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Staubs

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[54] **SPLINT STRETCHER**

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[52] **U.S. Cl.** **5/82;** 5/66

[51] **Int. Cl.**[2] **A61G 1/02**

[58] **Field of Search** 5/60, 63, 64, 66, 73, 74, 5/82

[56] **References Cited**

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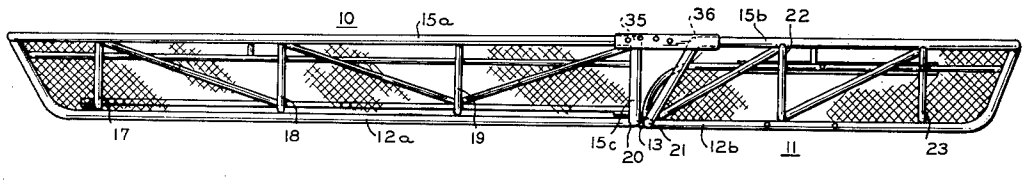
Primary Examiner—Casmir A. Nunberg

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[57] **ABSTRACT**

The framework of a splint stretcher having upper and lower side members is hinged along its length to provide a body portion together with a leg and foot portion that may be pivoted upward at an angle to be raised relative to the body portion. Means is provided to secure the leg and foot portion in the elevated angular position relative to the body portion. Pivotal support means for the foot end of the stretcher may also be provided to extend downwardly at an adjustable angle from the foot end of the stretcher to engage a supporting plane surface and thereby support the foot end of the stretcher at a desired position above the plane of a stretcher supporting surface.

