

[54] **THERAPEUTIC TRACTION APPARATUS**

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[22] Filed: **March 25, 1971**

[21] Appl. No.: **127,960**

[52] U.S. Cl. **128/75, 128/DIG. 20**

[51] Int. Cl. **A61h 1/02**

[58] Field of Search **128/75, 84, DIG. 20**

[56] **References Cited**

UNITED STATES PATENTS

3,343,532	9/1967	Zumaglini	128/75
1,589,670	6/1926	Vartia	128/75
3,075,522	1/1963	Collen et al.	128/DIG. 20

FOREIGN PATENTS OR APPLICATIONS

1,119,904	7/1968	Great Britain	128/75
1,371,332	12/1964	France	128/75

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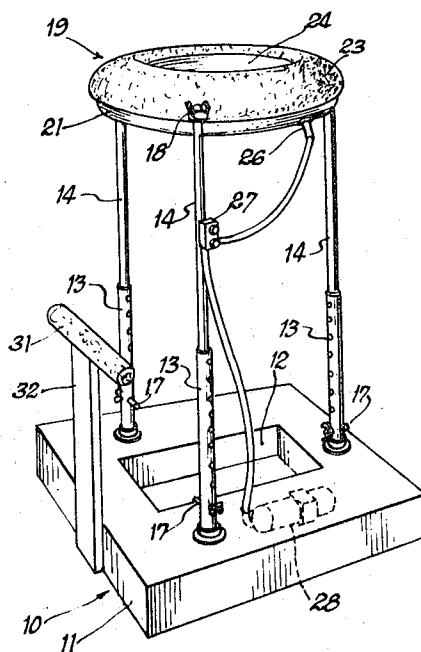
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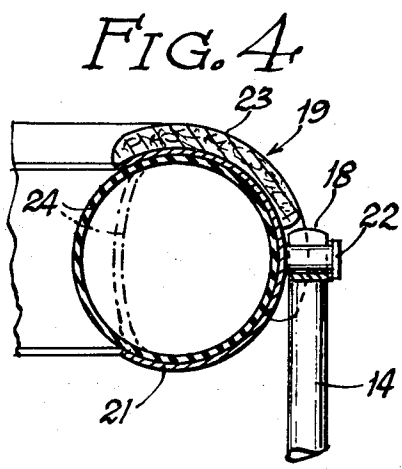
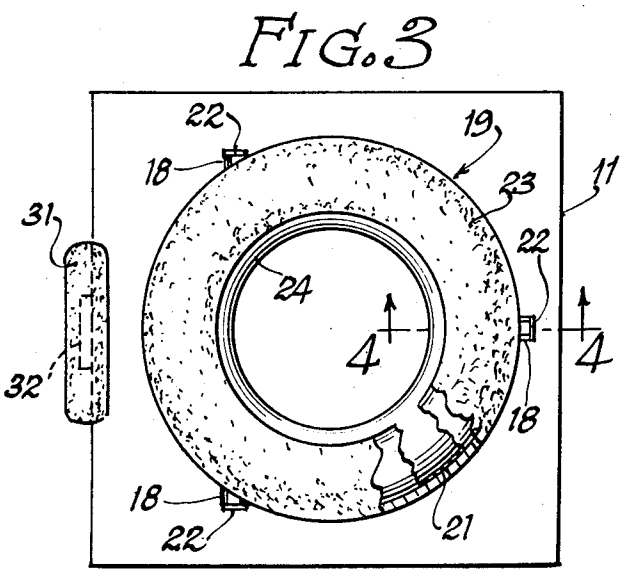
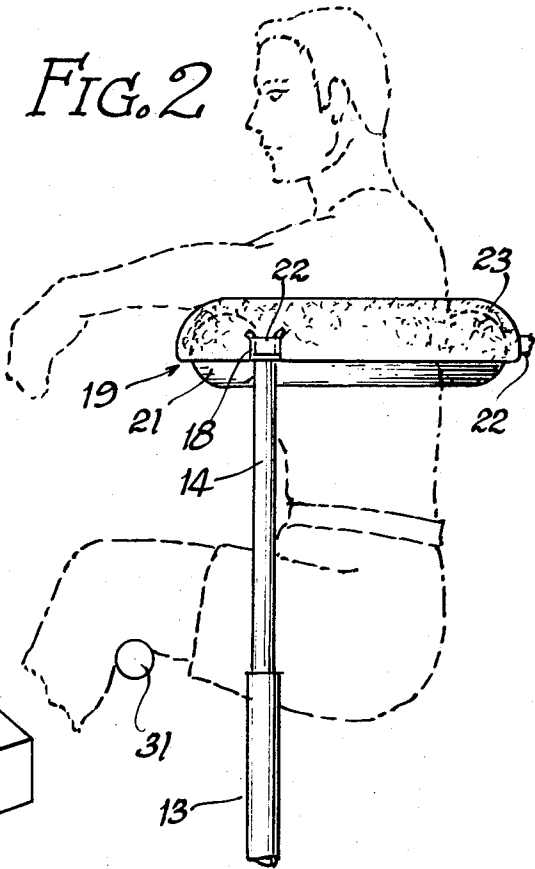
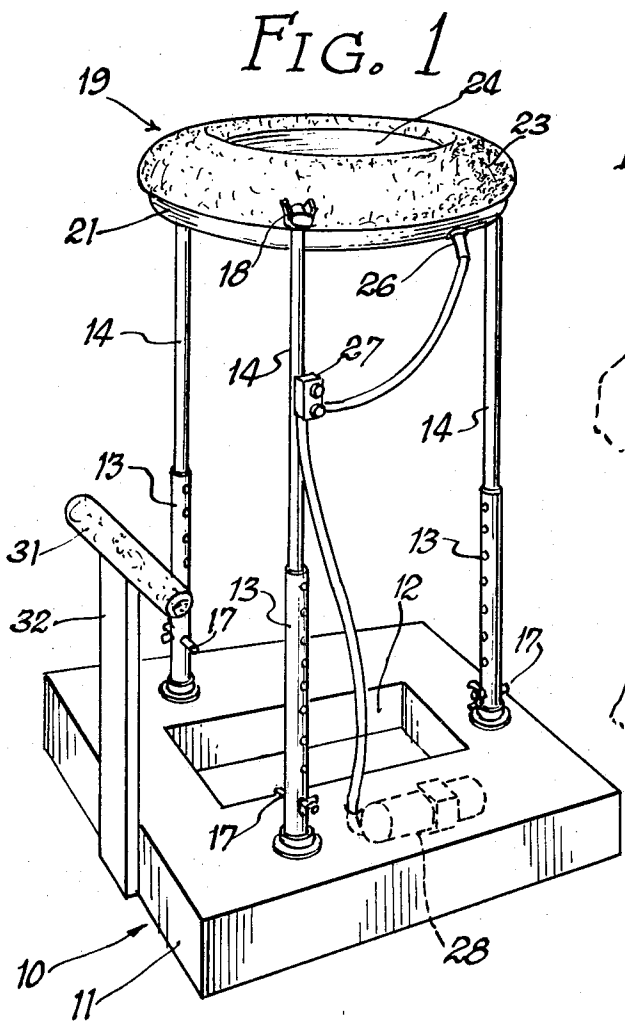
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[57] **ABSTRACT**

