

995,888.

E. W. MILLER.
AUTOMATIC LIFE PRESERVER.
APPLICATION FILED FEB. 9, 1911.

Patented June 20, 1911.

2 SHEETS—SHEET 1.

Fig 1

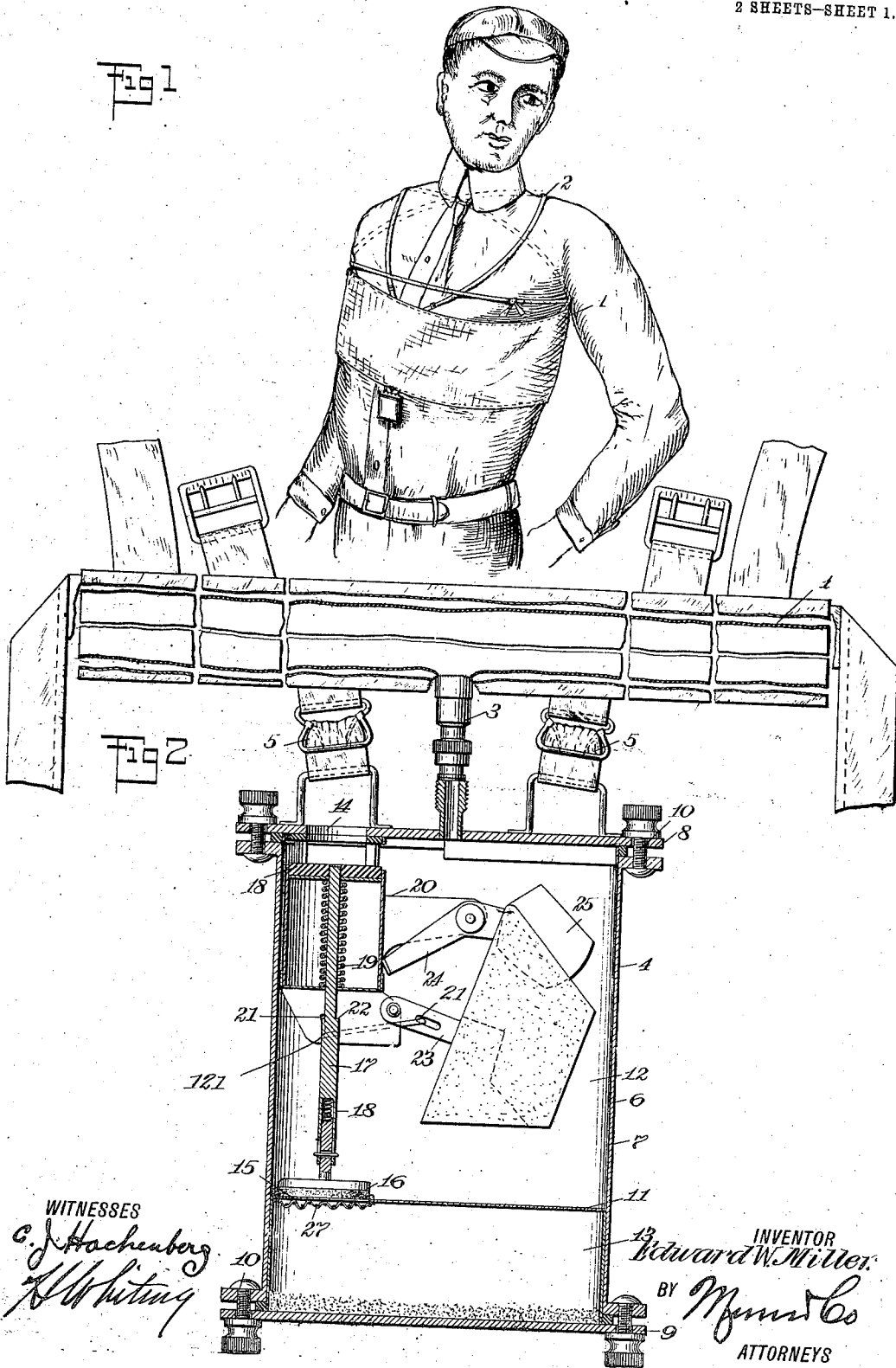


Fig 2

WITNESSES
C. J. Hachenberg
H. W. Hitting

INVENTOR
Edward W. Miller.
BY *Munn & Co*
ATTORNEYS

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2 SHEETS-SHEET 2.

