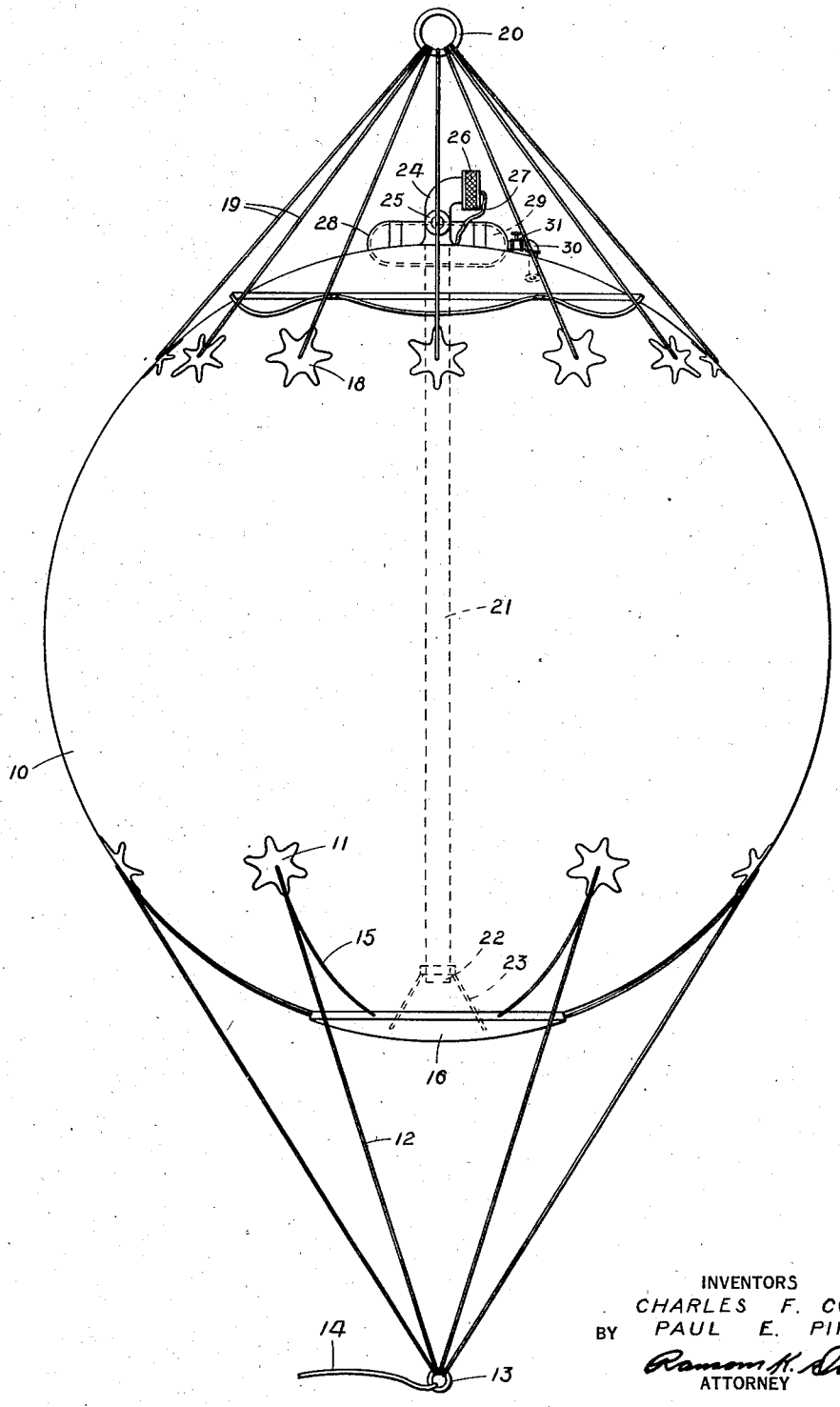
June 30, 1942. P. E. PIHL ET AL 2,287,824

FUEL DELIVERY STATION

Filed June 1, 1938



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Patented June 30, 1942

2,287,824

UNITED STATES PATENT OFFICE

2,287,824

FUEL DELIVERY STATION

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Application June 1, 1938, Serial No. 211,170

4 Claims. (Cl. 114—0.5)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This invention relates to a fuel delivery buoy, and has for an object to provide an improved method and means of rapidly refueling a fleet of patrol planes.

It is quite a problem to rapidly refuel a fleet of patrol planes, especially when each of the planes has a capacity for a great quantity of fuel. When only a single fuel tender is available, it is obvious that it will take a considerable period of time for an entire fleet of patrol planes to be refueled when each individual plane has to await its turn until a preceding plane has been refueled. This involves a serious loss of operating time, especially in times of emergency when it may be important that the patrol be kept in active operation for a maximum period of time.

It is an object of this invention to provide means whereby a single fuel or gasoline tender may carry a plurality of auxiliary, but collapsible, refueling stations in the form of individual buoys, so that each individual plane of the patrol fleet may be provided with an individual refueling station, as a result of which it will take no longer to refuel the entire fleet than it does to refuel an individual plane.

A further object of this invention is to provide such individual plane refueling stations in the form of a plurality of collapsible individual fuel containing buoys, it being contemplated that each individual fuel buoy may be refueled from the fuel tender while the patrol fleet is away on duty, thus being available immediately and quickly to refuel the individual plane to which it may be assigned.

A further object of this invention is to provide an individual fuel or gasoline containing buoy which will be of ample strength and capacity to hold the required quantity of fuel and which may be refilled with fuel on the deck of the tender and lowered into the water at the desired location, or, if necessary, may be refilled with fuel while already floating on the water.

