W. F. JOHNSON.

AUTOMATIC LIFE PRESERVER.

APPLICATION FILED MAR. 9, 1917.

1,236,310.

Patented Aug. 7, 1917.

2 SHEETS—SHEET 1.

Fig. 1

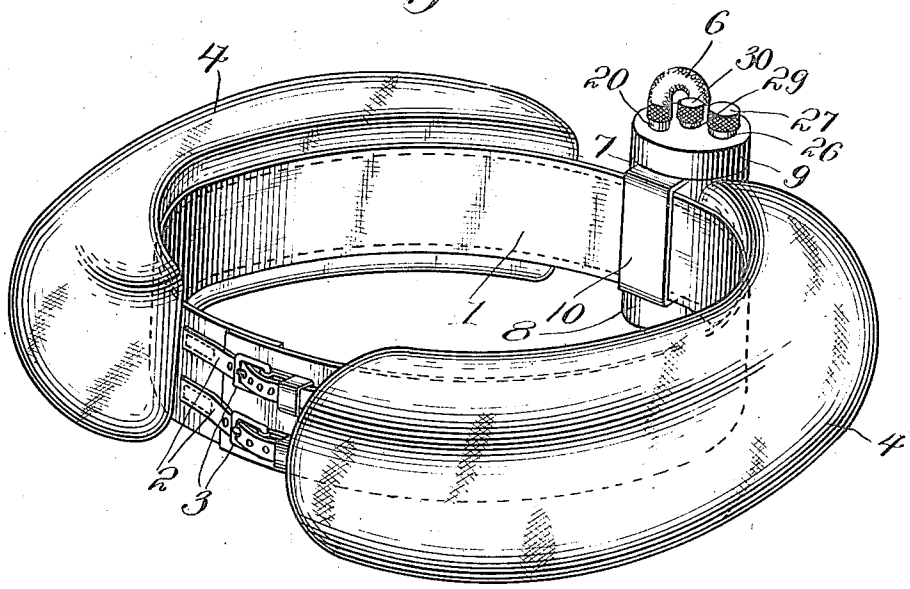


Fig. 2.

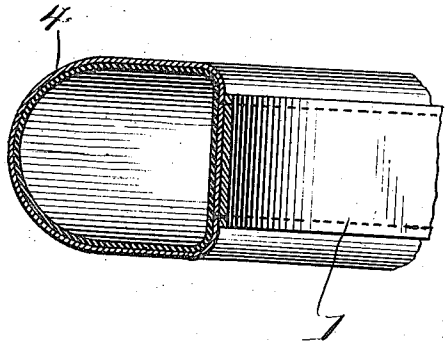
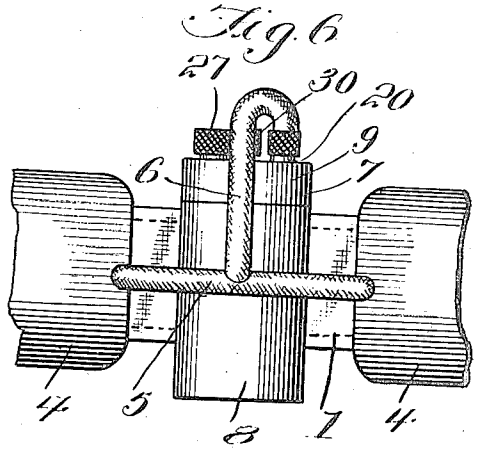


Fig. 6



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

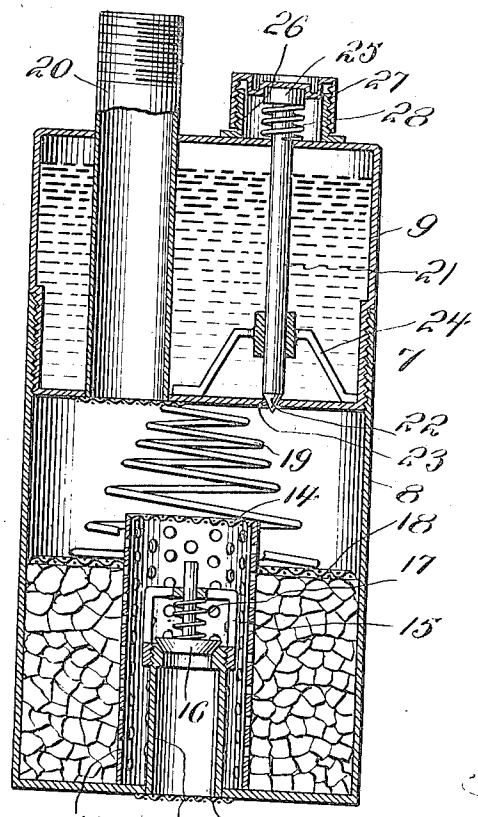


Fig. 4.

