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3,134,379

PORTABLE BED TYPE TRACTION APPLICATOR

Filed Sept. 10, 1962

2 Sheets-Sheet 1

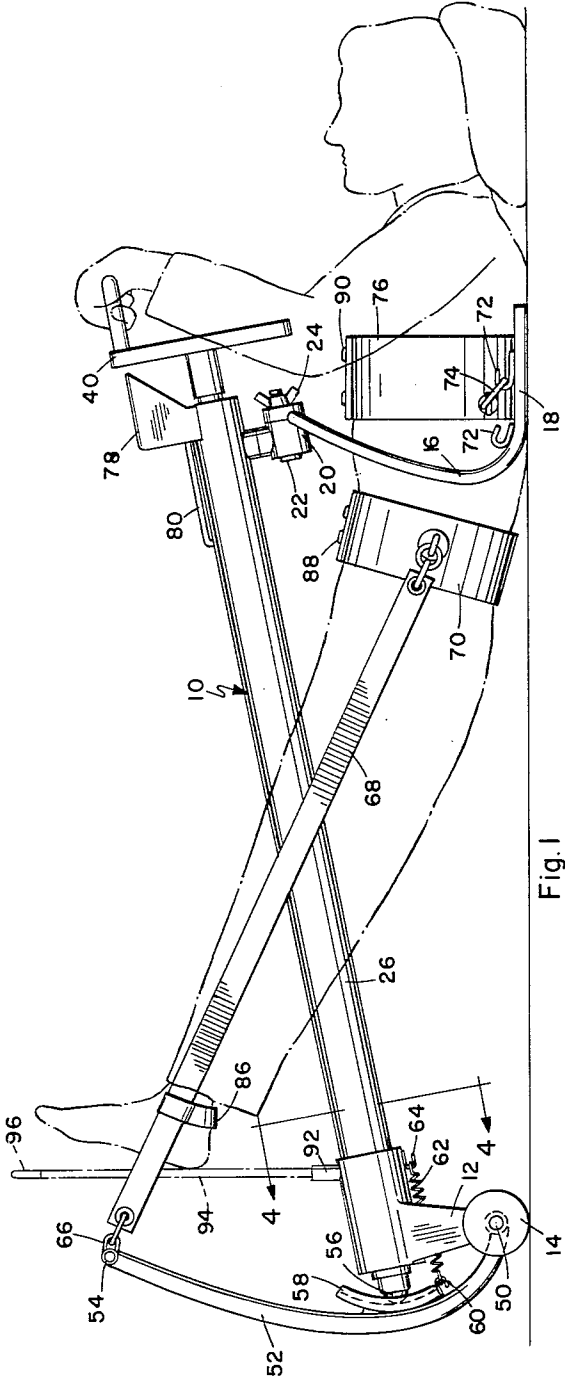


Fig. 1

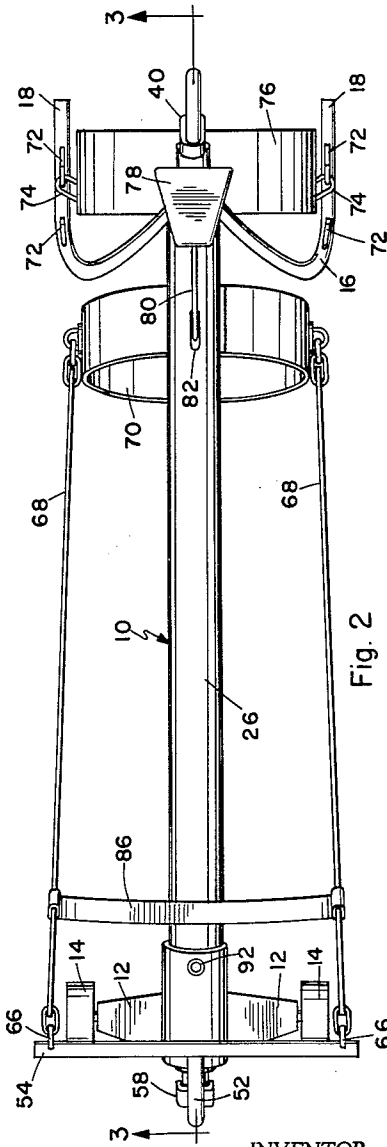


Fig. 2

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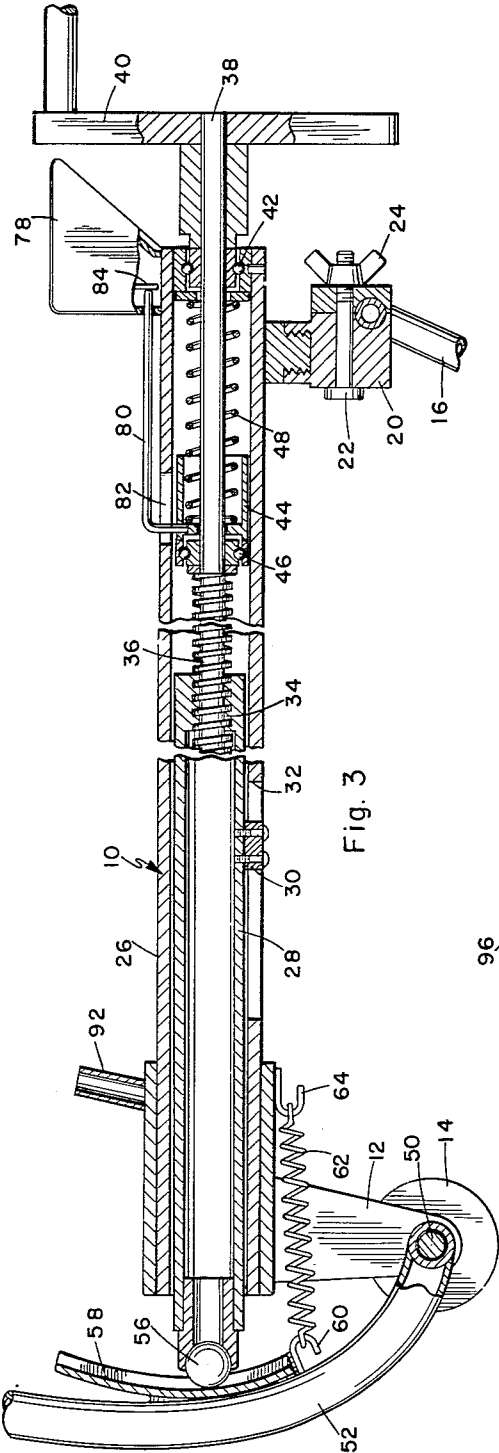


Fig. 3

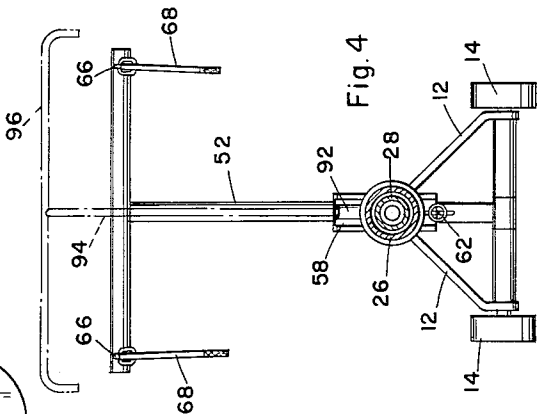


Fig. 4

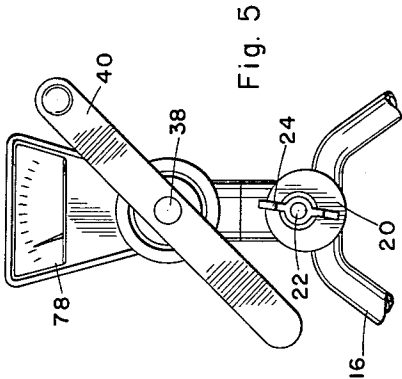


Fig. 5

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1

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PORTABLE BED TYPE TRACTION APPLICATOR

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7 Claims. (Cl. 128—75)

The present invention relates generally to medical apparatus and more particularly to a portable, bed type traction applicator.

The primary object of this invention is to provide a traction applicator which can be attached to a patient while in bed and can be operated by the patient to apply traction as needed, the unit being compact and light in weight with simple harness means for securement to the patient.

Another object of this invention is to provide a traction applicator especially suitable for treatment of a syndetic condition of the lumbar region of the spine, the traction being applied in such a manner as to stretch and separate the spinal discs in the lumbar region in the most effective manner.

Another object of this invention is to provide a traction applicator having a steady pull, which is closely controllable at all times by the patient.

A further object of this invention is to provide a traction applicator having means for supporting the patient's legs in the proper position for effective traction.

Finally, it is an object to provide a traction applicator of the aforementioned character which is simple and convenient to manufacture and use and which will give generally efficient and durable service.

With these and other objects definitely in view, this invention consists in the novel construction, combination and arrangement of elements and portions, as will be hereinafter fully described in the specification, particularly pointed out in the claims, and illustrated in the drawings which form a material part of this disclosure, and in which:

FIGURE 1 is a side elevation view of the traction applicator in use;

FIGURE 2 is a top plan view thereof;

FIGURE 3 is an enlarged sectional view taken on line 3—3 of FIGURE 2;

FIGURE 4 is a sectional view taken on line 4—4 of FIGURE 1; and

FIGURE 5 is a fragmentary end elevation view as taken from the right end of FIGURE 3.

