

June 23, 1970

M. A. ROBLEE
METHOD AND APPARATUS FOR ALLEVIATING DISCOMFORT IN
THE LITHOTOMY POSITION

3,516,652

Filed July 31, 1967

2 Sheets-Sheet 1

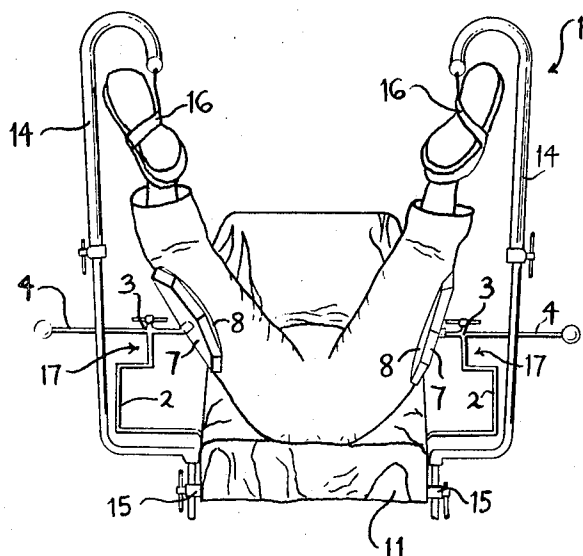


FIG. 1

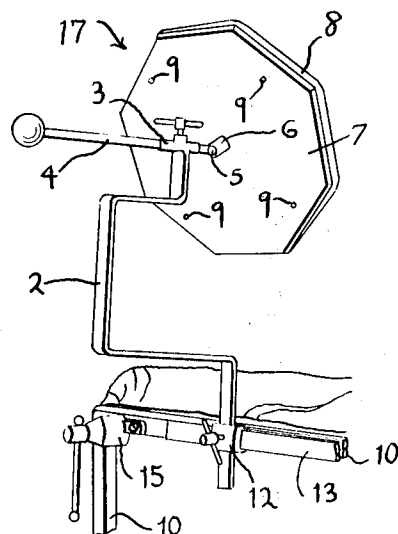


FIG. 2

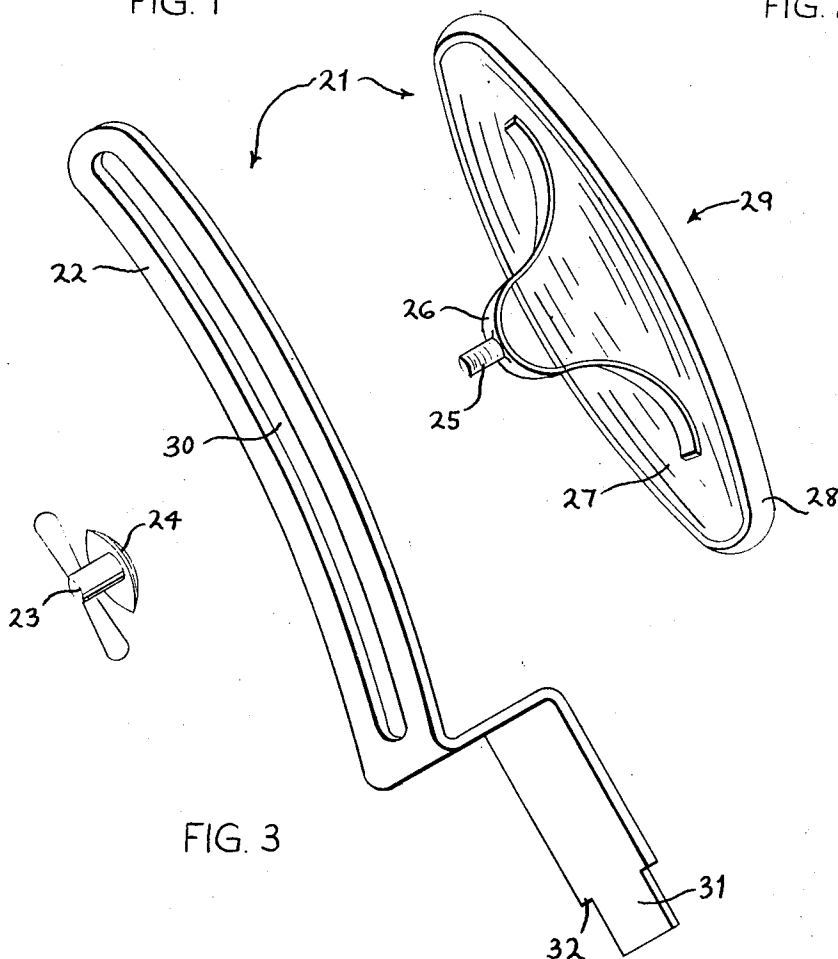


FIG. 3

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2 Sheets-Sheet 2

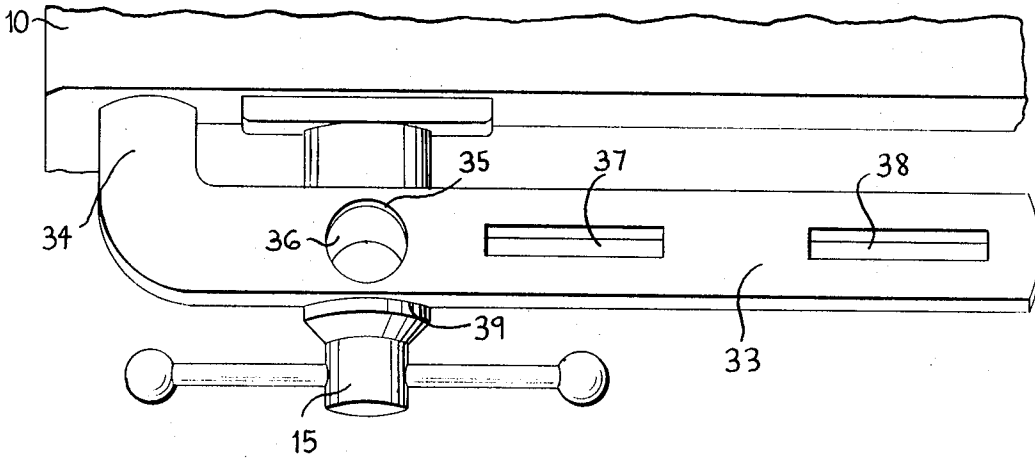


FIG. 4

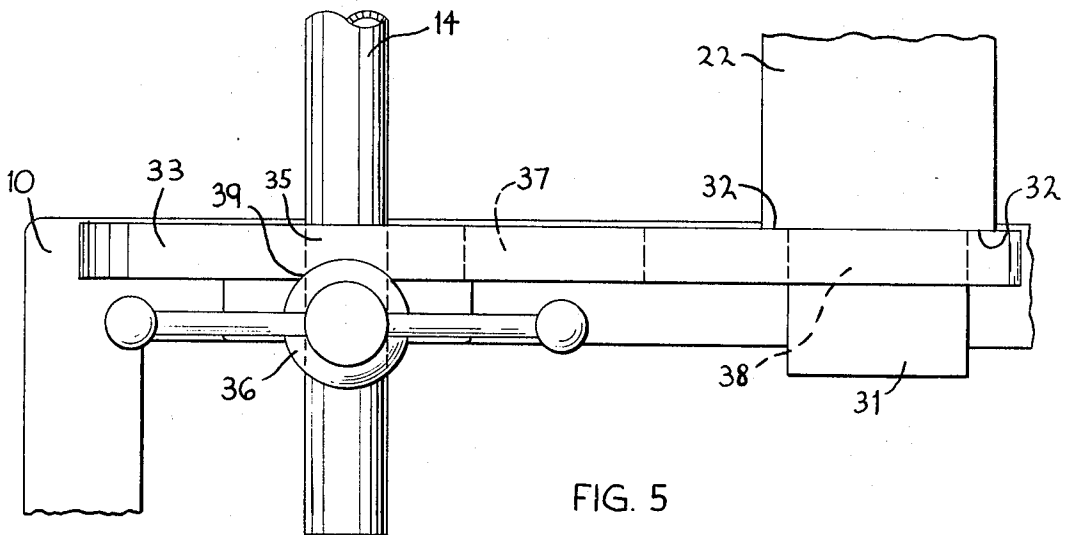


FIG. 5

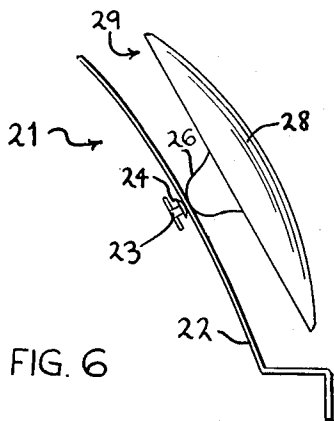


FIG. 6

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METHOD AND APPARATUS FOR ALLEVIATING DISCOMFORT IN THE LITHOTOMY POSITION

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8 Claims

ABSTRACT OF THE DISCLOSURE

A method of alleviating certain discomforts and nerve injuries associated with the lithotomy position. An adjustable apparatus for limiting abduction of the thighs and reducing external rotation of the hip joint of a patient whose legs are suspended in the lithotomy position. A pair of pads mounted on semiflexible frames which are attached to the sides of an operating table or treatment table.

