Aug. 30, 1966 J. D. SERRA 3,268,925

LIFE-SAVING RAFT

Filed Oct. 12, 1964

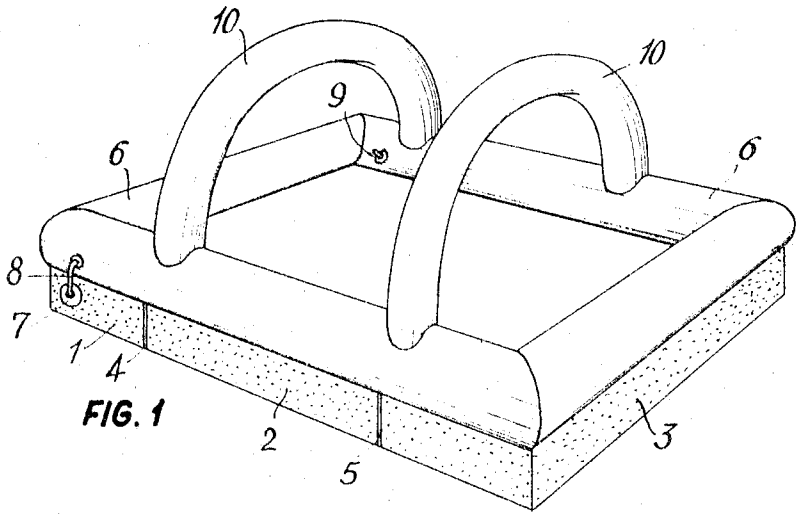
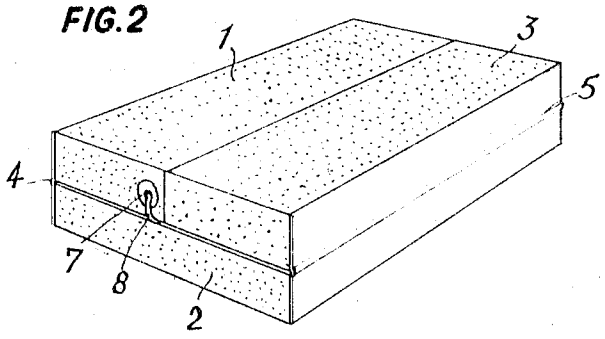


FIG. 1

FIG. 2



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United States Patent Office 3,268,925
Patented August 30, 1966

3,268,925

LIFE-SAVING RAFT

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Filed Oct. 12, 1964, Ser. No. 403,031
Claims priority, application Spain, Jan. 15, 1964, 295,742
2 Claims. (Cl. 9—11)

The present invention relates to a life-saving raft.

Various kinds of life-saving or safety rafts are known. Conventional craft of this kind are simply made of wood or metal comprising a number of sealed compartments in order to prevent their sinking even when filled with water.

Craft of this kind have the disadvantage that they must be lowered by means of davits, which latter may be inoperative in an emergency, even with adequate inspection, due to the ship heeling over to port or starboard. As an instance, reference may be made to the mishaps on board the *"Andrea Doria"* for example, on which it proved impossible to launch any boat. In the recent case of the *"Lakonia"* the boats could not be lowered either, and the survivors were saved by pneumatic rafts or the like, dropped from aircraft.

Floating devices are also available, which are not rafts, the use of which entails that those shipwrecked remain immersed and can merely hold on to these, with the consequent danger of fatalities due to exposure, even in warm waters.

Non-submerging and rigid rafts are also available, but these have the serious drawback of requiring considerable space, which is a matter of some moment in fishing vessels and small craft in which space is of vital importance to find room for the catch, various equipment and members of the crew. Another shortcoming of these rigid rafts resides in that they cannot be stowed within a sealed container as a protection against rodents, atmospheric agents and fire. They also have the serious disadvantage that when people jump on to these off the side of the ship, there is a risk of breaking a limb, since their rigidity is that of a wooden floor. Another disadvantage resides in that they may split and break up if they run on to rocks.

Another known raft is the automatically inflated pneumatic raft, which has hitherto given the best service, being recommended for all navies throughout the world. These pneumatic rafts, apart from requiring little space, are very stable at seat, and one may jump on to them from a great height since they absorb the impact in the manner of a mattress, and they may moreover be covered over in sealed manner to provide shelter for the shipwrecked. If they were to strike rocks, nothing would happen since they would rebound like balls. Each such raft is stowed within a metal container protecting it against rodents, atmospheric agents and fire. These pneumatic rafts moreover comprise several sealed compartments, so that if one of them were to be punctured accidentally, the others remain fully adequate to keep the scheduled number of occupants afloat whilst the damaged compartment is repaired.

If these almost perfect pneumatic rafts are considered in more searching manner however, it is plain that owing to quite unforseeable reasons, the gas contained within the automatic inflation bottle may have leaked away, which is not likely, or that the bottle may not operate, in which case the raft would not inflate. Although the proportion of such failures is insignificant, amounting to one or two cases in a thousand possibly, they may lead to fatal consequences to the person or persons affected.

The life-saving raft forming the object of the present

invention is intended to assure optimum safety for survivors.

It is essentially characterized in that the raft comprises a floating section formed by one or more components made of a material which is exceedingly light and of such buoyancy that it is apt to keep the scheduled number of occupants afloat, the said floating section forming the bottom of the raft, and a pneumatic floating section having one or more compartments, which is combined with the said bottom floating section or float in order to increase the buoyancy of the whole and to assure the occupants of the raft of the comfort needed.

