we provide a supporting appliance, which may be of the kind specified, and/or according to the first aspect of the invention, having a base provided with ground engageable wheels wherein the wheels are connected to the base by a suspension means

which permits of relative suspension movement between the wheels and the base.

The wheels may be carried on a wheel carrying lever which is pivotally mounted on the base and movement of the lever being resisted by a resilient means.

A locating lever which may be adjustable relative to the base to move the wheels between operative and inoperative positions may be connected by a linkage to a resilient biasing means which facilitates movement of the locating lever to move the wheels from their inoperative to their operative position

The resilient means may comprise a torsion member anchored at one end to a member connected to the wheel carrying member and at the opposite end to the locating lever.

The linkage may comprise a first member to connect the locating lever to a drive member which is pivoted to the base and said drive member being connected to an input member of the resilient biasing means.

The drive member may be connected to a manually engageable operating member by which the drive member may be rotated relative to the base between a position in which the wheel carrying levers are pivoted to lift the wheels out of engagement with the ground and lower the base to the ground and an operative position in which the wheel carrying levers are rotated to bring the wheels into engagement with the ground, movement between the operative and inoperative positions carrying the connection between the drive member and the biasing means through an "over dead centre" position so that the wheels are moved by the resilient biasing means in each of said operative and inoperative positions.

The invention will now be described in more details by way of example with reference to the accompanying drawings wherein:

FIGURE 1 is a diagrammatic side elevation of a supporting appliance embodying the invention shown in a first position, whilst

FIGURE 2 illustrates the appliance of Figure 1, but in a second condition,

FIGURE 3 is a fragmentary perspective view of a base part of the appliance of Figures 1 and 2 illustrating a wheel suspension means thereof,

FIGURES 4 and 5 are diagrammatic illustrations of the geometric relationship of a drive member of the appliance shown in Figure 3, and

FIGURE 6 is a side elevation of a modification of the supporting appliance shown in Figures 1 to 5.

Referring to Figures 1 to 5, a supporting appliance is indicated generally at 10 and comprises a generally upwardly presented platform 11 to support a load such as a patient in a hospital or a

animal in a veterinary surgery, or, if desired, the platform may be used to support any suitable load.

The platform 11 is supported on a support structure 12 and tilting means hereinafter to be described in more detail are provided to permit of the platform 11 to be tilted relative to the support structure 12, as shown by comparing Figures 1 and 2.

The support structure 12 is carried on a base 13 which is provided with ground engageable means comprising castors 14 which are mounted on the base 13 by a suspension means 15

The base 13 includes two spaced parallel longitudinally extending members 16 inter-connected by transverse members 17. The one ends 18 of a pair of legs 19 of an X-linkage 20, which provides said support structure 12, are pivotally connected to associated members 16 as shown at 21. The other ends 22 of the legs 19 have a roller 23 rotatably mounted thereon and the rollers 23 are slidably received within channel shaped tracks 24 provided on spaced parallel longitudinally extending members 25 of the platform 10 so that the other ends 22 of the legs 19 are slidably and rotatably connected to the platform.

One end 26 of another pair of legs 27 of the X-linkage 20 have a roller 28 rotatably mounted thereon and the rollers 28 are slidably received within channel shaped tracks 29 provided on the associated base frame members 16 so that the one ends 28 of the legs 27 are slidably and rotatably connected to the base. An operating means comprising a hydraulic ram R is pivotally connected between the base and the linkage 20.

The other ends 30 of the legs 27 are pivotally connected to one end 31 of associated link members 32 as shown at 33. The other ends 34 of the link members 32 are pivotally connected to an associated frame member 25 of the platform, as shown at 35. The link members 32 are joined by a rigid cross-bar, not shown, and provide a torsionally and laterally stiff twin lever assembly. If desired the link members 32 may be unconnected.

Intermediate its ends, each link member 32 has a transversely extending lug 36 to which a piston rod 37 of a locking gas spring 38 is pivotally connected as shown at 39. The cylinder of the gas spring 38 is pivotally connected to an associated frame member 25, as shown at 39a. The gas spring 38 is a conventional locking type and a suitable release means, not shown, is provided to permit of release of the gas spring from one end of the platform 11 so that an operator may tilt the platform 11 relative to the support structure 12 in any vertical condition of the support structure 12 simply by lifting or permitting the end of the platform 25 at which the connection 39 is provided. Whether or not an operative requires to exert a

lifting force depends upon the strength of the gas spring and the weight and position of the load.

