April 23, 1957 J. J. AUCOIN 2,789,624

FOOT SUPPORT

Filed Feb. 11, 1954

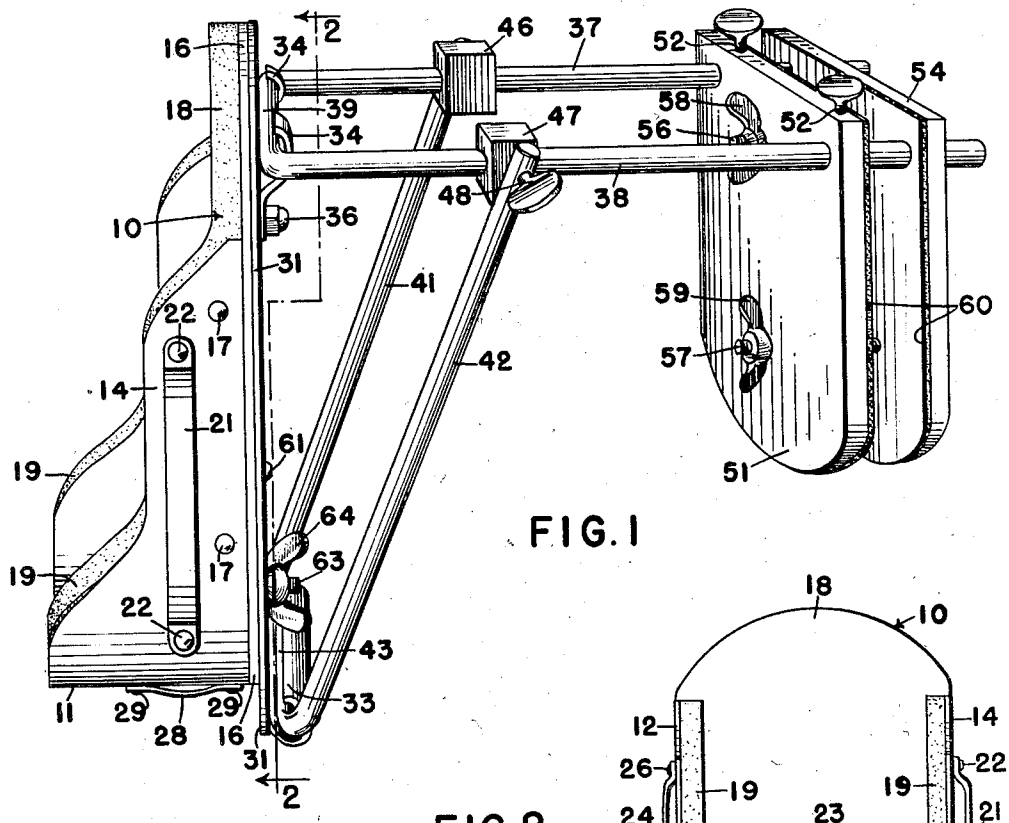


FIG. 1

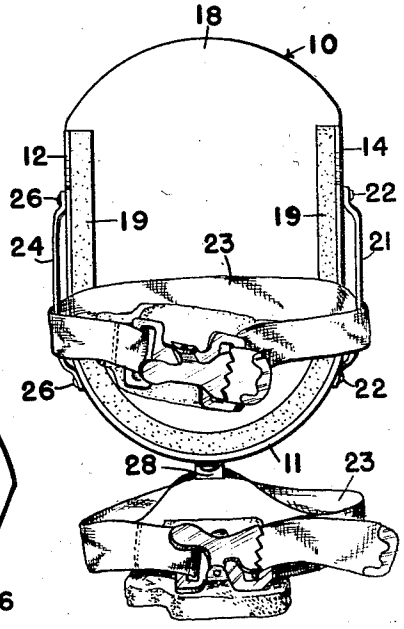
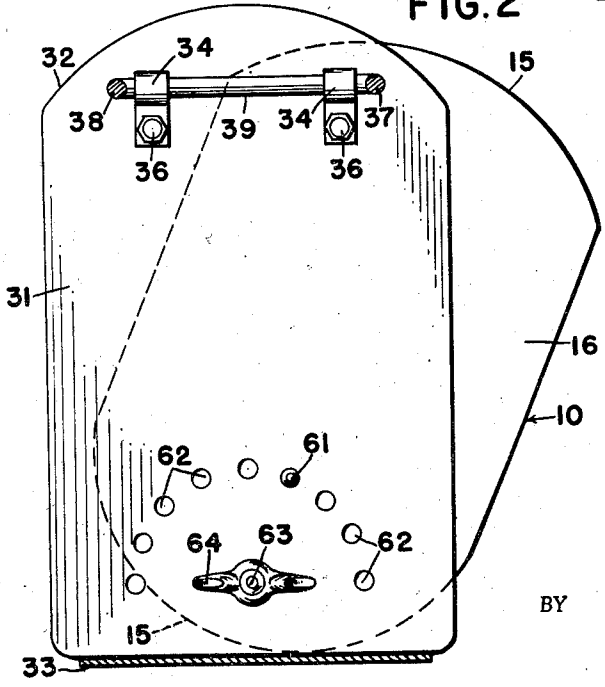


