Aug. 15, 1944. A. N. SPANEL 2,355,757

FLOATABLE STRETCHER

Filed Dec. 27, 1943 2 Sheets-Sheet 1

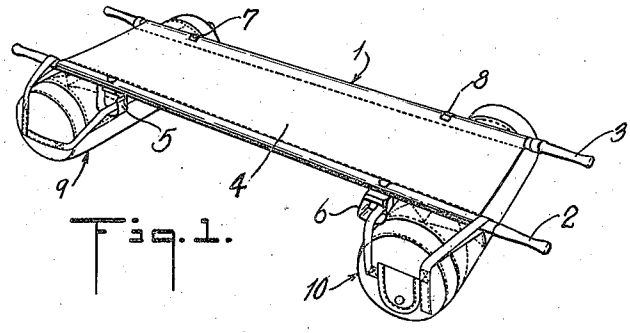


Fig. 1.

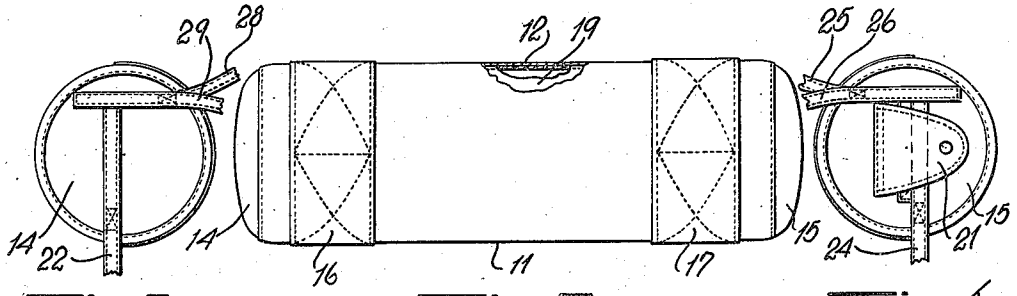


Fig. 3. Fig. 2. Fig. 4.

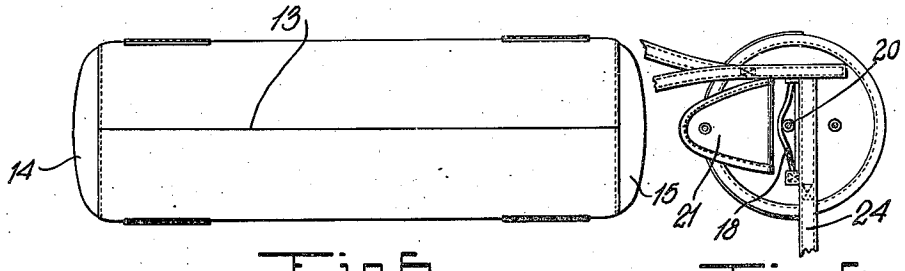


Fig. 6. Fig. 5.

Fig. 9.

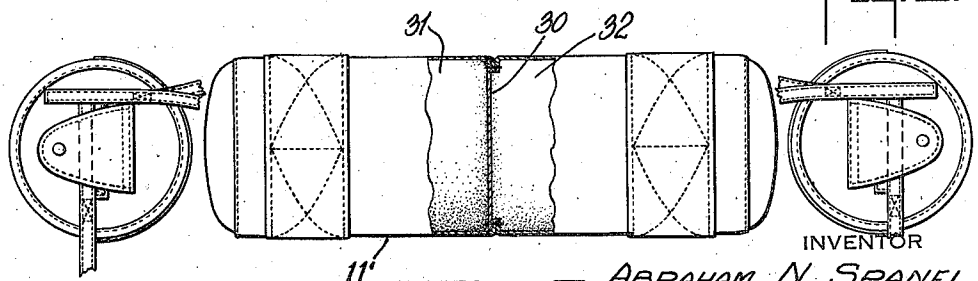


Fig. 8. Fig. 7.

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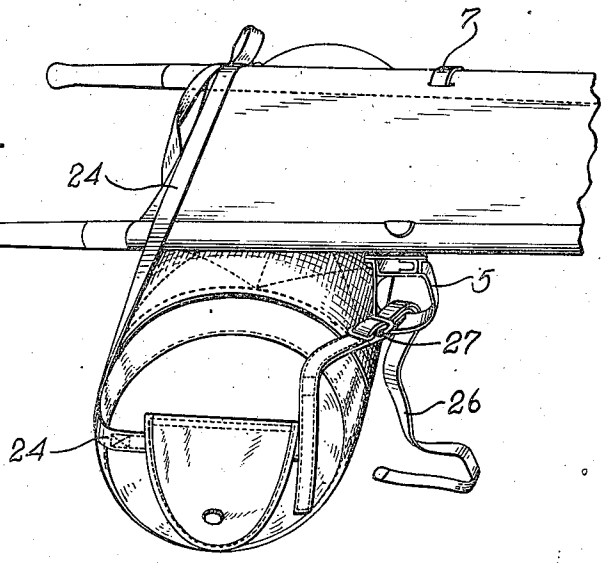
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Fig. 10.



