June 6, 1961 J. T. POSEY 2,986,747

FOOTBOARD

Filed Oct. 30, 1959 2 Sheets-Sheet 1

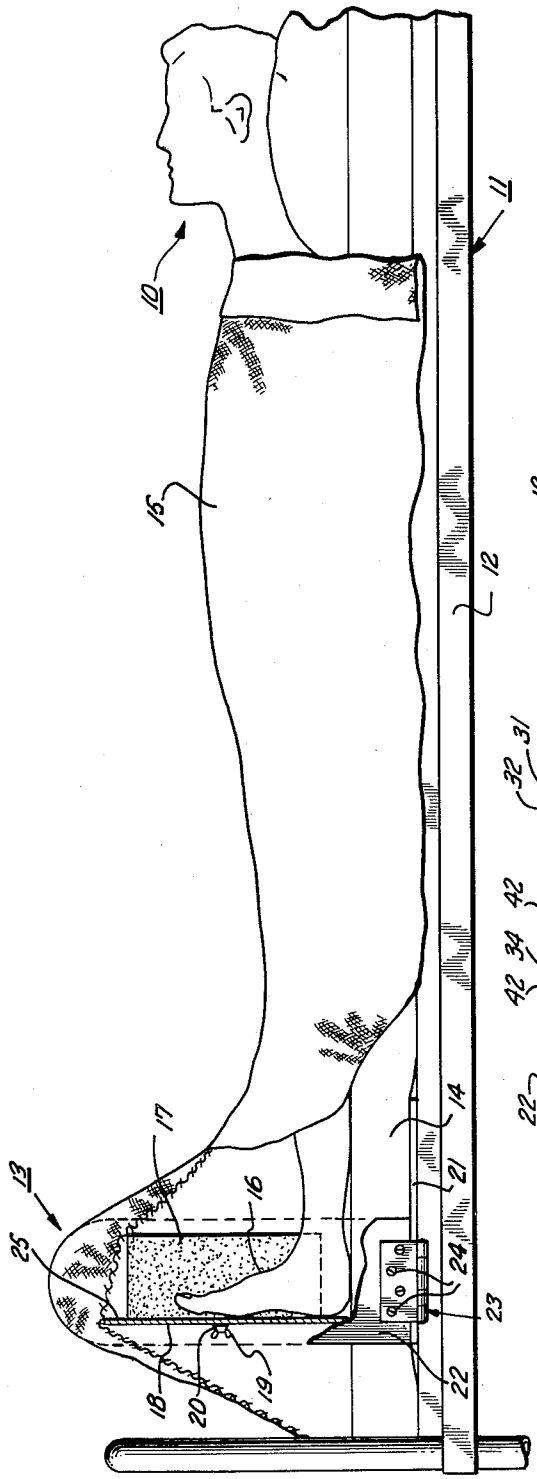


Fig. 1.

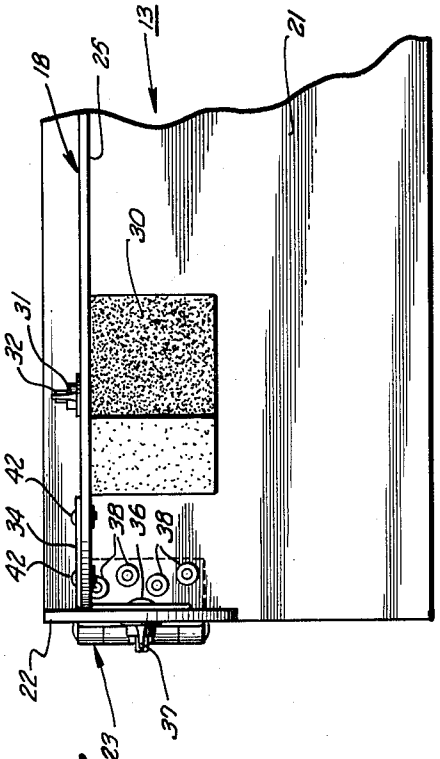


Fig. 2.

