Aug. 1, 1950 C. C. RHODES ET AL 2,517,443

STRETCHER

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FIG. 1

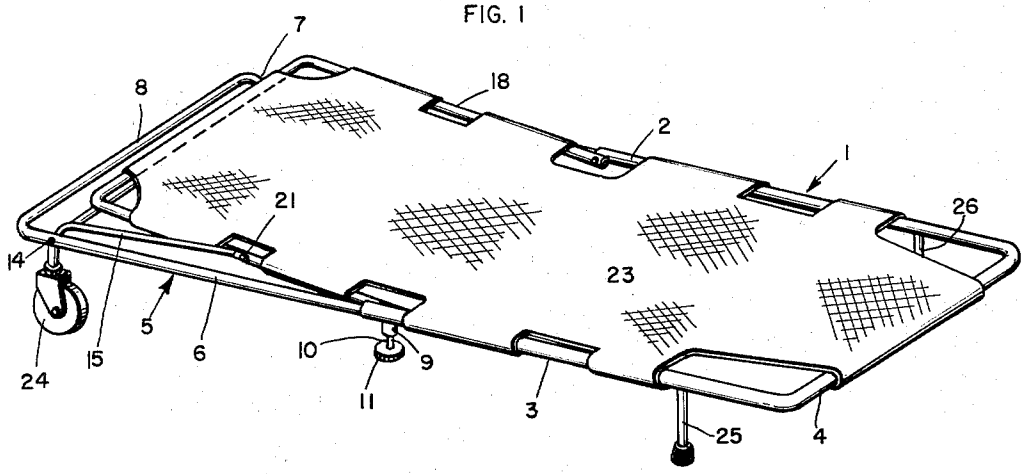


FIG. 2

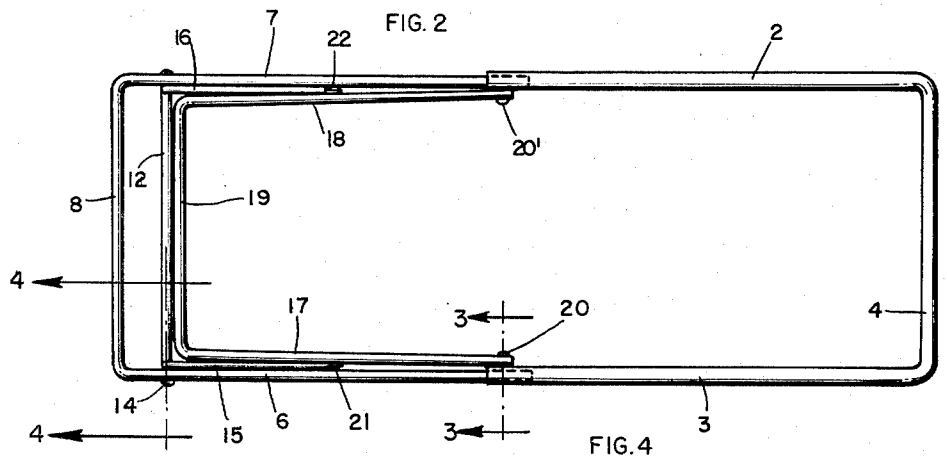


FIG. 3

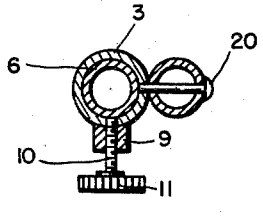
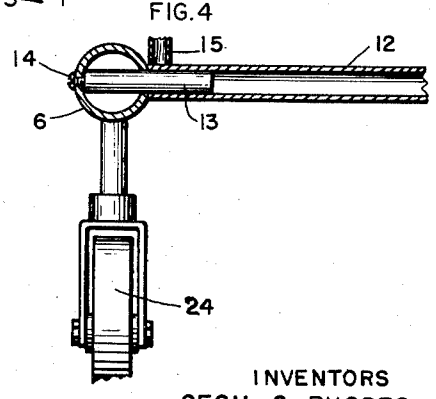