BACKGROUND OF THE INVENTION

This invention relates to a method of alleviating discomfort in certain medical treatment and in particular to a device for providing lateral support for the thighs of a patient whose legs are held in the lithotomy position.

A patient lying on his back on an operating table is placed in the lithotomy position by suspending his legs more or less vertically in a flexed and spread position. The position is maintained during treatment by placing the patient's feet in a pair of swing stirrups hung on the upper ends of vertical support posts, the lower ends of which are clamped to the lateral sides of the operating table. The term "operating table" is used to encompass any structure on which a patient may lie for diagnosis or treatment.

Use of the lithotomy position has become common practice for a number of operations, particularly vaginal hysterectomies. The use of the lithotomy position has, however, frequently produced lumbar, sacral, inguinal, and leg pains. It has recently been reported as a cause of sciatic and peroneal nerve injuries and has now been found to be a cause of femoral neuropathy also. It is believed that the neuropathy in the last case was the result of ischemia and stretch syndrome from excessive abduction of the thigh and exaggerated external rotation of the hips in the lithotomy position.

One of the objects of this invention is to provide a means for preventing the discomfort and occasional neuropathy produced by the lithotomy position.

Other objects will become apparent to those skilled in the art in the light of the following description and accompanying drawing.

SUMMARY OF THE INVENTION

In accordance with this invention, generally stated, a method for limiting excessive abduction of the thighs and reducing external rotation of the hip joint when the legs of a patient are flexed and suspended in the lithotomy position is provided by exerting lateral support on the outer lateral aspect of the thighs of the patient between the knee joint and the hip joint. The preferred embodiment of apparatus for carrying out the method of this invention comprises a pair of flexible frames which are adapted to be attached to the lateral sides of an operating table and each of which adjustably carries a thigh support pad mounted on a rigid plate.

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BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 is a view in perspective of one illustrative embodiment of thigh support for carrying out the method of this invention, in operative position on a patient held in the lithotomy position;

FIG. 2 is a view in perspective of the thigh support of FIG. 1;

FIG. 3 is a view in perspective of another illustrative embodiment of thigh support of this invention, disassembled;

FIG. 4 is a view in perspective of a bracket for holding the thigh support shown in FIG. 3;

FIG. 5 is a view in side elevation of the bracket shown in FIG. 4; and

FIG. 6 is a view in side elevation of the thigh support shown in FIG. 3, assembled.

DESCRIPTION OF THE PREFERRED

Referring now to the drawings, and in particular to FIGS. 1 and 2, reference numeral 1 indicates one illustrative embodiment of thigh support for carrying out the method of this invention. The thigh support 1 consists of two thigh support assemblies 17. Each assembly 17 has a semiflexible frame 2 made of a strip of heavy gauge metal. At the upper end of the frame 2 a screw clamp 3 slidably supports a horizontal rod 4. A ball 5 on the inner end of the rod 4 mates with a socket 6 at the center of the back of a metal plate 7. A pad 8 is secured to the face of the plate 7 by studs 9. The face of the pad 8 is somewhat convex, so as to put more pressure on the center of the pad when it is placed in position against the thigh of a patient. Each assembly 17 is attached to the side rail 10 of an operating table 11 by means of a screw clamp 12 mounted slidably on an auxiliary rail 13 spaced from the side rail 10.

The method of this invention comprises exerting supporting lateral pressure on the outer lateral aspects of the thighs of a patient held in the lithotomy position. The pressure must be exerted on an area of the thighs between the knee joint and the hip joint. The pressure must be on an area sufficiently below the hip joint to allow some abduction of the thighs and some external rotation of the hips, while preventing excessive abduction of the thighs or exaggerated external rotation of the hips. However, the area of pressure must be above the lateral aspect of the head of the fibula to eliminate nerve pressure on the deep and superficial peroneus nerves.

The device shown in FIGS. 1 and 2 is used to carry out the method of this invention as follows: First, the lithotomy position support posts 14 are clamped, by standard post-holding screw clamps 15 at the foot of the operating table 11, onto the lateral sides of the operating table 11 on which a patient is lying. The posts 14 are adjusted to the appropriate height, and the patient's feet are placed in the swing stirrups 16. The vertical and horizontal positions of each thigh support assembly 17 are now adjusted by means of the screw clamps 12 and 3, so that the pad 8 makes contact with the outer lateral aspect of the thigh of the patient between the knee joint and the hip joint. The pad 8 must be so placed as to support the thigh from excessive abduction, while putting no significant pressure on the lateral aspect of the head of the fibula. The relatively large size of the pad 8, its somewhat convex shape, and the ball and socket mounting of its supporting plate 7 all facilitate this positioning of the thigh support.

