Dec. 18, 1962 E. J. TREUTELAAR 3,068,859

THERAPEUTIC TRACTION DEVICE

Filed Dec. 2, 1958 2 Sheets-Sheet 1

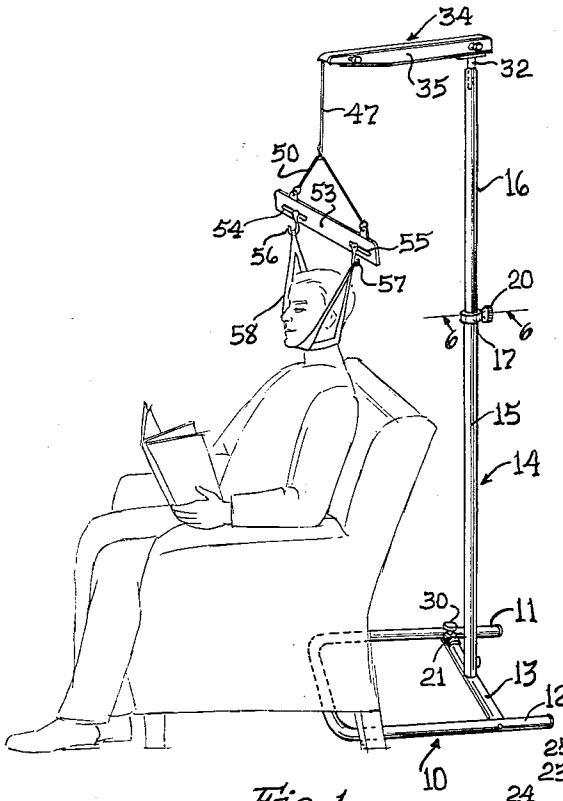


Fig. 1.

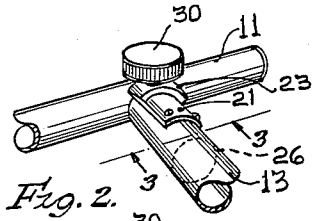


Fig. 2.

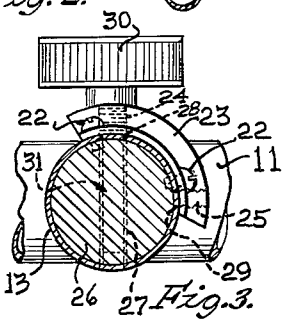


Fig. 3.

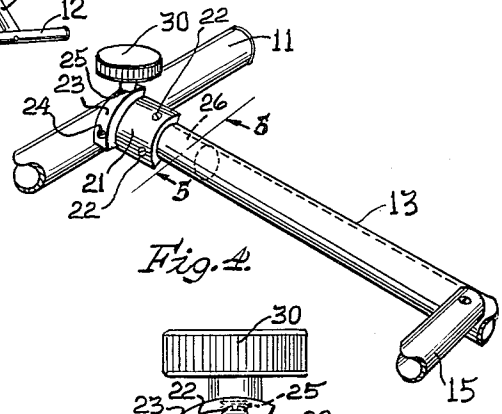


Fig. 4.

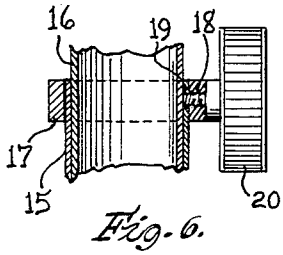


Fig. 6.

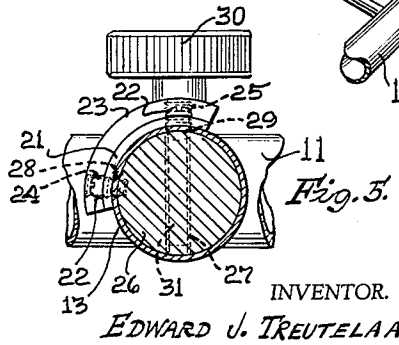


Fig. 5.

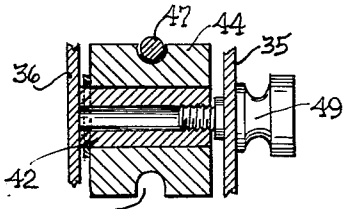


Fig. 12.

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THERAPEUTIC TRACTION DEVICE

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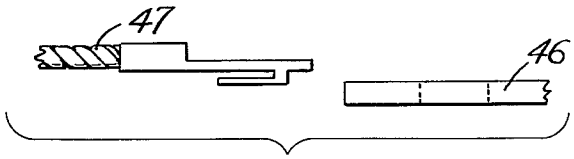


Fig. 13.

