No. 719,654. PATENTED FEB. 3, 1903.

J. EWING, JR.

MARINE LIFE PRESERVER.

APPLICATION FILED AUG. 11, 1902.

NO MODEL.

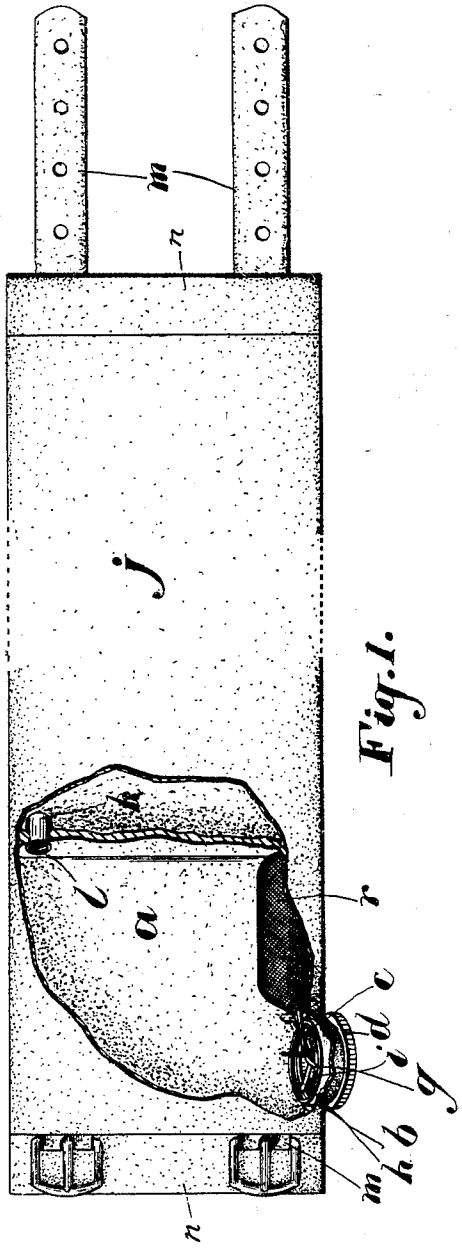


Fig. 1.

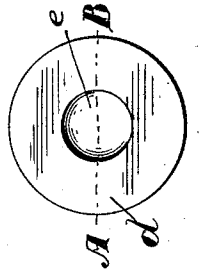


Fig. 2.



Fig. 4.

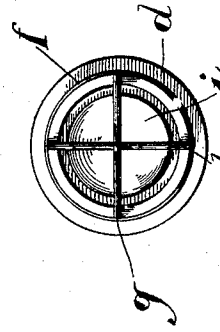


Fig. 3.

Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN EWING, JR., OF RICHMOND, CANADA.

MARINE LIFE-PRESERVER.

SPECIFICATION forming part of Letters Patent No. 719,654, dated February 3, 1903.

Application filed August 11, 1902. Serial No. 119,262. (No model.)

To all whom it may concern:

Be it known that I, JOHN EWING, Jr., a subject of the King of Great Britain, residing at Richmond, in the county of Richmond, Province of Quebec, Canada, have invented certain new and useful Improvements in Marine Life-Preservers, of which the following is a specification.

My invention relates to improvements in marine life-preservers; and the object of the invention is to provide a life-saving device which shall be collapsible, and therefore easily portable, and inflatable either by gas on being suddenly submerged in the water or by air before the water is reached, and whereby a belt may be provided that can be worn without inconvenience in times of danger to avoid a calamity; and it consists, essentially, of a tube or bag made of rubber or other suitable material and preferably divided into two or more chambers, one of the said chambers having an opening from the outside and further opening or openings into the other chamber or chambers, a cap having an orifice therethrough provided with a valve, and suitable means of fastening the life-preserver around the body of the wearer, the various parts being constructed in detail as hereinafter more particularly described.

Figure 1 is a perspective view of my life-preserver, partially broken away to show the interior. Fig. 2 is an enlarged detail of a cap from the outside. Fig. 3 is an enlarged detail of a cap from the inner side. Fig. 4 is a section through A B in Fig. 2.

Like letters of reference indicate corresponding parts in each figure.

a is the gas-generating chamber, shown here at one end of an elongated rubber tube and having the opening *b* in its lower side, the said opening being provided with a ring or socket *c*, preferably threaded in its inner periphery.

d is a cap having the orifice *e* therethrough and the flange *f* projecting from its lower side, the said flange being threaded on its outer periphery and designed to fit in the corresponding thread in the inner periphery of the ring *c*.

g and *h* are cross-bars extending diametrically across from edge to edge of the flange *f* and arranged in an angular position one to the other.

i is a valve loosely resting inside the cross-bars *g* and *h* against the inner surface of the cap *d* and designed to close the orifice *e*.

j is a chamber connected by the passage *k* to the generating-chamber *a* and preferably having a valve *l* inserted in the said passage to retain the gas or air in the chamber *j*. The valve *l* may be any suitable form of air-valve, and the exact construction of it will not be specified here.

