Dec. 14, 1954 A. SHEPHERD 2,696,963

PORTABLE INTRAVENOUS FLUID CARRIER

Filed June 13, 1951 3 Sheets-Sheet 1

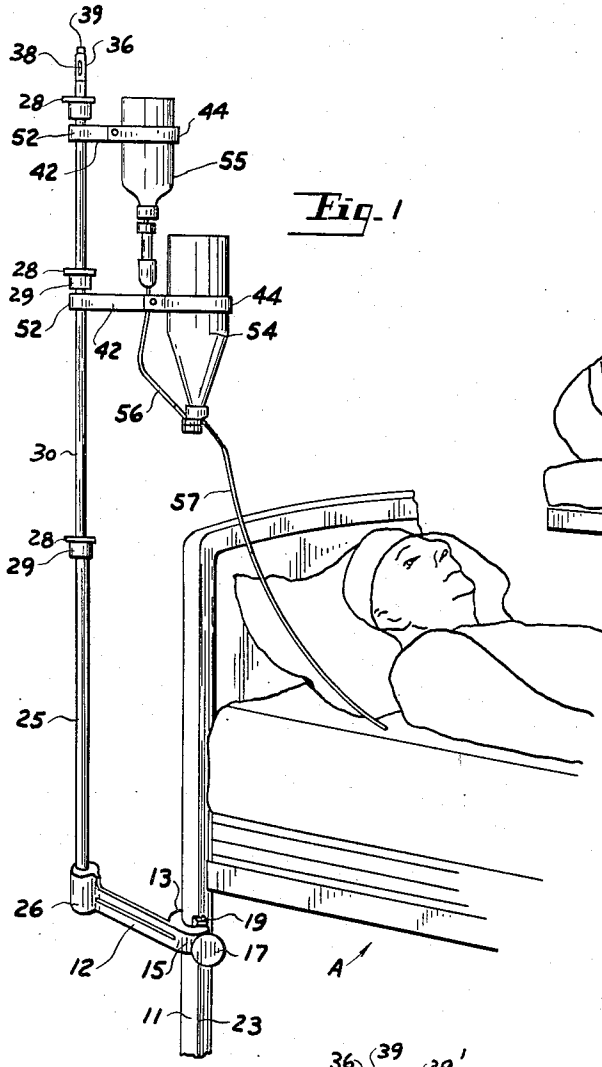

Fig. 1

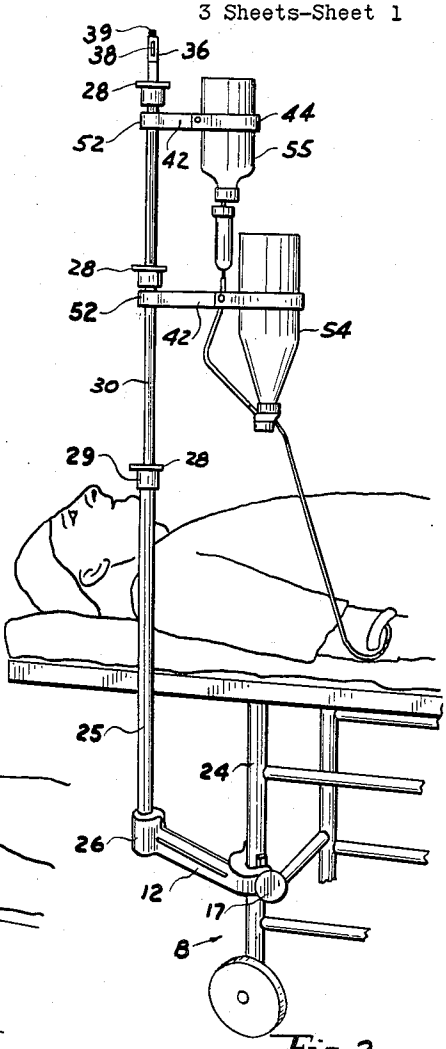

Fig. 2

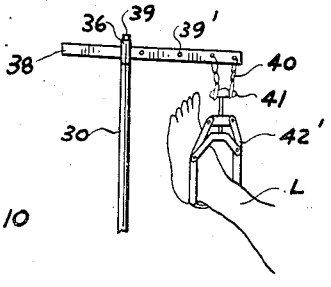

Fig. 10

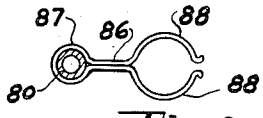

Fig. 12

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PORTABLE INTRAVENOUS FLUID CARRIER

