April 23, 1963 J. R. FILLINGIM 3,086,225

ORTHOPEDIC DEVICE

Filed Oct. 13, 1958 2 Sheets-Sheet 1

FIG. 1

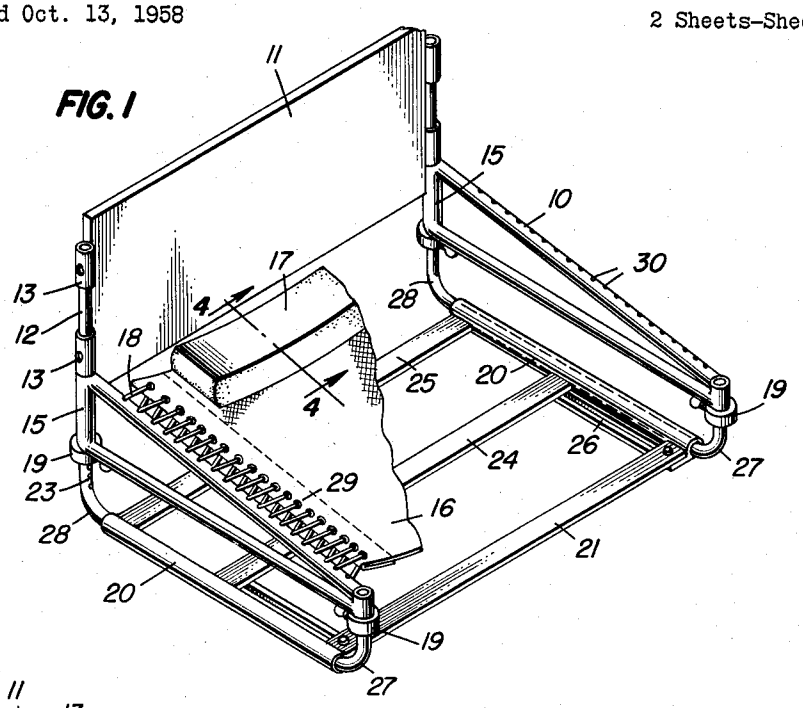


FIG. 2

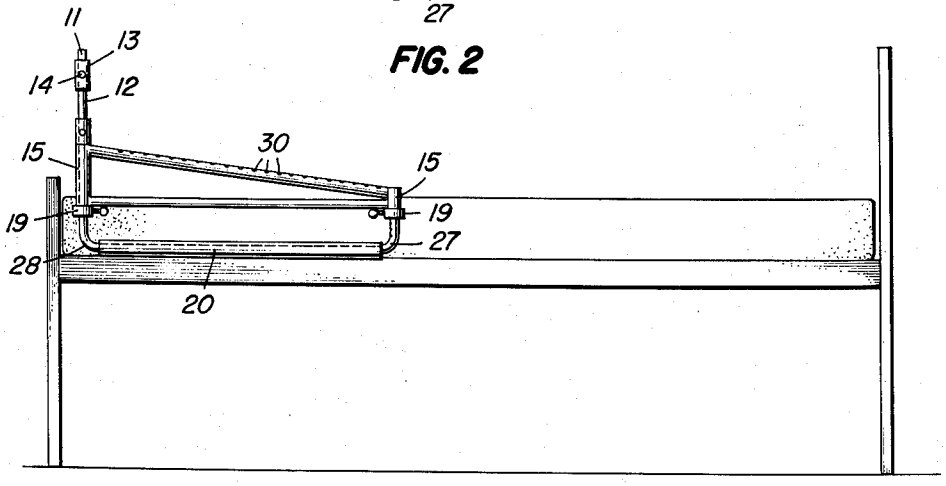


FIG. 4

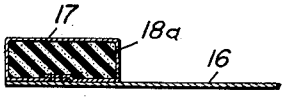
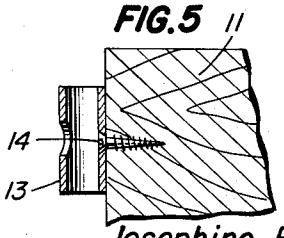


