

Feb. 18, 1969

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3,427,668

CONTAINER CARRYING FRAME FOR BED

Filed Oct. 3, 1966

Sheet 1 of 3

Fig. 1.

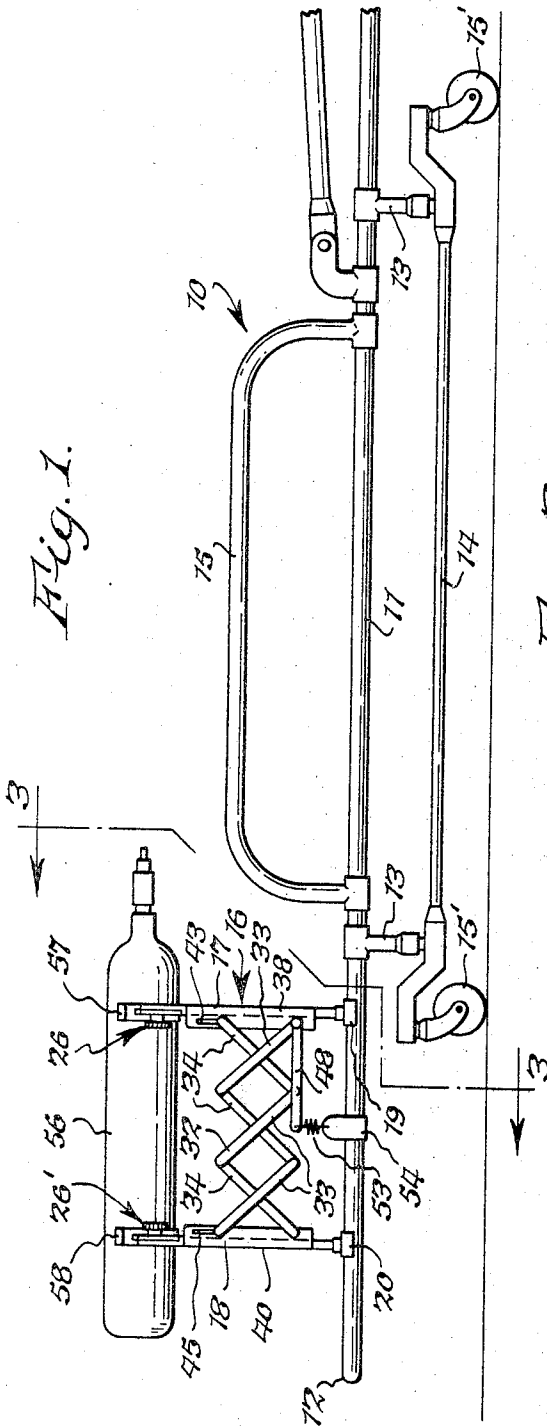
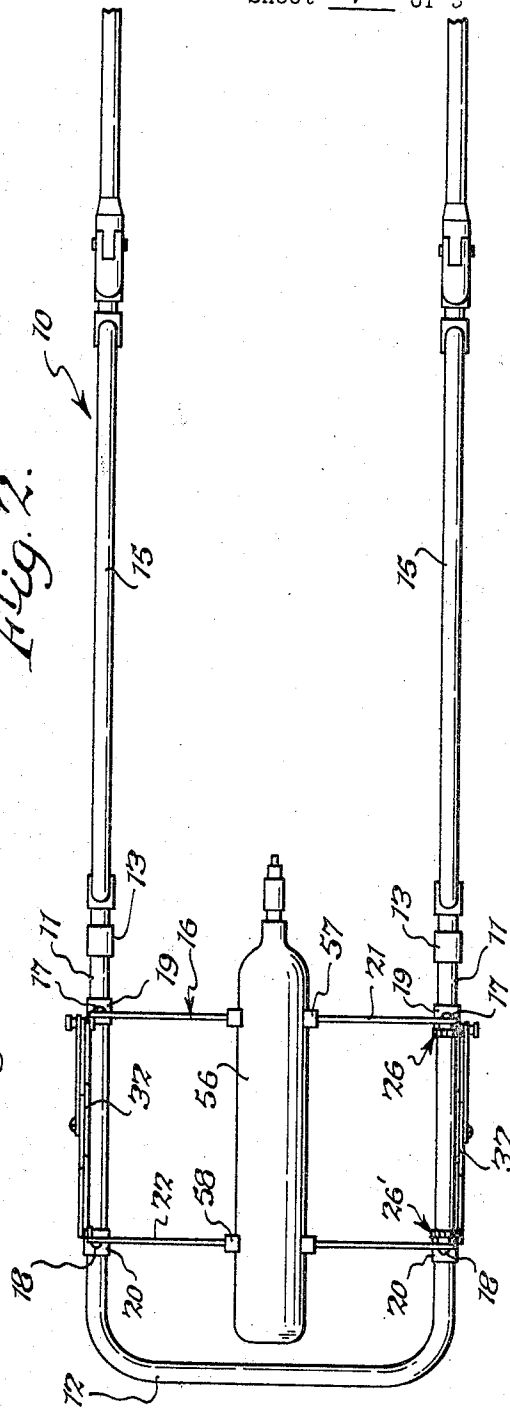


