March 9, 1954 L. R. CAMETO 2,671,442

RACK FOR THE SUPPORT OF THE HUMAN BODY

Filed June 6, 1950 4 Sheets-Sheet 1

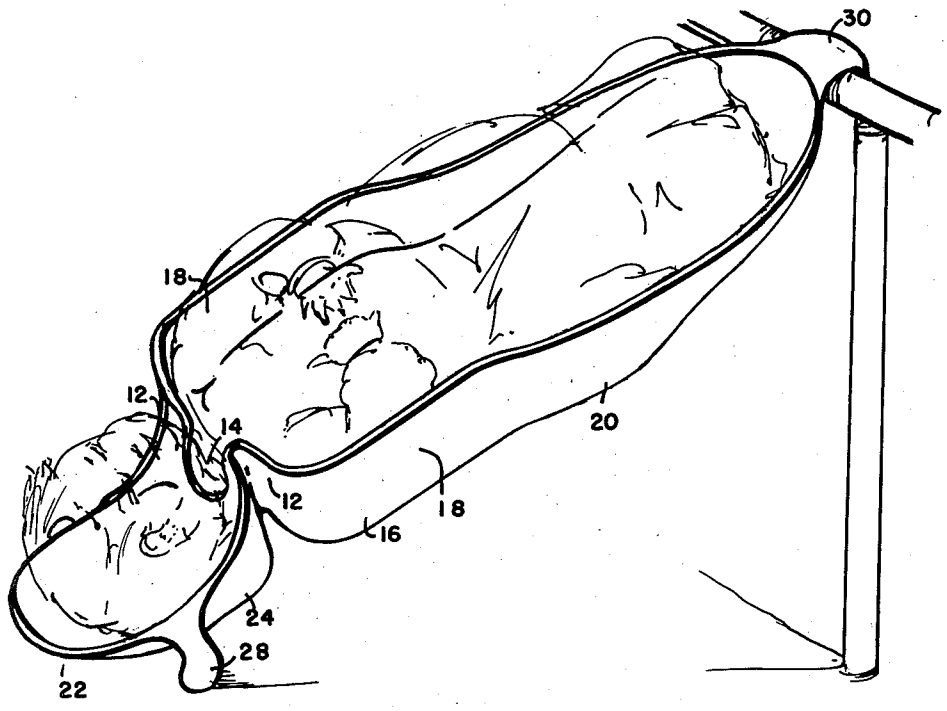


FIG. 1

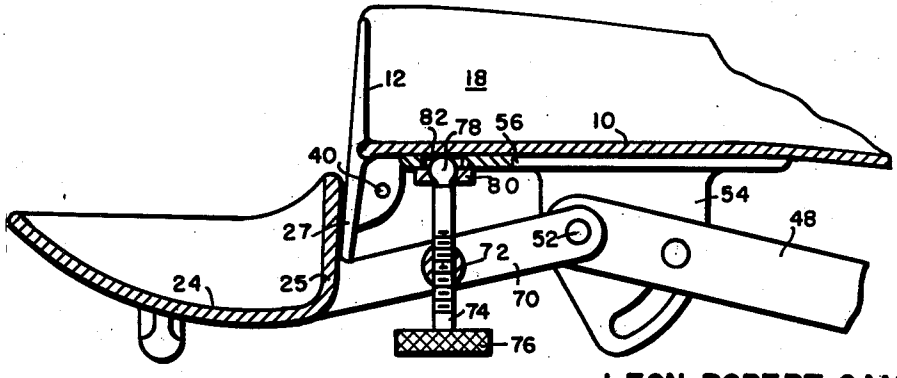


FIG. 5

LEON ROBERT CAMETO
INVENTOR.