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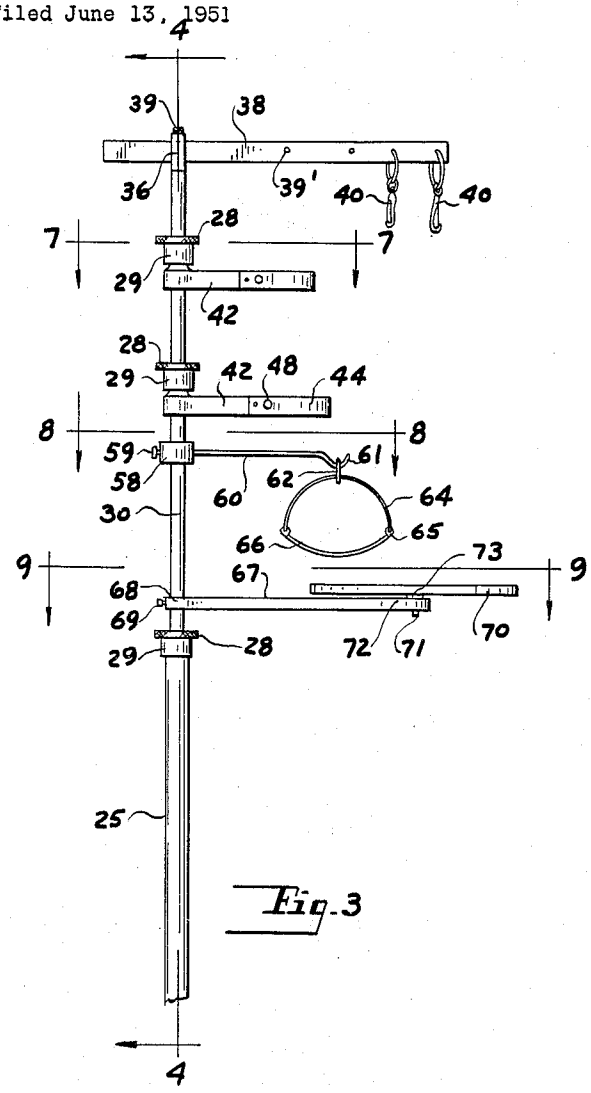

