

[54] SELF-INFLATING LIFE RAFT

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[58] Field of Search. 9/11 A, 14, 2 A; 244/138, 146; 135/1 R

[56] **References Cited**

UNITED STATES PATENTS

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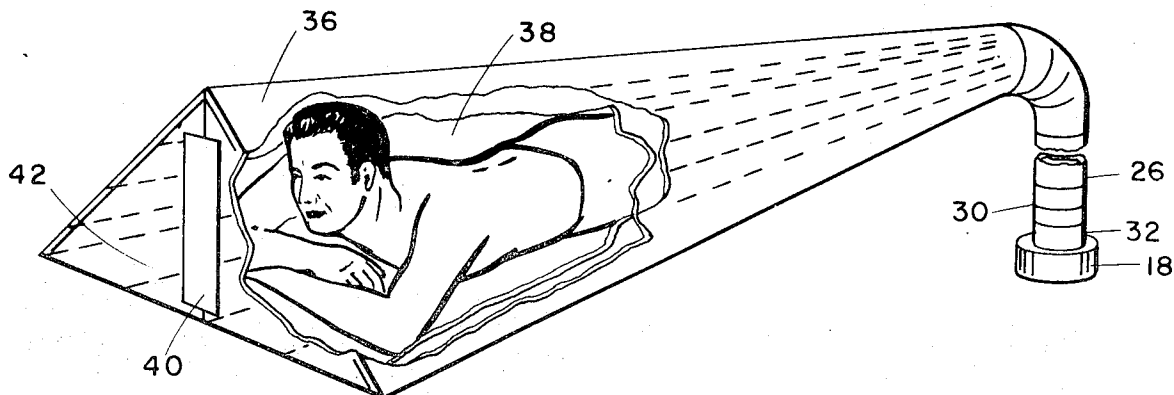
Attorney—Richard S. Sciascia et al.

[57]

ABSTRACT

A chambered tetrahedron shaped life raft in which the walls are formed of a series of inflatable flexible tubes. The raft is provided with a weighted air scoop and filling sleeve; thus when deployed from an aircraft, the tubes are inflated by air passing through the scoop and into the filling sleeve. Upon landing in the ocean, the weighted air scoop along with the sleeve sinks below the water surface and prevents loss of air as well as carrying out the functions of an anchor. The raft which will float on one side provides a large open chamber into which people may wait for rescue.