Fig 3

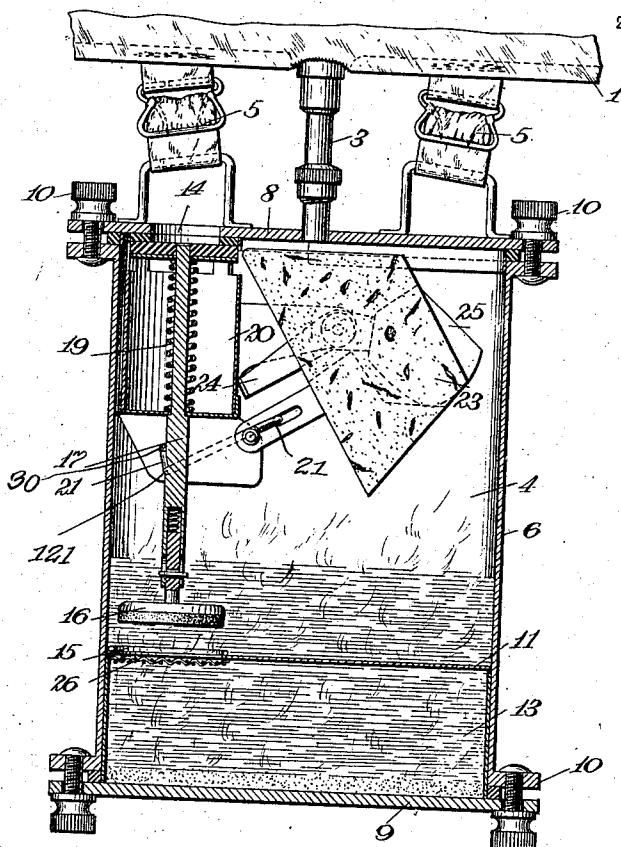


Fig 4

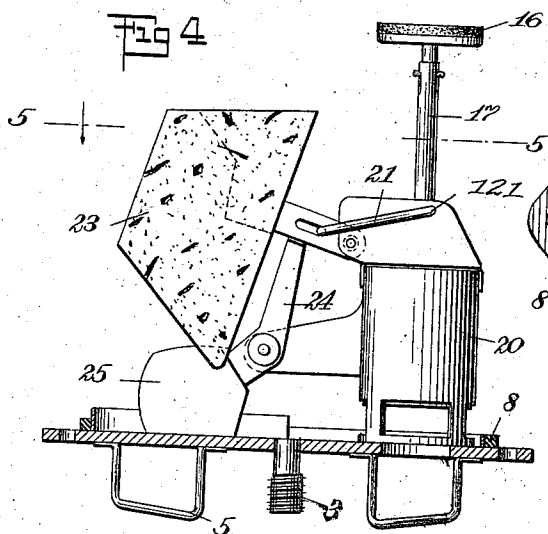
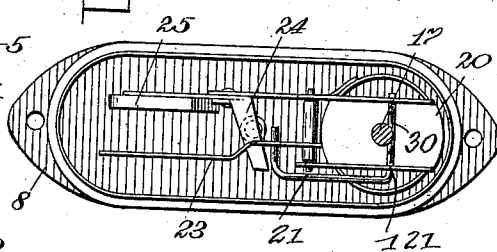


Fig 5



WITNESSES:

C. J. Hachenburg.
H. Whiting

INVENTOR
Edward W. Miller

BY *Menno Co*
ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD WATTS MILLER, OF MERRICK, NEW YORK.

AUTOMATIC LIFE-PRESERVER.

995,888.

Specification of Letters Patent. Patented June 20, 1911.

Application filed February 9, 1911. Serial No. 607,516.

To all whom it may concern:

Be it known that I, EDWARD W. MILLER, a citizen of the United States, and a resident of Merrick, in the county of Nassau and State of New York, have invented a new and Improved Automatic Life-Preserver, of which the following is a full, clear, and exact description.

This invention relates to a new and improved automatic life preserver of a type adapted to automatically expand when the wearer falls or enters into the water, so as to buoy him up and prevent his sinking.

An object of this invention is to provide a simple and inexpensive device which can be worn at all times when a person is in a boat, or in danger of falling into the water which will be out of sight and unobtrusive when not in actual use, and which, however, will immediately expand when the wearer goes into the water, so as to form a buoyant support which will prevent him from sinking, by means of a gas generated on entering the water, which is collected in a substantially fluid-tight envelop.

Another object of this invention is to provide a life preserver having an envelop, with a gas generator attached thereto adapted to contain a material, such as calcium carbide, which, on contact with water, will generate a buoyant gas, to be collected in said envelop, said generator being so arranged that it will automatically admit a sufficient quantity of water to generate the gas before the gas starts to generate, and then shut off the incoming water so as to prevent the exit of gas to be generated, and simultaneously open communication with the portion of the generator having the chemical therein, such as calcium carbide, so as to permit the generation of the gas.