The link members 32 can be positioned at any attitude relative to the platform 25 within their operating range by altering the length of the actuators 38. Increasing the length of the actuators 38 rotates the link members 32 anti-clockwise about their connections 31 providing downward tilt to the right as shown in Figure 2, whereas reducing the length of actuators 38 rotates the link members 32 clockwise about their connections 31 providing a downward tilt to the left.

Although the actuators 38 have been described as being a locking gas spring or strut, they may be of any other type and, for example, may be operated hydraulically, pneumatically, electrically (see Figure 6), mechanically or by a combination of these means to provide a partial or total power assistance in providing lifting of the end of the platform 40 as well as providing a suitable locking means to lock the platform 25 in any desired inclination. If desired, a single actuator may be provided associated with one link member 32 or one locking and one non-locking actuator may be provided. Indeed, if desired, a single link member 32 may be provided.

The angle of the link members 32 may be controlled alternatively by a "pull" type actuator which would extend from the connection 39 to a position on the platform 25 adjacent the head end 41 thereof.

Further alternatively a rotary actuator may be provided located at connection 35.

Although in the illustrated example the support structure has been described as being an X-type linkage, if desired the support structure may be of any desired type and may, for example, comprise a simple telescopic column or a parallelogram linkage.

Although in the above example the operating means for the linkage 20 has been described as being a hydraulic ram, if desired any other suitable operating means may be provided such as a pneumatic ram or an electrically operated, manually or otherwise operated screw jack and may be supplemented by a resilient biasing means such as a gas spring S.

A particular advantage of the appliance described above is that at relatively high negative tilt angles, i.e. relatively high "head down" conditions, the platform 25 moves relatively towards the foot end 40, i.e. towards the operator, which is particularly useful in obstetric, chiropody and similar procedures. In addition, as the support structure is adjusted to vary the height of the platform the distance between the first and second positions of connection provided by the connection 33 and rollers 23 varies and decreases with increasing height.

Therefore, for a given angle of tilt the moment arm between the centre of gravity of the load carried on the platform 25 and the rollers 23 is reduced as the height of the platform is increased. This permits the actuator 38 to be designed to provide both a positional lock and to provide power assistance in counter-balancing or providing lifting force despite the fact that the load in any particular case is not predictable and hence the varying weight and position of the load may be balanced by the operator varying the effect of the power assistance provided by the actuator 38 by varying the overall height of the linkage. It is also to be noted that the actuator 38 will have the most power assistance when the platform is at maximum height because the moment arm is minimised, thereby providing maximum power at maximum height, which is particularly convenient because at maximum height condition an operator is less able to apply manual lift as conveniently as when the platform is in a lower position.

Although in the above example the legs 19, 27 of the X-linkage are normally pivoted together at their mid-point 42, this location may be adjusted for operational resilience if desired.

If desired the platform 25 may be provided with a fixed pivot point for the upper end of the link 27 if in any particular application a tilting facility is not required, in which case the link members 32 and associated actuators 38 would be omitted.

Referring now to Figure 3, the suspension means 15 comprises a wheel carrying lever 50 for each wheel 14. The levers 50 at the head end 41 extend from a first tubular axle 51a whilst the levers 50 at the foot end 40 extend from a second axle 51b. The axles 51a, 51b are pivotally carried on the side frame members 16 of the base 13. On one side of the mid-point the axle 51a has a reduced diameter part which is surrounded by a freely rotatable sleeve 52 which carries a foot pedal 53 and an arm 54 so that an operator may reciprocate the arm 54 which is connected by a link 55 to a similar arm and sleeve, not shown, which carry a further arm connected to an operating lever of the hydraulic actuator R of the X-linkage 20.

On the other side of its mid-point the axle 51a has a torsion tube 56 mounted thereon. The torsion tube 56 is welded, at one end, to the axle 51a adjacent the mid-point thereof and carries a first locating lever 56a which is connected by a first link 57a to a drive member 58 which is pivotally mounted on a side frame member 16 by a cross-member 59 having two-armed pedal levers 60 at opposite ends thereof. The drive member 58 is also connected, at 58b, by a second link 57b to a second locating lever 56b which is fixed to a second torsion tube associated with the axle 51b in a similar manner to the way in which the torsion tube

56 is associated with the axle 51a.