Fig. 3

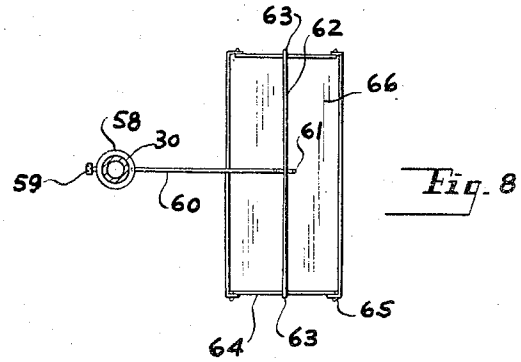

Fig. 8

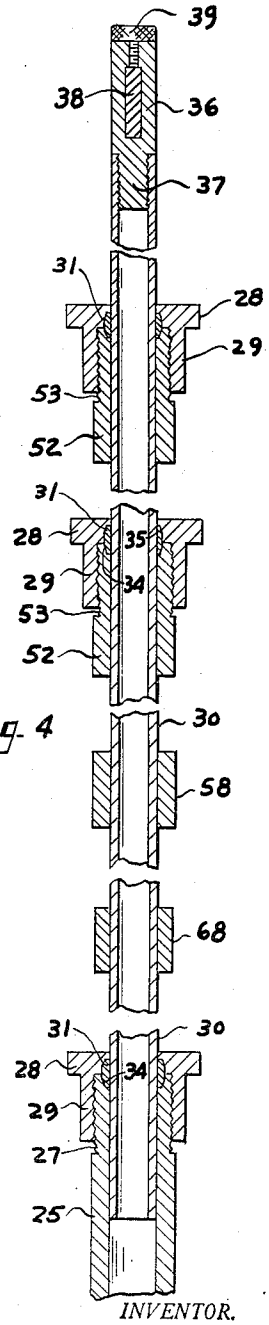

Fig. 4

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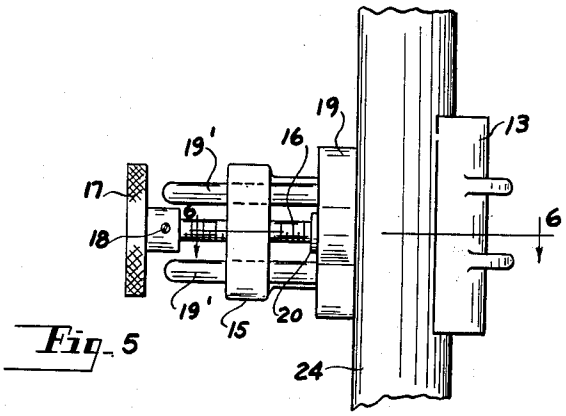

Fig. 5

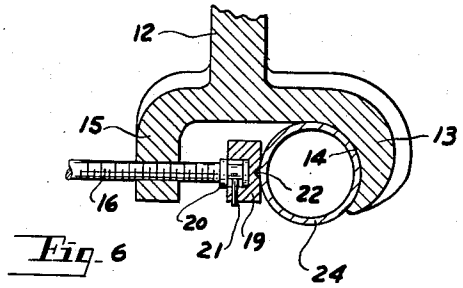

Fig. 6

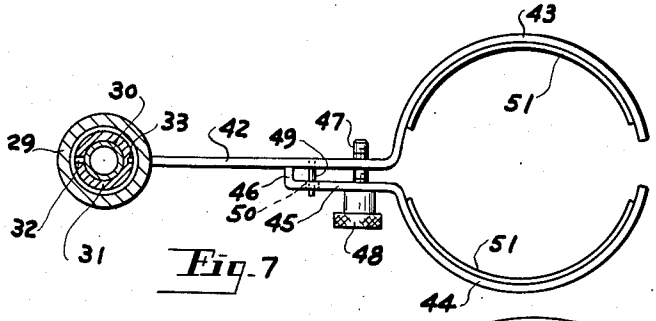

Fig. 7

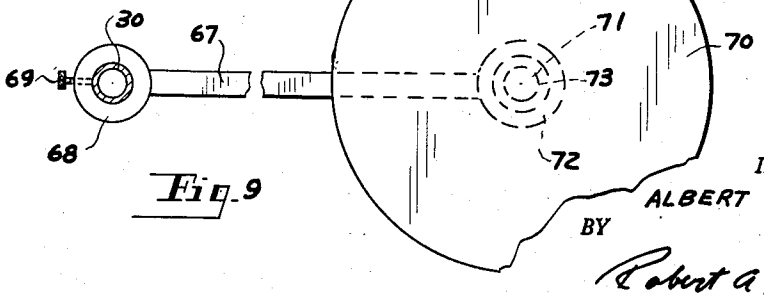

Fig. 9

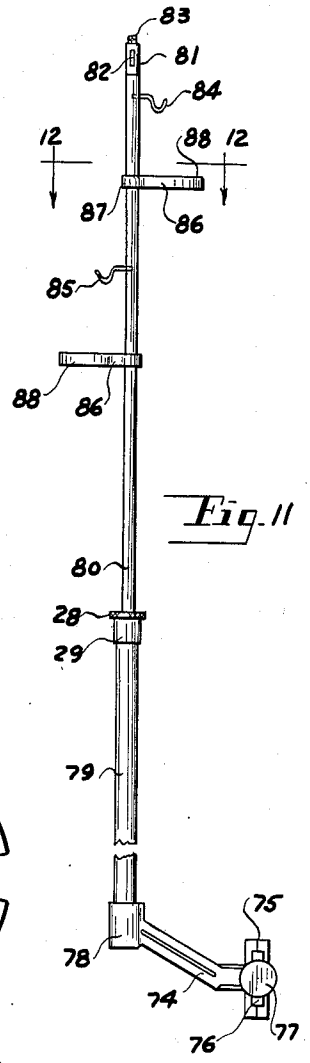

Fig. 11

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United States Patent Office

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2,696,963

PORTABLE INTRAVENOUS FLUID CARRIER

Albert Shepherd, Detroit, Mich., assignor of one-half to Trephine Instruments, Inc., Detroit, Mich., a corporation of Michigan

