

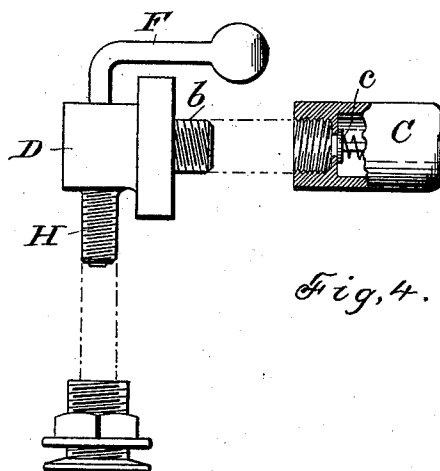
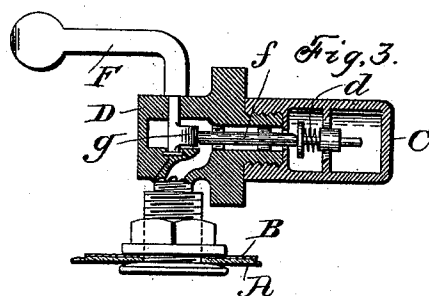
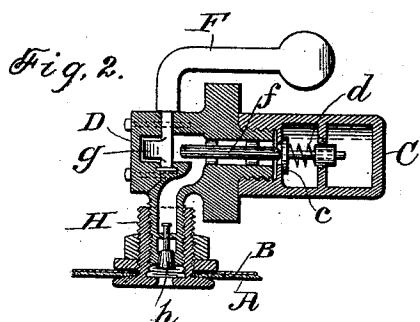
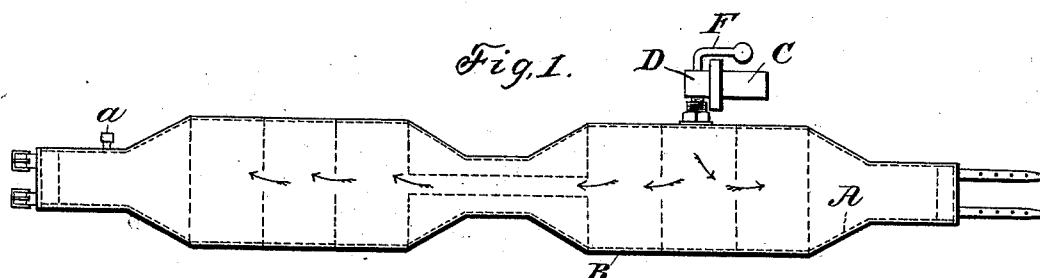
(No Model.)

A. COLOMES.

AUTOMATIC LIFE PRESERVER, BUOY, &c.

No. 519,242.

Patented May 1, 1894.



Attest.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC LIFE-PRESERVER, BUOY, &c.

SPECIFICATION forming part of Letters Patent No. 519,242, dated May 1, 1894.

Application filed November 8, 1893. Serial No. 490,336. (No model.)

To all whom it may concern:

Be it known that I, ANTOINE COLOMES, of Clermont-Ferrand, Department of Puy-de-Dôme, in the Republic of France, have invented a new and useful Improvement in Automatic Life-Preservers, Buoys, &c., which improvement is fully set forth in the following specification.

The present invention has for its object the instantaneous inflation of life-preservers and analogous buoyant bodies designed to support persons or things upon the water. Devices of this character, as usually constructed, are bulky and cumbersome, and the inconveniences attending their transportation and manipulation are avoided by the use of the present invention.

The invention consists essentially of (first) a hollow and air-tight vessel, belt, or receptacle, which may be generically termed the "inflation chamber" and which is made of flexible or collapsible material (such as rubber-coated fabric) so that when not inflated it may be folded into a very small compass; and (second) a tube or cartridge containing the medium of inflation in a liquefied state, the medium being of such character that it will instantly expand into a gas upon being released from compression. The medium preferred as best suited to the purpose in view is liquefied carbon dioxide, or carbonic acid gas. These two elements are so combined that, by the opening of a stop valve, the cartridge is thrown into communication with the inflation chamber, and the latter instantaneously expanded and converted into a buoyant body.