4 Claims, 6 Drawing Figures



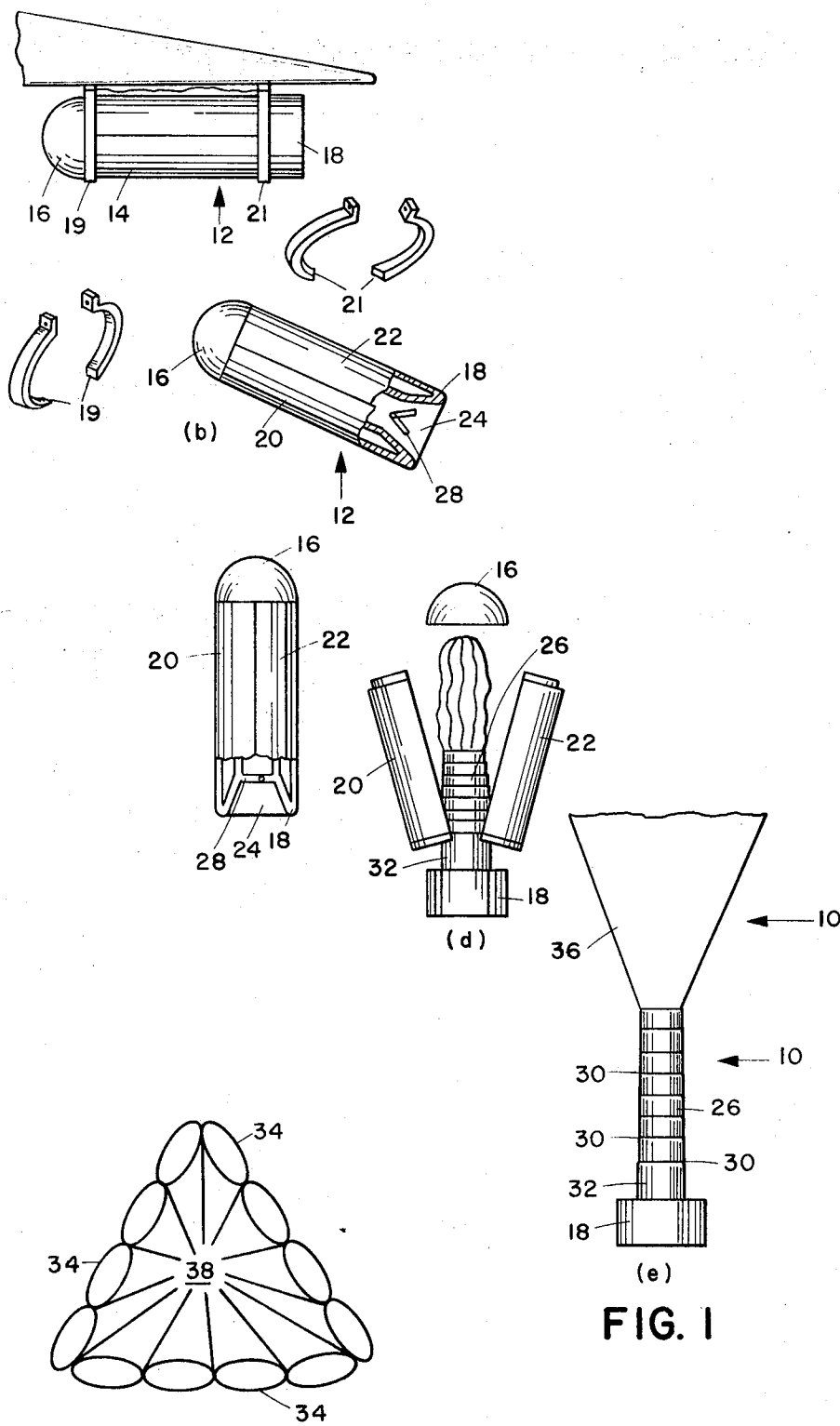
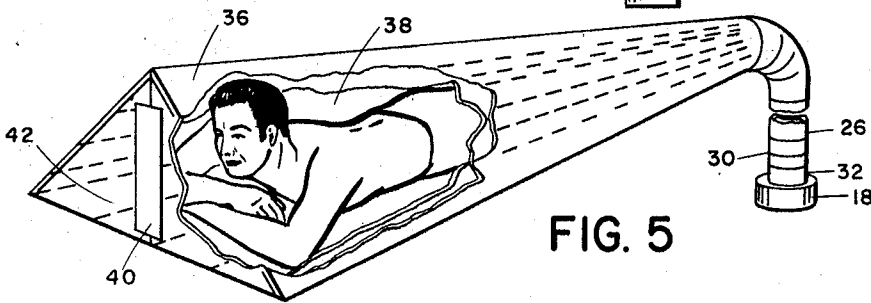
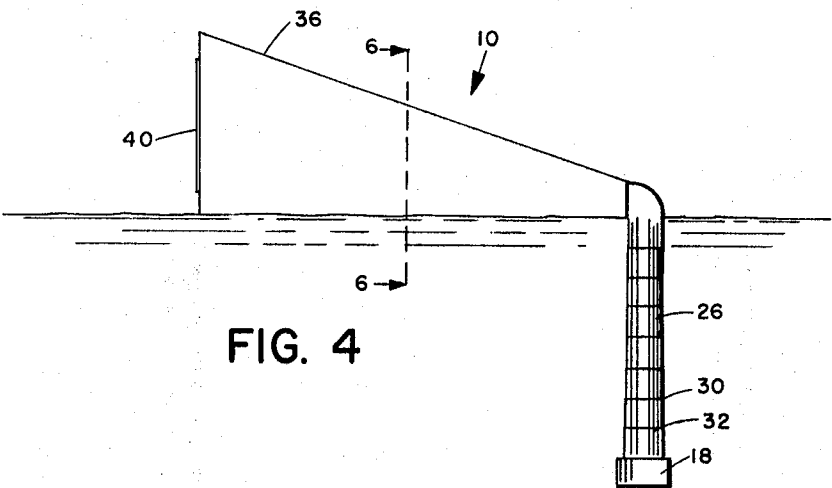
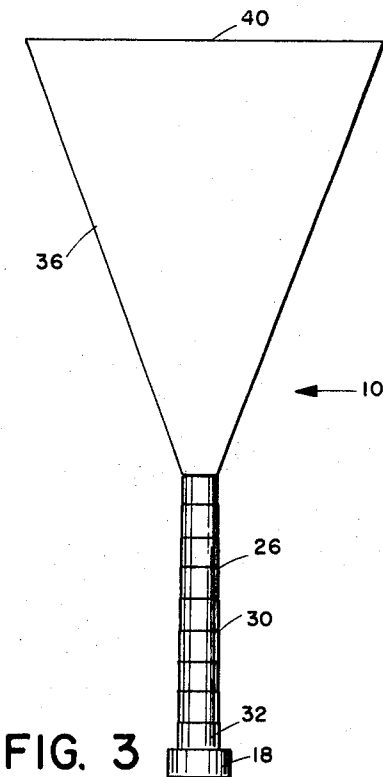
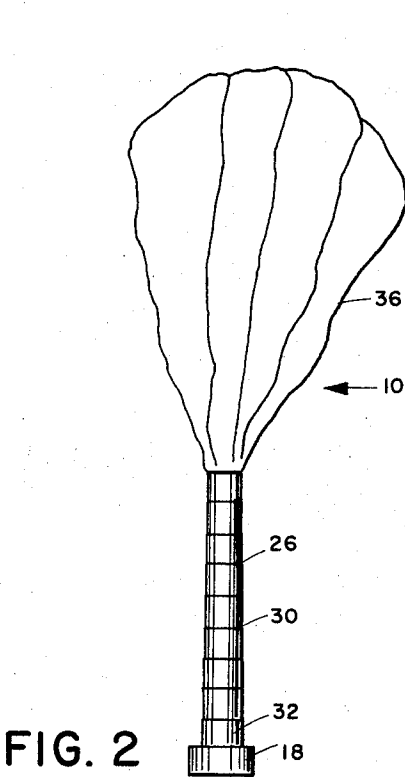


