

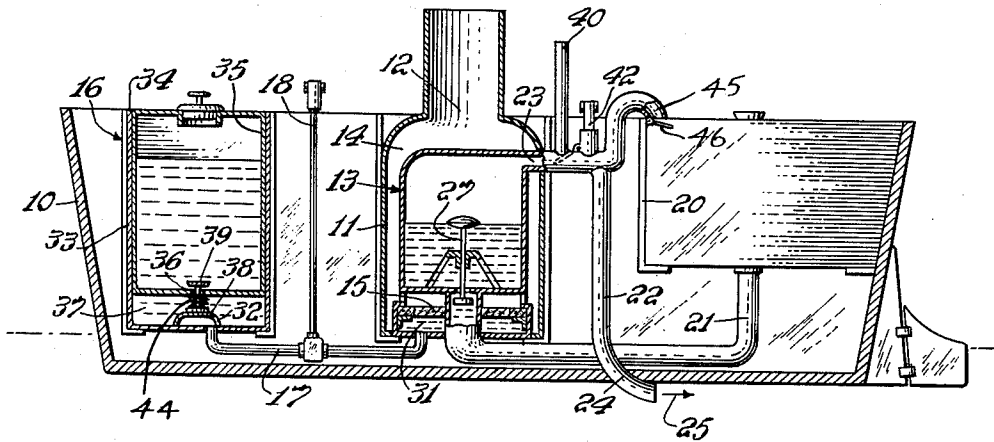
Aug. 26, 1958

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2,848,972

BOAT HAVING UNDERWATER FLUID PROPULSION

Filed April 27, 1955



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BOAT HAVING UNDERWATER FLUID PROPULSION

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Application April 27, 1955, Serial No. 504,147

1 Claim. (Cl. 115—11)

This invention relates to improvements in boats and is more particularly directed to a boat provided with a gas generator and with a fuel reservoir for heating said gas generator the boat being propelled on discharge, below the water line of the hull, of the gas so generated.

Pursuant to the invention, a water reservoir is provided to supply water to the gas generator, and float means are provided for automatically controlling the flow of water to the gas generator up to a predetermined level therein.

These and other advantageous objects, which will appear from the drawings and from the description hereinafter, are accomplished by the structure of my invention, of which an embodiment is illustrated in the drawings. It will be apparent, from a consideration of said drawings and the following description, that the invention may be embodied in other forms suggested thereby, and such other forms as come within the scope of the appended claim are to be considered within the scope and purview of the instant invention.

In the drawings a vertical longitudinal sectional view of a boat embodying the invention is shown.

As shown in the drawings, the device of the present invention comprises a boat including a hull 10 wherein a casing 11 is disposed having a discharge opening 12 at the upper end thereof. A gas generator 13 of smaller proportions than said casing is disposed therein and defines therewith an air passage; a heater unit is disposed beneath the generator 13. A fuel reservoir 16 is disposed in the hull in spaced relation to the gas generator, and means 17 connect the reservoir 16 to the heater unit. If desired, a valve 18 may be provided for the control of said connector 17 as shown.

A water reservoir 20 is disposed in the hull in spaced relation to the gas generator and means 21 connect the water reservoir with the gas generator 13 to supply water thereto for conversion into gas on heating said generator. A gas discharge pipe 22 is connected at one end 23 with the gas generator 13 and at the other end 24 is disposed through the hull below the water line thereof to thereby propel the hull on generation and discharge of said gas through said end 24 of the discharge pipe, as indicated by the arrow 25 to thereby propel the boat in the opposite direction.

In the form shown, the heater unit comprises a wick 15 for absorption of fuel through capillary action and the gas generator comprises a water boiler, and the means 21 connecting the water reservoir with the gas generator includes a float valve 27 for shutting off the supply of water after the latter rises to the predetermined level in the water boiler, as will become apparent from an examination of the drawings. The fuel reservoir 35 is vertically disposed in the chamber casing 33, the weight of the fuel in the reservoir 35 normally being enough to hold the reservoir down and thus overcome the action of the spring 44 engaging the bottom of the reservoir 35 and normally urging the latter upwardly and out of the top 34 of the chamber casing 33. Thus, when the fuel

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in the reservoir 35 falls below a safe level, the spring 44 exerts sufficient tension to move the reservoir 35 out of end 34 slightly to provide a visible indication of the need for refueling. When there is sufficient fuel in reservoir 35 the weight of the fuel and reservoir hold the parts as shown with the spring compressed and the fuel flowing through the valve to the housing 35.

The fuel reservoir 16 may be provided with means for shutting off the fuel when the casing 35 is empty. For that purpose the fuel reservoir 16 may comprise an outer shell 33 fixed to the hull in spaced relation to the bottom of the hull and having an open end 34, and a fuel holding casing 35 slidably disposed in the shell and having an opening 36 in the lower end thereof for the passage of fuel intermediate the lower end of the shell and casing, and a spacer member 38 disposed on the bottom of the shell, with a spring 44 intermediate the bottom of the casing 35 and spacer 32 whereby the casing 35 will be positioned on spacer 38 when the weight of the casing and of the fuel in the casing is greater than the spring action; when said weight is less, the casing will be moved upwardly out of the casing 35, to indicate its empty condition. A stop member 39 may be provided on said spacer 38, as shown, for engagement with the casing to preclude excessive movement of said casing.

A second steam discharge pipe 40 may be provided opening into the upper end of the gas generator, as shown at 41, and extending therefrom above the hull. This arrangement will enable the utilization of the gas generator to both propel the boat and also to emit gas from the discharge pipe 40 above the hull. Valve means 42 may be provided for control of the point of connection 41 of the second discharge pipe 40 with the gas generator 13. A spring 44 may urge the casing 35 upwardly.

The heater unit may be initially ignited by a pilot light or by inserting a lighting member through the passage 14 and may be prevented from continuing to burn at any time desired by closing the discharge opening 12. A pipe 45 may connect the interior of reservoir 20 and interior of gas generator 13 to equalize their pressure; a valve 46 may be provided for pipe 45.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

In a boat comprising a hull, a casing disposed in said hull and having a discharge opening at the upper end thereof, a gas generator housing of smaller proportions than said casing disposed therein and defining therewith a passage for gases, a heater unit disposed beneath the generator, a housing for heating the same, a water reservoir disposed in said hull in spaced relation to the gas generator, means connecting the water reservoir with the gas generator housing to supply water thereto for conversion into gas on heating said generator, a gas discharge pipe connected at one end with the gas generator and, at the other end, disposed through the hull below the water line thereof, to thereby propel the hull on generation and discharge of said gas through said other end of the discharge pipe, a fuel reservoir disposed in said hull in spaced relation to said gas generator, means connecting said reservoir to the heater unit to supply fuel to the heater unit to heat the generator, said fuel reservoir comprising an outer shell fixed to said hull and open at the upper end thereof, a fuel holding casing slidably disposed in said shell through said open end and having an opening in the lower end thereof for the passage of fuel into said shell intermediate the lower end of the casing and said shell, and spring means interposed between the lower end of the shell and casing, whereby, when the weight of the casing and fuel therein is greater than the force of said spring, the spring will be compressed and the fuel will flow through said opening in the lower end

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of the casing, and when said weight of the casing and fuel therein is less than the force of said spring, the casing will be moved upwardly out of the shell to indicate its empty condition.

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