Application June 13, 1951, Serial No. 231,340

1 Claim. (Cl. 248—229)

This invention relates to a portable transfusion apparatus carrier, and more particularly to a carrier construction, which is removably attachable to a hospital bed or stretcher.

It is the object of the present invention to eliminate the present cumbersome standard heretofor employed for many years and to substitute a simplified support which is directly attachable to the bed or to the wheeled stretcher.

It is the further object of the present invention to provide a simplified construction whereby the transfusion or intravenous apparatus may be simply and easily mounted upon the supporting mechanism and wherein the latter is provided with means permitting vertical adjustment.

It is the further object of this invention to provide a carrier which is not supported upon the floor and, therefore, occupies no floor space.

It is the further object of this invention to provide a standard for the present carrier, which may be fastened to any vertical, round, square, or flat post.

These and other objects will be seen from the following specification and claim in conjunction with the appended drawings.

Fig. 1 is an elevational view of the intravenous fluid carrier as mounted upon the leg post of a bed, the latter being fragmentarily shown.

Fig. 2 is a similar view of such carrier as mounted upon a wheeled stretcher.

Fig. 3 is an elevational view of the carrier on a slightly enlarged scale with the lower end of the standard thereof broken away.

Fig. 4 is a section taken on line 4—4 of Fig. 3.

Fig. 5 is an enlarged fragmentary elevational view of the standard securing clamp.

Fig. 6 is a section taken on line 6—6 of Fig. 5.

Fig. 7 is a section taken on line 7—7 of Fig. 3.

Fig. 8 is a section taken on line 8—8 of Fig. 3.

Fig. 9 is a section taken on line 9—9 of Fig. 3.

Fig. 10 is a fragmentary elevational view of the upper portion of the carrier illustrating the use of a traction bar thereon.

Fig. 11 is an elevational view partly broken away illustrating a slight variation in the construction of the present carrier; and

Fig. 12 is a section taken on line 12—12 of Fig. 11.

It will be understood that the above drawings illustrate merely a preferred embodiment of the invention, and that other embodiments are contemplated within scope of the claims hereafter set out.

Referring to the drawings the present portable intravenous fluid carrier as shown in Fig. 1 is directly mounted upon the bed A, which has an upright leg or bed post **11** of rectangular cross-section. Laterally extending bracket arm **12** has a clamping device upon its outer end, which consists of the arcuate clamping element **13** having an interior arcuate surface **14**, which is adapted to engage one side of the bed post as, for instance, the round post **24** forming a part of the wheeled stretcher such as illustrated in Figures 2 and 6.

Said clamping device also includes a forwardly spaced plate **15**, which has a transverse threaded opening to receive the threaded bolt **16**, which as shown in Fig. 5 has an operating handle **17** secured thereto as by the pin **18**.

Rectangularly shaped clamping block **19** has a central recess upon one side thereof to receive the outer end of bolt **16**, as well as, the spaced collars **20** thereon; there

being a transverse pin **21**, which extends into plate **19** between said collars for securing said plate to said bolt.

The outer face of the clamping block **19** has an elongated central notch **22** of V-shape in cross-section in order to cooperatively engage the corner **23** of bed post **11** as shown in Fig. 1. As shown in Fig. 6, said clamping plate **19** operatively and retainingly engages the opposite side of the post **24** of the stretcher B, such as illustrated in Fig. 2.

Thus the above described clamp is adapted to engage any upright post whether, round, square, oval, or flat.

The present carrier includes a hollow upright standard **25**, which is secured at its lower end within the enlarged boss **26** upon the outer end of the clamp arm **12** as shown in Figures 1 and 2.

