

F. C. FOSTER.
SELF INFLATING FLOAT.
APPLICATION FILED MAR. 28, 1917.

1,247,809.

Patented Nov. 27, 1917.

Fig. 1.

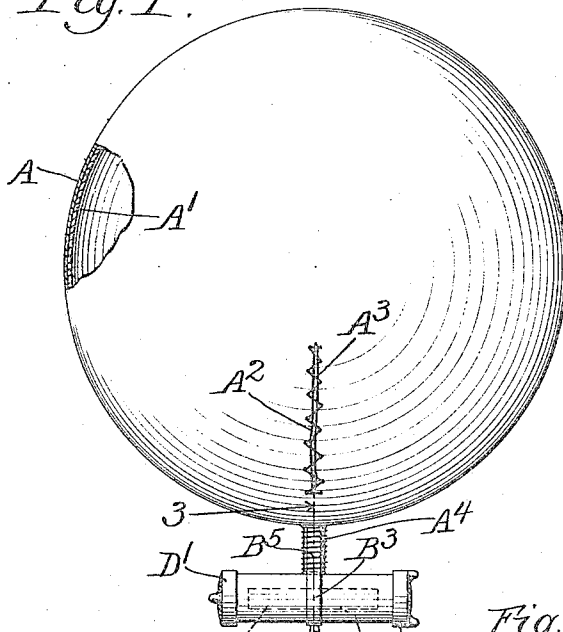


Fig. 3.

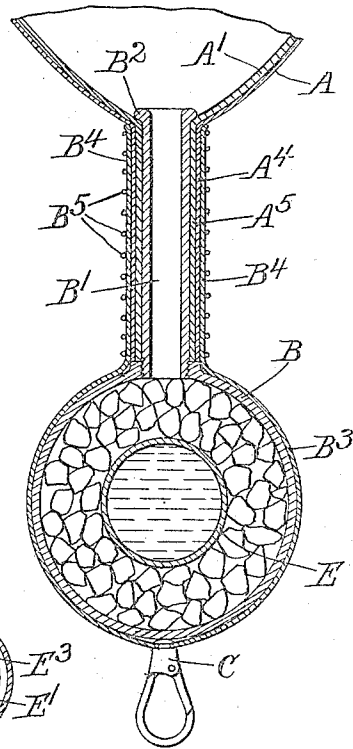


Fig. 5.

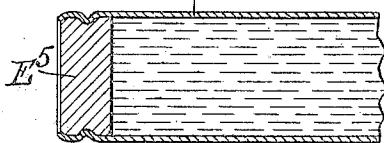
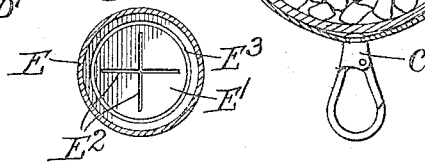
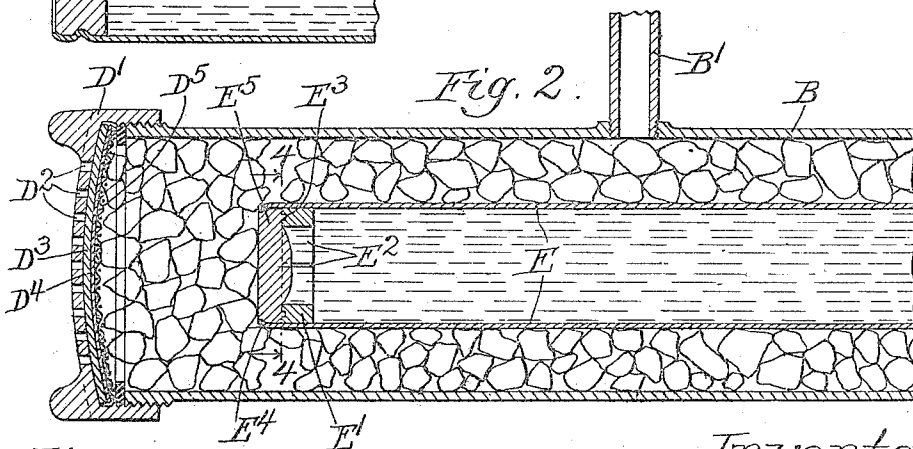


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

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SELF-INFLATING FLOAT.

1,247,809.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRELING C. FOSTER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Self-Inflating Floats, of which the following is a specification.