BY

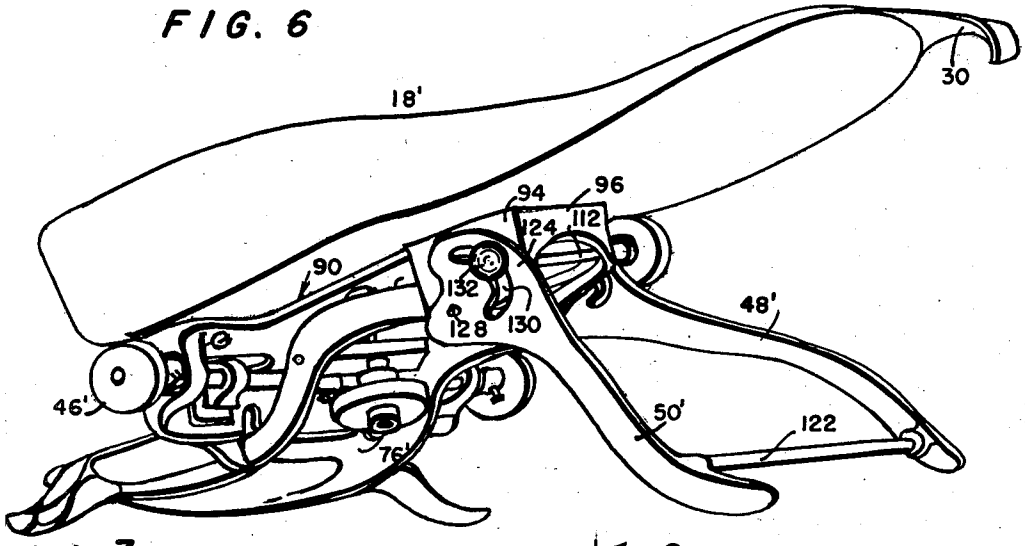
ATTORNEY

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RACK FOR THE SUPPORT OF THE HUMAN BODY

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FIG. 6



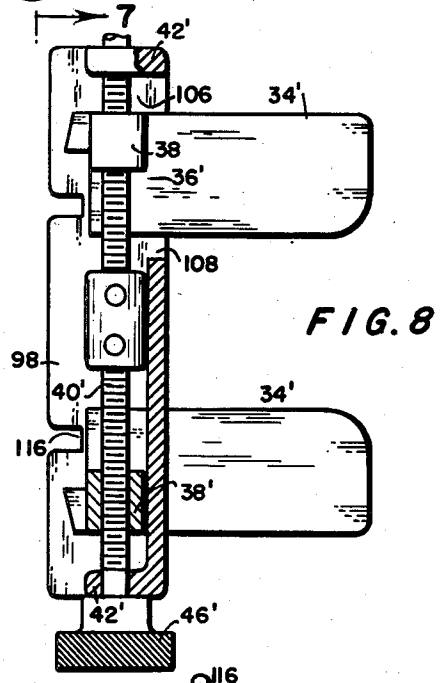


FIG. 8

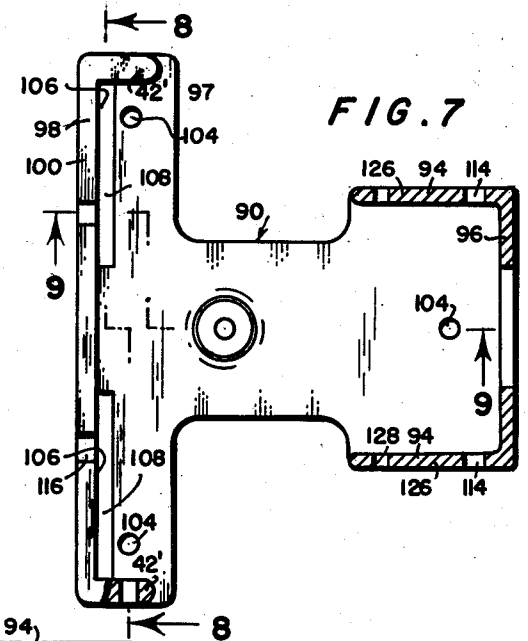


FIG. 7

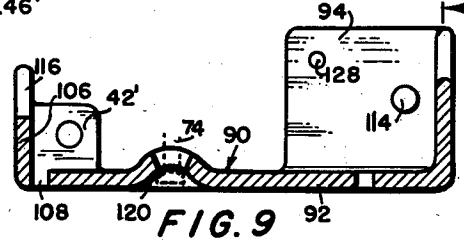


FIG. 9

LEON ROBERT CAMETO
INVENTOR.