2 Claims, 4 Drawing Figures



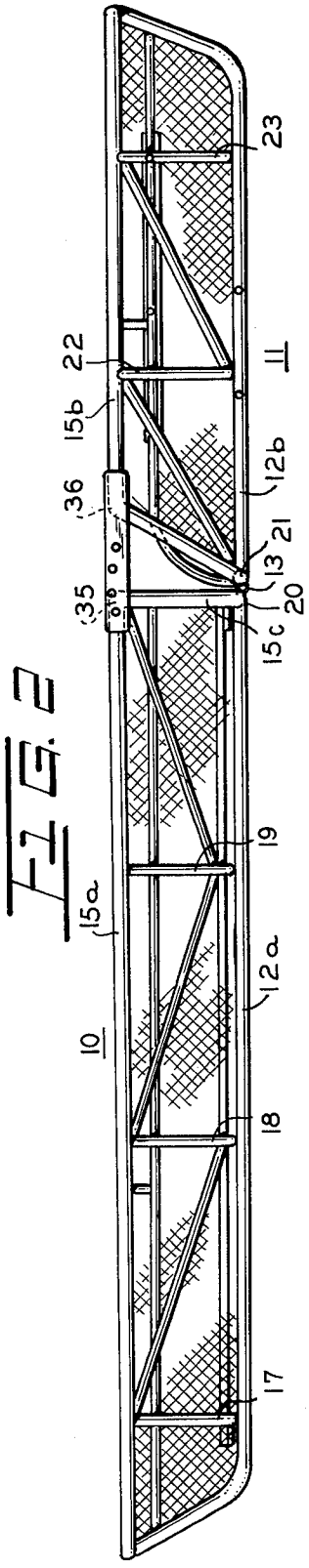

23
22
15b
11
36
12b
21
13
35
20
15c
19
15a
12a
10
18
17

FIG. 2

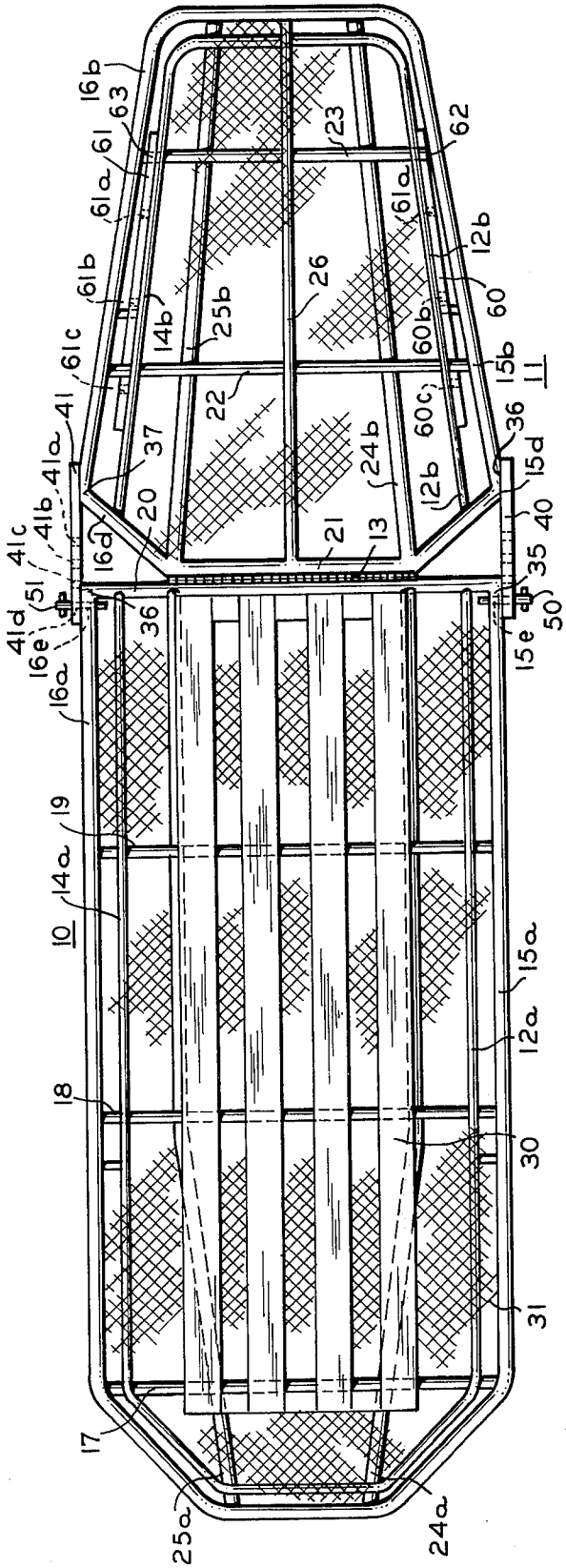

16b
63
61
62
23
61a
12b
61b
26
60
14b
25b
60b
61c
15b
11
41
22
36
41a
37
24b
60c
15d
41b
20
12b
40
41c
16d
21
13
35
51
36
50
41d
15e
16e
16a
19
14a
10
15a
12a
18
30
31
17
25a
24a