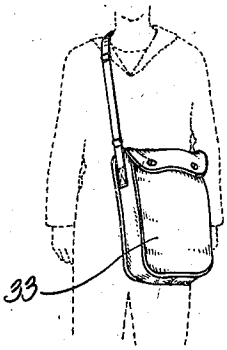
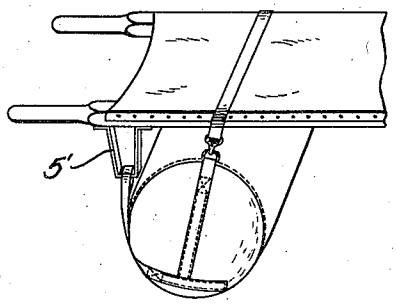


Fig. 11.

Fig. 14.



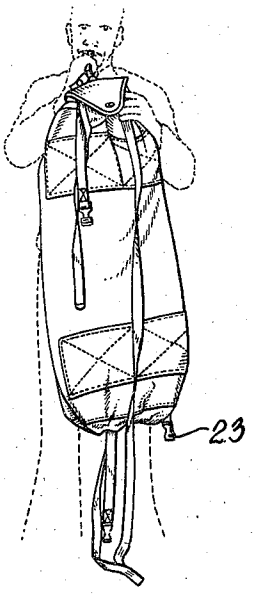


Fig. 13.



Fig. 12.

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UNITED STATES PATENT OFFICE

2,355,757

FLOATABLE STRETCHER

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Application December 27, 1943, Serial No. 515,699

10 Claims. (Cl. 9—11)

This invention relates to floatable stretchers and more particularly to such structures for use as litters to provide a ready means for transporting the injured or wounded on water in the same stretcher on which they are carried on land.

Heretofore, great loss of life has been experienced due to the difficulties of moving wounded and injured through or across bodies of water where boats could not be taken or were inaccessible. While some of these bodies of water could be traversed by stretcher bearers, it was impossible in many cases to handle wounded and injured stretcher cases, especially those seriously injured.

An object of this invention is to provide a floatable stretcher structure which is compact and readily carried when disassembled, and which may be easily and quickly assembled and inflated in the field.

Another object of the invention is to provide collapsible readily inflatable stretcher floats adapted to be quickly and safely assembled in position on a regular stretcher so as to form a floatable stretcher which may be readily carried over land or floated over water.

Further and more specific objects, features and advantages of the invention will more fully appear from the detailed description given below taken in connection with the accompanying drawings which form a part of this specification, and in which:

Fig. 1 is a perspective view of an embodiment of the invention showing a floatable or buoyant stretcher ready for use;

Fig. 2 is a plan view of one of the floats shown in Fig. 1 in inflated condition, with certain details of the ends omitted for the sake of clarity;

Figs. 3 and 4 are respectively opposite end views of the structure shown in Fig. 2 and illustrate the structural end features;

Fig. 5 is a view similar to Fig. 4, but showing the bladder flap open;

Fig. 6 is a bottom view of the structure of Fig. 2;

Figs. 7, 8 and 9 are respectively top and end views of a modified form of float utilizing two bladders instead of one as in Fig. 2;

Fig. 10 is a somewhat enlarged view showing an alternative manner of attaching the floats to the ends of the stretcher shown in Fig. 1;

Figs. 11, 12 and 13 are perspecive views showing the manner in which the floats are packed when collapsed and the steps of removal and inflation; and

Fig. 14 shows a somewhat modified form of stretcher with a float attached thereto.

Referring more particularly to Fig. 1: 1 designates in general a stretcher of conventional type provided with spaced apart longitudinally extending relatively rigid members, such as wooden side pieces 2—3 serving to support a canvas or the like member 4 serving as a carrying platform secured to the side pieces, as by having oppositely disposed tubular marginal edges through which the side pieces 2—3 extend so as to expose handle ends of the side pieces. Legs 5—6 and 7—8 are rigidly secured to the respective side pieces 2—3 and in the present embodiment are of stirrup shape. The pairs of legs 5—7 and 6—8 are provided with suitable jointed spreaders (not shown) to maintain side pieces in spaced relation while permitting the stretcher to be collapsed, in the manner well understood. Detachable collapsible pneumatic floats designated in general as 9 and 10, are fastened in place adjacent respectively opposite ends of the stretcher in the manner to be more particularly described following.