My invention relates to improvements in life savers and the like, and has for one object to provide a new and improved form of collapsible floating bag or balloon which will automatically fill with gas under sufficient pressure to distend is as soon as it becomes immersed in the water.

Other objects of my invention will appear from time to time in the specification.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein

Figure 1 is a side elevation showing parts in section;

Fig. 2 is a section through a part of the automatic inflating device;

Fig. 3 is a section on an enlarged scale along the line 3—3 of Fig. 1;

Fig. 4 is a section along the line 4—4 of Fig. 2;

Fig. 5 is a sectional view of one end of a modified form of water tube.

Like parts are indicated by like letters in all the figures.

A is a canvas cover. It contains a rubber air-tight bag A¹ adapted to be inserted into the canvas cover through the slit A² closed by lacing A³. This canvas cover is provided with a neck A⁴ surrounding a rubber neck A⁵ of the bag.

B is a rigid metallic chamber. B¹ is a metallic inflating tube contained within the parts A⁴, A⁵. It has an enlarged head B², which head is located within the bag adjacent the neck. B³ is a metallic ring surrounding the member B integral with a slit sleeve B⁴ which slit sleeve is held closed by wrapping B⁵. The member B¹ is screwed tight into the member B³ clamping the parts together to hold the inflating device on the bag as shown. C is a snap hook fastened to the band B² whereby any load may be attached to the float in any way which may be appropriate.

The cylinder or tube B is open at both ends and is adapted to contain a supply of material which forms gas when in contact with water such as carbid so that acetylene gas may be formed. The ends of the cyl-

inder are closed by screw-threaded caps D¹, perforated as at D² and backed up by successive layers of blotting paper D³ and cloth D⁴ and supported finally by wire gauze D⁵. Obviously as soon as this device is immersed the water will tend to penetrate the cap through the perforations wetting the blotting paper and cloth and thus passing through to wet the carbid. As soon as the carbid becomes wet gas will be generated and this will compress the blotting paper and cloth into the openings and more or less effectually prevent the escape of the gas. It will also, however, prevent the ingress of any water and so separate means must be provided to continue the moistening of the carbid to form the gas. These means take the form of a tube E which contains water. This tube E is open at both ends. It is provided at each end with a plug E¹. This plug is slotted as at E² so that the water may pass out. It will be noted that the plug is provided adjacent its outer periphery with an annular groove E³ and the ends of the tube are upset as E⁴. E⁵ is a waxed or paraffin plug which is poured into the space between the upset end of the tube and the plug and which penetrates more or less into the slots and into the annular ring so as to make a sufficiently water-tight joint thus closing the water up inside the tube.

The small amount of water which enters the main receptacle from either end when it is first immersed which inaugurates the formation of the gas will cause the generation of sufficient heat inside the chamber to melt the wax or paraffin plug and to permit the water to run out from the tube into the chamber. This will furnish sufficient water to complete the gasification and this gas which is formed in this brass or metallic chamber will rush out into the bag and inflate it. This action takes place almost immediately since there is an excess of water present and the balloon will be inflated almost as soon as it reaches the water so that it will instantly commence to operate as a life saver or float or support for any objects which may be attached thereto.

It will be evident that while I have shown in my drawings an operative device, still many changes might be made both in size, shape and arrangement of parts without departing materially from the spirit of my invention and I wish, therefore, that my drawings be regarded as in a sense diagrammatic.

The use and operation of my invention are as follows:—

These devices are maintained on the boat folded up in position for use ready loaded. As soon as the device is to be used for any purpose as a float it is released and thrown into the water. The water operates as above pointed out, generates gas which enters the bag, inflates it and which then makes of it a permanent balloon. These floats may be used singly or in batteries. They may be fastened together or a man may merely hang onto them. They might be used in sufficiently large numbers to support heavy loads in the water, it being necessary to provide means only for fastening the hooks so that such loads could be supported.

In the modified form it will be noted that the metallic plug in the water chamber is omitted. The end of the water chamber is merely upset and crimped and the wax plug is poured in there. When this melts, of course, the water will be able to rush out even more freely than if the metallic filling was used.

Obviously the apparatus which I have described carries out a peculiar and novel process, wherein the fuel is first treated or acted upon by water and then by the pressure of the fuel the supply of water from outside is cut off and an additional supply of fluid from elsewhere is subsequently provided owing to the increase of temperature.

