

(No Model.)

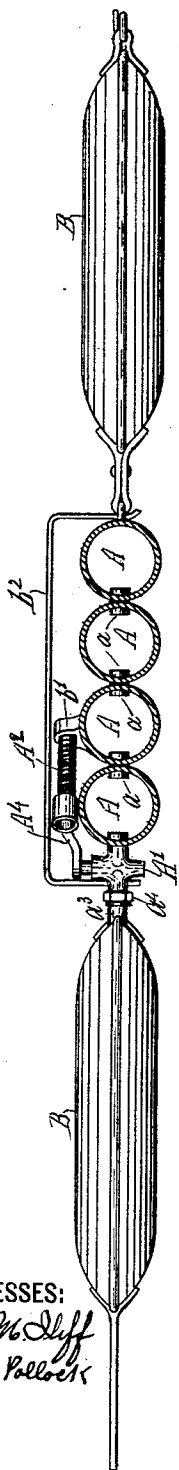
2 Sheets—Sheet 1.

T. GORDON.
LIFE PRESERVER.

No. 572,109.

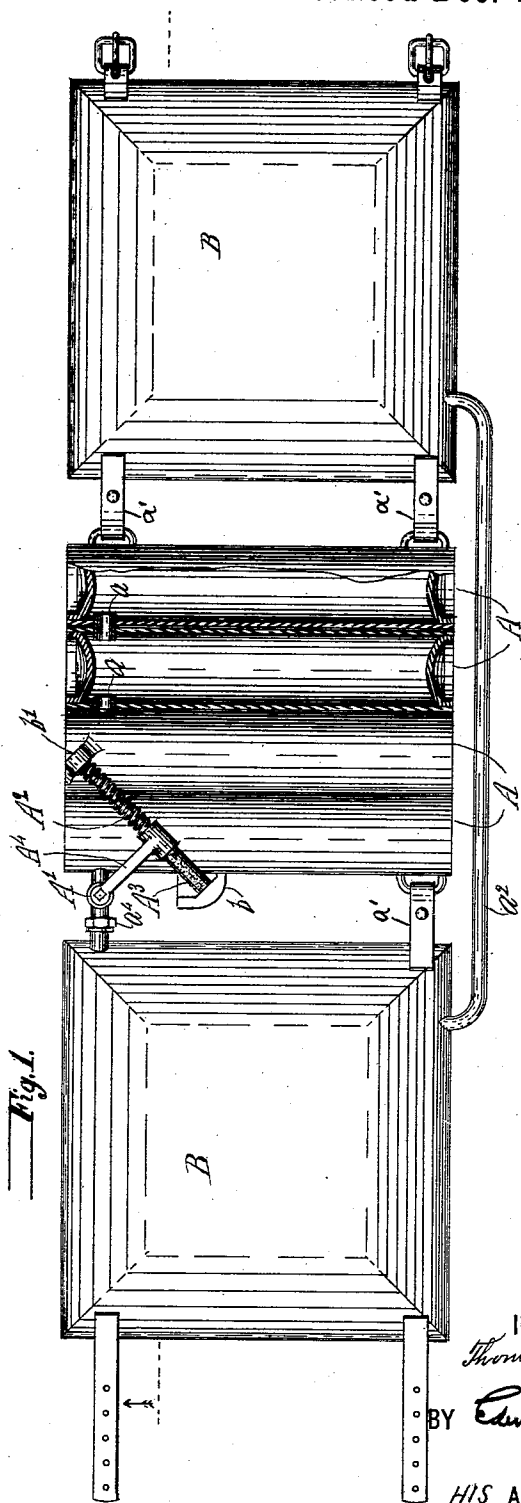
Patented Dec. 1, 1896.

Fig. 2.



WITNESSES:
William M. Sliff
William C. Pollock

Fig. 1.



INVENTOR
Thomas Gordon.

BY Edwin J. Brown

HIS ATTORNEY

(No Model.)

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Fig. 3.