The drive member 58 is connected as shown at 61 to a piston 62 of a conventional gas spring 63.

The torsion tubes 56 thus provide a torsional sprung suspension for the wheels 14. If desired other resilient suspension means may be provided.

The associated locating levers 56a, 56b are held in a wheel operating position by the gas spring 63 which is made sufficiently strong to achieve this. When it is desired to move the wheels 14 from their operative position to an inoperative position in which feet parts of the base frame 16 engage the ground, an operator presses on a desired one of the two-armed pedal levers 60 to cause anti-clockwise rotation of the member 59 to cause the drive member 58 to move from an operative position shown in Figure 4 to a position at 90° as shown in Figure 5 and the gas spring 63 is pivotally mounted on the frame 16 at 64 so as to subtend with a line joining the position 61 and the axis of the member 59 in the inoperative position an included, downwardly facing, angle of approximately 170° so as to be disposed in an "over dead centre" condition and thus retain the wheels in their inoperative or raised position.

When it is desired to move the wheels from their inoperative to their operative position, an appropriate foot pedal 60 is operated to rotate the shaft 59 clockwise and thus move the gas spring through its over dead centre position. Once the gas spring has been moved slightly so as to be through the over dead centre position, the spring biasing effect of the gas spring forces the piston thereof outwardly so that some or all of the effort required to move the wheels into their operative position and lift the feet of the base from the ground is provided by the gas spring, thereby facilitating operation of the appliance.

Figure 6 shows a modification of the supporting appliance previously described and illustrated and the same reference numerals are used in Figure 6 to refer to corresponding parts as were used in the previous Figures.

The supporting appliance shown in Figure 6 is the same as that previously described except that instead of a locking gas spring 38 an electrically operated actuator 138 is provided for tilting movement of the platform 10 relative to the X linkage 20.

The actuator 138 comprises a body 139 which houses an electric motor, not shown, which drives an acme screw in conventional manner to drive a drive member comprising a rod 140 inwardly and outwardly relative to the body 139. The body 139 has, at the opposite end thereof to the drive rod 140, a mounting lug 141 which is pin connected to a rigid arm 142 which is bolted or otherwise rigidly secured to a cross member 143 of the platform 10.

At the end of the drive member 140 remote from the body 139 the drive rod is provided with a head 144 of generally cubic configuration with a cross pin 145 extending therethrough and received in openings in a pair of yoke members 146 disposed on opposite sides of the rod 140. A transverse member 147 is welded to the yoke members 146 beneath the head 144 so as to lie in contact with the downwardly facing surface thereof and thus prevent rotation of the yoke members 146 about the pin 145. If desired, the yoke members 146 may be rigidly attached to the drive member 140 in any other convenient manner.

The yoke members 146 extend from the head 144 towards the body 139 and are pivotally connected at 148 to lugs 36 which comprise arms welded to a transverse member, comprising a torsion tube 132, welded to the link members 32 to extend therebetween and rigidly connect the link members together.

The yoke arms 146 are spaced sufficiently far apart for the body part 139 to be able to pass therebetween, thereby enabling the body part 139 to be mounted closely adjacent the underside of the platform 10 and to provide a compact and generally concealed arrangement. If desired the actuator may be provided with a battery back-up option.

In use, manual operation of an appropriate switch causes rotation of the motor within the body 139 to cause extension of the drive member 140. This causes anti-clockwise movement of the links 32 about the axis 35 and hence upward movement of the end 40 of the platform 10 whilst rotation of the motor in the opposite direction causes inward movement of the drive member 140 and consequent clockwise movement of the link members 32 about the pivotal connection 35 and hence a downward movement of the end 40.