FIG. 5



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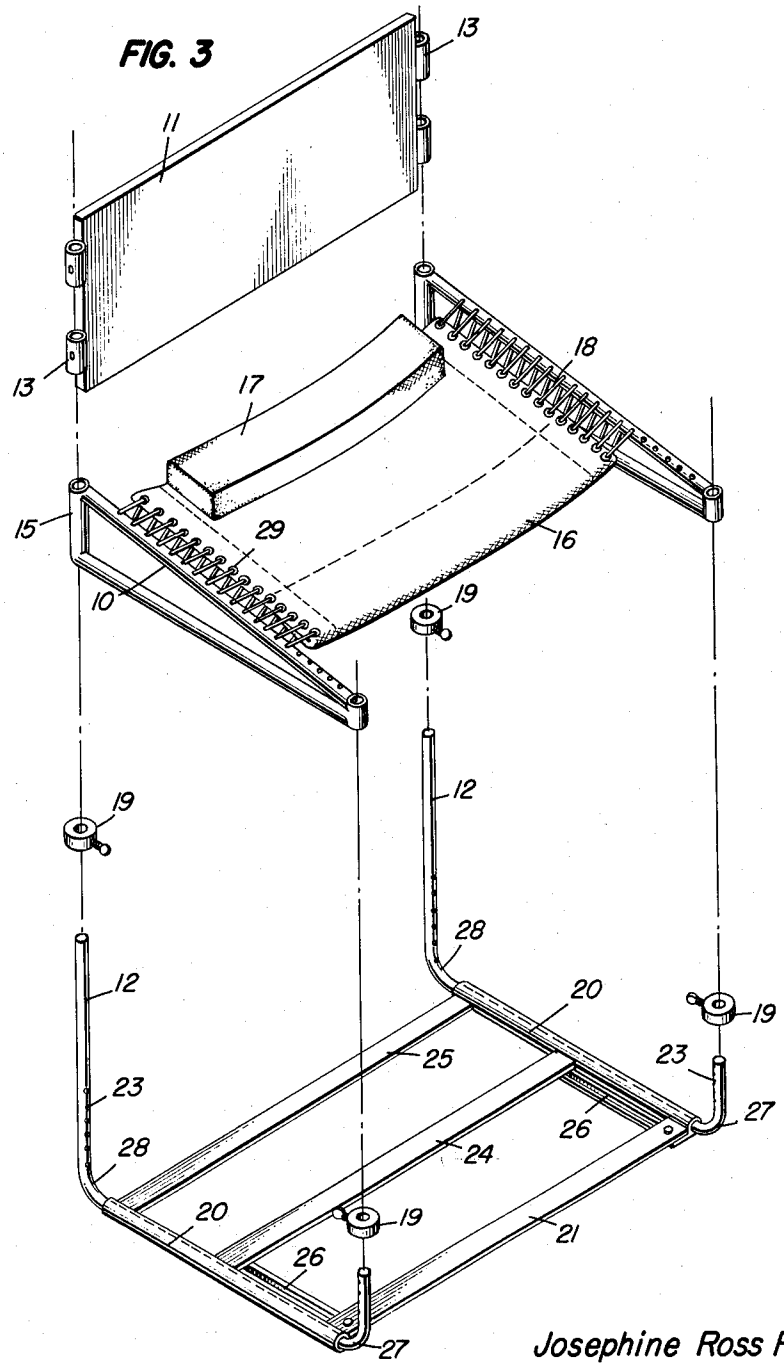
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FIG. 3



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ORTHOPEDIC DEVICE

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11 Claims. (Cl. 5—327)

This invention relates to new and useful improvements in footrests for occupants of beds and particularly for chronic, orthopedic and paraplegic patients.

It is a well known fact that drop foot is a condition which occurs especially in patients with the conditions previously described. Drop foot is usually aggravated by the constant improper alignment of the patient's feet while in bed. Until the present invention, there has not been a device that has been made to satisfactorily alleviate drop foot.

It is also well known that in beds for sick people, particularly for those with foot or leg injuries, it oftentimes becomes desirable to provide a support member which may be adjusted longitudinally of the bed to satisfy the particular needs of the patient. For example, the patient may wish to have a support member adjusted to support the soles of his feet so as to offer resistance to the outward thrust of his legs and thereby provide exercise to the injured foot or limb. It may also be the desire of the patient to support his foot or leg above the general level of the bed.

A device designed to alleviate drop foot should serve a dual purpose; namely, providing a means for proper alignment of the patient's feet and also a means for removing pressure from the patient's heels. These two problems are a plague to all chronic patients.

Such a foot support should be extremely simple in construction and operation so that it may be installed and adjusted by a single individual. The supporting device should be adjustable for utilization of the full length of the bed without interference or obstruction to other movable parts of the bed. Such a device should be easily removable from the bed and capable of being stored in a compact, out-of-the-way, unit, or capable of being partially disassembled so that a part of the device may be moved and the side portions thereof capable of pivoting downwardly so that the device may be positioned adjacent the patient's bed when and as needed.

