

Jan. 18, 1955

Q. M. GRAVATT

2,699,557

STRETCHER

Filed July 8, 1950

2 Sheets-Sheet 1

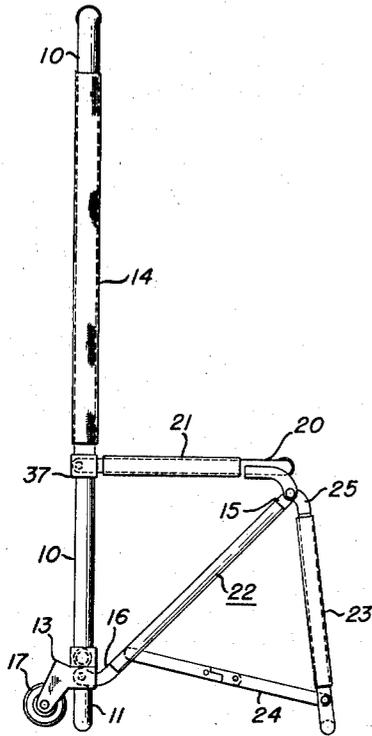


Fig. 1

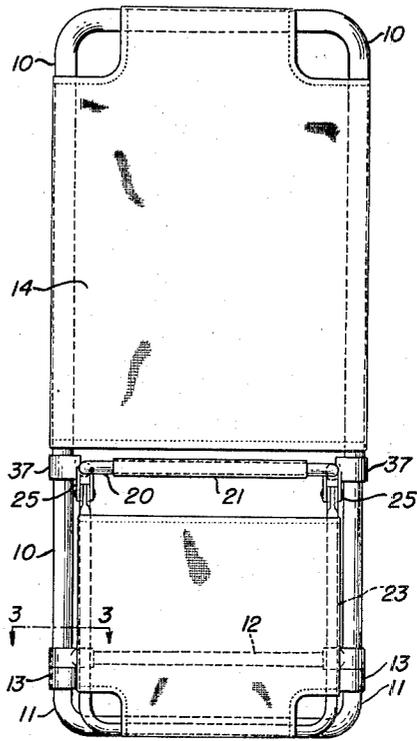


Fig. 2

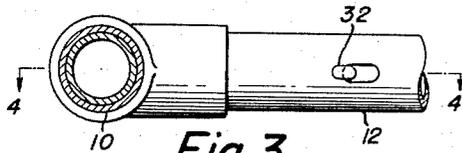


Fig. 3

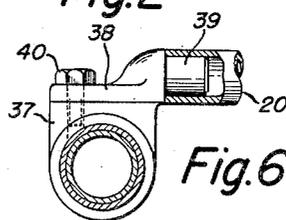


Fig. 6

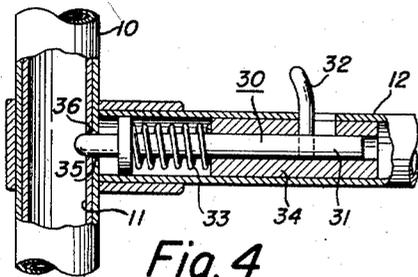


Fig. 4

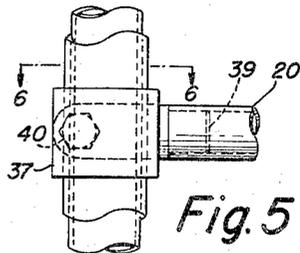


Fig. 5

INVENTOR.  
QUINTIN M. GRAVATT  
BY *Woodling and Krost*  
*Atty's*

Jan. 18, 1955

Q. M. GRAVATT  
STRETCHER

2,699,557

Filed July 8, 1950

2 Sheets-Sheet 2

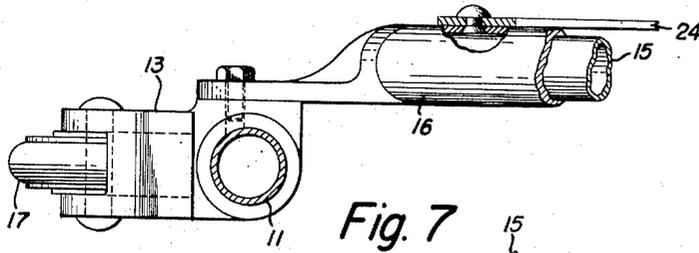


Fig. 7

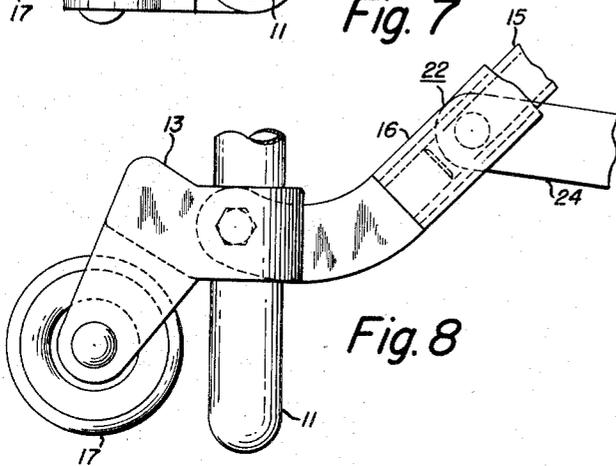


Fig. 8

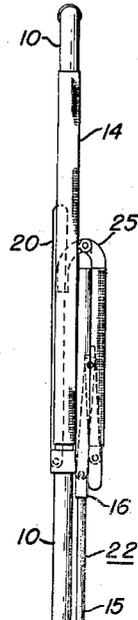