The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, or a class or group of substances or compositions, as appropriate, may, separately or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

Claims

1. A supporting appliance (10) comprising a generally upwardly presented platform (11), a support structure (12) for supporting the platform (11) and tilt means to permit of the platform being tilted relative to the support structure, wherein the platform (11) is connected to the support structure (12) at first (35) and second

- (23) positions spaced apart longitudinally of the platform (11), the connection at the first position (35) being provided by a link member (32) pivotally connected at least at one end to the platform (11) or the support structure (12) whereby pivotal movement of the link member about said pivotal connection permits of tilting of the platform (11) relative to the support structure (12) at said second position (23).
2. An appliance according to Claim 1 wherein the link member (62) is pivotally connected (33) at said one end (31) to the support structure (12) and is pivotally connected (35) at its other end (34) to the platform, whilst the connection, of the platform (11) to the support structure (12), at the second position (23) permits of relative pivotal and sliding movement between the platform (11) and support structure (12).
 3. An appliance according to Claim 1 or Claim 2 wherein an actuator (38, 138) is associated with the link member (32) to cause or aid tilting of the platform (11) relative to the support structure (12), wherein the actuator comprises a compression or tension locking gas spring or a pneumatic or hydraulic ram or an electric motor operated jacking means or any other power or manually operable device for causing or aiding pivotal movement of the link member to provide said tilting of the platform relative to the support structure.
 4. An appliance according to Claim 3 wherein the actuator (38, 138) comprises a drive member (140) movable generally longitudinally relative to the platform (11) and disposed beneath the platform (11) and connected to the link member (32) by an arm assembly (36) which is fixed relative to the link member (32).
 5. An appliance according to any one of the preceding claims wherein the platform (11) comprises a pair of transversely spaced longitudinally extending frame members (25) and the link member (32) is pivotally connected thereto so as to be disposed therebetween.
 6. An appliance according to any one of Claims 1 to 5 wherein the platform (11) comprises a pair of transversely spaced longitudinally extending frame members (25) and a pair of link members (32) are provided, one disposed adjacent each longitudinally extending frame member.
 7. An appliance according to Claim 6 when dependent upon Claim 4, wherein the link members (32) are interconnected adjacent one end thereof by a transversely extending member (132) and said arm assembly comprising a pair of spaced arms (36) which are fixed to said transversely extending member (132) inwardly of said link members (32) and said arms (36) being spaced apart to permit of passage of a part of the actuator (138) therebetween.
 8. An appliance according to Claim 7 wherein the actuator (138) comprises a body (139) and said drive member (140) is movable inwardly and outwardly relative to the body (139), the drive member (140) being connected to said arms (36) by a yoke assembly which is connected to the drive member (140) adjacent a free end of the drive member (140) and which extends from said free end towards the body (139), the yoke assembly comprising a pair of arms (146) which are spaced apart sufficiently to permit passage of at least part of said body (139) therebetween.
 9. An appliance according to any one of the preceding claims wherein the support structure (12) comprises an 'X' configuration linkage (20) having two legs (19, 27), pivotally inter-connected (42) intermediate their ends, one end (18) of one leg (19) being pivotally (21) and non-slidably connected to a base (13), whilst the other end (22) of said one leg (19) is slidably connected to the platform (11) at said second position (23) and the one end (26) of the other leg (27) is slidably (28) connected to the base (13) whilst the other end (30) of said other leg (27) is pivotally (33) connected to said link member (32).
 10. An appliance according to Claim 9 wherein an operating means (R) is operatively engaged with the linkage (20) to move the legs to move the platform (11) relative to the base (13).
 11. An appliance according to Claim 10 wherein a gas or other resilient biasing means (5) is provided to compliment said operating means (R).
 12. A supporting appliance, which may be of the kind specified, and/or according to any one of Claims 1 to 11, having a base (13) provided with ground engageable wheels (14) wherein the wheels are connected to the base (13) by a suspension means (15) which permits of relative suspension movement between the wheels (14) and the base (13).
 13. An appliance according to Claim 12 wherein the wheels (14) are carried on a wheel carrying

lever (50) which is pivotally mounted on the base (13) and movement of the lever being resisted by a resilient means.