FIG. 4



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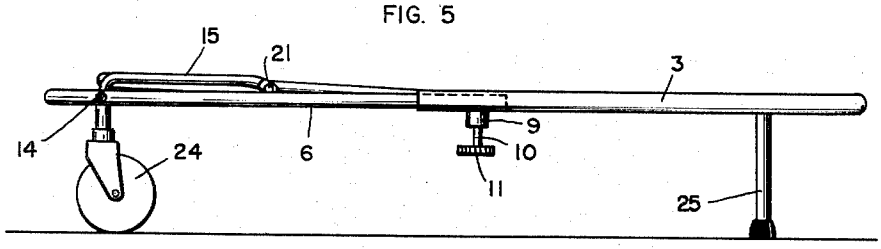
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FIG. 5



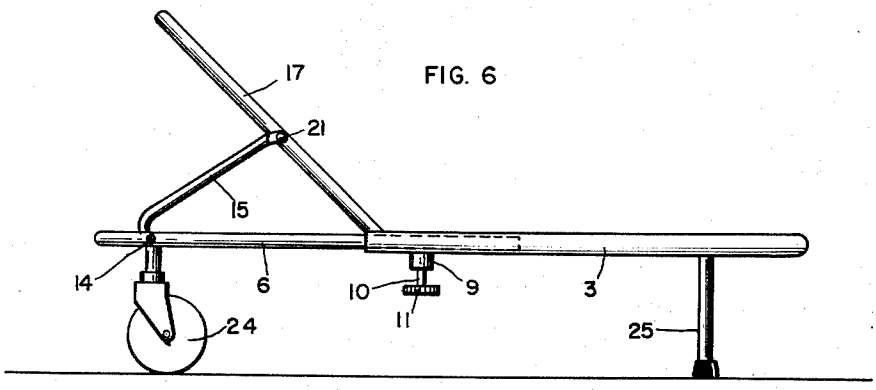
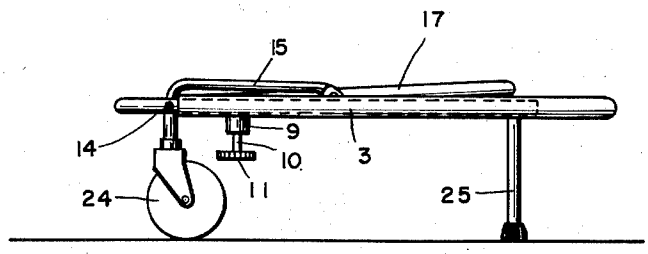


FIG. 6

FIG. 7



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STRETCHER

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4 Claims. (Cl. 5—82)

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This invention relates to improvements in stretchers and more particularly to stretchers which are readily portable and adjustable in length.

Full length stretchers have been found to be lacking in many essential details, such as when a person is being transferred from his home to a hospital, and such person lives, on, for instance, the second floor, or higher, where it is necessary to transport the patient down a series of steps, it has been almost impossible to manipulate the stretcher around corners, and maintain the same in a horizontal plane so as not to displace the patient. Also, as patients are usually carried down with feet first on the stretcher, there is a great danger of the patient sliding off the lower or front end of the stretcher unless such patient is strapped to the stretcher itself, which practice is normally condemned, and is of great discomfort to the patient. It was to overcome these and many other inherent defects of the everyday stretchers that the present invention was devised.

The main objects of this invention are to provide a new and improved stretcher construction wherein the head and back portion thereof, although being pivotally secured to the main frame of the stretcher, is arranged to be adjustably positioned at any angle of a 360° arc, and simultaneously and automatically shorten or lengthen the main stretcher frame proportionately of the angle at which the back and head rest is set; to provide a device of this character having a one-piece cover which is secured at its ends and edges to the head and back rest portion of the stretcher and the leg and foot portion of the main frame of the stretcher; to provide a device of the class described having a main frame made up of telescoping leg members adapted and arranged to be locked in any position desired to correspond in length to the angle at which the secondary head and back frame is positioned; to provide a device of this character having pivoted link arms or supporting braces anchored at one end to the front portion of the main frame and at the other end to the back and head rest secondary frame, substantially medially of the ends thereof; to provide a construction of this character which is simple in operation, inexpensive to manufacture and light in weight; and to provide a construction of this character which may be substantially folded in half for readily storing the same when not in use.