BY Irving A. Johnson
ATTORNEY

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RACK FOR THE SUPPORT OF THE HUMAN BODY

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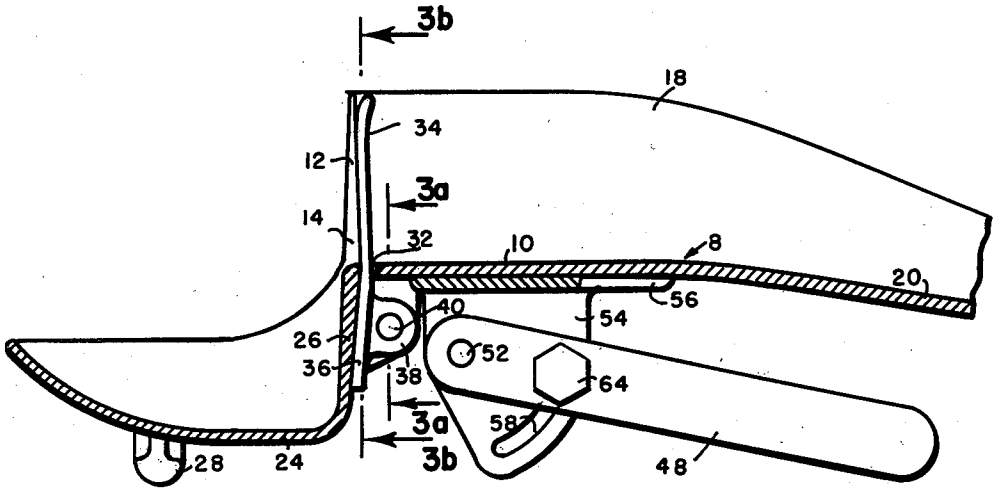


FIG. 2

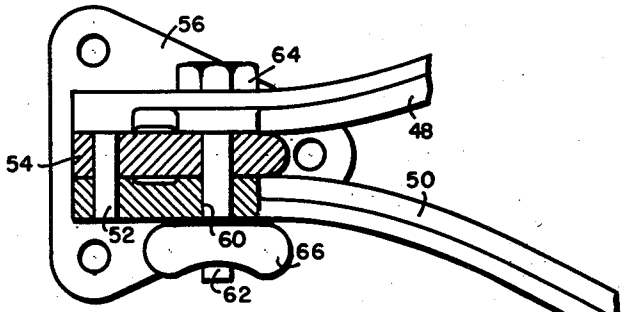


FIG. 4

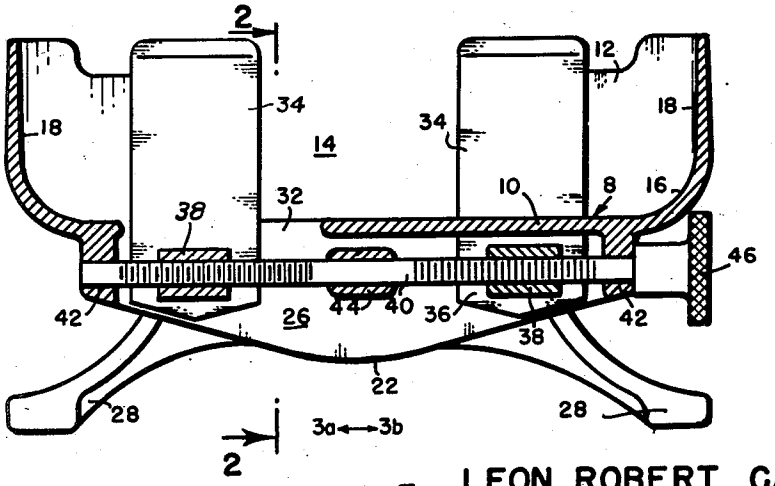


FIG. 3

LEON ROBERT CAMETO
INVENTOR.