FIG. 1

FIG. 3

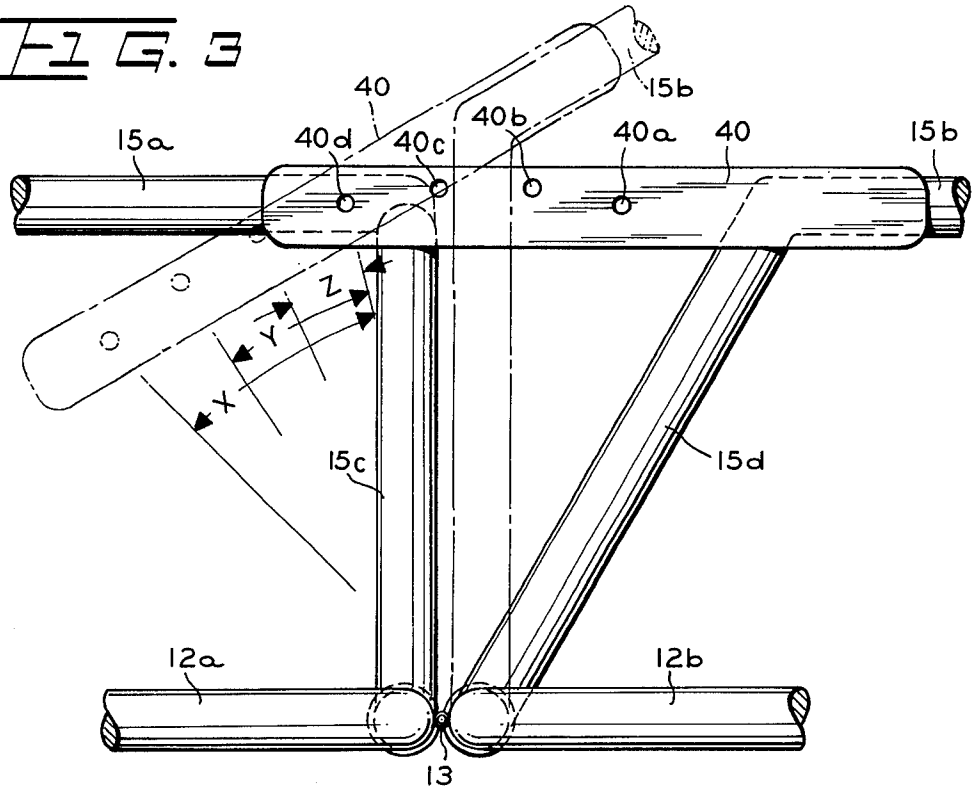
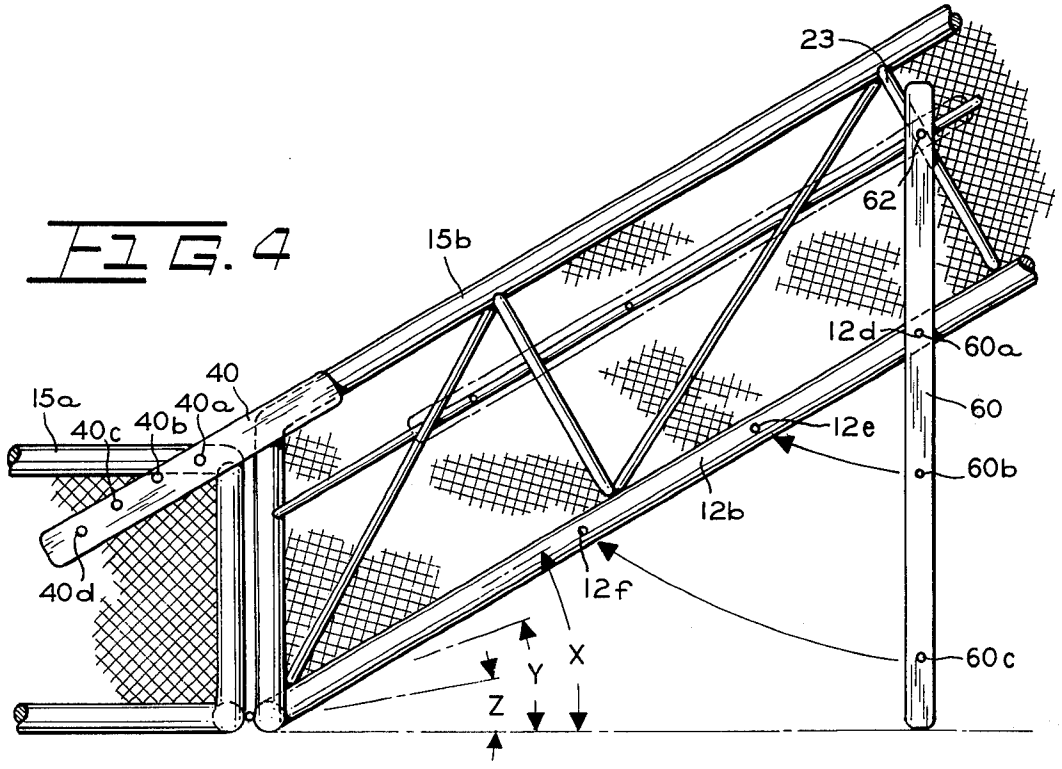