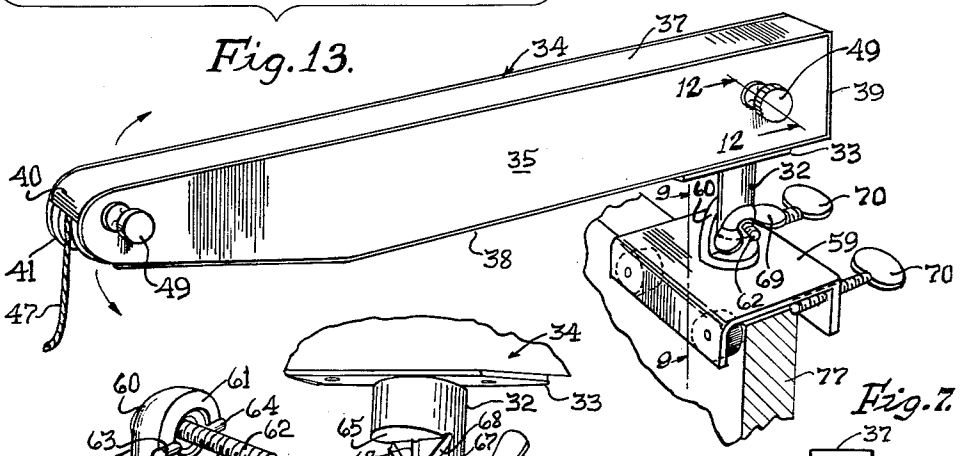


Fig. 7.

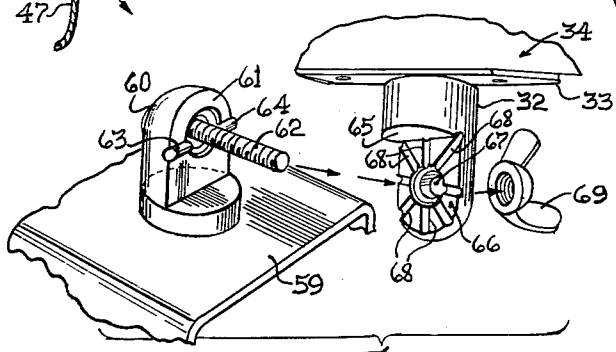


Fig. 8.

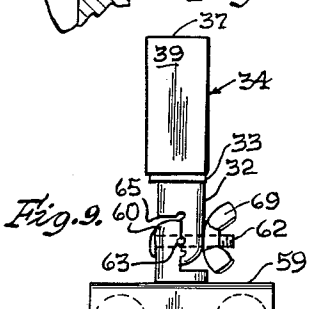


Fig. 9.

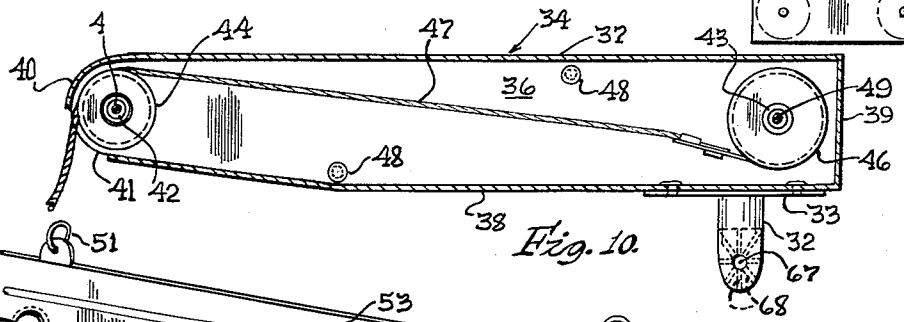


Fig. 10.

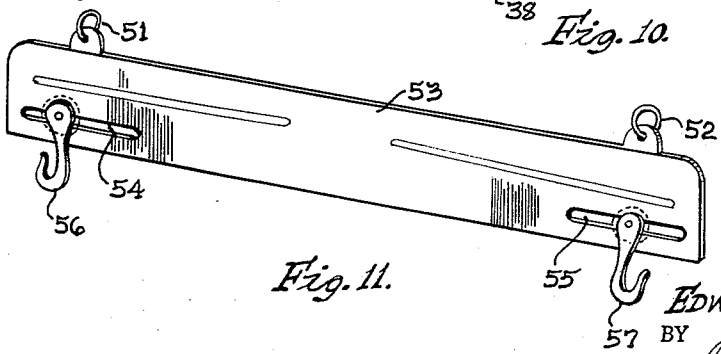


Fig. 11.