Fig. 2.



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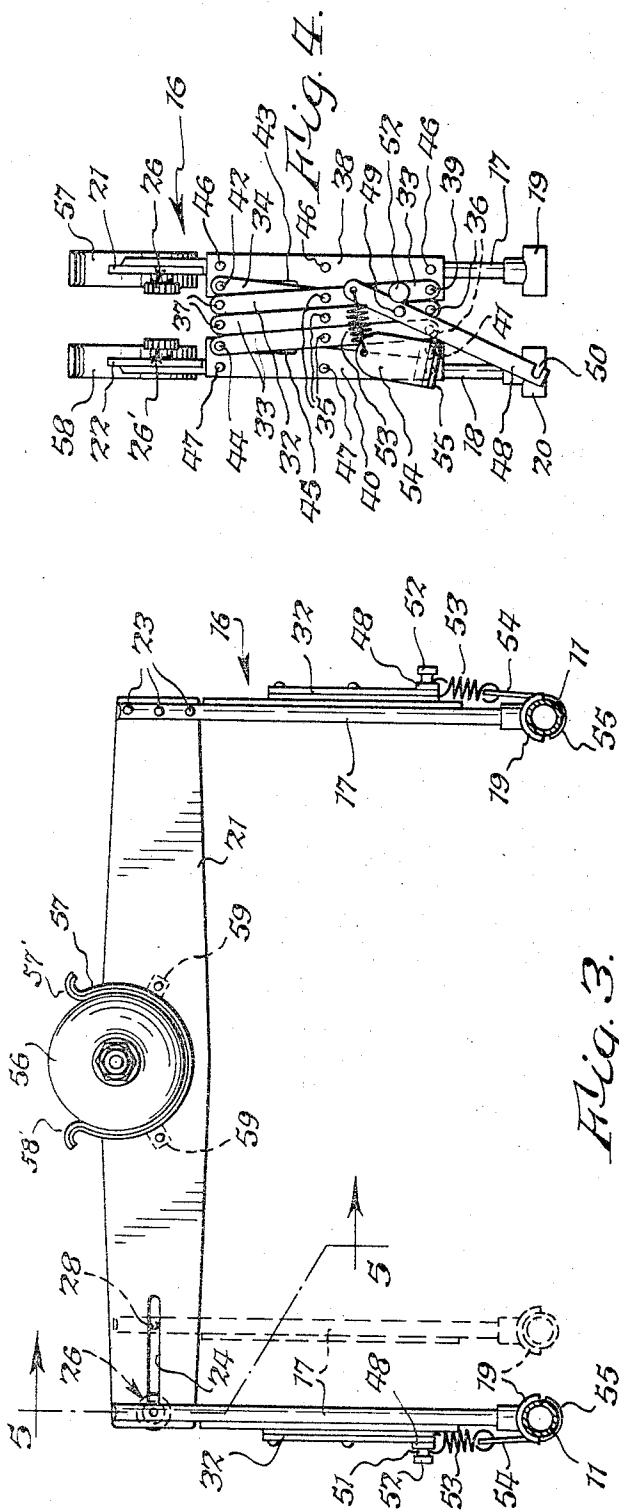
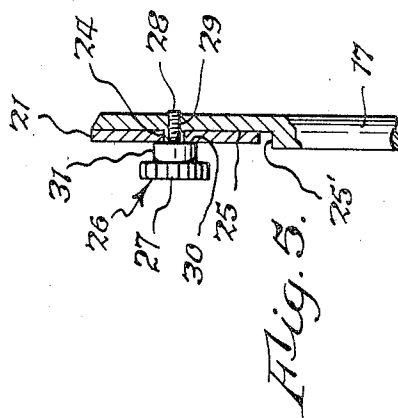
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