A therapeutic apparatus for applying suspension traction to a person to alleviate certain types of backaches. The apparatus includes an annular support member supporting an inflatable rubber-like tube. When the tube is in deflated condition the body of the person may be passed through the opening of the annular member. After the tube encompasses the body of the person below the armpits, the tube is inflated to engage the body in snug circumferential relation and, in such condition, the tube cooperates to support the person so that the lower portion of his body is suspended. An air compressor and controls within easy reach of the person are provided for effecting inflation or deflation of the tube.

9 Claims, 8 Drawing Figures





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FIG. 5

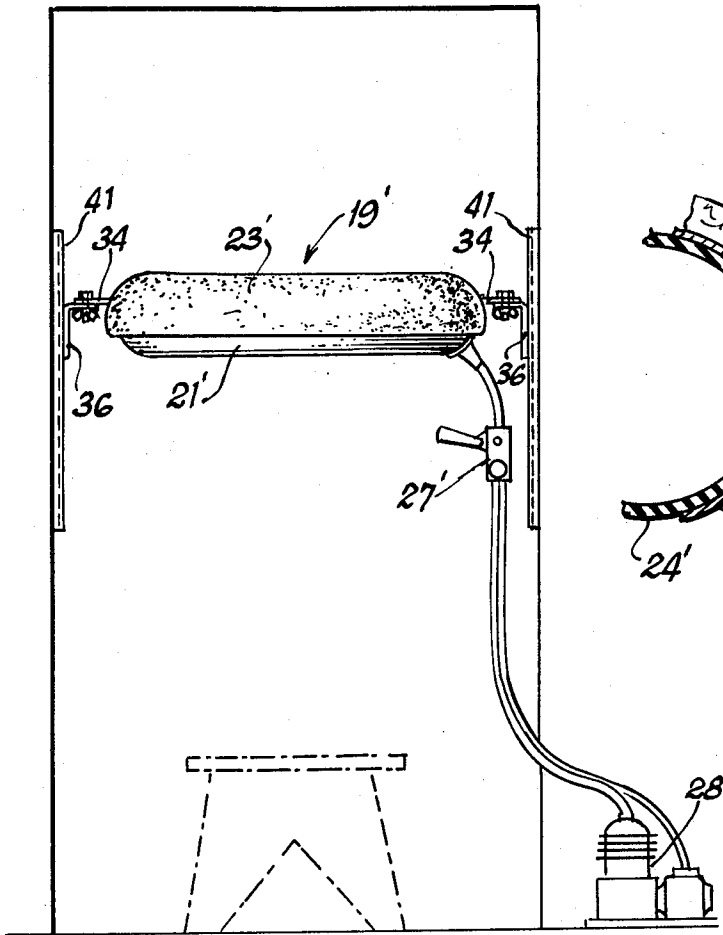


FIG. 7

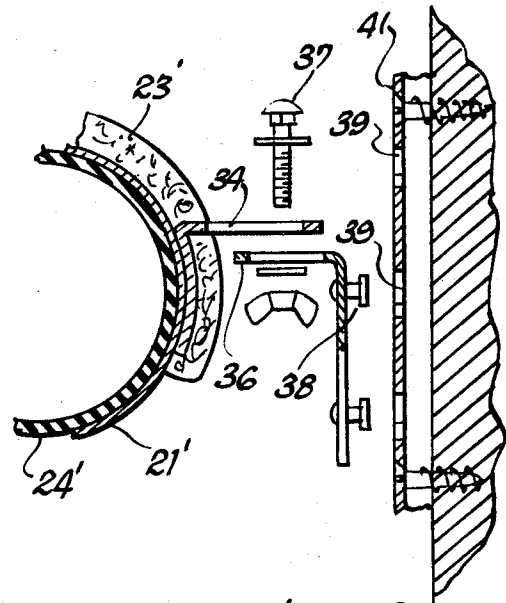


FIG. 8

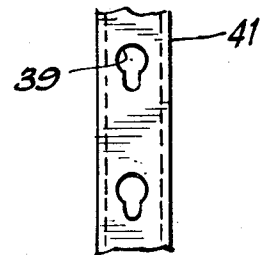
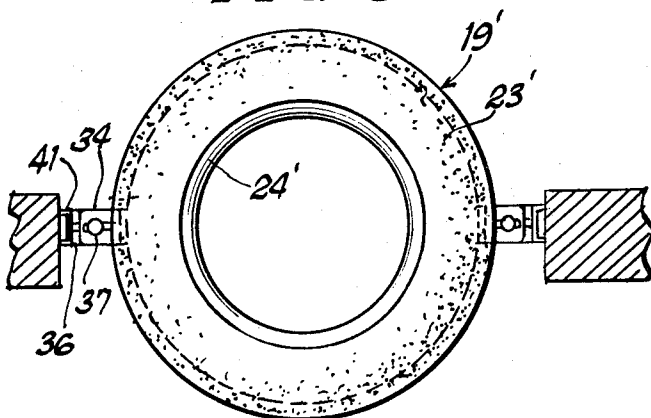


FIG. 6



THERAPEUTIC TRACTION APPARATUS

BACKGROUND OF THE INVENTION

This invention relates to a therapeutic traction apparatus for use in applying spinal traction to a person's body to alleviate certain types of backaches, although it is also applicable to various other therapeutic purposes.