40
15b
15a
40d
40c
40b
40a
40
15b
Z
Y
X
15c
15d
12a
12b
13

FIG. 4


23
62
15b
12d
60a
40
15a
40a
40c
40b
60
12e
60b
12b
40d
12f
60c
X
Y
Z

SPLINT STRETCHER

BACKGROUND OF THE INVENTION

Splint stretchers for emergency use are well known and generally comprise an open framework of spaced upper and lower longitudinal side members with cross members and straps or meshwork forming a bed for the patient in a manner such that the patient may be enclosed within the side frame members and strapped to the stretcher. Since these stretchers are for emergency use they are light weight and sometimes are collapsible for easy storage.

It is well known that patients in shock are best treated by supporting their legs in elevated position or by supporting the entire body of the patient in inclined position with the feet elevated.

PRIOR ART

None of the prior splint stretcher frames with which applicant is familiar is arranged to provide an adjustable elevated stretcher leg and foot portion or an adjustable support for the stretcher in inclined position with the foot of the stretcher elevated above the plane of a supporting surface. U.S. Pat. No. **820,026** discloses a typical open framework splint stretcher not having the adjustable features of the present invention, and U.S. Pat. No. **1,557,647** discloses a collapsible splint stretcher that may be adjustable in length but does not provide an adjustable foot portion or an adjustable support for inclining the stretcher by supporting the foot end of the stretcher in an elevated position as provided by the present invention.

Adjustable cots and stretchers that are not of the splint stretcher type are disclosed by the following listed patents, but it should be noted that the particular adjusting arrangements disclosed by the patents are not suitable for use with a splint stretcher type of framework having upper and lower longitudinal side members, as provided by the present invention:

U.S. Pat. Nos. **1,231,220; 2,392,850; 2,394,245; 2,400,155.**

SUMMARY OF THE INVENTION

In accordance with the invention, a splint stretcher having a framework including upper and lower longitudinally extending side members on each side is provided with a body portion and a hinged leg and foot portion by hinging the lower side members at a frame pivot point along their length and interrupting the upper side members at the frame pivot point. In the preferred arrangement, the respective upper side members of the stretcher body portion at the point of interruption are extended downward at an angle of about **90** degrees to be connected to the respective lower side members of the body portion at the frame pivot point, while the respective upper side members of the leg and foot portion of the stretcher are extended downward at an angle greater than **90°** to be connected to the respective lower side members of the leg portion at the frame pivot point. In order to secure the leg portion at an angle to the body portion for elevating the legs of the patient, an adjusting brace is secured to extend in alignment with the longitudinal axis of one of the upper side members of at least one side of the stretcher at the point of interruption towards the other upper side member at that point, and a plurality of pin receiving apertures are provided to be spaced along the adjusting bar and the other side member so that a locking pin may be inserted in aligned ones of the bar and upper member apertures when the leg portion of the stretcher is in the desired angular position relative to the body portion of the stretcher either in alignment therewith or angled upwards.

A further feature of the invention is the provision of a respective pivotal support member to be secured to the frame at points spaced above the respective leg and foot portion lower side members of the stretcher frame to be pivoted and secured to extend downward at an adjustable angle to engage the plane of a supporting surface and support the foot end of the stretcher at an adjustable height above the plane of the supporting surface. In order to provide for securing the support at adjustable angles, a plurality of pin receiving apertures are spaced along each support member from the support pivot point and similar pin receiving apertures are spaced along the respective lower side member from the support pivot point towards the frame pivot point, such that a locking pin may be received in aligned ones of the support and lower side member apertures with the support in a desired angular position extending downward from the lower side member.