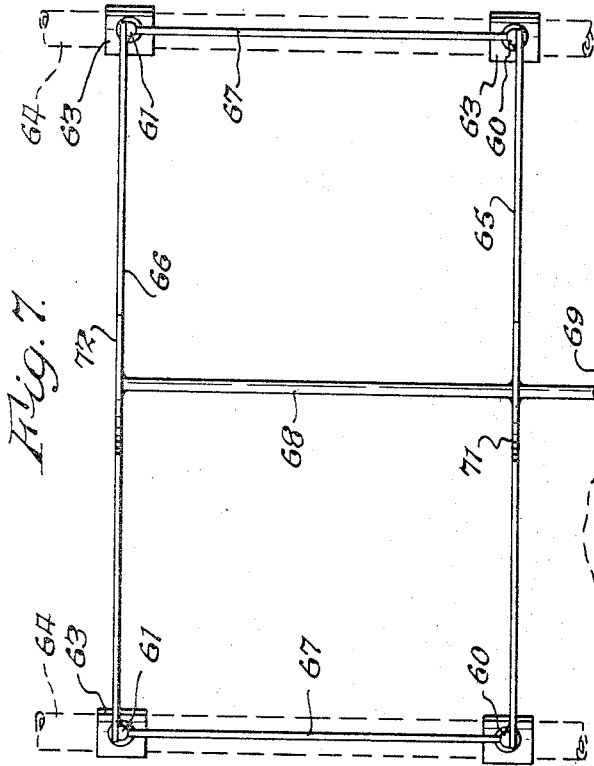
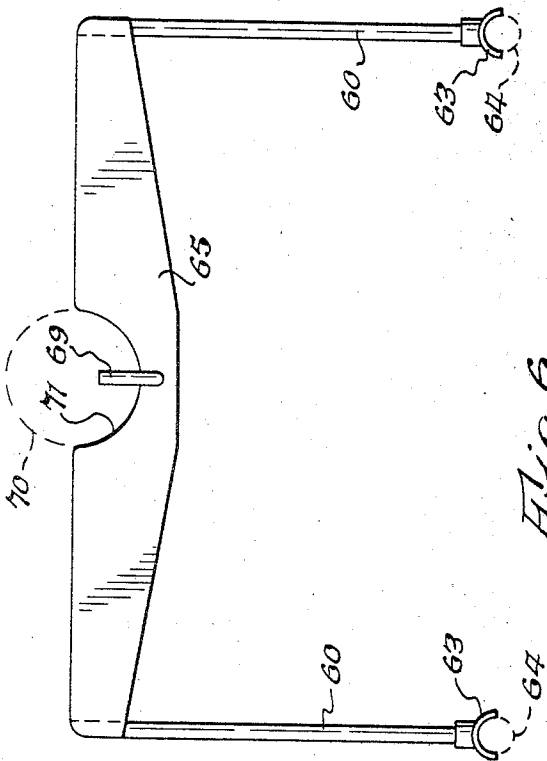
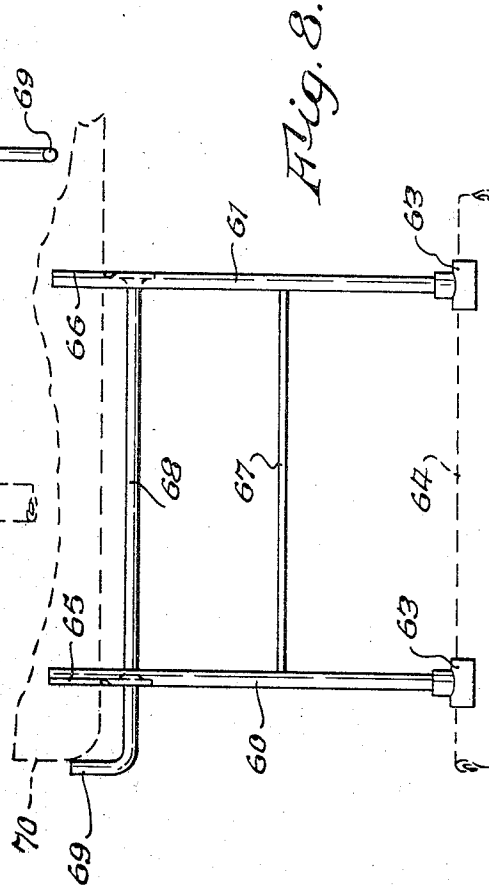
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Sheet 3 of 3