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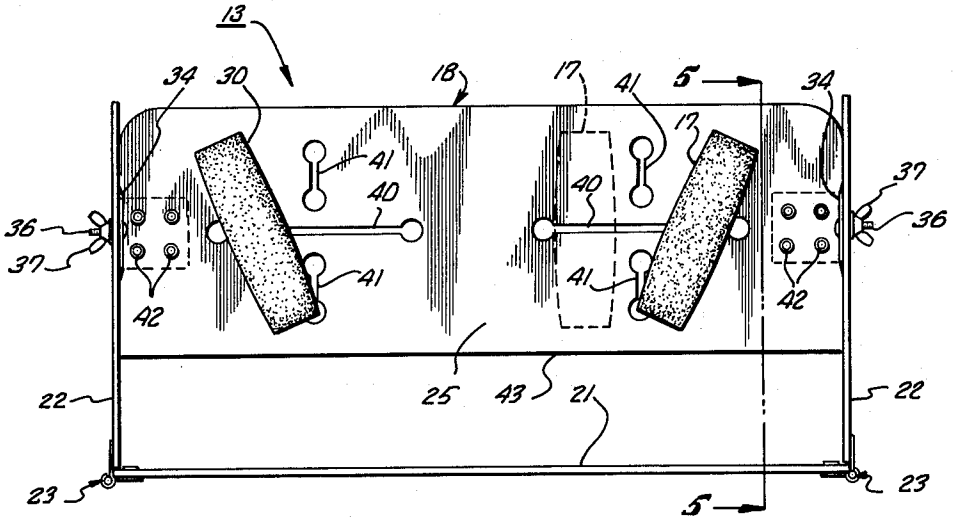


Fig. 3.

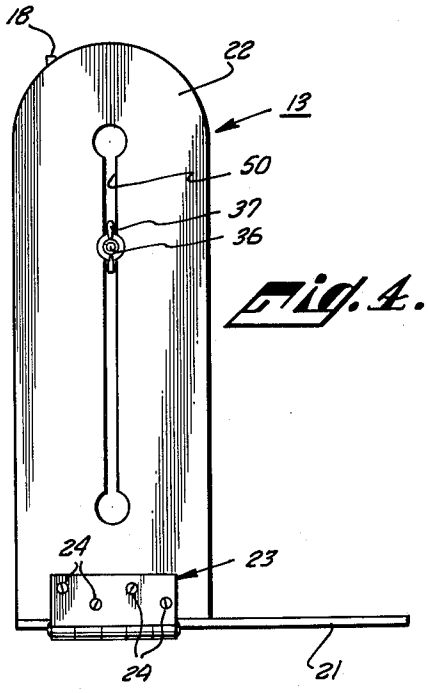


Fig. 4.

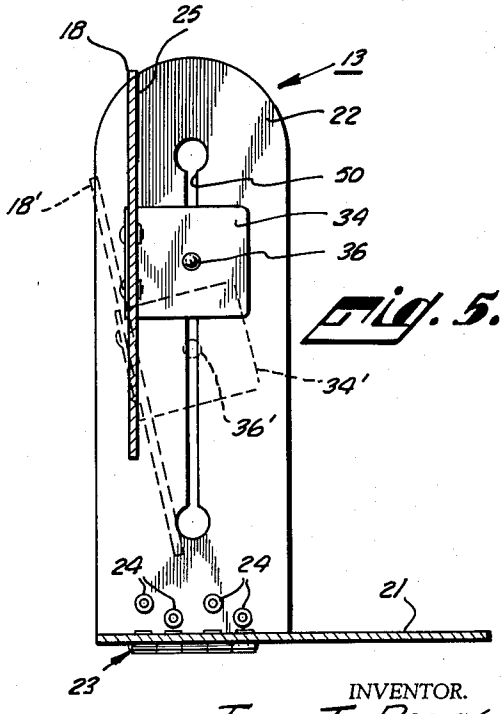


Fig. 5.

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FOOTBOARD

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This invention relates to a device for supporting and restraining the feet of a person in bed.

People confined to bed on account of sickness for years or even months are often unable to walk upon recovery. This inability to walk is due to either an atrophied condition of the muscles of the foot and ankle or a muscular distortion caused by an unnatural position taken by the feet during confinement to bed. This problem is pointed out in my United States Patent No. 2,891,257 for "Foot Support" issued June 23, 1959. Devices embodying the invention of that patent prevent permanent distortion of the long muscles in the vicinity of the Achilles tendon. The present invention is directed to the correction of that muscular disorder together with prevention of distortion of the muscles which control the angular displacement of the foot in the plane of the foot sole. Muscular disorder of this type results in the feet splaying apart permanently and is caused by the feet being allowed to splay for a long period of time while the person is confined in bed.

It is often possible to correct for the muscular dislocature which results in the feet being splayed apart by resorting to surgery. However, no surgical correction is possible if the muscles of the Achilles tendon area have been allowed to shorten by the prolonged positioning of the feet so that the toes are rotated outwardly with respect to the line of the leg.

