

PATIENT LIFTING DEVICE

This invention relates to a patient lifting device. It relates particularly to a device which is suitable for lifting and moving an individual, for example, a person whose ability to move themselves is temporarily or permanently restricted.

Many patients in a hospital or home who are physically disabled find themselves needing to be moved frequently from a lying position to a sitting or standing position. Where the patient is unable to help themselves, the movement of the patient has to be carried out by the nursing staff or carers who have to manually lift and move the patient. The heavy work involved generally means that two nurses or carers are needed to hold the patient and often from doing this work these people themselves can suffer from back damage or back strain. Much of this lifting work is also done by the family members of patients in their own homes.

Sometimes it is possible to use a wheeled or overhead electrical hoist unit to lift a patient from a bed but this requires the patient to be assisted into a sling to which the hoist may be attached. The sling needs to be passed like a hammock beneath the back of the patient and this task still requires the patient to be lifted and manipulated in order to fix the sling. There have been attempts to provide a lifting frame which could be attached to a patient who was lying face upwards on a bed. Such a frame would be able to be attached to a patient from the front side by hook support members arranged to be inserted under the armpits. One such frame is disclosed in patent specification No. US4509785 and this document describes a frame which is able to be attached to the hoist unit so that the patient may be mechanically lifted from a lying position. The patient is secured by a strap which is passed behind the back of the patient's body and then is connected to both support

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members. The patient can then be safely lifted to a sitting or standing position by operation of the hoist. When supported by the hoist, the patient may be moved to another bed or a chair so that an alternative resting position is available.

With the aforementioned lifting frame, the patient is suspended from the chest region and there is no special provision to support the lower part of the body. The present invention was devised to be able to include a lower body support which would be adjustable for different sizes of patient and be able to assist with different patient needs such as bathing and toilet requirements.

According to the invention, there is provided a patient lifting device comprising two limbs bearing armpit rests and side pad supports, the limbs being connected to a common linkage and the two limbs being linked together by a cross-bar. The cross-bar may be provided with an adjustment piece effective for adjusting the distance setting between the supports. The cross-bar may include means for mounting a column including an adjustable patient upper leg or posterior support unit. The cross-bar may support the column on a rotatable tee-piece such that the column and upper leg unit is able to be repositioned when necessary. The column may be adjustable for setting a required column length. The said patient leg unit may be readily interchangeable to support different seat piece models.

In one embodiment, the side pad support units are either rotatable or fixed about the side pad support assembly longitudinal axis. The rotation may be effected by a stop pin passing through either a post alone or both the post and side support assembly respectively. A side pad support assembly connected to each limb may additionally provide a fixing for the said cross-bar unit.

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The range of seat models may include a waterproof seat, a padded seat and a toilet seat. A selected seat model may be secured to the seat fitting by a clip fastener.

The invention also comprises a patient lifting device carrying a resilient padding cover on its major surfaces. It further comprises the said common linkage between the device limbs including a connection means by which the lifting device may be readily coupled to a lifting boom or connection of a patient hoist unit.

By way of example, some particular embodiments of the invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of the patient lifting device,

Figure 2 is a similar view of a seat frame,

Figure 3 shows a detail of a seat frame locking system,

Figure 4 is a detail partly in cross-section of an armpit support mounting,

Figure 5 is a view of the lifting device arranged with a resilient padding cover as it would be used for patient care,

Figure 6 depicts a second embodiment of the patient lifting device,

Figure 7 is a detail of a side support assembly of the second embodiment,

Figure 8 is a detail of a pad connection post,

Figure 9 shows a detail of a connector assembly,

Figure 10 shows the embodiment of Figure 6 in an alternative attitude for holding a patient, and,

Figure 11 is a different embodiment of the Figure 6 construction.

As depicted in Figure 1, the patient lifting device 1 was constructed from a

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range of steel tube and rod material. The device had two limbs 2 which are both connected by pivots to a linkage 3 and this component carries a fastener 4 by which the device may be coupled to a lifting boom or connection piece (not shown) of a patient hoist unit.