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CONTAINER CARRYING FRAME FOR BED

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13 Claims

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ABSTRACT OF THE DISCLOSURE

A frame for mounting an oxygen bottle on the spaced side rails of a stretcher including spaced leg portions having feet of a configuration to fit on said spaced side rails, a scissors linkage connecting pairs of spaced legs on each side of the frame, hook means connected to the scissors linkage for anchoring the legs to the spaced side rails, and spaced plates mounted on opposed pairs of legs and extending transversely of the stretcher and including spring clips for holding spaced portions of an oxygen bottle.

The present invention relates to a container carrying frame which is adapted to be mounted on the spaced side rails of a bed to hold a container above the legs of a patient, and more specifically to a frame adapted to be mounted on the spaced side rails of an ambulance stretcher for carrying an oxygen bottle.

Relative to the more specific aspect of the present invention, in the past whenever a patient was placed on an ambulance stretcher, in the event that oxygen had to be administered, the oxygen bottle was generally carried by an attendant who accompanied the stretcher bearers. This was extremely awkward while removing the stretcher from a house with the patient thereon, and in placing the stretcher into the ambulance. In the event the bottle carrying attendant was not present, the oxygen bottle was laid on the stretcher with the patient. However, in maneuvering the stretcher around corners and staircases where the stretcher had to be tilted, many times the oxygen bottle would roll off of the stretcher and tear the face mask off of the patient. If the oxygen bottle protruded beyond the side of the stretcher, it could be caught on the door jambs or other objects. One aspect of the present invention is concerned with overcoming the foregoing shortcomings of the prior art.

In its broader aspect, the present invention relates to providing a frame for mounting on the spaced side rails of a bed for holding a container above the legs of a patient. This container can be an oxygen bottle, as discussed above, or it may be any other type of container which is required for use relative to a patient. More specifically, in the past, plasma bottles, medication containers and other types of apparatus which were required for the care or treatment of a patient were normally mounted on a tree, similar to a coat tree, or on a table which was placed at the side of the bed in which a patient was located. This arrangement had various shortcomings. More specifically, in the event it was necessary to wheel the patient while in bed to another location, the tree carrying the plasma bottle or the like had to be carried separately. Furthermore, the tree occupied valuable floor space in the hospital room, interfered with proper access to the patient, and many times was in a position to be knocked over by people attending the patient. The broader aspect of the present invention relates to a container carrying frame for mounting on a hospital bed above the feet of the patient, thereby obviating the foregoing shortcomings of prior art devices.

