Sept. 13, 1955 S. MILLMAN 2,717,595

BEDSTEAD SUPPORTED TRACTION DEVICE

Filed May 29, 1953

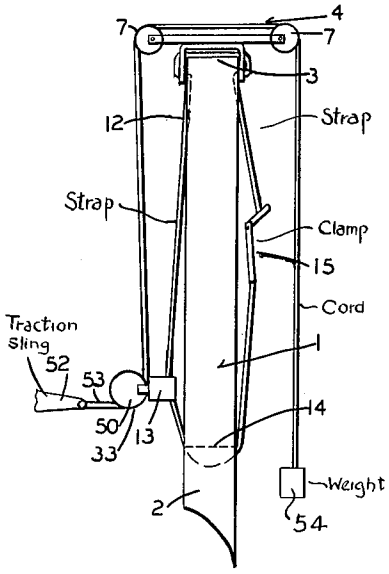


FIG. 1

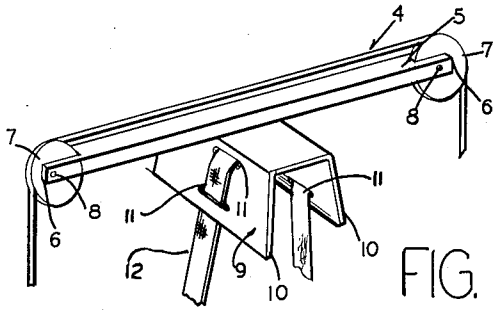


FIG. 2

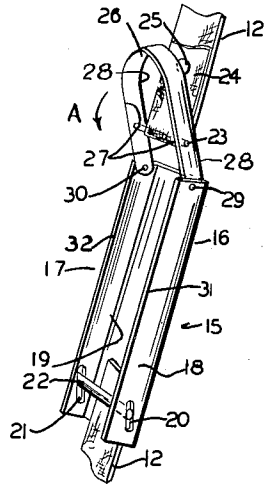


FIG. 3

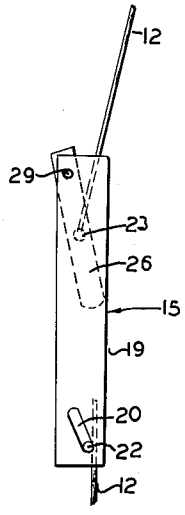


FIG. 4

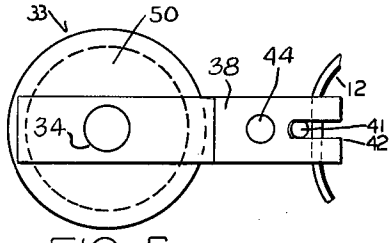


FIG. 5

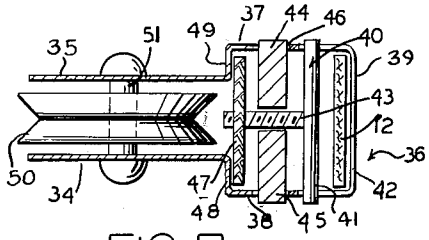


FIG. 6

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Patented Sept. 13, 1955

2,717,595

BEDSTEAD SUPPORTED TRACTION DEVICE

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Application May 29, 1953, Serial No. 358,346

5 Claims. (Cl. 128—84)

The present invention relates to a portable traction device used in orthopedic therapy for applying traction to a patient confined to bed. In general devices of this nature include a considerable amount of rigging, not only to the bed but sometimes from the ceiling and wall supports. One of the purposes of the present invention is to provide a traction device which can be entirely supported from and mounted on the head board or foot board of the bed or some extension clamped to or provided on the bed.

A further purpose of the present invention is to supply a rigging which is simple to operate and readily adjustable for applying a traction sling for the head, neck, shoulders, legs and body of the patient. The device of the present invention may be mounted on the head board by being adjustably strapped and clamped around the head board and the device further provides a pulley which may be adjusted at any height on the head board for use with a traction sling or other orthopedic device.

Further advantages and improvements of the present invention will be more readily understood from the description and specification set forth below when taken in connection with the drawings illustrating an embodiment thereof, in which:

Figure 1 shows more or less schematically the traction device or rigging as applied to a head board of the bed.

Figure 2 shows in perspective a detail of the mounting element at the top of the bed board.

Figure 3 shows in perspective, clamping device for tightening the rigging to the bed.

Figure 4 shows a side view of the clamping device of Figure 3 in a closed position.