FIG. 3

FIG. 2



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United States Patent Office 2,789,624 Patented Apr. 23, 1957

2,789,624

FOOT SUPPORT

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Application February 11, 1954, Serial No. 409,584

5 Claims. (Cl. 155—165)

The present invention relates to a bracket assembly of an adjustable type and more specifically pertains to a device for supporting the foot of a human being or patient in various positions for facilitating the knitting of fractures and during the treatment of other ailments of the foot or the leg of an individual.

An object of the invention is to provide a device which may be secured to a portion of a bed or the like in various positions thereon and to provide a scoop shaped member in which the foot of an individual may be accommodated and supported in various adjusted positions including means for adjusting the angle of inclination of the support member including means for maintaining the scoop shaped member in various rotating positions to properly support the foot of a patient during treatment or recuperation.

Another object of the invention is to provide means for holding the scoop shaped member of the foot support in various adjusted positions including a pair of U-shaped rod structures which may be adjusted relative to each other and with respect to a clamp for securing the device on a portion of the bed or the like whereby the foot support may be conveniently moved to and secured in a proper supporting position.

Other objects and features of the invention will be more apparent particularly to those skilled in the art upon consideration of the following detailed description and the accompanying drawing wherein an exemplary embodiment of the invention is disclosed.

In the drawing:

Fig. 1 is a perspective view of the bracket assembly providing a foot support exhibiting the invention.

Fig. 2 is an elevational view of a plate on which the foot receiving member is mounted with portions of the device shown in section taken on the line 2—2 of Fig. 1.

Fig. 3 is a front elevational view of the device showing straps in positions for holding the foot in association with the support.

The bracket assembly is useful for supporting the foot of an individual in various positions during the healing of a fracture of bones of the foot or leg or the hip and the device has utility in supporting the foot of a patient suffering from other ailments. The foot support may be used in hospitals or similar institutions and it is desirably formed of aluminum or stainless steel or combinations of such metals.

The device includes a member 10 for receiving the foot of a patient. This portion of the support may be regarded as scoop shaped and includes a flange 11 of U-shape as will be apparent from a consideration of Figs. 1 and 3. The flange of the device may be formed of sheet metal and is provided with upstanding legs 12 and 14 which may be of less width than the base portion 11 of the flange. The flange is secured to a flat plate 16 by means of rivets or the like 17 which cooperate with

angle brackets (not shown). The plate 16 has arcuate ends 15 as shown in Fig. 2.

The front face of the plate 16 is covered with a layer 18 of cushion material such as sponge rubber or the like which is bonded to the face of the plate 16. The inner surface of the flange 11 including the inverted legs 12 and 14 also carries a layer of cushion material 19 such as sponge rubber or the like adhesively bonded thereto. The cushion material covers the angle brackets (not shown) which cooperate with the rivets 17 to hold the flange 11 in association with the plate 16. The layers 18 and 19 serve to provide cushion surfaces in the areas engaged by a foot supported by the device.

A bar 21 is provided along the leg 14 of the scoop shaped foot receiving member and may be attached thereto by means of rivets 22. The bar 21 is spaced from the outer face of the leg 14 to provide a loop in which one or more straps such as shown at 23 may be accommodated to hold the foot in place within the scoop shaped structure. A similar bar 24 is provided along the outer face of the leg 12 and secured thereto by rivets or the like 26. The bar 24 is spaced outwardly from the leg 12 to form a loop in which one or more of the straps 23 may be accommodated. A shorter metal bar 28 is mounted on the lower portion of the flange 11 by means of rivets or the like 29 to provide a loop for a strap 23 adapted to extend over the instep or ankle to assist in maintenance of the foot in proper position within the scoop shaped portion.