It is accordingly the broad object of the present invention to provide a frame for secure mounting on the

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opposed side rails of a bed above the feet of a patient for carrying a container, or the like, which is required for treatment of the patient.

A more specific object of the present invention is to provide a container carrying frame for mounting on opposed side rails of an ambulance stretcher in the area of a patient's legs, thereby obviating the necessity for carrying the container independently of the stretcher and also holding the container within the perimeter of the stretcher rather than protruding beyond the side edges thereof where it can be caught on foreign objects, such as a door jamb when the stretcher is carried through a doorway.

A further object of the present invention is to provide a frame for mounting on the side rails of a bed in which a patient is located, the frame being foldable to conserve storage space when not in use. A related object of the present invention is to provide a foldable container carrying frame for mounting between the side rails of a portable stretcher, the foldable aspect permitting the frame, when not in use, to occupy relatively little space in an ambulance where space is at a premium.

A still further object of the present invention is to provide a frame for mounting on the spaced side rails of a bed or an ambulance stretcher, said frame including an adjustable feature for permitting it to be mounted on beds or stretchers having different spacings between the side rails.

Other objects and attendant advantages of the present invention will readily be perceived hereafter and the present invention will be more fully understood when the following portions of the specification are read in conjunction with the accompanying drawings wherein:

FIGURE 1 is a side elevational view of the frame of the present invention mounted at the foot portion of an ambulance stretcher;

FIGURE 2 is a plan view of the arrangement shown in FIGURE 1;

FIGURE 3 is a view taken substantially along line 3—3 of FIGURE 1;

FIGURE 4 is a side elevational view of the frame shown in the preceding figures in collapsed position for storage;

FIGURE 5 is a view partially in cross section taken substantially along line 5—5 of FIGURE 3 and showing the lateral adjustment feature;

FIGURE 6 is an end elevational view of a modified frame which is not collapsible;

FIGURE 7 is a plan view of the frame shown in FIGURE 6; and

FIGURE 8 is a side elevational view of the frame shown in FIGURE 6.

In FIGURES 1, 2 and 3 an ambulance stretcher 10 is shown having tubular side rails 11 which are integral with base portion 12. Fittings 13 extend downwardly from side rails 11 and have secured therebetween elongated rod 14 which mounts casters 15. Each of the side rails 11 includes an inverted U-shaped portion 15 which is suitably secured to side rails 11, in the manner shown, for the purpose of preventing a patient from rolling off of the stretcher and for providing handles to facilitate the handling of the stretcher. The foregoing described stretcher is conventional in the art.

The oxygen bottle mounting frame 16 includes first and second spaced legs 17 and 18, respectively, on opposite sides of the frame. Feet portions 19 and 20 are affixed to the lower ends of legs 17 and 18, respectively. Feet 19 and 20 are curved to provide a surface for complementary mating engagement with the tubular side rails 11. Because of this relationship, feet 19 and 20 can be firmly mounted on side rails 11 in the manner shown in FIGURES 1, 2 and 3.

