Sept. 20, 1971 C. D. ALLARD ET AL 3,606,302

LIFE SUPPORT CART

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Fig. 1

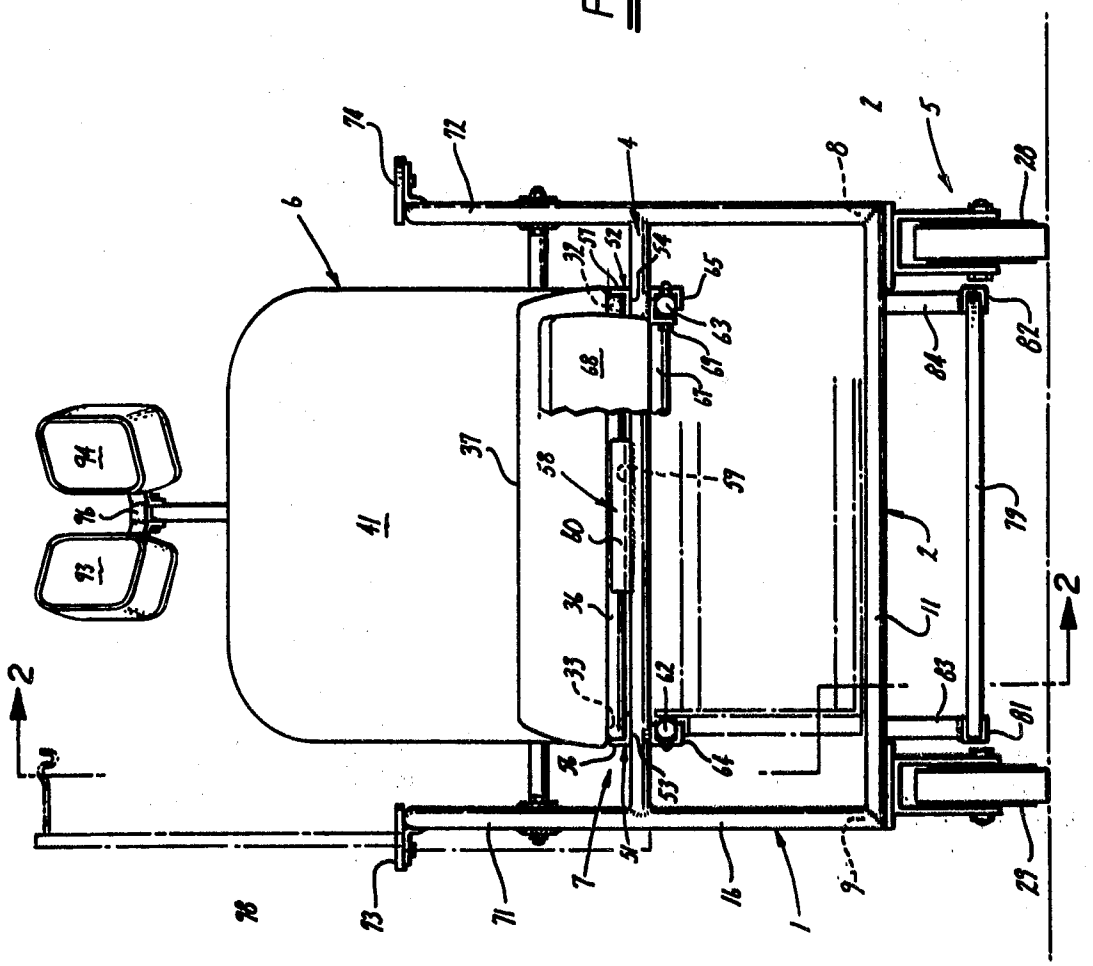

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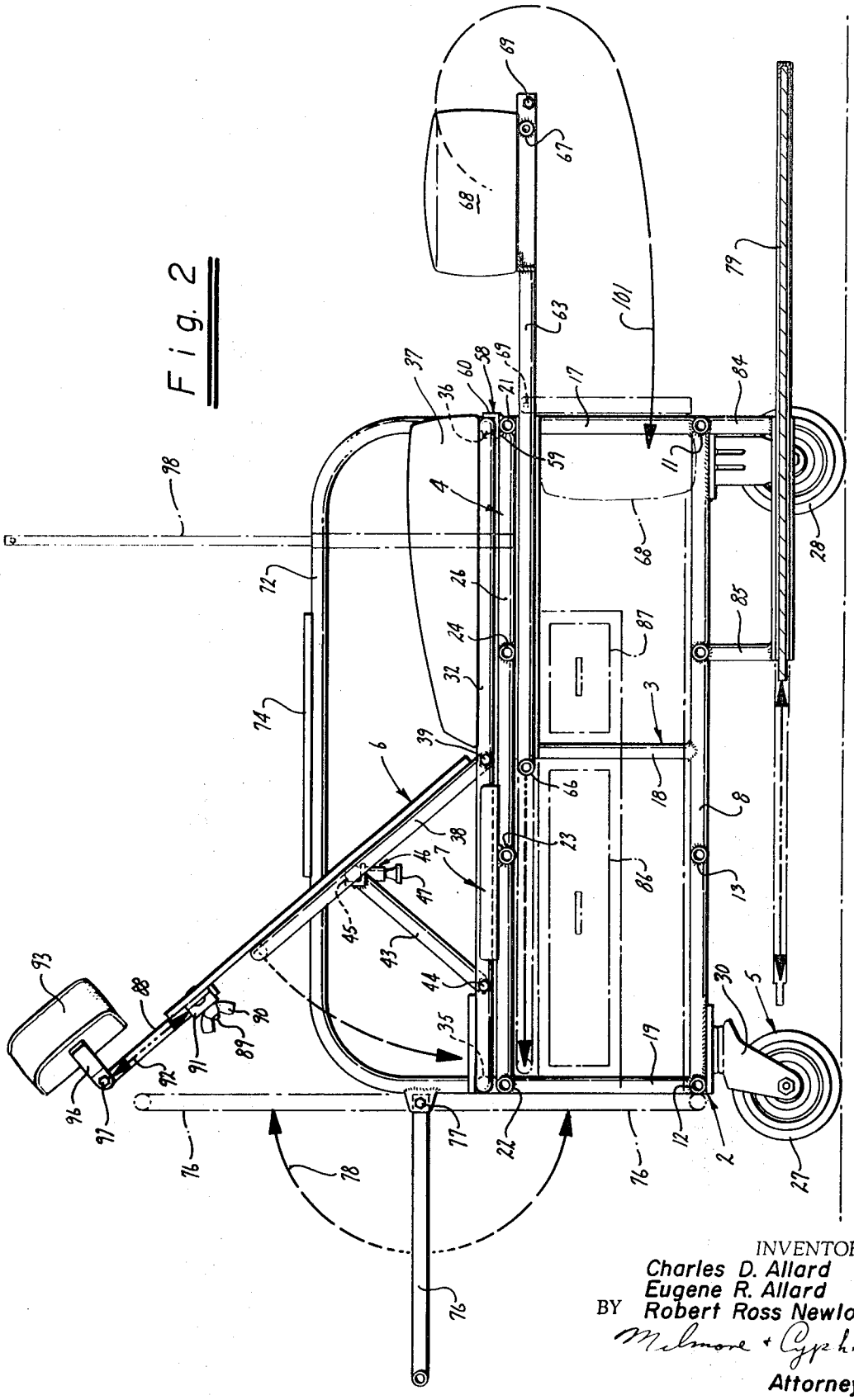
Fig. 2



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LIFE SUPPORT CART

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ABSTRACT OF THE DISCLOSURE

A wheeled patient transporting and life supporting cart having the essential equipment for sustaining life under certain emergency conditions consisting of a frame, a detachable multi-position patient supporting member, extendible leg rest for the supine position and an extendible foot rest for the sitting position.

BACKGROUND OF THE INVENTION

Emergency medical assistance has gone through an evolution beginning with the doctor being taken to the person needing emergency care. With the introduction of sophisticated stationary life supporting equipment located at hospitals, the emphasis was concentrated on equipment to transport the patient to the hospital in the quickest and most comfortable position. These transporters carried little or no equipment for assisting the attendants in supporting the patient's vital signs.

SUMMARY OF THE PRESENT INVENTION

The gist of the invention is the use of a cart carrying life supporting apparatus in combination with a detachable patient supporting member. A modified form of this patient supporting member is shown and described in patent application Ser. No. 742,221 entitled Torso Tilt Board. The apparatus described therein is compatible with the cart of the present invention.

An object of the present invention is to provide a compact cart carrying life support equipment which can be extended and transformed into a patient transporter and in the event that a patient is in need of emergency care either in the sitting, prone or suppine position, the device can be easily and quickly adjusted to meet the needs of the patient.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevation view of the device constructed in accordance with the present invention with portions removed and portions in phantom for clarity of understanding.

FIG. 2 is a side elevation view of the device shown in FIG. 1 with portions in phantom to illustrate some of the uses of the device and different positions of portions of the device.

DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

The life support cart shown in the drawings consists briefly of a frame shown generally by the arrow **1** having a base **2**, supports **3** and an elevated portion **4** connected

to the supports; ground wheel means **5** attached to the base; patient supporting means **6** detachably resting on the elevated portion of the frame; and means **7** detachably connecting the supporting means to the frame.

The frame may be of any material, preferably tubular steel or aluminum to keep the cart light in weight yet sturdy enough to carry some fairly heavy emergency equipment in addition to the patient. The base here consists of side members **8** and **9** connected to front and rear cross members **11** and **12** and intermediate cross members **13** and **14**. The elevated portion is connected to the base by supports here consisting of substantially vertical members **16**, **17**, **18** and **19**. The elevated portion consists of front and rear members **21** and **22**, intermediate cross members **23** and **24** and side members one of which is indicated as number **26**.

The ground wheel means are here shown as rubber tired casters **27**, **28** and **29**. For ease of steering, one set of casters should be of the swiveling type; here indicated by the pivot member **30**.

The detachable patient supporting means here consists of base frame having laterally spaced side members **32** and **33** and interconnected cross members **35** and **36**. A seat portion **37** is connected to the base frame which may be a flat member but is preferably a cushion as here shown. A back rest frame here consisting of a U-shaped member **38** is pivotally connected to the seat portion by hinge member **39**. A flat board **41** is attached to the back rest frame. The back rest could be fitted with a cushion but it has been found that the flat board is surprisingly comfortable and it does serve as an excellent support in situations where it is necessary for an attendant or doctor to give a patient artificial respiration.

The back rest is held in a reclining position by a strut **43** attached to the base at pivot **44** and releasably connected to cross member **45** by a locking means **46** released by grasping hand knob **47**.

The means for detachably connecting the patient supporting means could consist of various types of hardware but here is illustrated by a pair of laterally spaced angles **51** and **52** having base legs **53** and **54** respectively for supporting the side members of the patient supporting base frame and upright legs **56** and **57** respectively spaced to receive the outer edges of the side members in a snap lock fit. A third angle member **58** angularly spaced in relation to the pair of angles has a base leg **59** for supporting the cross member and an upright leg **60** for preventing longitudinal movement of the patient supporting means in at least one direction.

The leg support means is mounted on the frame beneath the patient supporting means for slidable longitudinal extension to a leg supporting position and here consists of elongated members **62** and **63** which ride in channel members **64** and **65** connected to the frame. The members are connected by cross members **66** and **67**. Preferably a cushion **68** is pivotally connected to the distal end of the leg support means having a first position as shown, FIG. 2, in phantom and pivoted about point **69**, to a second position as shown in solid line of the same figure. In the first position, the cushion is stored within the frame of the cart and in the second position a surface is presented substantially on an elevation with the top portion of the seat portion of the patient supporting means.

The sides of the cart are provided with side rails **71** and **72**, here shown as U-shaped members connected to the vertical support members. For patient comfort, arm rests **73** and **74** are connected to the side rails.

Connected to the side rails is a hand engageable tongue means **76** having a first substantially vertical position shown in phantom line and a second angularly related position shown in solid line for pulling or pushing the cart. The tongue is pivoted about point **77**. Arrow **78** shows a possible positioning of the tongue in either an up or down position.

When the cart is used for patients in the sitting position, a foot rest board **79** is provided which is slidably mounted beneath the frame on channels **81** and **82** suspended on hangers **83**, **84** and **85** connected to the frame. The foot rest has a first position for storage with the frame as shown in phantom line and a second position for longitudinal extension to a foot receiving position.

As shown in the drawings, there is a substantial storage area between the lower portions and upper portions of the frame where all types of life support equipment can be stored. It has been found to be convenient to provide drawers **86** and **87** for small equipment and material which must be kept sterile. The space is sufficiently large to store small bottles of oxygen which are essential in cardiac arrest and respiratory ailments.

A major feature of the invention is the adjustable head rest which is slidably attached to the back rest by a sliding member **88** which is adjusted to different extended positions by a threaded bolt **89** and wing nut **90** in bracket **91**. Arrow **92** indicates the direction of adjustment for accommodating persons of different height. A pair of cushions **93** and **94** are attached to a bracket **96** which is pivotally attached by pin **97** to the sliding extension. It has been found desirable to make the pin connection with the head rest bracket a loose fit to provide some lateral pivoting movement for comfort of the patient.