A further object of this invention is to prevent the accidental tripping of the mechanism of a generator for a life preserver, by inverting the same.

These and further objects, together with the construction and combination of parts, will be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a perspective view showing

the position of the device on the wearer; Fig. 2 is a fragmentary sectional view, showing the communication between the chemical chamber and the rest of the generator closed and the inlet to the generator open; Fig. 3 is a section through the generator, similar to Fig. 2, showing the device after the water has entered, with the inlet to the generator closed and the passage between the chemical chamber of the generator and the remainder of the generator open so as to permit the water to enter the chemical chamber, and the gases generated to pass out therefrom; Fig. 4 is a detail sectional view, showing the device inverted, with the lock in position for preventing the accidental tripping of the mechanism in case the generator is inverted; and Fig. 5 is a horizontal section on the line 5—5 of Fig. 4.

Referring more particularly to the separate parts of this invention as embodied in the form shown in the drawings, 1 indicates the gas-storing envelop, which may be of any suitable fluid-tight material, such as rubberized cloth or the like, and is adapted to be secured to the body in an inconspicuous manner by any suitable means, such as a plurality of straps 2, which cross the body, and which may be provided with suitable buckles for securing the ends together. This envelop, which is adapted to contain the buoyant gas for supporting the wearer in water, is provided with an inlet 3, which connects it with a suitable gas generator 4. This inlet 3 may be provided with any suitable type of check valve, such as that commonly used on pneumatic tires, for permitting the ingress of the gas generated, and preventing its accidental egress. The generator 4 may be additionally connected to the envelop 1 in any suitable manner, so as to prevent the strain coming on the gas connection 3, as for example, by connecting members 5. The generator 4 is provided with a casing 6, which may be of any suitable character, such as the body portion 7, having a top 8 and a bottom 9 secured thereto in any suitable manner, as by means of detachable screw fastenings 10, which engage aligned openings in projecting portions of the body portion and the top and bottom.

The casing 6 may be divided in any suitable manner, as by means of a partition 11, into a plurality of chambers, one of which,

12, may be termed the main chamber, and the other of which, 13, may be termed the chemical chamber, in that it is adapted to contain a suitable chemical, such as calcium carbide, which will, on contact with water, generate a suitable gas, such as acetylene, with which the envelop may be inflated, so as to permit a buoyant support of the device for the wearer, which will support him in water. An inlet for the casing 6 is provided, so that the water can enter the same when the device is placed in water. This inlet is indicated at 14, and is shown as being located in the top of the generator, but may be in any other suitable part.

It will be noted that the partition 11 has an opening 15 therein, which forms a passage between the chamber 12 and the chamber 13, so that the water which enters by means of the inlet 14 can enter into the chamber 13 which contains the carbide. This passage 15, however, when the device is set for operation, is normally closed by means of a valve 16, which rests on the partition 11. The valve 16 has a sliding connection with a spindle 17, which connection may be of any suitable character, for example the telescopic and pin and slot connection shown, and also may be resilient, as by means of the spring 18, which normally holds the valve 16 yieldingly on its seat. The upper end of the spindle 17 is provided with a valve 18, which is adapted to close the inlet 14 to the generator. A spring 19, or any other suitable means, may be provided, which is under a normal tendency to open the valve 16 and close the valve 18. This spring may be inclosed in a suitable casing 20, which protects the spring and at the same time guides the valve and spindle. The valve spindle 17 and the valves 16 and 18 are locked in their lowermost position, so that the valve 16 is closed on its seat, by means of a latch 21, which is pivotally mounted at 121, and has a portion bent to form an arm 30, which engages a shoulder 22 on the spindle 17. This latch is adapted to be released by a tripper 23, which is shown in the form of a float, which may be of any suitable character, and in this instance is made of cork. It will thus be seen that when sufficient water has entered the casing 6, so as to raise the level of the water in the compartment 12 a sufficient distance to buoy up the float 23, this float, acting as a tripper, will release the latch 21, permitting the spring 19 to expand, thus opening the valve 16 and closing the valve 18. This float is so positioned that when this action takes place, a sufficient quantity of water will have entered the generator to combine with the chemical in the chamber 13, so as to permit a sufficient quantity of gas to fill the envelop 1. In case the device should be accidentally inverted while set for

use, it is desirable that the latch 21 should not be released by the tripper 23. There is therefore provided a lock 24, comprising a pivotal bell crank lever, one arm of which is normally held out of contact with the tripper 23 when the generator is upright in its correct position, but which is adapted to be brought into engagement with the tripper 23, by means of a weight 25 secured to the other arm of the lever, which is brought in play by the inversion of the generator. This action is shown in Figs. 4 and 5.