Other features and advantages of the invention will be apparent from the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a top plan view;

FIG. **2** is a side elevational view;

FIG. **3** is a fragmentary detail of the hinge and brace at the frame pivot point; and

FIG. **4** is a fragmentary side elevational view of the leg and foot portion of the stretcher secured in a raised position with a support member secured in downward angled position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. **1** and **2** of the drawings, the splint stretcher is comprised of a body portion generally shown at **10** and a leg and foot portion generally shown at **11.** A lower longitudinal side member on one side is comprised of a body section lower member **12*a*** hinged at frame pivot point by hinge **13** to the leg and foot section lower member **12*b***. Similarly, the other lower side member is comprised of body section **14*a*** and leg and foot section **14*b***. One of the upper side members is comprised of body section **15*a*** and leg and foot section **15*b*** and the other upper side member is comprised of body section **16*a*** and leg and foot section **16*b***. The upper and lower longitudinally extending side members are secured in spaced apart relation by suitable means such as cross members **17–23,** formed as shown. Additional longitudinal support members, such as shown at **24*a***, **24*b***, 25*a*, 25*b* and **26** may be provided as shown for the bottom frame of the stretcher to support body straps, such as shown at **30,** and mesh **31** if desired.

It will be noted that the upper side member body sections **15*a*** and **16*a*** are interrupted from the upper side leg section members **15*b*** and **16*b*** in the vicinity of the frame pivot hinge **13.** In the preferred form of the invention each upper side body section member **15*a***, 16*a*, is extended downward, such as shown at **15*c***, at an angle of about **90°** at points **35, 36,** respectively, to join the respective lower foot side sections **12*b***, **14*b*** and the cross member **21.** Thus the foot section **11** of the

stretcher frame may be pivoted upwards at the hinge **13** to the position shown by the dash lines of FIG. **3**, or the position shown by FIG. **4**.

Referring now more particularly to FIGS. **1, 3** and **4** of the drawings, means for securing an adjusted position of the leg and foot portion of the stretcher will be described. Respective adjusting braces **40, 41** are secured to extend in alignment with the axes of the respective upper side leg section members **15***b*, 16*b* towards the respective upper body section members **15***a*, **16***a* from the respective interruption angle points **36**, 37. Each brace **40, 41** is provided with a plurality of pin receiving apertures **40***a*–**40***d* and **41***a*–**41***d*. The upper body section member **15***a* is provided with a single pin receiving aperture **15***e* while the upper body section member **16***a* is provided with a single pin receiving aperture **16***e*. When the leg portion of the stretcher is aligned with the body portion of the stretcher, as shown by FIGS. **1–3** of the drawings, locking pins **50, 51** can be inserted in the respective aligned apertures **40***d*, 15*e* and **41***d*, 16*e* to secure the position. When the leg portion of the stretcher is in the inclined upward position, as shown by FIG. **4**, the locking pins **50, 51** are inserted in the respective aligned apertures **40***a*, 15*e* and **41***a*, 16*e* to secure the position. Similarly, different angle positions are secured when the locking pins **50, 51** are inserted in aligned apertures **40***b*, 15*e* or **40***c*, 15*e* for side members **15***a*, **15***b* or aligned apertures **41***b*, **16***e* or **41***c*, 16*e* for side members **16***a*, 16*b*. Although a respective adjusting brace **40, 41** for each side of the stretcher has been disclosed, an obvious modification of the invention would be to provide a single adjusting brace on one side only of the stretcher.