An illustrative embodiment of this invention is shown in the accompanying drawings in which

Figure 1 is a perspective view of the device of our invention shown with the secondary frame partially raised.

Fig. 2 is a top elevational view of the device with the cover removed.

Figs. 3 and 4 are cross-sectional views taken on the lines 3—3 and 4—4 respectively of Fig. 2.

Fig. 5 is a side view of our device shown in fully extended position.

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Fig. 6 is a side view showing the back rest raised at a 45° angle and illustrating how the main frame is shortened with the raising of the secondary frame.

Fig. 7 is a side view showing our device in fully collapsed position ready for storage.

Referring in detail to the drawings, our device comprises a two-piece main frame, preferably constructed of metal tubing and each bent in U-shape. The rear member 1 comprises a pair of legs 2 and 3 and a cross member 4. The head member 5 comprises a pair of legs 6 and 7 and a cross member 8.

The inside diameter of the legs 2 and 3 is slightly larger than the inside diameter of the legs 6 and 7, whereby the legs 6 and 7 are adapted to be inserted into the interior of the legs 3 and 2 respectively in telescoping relationship. The free end of the leg 3 is provided with a boss 9 rigidly secured to the underside thereof by any suitable manner such as by welding or the like. The boss 9 and the leg 3 are drilled and tapped so as to receive a set screw 10 having a head 11 for easy manipulation of the set screw whereby the inner end of the set screw 10 will bear against the leg 6 when the same is telescopingly inserted in the leg 3, and thereby locking the leg 6 in the leg 3.

The forward or head end of the member 5 is provided with a cross bar 12 which is secured to the legs 6 and 7 by means of cylindrical plugs 13 which are partially inserted in the ends of the cross bar 12 and extend into the legs 6 and 7. The inner faces of the legs 6 and 7 are drilled for the reception of plugs 13 (see Fig. 4). The outer faces of legs 6 and 7 are also drilled, as are the plugs 13, which are also threaded, whereby the plugs 13 are rigidly secured in position by screws 14. As will be apparent, the cross member 12 is rotatably positioned on the plugs 13, since the plugs are of a slightly smaller diameter than the inside diameter of the cross member 12. The member 13 is provided with a pair of brace or supporting arms 15 and 16 which are rigidly secured, each adjacent the ends of the cross bar 12 in any suitable manner such as by welding or the like.

The secondary or head and back frame is substantially U-shaped and constructed of metal tubing similar to the two-piece main frame and comprises a pair of legs 17 and 18 and a transverse member 19. The free ends of the legs 17 and 18 are pivotally secured to the free ends of the legs 3 and 2, respectively, of the rear member 1 by any suitable means such as by rivets 20 which extend through the free ends of the legs 17 and 18 and are secured to the legs 3 and 2 respectively.

The free ends of the legs 15 and 16 are pivotally secured to the legs 17 and 18 respectively by means of rivets 21 and 22, respectively, and substantially medially of the ends of the legs 17 and 18 respectively.

The device of the present invention is covered with a heavy canvas cover 23 which is secured to the legs 2, 3 and cross member 4 of the rear member and to the legs 17 and 18 and the cross member 19 of the secondary frame member whereby, upon manipulation of the secondary frame a smooth surface is always had.

The head end of our device is provided with a pair of swivel-type wheels 24 positioned on the lower side of the frame member 5 adjacent the cross member 12, one for each of the legs 6 and 7. The wheels are secured in any suitable conventional manner, such as by insertion in the tubular retainer 27. The rear end of the stretcher frame is provided with a pair of feet 25 and 26 positioned on the lower side of the legs 3 and 2 respectively and adjacent the cross leg 4, whereby, when the stretcher is in the position shown in Fig. 5, the surface of the stretcher will lie in a horizontal plane.