The upper end of said standard has a threaded portion **27**, which is adapted to receive the depending interiorly threaded portion **29** of the manually rotative cap **28**.

Vertically adjustable tube or shaft **30** is positioned within standard **25** and projects from the upper end thereof, being loosely received by the cap **28**, which has a central transverse opening therethrough. The friction locking collet **31** is illustrated in Fig. 7 as being split upon one side as at **32** and having an oppositely arranged notch **33**, therein to render the same flexible.

Said collet as shown in Fig. 4 is supported within an annular recess **34** at the upper end of standard **25**, whereas, the upper portion of said collet is received within a similarly shaped recess **35** formed within the cap **28**.

When the cap **28** is loosened upon the threads **27**, collet **31** may expand to its normal shape and permit the shaft **30** to be adjusted vertically within said collet and standard. When cap **28** is tightened, said collet is slightly distorted by said cap so as to frictionally engage shaft **30** locking the same in its located position.

An elongated cylindrical cap **36** is positioned upon the upper end of the hollow shaft **30** and has a threaded depending shank **37**, which extends down into the top of said shaft as shown in Fig. 4. Cap **36** has a transverse slot of rectangular cross-section adapted to adjustably receive one end of traction bar **38**, there being a suitable set screw **39** in said cap and cooperable with said traction bar for securing the same in the desired adjusted position as shown in Figures 3 and 4.

A plurality of transverse openings **39'** are formed within a bar **38** and are adapted to receive the swivel hooks **40**, which as shown in Fig. 10 are adapted to receive the cross bar **41** on the limb support **42'**. It will be noted in Figure 10 that leg L is supported by said traction bar. The present construction permits the use of this carrier for fracture and traction settings for the legs and arms of a patient.

One or more laterally extending container clamping arms **42** are arranged in vertically spaced relation and adjustably mounted and secured by the caps **28** upon the shaft **30**. The outer ends of the clamp arms **42** terminate in the arcuate semi-circular container clamping elements **43**. Oppositely arranged arcuate container clamping element **44** has a base portion **45**, and at the end of said base is provided a leg **46**, which engages clamp element **42**. Clamping element **44** is adjustable with respect to clamping element **43** by means of the threaded bolt **47** which loosely extends through the base **45** of clamp element **44** and threadably engages clamp arm **42**. The head **48** of said bolt operatively engages clamp base **45** for drawing the clamp element **44** towards clamp element **43** for securing the fluid containers **54** and **55** therein in the manner illustrated in Figures 1 and 2.

Retaining pin **49** projects from clamp arm **42** and extends loosely through transverse opening **50** in clamp base **45**. Arcuate linings **51** constructed of sponge rubber or leather are positioned upon the interior surfaces of clamp elements **43** and **44** for engagement with fluid containers **54** and **55**.

The inner ends of clamp arms **42** have bosses **52** with upwardly extended threaded portions **53**, which slidably receive the shaft.

Caps **28** with depending interiorly threaded portions **29**, loosely receive shaft **30** with portions **29** threadably engaging the threaded elements **53** on the bosses **52**.

In the manner above described, there are also provided suitable friction locking collets **31**, which are partly positioned within annular recesses **34** in the upper ends of threaded portions **53** and with the other portions of said collets cooperatively received and engaged by interior portions of the cap **28** whereby the clamping arms **42** may be manually adjusted longitudinally and with respect to the shaft **30** and secured in adjusted position. As shown in Figures 1 and 2, a flexible tube **56** interconnects the lower ends of fluid containers **54** and **55**, and a second tube **57** delivers the intravenous fluid to the patient upon the bed A or upon the stretcher B.

Circular collar **58** is vertically adjustable upon shaft **30** and may be secured thereon by set screw **59**. Laterally extending arm **60** is joined at one end to collar **58** and has a supported hook **61** at its outer end. Arcuate strap **62** is centrally mounted upon hook **61** and its opposite ends are joined as at points **63** to intermediate portions of the inverted U-shaped end supports **64**. Said supports **64** are joined at their ends as at **65** to the arm rest **66**, and by this construction there is provided a universal mounting for said arm rest.