Life-preserving belts, constructed according to this invention, may be worn by a swimmer without inconvenience, leaving him free to swim or dive, but in case of failure of strength or in any emergency, he can by simply touching a lever immediately inflate his belt. Similar life preservers carried by vessels at sea can be packed so as to occupy small space. Buoys of any form can be made of impermeable flexible material, and their small bulk before inflation admits of great numbers being stored and carried in a space that would be occupied by a few buoys of ordinary construction. Pontons or floats, such as carried by armies in campaigning can, with great and

obvious advantage, be constructed according to this invention. The ordinary air chambers of life boats, which occupy much room, may also be displaced by collapsible inflation chambers, provided with inflating cartridges as above described. Other analogous uses of the invention will readily suggest themselves and need not be specified. The cartridge and chamber are coupled by a connection containing any suitable and convenient means for releasing the inflating medium instantaneously from the former into the latter. The cartridge is provided with a self-closing valve, and is detachably connected to the inflation chamber, as by a screw coupling, so that it can readily be removed, after use, and replaced by a charged cartridge. These cartridges can thus be supplied in quantity as separate articles of manufacture.

The accompanying drawings which form part of this specification illustrate one manner of carrying the invention into effect, the inflation chamber being in the form of a life-saving belt.

Figure 1, is an elevation of the belt and attached cartridge. Figs. 2 and 3 are longitudinal sections, showing the valve and lever in different positions, and Fig. 4, is an elevation (partly in section) showing the elements of the cartridge and connection detached.

The inflation chamber A is in the form of a belt adapted to be worn under the arms, the expanded portions being at the chest and back, and the contracted portions beneath the arm-pits. It may be made of any suitable fabric or tissue rendered air-tight by the usual means. This vessel or chamber (indicated in Fig. 1 by a dotted line) may be covered by an envelope B (see Figs. 2 and 3) of silk or other suitable material.

The cartridge C is attached to the chamber A at any convenient point by a metallic coupling D, containing a passage or duct leading from the cartridge to the chamber, and carrying a lever F for manipulating the discharge valve *c* of the cartridge. Valve *c* (which may be of any suitable kind) is shown as a disk, carried by a spindle, around which is a spiral compression spring *d*. When the cartridge is charged with liquefied carbon dioxide, or other inflating medium, the pressure of the latter

keeps the valve tightly closed, and the spring is only needed to return the valve to its seat when the cartridge is empty. The passage of coupling D contains a sliding pin *f* for opening the valve at the proper time, this pin being actuated by a projection or cam *g* on lever F, when the lever has turned to the position indicated in Fig. 3. The nozzle H leading into the chamber A, contains a cut-off valve *h*, shown as a cone or plug valve, which closes the passage against the escape of the inflating fluid in case the cartridge be removed. So long as the cartridge is in place this valve is not needed.

The cartridge is as shown, so constructed that it can be quickly disconnected from coupling D, this being effected by providing the latter with an externally threaded boss *b* and providing the mouth of the cartridge with a corresponding internal thread. The belt has a discharge opening *a* closed by a screw cap, as usual with life preservers of this kind, and which can be utilized to inflate the belt in the ordinary way in case the cartridge for any reason cannot be used.

Having now fully described my invention, what I claim is—

1. The combination with the collapsible inflation chamber, of a cartridge containing a liquefiable inflating medium, and provided with a self-closing valve for confining the charge in the cartridge, a coupling connecting the chamber and cartridge and having a communicating passage therethrough from one to the other, and a lever and connections under

control of the operator for opening the valve, substantially as described.

2. The combination of the collapsible inflation chamber, the cartridge for the compressed inflating medium having a detachable connection with said chamber, a cut-off valve for closing said chamber when the cartridge is detached, a self-closing valve in the cartridge, and means under the control of the user for opening said valve, substantially as described.

3. As a new article of manufacture, a life-preserver comprising a collapsible impermeable belt, and a cartridge charged with liquefied gas and detachably connected with said belt, said cartridge being provided with a self-closing valve, and with an operating lever and connections for opening the same and putting the cartridge into communication with the interior of the belt, substantially as described.

4. The inflating cartridge for use in connection with life preservers and analogous buoyant bodies having a valve adapted to be closed by the pressure of the liquefied inflating medium, and having a screw-threaded mouth, and an operating lever for opening said valve substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

COLOMES.

Witnesses:

VICTRO BAROLI,
LOUIS PENÈS.