I claim:

1. A collapsible float comprising a gas-tight bag and a protecting covering therefor, a gas generator permanently attached thereto and in communication therewith, comprising a rigid chamber having an opening removed from the connection to the gas-tight bag, a perforate closure for said opening, an absorbent plug in said closure, and means for holding such plug in position in register with the perforations in the closure, a fluid container located within the generator, fuel contained within the generator surrounding such fluid container, and means for closing the fluid container said means adapted to melt when a predetermined degree of temperature has been reached within such fuel for opening the fluid container.

2. A collapsible float comprising a gas-tight bag and a protecting covering therefor, a gas generator permanently attached thereto and in communication therewith, comprising a rigid chamber having an opening removed from the connection to the gas-tight bag, a perforate closure for said opening, an absorbent plug in said closure, and means for holding such plug in position in register with the perforations in the closure, a fluid container located within the generator, fuel contained within the generator surrounding such fluid container, and means

for closing the fluid container said means adapted to melt when a predetermined degree of temperature has been reached within such fuel for opening the fluid container, the absorbent plug comprising a mass of yielding soft material adapted when moistened to expand and adapted to be wedged tight into the perforations in the closure to close them when the pressure of the gas generated by the fuel brought in contact with the moist inner side exceeds a certain predetermined point.

3. A collapsible float comprising a gas-tight bag and a protecting covering therefor, a gas generator permanently attached thereto and in communication therewith, comprising a rigid chamber having an opening removed from the connection to the gas-tight bag, a perforate closure for said opening, an absorbent plug in said closure, and means for holding such plug in position in register with the perforations in the closure, a fluid container located within the generator, fuel contained within the generator surrounding such fluid container, and means for closing the fluid container said means adapted to melt when a predetermined degree of temperature has been reached within such fuel for opening the fluid container.

4. A collapsible float comprising a gas-tight bag and a protecting covering therefor, a gas generator permanently attached thereto and in communication therewith, comprising a rigid chamber having an opening removed from the connection to the gas-tight bag, a perforate closure for said opening, an absorbent plug in said closure, and means for holding such plug in position in register with the perforations in the closure, a fluid container located within the generator, fuel contained within the generator surrounding such fluid container, and means for closing the fluid container said means adapted to melt when a predetermined degree of temperature has been reached within such fuel for opening the fluid container, a metallic packing for such plug perforated to permit egress of the water.

5. A collapsible float comprising a gas-tight bag and a protecting covering therefor, a gas generator permanently attached thereto and in communication therewith, comprising a rigid chamber having an opening removed from the connection to the gas-tight bag, a perforate closure for said opening, an absorbent plug in said closure, and means for holding such plug in position in register with the perforations in the closure, a fluid container located within the generator, fuel contained within the generator surrounding such fluid container, and means for closing the fluid container said means adapted to melt when a predetermined degree of temperature has been reached within such fuel for opening the fluid container,

there being a plurality of openings into said fluid container adapted to be simultaneously opened so as to permit free circulation of the fluid.

5 6. A collapsible float comprising a gas-tight bag and a protecting covering therefor, a gas generator permanently attached thereto and in communication therewith, comprising a rigid chamber having an opening removed from the connection to the gas-tight bag, a perforate closure for said opening, an absorbent plug in said closure, and means for holding such plug in position in register with the perforations in the closure, 10 a fluid container located within the generator, fuel contained within the generator surrounding such fluid container, and means for closing the fluid container said means adapted to melt when a predetermined degree of temperature has been reached within such fuel for opening the fluid container, a metallic packing perforated to permit egress of the water, there being a plurality of openings into said fluid container adapted to be simultaneously opened so as to permit free circulation of the fluid. 25

7. A collapsible float comprising a gas-tight bag, a generator permanently attached thereto responsive to the immersion 30 of the generator in water for generating a gas to fill the bag, and means for cutting off

the exit of the gas from the generator, and separate means for continuing the generation of gas after the opening has been closed.

8. A collapsible float comprising a gas-tight bag, a generator permanently connected thereto, means responsive to the immersion of the generator into water for inaugurating the generation of gas, means for immediately thereafter cutting off the communication between the outside and the interior of the generator, and means for subsequently continuing the production of gas independent of the outside conditions. 40

9. The process of generating gas in an immersible generator, which consists in first introducing a small quantity of water into the generator and mixing it with a fuel to form a gas, then cutting off the water so supplied, causing the temperature to increase, and then feeding an additional supply of water independent of outside conditions responsive to the increase in temperature. 45 50

In testimony whereof, I affix my signature in the presence of two witnesses this 26th day of March 1917. 55

FRELING C. FOSTER.

Witnesses:

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RUTH E. CARLSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."