According to the present invention a foot support which comprises a transverse foot support member, to which are attached two foot restraining blocks, is supported in a fixed position with respect to the bed by means of a pair of frame support members. The transverse foot support member, in the preferred embodiment of the invention, is rotatable about a horizontal axis and movable vertically with respect to its height above the bed. This rotatability and movability enables a single footboard to be utilized in a variety of situations. The pair of foot restraining blocks, in this embodiment, are attached to the transverse foot support member in such a manner as independently to be angularly, vertically, and horizontally positionable both with respect to the transverse foot support member and to each other. In practice the feet of the person in bed are placed against the transverse foot support member and the angle of rotation of the transverse foot support member adjusted to give the proper foot support for the muscles in the Achilles tendon region. The foot restraining blocks are then positioned so as to prevent the splaying apart of the feet of the person in bed.

In the preferred embodiment, the transverse foot support member is supported between the frame support members so that its height above the bed and its rotated position are adjustable. However, in a less complex embodiment, the transverse foot support member may be fixed in position both with respect to height and to angular rotation. In this alternate embodiment, the advantage of adjustibility to accommodate the peculiarities of the individual application is not present.

Each foot restraining block is padded and is supported in a manner which permits its angular orientation and vertical and horizontal position to be changed with respect to the transverse foot support board in the preferred embodiment. However, in a more simplified embodiment, these foot restraining blocks may be fixed in one or more of these respects, with the accompanying loss

of the advantage of adjustability to meet the needs of the individual application. When utilizing foot restraining blocks of the adjustable position type, the foot restraining blocks may have, for example, pivots extending therefrom which extend through horizontal or vertical slots in the transverse foot support member. Any conventional means is useable to secure the foot restraining block to the transverse foot support member by means of the pivot. The transverse foot support member is similarly made movable between the frame support members by utilizing pivots extending from the transverse foot support member through longitudinal slots in the frame support members.

The invention may be more readily understood by reference to the accompanying drawings in which:

FIGURE 1 is a pictorial representation, partially in section, of a person in bed utilizing a foot support according to the invention;

FIGURE 2 is a partial plan view of the footboard shown in FIG. 1;

FIGURE 3 is a front elevation of the footboard partially shown in FIG. 2;

FIGURE 4 is a left side elevation of the footboard of FIG. 3; and

FIGURE 5 is a sectional view taken along lines 5—5 of FIG. 3.

Referring now to FIG. 1, there is shown a person **10** in a bed **11**. The bed **11** has a longitudinal frame **12** upon which rests a footboard **13**. A mattress **14** serves to assist in holding the footboard **13** in place. The person **10** is covered by a blanket **15**. As illustrated in FIG. 1, only the right foot **16** of the person in bed is shown. The right foot **16** rests against a foot restraining block **17** of the footboard **13**, the footboard **13** being shown partially in section in FIG. 1. The foot restraining block **17** is secured to a transverse foot support member **18** by means of a wing nut **19** which is attached to a threaded pivot bolt **20** extending from the foot restraining block **17** through a slot (not shown, see FIG. 3) in the transverse foot support member **19** so as to form a lockable pivot. The footboard **13** also has a supporting base **21**, to which are attached two frame support members **22** (only one being shown in FIG. 1) by means of a pair of hinges **23**. The supporting base **21** rests on the longitudinal frame **12** under the mattress **14** and in conjunction therewith serves to hold the footboard **13** in a stationary position. The hinge **23** is secured to the frame support member **22** by four screws **24**. The foot restraining block **17** is positioned on the transverse foot support member **18** on a face **25** which faces the person **10**.

In FIG. 2, a partial plan view of the footboard **13** is shown. A second foot restraining block **30** is attached to the face **25** of the transverse foot support member **18** by means of a wing nut **31** enclosing a threaded pivot bolt **32** which is attached to the foot restraining block **30** and extends through a slot (not shown) in the transverse foot support member **18**. The transverse foot support member **18** is connected to the frame support member **22** by means of a bracket **34**. The transverse foot support member **18** is slidable vertically along the frame support member **22** and is held in place by a bolt **36** and wing nut **37** which extend through the bracket **34** and a slot (not shown, see FIG. 4) in the frame support member **22**. The bolt **36** and wing nut **37** serve to secure the transverse foot support member **18** in a fixed position with respect to the frame support member **22**. Four screws **38** attach the hinge **23** to the supporting base **21**.