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THERAPEUTIC TRACTION DEVICE

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7 Claims. (Cl. 128—75)

My invention relates to new and useful improvements in a therapeutic traction device and more particularly to a device for the convenient and practical application of therapeutic traction to any part of the body, particularly cervical, all spinal, arm, leg and pelvis. Also to be used as an exercising device in patient's post-operative and recuperating periods, to eliminate possibilities of forming of blood clots, to promote circulation, and strengthen muscles.

The object of this invention is to provide a light weight practical traction device having a therapeutic value in the treatment of injuries or deformations to any part of the body particularly cervical, all spinal, arm, leg, and pelvis.

Another object of my invention is in the provision in a device of this character of a simplified means whereby the device may be simply and conveniently collapsed and folded.

Another object of my invention is in the provision in a device of this character of a traction head device which is readily operable by the user for positioning the traction head as may be desired for the utmost benefits resulting from the specific construction embodied therein.

Still a further object of my invention is in the provision in a device of this character of a traction means which will exert an unvarying tension in its application.

Yet another object of my invention is in the provision in a device of this character of a specific construction so that the person undergoing cervical treatment can be seated comfortably in a chair or bed and be engaged by a sling or chin strap associated operatively with a tensioning device which removes the necessity of cumbersome weights and pulleys.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing showing the preferred form of construction and in which:

FIG. 1 is a perspective view of my invention in its cervical form of application;

FIG. 2 is a fragmentary detail view of the connecting member between the base and standard as employed in my invention;

FIG. 3 is a fragmentary detail sectional view taken on line 3—3 of FIG. 2;

FIG. 4 is a fragmentary detail view similar to FIG. 2 but showing the parts in their collapsed position;

FIG. 5 is a fragmentary detail sectional view taken on line 5—5 of FIG. 4;

FIG. 6 is a fragmentary detail sectional view taken on line 6—6 of FIG. 1;

FIG. 7 is a perspective view of the traction head of my device of a modified form of mounting therefor;

FIG. 8 is a fragmentary exploded view of the modified mounting bracket for my invention;

FIG. 9 is a front elevational view taken on line 9—9 of FIG. 7;

FIG. 10 is a side elevational view of the traction head of my device with the cover plate removed;

FIG. 11 is a perspective view of the head sling bracket as employed in my invention;

FIG. 12 is a fragmentary detail sectional view taken on line 12—12 of FIG. 7;

FIG. 13 is a fragmentary perspective view of the detachable connection between the tension cable and the spring tension device as employed in my invention.

My invention is comprised of a base 10 formed of a substantially U-shaped tubular piece having spaced apart legs 11 and 12. Intermediate the ends of the legs 11 and 12 is a cross pivotal member 13. Extending vertically from this cross pivotal member 13 is a hollow tubular standard 14. This standard 14 comprises telescopically arranged tubular sections 15 and 16.

A collar 17 is secured to the upper end of section 15 of the standard 14 as seen in FIGS. 1 and 6. This collar 17 and the section 15 are provided with horizontally aligned apertures 18 and 19. A screw 20 is threaded through the aperture 18 of the collar 17 so as to project through the aperture 19 of the section 15 and into holding contact with the inner telescopic section 16. Thus the above described arrangement of parts affords ready vertical adjustment of the standard 14. The cross pivotal member 13 at one end thereof adjacent the leg 11 is provided with an arcuated cap 21. This cap 21 is secured to the cross pivotal member 13 by means of screws 22. The cap 21 provides a raised arcuate portion 23 containing two threaded holes 24 and 25 substantially at right angles with respect to each other as illustrated. Secured to leg 11, as by welding, is an insert block 26 which is adapted to project into the end of the cross pivotal member 13 beneath the cap 21 as viewed in FIGS. 2, 4 and 5. This insert block 26 is provided with a passage 27. The cross pivotal member 13 is provided with apertures 28 and 29 which are in alignment with the threaded holes or apertures 24 and 25 of the raised portion 23. A turn screw 30 having a threaded taper stud shaft 31 is carried by the raised portion 23 and threadably insertable into apertures 24 or 25 of the raised portion 23 and the like apertures 28 and 29 respectively and into the passage 27 of the insert block 26.

When the base 10 and standard 14 are in their extended position as shown in FIG. 1, the turn screw 30 will be in the position shown in FIGS. 2 and 3. In this position the threaded aperture 24 is in alignment with the aperture 28 in the cross pivotal member 13 and both of these apertures are in vertical alignment with the passage 27.