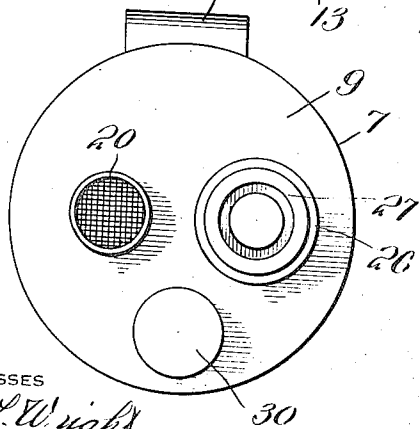
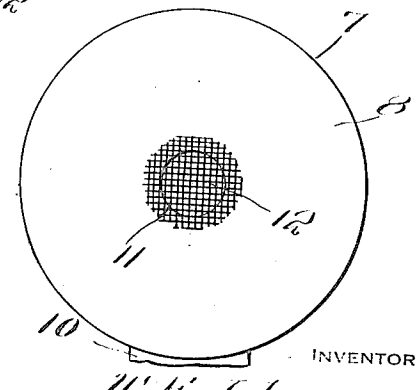


Fig. 5.



WITNESSES

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AUTOMATIC LIFE-PRESERVER.

1,236,310. Specification of Letters Patent. Patented Aug. 7, 1917.

Application filed March 9, 1917. Serial No. 153,775.

To all whom it may concern:

Be it known that I, WILLIS F. JOHNSON, a citizen of the United States, residing at Riverside, in the county of Riverside and State of California, have invented new and useful Improvements in Automatic Life-Preservers, of which the following is a specification.

This invention is an improved inflatable life preserving belt provided with means for automatically inflating the same with a buoyant of gas when the wearer of the belt enters the water so that the belt serves to prevent the wearer from sinking, and also provided with manually operated means to cause the gas to be generated and employed for inflating the belt, one object of the invention being to effect improvements in the construction of the belt; and another object being to effect improvements in the construction of the gas generating means.

With the above and other objects in view the invention consists in the construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawings:—

Figure 1 is a perspective view of an automatic life belt constructed and arranged in accordance with my invention, and as in condition for use.

Fig. 2 is a detailed transverse sectional view of the belt on a plane intersecting one of the buoys.

Fig. 3 is a detailed vertical sectional view of the gas generating apparatus.

Fig. 4 is a plan of the same.

Fig. 5 is an inverted plan of the same.

Fig. 6 is a detailed elevation of the gas generating apparatus and of portions of the life belt.

The belt 1 may be made of canvas or other suitable material, and is adapted to be placed around the body under the arms and is provided at one end with adjusting straps 2 and at the opposite end with buckles 3. Buoys 4 are secured on the outer side of the belt and are spaced apart and are also spaced from the ends of the belt. Two of the buoys are here shown, one for arrangement in front of the person using the belt and the other for arrangement on the back of the person. These buoys are inflatable bodies, are flexible and collapsible and are in practice made of canvas and lined with rubber. Any suitable material may, however, be employed in the construction of the buoys or inflatable bodies as desired. The width of the buoys exceeds that of the belt, the corners of the buoys are rounded as shown and the buoys semi-cylindrical in cross section. The buoys are connected together by a tube 5 which is provided with a tubular hose connecting arm 6.

I also provide in connection with the belt and the inflatable buoys or bodies a gas generating apparatus 7 for generating acetylene gas from calcium carbid or other material which combines with water to generate a buoyant gas. The gas generator comprises a cylindrical carbid or generating tank 8 and a water tank 9 the lower end of which is screwed in the upper end of the carbid tank so that the said tanks are detachably secured together. On one side of the carbid tank is a loop 10 through which the belt passes, the generator being secured on the belt and being arranged in the space between the buoys 4 and under the right arm of the wearer of the belt.