Figure 5 shows a detail of the adjustable pulley and,

Figure 6 shows a top view of the adjustable pulley as viewed looking down upon Figure 5 with parts shown in section.

In the arrangement indicated in Figure 1, **1** is the bed post or head board of the bed which in the usual construction is provided with an opening **2** about or below the level of the mattress.

The top of the head board may have a flat end as indicated at **3**, or it may be rounded, the shape in particular not being material.

On the top end of the head board is mounted a pulley support and pulleys **4**. The pulley support and pulleys are shown better in Figure 2. They comprise a bar **5** which may be made of aluminum or other material at the ends of which there are provided forked bearings **6**, **6**, in which the pulleys **7**, **7** are supported by means of the shafts **8**, **8**. The pulleys are free to turn in the support bar **5**. The support bar **5** is welded or attached to a clamping plate **9**, which may be made of sheet metal and is bent in the form of a channel with the sides **10**, **10**, extending downwards at the sides of the bed post or head board **1**. These sides may be made to contact and grip the board **1** or it simply may rest in a fairly good fit on the top of the bed board. The side elements **10**, **10**, are provided

with slots **11**, **11** which are shown in Figure 2 in the upper portion of the channel. The strap **12** is threaded through these slots in such a way that the sides **10**, **10** are held without slipping and securely against the head board. The strap therefore rests on the top of the bed board **1** but extends outside of the channel and serves in this manner to provide a firm grip for the channel to the bed board. The strap **12** extends downward through the adjustable pulley **13** which will be described later, under and through the lower edge of the head board indicated by the dotted line **14** and upward to the clamp **15** where it is firmly secured.

The clamp **15** is shown in Figures 3 and 4. This clamp which may be made out of aluminum, iron or other desirable metal, or even very hard plastic or other composition material, is constructed of a channel piece **16** with sides **17** and **18** extending at right angles to the base **19** of the container. In the side pieces **17** and **18** towards their bottom end, there are formed inclined slots **20** and **21**, and through this slot there extends a pin **22**. The clamp is always or practically always held in a position indicated in Figure 3, although this is not necessary, since the pin **22** may be held down in which case it presses the strap **12** against the back wall **19** of the channel **15** to clamp the strap firmly in place.

When the device is applied to a bed, the strap is pushed up fairly tightly under the pin **22** or rather between the pin **22** and the back wall **19** so that when the strap is moved downward again, even a slight distance, the pin **22** descends downward in the slots **20** and **21** which are inclined towards the back of the channel. The strap **12** at its upper end is looped about a pin **23** and has its end section **24** held by means of the snap fastener **25** or some other means not clearly shown, to the bed portion of the strap. The clamp therefore can be readily removed where the fastener is of the type which may be opened, as for instance a snap fastener type. The pin **23** extends across the side of a U shaped bracket or support **26** and is positioned in such a way that it lies nearer one edge of the sides of the U shaped member, for instance the edge **27** than the edge **28**. This U shaped bracket is pivoted at the upper end of the sides of the square shaped channel as indicated at **29** and **30**. The points of pivot **29** and **30** are towards the outer edges **31** and **32** of the sides **17** and **18** of the channel **15**. The purpose in this is obvious from Figure 4, which shows the clamp in a closed position. In the closed position shown in Figure 4, the strap about the pivoted pin **23** is pivoted to the right of the pivot **29** and tends to force the U shaped bracket **26** against the back wall **19** of the channel **15**. Therefore when the clamp is closed, since the pull on the strap **12** is to the right of the pivot **29**, the tendency will be for the clamp to stay closed as any increased stress will simply pull the clamp **26** harder against the back wall **19**. Therefore after the strap has been set up in its position under the pin **22** and the U shaped bracket **26** swung around in the direction of the arrow A, the strap and pulley will be tightly clamped in position.

Mounted on the strap is the adjustable pulley mounting means **33**. The structure of this is shown in Figures 5 and 6. It comprises a piece of metal which has two forked flanges **34** and **35** which are ends of a rectangular frame **36** comprising side elements **37**, **38**, and a back element **39**, preferably all formed of a single piece of material.

The rectangular shaped frame **36** is provided with a slot **42** in which rests a T-shaped member **40**, the ends of the cross bar **41** of which lie in the slot **42** which extends around from the sides **37** and **38** across the back **39**. The central bar element **43** of the T-shaped member is threaded and passes through a hole in the shaft **44**

which is freely supported in holes **45** and **46** in the side plates **37** and **38** of the rectangular frame **36**.