The limbs 2 extend downwards from the linkage 3 in the shape of an inverted letter U and the lower ends of the arms are shaped with a bend to form armpit supports 6. In order for the patient to remain in a vertical position directly below the fastener 4, the limbs 2 are both inclined slightly backwards. Thus, in a sideways view, the fastener 4 will be seen to be located vertically above the centre radius of the armpit supports 6. Each support 6 terminates in a back strap connector 7 the purpose of which will be described later. At the lower end of each limb 2, an eye is mounted which enables the two limbs to be connected together by a cross-bar 8.

The cross-bar 8 is made adjustable in length by the provision of a sliding link 9 which can be fixed by a first clamp screw 11. This provision thus allows the lower parts of the two limbs 2 to be moved towards or away from one another so that the lifting device may be adapted to fit a range of patients having narrower or broader chests.

The cross-bar 8 at about its midpoint carries a hollow tee-piece 12 which is arranged to be freely slidable along and around the length of the cross-bar 8. The tee-piece 12 supports a rigid column 13 which extends in a direction away from the linkage 3. The column 13 once again is adjustable in length by means of a column extension 14 which can be fixed by a second clamp screw 16. The column 13 is mounted on a lower arm of the tee-piece 12 in such a way that the major axis of the column 13 is rotatable about both the axis of the tee-piece lower arm and also the cross-bar 8.

At a lower end of the column extension 14, a fixing for a seat frame is provided by

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a bracket 17 held at a right angle position by a strut 18. The seat frame supports a seat 19.

Figure 2 is a perspective view of a seat frame 21. The seat frame 21 is constructed from a seat support tube which is formed in a generally circular shape, the ends being joined by a connection collar 22. The connection collar 22 carries a handle 23 which is provided with a guidance groove 24 for assisting alignment with the bracket 17 of the column extension 14. The guidance groove 24 is designed to be easily fitted in close contact with the lower edge of the bracket 17 so that it will be very clearly detected when these two parts have been correctly aligned together.

Further detail of the seat frame can be seen in the partial cross-sectional view of Figure 3. In this view, the connection collar 22 is shown fitted in place on the lower end of the column extension 14. Therefore, the column extension 14 is shown in detail with the bracket 17 and the strut 18. The handle 23 of the seat frame lies directly beneath the bracket 17 and the guidance groove on the arm assists alignment with the edge of the bracket 17. The outer surface of the handle 23 is covered with a layer 26 of rubber to assist a user in gripping the handle.

The handle 23 of the seat frame houses a freely movable bolt 27 which is biased by a spring 28 towards the connection collar 22 of the seat frame. The connection collar 22 is provided with a through bore which supports the right hand end of the bolt 27 and an inner end of this through bore carries a threaded portion 29 which is able to be engaged by matching threads on the right hand end of the bolt 27.

The connection collar 22 of the seat frame is similarly provided with a hole 31 along its major axis and this hole is of such a size that it will be able to accommodate the lower end of the column extension 14. The column extension 14 additionally has its own

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opening 32 at this lower end and this opening is able to be entered by the bolt 27 before the bolt is secured in the threaded portion 29 of the connection collar 22.

It will be noticed that the bolt 27 is provided with a knob 33 on its outer end and that the spring 28 bears up against a stop that is secured to the bolt shaft. The effect of this is that the bolt will be biased towards the right hand side so that it will tend to be moved in the direction of the threaded portion 29 on the connection collar 22. When required, the knob 33 may be turned manually so that the threads will engage with one another and the bolt 27 will then be locked into a fixed position in the connection collar 22. If the column extension 14 end has been inserted into the connection collar 22, the bolt will have passed through the opening 32 in the column extension 14 and the seat frame will have become securely locked to the extension 14.

