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PORTABLE TRACTION DEVICE

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FIG. 1.

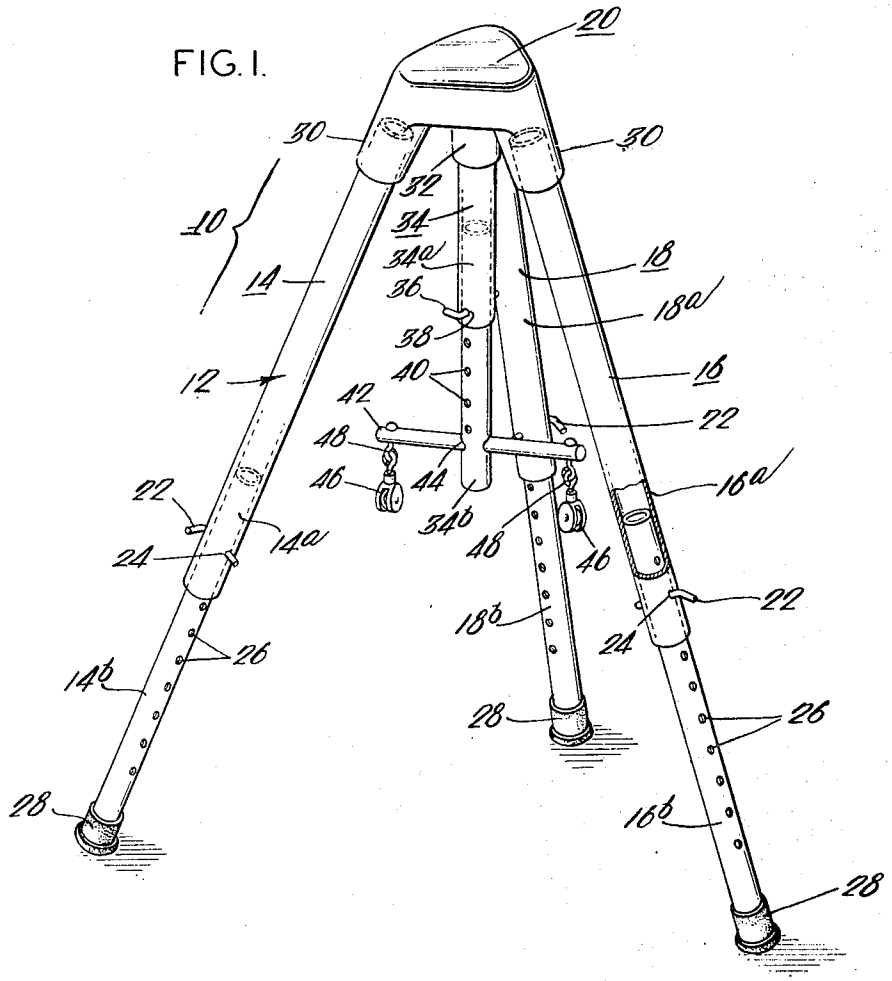
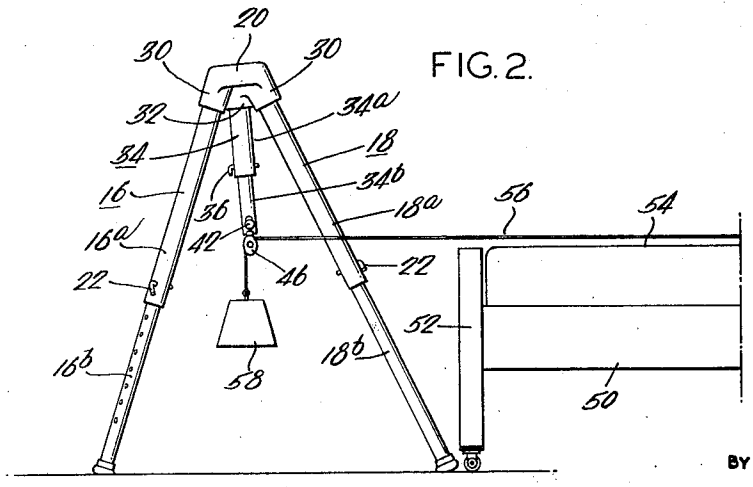


FIG. 2.