When the base 10 and standard 14 are folded, one upon the other, the turn screw 30 is removed from the position shown in FIGS. 2 and 3 and the cross pivotal member 13 is rotated in an anticlockwise direction as seen in FIGS. 3 and 5. In this position, the standard 14 will extend in a horizontal parallel relation with respect to the legs 11 and 12 of the base 10. The turn screw 30 will then be threaded through the aperture 25 and inserted into the aperture 29 and into the passage 27 as viewed in FIG. 5.

Adapted to be inserted into the free hollow end of the section 16 of the standard 14, is a circular stud 32 of a support plate 33. This support plate 33 carries the traction head 34 of my invention which when removably mounted on the standard 14, will extend in a like parallel direction with respect to the legs 11 and 12 of the base 10 as seen in FIG. 1.

Advantageously the traction head 34 is an elongated generally rectangular body comprising a removable front panel 35, a back wall 36, a top wall 37 and a bottom wall 38. The head 34 provides an end wall 39 which like the top wall 37 and bottom wall 38 are formed as an integral part of the back wall 36. The top wall 37 has its one end portion 40 curved downward and terminating short of the bottom wall 38 so as to provide a mouth 41. Adjacent each end of the traction head 34 and carried laterally by the back wall 36 is a pair of stud shafts 42 and 43. These stud shafts 42 and 43 are preferably hollow and internally threaded as seen in FIG. 12.

Adapted to be removably mounted on the shaft 42 for free rotation with respect thereto is a guide wheel 44. This guide wheel 44 has a groove 45 formed about its periphery.

Removably and freely mounted on the shaft 43 is the drum of a spring tension device 46. This spring tension device may be of a construction that will perform as desired. Such a spring tension device is shown and described in United States Letters Patent No. 2,609,191, or 2,609,192. The end of this spring tension device 46 provides a convenient means for attaching a rope or cable 47. This spring tension device 46 and the attachment between it and the rope or cable 47 make up no part of my present invention. The rope or cable 47 is then adapted to pass over the guide wheel 44 by being positioned freely in the groove 45 formed therein and will pass out of the traction head 34 through the mouth 41.

Carried by the back wall 36 is a pair of spacer studs 48 extending inwardly of the housing 34. The removable front panel 35 is adapted to rest upon these spacer studs 48 when it is in closed relation with respect thereto.

The removable front panel 35 is provided with a pair of turn screws 49. These turn screws are rotatably carried by the front wall 35 and are adapted to be threaded into the internally threaded stud shafts 42 and 43. As such, these turn screws 49 are both handles and connecting means between the removable front panel 35 and the remaining portion of the traction head 34.

The spring tension device 46 is procurable in a variety of predetermined pull tensions. Therefore in its application to my invention, the spring tension means 46 must be readily replaceable so that the device may be tensioned to provide various degrees of traction. This may be accomplished by removing the front panel 35, and lifting the spring tension device 46 off the shaft 43, and replacing the same with a new device having a greater or lesser pull tension.

The free end of the rope or cable 47 may be removably attached to a halter connectioin 50. This halter connection 50 will be in turn connected to the connecting rings 51 and 52 of the self-adjusting head halter bar assembly 53. This head halter bar assembly 53 comprises an elongated bar providing a plurality of spaced apart slots 54 and 55. Hook elements 56 and 57 are freely connected to the unit 53 through the slots 54 and 55 respectively and are longitudinally adjustable therethrough. The hook elements 56 and 57 will in turn support a head and chin supporting strap 58 as viewed in FIG. 1.

Referring to FIGS. 7, 8 and 9, I show a modified mounting bracket 59 and particularly a preferred form of adjustable mounting for the traction head 34. The mounting bracket 59 is substantially U-shaped. The bight portion of such U-shaped bracket 59 provides a laterally extending bearing 60. This bearing 60 is provided with a flat face 61. A threaded stud 62 extends perpendicularly from the flat face 61 as viewed in FIG. 8. Extending perpendicular and on opposite sides of the stud 62 are finger portions 63 and 64.

The circular stud 32 of the traction head 34 is notched as at 65 so as to provide a flat face 66 which is adapted to be placed in facial confronting relation with the face 61 of the bearing 60 of the mounting bracket 59. An aperture 67 is formed horizontally through the circular stud 32. The face 66 of the circular stud 32 is provided with a series of grooves 68. These grooves 68 are adapted to receive the fingers 63 and 64 formed on the face 61 of the bearing 60 when the faces 61 and 66 are in facial relation. A wing nut 69 is adapted to be threaded on the stud 62 so as to releasably lock the stud 32 in relation to the bearing 60.