Fig. 9

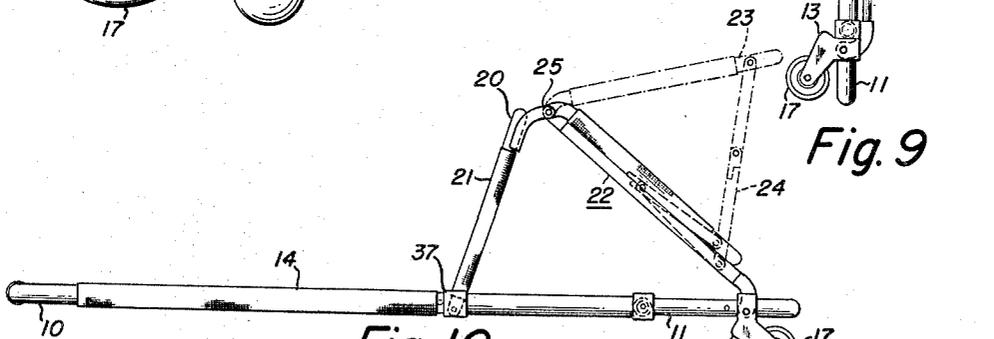


Fig. 10

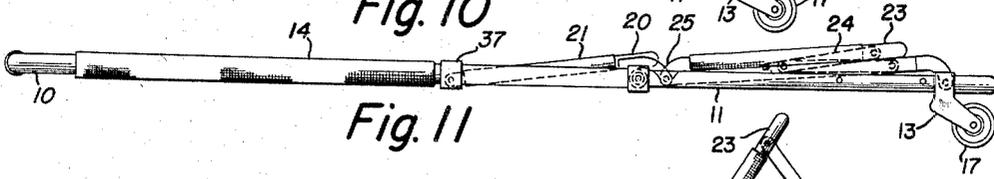


Fig. 11

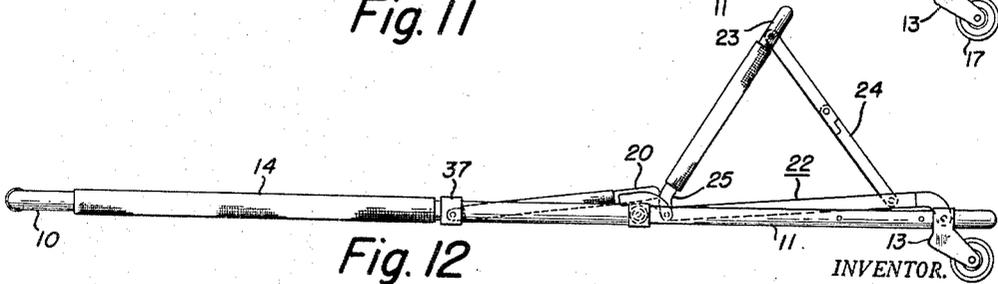


Fig. 12

INVENTOR.

QUINTIN M. GRAVATT

BY *Woodling and Kraft*  
*Atty*

1

2

2,699,557

**STRETCHER**

Quintin M. Gravatt, Lakewood, Ohio

Application July 8, 1950, Serial No. 172,725

2 Claims. (Cl. 5—82)

This invention relates to invalid equipment in general, and relates more specifically to a stretcher having folding portions for supporting the human body in various positions.

An object of this invention is to provide a stretcher which may be reduced in length for storage in a readily accessible place, and quickly extendable for service.