With these and other advantages in mind, it is a principal object of this invention to provide an adjustable leg and foot supporting device, that may be attached to a patient's bed, and also be positioned lengthwise of the bed.

It is another object of the invention to provide a leg and foot supporting device of the aforementioned character which is adapted to be expeditiously adjusted to support a patient's legs and feet when desired, and when not in use may be partially disassembled so that it will occupy a minimum of space.

It is another object of the invention to provide a supporting device which will enable the patient's legs to have better circulation and drainage due to an elevation of the supporting means.

It is another object of the invention to provide a supporting device which will enable the patient's heels and legs to be kept off the bed at all times, thereby eliminating danger of pressure sores.

It is another object of the invention to provide a supporting device which is adjustable so as to accommodate both adult and child patients.

All of the foregoing and still further objects and advantages will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate

corresponding parts throughout the several views shown and wherein:

FIGURE 1 is a perspective view with a portion of the supporting means cut away.

FIGURE 2 is a side view of the device of the invention mounted on a bed.

FIGURE 3 is an exploded view of the invention.

FIGURE 4 is a view in cross section taken along lines 4—4 of FIGURE 1.

FIGURE 5 is a view in section of the collar mountings attached to the footboard.

Referring to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises both a foot and leg rest. The device is preferably designed to be supported on the top surface of a hospital bed spring so that its sides extend upwardly adjacent the mattress.

The drawings show that two tubular members **12** form a portion of the framework of the device. For reasons of clarity in this specification, the portion of the device nearest the head of the bed will be referred to as the rear portion and the portion nearest the foot of the bed will be referred to as the front portion. Members **12** extend along the base of the device and turn upwardly at point **27** on the rear of the device, and also turn upwardly at point **28** on the front as illustrated in FIGURE 1. Members **12** provide most of the supporting means for the entire device. Longitudinal sleeves **20** are adapted to surround and receive the base portions of members **12** in such a manner that members **12** can rotate therein.

FIGURE 1 shows that extending between sleeves **20**, are three slats, **21**, **24** and **25**. Slats **24** and **25** are permanently attached to sleeves **20**, while slat **21** is slidably mounted in grooves in flanges **26** that are welded to sleeve **20**. The upright portions of members **12** are provided with an array of uniformly perforated holes **23**. Holes **23** in members **12** provide a means for adjusting ring lock **19**. In the preferred embodiment, ring lock **19** is a washer and wing nut assembly. Braces **15** are triangular in shape, and their ends are hollow and tubular so that they may receive therein the ends of members **12**. Braces **15** are slidably mounted on members **12**, and are supported by ring locks **19**. It can thus be seen that since both ends of the upright portions of members **12** are provided with holes, braces **15** may be adjusted to various heights.

The top bar **10** of brace **15** which slopes downwardly from the front portion to the rear portion is provided with a series of perforated holes **30**, both on its top and bottom surface. By providing perforations both on the top side and bottom side of bar **10**, a suitable lacing **18** may be strung through the perforations **30** on the top side of bar **10** and out the bottom side of bar **10** and then through folded canvas **16** which is preferably provided with eyelets **29** to withstand the strain resulting from a portion of a patient's body resting on canvas **16**. Attached to the front portion of canvas **16** is a pocket **17** which serves as a receptacle for a block of foam rubber **18***a*.

Mounted on and extending between the front upright portion of members **12** and above braces **15** is a footboard **11**. The side edges of footboard **11** are provided with hollow tubular collars **13**, as shown in FIGURE 5. Collars **13** are attached to footboard **11** by inserting a suitable screw **14** through the portion of collar **13** adjacent the side edges of footboard **11**. The diameter of collars **13** is just slightly larger than members **12** so that the footboard may easily slide thereon. When it is desired to raise or lower braces **15** and attached canvas **16**, footboard **11** will also be moved because it is also slidably mounted on members **12**.

It should also be noted that members **12** are rotatably mounted within sleeve **20** so that when it is time to

change the patient's bed, or it is desired to move the apparatus from the bed, footboard 11 and braces 15 may easily be lifted upward and off members 12. After these two elements are removed it is a simple matter for members 12 to be rotated downwardly to the sides of the bed.