A vertically arranged water inlet pipe 11 has its lower end secured in a central opening in the bottom of the tank 8, said water inlet pipe being open at its upper and lower ends and being provided with a screen 12 at its lower end. A perforated pipe 13 which is of greater diameter than the water inlet pipe is arranged concentrically around the latter with its lower end secured to the bottom of the tank 8 and its upper end provided with a screen 14. A valve cage 15 is screwed to the upper end of the water inlet pipe. A valve 16 is provided to normally close the upper end of said pipe 11 and said valve is arranged in the cage and is normally held in closed position by a weak spring 17. A floating screen 18 is arranged in the tank 8 and around the perforated pipe, to bear on and hold the carbid in place and said floating screen is held lightly pressed on the carbid by a spring 19 the upper end of which bears against the bottom of the water tank 9.

A gas escape pipe or nipple 20 passes vertically through the top and bottom of the water tank 9, is open at its ends, and is attached at its upper end to the hose connection 6 so that gas generated in the tank 8 is caused to pass through the pipe 20, connection 6 and tube 5 directly into the buoys 4 to inflate the latter and render the belt buoyant.

It will be understood that when the ap-

paratus is immersed in water as when the wearer thereof falls into or voluntarily enters the water, the valve 16 opens against the slight resistance of the weak spring 17 and water enters through the inlet pipe 11 and passes through the perforations in the pipe 13 into the carbid, thus generating acetylene gas and causing the buoys to be inflated. The valve 16 closes against back pressure and hence cuts off the supply of water to the carbid when a sufficient volume of gas has been generated to inflate the buoys.

To enable the generation of gas to be manually controlled I provide a valve 21 to control the supply of water to the generating tank 8 from the water tank 9. The valve 21 is here shown as cylindrical with a pointed lower end 22 to close an opening 23 in the bottom of the water tank. Said valve passes through an opening in a guide 24 and has a diametrically enlarged head 25 which is arranged in a nipple 26. A cap 27 is screwed on said nipple and bears on the head of the valve to normally hold the latter in closed position. A spring 28 of suitable strength is provided to bear under the head of the valve and to open the valve and cause water to pass from the tank 9 through the opening 23 into the carbid tank or generating tank when the cap 27 is slightly unscrewed. It is not necessary to entirely unscrew the cap in order to cause the valve 21 to open. The cap need only be unscrewed to a slight extent for this purpose. The water tank is also provided at its top with a water filling nipple 29 and a suitable cap 30 for said nipple.

My improved life saving belt is cheap and simple in construction, is very light, is extremely compact, may be readily carried and is very readily put on or taken off. Being automatic in operation it becomes inflated and rendered buoyant as soon as the person using the belt enters the water. The manually controlled means for causing the generation of gas may be employed if desired or required.

While I have herein shown and described a preferred form of my invention I would have it understood that changes may be made in the form, proportion and construction of the several parts, without departing from the spirit of my invention and within the scope of the appended claims.

Having thus described my invention, what I claim is:—

1. In apparatus of the class described a gas generator having a water inlet pipe, a valve mounted at the inner end of said pipe to control the admission of water to the generator when the latter is immersed, a perforated pipe arranged around the water inlet pipe and valve, and a screen at the inner end of the perforated pipe and above the valve.

2. In a gas generator of the class described a generating tank open at its upper end and provided with a water inlet and a normally closed valve to admit water to the generator when the latter is immersed, a water tank detachably secured in and closing the upper end of the generator, means to permit the supply of water to the generator from the water tank and a gas escape pipe leading through the water tank and adapted for the attachment of a hose thereto.

3. In apparatus of the class described, a gas generating vessel, a water containing vessel connected to the gas generating vessel and having a water discharge opening leading to the generating vessel, a valve to close said opening, a spring to open said valve, and a cap having threaded connection with the water vessel and arranged around and bearing on the head of said valve and permitting the opening of the said valve by said spring when said cap is partly unscrewed.

In testimony whereof I affix my signature.

WILLIS F. JOHNSON.