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PORTABLE TRACTION DEVICE

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ABSTRACT OF THE DISCLOSURE

A portable traction device comprising a tripod structure having telescoping adjustable legs demountable from an apex member, a downwardly depending member secured to the apex member and having means such as a cross arm for suspending weight pulleys, the downwardly depending member being of sufficient length to provide lateral and vertical stability to the structure when weights are suspended from the pulleys.

The present invention relates generally to traction devices and relates more particularly to a portable traction device that may be set up at the foot of a bed and adjusted to the proper height to support the weighted ends of horizontal traction lines extending over the foot of the bed.

Treatment of certain back ailments and recovery from certain types of operations often involves the application of traction. This treatment is normally provided in a hospital using elaborate and expensive traction equipment. In one type of traction to which the present invention is directed, a special harness or girdle is fitted over the hips of the patient to which weight lines are connected at each side thereof. The weight lines are lead horizontally over the end of the bed to a device adapted for suspending weights at the ends of the lines.

While in most cases a carefully supervised traction program in a hospital is necessary or highly desirable, there are many instances in which such traction treatment may be equally well accomplished at the patient's home with a great saving of time and expense, particularly in the later stages of recovery. In addition, traction may often be employed without direct professional supervision to give relief from pains attributed to slipped discs or simply to relieve tired back muscles.

There has not heretofore been developed, however, to applicant's knowledge, a piece of equipment of a portable, inexpensive design which can be used to effectively carry out such treatment. The present device has been specifically developed for such purpose and has been designed to permit disassembly into a relatively small package.

The present device comprises essentially a tripod frame having telescoping, adjustable legs and having a pulley supporting means attached at the lower end of an adjustable member depending downwardly from the apex of the frame. For use, the device is set up at the foot of a bed and is properly adjusted to position the pulleys at a height slightly above that of the bed mattress. The weight lines are then led through the pulleys and, due to the pulley location well below the tripod apex, the necessary stability is provided to prevent any lateral or vertical movement of the device regardless of the movements of the patient.

In view of the above it is accordingly a first object of the present invention to provide a traction device of a portable type which may be easily collapsed and assembled and which, in its collapsed condition, occupys a relatively small space.

A further object of the invention is to provide a portable traction device as described which, when assembled, may be adjusted to accommodate beds of varying heights.

Still another object of the invention is to provide a portable traction device as described which is characterized by an exceptional lateral and vertical stability.

A still further object of the invention is to provide a portable traction device as described which may be inexpensively manufactured of lightweight materials and which can be easily erected and placed in use without special tools of any kind.

Additional objects and advantages of the present invention will be more readily apparent from the following detailed description of an embodiment thereof when taken together with the accompanying drawings in which:

FIG. 1 is a perspective view showing a portable traction device embodying the present invention; and

FIG. 2 is a side elevational view of the traction device of FIG. 1 as employed at the foot of a bed during treatment of a patient.

Referring to the drawings, FIG. 1 illustrates a portable traction device generally designated **10** embodying the present invention and including a tripod frame **12**. The tripod frame comprises a pair of adjustable front legs **14** and **16** and an adjustable rear leg **18** which are removably received at the upper ends thereof within an apex member **20**. The three legs **14**, **16** and **18** include upper tubular leg members **14***a*, **16***a* and **18***a* within which lower tubular leg members **14***b*, **16***b* and **18***b* are respectively disposed in telescoping relation. Adjustment of the lengths of the legs is accomplished by means of pins **22** in holes **24** near the lower ends of the upper leg members with which spaced holes **26** in the lower leg members are selectively aligned. Rubber tips **28** are preferably provided at the lower ends of the legs to prevent lateral movement of the device. The tips further serve to prevent marring of the floor by the legs, which are preferably made of aluminum tubing or by similar strong lightweight material.

The apex member **20** includes three downwardly depending hollow leg sockets **30** into which the upper ends of the upper leg members **14***a*, **16***a* and **18***a* are slidably inserted. Fastening means are not required to secure the leg ends within the sockets **30**, assuming a relatively tight sliding fit of the legs is provided. The apex member is preferably an aluminum casting or of molded synthetic construction in view of its irregular shape. Depending downwardly from the apex member **20** between the leg sockets **30** is a central socket **32** within which is fixedly secured such as by pinning, threading or other suitable means, the upper end of a vertical support member **34**. In the present instance, the support member **34** comprises a tubular upper member **34***a* and a slightly smaller tubular lower member **34***b* slidably fitted for telescoping movement therewithin. The length of the support member **34** may be adjusted by means of a pin **36** in transverse hole **38** in the upper member **34***a*, the pin **36** also passing through one of the spaced holes **40** in the lower member **34***b*. Attached to the lower end of the vertical support member **34** is a horizontal weight arm **42** which passes through a hole **44** in the lower end of the lower member **34***b*. Weight pulleys **46** are secured to the outer ends of the arm **42** at an equal distance from the vertical support member by means of appropriate swivel fastenings **48**.