To mount oxygen bottle 56 a plate 21 extends across the upper portions of legs 17 and a plate 22 extends across the upper portion of legs 18. The right end of plate 21 (FIG. 3) is riveted to the top portion of leg 17 by rivets 23. The right end of plate 22, which is immediately behind plate 21 in FIGURE 3, is riveted to leg 18 in the same manner. The left end of plate 21 in FIGURE 3 has a slot 24 therein. A corresponding slot, not shown, is located in plate 22. Slot 24 in plate 21 and the corresponding slot, not shown, in plate 22, are used to space legs 17 relative to each other and also space legs 18 relative to each other to adjust the frame to fit on side rails which are spaced different amounts. More specifically, as can be seen from FIGURE 5, the upper end of leg 17 is cutaway at 25 to provide a planar surface which receives plate 21 in abutting relationship. A screw 26 has a knob 27 and a threaded shank 28 which is threaded into a tapped aperture 29 at the upper portion of leg 17. The remainder of the threaded shank 28 fits through slot 24 with a clearance. A shoulder 30 on intermediate portion 31 abuts the face of plate 21 which is opposite to the face which is in abutting relationship with surface 25. It can readily be seen that screw 26 can be manually loosened to permit plate 21 to slide relative to leg 17, thereby to permit the adjustment of the spacing between legs 17. After one of said legs 17 is moved to the desired position, screw 26 is tightened to retain it there. This is effectively shown in FIGURE 3 when the solid and dotted portions are compared. Another screw 26' is associated with one of legs 18, as shown in FIGURE 4, in the same manner as screw 26 is associated with leg 17. Further explanation is therefore deemed unnecessary, it being merely understood that screw 16' can be loosened to permit relative movement between plate 22 and one of legs 18 to adjust the spacing between legs 18. As can be seen from FIGURE 5, plate 21 fits squarely against face 25 above shoulder 25' of leg 17. A similar connection exists between plate 22 and leg 18.

Structure is provided for folding frame 16 for storage and extending it for use. More specifically, extending between legs 17 and 18 on each side of the frame is a scissors linkage 32 which can occupy the extended position shown in FIGURES 1 and 2, or the compacted position shown in FIGURE 4. Each scissors linkage 32 is essentially the type which is utilized in a folding gate and includes a plurality of links 33 which extend in a first direction and a plurality of links 34 which extend in the opposite direction. Rivets 35 pivotally join the central portions of links 33 and 34; rivets 36 pivotally join the lower portions of certain of said links 33 and 34 and rivets 37 pivotally join the upper portions of certain of the links 33 and 34 as shown in FIGURE 4. End link 33 is pivotally fastened to plate 38 on leg 17 by rivet 39. End link 34 is pivotally fastened to plate 40 on leg 18 by rivet 41. Right link 34 includes a pin 42 mounted at the upper portion thereof which slides in slot 43 of plate 38. Left link 33 includes a pin 44 which slides in slot 45 of plate 40. The foregoing linkage can be extended to the position shown in FIGURE 1, or compacted to the position shown in FIGURE 4 for storage. Rivets 46 secure plate 38 to leg 17 and rivets 47 secure plate 40 to leg 18. The foregoing expanding linkage 32 described above relative to FIGURE 4 is located between one pair of legs 17 and 18. It is deemed unnecessary to describe the other linkage 32 between the other pair of legs 17 and 18 inasmuch as it is a mirror image of the above described linkage.

A locking device is provided for holding the frame 16 in its extended position and for holding it in assembled relationship on the rails of the bed or stretcher. More specifically, a central portion of link 48 is pivotally mounted on one of links 33 by rivet 49. One end of link 48 has a slot 50 therein which engages the shank 51 of pin 52 to thereby lock the expanding linkage 32 in the position shown in FIGURE 1. On the opposite end of link 48 a spring 53 is mounted which in turn carries J-

shaped hook 54, the lower portion 55 of which fits in complementary mating relationship with bottom portion of side rail 11 under the bias of spring 53. Because of the foregoing structure frame 16 can be locked in an extended position and rigidly secured to the side rails 11. If different degrees of extension are desired, a plurality of spaced slots such as 50 can be formed in link 48.

To compact frame 16 after removal from stretcher 10, that is, after hooks 54 have been removed from side rails 11, it is merely necessary to pivot link 48 to cause slot 50 to move out of engagement with pin 52, and thereafter push each of leg pairs 17 and 18 toward each other so that the structure occupies the position shown in FIG. 4. When the structure is so compacted it will occupy very little room in an ambulance where space is at a premium.