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Another, simpler embodiment of thigh support assembly which may be used in pairs for carrying out the method of this invention is shown in FIGS. 3 through 6. This assembly 21 comprises a frame 22, a lock nut 23 and a pad assembly 29, and is designed to be mounted on a special support bracket 33. The pad assembly 29 comprises a metal plate 27 on the face of which is mounted a pad 28 and on the back of which is mounted a rigid metal strap 26 with a protruding threaded stud 25. The pad assembly 29 is attached to the frame 22 by inserting the stud 25 through an elongate slot 30 in the frame 22 and tightening the nut 23 and convex washer 24 onto the stud 25. The support bracket 33 for the thigh support 21 is a bar of relatively thick metal having at one end a tail 34 proportioned to abut a side rail 10 of an operating table 11. The bracket 33 is perforated vertically by a round hole 35 and two rectangular slots 37 and 38. The round hole 35 is congruent with the hole 36 of the standard post-holding screw clamp 15. An arcuate indentation 39 across the lower face of the bracket 33 fits the top of the clamp 15 and simplifies alignment of the bracket hole 35 with the screw clamp hole 36. The slots 37 and 38 are adapted to receive snugly a tongue 31 of the frame 22.

In use, the bracket 33 is placed over the screw clamp 15 with holes 35 and 36 aligned before the post 14 is inserted. When the post 14 is inserted, and the screw clamp 15 tightened, the bracket 33 is held firmly in place. The tail 34 prevents horizontal rotation of the bracket 33 around the post 14 when the slotted end of the bracket 33 is pushed outward. After the patient is placed in the lithotomy position, the thigh support assembly 21 is inserted into one of the slots 37 or 38 in the bracket 33 so that a shoulder 32 of the frame 22 abuts the top surface of the bracket 33. The nearer slot 37 is used for shorter patients, and the farther slot 38 for taller ones. The pad assembly 29 is then adjusted by loosening the lock nut 23, sliding the pad assembly 29 up or down the slot 30 into the desired position, and retightening the lock nut 23. It will be seen that the outward flare of the frame 22 tends to provide a proper horizontal as well as vertical position of the pad assembly 29 when it is moved.

In both illustrative embodiments, the semiflexible frame of each thigh support assembly is outwardly offset near the level of the top surface of the operating table. This construction allows the patient's arm to be swung out from its normal position resting on the operating table, as may be necessary, for example, to insert an intravenous needle or to adjust a blood pressure cuff, without disturbing the positioning of the thigh support assembly.

Numerous variations in the construction of the thigh support of this invention, within the scope of the appended claims, will become apparent to those skilled in the art in the light of the foregoing disclosure.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. The method of alleviating discomfort and preventing femoral neuropathy of a patient held in the lithotomy position, with the legs of said patient being flexed and suspended and the thighs of said patient being freely swing-

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able, comprising limiting abduction of the thighs and external rotation of the hip joint by exerting supporting lateral pressure on the outer lateral aspects of the patient's thighs between the knee joint and the hip joint.

2. A device for alleviating discomfort of a patient held in the lithotomy position on an operating table, the legs of said patient being flexed and suspended, comprising supporting means for providing lateral support to the thighs of said patient, said supporting means comprising a pair of thigh engaging means, each of said thigh engaging means having a thigh engaging surface of substantial area, said surface being nonconcave; a pair of frame means carrying said thigh engaging means, and mounting means mounting said frame means on said operating table with said thigh engaging surfaces generally facing one another, said frame means and said mounting means holding said thigh engaging means in a position for said thigh engaging surfaces to contact the outer lateral aspects of said patient's thighs, between the knee joint and the hip joint.

3. The device of claim 2 wherein said frame means are semiflexible.

4. The device of claim 2 wherein said thigh engaging means comprise a convex pad mounted on a rigid plate.

5. The device of claim 2 wherein said frame means are each outwardly offset to allow outward movement of an arm of said patient.

6. The device of claim 2 wherein said mounting means comprise a pair of brackets supported by post-holding clamps on said operating table, said brackets each having a hole in which a post is held by one of said post-holding clamps and a tail part including means on said tail part for engaging said frame means.

7. The device of claim 6 wherein each of said means on said tail part for engaging said frame means comprises a plurality of slots adapted to receive said frame means.

8. Means for supporting the legs of a patient lying on an operating table in the lithotomy position and alleviating discomfort in that position comprising a pair of support rods, clamping means holding a lower end of each said support rod to the operating table, means at an upper end of each said support rod for supporting the feet of said patient with the legs of said patient being flexed and swingable, and limiting means for limiting the outward abduction of the thighs of said patient, said limiting means comprising a pair of thigh engaging means and adjustable supporting means connected to said thigh engaging means and to said operating table for positioning said thigh engaging means to contact and exert supporting pressure on the outer lateral aspect of the thighs of said patient between the hip joint and the head of the fibula.

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