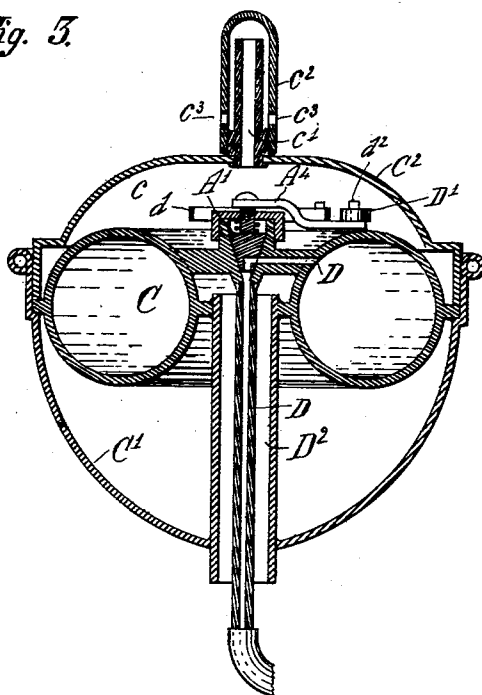
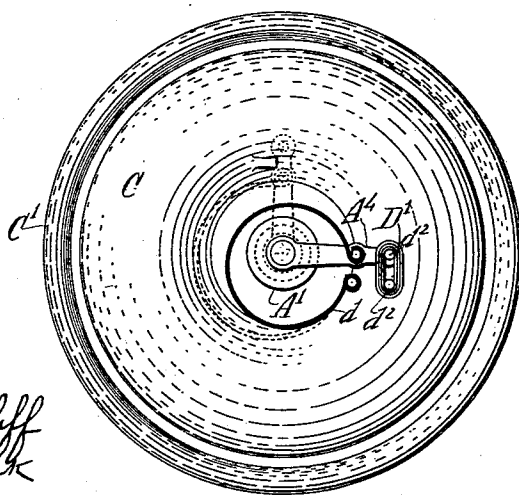


Fig. 4.



WITNESSES:

William M. Cluff
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INVENTOR

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UNITED STATES PATENT OFFICE.

THOMAS GORDON, OF NEW YORK, N. Y.

LIFE-PRESERVER.

SPECIFICATION forming part of Letters Patent No. 572,109, dated December 1, 1896.

Application filed November 21, 1892. Serial No. 452,682. (No model.)

To all whom it may concern:

Be it known that I, THOMAS GORDON, of New York, county and State of New York, have invented a new and useful Improvement in Life-Preservers, of which the following is a specification.

This invention relates to life-preservers designed to be worn by a person in the water to keep such person afloat; and it consists of an inflatable part or parts having communication with a chamber supplied with compressed air or gas and with means for releasing the compressed air or gas automatically or otherwise and allowing it to enter the inflatable part or parts.

I will describe a life-preserver embodying my improvement and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a life-preserver embodying my improvement. Fig. 2 is a partial section and a partial top view of the same. Fig. 3 is a vertical section of a modification. Fig. 4 is a plan view of said modification with the cover removed.

Referring by letter first to Figs. 1 and 2, A designates a chamber or reservoir for containing compressed air or gas. It is here shown as consisting of several sections or tubes, preferably of steel, closed at the ends and having communication one with another through ports *a*.

B designates inflatable parts, which may be made of rubber or similar material. The part or parts B may be secured to the chamber or reservoir A by means of flexible straps *a'*, and they may have communication one with the other through a flexible tube *a''*, or the part B may surround the person as one continuous chamber. One of these parts B communicates with the chamber or reservoir A through a tube *a'''*, provided with a valve *A'*. The tube *a'''* may consist of two parts joined together by a coupling *a''''*, so that the said parts may be disconnected for the purpose of filling the chamber or reservoir A with the compressed air or gas.

I provide means for automatically opening the valve *A'* to allow the escape of compressed air or gas to the parts B. In Figs. 1 and 2 this means consists of a spring *A''* and a plug *A'''*, soluble in water. I find that loaf-

sugar or similar material will answer the purpose of a soluble plug. A valve *A'* has a lever *A''* extending from it. A spring *A'''* bears at one end against the end of this lever *A''* and at the other end against a lug *b'*, extended from the outer side of the chamber or reservoir A. The soluble plug *A'''* bears at one end against the opposite side of the lever *A''* and at the other end against a lug *b*, extended from the outer side of the chamber or reservoir A. While in the position described, and as shown in Fig. 1, the soluble plug *A'''* will hold the valve closed against the pressure of the compressed spring *A'''*, but upon submerging the life-preserver in water the plug *A'''* will be quickly dissolved, allowing the spring *A'''* to expand and open the valve *A'*, thus allowing the passage of compressed air or gas from the chamber or reservoir A to the part B. A shield *b''* may be attached, as shown in Fig. 2, to protect the valve and its parts from being disturbed by contact with the person of the wearer or otherwise. In this device it is obvious that the spring and soluble part may be dispensed with and the valve operated by the wearer, and when so arranged is applicable for the use of those who wish to enter the water by diving.