14. An appliance according to Claim 13 wherein a locating lever (56a, 56b), which is adjustable relative to the base (13) to move the wheels between operative and inoperative positions is connected by a linkage (57a, 57b) to a resilient biasing means (63) which facilitates movement of the locating lever (56a, 56b) to move the wheels (14) from their inoperative to their operative position. 5
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15. An appliance according to Claim 13 wherein the resilient means comprises a torsion member (56) anchored at one end to a member (51a, 51b) connected to the wheel carrying lever (50) and at the opposite end to the locating lever (56a, 56b). 15
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16. An appliance according to Claim 14 or Claim 15 wherein the linkage comprises a first member (57a, 57b) to connect the locating lever (56a, 56b) to a drive member (58) which is pivoted to the base (13) and said drive member (58) being connected to an input member (62) of the resilient biasing means (63). 25
17. An appliance according to Claim 16 wherein the drive member (58) is connected to a manually engageable operating member (60) by which the drive member (58) may be rotated relative to the base (13) between a position in which the wheel carrying levers (50) are pivoted to lift the wheels (14) out of engagement with the ground and lower the base (13) to the ground and an operative position in which the wheel carrying levers (50) are rotated to bring the wheels (14) into engagement with the ground movement between the operative and inoperative positions carrying the connection between the drive member (58) and the biasing means (63) through an "over dead centre" position so that the wheels (14) are moved by the resilient biasing means (63) into each of said operative and inoperative positions. 30
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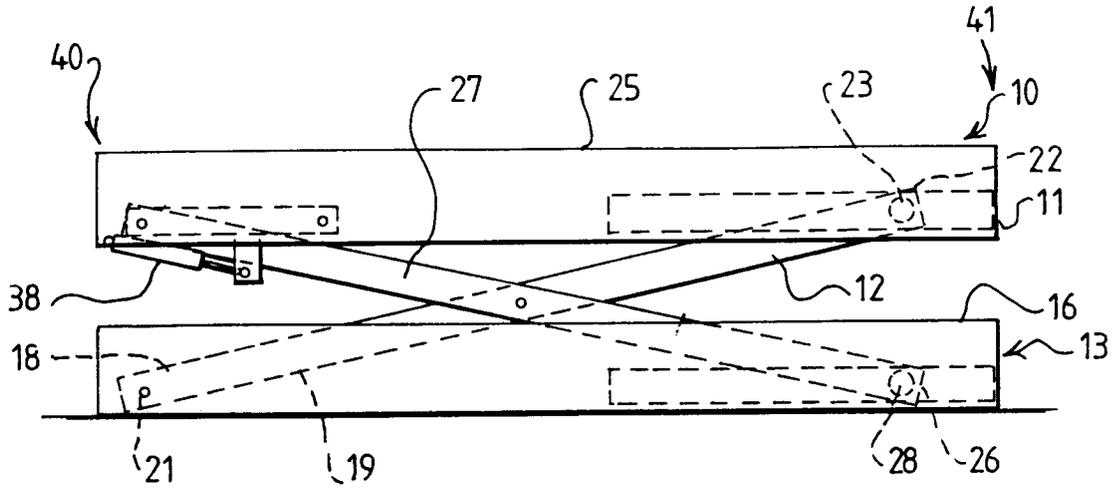