Many types of equipment can be attached to the cart either permanently or temporarily such as a pole **98** having a hook **99** for attaching a container of plasma or other solutions for intravenous feeding.

The cart is designed for use in hospitals, convalescent homes, industrial plants and emergency vehicles. In convalescent homes, the patient can rest comfortably on the cart to await an ambulance either in the sitting or horizontal position. The cart can be wheeled to the ambulance, lifted into the ambulance and removed therefrom at the hospital without difficult transfers on and off different means of conveyances. At the hospital, the patient stays on the cart from the emergency receiving room to the hospital bed room. If the patient is in the sitting position and has a relapse, he can be placed in the horizontal position quickly and easily by merely unlatching the brace and lowering the back support to a horizontal position. The foot rest can be slid back into the cart and the patient's legs placed on the leg support by merely sliding it out from under the seat and pivoting the foot cushion into place as shown by arrow **101**. If the patient needs oxygen, a face mask stored on the cart hooked to an oxygen bottle is placed over the face of the patient and there is no time delay bringing the life saving oxygen to him. In many instances, the patient will be much more comfortable in the sitting position where it is easier to breath where the patient is afflicted with respiratory ailments.

The cart is expecially useful for cardiac arrest because it is low enough that the patient can be lowered to a horizontal position and since the back portion is nonyielding, it is possible to administer artifical respiration while the patient is on the cart rather than moving him to a table upon which a doctor must climb up on to give the treatment.

The head rest with its pivoting movement can actually be placed in a horizontal position so that the patient in a sitting position can have his head tilted back and given mouth to mouth resuscitation or a tracheotomy can be performed.

When not in use, the leg rest, foot rest and handle can all be folded into the cart so that it takes up very little space when in a standby condition. The cart is small enough that it can be loaded in and out of most emergency vehicles in either the folded or extended positions. Where used in connection with an ambulance, the chair portion may be removed from the cart and the lightweight frame taken to the patient. The patient can be placed on the frame either in a supine or sitting position and carried to the cart where it is snapped into place. The cart can then be rolled to the waiting ambulance and the patient placed in the ambulance without removing him from the cart. The life saving apparatus such as oxygen and intravenous feeding can begin immediately upon the patient being placed on the cart and continued while the cart is rolled or carried in an ambulance. The important factor is that the patient can be continuously supported by oxygen and feeding from the time he is placed on the cart and transferred from one place to another either to or within the hospital. Thus the cart is more than a transporting conveyance; it is truly a life supporting cart.

We claim:

1. A life support cart comprising:

(a) a frame having a base, supports and an elevated portion connected to said supports;

(b) ground wheel means attached to said base;

(c) patient supporting means detachably resting on said elevated portion of said frame, and including a base frame having laterally spaced side members and an interconnected cross member, a seat portion, a back rest portion pivotally connected to said seat portion, and means holding said back rest in a raised first chair position and a second lowered substantially horizontal position; and

(d) means detachably connecting said supporting means to said frame consisting of a pair of laterally spaced angles having base legs for supporting said side members of said patient supporting base frame and upright legs spaced to receive the outer edges of said last named side members in a snap lock fit, and a third angle member angularly spaced in relation to said pair of angles having a base leg for supporting said cross member and an upright leg for preventing longitudinal movement of said patient supporting means in at least one direction.

2. A life support cart as described in claim **1** comprising:

(a) leg support means mounted on said frame beneath said patient supporting means for slidable longitudinal extension to a leg supporting position.

3. A life support cart as described in claim **2** wherein:

(a) said leg support means includes a cushioned member pivotally connected to the distal end of said leg support means having a first position for storage within the outer supports of said frame and a second position resting above the leg support means for presenting a surface substantially on an elevation with the top portion of the seat portion of said patient supporting means.

4. A life support cart as described in claim **3** including:

(a) hand engageable tongue means having a first substantially vertical position for storing said cart in a minimum of space and a second angularly related position for pulling or pushing said cart.

5. A life support cart as described in claim **4** comprising:

(a) a foot rest board slidably mounted beneath said frame and having a first position for storage within said frame and a second position for longitudinal extension to a foot receiving position.

6. A life support cart as described in claim 5 comprising:

(a) storage compartments for receiving life support apparatus.

7. A life support cart as described in claim 6 comprising:

(a) said back rest portion including an adjustable head rest consisting of a cushion connected to an extension member permitting longitudinal adjustment to receive persons of differing height and said cushion being connected to said extension member by a pivot to permit backward tilting of said cushion and said connection permitting some lateral pivoting for the comfort of a patient.

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