FIG. 1

FIG. 6



SELF-INFLATING LIFE RAFT

CROSS-REFERENCES TO RELATED APPLICATIONS

The following patents and applications are related to the present application: Ser. No. 801,524; Ser. No. 3,500,408; and Ser. No. 3,561,705.

STATEMENT OF GOVERNMENT INTEREST

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to improved life rafts and more particularly to an improved self-inflating life raft which provides temporary protection against the natural elements of the environment.

2. Description of the Prior Art

Nearly all of the prior art life rafts are equipped with air bottles and a towed sea anchor. The major disadvantages of such rafts are that size is limited due to the large air bottle needed to inflate the same. Moreover they have a tendency to tip over in rough weather and dump out the passengers. Additionally, they will provide little protection against the weather.

The present invention is of a configuration which offers the least wind resistance; and should the raft be tipped over by wave or wind action, the persons in the raft are not dumped into the water or exposed to the elements. Moreover, the raft is inflated preferably by ram air as it is deployed from an aircraft.

SUMMARY OF THE INVENTION

The present invention is directed to a tetrahedron shaped life raft having walls formed of a series of inflatable flexible tubes. The raft may be folded into a container suitable for stowage and transportation, yet the raft is easily inflated through an elongated inflation sleeve. The outer end of said inflation sleeve has a weighted air scoop so that upon deployment from an aircraft, the raft will be properly oriented. Thus the life raft is inflated by air passing through the scoop and into the inflation sleeve. Upon landing in the ocean, the weighted air scoop and the sleeve sink below the water surface and prevent loss of air. They also act as an anchor and will prevent the raft from drifting. The life raft floats on one side and provides a large open chamber into which a person or persons may wait for rescue. The open end of the chamber may be closed by adequate flaps of transparent plastic.

STATEMENT OF THE OBJECTS OF THE INVENTION

One object of the invention is to provide an easily stored and transportable life raft which may be quickly inflated for use.

Another object of the present invention is to provide a life raft which is stable and relatively unaffected by high wind velocities while at the same time offering a potential refuge for people against the natural environmental hazards.

A further object is to provide a raft which is tipped over by wave or wind action, the people in the raft will

not be dumped into the ocean or exposed to the elements.

A still further object is to provide a life raft which is economical, expendable and constitutes no hazard to navigation.

Other objects, advantages and novel features of the invention will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawings wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 (a-e) is a diagrammatic illustration partially broken away of how one container may be used to deploy the present invention in an air drop.

FIG. 2 is a pictorial representation of the raft just after release from the support container and before it has filled completely with air entering through the filling sleeve.

FIG. 3 is a view similar to FIG. 2 showing the appearance of an inflated life raft.