When it is desired to transport a patient in a position other than supine, the set or thumb screw 10 is loosened and the secondary frame moved to the desired angular position such as shown in Fig. 6. By so moving the secondary frame, the supporting arms or braces 15 and 16 will automatically cause the legs 6 and 7 respectively to shift inwardly into the legs 3 and 2 respectively whereby to shorten the length of the main frame. When the desired angular adjustment of the stationary frame is determined, the set screw 10 is tightened so as to lock the legs 6 and 7 securely in the legs 3 and 2 respectively. The stretcher then may be moved in the usual manner, or the cross arm 4 may be grasped by the attendant, raised, and the patient moved by means of the wheels 24, in wheelbarrow-like fashion.

When it is desired to store the stretcher away, the secondary frame is moved forwardly from the position shown in Fig. 6 and downwardly so that it bears against the canvas cover 23 as shown in Fig. 7. When the set screw 10 is tightened, it can readily be seen that the device of the present invention is relatively small and compact, and may be stored in comparatively small quarters.

It will now be readily apparent, from the foregoing, that the back and head rest may be readily adjustable to suit the conditions required by physicians and also makes for more comfortable use of a stretcher from the patients' standpoint. It will also be apparent that a person may be moved down a staircase very readily by placing the patient in a semi-sitting position so as to reduce the length of the main frame of the stretcher thereby making it unnecessary to strap the patient to a stretcher in order to transport a patient down a staircase in a horizontal plane, since the head end of a stretcher may be moved down the staircase first instead of the foot end.

Another advantage of the present construction is that patients may be transferred by a single attendant in hospitals from room to room, etc., by utilizing the stretcher in a wheelbarrow-like fashion, when the patient is placed on the stretcher in the position shown in Fig. 6 of the drawings. This is ideal for transporting cardiac cases as well as leg splinted cases.

It will also be apparent that the stretcher of the present invention can be manufactured so that the two-piece main frame is of the usual 72" length and, as desired, greatly reduced in length to meet circumstances when the back and head rest is shifted to an angular position.

Although but one specific embodiment of this invention is herein shown and described, it is to be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

We claim:

1. A device of the class described comprising a telescopingly arranged two-piece main frame, a back and head rest secondary frame pivotally secured to said main frame and intermediate the ends of said main frame, means secured to said main frame and secondary frame whereby, when said secondary frame is moved about its pivot, said main frame is shortened or lengthened according to the angle at which the secondary frame is positioned with respect to the horizontal, and a cover for said frames.

2. A device of the class described comprising a tubular two-piece, telescopingly arranged main frame, a back and head rest secondary frame pivotally secured to said main frame and intermediate the ends of said main frame, link support arms pivotally secured to said main frame and secondary frame whereby when said secondary frame is moved about its pivot, said main frame is shortened or lengthened according to the angle at which the secondary frame is positioned with respect to a horizontal plane, and a cover for said frames.

3. A stretcher of the class described, a main frame comprising a tubular U-shaped front member and a tubular U-shaped rear member, the legs of said front member being slidably positioned in the legs of said rear member in telescoping relationship, means to adjustably lock said legs together, a secondary back and head frame comprising a U-shaped tubular member, means for pivotally securing the free ends of the legs of said secondary frame adjacent the free ends of the legs of said rear member, link brace arms each pivotally secured at one end to one of said legs of said front member and at the other end of said legs of said secondary frame substantially medially of the ends thereof, whereby movement of said secondary frame to any position throughout a 180° arc will automatically shorten or lengthen said main frame, and a one-piece cover for said rear member and secondary frame.

4. A stretcher of the class described, a main frame comprising a tubular U-shaped front member and a tubular U-shaped rear member, the legs of said front member being positioned in the legs of said rear member in telescoping relationship, means to adjustably lock said legs together, a secondary back and head frame comprising a U-shaped tubular member, means for pivotally securing the free ends of the legs of said secondary frame adjacent the free ends of the legs of said rear member, means pivotally secured to said secondary frame and to said front member of said main frame, whereby movement of said secondary frame to any position throughout a 180° arc will automatically shorten or lengthen said main frame, and a one-piece cover for said rear member and secondary frame.

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