Another object of this invention is to provide a stretcher of short length and provided with an arched leg support in order that the human body may be shortened while supported in a reclining position for negotiating close turns in hallways.

Still another object of this invention is to provide a stretcher which may be converted into a chair, even while a patient is resting thereon.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claims, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a side elevation of an embodiment of this invention wherein the stretcher is extendable and retractable, and is convertible into a chair;

Figure 2 is a front view of the device illustrated in Figure 1;

Figure 3 is an enlarged detail view taken along line 3—3 of Figure 2;

Figure 4 is a sectional view taken along line 4—4 of Figure 3;

Figure 5 shows an enlarged detail of the bracket employed in the illustrated embodiment for swingably supporting the seat portion on the extendable frame;

Figure 6 is a view taken along line 6—6 of Figure 5;

Figure 7 and Figure 8 are detail views of a wheel and bracket for wheeling the device when folded into a chair position;

Figure 9 shows the storage-folded position of the illustrated embodiment of the invention;

Figure 10 shows a position of this embodiment of the invention with the frames retracted, and with the leg support members arched;

Figure 11 shows a fully extended position of this embodiment of the invention for use as a standard stretcher, and

Figure 12 shows a view similar to Figure 11 with the leg support member raised to serve as a back rest for semi-inclined resting positions.

In the accompanying drawings a stretcher has been illustrated embodying every feature of this invention, although it is to be understood that some of the features may be employed separately. For example, the illustrated embodiment of the stretcher device is foldable for ready storage and for use in four special purpose positions. However, stretchers foldable into just any one of the four positions would be within the spirit and scope of this invention.

In Figures 1 and 2 of the drawings the component parts of this embodiment of the invention are illustrated completely extended in order that the construction and function thereof may be best understood. This embodiment comprises a primary frame 10 and an extension frame 11. The primary frame 10 is a U-shaped tubular member connected across the ends thereof by a cross bar 12. The extension frame 11 is a bent tubular member of construction similar to the frame 10, but of a smaller tubular diameter to slidably fit into the frame 10. The frames 10 and 11 are accordingly extendable and retractable in a plane. A cover of any suitable material

may be employed as illustrated to form a body support in the primary frame 10.

A seat frame 20 is attached to the primary frame 10 by means of a bracket 37. The seat frame 20 is preferably tubular for strength and lightweight construction, and is covered by a cover 21 of any suitable material. Figures 5 and 6 are somewhat enlarged to show the preferred method of attaching the frame 20 to the frame 10. An attachment fitting 38 is suitably secured, such as by a bolt 40, to the bracket 37 fixed on frame 10. The fitting 38 is provided with a plug end 39 thereon which may be inserted into the tubular body of the frame 20 and secured there by any suitable means.

A brace member 22 is provided to extend between the extension frame 11 and the outer portion of the seat frame 20. In the illustrated embodiment of the invention the brace member 22 is extensible and retractable by providing telescoping brace members 15 and 16. A wheel bracket 13 is secured to the extension frame 11 and serves the triple function of supporting a wheel 17, and serving as a stop member to gauge the maximum degree of retraction of the frame 11 with respect to the frame 10, and also serves as a pivotal support for the member 16 of the extendable brace member 22. The details of construction of the wheel bracket 13 are illustrated in the Figures 7 and 8 of the drawings.

A leg support member 23, in this full embodiment of the invention, is pivotally joined by means of a compound hinge 25 to the member 22 and the seat frame 20. The leg support 23 may be extended to the position illustrated in Figure 1 of the drawings and held in that position by a brace 24, and when in the extended position illustrated in Figure 1 will support the extreme portion of the seat frame 20 and will also stabilize the entire stretcher device in an upright position for use as a chair. Very often injured or ill persons may be allowed to sit after a period of time, and the frame 10, 11 of the invention may readily be placed on end and the frame 20 unfolded and supported as described and illustrated to provide a chair. Furthermore, with the wheels 17, the patient may be moved from place to place by tilting the stretcher backward until the weight is shifted from the frame 11 to the wheels 17.

Stretchers are normally extremely long and cumbersome devices requiring a long vehicle for carrying. Furthermore, even with an ambulance the driver must go around to the back of his vehicle to remove a stretcher before he can proceed to the scene of the injury. The stretcher of this invention is collapsible into a short length which may readily be placed behind the passenger seats of an ambulance or other vehicle and removed through the regular passenger door. In the collapsed position with the frames 10 and 11 at their furthest retracted position, as illustrated in Figure 9 of the drawings, the stretcher of this invention is not as long as the width of a normal automobile seat.