The floats 9 and 10 are each constructed and arranged as follows: A flexible casing 11 (Figs. 2–6) is provided by a tubular body member 12 (in the present embodiment formed by a seam 13) to the opposite ends of which are sewed substantially circular disc ends 14—15 so as to define a substantially cylindrical casing. The casing body is provided with axially spaced reinforced areas by means of patches 16—17 which are secured thereto as by sewing. These patches are preferably on the outside, but may be on the inside if desired, and extend around the casing to an extent to engage the stretcher body adjacent the side pieces 2—3 as well as the adjacent legs such as 5—8; thus preventing detrimental wear of the casing by chafing. One end of the casing is provided with a restricted slit opening (Fig. 5) 18 for insertion therethrough of a pneumatic bladder 19 (Fig. 2) whose inflation tube 20 extends through a suitable tongue and is accessible through said slit 18. A closure flap 21 is secured along one edge to the end 15 and is provided with a snap fastener at its free end for releasable attachment in closed position (Fig. 4). A canvas or the like flexible strap 22 has one end strongly secured, as by stitching, to the end 14 adjacent its diameter and its other end is preferably provided with a buckle or the like fastening element 23 (Fig. 13) for ready engagement with the free end of a cooperating similar strap 24 whose other end is similarly secured to the casing end 15; thus providing a strap girth extending longitudinally of said float for engage-

ment transversely of the stretcher, either through the stirrup legs, such as 5—8 (Fig. 1) or completely around the body (Figs. 10 and 14). Similar straps 25—26 have their corresponding ends firmly secured to the end 15, preferably extending transverse the straps 24, and their free ends are adapted to be fastened together, as by a buckle 27, to facilitate fastening the straps to the adjacent sides of the stretcher, such as to a leg such as 5 of the stretcher (Fig. 10) or to a leg such as 5' of the modified form of stretcher (Fig. 14), or to a handle (Fig. 1). The other casing end 14 is similarly provided with like straps 28—29 (Fig. 3) for securing the other end of the float to an opposite leg (Figs. 10 and 14) such as 7, or a stretcher handle (Fig. 1).

From the foregoing, it will be seen that the floats may be securely and quickly fastened in their respective positions on the stretcher body in such a manner as to prevent any possibility of accidental displacement thereon or therefrom, such as might result in serious detriment or fatality to the person being carried on the stretcher. It is further noted that the same float is adapted for use with different types of stretchers, such for example as the U. S. Army litter (Figs. 1 and 10) or the British litter (Fig. 14).

In Figs. 7–9 inclusive, I have shown a modified form of float which in general is similar to the float previously described, except that in this latter embodiment the casing, which is designated in its entirety as 11', is provided with a transversely extending bulkhead 30 serving to divide the same into two cells which respectively contain separate pneumatic bladders, such as 31—32. Each of the opposite casing ends is provided with a restricted slit opening and closure flap, for access to the filling tubes of the separate bladders, in all respects like that previously described in connection with the embodiment of Figs. 4–5.

Two floats in collapsed condition are normally carried in a bag, such as 33 (Fig. 11), preferably with a spare bladder, and the entire package weighs only approximately seven pounds. A float may be readily removed (Fig. 12) and easily inflated (Fig. 13), after which the inflation tube is closed, the closure flap shut and the float secured to the stretcher body as shown in Fig. 10. After the floats are secured in position (Fig. 1), a patient may be readily transported over land in the usual manner until a body of water is reached, at which time the stretcher with the patient on it may be readily floated across the body of water, and the transportation alternately overland and water is thus made possible. The pneumatic floats also serve as efficient supporting cushions for the stretcher body.

Having thus described my invention with particularity, with reference to the preferred embodiment of the same, and having referred to certain modifications thereof, it will be obvious to those skilled in the art, after understanding my invention, that other changes and modifications may be made therein without departing from the spirit or scope of my invention and I aim in the appended claims to cover such changes and modifications as are within the scope of the invention.

What I claim is:

1. A collapsible pneumatic float for buoyant support of a body structure comprising an elongated substantially cylindrical fabric casing defined by substantially circular oppositely disposed ends and inflatable foldable pneumatic bladder means therein, and fastening means secured to said casing adjacent respectively opposite ends thereof for attachment to said body structure.

2. A collapsible pneumatic float for buoyant support of a body structure comprising an elongated substantially cylindrical fabric casing defined by substantially circular oppositely disposed ends and inflatable foldable pneumatic bladder means removably disposed therein, said casing being provided with reinforced areas spaced apart longitudinally of said float for engaging cooperating members of said body, fastening means secured to respectively opposite ends of said casing and providing spaced apart engaging portions for attachment to spaced apart portions of said body structure.

3. A collapsible pneumatic float for buoyant support of a body structure comprising an elongated fabric casing provided with and whose cross-sectional contour is defined by transverse fabric ends of curvilinear shape and a pneumatic bladder removably disposed therein, one of said casing ends being provided with a restricted opening for insertion of said bladder, fastening means extending longitudinally of said float and secured to said casing adjacent respectively opposite ends thereof for attachment extending transversely of said body, and fastening means respectively adjacent each end of said float and secured to said casing for attachment to respectively opposite sides of said body.