If it is required to remove the seat frame from the column extension 14, the knob 33 will be unscrewed with the fingers and it will then become possible to disengage the screw threads and for the bolt to be withdrawn from the opening 32 in the extension 14. The seat frame may then be easily detached from the column extension 14.

Figure 4 shows a detail of the connection means between the limb 2 and an armpit support 6. The connection means is made up of a connection piece 34 which is fixed to the lower end of the limb 2. The fixing is effected by a locking pin 39 which is passed through a hole in a wall of the limb 2 and is then secured in the piece 34. The connection piece 34 has an internal opening and through this is passed a connection shaft 36. The connection piece 34 also carries an eye 37 which extends at right angles and this eye provides a connection point to which the cross-bar 8 is able to be coupled.

The armpit support 6 is coupled to the connection means by use of a collar 38

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which is attached to the lower end of the connection shaft 36. The collar 38 is secured internally to the material of the armpit support by means of a locking pin 39. This arrangement allows the armpit supports 6 to be freely rotatable about the ends of the limbs 2. The two parts are coupled together by the connection shaft 36. The eye 37 mountings located at the joint where the limbs terminate form a convenient means for coupling the cross-bar 8 to the unit.

Figure 5 shows the complete patient lifting device arranged with a resilient padding cover 41 which is intended to protect a patient from coming into contact with hard metal surfaces. Also, on the cross-bar 8, suitable lengths of rubber concertina tubing have been placed to allow the length of the cross-bar to be adjusted in accordance with variations in patient chest widths. It will be noted in this view that the seat 19 model shown is of an open toilet seat construction. By contrast, in Figure 1, the seat shown is of a generally rectangular shape. When the lifting device is intended to be used by a patient, the helper will choose the most appropriate model of seat for the patient's needs and the range of available seats may include a waterproof, a padded or a toilet seat. The seat models are readily interchanged by using clip fastenings which enable them to be mounted on the seat frame 21.

In use of the patient lifting device of the invention, it will be assumed that the patient is initially lying face upwards in a bed. The lifting device is first connected to a lifting boom or connection piece of a patient hoist unit and then the seat frame 21 and seat 19 is removed from the unit by unscrewing the knob 33 and detaching the seat frame 21 from the column extension 14.

The lifting device is then brought over the patient and the armpit supports 6 are

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engaged under the patient armpits with the column 13 lying over the front of the patient body. The length of the cross-bar 8 is adjusted as necessary and this length is then fixed by use of the clamp screw 11. At this stage, it is possible to pass a security strap around the back of the patient's body and to attach and adjust this strap to the back strap connectors 7 located on the ends of the armpit supports 6. The hoist unit is then operated to bring the patient gently up into a sitting position. The patient is then securely held by the lifting device.

The hoist unit may then be raised so that the patient is lifted slightly above the bed surface. The buttocks of the patient need to be above the surface sufficiently for the padded, the toilet or the waterproof seat 19 to be placed in position directly underneath. Once in position, the patient may be lowered gently in order to connect and secure the column extension 14 with the connection collar 22 through the hole 31 using the bolt 27. The knob 33 is then tightened to ensure a firm joint. The column extension 14 length is then adjusted as necessary and fixed by use of the clamp screw 16 to enable the seat to be properly positioned. The seat will of course be located at the base of the patient's back and this will help to support the weight of the lower body of the patient. Upon lifting the patient further, the patient's full weight will thus be divided between the armpit supports 6 and the seat 19.

The patient will then be in a comfortable position and they may be wheeled or moved on the hoist to a chair, to another bed or to the bathroom. The patient may also be moved between the bed, bath, toilet, swimming pool, wheelchair, floor surface, or chair, and from a lying to a sitting position as may be necessary. For a washing operation, it is of course easy to remove the seat 19 piece temporarily so that this task can be carried out

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safely and in comfort. The patient can be returned to the bed after a suitable interval and the hoist and lifting device can be moved away.