Apparatus heretofore employed for applying spinal traction to a patient's body involved the use of body encircling jackets or belts secured by straps around the person's body and suspended as by ropes or cables from an overhead support. A more recent development is exemplified in a traction apparatus illustrated in U.S. Pat. No. 3,353,532. This apparatus requires rather complex manual fit-and-try adjustments in order to accommodate the apparatus to each user.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an improved apparatus for applying spinal traction to a person's body, the apparatus being self-adjustable within a predetermined range to different body sizes.

Another object of this invention is a provision of an apparatus which in use affords a high degree of comfort to the user.

Still another object of this invention is the provision of an apparatus which requires no strapping of the body into a belt or body encircling jacket and which requires no preliminary manual adjustments prior to use, other than adjustments for the user's height.

These and other objects and advantages of the present invention are achieved by an apparatus employing a body encircling elastomeric inflatable tube arranged to be inflated to closely hug the upper body portion of a person, below the armpits. The rate and degree of inflation of the tube and deflation thereof are at the finger tip control of the user for maximum comfort and convenience to the user.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front perspective view of a traction apparatus illustrating one embodiment of my invention.

FIG. 2 is a fragmentary side elevation of view thereof illustrating one manner of use of the apparatus.

FIG. 3 is a top plan view of the apparatus illustrated in FIG. 1.

FIG. 4 is a fragmentary cross-sectional view, on an enlarged scale, taken substantially on line 4—4 of FIG. 3.

FIG. 5 is a front elevational view of a modified embodiment.

FIG. 6 is a top plan view of a structural detail.

FIG. 7 is a fragmentary vertical-sectional view, on an enlarged scale, showing the parts in exploded relation; and

FIG. 8 is a fragmentary elevational view of a structural detail.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1 through 4, the illustrated embodiment comprises a supporting frame, indicated generally by the numeral 10, said frame including a platform base 11 having a central well 12. Three spaced metal tubular columns 13 are suitably secured

in upstanding relation to the base 11. A tubular section 14 is telescopically received in each of the columns 13. Both the columns 13 and tubular sections 14 are provided with transverse openings 16 which may be moved into selective registration so that a pin or bolt 17 may be passed therethrough to effectively secure the sections 14 in adjusted vertical positions. The upper end of each of the sections 14 terminates in a fitting 18 providing an open socket to receive the body engaging sub-assembly indicated generally by 19 and hereinafter to be described. The sub-assembly 19 comprises a generally annular sheet metal member 21, arcuate in cross-section, and open inwardly of the circle, as illustrated in FIG. 4. A plurality of headed pins 22, one for each of the fittings 18, is welded to the member 21 and extends outwardly thereof. As seen in FIG. 3 two of the pins 22 are coaxially disposed for a purpose, as will be hereinafter explained. As will be apparent by reference to FIG. 1, the member 21 is supported in horizontal position on the sections 14. A cushioning pad 23 formed of any suitable foamed plastic or rubber overlies the top and outer side surface of the member 21, in the manner illustrated in FIG. 4.

Received within the member 21 is an inflatable tube 24 of rubber or suitable elastomeric material, the tube 24 being confined within the member 21, except in the area facing the inner circle. Thus, as will be hereinafter explained, when the tube 24 is inflated, it will expand from the deflated condition, illustrated by the broken lines in FIG. 4, to the inflated condition, illustrated by the solid lines in said figure. The member 21 is provided with a suitable aperture through which is passed the valve stem 26 of the tube 24.

A control switch 27 is mounted on one of the sections 14 within convenient reach of the user. Said control switch is in electrical connection with a motor driven air pump 28, the output end of the pump being connected to the valve stem 26. The control switch 27 effects operation of the pump 28 to inflate the tube 24 and to maintain it inflated to a desirable pressure condition, or to deflate the tube, as desired.

A bar rest 31 is supported on a standard 32 attached to the base 11. The bar rest affords means for supporting the body of the user in the manner illustrated in FIG. 2, if the same is desired.