Referring now to FIGS. **1** and **4** of the drawings, a respective pivotal support member **60, 61** is pivotally secured at **62, 63** to the leg and foot section **11** of the stretcher frame to be pivoted down at an angle to the stretcher frame section **11** and engage a stretcher supporting plane surface, as shown most clearly by FIG. **4**, in a manner to support the foot end of the stretcher above the plane of the supporting surface. Each pivotal support member **60, 61** is provided with respective pin receiving apertures **60***a*, 60*b*, 60*c* and **61***a*, 61*b*, 61*c*, longitudinally spaced from the respective pivot points **62, 63** as shown. Similarly, each lower side member **12***b*, 14*b* is provided with a plurality of longitudinally spaced apart pin receiving apertures, such as shown at **12***d*, 12*e* and **12***f* for member **12***b*. When a locking pin (not shown) is inserted in aligned apertures **60***a* and **12***d*, the supporting leg **60** will be secured in the position shown by FIG. **4** to support the foot end of the stretcher at the angle X. If a locking pin is inserted through aligned apertures **60***b*, 12*e*, then the support **60** will be secured in a position to support the foot end of the stretcher at the angle Y and if the locking pin is inserted in aligned apertures **60***c*, 12*f*, the angle will be as shown at Z. The locking arrangements for support member **61** are the same as described above for support **60** and need not be further described. Of course, the adjustable foot supports **60, 61** may be used even when the body section **10** and the leg and foot sections are secured in alignment as shown by FIGS. **1** and **2**, in which case the entire stretcher can be supported in inclined position with different angles of inclination as determined by the respective alignments of locking pin apertures. It will be noted that the pivot points **62, 63** must be on a frame member at a location spaced above the lower side section members **12***b*, 14*b*, and may be joined to the cross member **23**, as shown, or the upper side frame section members **15***b*, 16*b* as will be obvious to one skilled in the art.

Although the adjusting braces **40, 41** have been shown to be secured to extend in alignment with upper side member sections **15***b*, 16*b*, the arrangement could be reversed with the braces extending in alignment with upper side member section **15***a*, **16***a*, in which case the arrangement of the locking pin apertures would also be reversed.

The description of the invention in the foregoing specification and the terminology of the appended claims has described the lower side frame members as being hinged to each other at a pivot point intermediate their lengths. It should be understood that such terminology and description is intended to be generic and specifically includes the arrangement in which respective cross members are secured to the lower side frame members and the hinge connection is between the adjacent cross members, substantially as shown by FIG. **1** of the drawings.

Various modifications will occur to those skilled in the art.

What is claimed is:

1. A splint stretcher having a framework including a pair of spaced apart upper and lower longitudinally extending side members on each side thereof, the lower ones of said side members being hinged for pivotal up and down movement at a frame pivot point intermediate their length, cross members extending between the lower side members on each side of the frame pivot point to form a stretcher bed frame with a body position and a hinged leg and foot portion, each of the upper side members being interrupted at a point intermediate their length in the vicinity of said frame pivot point to form first and second upper side member sections, the interrupted upper side member of the upper body stretcher portion being extended downward at an angle of about **90°** to be secured to the corresponding lower side member at the body portion side of the frame pivot point, the interrupted upper side member of the leg and foot stretcher portion being extended downward at an angle greater than **90°** to be secured to the corresponding lower side member at the leg and foot portion side of the frame pivot point, one of the upper side member sections on at least one side of the stretcher having a pin receiving aperture in the side member adjacent the point of interruption, the corresponding other one of said side member sections on at least one side of the stretcher having an adjusting brace secured to extend towards the one side member section in alignment with the longitudinal axis of the other side member, and each brace having a plurality of pin receiving apertures spaced along its length whereby the leg and foot portion of the stretcher may be secured in desired ones of different positions relative to the body portion with a respective pin extending through aligned apertures of the respective upper side frame section and adjusting brace.

2. The stretcher of claim **1** in which a respective support member is pivotally secured to the leg and foot portion of the stretcher at a point above the lower side members of the leg and foot section, each support member having a plurality of longitudinally spaced pin receiving apertures along its length from its pivot point, and the respective lower side members of the leg and

foot portion of the stretcher having a plurality of longitudinally spaced pin receiving apertures from the pivot point of the support member, whereby the respective support member may be secured in a desired angular position with a respective pin extending through aligned apertures of the respective support and lower side member to support the foot end of the stretcher at a desired position above the plane of a stretcher supporting surface.

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