Another feature of the invention resides in that the said bottom float is preferably made of one or more pliable members of a synthetic plastic material having a cellular structure, embodying sealed cells.

According to another feature on the invention, the pneumatic float referred to is equipped with a bottle or cylinder of an appropriate gas such as carbon dioxide, to assure its immediate and automatic inflation by a firing or triggering action, as well as with inflation devices operated manually and/or by mouth.

Another feature of the invention resides in that the pneumatic float referred to is combined with one or more arches or hoops of generally semi-circular shape, equally of pneumatic type, adapted to be inflated at the same time and intended to act as supports for a protective cover or so-called "tilt" to shelter the survivors from the rigors of the weather. These pneumatic hoops are made of such size that in addition to serving the purpose stated, they constrain the unfolded and inflated raft launched to right itself automatically to its correct operating position at all times, in the manner of a so-called "Kelly" or "tumbler," that is to say the said hoops pointing upwards and the bottom float hanging downwards, acting as a counterweight.

Finally, another feature of the invention resides in that the combination of the bottom float in the folded state, the deflated pneumatic float, and the ancillary equipment of the latter, are stowed within a sealed container for protection against rodents, atmospheric agents, fire and other harmful conditions or actions.

A life-saving float according to the present invention is illustrated by way of example but by no manner of means of limitation in the accompanying drawings, wherein:

FIGURE 1 shows the appearance of the said raft ready for use after having been unfolded and inflated;

FIGURE 2 shows the appearance of the raft of FIGURE 1, but in the folded condition.

The raft illustrated is formed by a bottom float comprising three components **1**, **2** and **3**, made of a material which is exceedingly light and has great buoyancy, preferably of a synthetic plastic material of cellular structure embodying sealed cells, which is impervious or inert to hydrocarbons, to allow for the case in which the ships or vessels equipped, with these rafts carry mineral oils or otherwise employ the latter, the said members being coupled by means of hinges or equivalent devices marked **4** and **5**, and by a pneumatic float having one or more compartments such as marked **6** in FIGURE 1, combined with the said bottom float. As apparent at **7**, an appropriate gas bottle or cylinder is carried in the bottom float for the immediate and automatic inflation of the said pneumatic float, being connected to the latter by a connecting pipe **8** which preferably comprises an automatic triggering or analogous device, the latter being known per se and not shown. The pneumatic float **6** complementarily carries one or more devices for inflation by hand and/or by mouth, as shown at **9** by way of example. The pneumatic float **6** moreover comprises one or more arches or hoops **10** of generally semi-circular shape,

equally of pneumatic type, adapted to be inflated at the same time as the said float, and intended to act as supports for a cover or so-called "tilt" or awning which is not shown, intended to protect the survivors against the rigors of the weather, as well as to ensure the correct floating position of the raft automatically, that is to say with the said hoops, pointing upwards and the bottom float downwards, as has been stated. As customary for life-saving rafts, that according to the invention may equally carry stores of food, drinking water, a medicine chest, lights or torches, sodium flares or the like, dry batteries, and other equipment.

For stowage on board ship, this life-saving raft is fitted in the folded condition shown in FIGURE 2, within a sealed container providing protection against various mishaps, this container preferably being equipped with an automatic opening mechanism which is known per se. When this raft is dropped overboard, the automatic inflation of the pneumatic float **6** and of the hoops **10** will cause its immediate unfolding and correct positioning on the water. If for any reason the automatic inflation apparatus were to fail, the raft may be opened in a matter of seconds by hand, and since the bottom float **1**, **2**, **3** is adapted to keep the scheduled number of survivors afloat, the latter may climb on it immediately and inflate the pneumatic float **6** by means of the equipment provided for the purpose. An operation of this kind may be accomplished within two or three minutes. The fully unfolded and inflated raft provides comfortable quarters for the survivors, the pneumatic float **6** forming a resilient circle free of sharp edges.

In recapitulation, the life-saving raft according to the present invention is intended to be wholly non-submersible, non-splintering or unbreakable, to be brought into service rapidly although normally protected in the folded state by a rigid container occupying little space, to be self-righting by virtue of the said hoops, to be opened manually and inflated manually or by mouth within a few

minutes, to be unaffected by punctures or blow-outs by making the bottom float adequate to bear the scheduled number of survivors, to cause the shock of striking rocks or unyielding surfaces to be absorbed by girdling the seating area with a pneumatic float, and to allow survivors to jump on to the raft without danger of breaking a limb by employing a bottom float which is soft and resilient, being of cellular structure.

The invention is evidently not limited to the form of embodiment described and illustrated by way of example, and modifications may be introduced therein without exceeding the scope of the present invention.

What I claim is:

1. In a life raft of the type comprising a bottom floating section of solid buoyant material and secured thereto an upper inflatable floating section provided with pneumatically inflatable hoops, the improvement wherein said bottom floating section comprises at least two hingingly connected members adapted to be folded together with said upper inflatable floating section when said latter is in the deflated state, to form a compact block occupying a reduced space for the storage on board of a vessel.

2. A life raft as claimed in claim **1** wherein said inflatable hoops are of such size and are so arranged that they always constrain the unfolded and inflated raft to right itself automatically to the correct floating position in the manner of a so-called "Kelly" with the said hoops pointing upwards.

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