After making use of the patient lifting device, this may be detached from the patient hoist and, by turning the rotatable mountings for the armpit supports, these parts may be folded inwards to allow the unit to be stored easily and compactly. A suitable storage case for the lifting device may be provided to enable it to be carried and transported with ease.

Alternatively, the lifting device may be stored in a condition where it remains connected to the hoist. If this is the choice, the seat piece is removed and the column extension 14 may be shortened in length by using the clamp screw 16 to loosen and secure it as appropriate. It may then be swung around to enable the column extension 14 end to be secured in a C-clip fastener (not shown) attached to the linkage 3. Following this step, the seat piece can be connected and locked onto a storage peg 42 (Figure 5) which is mounted so as to extend outward from the tee-piece 12 on the cross-bar 8. The lifting device can then remain in this compact attitude until further use is required.

A modification of the lifting device of Figure 1 is shown in Figure 6. In Figure 6, the limbs 2 carry a cross-bar which is formed from two mutually parallel rods 43 which are coupled together by a tee-piece in the form of a connector assembly 45. The rods 43 are thus retained parallel to one another by the connector assembly and they are able to be expanded outward or moved inward in order to allow the lower parts of the limbs 2 to be moved closer together or further apart. This will allow the lifting device to be adjusted to accept different patients having narrow or broader chest widths.

As before, the connector assembly 45 supports the rigid column 13 and this has the

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column extension 14 to enable it to be adjusted for length. Instead of having a fixing for a seat frame, the column extension 14 terminates in two curved padded bars 44 which are connected at a pivot point 46 which serves to retain them in a roughly straight line attitude. The two curved bars 44 are covered with a padding layer so that they will be able to be passed beneath the upper leg bones of a patient supported in the lifting device. This pivot point 46 also has an adjustment control so that the two curved padded bars 44 may be arranged to be tilted slightly upward or downward to suit the leg structure of an individual patient.

In the Figure 6 embodiment, the armpit supports 6 are replaced by side pads 47 supported on posts 48 which extend from the ends of the limbs 2. Each post is mounted on a side support assembly 49. The side pads 47 are generally rectangular in shape but they have a concave portion where they would come into contact with a patient's side chest area. The side pads 47 will therefore provide a large area of contact between the lifting device and the patient's body so that they can be expected to provide a comfortable hold when the patient is required to be lifted. In the embodiment of Figure 6, the posts 48 supporting the side pads 47 are shown to be straight but of course in a different embodiment the posts could be curved so that they would appear more like the armpit supports 6 of Figure 1.

When lifting a patient with the device of Figure 6, each side support assembly 49 will first be fitted with side pads 47 of a suitable size for the relevant patient. The side pads 47 are provided in small, medium and large sizes and the pads can be readily interchanged on the ends of the side support assembly 49. The side pads on the posts 48 can then be fitted through the side support assembly and secured with a locking pin 50

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(Figure 6). Each side pad can then be fitted beneath the patient's armpits so that they will lie on either side of the patient's chest. In adjusting the side pads for a patient chest width, the movement of the two ends of the limbs 2 will cause the parallel rods 43 of the cross-bar to be shortened by an overlapping action which occurs within the connector assembly 45. If the patient is then partially lifted by the operation of the hoist (not shown), the cross-bar will become locked in the set position as a result of the patient's weight being applied to the connector assembly 45.

The security straps (not shown) are adjustable in length and they are secured to the appropriate strap connectore located at the upper and lower corners of the side pads 47. When the lifting device is used in this way, the amount of side pressure applied by the side pads 47 to the patient's chest will be controlled by the tightness of these security straps which are connected between the two side pads 47.

When it is required to fit a security strap across the back of a patient who is in a lying position, it may be necessary to partly lift the patient and then push the strap behind the back of the patient by using a flat metal bar coated with a low friction padding material.