A further object of this invention is to provide a buoy which will be collapsible for storage and transportation purposes, and which, however, will also include means preventing the buoy from collapsing while it is floating in position, even after the fuel has been drained therefrom.

A further object of this invention is to provide a method of simultaneously refueling a plurality of planes of a patrol fleet indirectly from a single fuel tender so that the patrol fleet may be kept ready for service operation for a maximum period of time.

With the foregoing and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter described and illustrated in the drawing.

The figure is an elevational view of the fuel delivery buoy of this invention.

The fuel delivery buoy of this invention comprises a collapsible container consisting of an inflatable fabric bag 10, suitably impregnated with rubber or cement, either artificial or natural, such as will make it leakproof and corrosion-proof against the fuel, gasoline or buoyant gas that it is to contain in operation, and likewise against the sea water or other liquids in which it may be floating. Artificial rubber has been found very good for serving the purpose of impregnating the fabric.

This bag 10 will preferably be spherical in shape and the diameter substantially 6½ feet for average use, although the dimensions may be made greater or less, according to service needs.

A plurality of finger patches 11 attached in a circle near the bottom of the bag may have anchor suspension lines 12 secured thereto and carrying an eye 13, to which may be secured an anchor rope 14 for mooring the buoy in the desired location. Secured to the same finger patches 11 by other lines 15 is ballast weight 16 for causing the buoy to float in proper position. Additional finger patches 18, secured in a circle adjacent the other or top side of the bag 10, have suspension cables 19 secured thereto from a hoisting ring 20, whereby the entire buoy may be lifted by a suitable crane for removal from or to the mooring position or to the fuel tender.

Extending through the top of the bag 10 is a fuel supply hose 21 having its lower end 22 secured as at 23 adjacent the bottom of the inside of the bag, the hose 21 being of flexible material so that it may be collapsed when the bag 10 is collapsed for storage or transportation.

The hose 21 extends through the top of the bag 10 and terminates in a filler and supply line fitting 24 equipped with a valve 25 and a cap 26 attached by cable 27 to the bag 10 to prevent it from being lost. Secured within the fabric container 28 to the top of the bag 10 is a bottle 29 for compressed gas filled preferably with carbon dioxide and connected by pipe 30 and control and relief valve 31 to the inside of the bag 10.

In operation, the fuel or gasoline tender may carry a great number of these collapsible and inflatable buoys. In order to refuel a patrol fleet of a large number of planes rapidly, the

tender will take one of these individual buoys from storage, suspend it by the ring 20 from a suitable crane and fill it with suitable fuel such as gasoline or fuel oil, depending upon the type of engine in the plane to be serviced. Before filling it with fuel it will probably be desirable to first inflate it with the gas and then connect a fuel line to the pipe 24 and fill the bag 10 with fuel, allowing the gas to vent to the atmosphere through the control and relief valve 31. After thus filling the bag, a new bottle, properly filled with carbon dioxide, will be substituted for the empty bottle and the bag will be placed in mooring position with the anchor cable 14 attached to the anchor ring 13.

Due to the difference in specific gravity between the fuel and the sea water, or even fresh water, the bag 10 will float, although fully inflated with fuel. A similar bag properly fueled, will be placed at each mooring station to provide an individual refueling station for each plane of the patrol fleet. When the fleet arrives each individual plane may quickly connect its fueling line to the fitting 24 and pump out the fuel in the bag 10, first opening the control and relief valve 31 so that carbon dioxide will replace the fuel in the bag as fast as it is pumped out, thus preventing the bag 10 from collapsing. After the fleet is refueled and takes off for continued operation, the fuel tender will then proceed to replace the fuel removed from each bag 10 and replace the emptied carbon dioxide bottle 29 with a full bottle, so that all of the bags 10 will be again refueled by the time the patrol fleet has returned for a new supply of fuel.

Other modifications and changes in the proportions and arrangements of the parts may be made by those skilled in the art without departing from the nature of the invention, within the scope of what is hereinafter claimed.

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.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A fueling station comprising a portable, collapsible, inflatable fuel container, a collapsible fuel supply and discharge line extending within said container to adjacent the bottom thereof, a filler and supply line fitting extending into said container and connected to said container collapsible supply line, a gas pressure bottle, a conduit connecting said gas pressure bottle to said container, and a control and release valve connected to said pressure supply conduit.

2. A fueling station comprising a portable, collapsible, inflatable fuel container, a collapsible fuel supply and discharge line extending within said container to adjacent the bottom thereof, a filler and supply line fitting extending into said container and connected to said container collapsible supply line, a gas pressure bottle, a conduit connecting said gas pressure bottle to said container, a control and release valve connected to said pressure supply conduit, and ballast means connected to the bottom of the container to cause said container to float with said filler and supply fitting at the top.

3. A fueling station comprising a portable, collapsible, inflatable fuel container, a collapsible fuel supply and discharge line extending within said container to adjacent the bottom thereof, a filler and supply line fitting extending into said container and connected to said container collapsible supply line, a gas pressure bottle, a conduit connecting said gas pressure bottle to said container, a control and release valve connected to said pressure supply conduit, ballast means connected to the bottom of the container to cause said container to float with said filler and supply fitting at the top, and anchor line connecting means secured to the bottom of said container.

4. A fueling station comprising a portable, collapsible, inflatable fuel container, a collapsible fuel supply and discharge line extending within said container to adjacent the bottom thereof, a filler and supply line fitting extending into said container and connected to said container collapsible supply line, a gas pressure bottle, a conduit connecting said gas pressure bottle to said container, a control and release valve connected to said pressure supply conduit, ballast means connected to the bottom of the container to cause said container to float with said filler and supply fitting at the top, anchor line connecting means secured to the bottom of said container, and suspension connecting means secured adjacent the top of said container.

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