An oxygen bottle 56 is shown in mounted relationship on frame 16. In this respect, plate 21 includes a generally U-shaped rubber coated spring clip 57 attached thereto and plate 22 includes a generally U-shaped rubber coated spring clip 58 attached thereto, said spring clips 57 and 58 being attached to the plates by means of tabs, such as 59, which are integral with the clips, and are riveted to the plates. The rubber coatings 57' and 58' prevent metal-to-metal contact while inserting and removing bottle 56, and also provide frictional holding engagement between bottle 56 and clips 57 and 58. It can thus be seen that an oxygen bottle 56 may be snapped into position on frame 16 above the feet of the patient. It can be removed by pulling it out of clips 57 and 58. The oxygen bottle is out of the way and cannot hook onto door jambs or the like while the stretcher 10 is being carried. Furthermore, the frame 16 obviates the necessity for an additional person to carry the bottle 56, as well as obviating the previous practice of laying the bottle on the stretcher with the patient.

In FIGURES 6, 7 and 8 an alternate embodiment of the present invention is shown. This embodiment varies from that depicted in FIGURES 1 to 3 by being rigid. It cannot be collapsed and extended. This type of device can be used in hospitals on a permanent bed or in any other location where storage space is not at a premium. The embodiment of FIGURES 6, 7 and 8 includes spaced legs 60 and 61 on each side of the frame. Legs 60 and 61 have substantially semi-circular feet 63 located at the bottoms thereof for engaging circular side rails 64 of a bed or a stretcher. The upper ends of the pair of legs 60 is bridged by plate 65 and the upper ends of legs 61 are bridged by plate 66. In addition, a bracing rod 67 extends between one pair of legs 60 and 61. Another bracing rod 67 extends between the other pair of legs 60 and 61, the ends of these rods being affixed to the legs by means of welding or the like. Plates 65 and 66 are connected to each other by means of a rod 68 which is suitably welded to these plates. The end of rod 68 extends upwardly at 69 to abut the end of oxygen bottle 70 which fits in circular cutout 71 and 72 in plates 65 and 66, respectively. The frame of FIGURES 6, 7 and 8 fits across and is mounted on the side rails of the bed and, as can be seen, elevates bottle 70 above a patient's feet where it is out of the way while it is securely fixed to the bed. If desired, spring clips, such as 57 and 58, may be incorporated in the structure of FIGURES 6-8.

If desired, a spring mounted clip, such as 54 of the other embodiment, may be attached at the center of each of rods 67 to securely fasten the frame of FIGURES 6, 7 and 8 to the side rails, or any other suitable clip may be utilized to mount feet 63 securely on rails 64. These other clips may include any type of arrangement which impedes the disconnecting of feet 63 from rails 64 by accident, to thereby preclude any inadvertent separation of the frame from the side rails. Furthermore, a strap arrangement (not shown) can be attached to rod 68 for attaching bottle 70 to the rod.

The feet described above relative to all the embodiments of the invention have been shown to have a semi-

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circular surface for mounting on circular side rails. However, it will be appreciated that there are other side rails in use which may not be circular, especially on beds. These rails may be of angular configuration or any other configuration. Accordingly, it is within the contemplation of the present invention to shape the feet 63 and 19 to mount satisfactorily on any rail configuration.

While the present invention has been described relative to an oxygen bottle, it will be appreciated that the frame can carry any type of container provided it is suitably modified. Furthermore, it can carry a plurality of containers, this being desirable in a hospital environment where in addition to an oxygen bottle, it might be desirable to mount such items as plasma bottles or medication containers or aspirators and containers for receiving aspirated fluid from a patient. To achieve the foregoing, it is merely necessary to modify the container carrying structure of the present invention to mount the foregoing additional devices or any other containers or devices which may be used advantageously be being mounted above a patient's feet on a hospital bed or stretcher.

While the foregoing description has referred to mounting the frame on spaced side rails, it is within the contemplation of the present invention that the container carrying frame could be mounted on equivalent spaced parts of a bed or stretcher which can provide suitable support.

While preferred embodiments of the present invention have been disclosed and described it is to be understood that the present invention is not limited thereto but may be otherwise embodied within the scope of the following claims.