FIG. 4 is also a pictorial view of the raft floating on the water surface with the air scoop and filling sleeve submerged.

FIG. 5 is a perspective representation of a raft inflated on the ocean surface with a person to be rescued therein.

FIG. 6 is a cross-section along the line 6-6 of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in detail, FIG. 1 illustrates one possible container in which the life raft 10 of the present invention may be transported and eventually deployed from an aircraft. The illustrated container is fully described in U.S. Pat. No. 3,561,705 and reference is made thereto for the details of said container. As shown the container 12 has an elongate packing barrel 14 with detachable nose cap 16 at the front end and a weighted air scoop 18 at the rear end.

The packing barrel 14 is formed of two separable halves 20 and 22 which are held in position by the nose cap 16 until the latter is pushed off by the life raft 10 which begins to emerge from container 12 shortly after deployment from the aircraft. This permits the barrel halves to separate and free the raft 10.

A pair of separable clamps 19 and 21 are positioned about the container 12 and serve to hold the nose cap 16, packing barrel 14 and air scoop 18 in their mated position. Upon release of the container in the desired area, the clamps 19 and 21 come apart and allow the aforementioned structures to separate.

The weighted air scoop 18 is in the form of an annulus and upon deployment from an aircraft, the scoop will be properly oriented to allow filling of the raft. The scoop is provided with an aperture 24 through which air may be forced into inflation sleeve 26 during the descent to the ocean surface. The air flow control valve arrangement 28 may be incorporated into sleeve 26 if desired and is described in detail in the aforementioned patent.

The inflation sleeve 26 is tubular in shape and may include a multitude of peripherally located rings 30 which keep the sleeve from collapsing. The flexible sleeve material between adjacent peripheral rings 30 is folded in accordion fashion when the raft is stored in the container 12.

The sleeve is integrally attached to a manifold 32 through which the air is distributed to the inner end of a series of contiguous flexible tubes 34 which form the walls 36 of the life raft. The tubes 34 are generally tapered and the large outer ends of the tubes 34 are sealed so that when inflated they and the walls they form will define a fairly large chamber 38. The large sealed end of the tubes 34 from the entrance 40 to the chamber 38 between the tubes into which an individual can enter and wait for eventual rescue.

The weighted air scoop 18 and the inflation sleeve 26 will both sink below the water surface as soon as the raft lands in the ocean after being deployed from an aircraft. This prevents loss of air and creates buoyancy. The scoop 18 also acts as an anchor and prevents unnecessary drifting of the raft. The water which enters the scoop upon landing in the ocean will drive the air upwards through the inflation sleeve 26 and fully inflate tubes 34.

The entrance 40 may be closed by flexible flaps of transparent material 42 which may be closed by a suitable adhesive or zipper arrangement. The flaps 42 are attached peripherally to the raft walls.

It will be obvious that the tubes 34 forming the walls 36 of the raft 10 may be inflated by means other than as discussed herein. For example, tubes 34 could be filled with an air bottle and then cast overboard from a ship. Furthermore, the material from which the walls 36 are manufactured is preferably of high visibility so as to be readily seen from a distance.

A transmitter may be located within the chamber 38 if desired.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be

practiced otherwise than as specifically described.

I claim:

1. An inflatable life raft for use on the ocean surface and having a chamber in which a multitude of people may wait for rescue comprising:

a series of attached tubes forming the walls of said raft, said tubes sealed at one end and open at the opposite end, the tubes being generally tapering from the open end to said sealed end and defining a chamber therebetween which opens at the closed ends of the tubes; the opening to said chamber adapted to be closed by flaps of transparent material attached to the sealed ends of said tubes; said flaps sealed against the entrance of water;

a manifold positioned at the open end of said tubes and intercommunicating therewith;

a hollow inflation sleeve having one end opening into said manifold;

an air scoop attached to the opposite end of the inflation sleeve and opening therein;

thus, air entering the scoop and passing through the inflation sleeve will inflate the tubes forming the walls of said raft;

the air scoop being formed of material having a negative buoyancy in water so as to provide an anchor which prevents unnecessary movement of the raft and prevents loss of air.

2. The life raft of claim 1 wherein the air scoop is weighted to enhance its holding effect.

3. The life raft of claim 1 wherein the inflated wall tubes define a tetrahedron.

4. The life raft of claim 1 wherein the inflation sleeve has a plurality of peripheral rings to prevent collapse thereof.

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