

F. J. WICH.
LIFE PRESERVER.
APPLICATION FILED MAY 18, 1910.

1,014,546.

Patented Jan. 9, 1912.

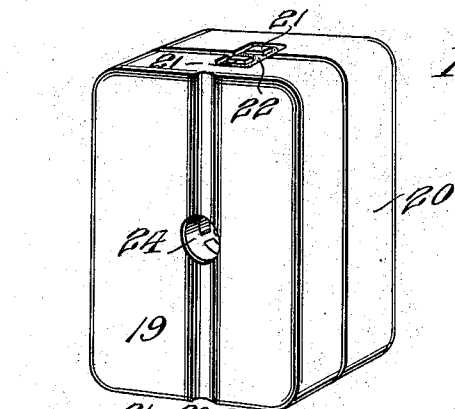


Fig. 1.

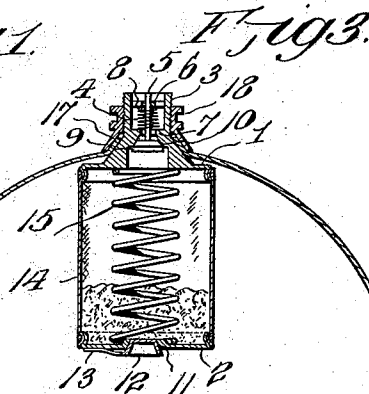


Fig. 3.

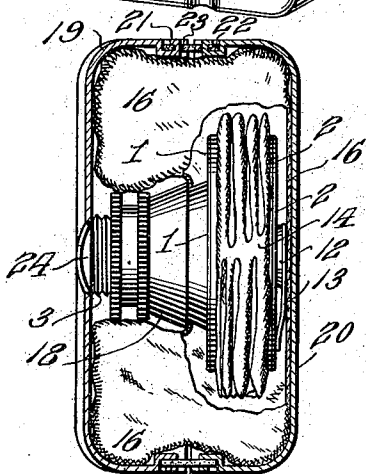


Fig. 2.

Fig. 5.

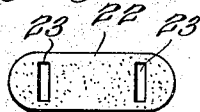


Fig. 4.



Witnesses

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LIFE-PRESERVER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FERDINAND J. WICH, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented new and useful Improvements in Life-Preservers, of which the following is a specification.

This invention relates to life preservers and the object of the invention is the provision of a preserver which may be conveniently carried upon the person without annoyance and which will automatically generate a sufficient quantity of gas to render the same buoyant upon the ingress of water thereto. Heretofore, in devices of this character the gas generating element was contained in a receptacle which was closed by some suitable means which had to be manually removed so as to expose the generating element to the action of the water, or a soluble stopper or valve retainer were used which was dissolved or disintegrated upon contact with the water to release the valve or the stopper, but no positive means has been provided for automatically and positively causing a predetermined amount of water to be brought into contact with the gas generating element.

It is the object of this invention to accomplish such a function and to avoid the difficulties inherent in the present type of gas generating life preservers.

A further object of the invention is the provision of a novel carrying case which prevents the wear of the gas bag and which will automatically act upon contact with the water to release the bellows.

Further objects of the invention will appear as the following specific description is read in connection with the accompanying drawings which form a part of this application, and in which:

Figure 1 is a perspective view of the device and its carrying case. Fig. 2 is a longitudinal section of the carrying case. Fig. 3 is a sectional view of the bellows and its accompanying gas bag. Fig. 4 is a perspective view of a soluble cartridge for containing carbid. Fig. 5 is a plan view of one of the soluble links.