In the use of the aforescribed apparatus, sections 14 are first adjusted vertically in relation to the columns 13 so that the top of the sub-assembly 19 will be substantially in alignment with the armpits of the user when he stands on the platform base 11. The tube 24 is first caused to be deflated so as to afford a maximum opening within the sub-assembly 19 to receive the arms and shoulders of the user as he moves the upper part of his body through the opening. The sub-assembly is loosely supported in the fittings 18 and, of course, may be rocked upwardly about the axis of the two co-axial pins 22 or moved as desired to facilitate positioning of the same on the body of the user. After the body has been thus encircled, the user actuates the control switch 27 to effect operation of the pump 28 and thereby to cause the tube 24 to be inflated to a point where the body is snugly engaged circumferentially, in the manner illustrated in FIG. 2. The user may then step off the surface of the platform base 11, permitting his feet to be received within the well 12 and

out of contact with a floor surface so that his body is supported entirely by engagement with the sub-assembly 19 and depends therefrom. Thus, the lower portion of the spine is free of engagement with any portion of the apparatus so that desired spinal traction is effected.

In another manner of use the user may swing his legs to position his knees over the support bar 31 and assume the position illustrated by the broken lines in FIG. 2. The treatment in either manner of use may be extended as long as desired and traction suspension may be terminated by the user merely stepping back upon the platform base 11 and then operating the control switch 27 to effect deflation of the tube 24 so that he may withdraw his body from within the sub-assembly 19.

In the modified embodiment illustrated in FIGS. 5 through 8, the body engaging assembly indicated generally by the numeral 19' includes a sheet metal number 21', a cushion padding 23' and an inflatable tube 24', said parts being substantially similar to the corresponding parts in the first described embodiment. The tube 24' is connected through a control switch 27' to an air pump 28' which functions similarly to the corresponding parts hereinabove described.

The member 21' is provided with a pair of generally L-shaped brackets 34 suitably welded thereto. Each of the brackets 34 cooperates with a similarly shaped bracket 36. The brackets 34 and 36 are provided with elongated slots to render them adjustable relative to each other and are adapted to be secured in an adjusted position by a bolt 37 and cooperating nut. The bracket 36 is provided with a pair of headed studs 38 which are adapted to be received in cooperating key slots 39 of wall standards 41 arranged to be mounted vertically on opposite sides of a doorway, as illustrated in FIG. 5, the brackets 34 and 36 being adjustably extensible so as to be accommodated in doorways of different widths.

The modified embodiment hereinabove described permits use of the apparatus in places where storage space is limited and the arrangement is such that the wall standards 41 may be permanently attached to the door frame with the body engaging assembly 19' being readily removable from the doorway when not in use.

As indicated in FIG. 5, the user may avail himself of the use of a stool as a platform on which to stand when adjusting the body engaging member 19' to his person. The wall standards 41, or course, permit height adjustment of the apparatus.

It will be understood that in each of the embodiments each control switch 27 or 27' is provided with a quick release arrangement, conventional in the art, to permit

substantially instantaneous deflation of the tube, in the event the same becomes necessary by the user.

It will also be understood that while the drawings show body engaging assemblies which are annular in plan, my invention contemplates the use of assemblies which may be oval or of any other suitable form. Preferably, the body engaging assemblies may be fabricated in a plurality of sizes, each to cover a limited range of body sizes.

I claim:

1. An apparatus for applying suspension traction to a person while he is in an upright position comprising a rigid annular supporting member vertically extending supporting means attached to said member and extending downwardly and attached to a base member independent of the body of the person, a body engaging inflatable elastomeric tube supported on said annular member, means for selectively effecting inflation and deflation of said tube, said tube when deflated permitting passage of the body of the person through the center opening thereof, said tube when inflated after such passage adapted to engage the body immediately below the armpits in snug circumferential relation and cooperating with said supporting member to support the person so that the lower portion of his body is suspended.

2. The invention as defined in claim 1 in which the supporting means is vertically adjustable.

3. The invention as defined in claim 2 in which the supporting means comprises a plurality of telescoping columns.

4. The invention as defined in claim 2 in which the supporting means includes brackets attached to the annular member and vertical standard cooperating with said brackets.

5. The invention as defined in claim 1 in which the annular supporting member is arcuately formed in cross-section and is open towards the center so that the tube when inflated will expand through said opening.

6. The invention as defined in claim 5 including a cushioning pad superposed over said annular supporting member.

7. The invention as defined in claim 3 including a platform base on which said columns are supported, said base having a well substantially in vertical registration with said annular member.

8. The invention as defined in claim 1 in which the inflating means comprises a motor driven air compressor.

9. The invention as defined in claim 1 including means within easy reach of the person for controlling the inflation and deflation of said tube.

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