The life-preserver may be provided with straps to secure it to the body of a person in the usual manner, or it may form part of a garment, the inflatable part being suitably arranged so as to raise and support the head of the wearer above the surface of the water when inflated.

Referring now to Figs. 3 and 4, which show a device for use of bathers or persons learning to swim, C designates a chamber for compressed air, made in the form of a hollow ring. This compressed-air chamber C is by preference supported by a casing *C'*, which forms an air-chamber below the compressed-air chamber C and serves to keep or assist in keeping the device afloat in the water similar to a buoy. When the casing *C'* is used in connection with the compressed-air chamber C, as shown, they will have an air and watertight connection one with the other. Manifestly the air-chamber formed by the lower portion of the casing *C'* is not absolutely essential, as the compressed-air cham-

ber C may be so constructed as to be sufficiently buoyant of itself. A cover C² is fitted to the upper portion of the case C' or to the exterior of the compressed-air chamber C and forms a chamber c. A tube c' communicates with the chamber c, and a cover or thimble c², closed at its upper end, is placed over the projecting tube c'. The cover or thimble c² has lateral openings c³ below the plane of the upper opening of the tube c'. By this construction air is admitted or allowed to escape from the chamber c, but water is prevented from entering said chamber except when required to release the valve hereinafter described. D is a tube leading from the compressed-air chamber C and having a flexible connection with the inflatable parts B. The passage of air through this tube D is controlled by a valve A', having a lever A¹ extending therefrom, which in this example is shown as having a spring d connected to it, the other end of the spring being connected to a fixed part of the chamber C. In this example the valve A' is held closed against the action of the spring d by means of a ligament D', connecting a lug d', extending from the lever A¹, with a lug d², extending from the outer surface of the chamber C. The material of the ligament is of such a nature that its strength is weakened or reduced when the material is brought in contact with water. This weakening may arise from a more or less complete solution of the material in the water, or it may result simply from a wetting of the material, rendering the same less tenacious. I have found that thin paper, for instance, tissue-paper, forms a very satisfactory ligament, the requisite strength being gained by passing the same a number of times back and forth between and around the connected lugs. Obviously when this ligament D' becomes dissolved or sufficiently weakened by the action of the water the spring d will force the lever A¹ to a position to open the valve A', as shown in dotted line in Fig. 4, thus allowing the escape of compressed air or gas from the chamber C to the inflatable parts. To allow water to reach the ligament D' when the chamber c is submerged in the water, I provide a pipe D², which extends from the chamber c through the chamber formed by the casing C' and having an outward opening. While this device is floating in the form of a buoy, the air in the chamber c will prevent the entrance of the water through the pipe D²; but when the device is drawn beneath the water by the person sinking the water will rush through the pipe D², fill the chamber c, and dissolve or weaken the

ligament D', thus automatically inflating the parts B, which will cause the person to rise to the surface. In this device, if desired, a cord may be attached to the casing C' or other part of the device and extended to the swimmer, so that he may, if he desires, draw the device under water for the purpose of inflating the parts B, which he wears.

Having described my invention, what I claim is—

1. In a life-preserver, the combination with an inflatable part, of a chamber for containing compressed air or gas, a communication between said chamber and inflatable part, a valve for controlling said communication, and a material soluble in water, for holding said valve in a closed position, substantially as specified.

2. In a life-preserver, the combination with an inflatable part or parts, of a chamber or reservoir for containing compressed air or gas, a tube forming a communication between said inflatable part or parts and said chamber, a valve in said tube, a spring for operating said valve, and a part soluble in water for holding said spring in an operative position, substantially as specified.

3. In a life-preserver, the combination with an inflatable part or parts, of a chamber or reservoir for containing compressed air or gas, a tube forming a communication between said inflatable part or parts and said chamber or reservoir, a valve in said tube, a lever extending from said valve, a spring in contact with said lever, and a part or element soluble in water for holding said lever and spring in an operative position, substantially as specified.

4. In a life-preserver, the combination with an inflatable part, a chamber or reservoir for containing compressed air or gas, having communication with said inflatable part, a casing forming an air-chamber for supporting the compressed-air chamber in water, a valve for controlling the passage of air or gas from the compressed-air or gas chamber to the inflatable part and means, consisting of a material soluble in water, for holding said valve closed and releasing said valve after said material shall have been dissolved or weakened sufficiently to break, substantially as specified.

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

THOMAS GORDON.

Witnesses:

CLARENCE R. FERGUSON,
WM. A. POLLOCK.