The end of the stem **43** of the T, carries a knurled disc **47** which bears against the shoulders **48** and **49** in the frame **36** just at the junction where the flanges **35** and **34** extend outward.

The pulley **50** is journalled by a rivet **51** in the forked supports **34** and **35**. The strap **12** is threaded between the pin **40** and the rear wall **39** of the frame. The cross bar **41** of the T piece, when moved to the right by the rotation of the knurled disc **47**, forces the strap **12** against the rear wall **39** and firmly clamps the strap in place. The adjustable pulley mounting means **33** may therefore be moved up and down along the strap **12** and clamps in any position that may be desired.

The traction sling, as for instance a neck sling **52**, is tensioned by means of the cord **53** which passes around the pulley **50** upward through the pulley **7—7** and downward on the outside of the bed where a weight **54** may be attached.

It is readily seen that the arrangement may be applied to a bed very quickly; that there is no permanent attachment necessary; that it may be easily removed, and that it can be adjusted for any inclination of the cord **53** whether used for the head, body or legs of the patient.

Variations in structure of the elements may be made without departing from the spirit of the invention as defined by the claims.

Having now described my invention, I claim:

1. A traction device for a bed or the like including pulleys and a support therefore adapted to be secured on the top of the head board, a pulley and pulley mounting means adapted to be adjustably secured at the inner side of the bed between the top and bottom of the head board, a continuous strap passing through the support and the pulley mounting means adapted to extend around the front and back of the head board, clamping means positioned on said strap for holding said pulley mounting means securely in place and a traction assembly having a cord passing over said pulleys on the top and around said pulley on the side of the head board.

2. A traction device for a bed or the like having a headboard, including a rigging having a pair of pulleys mounted on a longitudinal bar with a channel member supporting said bar and having the sides of the channel member adapted to extend over the sides of the headboard, an adjustable pulley, a forked bearing mounting said pulley, a rectangular frame supporting said forked bearing having an adjustable clamping element therein for securing a strap passing therethrough, a clamping strap extending around the channel member and through said rectangular frame and adapted to encircle about said head board, clamping means at the ends of said strap for securing said strap tightly around said head board, whereby the pulley mountings are securely clamped, and a traction assembly having a cord passing over said first named pulleys and around said last pulley for applying the desired traction to a patient in the bed.

3. In a traction device for a bed or the like, a pulley means and support adapted to rest and be secured on the head board of a bed comprising a channel frame with the sides extending downward, a longitudinal bar secured to the cross piece of the channel member, a pair of pulleys mounted in forked bearings at the end of said longitudinal bar and strap means passing through pairs of slots in the opposite sides of said channel frame adjacent the cross piece whereby the pulley support is secured at the top of the head board of the bed.

4. In a traction device for a bed or the like, an adjustable pulley member for adjusting the inclination of the traction device with respect to the patient, comprising a clamping strap adapted to be clamped around the head board of a bed in an upwardly and downwardly extending direction, an adjustable pulley assembly including a pair of forked bearings, a pulley freely rotatably mounted in said forked bearings, a rectangular frame supporting said forked bearings through which said strap is drawn, said rectangular frame having a slot in the back and partly in the sides thereof, a bar extending transversely across said rectangular frame and resting in the slot at each side thereof and means on said frame for forcing said bar against said strap whereby said bar and the wall of said frame will firmly grip the strap and hold the pulley assembly firmly in place.

5. In a traction device for a bed or the like, an adjustable pulley member for adjusting the inclination of the traction device with respect to the patient, comprising a clamping strap adapted to be clamped around the head board of a bed in an upwardly and downwardly extending direction, an adjustable pulley assembly including a pair of forked bearings, a pulley freely rotatably mounted in said forked bearings, a rectangular frame supporting said forked bearings through which said strap is drawn, said rectangular frame having a slot in the back and partly in the sides thereof, a bar extending transversely across said rectangular frame and resting in the slot at each side thereof, and means for forcing said bar against said strap, comprising a rod freely resting in holes in the sides of said rectangular frame, a stem forming with said bar a T-shaped member, said stem passing through a hole in said rod and being threaded at the end thereof, and a threaded disc engaging with said stem and bearing on a shoulder of said rectangular frame opposite from the end of the frame in which said slot is positioned whereby when said threaded disc is turned, said bar will press said strap against the wall of said frame for securing the pulley assembly firmly in a desired position.

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