No. 655,373. Patented Aug. 7, 1900.

E. K. RODEN.

LIFE PRESERVER.

(Application filed Nov. 28, 1899.)

(No Model.)

FIG 1.

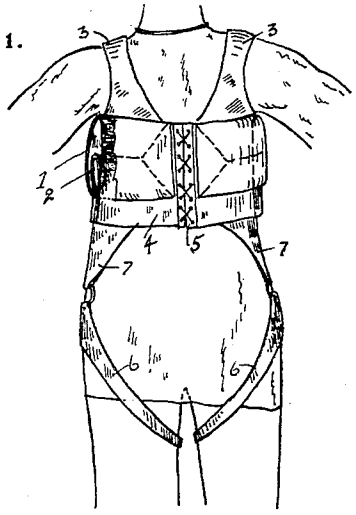


FIG 2.

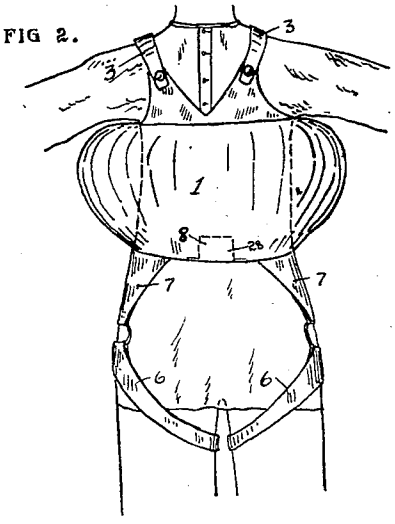


FIG 3.

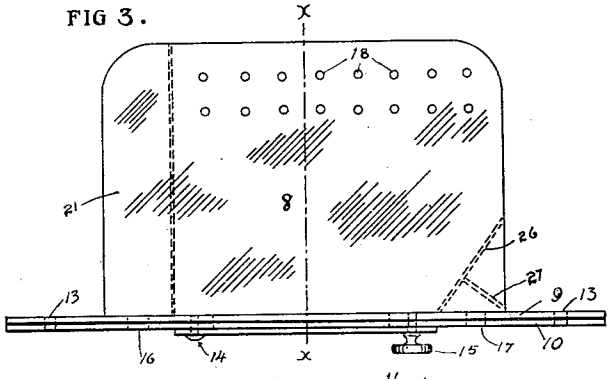


FIG 5.

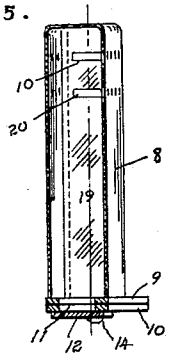


FIG 4.

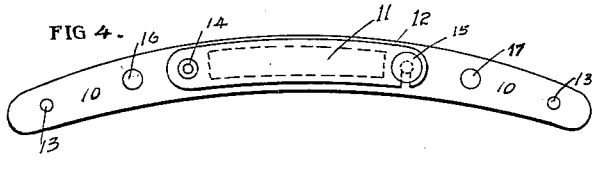
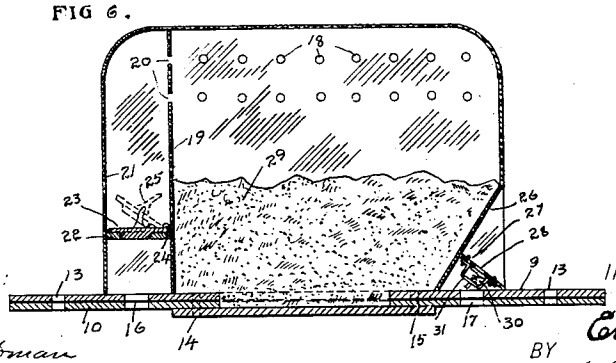


FIG 6.



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UNITED STATES PATENT OFFICE.

ERNEST K. RODEN, OF SCRANTON, PENNSYLVANIA.

LIFE-PRESERVER.

SPECIFICATION forming part of Letters Patent No. 655,373, dated August 7, 1900.

Application filed November 28, 1899. Serial No. 738,529. (No model.)

To all whom it may concern:

Be it known that I, ERNEST K. RODEN, a subject of the King of Sweden and Norway, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Life-Preservers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to that class of life-preservers which are adapted to be secured to the person of the user to keep him afloat in case of shipwreck.

The objects of the invention are to provide a preserver of the kind adapted to be worn without inconvenience as a vestment, to provide automatic means for inflation of such preservers, to provide an inflatable preserver of the kind inflatable by the action of water, and other objects, as set forth herein and embodied in the claims.

To this end the invention consists of the construction, combination, and arrangement of the several parts specified, and illustrated in the accompanying drawings, in which—

Figure 1 shows a back view of a human figure invested with one of my preservers, the preserver being deflated and partly in cross-section, showing the method of folding. Fig. 2 is a front view of a figure invested in my preserver after inflation. Fig. 3 is a full-sized elevation of the receptacle adapted to hold the gas-producing substance. Fig. 4 is an under side view of the plate through which access from the exterior is had to the said receptacle. Fig. 5 is a cross-section taken on the line x x of Fig. 3, showing part of the internal structure of the receptacle. Fig. 6 is a cross-section taken at right angles to that of Fig. 5.

Similar figures of reference denote like and corresponding parts in the several views.