FIG 1

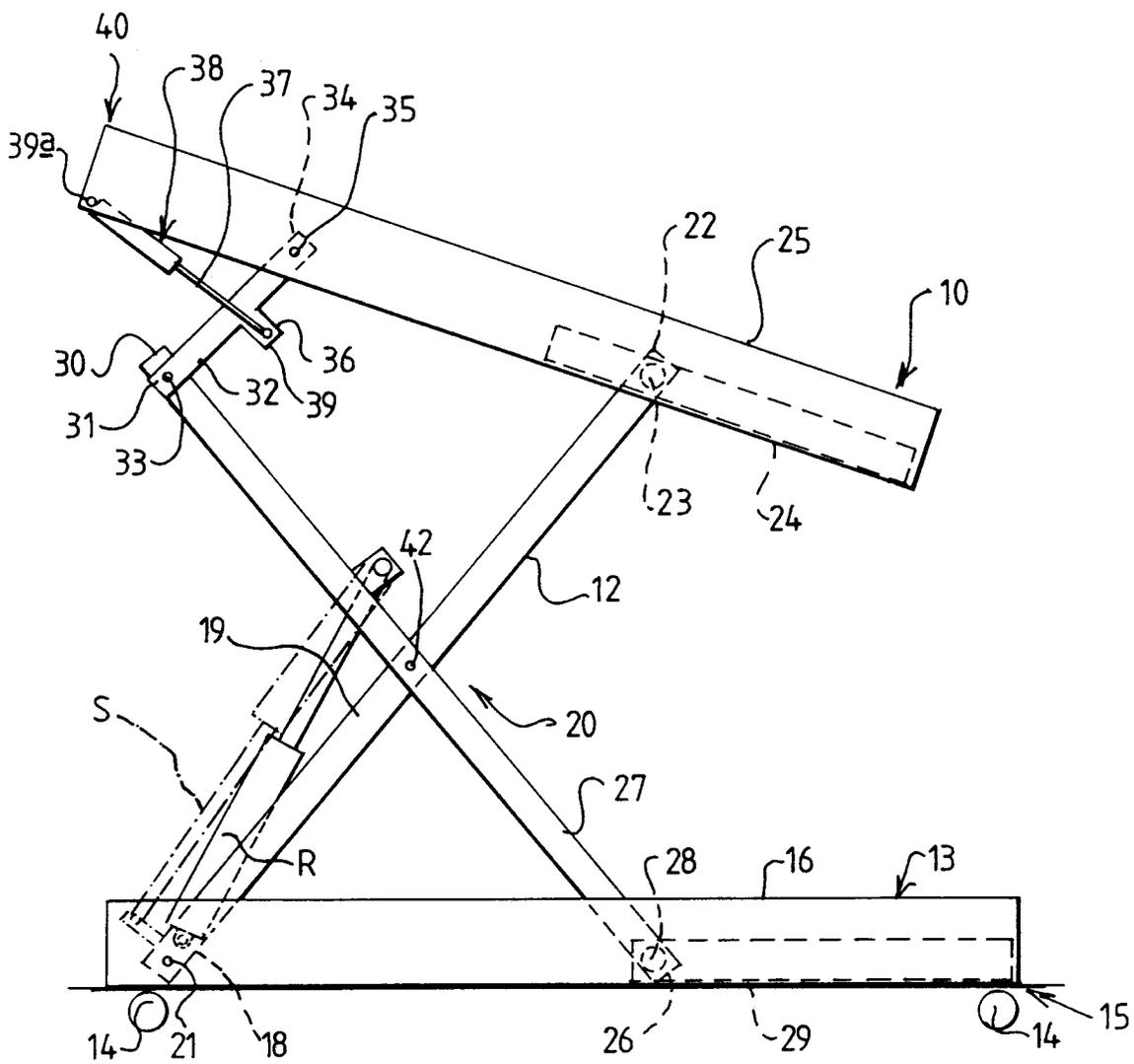
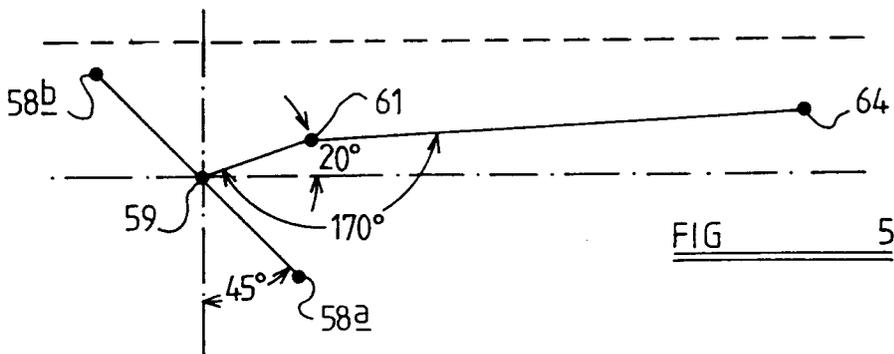
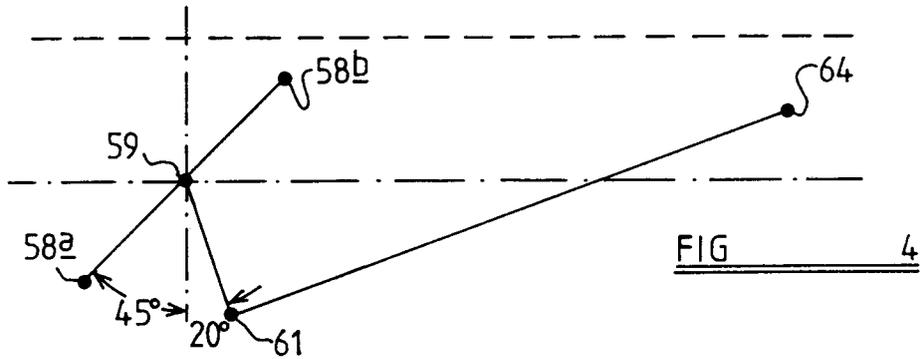
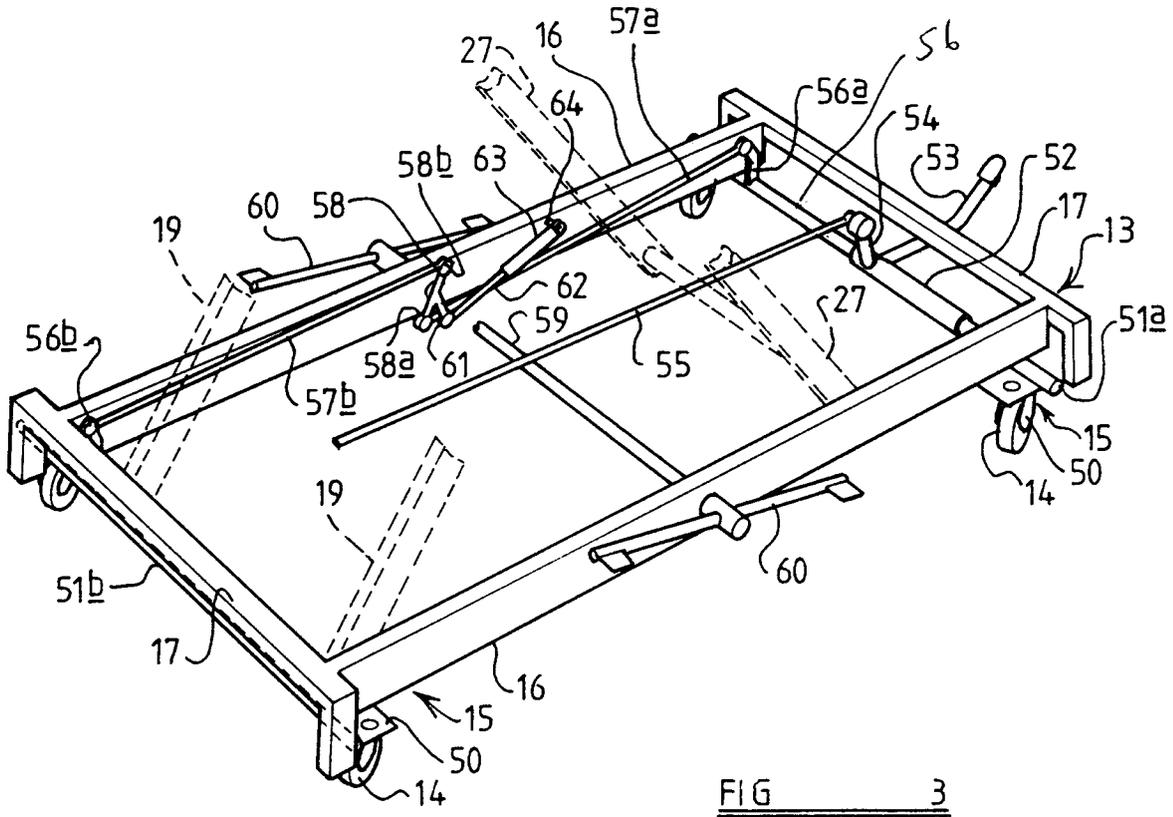


FIG 2





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 10 4212

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-5 074 000 (SOLTANI ET AL.)	1-3, 5, 6, 9-11	A61G7/00 A61G7/08
Y	* figures *	4, 7, 12-17	B60B33/06
X	GB-A-1 319 593 (CRISP) * figures *	1-3, 5, 6, 9-11	
Y	US-A-3 611 452 (TURKO ET AL.) * column 4, line 24 - line 41; figures *	4, 7	
A	GB-A-1 552 596 (CRISP)	-	
Y	US-A-1 980 205 (ISOLA) * claims; figures *	12-17	
A	DE-A-3 139 820 (CHRISTIAN SPIES HOLZWARENFABRIK) * figure *	12-17	
A	CA-A-1 164 414 (BENKENDORF) * figures 5-8 *	12-17	TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A61G B60B B25H B62B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 01 DECEMBER 1992	Examiner GODOT T.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1501 03.82 (P/0601)



CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid,
namely claims:
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions,
namely:

see sheet -B-

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid,
namely claims:
- None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims,
namely claims:



LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims 1-11: Supporting appliance with tilt means for the platform
2. Claims 1,12-17: Supporting appliance with ground engageable wheels and means