Similar characters of reference indicate similar or identical elements and portions throughout the specification and throughout the views of the drawing.

Structure

The unit comprises a telescopic jack unit 10 supported at one end on legs 12 fitted with small wheels 14, the other end resting on a yoke 16 which straddles the patient's body. The yoke 16 has horizontal lower support bars 18 which rest on the bed or other surface, the upper end of the yoke being held in a split clamp block 20 fixed to the underside of the jack unit 10 and secured by a bolt 22 and wing nut 24.

Jack unit 10 comprises an outer cylindrical barrel 26 in which is an axially slidable sleeve 28 extending from the end of said barrel adjacent the wheels 14, as in FIGURE 3. Sleeve 28 carries a key block 30 riding in an

2

elongated slot 32 in barrel 26, to prevent rotation of the sleeve. At the inner end of sleeve 28 is a threaded nut portion 34 through which passes a threaded jack screw 36, said jack screw having a plain shaft 38 extending from the end of barrel 26 adjacent yoke 16, and being fitted with a crank handle 40. Shaft 38 is journaled in a ball bearing 42 in the end of barrel 26 and fitted over said shaft within the barrel is an axially slidable collar 44 in which is a further bearing 46 attached to the shaft. Between the bearing 42 and collar 44 is a compression spring 48 holding said collar firmly against the end of the threaded jack screw 36, which is then free to rotate independently of the collar.

Between wheels 14 is an axle 50 on which is pivotally mounted an upwardly extending traction arm 52, having a cross bar 54 fixed to the upper end thereof well above barrel 26. The extended end of sleeve 28 carries a thrust ball 56 which bears against a channelled thrust plate 58 fixed to traction arm 52, so that axial motion of said sleeve causes swing of the traction arm. Fixed to traction arm 52 adjacent the thrust plate 58 is a hook 60, from which a tension type retaining spring 62 extends to a hook 64 secured to barrel 26, thus holding said thrust plate firmly against thrust ball 56. At opposite ends of cross bar 54 are attachment rings 66 to which are secured traction straps 68, the straps being coupled to a traction belt 70. On the support bars 18 of yoke 16 are hooks 72 which engage retaining rings 74 on a chest belt 76.

If it is desired to know the actual pull being applied an indicator 78 is mounted on the top of barrel 26 adjacent the handle 40, various types of indicators reading in pounds being suitable. A push rod 80 is fixed into collar 44 and extended through a slot 82 in barrel 26 to engage the pressure element 84 of indicator 78. Thus displacement of collar 44 against spring 48 provides the indicator actuating pressure.

Connected between the traction straps 68 adjacent cross bar 54 is a leg supporting strap 86.

Operation

The apparatus can be used with the patient on a bed or any other supporting surface. The jack unit 10 is placed with yoke 16 straddling the patient's chest, as in FIGURE 1, with barrel 26 extending between the legs and supported on wheels 14. Traction belt 70 is fastened around the body just below the lumbar region and secured by any suitable buckle 88. Chest belt 76 is fastened firmly around the chest and secured by a buckle 90, the retaining rings 74 being engaged on hooks 72. The legs are raised and placed on supporting strap 86 which is preferably located under the ankles. Unless the patient is incapacitated he can perform the entire program unaided, which is a great convenience.

In this position the handle 40 is above the patient's chest and easily reached for turning. Rotation of handle 40 in the appropriate direction extends sleeve 28 and pushes traction arm 52 away from the patient, so tightening traction straps 68 and applying traction to the body. The traction is readily controllable by the patient at all times and can be adjusted as desired or released quickly if necessary.

Since the traction arm 52 applies the pull well above the patient and the legs are in raised position, it will be evident that the traction is in an upwardly direction as

well as stretching the spine. This causes the spinal discs to be separated or opened up more at the rear than the front and is an effective treatment for a syndetic condition, wherein the joints tend to be bound together. Traction is continuous and any variations are applied gradually, as opposed to the intermittent applications with some devices which have been known to be harmful. By use of the indicator 78, which is inclined for optimum visibility by the patient, the proper traction force can be repeated during successive treatments.

When the apparatus is used on a bed it may be desirable to keep the patient somewhat covered. For this purpose a socket 92 is provided on top of barrel 26, adjacent the wheeled end, to hold an upright post 94 on top of which is a horizontal support arm 96, constituting a T-shaped support to hold the sheet or other bed clothes clear of the patient's feet, the attachment being indicated in broken line in FIGURES 1 and 4.