Referring more particularly to the drawing 1 and 2 represent the top and bottom plates of the bellows. The top plate has a centrally extending cylinder 3 in which is mounted a spiral spring 4 surrounding a valve stem 5 which is slidably mounted in

bridge pieces 6 and 7 extending across the cylinder or collar 3. The spring is arranged between the lower bridge piece 7 and a collar 8 which is secured to the valve rod and is adapted to normally force the valve rod upward so as to bring its valve 9 into engagement with the valve seat 10. The lower plate 2 is apertured as at 11 and a flap valve 12 is mounted upon a spring arm 13 in position to cover the aperture. This flap valve opens outwardly so as to permit the ingress of air to the gas-bag and the valve 9 opens inwardly so as to permit the entrance of water into the bellows. The plates 1 and 2 are connected together by any suitable fabric 14 which is impervious to water and to air and the plates are normally forced apart by a spiral spring 15 arranged between the plates. A gas bag 16 of expansible material and provided with an attenuated neck 17 is secured over the bellows and has its neck 17 surrounding the collar 3 and clamped in position thereon in any suitable manner as by a band 18. This bag is normally of such a size as to occupy small space and the whole device may be collapsed so that it may be carried in the vest pocket. It is a well understood fact that these expansible gas bags are quite subject to wear and in order to prevent this, a carrying case 19 is provided comprising separate cup like sections 20 which have their ends provided with expanding lips 21 which are adapted to be engaged by a soluble connecting link 22 having apertures 23 to be entered by the lips. These lips and the connecting link are sunk down into the ends as shown so as to avoid bringing them in contact with the clothes of the wearer and thereby wearing out the link which is preferably composed of gelatin or a like substance and is quite subject to wear. One side of the casing is provided with an aperture 24 through which the collar 3 projects so as to be readily accessible to the water. When the bellows is collapsed against the tension of the spring 15 and is positioned in the casing, the links 22 are held under tension and are therefore ruptured upon being slightly dissolved. The device is preferably worn by securing the same in any suitable manner to the clothing where it would be readily exposed to the action of the water. A suitable gas generating element is arranged in the bellows and the bellows is collapsed with the valve 9 open so as to expel all of the air in

the bellows which upon expanding forms a vacuum therein which acts to positively suck the water through the valve 9 into the bellows. The bellows and its accompanying gas bag is mounted in collapsed position within the carrying case and with the neck 3 registering with the aperture 24. When the soluble connecting links are dissolved by the action of the water, the spring 15 operates to expand the bellows forming a vacuum therein and drawing water into the bellows thereby bringing it into contact with the gas producing element therein. After the spring has expanded to its fullest extent, the valve 9 closes and the gas begins to generate and is expelled through the opening 11 controlled by the valve 12. This gas fills and expands the bag 16 a sufficient degree to support the user of the device. Any suitable gas producing medium such as a carbid may be used and I therefore make no claim to the gas producing medium, *per se*.

In practice it is found that where the carbid or other gas generating element is loosely held in the bellows that gas is liberated before a sufficient quantity of water has been drawn into the bellows and the valve 9 thereby closed. In order to avoid such a contingency the cartridge shown in Fig. 4 is employed so that the bellows may operate to its full extent of movement and a proper amount of water is drawn thereinto before the generation of gas starts. After a predetermined amount of water has been drawn into it, the cartridge is dis-

solved and the gas rapidly liberated to fill the bag. As before stated no claim is made to the gas producing medium *per se*, but I wish it clearly understood that any means for preventing too rapid liberation of the gas before a predetermined or proper amount of water has been drawn into the bellows, is contemplated.

Having thus described the invention, what is claimed is:—

A life preserver comprising a bellows, a spring mounted therein and normally acting to open the bellows, a gas producing medium mounted within the bellows, an inlet valve carried by the bellows, an outlet valve carried thereby, a gas bag secured to the bellows and adapted to receive the gas through said outlet valve, means to hold the gas bag collapsed which comprises a pair of cup-shaped members having recesses therein, one of said members having an aperture to expose the inlet end of the bellows, lugs on said members, soluble links connecting the lugs and lying in the recesses, and a soluble casing for the gas producing medium, whereby the action thereof is prevented until a sufficient amount of water has been drawn into the bellows to properly coact with the gas producing medium to fill the bag with gas.

In testimony whereof I affix my signature in presence of two witnesses.

FERDINAND J. WICH.

Witnesses:

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