The chamber *j* is shown as that in which the gas emanating in the generating-chamber *a* escapes to and remains while the life-preserver is in use; but it must be understood that this chamber *j* may be divided into as many chambers as may be desirable, either longitudinally or laterally, and the passages thereinto or between may each be provided with a valve *l* or may be free, as found most desirable. The valve *l* is not necessary to the successful operation of the device.

m represents straps adapted to be attached to the outer covering under suitable flaps *n* at each end of the life-preserver. The straps *n* are elastic and will allow a considerable extension of the length around the body of the wearer in order to make up for the lateral expansion of the tube or bag.

o is an alternative form of cap in which its orifice *p* is permanently covered by the gauze *q* and the valve *i* is entirely omitted. The alternative form of cap *o* may also be used with a valve, if deemed advisable.

r is a cartridge of calcium of carbid attached to the cap *d* and resting inside the gas-generating chamber *a*.

Having described the various parts involved in my invention, I shall now explain the operation thereof.

The user of the life-preserver attaches the same around the body by means of suitable buckles or fastenings attached to the ends of the straps *m*, the opening *b* being at the lower edge of the belt and facing downward. The carbid cartridge *r* is in proximity to the opening *b*, which is closed by the cap *d*. In this position the valve *i* is resting loosely against the orifice *e*. The wearer being suddenly submerged in the water through accident or

design will send the life-preserver under water also and the pressure of the water forces an entrance for itself through the orifice *e* in the cap *d*, and as the said water meets the carbid a gas is generated which finds a passage of least resistance—that is, the passage *k* into the chamber *j*. The force of the pressure of gas closes the orifice *e* by means of the valve *i* being held thereagainst; but immediately the pressure in the generating-chamber is lessened through the escape of the gas through the passage *k* the water again finds an entrance through the orifice *e*, and as it once more meets the carbid a further gas is generated to fill the chamber or chambers connected by communicating passages. This operation is repeated until the belt is inflated, when the pressure of gas from within will withstand the pressure of water from without and continue to hold the orifice *e* closed against further entrance of water.

It will be thus seen that the life-preserver is automatic, and a timid person need not fear danger from drowning when wearing one of these belts, for it is generally found when calamities happen that people lose their presence of mind and would be incapable of inflating a life-preserver for themselves, whereas the device herein described can be worn without inconvenience throughout an entire trip and yet absolutely guarantee safety to the wearer if any accident happens to the steamer or boat on which he may be.

The use of this device for summer resorts and other places where it is not found necessary to inflate the belt automatically and in great haste must be emphasized here, as it is only necessary to blow this up in an ordinary manner, and the air will be retained therein similar to the gas, though of course it will not be automatic.

In order to prevent the disintegration of the carbid when the belt is not in use, a stopper may be provided, which it will be understood is only used in order that the carbid may be kept in good condition while the belt is packed away. This stopper is designed to be attached in a suitable manner to the cap and to be inserted when necessary in the orifice *e*. The stopper is not absolutely necessary to the successful operation of the device.

What I claim as my invention is—

1. A marine life-preserver comprising a flexible casing adapted to be inflated, a partition dividing off a part of said casing to form a gas-generating chamber, said partition having a gas-passage therethrough, and a cap closing an opening to said gas-generating chamber, said cap being adapted to admit water and to prevent the escape of gas, substantially as described.

2. A marine life-preserver comprising a flexible casing adapted to be inflated, a partition in said casing, a generating-chamber, a ring secure in the wall of said casing, a cap detachably connected to said ring and a check-valve controlling an opening in said cap, substantially as described.

3. A life-preserver comprising a hollow belt divided into a plurality of communicating compartments, means for inserting a gas-generating material into one of said compartments, and an inwardly-opening check-valve in the opening to said compartment, substantially as described.

4. A marine life-preserver comprising a flexible casing adapted to be inflated, a partition-wall dividing off a portion of said casing into a generating-chamber, a check-valve controlling an opening in said partition-wall, and a cap having a check-valve and closing an opening to said generating-chamber, substantially as described.

5. A marine life-preserver comprising a flexible casing adapted to be inflated, a cap closing an opening to said casing and having a central orifice therein, and a cartridge of gas-generating material connected to said cap, an inwardly-opening check-valve, and an impervious stopper suitably attached to the cap, and designed to close the opening to the valve, substantially as described.

Signed at Montreal, in the district of Montreal, in the Province of Quebec, Canada, this 6th day of August, 1902.

JNO. EWING, JR.

Witnesses:
H. T. TROTTER,
MAY MADDEN.