The apparatus is compact, portable, with wheels for convenient transportation, and can be used virtually anywhere, so that the patient need not be taken to a special therapy installation. The entire treatment, including setting up the apparatus, which is very simple, and the actual traction application, can be carried out by the patient if necessary.

It is understood that minor variation from the form of the invention disclosed herein may be made without departure from the spirit and scope of the invention, and that the specification and drawing are to be considered as merely illustrative rather than limiting.

I claim:

1. A portable traction applicator, comprising:

a screw jack unit having a longitudinally extensible member;

support means at one end of said jack unit to straddle a supine patient and rest on a supporting surface to hold the unit substantially longitudinally above the upper body of the patient;

supporting surface engaging means on the other end of said jack unit;

a traction arm connected to said extensible member at the other end of said jack unit;

means at said one end to couple said jack unit to the upper portion of a patient's body;

and traction means for connection between said traction arm and the lower portion of a patient's body.

2. A portable traction applicator, comprising:

a screw jack having a longitudinal extensible member;

support means at one end of said jack unit to straddle a supine patient and rest on a supporting surface to hold the unit substantially longitudinally above the upper body of the patient;

supporting surface engaging means on the other end of said jack unit;

a traction arm connected to said extensible member at the other end of said jack unit;

means at said one end to couple said jack unit to the upper portion of a patient's body;

traction means for connection between said traction arm and the lower portion of a patient's body;

said traction arm extending upwardly above said jack unit, whereby the traction is applied longitudinally and upwardly.

3. A portable traction applicator, comprising:

a screw jack unit having a longitudinally extensible member;

support means at one end of said jack unit to straddle a supine patient and rest on a supporting surface to hold the unit substantially longitudinally above the upper body of the patient;

supporting surface engaging means on the other end of said jack unit;

a traction arm connected to said extensible member at the other end of said jack unit;

a belt attached to said support means for securement to the upper body of a patient;

a traction belt for securement to the lower body of a patient;

said traction arm extending upwardly above said jack unit;

and means connecting said traction belt to the upper end of said traction arm, whereby traction is applied longitudinally and upwardly.

4. A portable traction applicator, comprising:

a screw jack unit having a longitudinally extensible member;

support means at one end of said jack unit to straddle a supine patient and rest on a supporting surface to hold the unit substantially longitudinally above the upper body of the patient;

supporting surface engaging means on the other end of said jack unit;

a screw jack operating handle on said one end accessible to a patient;

a traction arm connected to said extensible member at the other end of said jack unit;

a belt attached to said support means for securement to the upper body of a patient;

a traction belt for securement to the lower body of a patient;

said traction arm extending upwardly above said jack unit;

and means connecting said traction belt to the upper end of said traction arm, whereby traction is applied longitudinally and upwardly.

5. A portable traction applicator, comprising:

a screw jack unit having a longitudinally extensible member;

support means at one end of said jack unit to straddle a supine patient and rest on a supporting surface to hold the unit substantially longitudinally above the upper body of the patient;

supporting surface engaging means on the other end of said jack unit;

a screw jack operating handle on said one end accessible to a patient;

a traction arm connected to said extensible member at the other end of said jack unit;

a belt attached to said support means for securement to the upper body of a patient;

a traction belt for securement to the lower body of a patient;

said traction arm extending upwardly above said jack unit;

strap elements connecting said traction belt to the upper end of said traction arm, whereby traction is applied longitudinally and upwardly;

and leg supporting means secured between said straps to hold a patient's legs in raised position.

6. A portable traction applicator, comprising:

a screw jack unit having a longitudinally extensible member;

support means at one end of said jack unit to straddle a supine patient and rest on a supporting surface to hold the unit substantially longitudinally above the upper body of the patient;

a screw jack operating handle on said one end accessible to a patient;

wheels mounted below the other end of said jack unit; a traction arm pivotally mounted below said jack unit adjacent said wheels;

said traction arm extending upwardly above said jack unit and being engaged by said extensible member;

a belt attached to said support means for securement to the upper body of a patient;

a traction belt for securement to the lower body of a patient;

and means connecting said traction belt to the upper end of said traction arm, whereby traction is applied longitudinally and upwardly.

7. A traction applicator according to claim 6, wherein said jack unit comprises a cylindrical barrel;

said extensible member being an axially slidable sleeve
in said barrel;
an adjusting screw coupled between said sleeve and
said handle;
a collar mounted on said screw and being retained 5
against axial movement;
a spring between said collar and a fixed portion of said
barrel adjacent said handle;
a traction pressure indicator mounted on said barrel
to be visible to a patient; 10
said indicator being connected to said collar.

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