Following this stage it is then that the padded curved bars 44 are placed in position under the upper leg bones of the patient. The relevant angle of the padded curved bars 44 can then be attained using the adjustment control around pivot point 46 to suit the leg profile of the patient. The column extension 14 attached to the padded curved bars can then be adjusted in length and fixed using screw clamp 16 according to patient size and shape. On each side of the padded curved bars 44 it may be possible to place a security strap (not shown) for use where the patient is an amputee on one or both of the lower

limbs. This may also be of use where the patient has no strength or control in the lower limb area. This will prevent the patient from becoming detached when lifted.

Figure 7 shows the side support assembly 49 in side, end and plan views. One unit of this assembly 49 is fitted to the end of each of the two limbs 2. The assembly has two lugs 51 which are attached by respective pins to the ends of each limb 2. The assembly also has two members 52 to which the outer end of each rod 43 is coupled, also by a pin fixing. The members 52 are mounted on a connection collar which is freely rotatable about the longitudinal axis of the side support assembly 49. Two bores 53 are arranged for retaining the post 48 which supports the side pad 47 and the post is then secured in the bore by the locking pin 50 (Figure 6). A further bore provides a locking pin hole 55.

Figure 8 depicts the post 48 in side, end and plan views. The full length of the left hand part of the post 48 has not been shown in the Figure. At its right hand end, the post 48 has a narrow portion which is intended to pass through the bore 53 of the side support assembly 49 and it will then be secured in this bore by fixing a locking pin through a post hole 54. The locking pin 50 therefore passes through the locking pin hole 55 in the side support assembly 49 (Figure 7) and through the post hole 54. Each locking pin 50 for the post 48 is made to be easily removable so that each side pad 47 and post 48 can be readily interchanged when a different size of side pad is required for a new patient. This arrangement of side support assembly 49, post 48 and locking pin hole 55 enables the side pads to be fixed in a position parallel to the limbs 2 when the locking pins 50 are placed in this position.

If desired, the pins 50 can be removed and the posts 48 moved forward such that

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the narrow portions of the posts 48 will have passed completely through the side support assemblies 49. When the pins 50 are placed back only through the post holes 54 and not the side support assemblies 49 this enables the complete free rotation for both the side pads 47 and posts 48 about the centre axis of the side support assemblies 49.

Figure 9 depicts the connector assembly 45 in side, end and plan views. The connector assembly 45 has two side plates 56 which are held spaced apart from one another by a centre rotational boss 57. At the right hand end, a hollow collar 58 is mounted with a pivot pin extending into each side plate 56 such that the collar 58 can be rotated about the pivot pin. The internal opening in the collar is of such a diameter that the rod 43 from the side support assembly 49 may be passed through the collar 58 and will then extend along the length of the assembly 45 and beyond the assembly opposite end. The internal opening provides a mounting for the rod 43 which will allow the rod to be easily slid through the opening in the connector assembly 45. The rod 43 is provided with a stop pin 62 on its inner end so that it will not be able to be pulled completely through the collar 58. Similarly, at the left hand end of the connector assembly, a second hollow collar provides a mounting for a second rod 43 from the other side support assembly. This second hollow collar has its pivot pins located in slots 59 in the side plates so that the respective rods from the side support assemblies will be able to be brought into contact with the inner surface of the opposite collar 58 along which they will not pass if a downward force should be applied to the connector assembly 45. The two pivoted collars 58 therefore hold the rods 43 in the parallel relationship under freely sliding conditions if no downward force is applied to the connector assembly. If this downward force should be applied, however, the rods will tend to be pressed against both collars 58 and they will

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become locked so they can no longer be moved relative to one another.

The connector assembly 45 additionally carries a support pin 61 for the rigid column 13. This pin extends horizontally from the connector assembly and the column 13 is then attached at right angles to this member.