FIGURE 3 is a front elevation of the footboard **13**. The transverse foot support member **18** has a pair of laterally aligned horizontal slots **40**. Each of the horizontal slots **40** has a vertical slot **41** centrally disposed on each side thereof. As shown in FIG. 3, each of the

slots 40, 41 terminate at either end in an enlarged circular portion to facilitate the insertion and removal therethrough of the pivot bolts and wing nuts of the foot restraining blocks 17 and 30. The transverse foot support member 18 is connected to each bracket 34 by means of four nut and bolt combinations 42. By loosensing the wing nuts 37, the transverse foot support member 18 may be rotated about the horizontal axis formed by a line between the bolts 36. In addition, the transverse foot support member 18 thus can be raised or lowered with respect to the supporting base 21 and, therefore, the bed, which is preferably positioned between the supporting base 21 and a lower edge 43 of the transverse foot support member 18. The individual foot restraining blocks 17, 30 may, in addition, be moved to the required position by inserting the appropriate pivot bolt 20 or 31, respectively, into one of the slots 40, 41 and tightening the wing nut 19 or 31, respectively.

FIGURE 4 shows a left side elevation of the foot support 13. The frame support member 23 has a longitudinal slot 50 therein through which passes the pivot bolt 36 of the transverse foot support member 18. The longitudinal slot 50 has a large circular termination at either end in order to facilitate the insertion and removal therethrough of the pivot bolt 36 and the wing nut 37.

In FIG. 5, a sectional view of the footboard 13 taken along line 5—5 of FIG. 3 is shown. The transverse foot support member 18 is indicated in its upright position. A lowered and inclined position is illustrated by the dotted lines, and the reference numerals 18', 34', and 36' indicate the positions of the transverse foot support member, bracket, and pivot bolt, respectively, when so lowered and inclined.

The embodiment illustrated in FIGS. 1 through 5 is the preferred embodiment. However, it is readily appreciated that a more economical, albeit less versatile, footboard results when any of the adjustable features are eliminated. For example, the transverse foot support member 18 may be fixed in height with respect to the supporting base 21. Alternately, or in addition, the angle of inclination of the transverse foot support member 18 may be permanently fixed. Further, by elimination of some of the slots 40, 41, the almost infinite variety of positions in which the foot restraining blocks 17 and 30 may be set is reduced. Also, the supporting base 21 may be eliminated and the frame support members 22 attached directly to the longitudinal frame 12 or mattress 14. However, such alternate structures are within the contemplation of the present invention and the scope of the appended claims.

I claim:

1. A footboard comprising a pair of frame support members adapted to be disposed on opposite longitudinal sides of a bed, each frame support member having a longitudinal slot therein, a supporting base, means for fixing the position of the frame support members with respect to the supporting base including hinges connected to the frame support members and to the supporting base so that the frame support members may be swung outwardly from each other, a transverse foot support member positioned between the frame support members and connected thereto by pivot means extending through the longitudinal slot in each frame support member so that the transverse foot support member is adjustable in height above the bed and rotatable about an axis between the frame support members and including means for fixing said height and the rotated position of the transverse foot support member, a pair of padded foot restraining blocks positioned between the frame support members, and means for fixing said foot restraining blocks to one face of the transverse foot support member and including a pair of horizontal slots laterally aligned in the transverse foot support member, a vertical slot centrally disposed on each side of each horizontal slot, and a lockable pivot associated with each foot restraining block and adapted to be secured to a selected one of the slots in the transverse foot support member.

2. A footboard comprising a pair of frame support members adapted to be disposed on opposite longitudinal sides of a bed, a supporting base, means for fixing the position of the frame support members with respect to the supporting base, a transverse foot support member positioned between the frame support members and connected thereto so as to be adjustable in height above the supporting base and to be rotatable about an axis between the frame support members and including means for fixing said height and the rotated position of the transverse foot support member, a pair of foot restraining blocks positioned between the frame support members, and means for fixing said foot restraining blocks to one face of the transverse foot support member so that each foot restraining block is angularly, vertically and horizontally positionable with respect both to the transverse foot support member and the other foot restraining block including a pair of laterally aligned first slots in the transverse foot support member, a second slot disposed to one side of each first slot, and lockable pivot means associated with each foot restraining block and adapted to be secured to a selected one of the slots in the transverse foot support member.

3. A footboard comprising a pair of frame support members adapted to be disposed on opposite longitudinal sides of a bed, a supporting base, means for fixing the position of the frame support members with respect to the supporting base, a transverse foot support member positioned between the frame support members and connected thereto so as to be adjustable in height above the supporting base and to be rotatable about an axis between the frame support members and including means for fixing the height and rotated position of the transverse foot support member, a pair of foot restraining blocks positioned between the frame support members, and means for fixing said foot restraining blocks to one face of the transverse foot support member including a pair of laterally aligned horizontal slots in the transverse foot support member, a vertical slot centrally disposed on each side of each horizontal slot, and lockable pivot means associated with each foot restraining block and adapted to be secured to a selected one of the slots in the transverse foot support member so that each foot restraining block is angularly, vertically and horizontally positionable with respect to the transverse foot support member and the other foot restraining block.

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