The scoop shaped member is supported by means of a plate 31 having an arcuate shaped upper end 32 corresponding in curvature to the end surface 15 of the plate 16. The lower end of the plate 31 is provided with an integral lug 33 which is bent to provide a clip as shown in Fig. 1. A pair of bracket clips 34 are secured to the plate 31 near the upper end thereof by means of bolt and nut assemblies 36. The inner ends of these bolts are covered by the cushion layer 18.

A rod structure of U-shape is attached to the upper end of the plate 31. This rod structure includes legs 37 and 38 and an intermediate portion 39 which is held in position adjacent the plate 31 by means of the bracket clips 34. This rod structure may swing about the axis of the intermediate portion 39. A second rod structure is attached to the plate 31 and includes legs 41 and 42 and an intermediate portion 43 is accommodated in the lug 33 so that it may rotate about the axis of the intermediate portion 43. The second rod structure provides support for the lower end of the device.

The free ends of the legs 41 and 42 are adapted to be adjustably secured in various positions along the length of the legs 37 and 38 of the first rod structure. In the embodiment illustrated a block shaped element 46 is mounted for sliding movement on the rod leg 37 and a similar block shaped element 47 is mounted for sliding movement on the rod leg 38. A screw 48 having a head which may be readily manipulated extends freely through an opening in the leg 42 and is threaded in the block element 47. The inner end of the screw 48 is adapted to engage the periphery of the rod leg 38 and to secure the block element and the upper end of the rod leg 42 in an adjusted position on the rod leg 38. A similar screw arrangement is provided for connecting the upper end of the rod leg 41 to the block element 46 for securing these parts in various adjusted positions on the rod leg 37.

A clamp unit is provided at the free ends of the rod legs 37 and 38 for mounting the foot supporting device on a bed or the like whereby the scoop shaped member will be held in proper position for receiving the foot of a patient. In the embodiment illustrated a plate 51 is

provided with openings for receiving the rod legs 37 and 38. The plate 51 is held in position on the rod legs 37 and 38 by means of screws 52 and to permit the plate member 51 to be secured in adjusted positions on these rods. A similarly shaped plate 54 is provided with openings for receiving and sliding on the rod legs 37 and 38. A pair of bolts 56 and 57 extend through both plates 51 and 54 and wing nuts 58 and 59 cooperate with the bolts 56 and 57 to draw the plate 54 towards the plate 51 whereby these plates may be clamped to the foot board or an equivalent element of the bed. The adjacent faces of the plates 51 and 54 may be covered with resilient layers 60 to prevent the marring of the finish of the bed.

In operation the device is first attached to the foot structure of a bed by removing the wing nut 59 and removing the bolt 57. The wing nut 58 may be loosened which will enable the plate 54 to be moved away from the plate 51. These plates may then be arranged over a portion of the bed structure at the foot end thereof after which the plates are drawn towards each other and clamped in position by tightening the wing nuts 58 and 59. The general position of the scoop shaped member may be adjusted with respect to the clamp assembly by loosening the screws 52 whereby the position of the rod legs 37 and 38 may be altered axially with respect to the clamp unit. The thumb screws 52 are then tightened against the peripheries of the rod legs 37 and 38. If it is desired for the plate 16 of the foot receiving member to be inclined from the vertical position the screws 48 are loosened enabling the block elements 46 and 47 to slide on the rod legs 37 and 38. It will be noted that movement of the block elements 46 and 47 to the left in Fig. 1 will cause the lower end of the plate 31 to be moved to the left whereby the top end of the foot supporting structure will turn about the axis of the intermediate portion 39 of the upper rod structure. A movement of the block elements 46 and 47 to the right in Fig. 1 will provide for an opposite inclination of the plate 31.