4. A collapsible pneumatic float for buoyant support of a body structure comprising an elongated fabric casing provided with and whose cross-sectional contour is defined by transverse fabric ends of curvilinear shape, said ends being provided with respective restricted openings for insertion therethrough into said casing of deflated pneumatic bladders, two pneumatic bladders removably disposed within said casing and having their respective filling tubes in register with said openings, closure flaps for closing said openings, fastening means extending longitudinally of said float and secured to said casing adjacent respectively opposite ends thereof for attachment extending transversely of said body, and fastening means respectively adjacent each end of said float and secured to said casing for attachment to respectively opposite sides of said body.

5. A collapsible pneumatic float for buoyant support of a body structure comprising an elongated fabric casing provided with and whose cross-sectional contour is defined by transverse fabric ends of curvilinear shape, a transversely extending fabric bulkhead intermediate said ends dividing said casing into two cells, pneumatic bladders removably disposed in respective of said cells, said casing ends being provided with respective restricted openings for insertion of said bladders into respective cells, fastening means extending longitudinally of said float and secured to said casing adjacent respectively opposite ends thereof for attachment extending transversely of said body, and fastening means respectively adjacent each end of said float and secured to said casing for attachment to respectively opposite sides of said body.

6. A buoyant structure comprising a body framework, and a pair of collapsible pneumatic floats detachably secured thereto in spaced apart relationship in a direction transverse their longitudinal axes, said floats being of substantially cylindrical elongated shape and each compris-

ing a casing of heavy fabric having a substantially continuous side wall and integral fabric end walls, one end wall being provided with a restricted opening for the insertion of a flexible collapsible bladder, a bladder disposed in said casing, closure means for said restricted opening, and means for detachably securing said float in its respective position on said body, said securing means of each said float comprising straps secured on respectively opposite ends of said casing for attachment to adjacent portions of said body and a belt extending longitudinally of said float secured at its respectively opposite ends to the ends of said casing and provided intermediate its ends with adjustable releasable fastening means for attaching said strap to said body at a transversely extending zone thereof.

7. A buoyant stretcher comprising a body framework having side pieces and legs secured thereto, and a pair of collapsible pneumatic floats detachably secured thereto in spaced apart relationship longitudinally of said stretcher and in a direction transverse their longitudinal axes, said floats being of substantially cylindrical elongated shape and each comprising a casing of heavy fabric having a substantially continuous side wall and substantially round end walls, one end wall being provided with a restricted opening for the insertion of a flexible collapsible bladder, a bladder disposed in said casing, closure means for said restricted opening, and means for detachably securing said float in respective positions on said stretcher body, said securing means of each said float comprising straps secured on respective ends of said casings for attachment to oppositely disposed portions of said stretcher body and a belt extending longitudinally of said float secured at its respectively opposite ends to said casing and provided intermediate its ends with adjustable releasable fastening means for attaching said strap at a transversely extending zone of said stretcher body disposed on said float, said casing side walls being provided with reinforced areas for engagement with said body side pieces.

8. A collapsible pneumatic float for buoyant support of a body structure comprising an elongated substantially cylindrical fabric casing defined by substantially circular oppositely disposed ends and a pneumatic bladder therein, first fastening means secured to said casing adjacent respectively opposite ends thereof for attachment to said body structure, and second fastening means respectively adjacent each end of said float and secured to said casing in peripherally spaced relation to said first fastening means for attachment to respectively opposite sides of said body whereby said float may be affixed to said body structure and restrained against rotation about its longitudinal axis.

9. A collapsible pneumatic float for buoyant support of a body structure comprising an elongated substantially cylindrical fabric casing defined by substantially circular oppositely disposed ends and a pneumatic bladder removably disposed therein, said casing being provided with a restricted opening in one end for insertion of said bladder, and a plurality of fastening means secured to said casing at longitudinal and circumferentially spaced points for attachment to correspondingly spaced points of said body structure, whereby said float may be restrained against movement in a direction along and about its longitudinal axis.

10. A buoyant structure comprising a stretcher provided with oppositely disposed side bars supporting a fabric carrying platform, and a pair of elongated collapsible pneumatic floats disposed adjacent respectively opposite ends of said stretcher extending transversely thereof and detachably secured thereto beyond the said side bars.

ABRAHAM N. SPANEL.

CERTIFICATE OF CORRECTION.

Patent No. 2,355,757. August 15, 1944.

ABRAHAM N. SPANEL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, lines 39 and 40, claim 10, strike out the words "beyond the said side bars" and insert the same after "thereof" in line 38, same claim; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 26th day of September, A. D. 1944.

Leslie Frazer

(Seal) Acting Commissioner of Patents.