Referring to the drawings, 1 designates an inflatable bag made from any suitable gas and water proof fabric into the shape of a vestment running laterally around the waist, and preferably made to fold inwardly by an upward fold 2. (Shown in cross-section in Fig. 1.) My device may be secured to the body by means of suspending-straps 3 3, reaching over the shoulders from the band 4, to which all the parts are attached, and which band may be adjusted to different-sized bodies by means of an elastic lacing-cord 5. The device may be further secured by means of loops 6 6, extending to the lower limbs and attached, respectively, to the flaps 7 7, extending from the band 4. A small metallic box or receptacle is secured in any suitable position, preferably in front, as shown in Fig. 2. This box is constructed with a curvature adapting it to conform to the body and secured so that it is entirely within the inflatable portion of the device by means of a plate 9 and a plate 10, which are adapted, the one on the inside and the other on the outside of the bag, to clasp the fabric between them and to be riveted together at 13 13, 14, and 15. The fabric then being cut away at 11, also at 16 and 17, access may be had to the receptacle within, the openings through the plates 9 and 10 registering and being adapted to be closed by a sliding plate 12, hinged to a rivet at 14 and slid into engagement with a button at 15. The said receptacle is provided with holes 18 to permit the diffusion of gas through its walls. It is also provided at one side with a partition 19, having open passage-ways 20 at the upper portion thereof communicating with the space 21. A diaphragm 22, provided with a lift-valve 23, is located in the space 21, the valve-lid being hinged at 24 and being provided with a projection 25, which is adapted to prevent the valve from opening too far by getting in contact with the partition 19. A portion 26 of the side walls of the receptacle is deflected inward, and a diaphragm 27, fitted with an outward-opening lift-valve 28, is secured at the outside of the walls of the receptacle, but within the interior of the inflatable bag with which it communicates. A passage-way 17 provides an exit of gas from the bag through the plates 9 and 13, and a similar passage-way 16 provides an entrance of water when the device is immersed. The details of construction of this receptacle, which is adapted to hold gas-producing compound 29, may be somewhat varied; but I always make it in a flat curved form conforming to the curvature of the body. It is essential that it have an inwardly-opening valve to allow water to pass in and come in contact with the gas-producing compound 29 within the receptacle, and it is also essential that an

escape-valve be provided for the gas from the inflated bag when the pressure becomes too great. The valve which I show consists of an ordinary lid-valve 28, held in position by the compression of a spring 30 impinging on the said lid and compressed thereon by means a yoke 31; but any other suitable means may be employed to provide for a safety escape-valve.

The operation of my device is readily explained. The receptacle 8 is filled with any suitable compound which will rapidly produce gas when in contact with water. The compound is inserted into the receptacle through the opening 11. This opening is then sealed water-tight by means of the sliding lid 12. The vestment is now ready for use. It is secured to the body in the manner before described, and other clothing may be placed over it or not, as is preferred. I prefer to make the device suitable to be worn next to the underclothing of the wearer, so that loosening the outer garments will permit of the necessary inflation, and the device is thus adapted to be worn by sea-going passengers continually without being removed from the body and without any great inconvenience. In case of shipwreck the user should open the outer clothing, but even should he fail to do this the power of the gas inflating my preserver may be sufficient to even burst the outer clothing, especially clothing of the lighter fabrics, such as are worn by ladies. The device is thus self-operating when in water, as it will be readily seen that the water entering through the orifice 16 will lift the valve 23 and pass directly through the openings 20 into the interior of the receptacle, thus getting in contact with the compound 29, whence the inflating-gas is produced and diffuses out through the holes 18, filling the interior of the bag of the preserver. As soon as there is considerable pressure on the interior it should be noticed that the valve-lid 23 will be pressed shut automatically by the pressure within, and thus shut off a further flow of water inward. This action is made more certain by giving considerably more surface on the upper side of the lid exposed to pressure than that on the under side of the lid. When the pressure within becomes too high, the safety-valve 28 allows it to pass through the exit 17, and if the pressure within becomes too light the pressure of the water will open the valve 23, so as to admit of more water and produce more gas.

There should be enough compound provided to produce gas for an indefinite length of time, at least twenty-four hours, and this can be done with a receptacle not larger than that shown in my drawings. The gas-producing compound to be used should be such as responds within a short time after getting in contact with water.

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

1. A life-preserver consisting of a suitable vestment constructed from light and pliable material adapted to encircle the body of the user and adjustable thereto, the said vestment being constituted from an inflatable bag, the walls thereof adapted to fold over by a continuous fold encircling the body in combination with loops extending to the upper and lower limbs for the purpose of securing the same to the body together with means for automatically inflating the said bag by immersion into water, substantially as and for the purpose specified.

2. In a life-preserver an inflatable bag adapted to encircle the body of the wearer, the walls thereof folding over in a continuous fold encircling the waist of the wearer, in combination with a metallic receptacle secured therein and having a curvature corresponding to that of the body and secured to the walls of the said inflatable bag by means of rivets and an outer plate, by means of which the fabric of the bag is clasped between the said outer plate and the receptacle within, the said receptacle adapted to hold a gas-producing compound and being provided with inlet and outlet valves admitting water and shutting it off automatically, and also providing a safety escape when the pressure becomes too great within, substantially as specified.

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

ERNEST K. RODEN.

Witnesses:
J. N. SMOOT,
LESTER ROCKWELL.