BY Ernest G. Johnson
ATTORNEY

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RACK FOR THE SUPPORT OF THE HUMAN BODY

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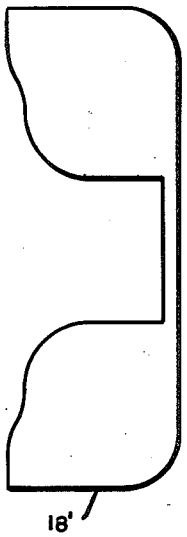


FIG. 11

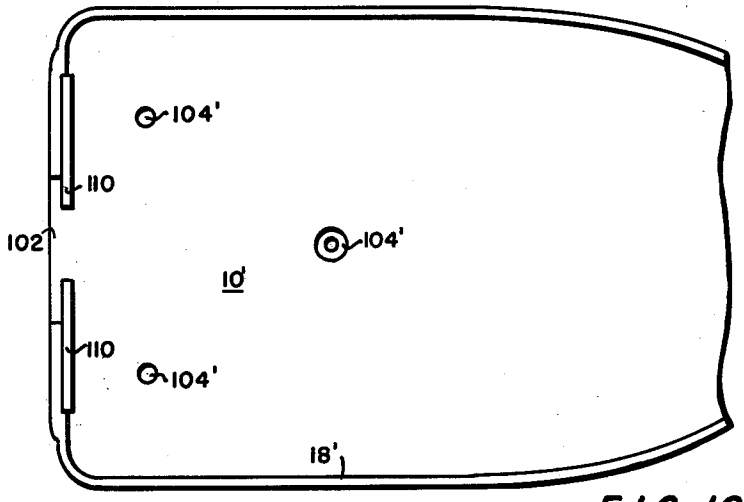


FIG. 10

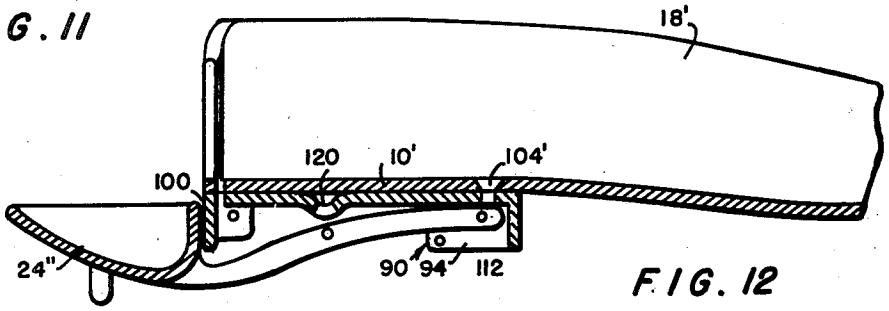


FIG. 12

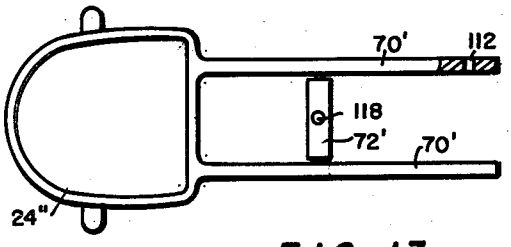


FIG. 13

LEON ROBERT CAMETO
INVENTOR

Ervin G. Johnson
ATTORNEY

Patented Mar. 9, 1954 2,671,442

UNITED STATES PATENT OFFICE

2,671,442

RACK FOR THE SUPPORT OF THE HUMAN BODY

Leon Robert Cameto, Oakland, Calif.

Application June 6, 1950, Serial No. 166,363

12 Claims. (Cl. 128—1)

1

This invention is a rack for supporting the human body in a relatively restrained posture such that, for example, proper drainage for the respiratory tract is insured with comparative ease to the patient. The rack is also employed to confine the body, such as that of an infant immediately after birth, in a safe position and/or in a position wherein it may be operated on.