Figure 10 shows the lifting device of Figure 6 after some parts have been repositioned to modify the lifting characteristics. The rods 43 from the side support assemblies 49 have been drawn outwards from the connector assembly 45 and when fully withdrawn, a stop pin 62 (Figure 6) on the inner end of each rod will prevent that rod from being fully passed through its pivoted collar. The rods 43 are then able to be moved downwards since they are fixed to the members 52 which are located on a connection collar rotatable about the axis of the side support assemblies 49. The connector assembly 45 will then be located in a stable position some distance beneath the ends of the limbs 2. The adjustable column extension 14 will of course need to be shortened somewhat to enable the padded curved bars 44 again to be located beneath the upper leg bones of the patient.

When the lifting device in this form is intended to be fitted to a patient, it will be clear that when the weight of the patient is applied to the curved bars 44, this weight will tend to pull the ends of the limbs 2 closer together and thus the side pads 47 will engage the rib cage of the patient more tightly. It is more appropriate for the side pads 47 to be fitted in the fixed position parallel with each limb 2. This required each locking pin 50 (Figure 6) to pass through each locking pin hole 55 and each post hole 54.

Whenever lifting takes place in either of these previously described modes (with the side pads 47 rotational about or fixed to the side support assemblies 49), a balance

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effect takes place. This is so that when the patient's upper body is lifted from one end of the side support assemblies 49 and the lower end is lifted from the opposite end of each side support assembly, an equal and opposite moment can be achieved about the centre lugs 51 connected to each limb 2. This effect helps to retain the patient in a more dignified upright sitting position when lifted. Instructions for correct operation of the lifting device can be placed for example on the outside edge of the side pads 47.

For patients who require a head support, this may be provided by attaching a head support strap consisting of a padded head or neck unit which is secured to both the limbs 2 of the lifting device. For patients who require walking practice, the lifting device also offers this facility. It may be achieved by removing the padded curved bars 44 enabling the patient legs and buttocks to hang freely. Upper support is maintained using the side pads 47 and security straps (not shown). With the use of a treadmill or equivalent, the patient may exercise to gradually gain strength, ability and the confidence to walk naturally by lowering the patient lifting device at the desired rate.

The patient lifting device of the invention has been found to be inexpensive to manufacture considering the many benefits it offers and it provides a very convenient aid for lifting a disabled person in safety. It can enable the lifting task to be carried out in safety by one helper instead of two or more and it avoids the need for that helper to do any heavy physical lifting with their own body. A major part of the effective lifting effort is able to be carried out by the patient hoist. The task of lifting a heavy person from ground level, bed, wheelchair, chair, bath, toilet or pool can be made very much lighter for the helper and more dignified for the patient. The risk of the helper or the patient being injured as a result of attempting the lifting operation can be much reduced. Since the

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lifting device is able to be used by a single operator this can give it advantages over the use of a lifting sling and enable the patient to be dealt with more quickly and simply. It is also capable of course of being used on patients who have fallen down and may require to be lifted from floor level. Since the lifting device is capable of being used with only a minimum of physical manipulation of the patient, this can enable the patient dignity to be greatly improved. When correctly used the patient will be moved in a more upright sitting position than that of most slings. Another advantage over slings is that the device of the invention does not require any spreader bar as do most lifting slings. It also greatly improves body access areas for the carer whenever the patient is lifted as compared with the body access provided by most slings.

When not in use, the adjustable column extension 14 may be loosened and rotated through 180° about the centre rotational boss 57. It can then be connected to a C-clip (not shown) fixed to the top linkage 3 of both limbs 2. This arrangement allows the unit to be stored in a compact neat position and if necessary to be detached and transported with ease in a suitable storage case.

The modification of the lifting device shown in Figure 6 will again be arranged with a resilient padding cover 41 (as shown in Figure 5) which is intended to protect the patient and carer from coming into contact with hard metal surfaces. Concertina tubing may also be added where appropriate for the same reasons.

In a first modification of the lifting device, the cross-bar may be made from a telescopic unit which when fully extended has the option of becoming that of a 'V' shape. This works by the telescopic rod being hinged close to the centre end besides the piston within the tubular piece. The connection to the rigid column 13 can easily be fixed to or

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detached from the tee-piece on the tubular section of this new cross-bar and it offers free rotation in all axes for the rigid column 13. It will still remain connected to the two members 52 on each side support assembly 49.