I claim:

1. A frame for mounting a container between the side edges of a bed comprising a plurality of spaced leg means, feet portions on the lower ends of said leg means for securely mounting said leg means in a predetermined position on said bed, support means extending between said spaced leg means for supporting said container, said feet portions being of a configuration to rest on spaced side rails of said bed, means forming a part of said support means for releasably mounting said container, said leg means comprising first and second spaced leg means on each side of said frame and wherein said support means comprise first elongated means extending between each of said first leg means and second elongated means extending between each of said second leg means, and wherein said means for releasably mounting said container comprise spring means for holding said container relative to said first and second elongated means.

2. A frame as set forth in claim 1 wherein said spring means are of a shape to yieldably receive said container in complementary mating relationship.

3. A frame for mounting a container between the side edges of a bed comprising a plurality of spaced leg means, feet portions on the lower ends of said leg means for securely mounting said leg means in a predetermined position on said bed, support means extending between said spaced leg means for supporting said container, said feet portions being of a configuration to rest on spaced side rails of said bed, means forming a part of said support means for releasably mounting said container, said leg means comprising first and second vertically extending spaced leg means on each side of said frame, and wherein said support means comprise first elongated means extending crosswise across said bed between each of said first leg means and second elongated means extending between each of said second leg means,

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said vertically extending leg means elevating said support means well above said spaced side rails, and wherein said means forming a part of said support means for releasably mounting said container comprise means mounted on said first and second elongated means.

4. A frame as set forth in claim 2 including means for locking said frame to the side rails of said bed.

5. A frame as set forth in claim 2 including linkage means for moving each of said first leg means toward corresponding second leg means for collapsing said frame for storage and for extending said frame for supporting said container.

6. A frame as set forth in claim 4 wherein said linkage means comprise a scissors linkage between each pair of said first and second leg means, and means for locking said frame to said side rails comprising a spring attached to each scissors linkage, and a hook carried by each spring for engaging the undersides of each side rail in opposition to said feet.

7. A frame as set forth in claim 2 including first means for varying the lateral spacing between said first leg means and second means for varying the lateral spacing between said second leg means.

8. A frame as set forth in claim 6 including linkage means for moving each of said first leg means toward corresponding second leg means for collapsing said frame for storage and for extending said frame for supporting said container.

9. A frame as set forth in claim 2 wherein said first and second elongated means comprise plate members with their width dimension extending vertically when said legs are in a vertical orientation.

10. A frame as set forth in claim 7 wherein said linkage means comprise a scissors linkage between each pair of said first and second leg means, and means for locking said frame to said side rails comprising a spring attached to each scissors linkage, and a hook carried by each spring for engaging the undersides of each side rail in opposition to said feet.

11. A frame as set forth in claim 2 including linkage means for moving each of said first leg means toward corresponding second leg means for collapsing said frame for storage and for extending said frame for supporting said container.

12. A frame as set forth in claim 10 including first means for varying the lateral spacing between said first leg means and second means for varying the lateral spacing between said second leg means.

13. A frame as set forth in claim 11 wherein said linkage means comprise a scissors linkage between each pair of said first and second leg means, and means for locking said frame to said side rails comprising a spring attached to each scissors linkage, and a hook carried by each spring for engaging the undersides of each side rail in opposition to said feet.

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U.S. Cl. X.R.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,427,668

February 18, 1969

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It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 40, "an" should read -- on --. Column 6, lines 6, 8, 20 and 29, claim reference numeral "2", each occurrence, should read -- 3 --; line 13, claim reference numeral "4" should read -- 5 --; line 24, claim reference numeral "6" should read -- 7 --; line 33, claim reference numeral "7" should read -- 8 --; line 45, claim reference numeral "10" should read -- 11 --; line 49, claim reference numeral "11" should read -- 12 --.

Signed and sealed this 24th day of March 1970.

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

WILLIAM E. SCHUYLER, JR.

Commissioner of Patents