Treatments of certain human ailments include the inhalation by a patient of a medicated atmosphere designed to loosen infectious matter from the lungs and passages leading thereto. The apparatus here described facilitates this treatment by so positioning the body of the patient that the matter loosened by the medication promptly drains off under the influence of gravity and therefore normal respiration is allowed to continue as the condition of the patient is improved.

Another noteworthy field of use of this apparatus lies in the area of pediatrics. For example; the natural birth of a human infant often is accompanied by impairment of the infant's respiration. The apparatus is, in such case, employed to facilitate respiration in the infant at birth, particularly when the passages to the lungs have become clogged and require release of accumulated and often somewhat dried mucous. In other cases it is frequently true that a physician is alone in the attendance upon a mother in the delivery of her infant. The mother often requires the physician's full attention immediately after delivery of the infant. The infant is simply deposited on the tray which retains it safely pending completion of attendance by the physician to the needs of the mother.

The rack is also found useful as an operating table, particularly for infants because their bodies are not accommodated by the adult operating table.

The several features of advantage will in part be pointed out and in part be evident from a consideration of the following specification and accompanying drawings, in which:

Fig. 1 is a perspective view of the rack, with an infant patient illustrated to be supported therein;

Fig. 2 is a fragmentary section of a modified rack, as from plane 2—2 of Fig. 3;

Fig. 3 represents at the right and left respectively of its vertical mid plane, a section at plane 3*a*—3*a* and one at plane 3*b*—3*b* of Fig. 2;

Fig. 4 is a fragmentary view of structural details;

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Fig. 5 is a fragmentary view of a modification; and

Figs. 6 through 13 illustrate a further modification.

The rack of Fig. 1 is formed, as by casting of metal such as aluminum, to provide a bottom 8 having an upwardly disposed continuous generally flat surface area 10 for supporting the back and legs of a patient in a generally straight extended position on the corresponding parts thereof from which there project substantially perpendicularly to the surface and to the direction of its elongation from the back supporting part to the leg supporting parts shoulder barriers 12 adjoining and forming with the terminal portion of area 10, a neck passage 14. The back supporting area is suitably shaped on its sides to provide curved surfaces 16 joining the back and shoulder barriers to approximately parallel side walls 18 which are spaced apart to adjoin the arms of the patient and are of such height as to permit the wrapping of the support with a retaining band of fabric, not shown, to hold the patient securely within the support without excessive pressure on the chest of the patient.

Adjoining the back supporting area 10, between the side walls 18 extended away from the neck passage, the bottom 8 drops away somewhat from area 10 to provide a relatively depressed area 20 which is intended to receive the buttocks of the patient. As is evident in Fig. 1, this depression tends to cause the buttocks to accept part of the load of the body in resisting slippage toward the neck passage; thus tiring compression of the chest, and of the shoulders against the shoulder barriers 12, is largely relieved. From this depressed area the supporting area is extended and terminates approximately in the plane of the area 10 at a point sufficiently removed to support the patient's legs and feet as shown in Fig. 1.

Adjacent the neck passage 14 and shoulder barriers 12, the support provides at the region in extension of the surface area 10 and at the opposite sides of the barrier plates from the area 10 a head rest 22 of cup shape, the bottom 24 of which is downset from the back area 10 by an abruptly offsetting wall portion 26 extending from the neck passage 14 oppositely to the barriers 12. The neck passage 14 is partially formed by the adjoining edges of the barrier plates 12 and by a portion extending from bottom 8 with its upper surface in extension of or substantially tangent to the surface 10 of the back supporting part 8. With the aid of fabric pads placed in the cup

bottom 24, the patient's head is adjusted relative to the back so that the optimum alignment of the portions of the respiratory tract in the head and body is obtained. Two laterally projecting feet 28 formed on the head rest, and a suitable hook 30 at the foot of the support in the Fig. 1 arrangement, serve for positioning the support with the patient in a desired inclined gravitally stable position while the patient receives treatment, for example, in an oxygen tent.