The utility of the device will be readily understood when taken in connection with the above description. The envelop 1 is secured to the body of the person desiring to insure himself against accident, by means of the straps 2, the generator 4 having been previously charged with a sufficient quantity of a suitable chemical, such as calcium carbide, by removing the bottom 9 and placing it in the chamber 13. The carbide is prevented from passing into the chamber 12 even if the valve 16 should be open, by means of the screen 27 for the passage 15. The valve mechanism is then set so that the valve 16 is closed on its seat, and the valve 18 is open.

In case the person wearing this life preserver should by any chance come into the water, as soon as the generator becomes immersed, the water will rush into the inlet 14 until a sufficient quantity has entered the compartment 12 to raise the float tripper 23. When this takes place, the latch 21 is released, and the valves 16 and 18 simultaneously respectively opened and closed, so that water is permitted to enter the compartment 13 and come in contact with the calcium carbide or other chemical therein, generating a suitable gas, such as acetylene gas, which will pass into the chamber 12 and thus into the envelop 1. Inasmuch as the valve 18 has been closed, no gas can escape from the generator except into the envelop 1.

It will thus be seen that a simple and efficient life preserver will be formed, which will automatically be brought into active use.

While I have shown one embodiment of my invention, I do not wish to be limited to the specific details thereof, but desire to be protected in various changes, alterations and modifications which may come within the scope of the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a life preserver, the combination with an envelop adapted to contain a fluid, of a generator connected to said envelop for generating a gas to fill said envelop, said generator having an inlet whereby water may enter therein, and also having a plural-

ity of chambers, with a communicating passage between them, a valve for closing said inlet, a valve for closing said passage, a spring for operating said valves, a latch for locking said valves in a predetermined position, and a tripper for releasing said latch.

2. In a life preserver, the combination with an envelop adapted to contain a fluid, of a generator connected to said envelop for generating a gas to fill said envelop, said generator having an inlet whereby water may enter therein, and also having a plurality of chambers, with a communicating passage between them, a valve for closing said inlet, a valve for closing said passage, a spring for operating said valves, a latch for locking said valves in a predetermined position, and a tripper for releasing said latch, said tripper comprising a float adapted to be manipulated by a quantity of water entering said generator.

3. In a life preserver, the combination with an envelop adapted to contain a fluid, of a generator connected to said envelop for generating a gas to fill said envelop, said generator having an inlet whereby water may enter therein, and also having a plurality of chambers, with a communicating passage between them, a valve for closing said inlet, a valve for closing said passage, a spring for operating said valves, a latch for locking said valves in a predetermined position, a tripper for releasing said latch, said tripper comprising a float adapted to be manipulated by a quantity of water entering said generator, and a lock for preventing the accidental manipulation of said tripper.

4. In a life preserver, the combination with an envelop adapted to contain a fluid, of a generator connected to said envelop for generating a gas to fill said envelop, said generator having an inlet whereby water may enter therein, and also having a plurality of chambers, with a communicating passage between them, a valve for closing said inlet, a valve for closing said passage, a spring for operating said valves, a latch for locking said valves in a predetermined position, a tripper for releasing said latch, said tripper comprising a float adapted to be

manipulated by a quantity of water entering said generator, and a lock for preventing the accidental manipulation of said tripper, said lock being normally out of engagement with said tripper when said generator is in a proper erect position.

5. In a life preserver, the combination with an envelop adapted to contain a fluid, of a gas generator adapted to supply the fluid to said envelop, said gas generator having a plurality of chambers separated from each other by means having a passage there-through, said generator having an inlet permitting water from the outside of said generator to flow into said generator, a valve for closing said inlet, a valve for closing said passage, a spindle connecting said valves, a resilient connection between one of said valves and said spindle, a spring for manipulating said valves, a latch for locking said valves in a predetermined position, and an automatic tripper for releasing said latch.

6. In a life preserver, the combination with an envelop adapted to contain a buoyant fluid, of a gas generator for generating the fluid for said envelop, connected to said envelop, said gas generator having a chamber adapted to accumulate a quantity of water, and also having a chemical chamber separated from said first-mentioned chamber by a partition having a passage there-through, said first-mentioned chamber having an inlet adapted to permit the water to enter the same, means for normally cutting off communication between said chambers, and means for automatically closing said inlet and opening up communication between said chambers when a predetermined quantity of water has entered said first-mentioned chamber, whereby the water in said first-mentioned chamber may pass into said chemical chamber and mix with the chemical therein.

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

EDWARD WATTS MILLER.

Witnesses:

W. C. MEFHAM.

J. W. BIRCH.