The present arm rest may be used if desired to provide a support for the patient's arm or leg, and may be swung out of the way when not in use. Said support is effective, but at the same time, is not rigidly suspended so that the patient may still have some freedom of movement.

Laterally extending supporting arm **67** has an enlarged boss **68** at its inner end with a transverse circular opening therethrough which receives shaft **30** and thus permits vertical adjustments of said arm upon said shaft. Set screw **69** provides a means for securing said arm in any desired vertically adjusted position.

Table **70** has a central depending stem **71**, which projects down through a transverse opening in the boss **72** upon the outer end of arm **67**, there being a suitable spacer **73** interposed between the under surface of said table and said boss.

By this construction, there is provided a suitable table which may be used if desired, but may be swivelled out of the way when not in use, or may be eliminated entirely if desired.

A slight variation in simplified form is shown in Fig. 11 wherein the clamp arm **74** has a stationary clamping element **75** and a movable clamping element **76** adjustable by means of a threaded bolt and handle **77** in the same manner as above described with respect to Fig. 5. In this connection, it will be noted in Fig. 5 that a pair of guide stems **19'** are arranged in spaced relation upon opposite sides of clamp adjusting bolt **16** and are secured to the clamping block **19** for movement therewith. Intermediate portions of the stem **19'** are slideably positioned thru the clamp element **15**.

Referring again to Fig. 11, boss **78** on clamp arm **74** receives the lower end of hollow upright standard **79**.

Vertically adjustable shaft **80** is partially positioned within standard **79** and extends upwardly therefrom and is secured in adjusted position by the cap **28—29**, which operates in conjunction with a collet **31** in the same manner as above described with respect to Fig. 4 to thereby keep the shaft **80** in position.

There is also a cap **81** at the upper end of shaft **80**, which supports the transverse traction bar **82** and secures the same in position by the set screw **83**.

A pair of laterally extending vertically spaced hooks **84** and **85** are secured to the shaft **80** for suspending fluid containers such as are shown in Fig. 1. Clamping arms **86** as shown in Figs. 11 and 12 are formed with a central enlarged portion or boss **87**, which extends around and frictionally engages the shaft **80**.

Suitable oppositely arranged container securing clamps **88** are arranged upon the outer ends of clamp arms **86** for further supporting containers such as containers

54 and **55**, either in connection with the hooks **84** and **85** or independently of said hooks.

The transfusion apparatus carrier may thus be removably attached to the upright post of a bed or a stretcher on wheels and thus is supported off the floor by this construction; and the carrier cannot be tipped over and thus eliminates the possibility of broken bottles or injury to the patient.

Furthermore, by this construction when used with a stretcher, the hands of the person transporting a patient thereon are free, whereas, heretofore it was necessary for someone to support the carrier manually.

While the above description pertains to an intravenous fluid carrier, it is naturally contemplated that said carrier could be employed for any other type of fluid, such as used for transfusions through bone marrow, gastric lavages, bladder irrigations, colonic irrigations, enemas, etc.

It is contemplated that the present carrier, while shown in the drawings as attachable to a bed post or to the post of a stretcher could be also attached to any upright post or element, or might be attached to any upright portion of a chair. By employing the table construction above described, such carrier could thereby provide a portable operating chair.

Having described my invention reference should now be had to the claim which follows for determining the scope thereof. I claim:

An intravenous fluid carrier comprising an upright elongated tubular standard, a laterally extending bracket arm secured at one end to the lower end of said standard, a clamping device at the outer end of said arm adapted for securing engagement with the post of a bed or stretcher, a telescoping shaft adjustably positioned within said standard and projecting upwardly therefrom, means receiving said shaft and threadedly engaging said standard for securing said shaft in adjusted position, a laterally extending intravenous fluid container clamp secured to said shaft, said clamp having a boss at one end loosely surrounding said shaft and vertically adjustable thereon, said boss having an upwardly extending threaded portion, a manually rotative cap loosely surrounding said shaft and threadably engaging said threaded portion, and a split friction collet supported upon said threaded portion and interposed between said cap and said shaft for securing said clamp in any desired elevated position upon said shaft.

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