In the modification of Figs. 2, 3 and 4, provision is made particularly for very small infants such as premature babies whose shoulders vary widely in width from patient to patient. The back supporting area 10, adjoining the neck passage 14 and the barriers 12, is provided with transverse slots 32 through which there are disposed adjustable shoulder barriers 34 which lap an adjustable portion of the neck passage area 14 and portions of fixed barriers 12. These adjustable barriers include base portions 36 sliding on the offset wall 26 adjacent slots 32 and supported lug 38 integral with bases 36 which are threaded on a transverse feed shaft 40 which extends through lateral bearing lugs 42 and middle lug 44 integral with the support wall 26. The lug 44 limits the movements of barrier 34. The threadings of the shaft 40 in lugs 38 at the two sides are such that the two barriers 34 are fed simultaneously toward or from each other through shaft 40 and knobs 46.

In order to provide a support self-contained as to the function of inclined positioning, the device of Figs. 2, 3 and 4 includes a pair of legs 48 and 50 which are pivoted by a pin 52 having its axis below and parallel to the back area 10 positioned in a quadrant lug 54 secured to the support 8 by a base piece 56. The quadrant lug 54 provides a slot 58 arcuate upon pin 52. The legs 48 and 50 provide holes 60 for bolt 62 to extend through them and slot 58 and having head 64 engaging arm 48. A wing nut 66 serves with the bolt 62 and head 64 to clamp arms 48 and 50 at any of several angular positions as determined by the length of the arc of slot 58. The legs 48 and 50 are divergent as shown in Fig. 4 to increase the stability of the support against tilting.

It is preferable in the delivery room of a hospital to avoid the use of devices which require sterilization for any length of time, and particularly the pads referred to for the cup 22. The modification of Fig. 5 makes it possible to adjust the head cup rapidly to the needs of an infant and eliminates problems of sterilization since padding for the purpose of elevating the head to the required position is unnecessary with the Fig. 5 provisions. The head cup is shown adjustable with respect to the back portion 10, being carried on arm 70 pivoted on pivot 52 and extending to clear the shoulder adjustment mechanism of Figs. 2, 3 and 4. Arm 70 carries a shaft 72 journalled therein through which an adjusting screw 74 having knob 76 is threaded. Screw 74 is universally anchored by its integral ball 78 received in a socket formed by a plate 80 secured to base 56 and a recess 82 in base 86. The arm 70 works through a slot formed in the web portion 27 which corresponds to the wall 26 in Fig. 3. In the modification of Figs. 6 through 13 several additional advantages over those of the previously described modifications are obtained. For example, it is constructed with a separable body tray portion 18' and supports trays of different sizes which are interchangeably mounted on a common base or carriage. Similarly to the modification of Fig. 5, the head tray 24 is constructed for interchangeability. The construction affords independent adjustability of inclination of the body tray and the position of the head rest; and the body tray may be adjusted without substantial change in the position of the head.

The device of Figs. 6 through 13 comprises a base 90 having a flat top surface 92 for the reception thereagainst of the flat bottom of the back portion 10' of the body tray 18'. The base 90 includes a pivot and clamp portion having a pair of depending brackets 94 joined by a bracing web 96. The base 90 further provides a portion 97 supporting adjustable shoulder barriers, including therefor a depending vertical web 98 having a flat forward face 100 about perpendicular to the top surface 92 and intended for registry with a forward edge 102 of the body tray. The portion 97 is of a length about equal to the width of tray 18'. The base 90 is provided with three holes 104 for registry with corresponding holes 104' in the portion 10' of the tray and fastening of the base and tray together by suitable bolts. The portion 97 of the base further provides lugs 42' for pivotally supporting a shoulder bracket adjusting shaft 40'. The web 98 provides flat vertical bearing surfaces 106 against which the flat forward surfaces of the bases 36' of shoulder barriers 34' bear in a fashion similar to that shown in Fig. 2. The base 90 is provided with slots 108 for the accommodation of the barriers 34'. The back portion of tray 10' is provided with slots 110 for the registry with slots 108 and passage of the barriers.