The scoop shaped element is mounted for swinging on the plate 31 and for this purpose the plate 16 carries a stud 61 in the central lower portion thereof. The stud 61 projects from the rear face of the plate 16. The plate 31 is provided with a plurality of holes 62 which are arranged in a circular outline as will be apparent from a consideration of Fig. 2. The holes 62 are circumferentially spaced from each other and are arranged concentric about the axis of a stud bolt 63 carried by the front plate 16 and which extends through an opening in the rear plate 31. A wing nut 64 threaded on the bolt 63 is for the purpose of urging the rear face of the front plate into flat engagement with the front face of the rear plate 31 when the stud 61 is in alignment with one of the holes 62.

The scoop shaped member may be adjusted to support the foot of an individual in proper position by swinging the plate 16 relative to the plate 31. The plate 16 forming a part of the scoop shaped member may be secured in different adjusted positions throuhgout one hundred and eighty degrees and ninety degrees to each side of a true vertical position to thereby support the foot in a proper position to insure proper healing or re-knitting of any broken bones or the like. When it is desired to adjust the position of the scoop shaped member relative to the plate 31 the wing nut 64 is unthreaded on the bolt 63 until the free end of the stud 61 may be removed from any one of the openings 62. The stud 61 may then be introduced into any one of the holes 62 after which the wing nut 64 is again tightened on the bolt 63 to maintain the two plates in face-to-face engagement. A simple and reliable structure is thus provided for holding the scoop shaped foot receiving member in any rotated position relative to the supporting arms.

While the invention has been described with reference to specific structural features and with regard to one general organization it will be appreciated that changes may be made in the elements as well as the overall assembly. Such modifications and others may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

What I claim and desire to secure by Letters Patent is:

1. In a device for supporting the foot of an individual, means providing a scoop shaped member, a U-shaped rod structure having legs and an intermediate portion hinged to said scoop shaped member at an upper portion thereof, a second rod structure of U-shape including legs and an intermediate portion pivotally connected to a lower portion of said scoop shaped member, an element adjustable lengthwise of each leg of the first rod structure, means for securing legs of the second rod structure to said elements and securing said elements in fixed positions relative to the first rod legs, and a clamp unit carried by the legs of the first rod structure.

2. In a device for supporting the foot of an individual, a scoop shaped member including a plate, a second plate in facial engagement with the first plate, means for supporting said second plate in a fixed position, a stud carried by the first plate projecting from the face thereof, said second plate having a plurality of holes therein each for receiving said stud, and releasable means for holding the first plate in facial engagement with the second plate and the stud in a position extending into one of said holes.

3. In a device for supporting the foot of an individual, a scoop shaped member including a plate, a second plate in facial contact with the first plate, a U-shaped rod structure having legs and an intermediate portion hinged to the second plate, a second rod structure of U-shape including legs and an intermediate portion pivotally connected to said second plate, means movable lengthwise of the legs of the first rod structure, means for securing legs of the second rod structure to said first means and securing the first means in fixed positions relative to the first rod legs, a stud carried by the first plate projecting from the face thereof, said second plate having a plurality of holes therein for receiving said stud, releasable means for holding the first plate in facial engagement with the second plate and the stud in a position extending into one of said holes, and a clamp unit carried by free ends of the legs of the first rod structure.

4. In a device for supporting the foot of an individual, a scoop shaped member having a flat plate thereon, a second plate in interfacial engagement with the first plate, a U-shaped rod structure having legs and an intermediate portion hinged to said second plate, a second rod structure of U-shape including legs and an intermediate portion hinged to said second plate, means movable on the legs of the first rod structure, means for securing legs of the second rod structure to said first means and securing the first means in fixed positions on the first rod legs, said first plate and scoop shaped member being swingable in the plane of and relative to the second plate, and means releasably maintaining the first plate in one position relative to the second plate and the plates in interfacial engagement.

5. In a device for supporting the foot of an individual, a U-shaped flange, a plate secured to the flange forming a scoop shaped member, a second plate in facial engagement with the first plate, a stud carried by the first plate projecting from a rear face thereof, a bolt carried by the first plate extending through an opening in the second plate, said second plate having a plurality of holes therein arranged concentrically about said opening and circumferentially spaced from each other, a wing nut engaging the bolt holding the first plate in engagement with the second plate and the stud in a position extending into one of said holes, an adjustable bracket structure supporting the second plate, and cushion material covering the inner face of said flange and a front face of said first plate.

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