In a second modification, the side support assembly 49 can be made of one circular section instead of three as shown in Figure 7 together with the two lugs 51 and two members 52 remaining. The simple difference is that the two members 52 are rotated through ninety degrees so that they lie in the same plane as that of the ends of the side support assembly. The angle of ninety degrees between both the two lugs 51 and the two members 52 remains unchanged. This change enables the cross-bar to operate in either a horizontal or 'V' shape as the two members 52 are now able to accept all relevant angles of cross-bar operation.

Figure 11 shows a further modification of the device of Figure 6. In the Figure 11 construction, the connector assembly 45 and rods 43 are replaced by an extendable cross bar 63 having a telescopic construction and which is covered by a flexible concertina tubing material 64. An outer wall of the tubing material 64 supports a floating collar 66 which is able to be freely moved along the length of the cross bar 63 and which can also be rotated round the bar, if necessary. The collar 66 carries the column 13 and at a lower end of the column, a support means for the lower body of a patient is provided by a pair of curved plates 67 connected by a hinge 68. The curved plates 67 are able to be fitted either under the patient posterior or under the patient upper legs when the device is in use.

The curved plates 67 are able to be folded about the hinge so that they confront one another to make the lifting device more compact for storage purposes. In addition, the mounting of the plates 67 on the column 13 allows the plate and hinge combination to be

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rotated around the column 13. The hinge 68 may also be folded on its mounting so it will be able to lie parallel to the length of the column 13 for storage.

The foregoing description of embodiments of the invention has been given by way of example only and a number of modifications may be made without departing from the scope of the invention as defined in the appended claims. For instance, the alignment of the handle 23 with the bracket 17 does not have to be effected with the guidance groove 24, in a different embodiment this could be done by inserting an alignment pin on the bracket into a socket on the handle. In yet a further embodiment, the lifting device could be provided with an electronic patient weighing unit located in the area of the fastener 4 at the junction of the limbs 2. The cross-bar 8, 63 could be made so that it was readily separable from the limbs 2, for example for cleaning or storage purposes. The side pads 47 may be provided in a small range of different sizes so that the most suitable side pad can be selected for optimum patient comfort.

CLAIMS

- 1 A patient lifting device comprising two limbs bearing armpit rests and side pad supports, the limbs being connected to a common linkage and the two limbs being linked together by a cross-bar.
- 2 A lifting device as claimed in Claim 1, in which the said cross-bar is provided with an adjustment piece effective for adjusting the distance setting between the supports.
- 3 A lifting device as claimed in Claim 2, in which the cross-bar includes means for mounting a column including an adjustable patient upper leg or posterior support unit.
- 4 A lifting device as claimed in Claim 3, in which the cross-bar supports the column on a rotatable tee-piece such that the column and upper leg unit is able to be repositioned when necessary.
- 5 A lifting device as claimed in Claim 3 or 4, in which the column is adjustable for setting a required column length.
- 6 A lifting device as claimed in Claim 5, in which the said patient leg unit can be readily interchanged to support different seat piece models.
- 7 A lifting device as claimed in any one of Claims 1 to 6, in which the side pad support units are either rotatable or fixed about the side pad support assembly longitudinal axis.
- 8 A lifting device as claimed in Claim 7, in which the rotation is effected by a stop pin passing through either the post alone or both the post and side support assembly respectively.

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9 A lifting device as claimed in Claim 8, in which each side pad support assembly connected to each limb additionally provides a fixing for the said cross-bar unit.

10 A lifting device as claimed in any one of Claims 1 to 9, in which either or both of the side pads may be easily detached from the supports and reconnected.

11 A patient lifting device substantially as hereinbefore described with reference to any one of the accompanying drawings.