Head rest 24'' is provided with a pair of arms 70 of considerable length disposed between, and on a clamping bolt 112 forming a pivot therefor, which bolt bears in holes 114 in brackets 94. Notches 116 are provided in web 98 to allow upward movement of the arms 70.

The position of the head rest pivot 12 is chosen at a point adjacent the back 10, and so remote from edge 102 that very little gap exists between the headrest 24'' and the forward edge 102 of tray 18' in any position of adjustment of the head rest about pivot 112. A shaft 72' pivoted between arms 70' has a headed adjusting screw, similar to 74 in Fig. 5, threaded through hole 118 and swivelly anchored in a notch 120 in base 90.

A pair of legs 48' and 50', having their foot ends rigidly joined by a rod 122, and having flat opposed brake quadrant portions 124 spaced to engage the flat parallel outside faces 126 of brackets 94, are pivoted on a common axis parallel to bolt 112 at 128 on brackets 94. The quadrant portions are provided with slots 130 arcuate on pivots 128 and of size and radius to receive bolt 112 therethrough. The head 132 of the bolt and a clamping disc 134 serve to clamp the quadrant portions of the legs against brackets 94 in any of a wide range of positions.

I claim:

1. A rigid support for the human body comprising, in combination: a single integrally formed rigid member including an elongated portion providing for an upwardly disposed continuous generally flat surface area providing a buttocks receiving recess and constituting a back supporting surface part and a surface part for receiving and supporting the remainder of the body with the entire body in a generally straight extended position; said member further providing shoulder barrier plates at one end of the elon-

gated area and extending substantially perpendicularly to the direction of elongation of said platelike portion, said back supporting surface part and said barriers being constructed and arranged to provide a neck passage through and between the barriers and substantially tangent to said back supporting surface part, said member further providing a pair of parallel sidewalls extending perpendicularly to and from the back supporting part of the continuous surface substantially parallel to the direction of elongation from points adjoining the shoulder barriers.

2. A rigid support for the human body comprising, in combination: a single integrally formed rigid member including an elongated portion providing for an upwardly disposed continuous generally flat surface area providing a buttocks receiving recess and constituting a supporting surface part for the back of the body and a surface part for receiving and supporting the remainder of the body with the entire body in a generally straight extended position; means providing shoulder barriers having inner and outer ends at one end of the elongated portion extending away from the surface and having shoulder engaging surfaces disposed along planes substantially perpendicular to the surface and to the direction of elongation, said back supporting surface part and said barriers being constructed and arranged to provide a narrow neck passage through and between the barriers and in extension of the back supporting surface part, and means providing a pair of sidewalls extending away from the elongated portion and in the direction of elongation from regions adjoining the outer ends of the shoulder barriers.

3. As claim 2 and means secured on said rigid member providing a head rest surface area adjoining the neck passage at the opposite end of said neck passage at the region in extension of said surface area.

4. As claim 3 and means fixed on said member and on said head rest means defining supports for positioning the member, with the human body resting thereon, in a gravitally stable position.

5. As claim 4, said combination being formed as a continuously integral body of metal.

6. As claim 4, said combination including means for adjusting and fixing the positioning means with respect to the rigid member.

7. As claim 3, and means for adjusting the head rest means to provide several positions of the head rest area offset from the adjoining back rest area.

8. As claim 7, and said combination including an arm rigidly secured to the head rest, and means pivotally mounting the arm on the rigid member for rotation about an axis substantially parallel to the flat surface area and substantially perpendicular to the direction of elongation of the flat surface area, said axis being disposed in a region adjoining the surface area between the ends of the rigid member.

9. As claim 3 and means constituting integral parts of said member and said head rest means defining leg supports for positioning the member, with the human body resting thereon against said barriers and sidewalls, in a stable position.

10. As claim 3, said combination being formed as a continuously integral body of metal.

11. As claim 2, said combination being formed as a continuously integral body of metal.

12. As claim 2, and means for adjusting the shoulder barriers constructed and arranged for varying the width of the neck passage.

LEON ROBERT CAMETO.

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