It should also be noted that approximately two inches are allowed between canvas 16 and bars 10 so that the canvas may easily be tightened and wrinkles in the canvas may be eliminated so as to ensure proper, smooth support for the patient's heels and legs. Foam rubber 18*a* located at the end of canvas 16 near footboard 11 distributes the weight of the foot, and prevents pressure at the Achilles' tendon.

The entire device may be moved from the foot of the bed toward the head of the bed so far as necessary to take advantage of the adjustability to ensure complete comfort for either a child or adult patient. It is important to note an exact measure of 2" between footboard 11 and the first hole in series 30 on brace 15. The same measure is used for both adults and children from 6 yrs., and therefore the lacing always begins in the first hole (in series 30 on brace 15) closest to the footboard 11 for all patients.

When an adult is using the device, normally the entire surface of canvas 16 is used, but when a small child is using the device, canvas 16 may be unlaced and folded under and relaced as a double thickness canvas as shown in FIGURE 3. This adjustability feature of a smaller canvas surface area enables footboard 11 to be placed closer to the body of a child so that his short legs will reach foam rubber block 18*a* and have access to the advantages and comforts of the device the same as an adult. It should also be noted that when slat 21 is moved adjacent to slat 24 in setting up the frame for a child, it enables the headrest portion of the hospital spring and mattress to be raised without tilting the footrest device. The purpose of brace 15 being slidably mounted on members 12 is in lowering the proximal end of canvas 16 to touch the mattress for the added comfort to the child.

It is believed that the many advantages of a leg and footrest constructed in accordance with the present invention will be readily understood, and although a preferred embodiment of the device is illustrated and described, it is to be understood that changes in the details of construction and the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

I claim:

1. An orthopedic support for use with a bed comprising, a rectangular base member extending transversely of the bed and adapted to be positioned on the bed frame under the mattress of the bed, upright supporting members pivotally mounted adjacent the corners of said base member and adapted to be rotated about an axis which is substantially parallel to the length of the bed and substantially in the plane of said rectangular base member, side brace members extending longitudinally of the bed engaging said upright members, said brace members having top portions inclined downwardly and rearwardly of the bed, a footboard member secured to two of said upright members nearer the foot of the bed, and a foot and leg rest secured to said inclined portions of said brace members.

2. An orthopedic support as set forth in claim 1 in which said upright supports are rod-like members and said side braces and said footboard have fittings formed thereon to slidably engage said upright members for ease of assembly.

3. An orthopedic support as set forth in claim 2 including means to selectively position said side brace members on said upright members.

4. An orthopedic support as set forth in claim 1 in which said foot and leg rest consists of a fabric member, and lacing means to secure said fabric member to said top portions of said side brace members.

5. An orthopedic support as set forth in claim 4 in which said fabric member is formed with a pocket in the edge nearer said footboard, and a resilient member positioned in said pocket to serve as a foot support.

6. An orthopedic support as set forth in claim 1 in which said base member consists of a pair of side members, and a plurality of slat members extending transversely of the bed to position said side members along the outer edges of said bed, and at least one of said transverse slat members slidably mounted with respect to said side members.

7. An orthopedic support as set forth in claim 1 in which said upright members are of a length sufficient to position said foot and leg rest above the springs and mattress of the bed.

8. An orthopedic support for use with a bed comprising, a rectangular base member extending transversely of the bed and adapted to be positioned on the bed frame under the mattress of the bed, said base member having on each side a sleeve-like member extending in a direction parallel to the length of the bed, a generally U-shaped upright member with the base of the U positioned in each of said sleeve-like members for rotation therein, side brace members extending longitudinally of the bed engaging said upright members, said brace members having top portions inclined downwardly and rearwardly of the bed, a footboard member secured to two of said upright members nearer the foot of the bed, and a foot and leg rest secured to said inclined portions of said brace members.

9. A foot rest for a bed having bed springs and a mattress thereon and comprising a horizontally disposed frame having spaced side and end members and adapted to be positioned on said springs beneath said mattress, brackets pivotally attached to said end members of said frame, said brackets including sections extending above the mattress when moved to vertical position, a transverse panel having fixtures on the opposite ends thereof for engaging said vertical sections of said brackets, said transverse panel forming a vertically disposed foot rest transversely above said mattress.

10. The foot rest for a bed as set forth in claim 9 and wherein said horizontally disposed frame is substantially rectangular in shape.

11. The foot rest for a bed set forth in claim 9 and wherein the said horizontally disposed frame is substantially rectangular and wherein said end members of said frame are parallel and wherein said brackets are hingedly affixed to said parallel end members of said frame.

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