It often becomes necessary to remove people from rooms through hallways or down stairs where very short turns are required. Often the stretcher must be tilted at considerable angle or lifted and passed over railings and like obstructions in order to carry the patient, often with danger of dropping the patient from the stretcher. With a stretcher embodying the features of this invention, the body of the patient may be considerably shortened and will be supported for aid in negotiating short turns. In Figure 10 of the drawings the seat frame 20 is extended outwardly from the frame 10 and held by the extendable brace member 22. The brace member 22, as previously discussed, is pivotally connected to the extension frame 11, whereas the frame 20 is pivotally connected to the primary frame 10. Accordingly, extension or retraction of the frames 10 and 11 will affect the angular relationship of the seat frame 20 with respect to the primary frame 10. In Figures 3 and 4 of the drawings a lock member 30 is illustrated for the purpose of holding the frames 10 and 11 in any selected degree of extension. The lock 30 comprises a filler block 34 in the tubular cross bar 12. A longitudinal bar 31 is carried longitudinally inside the filler block 34 and is urged in a longitudinal direction by a spring 33. A handle member 32 is permitted to protrude through the side of the cross bar

12 for manual retraction of the bar 31 against the urge of the spring 33. An opening 35 in the side of the frame 10 permits the bar 31 to extend from the cross bar 12. One or more openings 36 are provided in the side of the extension frame 11 in position to register with the opening 35, and accordingly the lock 30 will serve to hold the frames 10 and 11 in any selected degree of extension. Furthermore, the leg support 23 may be extended, as illustrated in phantom in the Figure 10, or may be retracted as illustrated by full lines, according to the need for supporting the feet of a patient being carried. Accordingly, whenever a short turn must be negotiated while carrying a patient, the frames 10 and 11 may be retracted to the necessary degree to shorten the patient's body length. The patient is placed upon the stretcher with his back resting upon the cover 14 of the primary frame 10, and accordingly the knees will be positioned substantially at the outer end of the seat frame 20. If the turn to be negotiated is extremely short the frames 10 and 11 may be retracted to an extreme degree, in which event the leg support 23 will probably be raised and held in position by the brace 24 to support the feet of the patient. Only the very short turns will require the extreme compacted fold illustrated in Figure 10, and accordingly any degree of extension between a complete 90° angle and a straight stretcher may be selected.

In Figure 11 of the drawing the stretcher is illustrated in a fully extended position as normally employed to carry a patient completely extended. The back of the patient is placed upon the canvas cover 14, and the legs are extended over and supported by the seat 20 and the leg support 23.

In Figure 12 of the drawing a still further position of this improved stretcher construction is illustrated. The position of Figure 12 may be used for negotiating short turns when the patient is suffering from leg injuries, or may be employed when the patient does not care to lie completely stretched out. The position illustrated in Figure 12 is accomplished by simply extending the brace 24 from the position illustrated in Figure 11, thereby raising the leg support 23 with respect to the balance of the stretcher construction. The leg support 23 then serves as a back rest and the legs of the patient can extend along the cover 14 on the primary frame 10.

Although the invention has been described in its preferred form with a certain degree of particularity, it is

understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

1. A stretcher comprising, a frame having first and second tubular portions longitudinally extendible and retractable in a plane by telescoping of the second frame into the first frame, lock means to hold said portions in any selected position of extension, a swingable support member hinged to said first portion a distance from the telescoping end thereof, a brace member pivotally carried by said second portion, said support member and brace member united by hinge means, a second support member swingably carried by said support member and brace at a position near the ends thereof remote from said frame, and foldable brace means for holding said second support means in a plane substantially parallel with said frame.

2. A stretcher comprising, a frame having first and second tubular portions longitudinally extendible and retractable in a plane by telescoping of the second frame into the first frame, lock means to hold said portions in any selected position of extension, a swingable support member hinged to said first portion a distance from the telescoping end thereof, an extensible brace member pivotally carried by said second portion, said support member and brace member united by hinge means, a second support member swingably carried by said support member and brace at a position near the ends thereof remote from said frame, and foldable brace means for holding said second support means in an acute angular position with respect to said brace member.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

1,002,589	Kline	Sept. 5, 1911
1,305,388	Luria	June 3, 1919
2,328,047	Anderson	Aug. 31, 1943
2,362,721	Reynolds	Nov. 14, 1944
2,517,443	Rhodes	Aug. 1, 1950
2,540,133	Miller	Feb. 6, 1951