By the presence of the plurality of grooves 68 which extend in a spoke-like manner about the aperture 67, the traction head 34 may be mounted to the base 59 in a plurality of selected angular positions.

The bracket 59 by a plurality of flat head screws 70 can be readily connected to the edge portion 77 of a bed or chair or the like.

From the foregoing description, I have described a traction device which is readily collapsible. The therapeutical device is simple in operation and includes a minimum number of operable parts.

My improved therapeutic traction member may be readily adapted to receive a variety of independent spring tension devices each of which will afford unvarying pull tension of predetermined strength to the halter bar 53.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

1. A traction device for use in therapeutic treatments including a self-adjusting head halter bar, a housing for said device, a traction cord contained in said housing and movable relative thereto, a spring tension cord retracting unit within said housing and having one end of said traction cord attached thereto, with the opposite end of said cord exterior of said housing removably attached to said head halter bar, means for removably positioning said unit within said housing, a guide roller rotatably supported within said housing in spaced relation with respect to said unit, means for rotatably supporting said roller within said housing, said guide roller cooperating with said unit for moving said cord under tension relative to said housing, said housing providing a removable side panel, means for removably attaching said panel to said housing, said means cooperating with said roller supporting means and said unit positioning means for supporting and positioning said roller and said unit within said housing.

2. The device as defined in claim 1 including an adjustable collapsible supporting member for said housing.

3. The device as defined by claim 1 and including an adjustable supporting means for said housing and means provided by said housing and cooperating with said supporting means to vary the position of said housing relative to said mounting means.

4. A traction device for use in therapeutic treatments including a suspended type self-adjusting head halter bar, said device having a support providing a base and a telescopically arranged sectional standard, means adjustably connecting said standard to said base for positioning said standard and said device relative to said base and in a position for therapeutic use, a traction head, means removably supporting said head on said standard, said head extending in a horizontally spaced parallel direction with respect to said base when said device is to be used for therapeutic treatments, a traction cord contained in said traction head and movable out one end thereof, a guide roller for said traction cord carried within said traction head, a constant spring tension device removably positioned in said traction head and operatively connected at one end of said traction cord and cooperating with said guide roller for guiding under tension the movement of said cord relative to said traction head, the opposite end of said traction cord being removably attached to the self-adjusting head halter bar suspended thereby under tension from said traction head.

5. A traction device for use in therapeutic treatments including a suspended type self-adjusting head halter bar, said device having a support providing a base and a telescopically arranged sectional standard, a rotatable member supporting said standard and connecting said standard to said base, means cooperating with said base for releasably positioning said standard in a selected position with respect to said base, a traction head, means remov-

ably supporting said head on said standard, said head extending in a horizontally spaced parallel direction with respect to said base when said device is to be used for therapeutic treatments, a traction cord contained in said traction head and movable out one end thereof, a guide roller for said traction cord carried within said traction head, a constant spring tension device removably positioned in said traction head and operatively connected at one end of said traction cord and cooperating with said guide roller for guiding under tension the movement of said cord relative to said traction head, the opposite end of said traction cord being removably attached to the self-adjusting head halter bar suspended thereby under tension from said traction head.

6. A traction device for use in therapeutic treatments including a suspended type self-adjusting head halter bar, said device having a support providing a base and a standard having telescopically arranged sections, means for connecting said standard to said base, means cooperating with said base for releasably positioning said standard and said device in a selected position with respect to said base, a traction head, means removably supporting said traction head on one of said sections of said standard, said head extending in a horizontally spaced parallel direction with respect to said base when said device is to be used for therapeutic treatments, a traction cord contained in said traction head and movable out one end thereof, a guide roller for said traction cord carried within said traction head, a constant spring tension device removably positioned in said traction head and operatively connected at one end of said traction cord and cooperating with said guide roller for guiding under tension the movement of said cord relative to said traction head, the opposite end of said traction cord being removably attached to the self-adjusting head halter bar suspended thereby under tension from said traction head.

7. A traction device for use in therapeutic treatments including a body supporting member, said device having a supporting structure including a base and a telescopically arranged sectional standard, means adjustably connecting said standard to said base and adapted to position said standard and said device in a position for therapeutic use, a traction head, means removably supporting said head on said standard, said head extending in a horizontally spaced parallel direction with respect to said base when said device is to be used for therapeutic treatments, a traction cord contained in said traction head and movable out one end thereof, a guide roller for said traction cord carried within said traction head, a constant spring tension device removably positioned in said traction head and operatively connected to one end of said cord and cooperating with said guide roller for guiding under tension the movement of said cord relative to the body supporting member suspended thereby under tension from said traction head.

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