For use at the foot of a bed **50** as shown in FIG. 2, the device is assembled by inserting the legs in the sockets **30** of the apex member **20** and adjusting the leg length by means of the pins **22** so that the apex of the tripod frame **12** stands well above the level of the bed. The front legs **14** and **16** should both be placed adjacent the foot end **52** of the bed so that the weight pulleys **46** will be generally aligned with the patient's position on the bed. The vertical support member **34** is then adjusted by means of the pin **36** to position the pulleys at a level slightly

above the surface **54** of the bed mattress as illustrated in FIG. 2. The cross arm **42** is parallel with the plane of the front legs **14** and **16** to provide a maximum stability of the device.

With the tripod frame positioned in the manner described, the traction lines **56**, which are secured to the patient in a conventional manner, are passed over the end of the bed, through the pulleys **46**, and connected to weights **58** suspended therebelow. The weights tension the lines **56** in the usual manner to provide the desired tractive force on the patient.

The tripod frame of the device with the depending support element **34** provides an unusually rigid weight supporting structure. The location of the weight pulleys at a substantial distance below the apex of the tripod frame insures a lateral and vertical stability which prevents movement of the device regardless of the patient's movements. The stability of the device may be further enhanced by shortening the rear leg **18** to provide a greater angle of inclination of the front legs **14** and **16** as shown in FIG. 2.

The cross arm **42** which supports the pulleys **46** should be no longer than the spread of the front legs **14** and **16** at the highest point at which the cross arm may be positioned. Otherwise, the weight lines **56** would be apt to foul the front legs of the frame and the device would be substantially less stable.

The device may be quickly disassembled for traveling or storage by removing the pins **22** and telescoping the lower leg members into the upper leg members, slidably removing the legs from the sockets **30** of the apex member **20**, and telescoping the lower member **34*b*** within the upper member **34*a***. The device in the knocked down condition will easily fit within a suitcase for convenient and inconspicuous travel.

From the foregoing it can be understood that the present device provides a relatively simple, sturdy portable traction device. The device may be utilized with beds of practically any height and may be quickly and easily assembled and adjusted. The device is thus ideally suited for those suffering from chronic back ailments who need the relief of occasional traction as well as those recuperating from specific injuries after hospital treatment.

The device may be economically manufactured in view of the fact that most of the elements can be constructed of commercially available sizes of aluminum tubing which also provides a desirable light weight of the unit. The apex member **20** is the only element which would have to be specially fabricated for the present device.

Manifestly, changes in details of construction can be effected by those skilled in the art without departing from

the spirit and the scope of the invention as defined in and limited solely by the appended claims.

I claim:

1. A portable traction device adapted for self-supporting disposition at the end of a bed to support a pulley weight attached by a line to a traction patient on the bed comprising, a tripod frame comprising an apex member and three legs extending downwardly from said apex member, each of said legs comprising at least two tubular telescoping leg members, means for adjusting the length of each leg, a rigid pulley support means extending downwardly from said tripod frame, said pulley support means comprising a substantially vertical downwardly depending support member rigidly secured to said apex member, and at least one pulley attached to the lower end of said pulley support means, said pulley being located by said support means a sufficient distance below said apex member to provide stability of said device when a weight is supported therebelow with the weight line extending substantially horizontally therefrom to the bedridden patient.

2. A device as claimed in claim **1** wherein said pulley support means includes a horizontal crossarm connected to the lower end of said support member, and a pulley attached to each end of said crossarm.

3. The device as claimed in claim **2** wherein said crossarm has a length less than the horizontal distance between the legs at the elevation of the crossarm.

4. A portable traction device as claimed in claim **1** wherein said apex member includes three downwardly depending sockets adapted to slidably receive said legs.

5. A portable traction device as claimed in claim **1** wherein said support member comprises at least two telescoping tubular members, and means for adjusting the relation of said tubular members to vary the length of said support member and hence the position of said pulleys beneath the apex of said tripod frame.

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248—188.5; 254—143