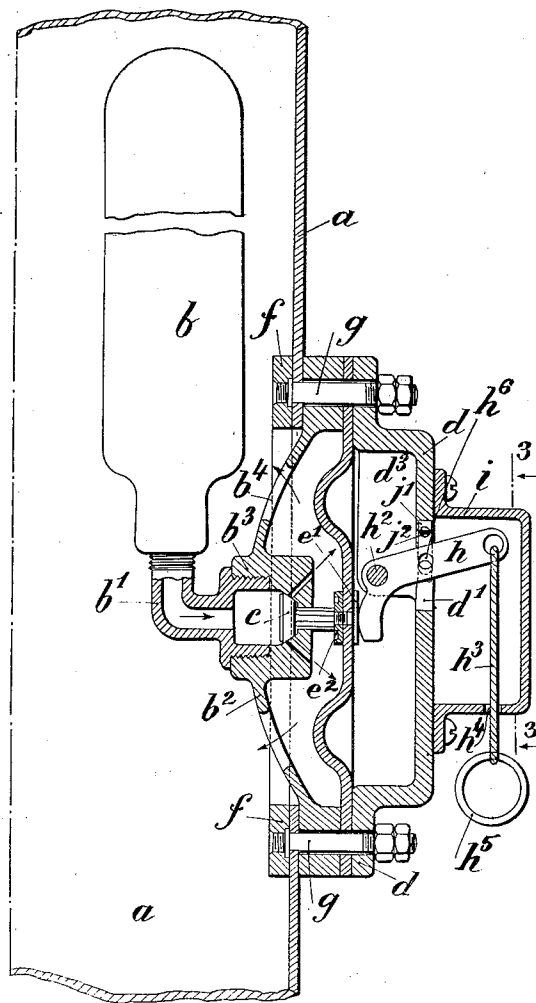


W. G. BROKAW.
 APPARATUS FOR INFLATING LIFE PRESERVING BELTS.
 APPLICATION FILED OCT. 14, 1916.

1,226,857.

Patented May 22, 1917.
 4 SHEETS—SHEET 1.

Fig. 1.



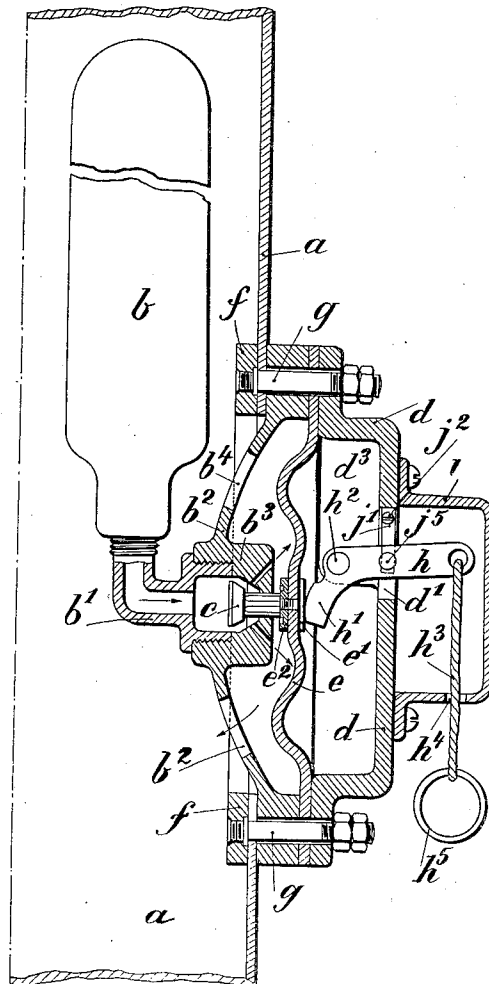
Inventor,
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Fig. 2.



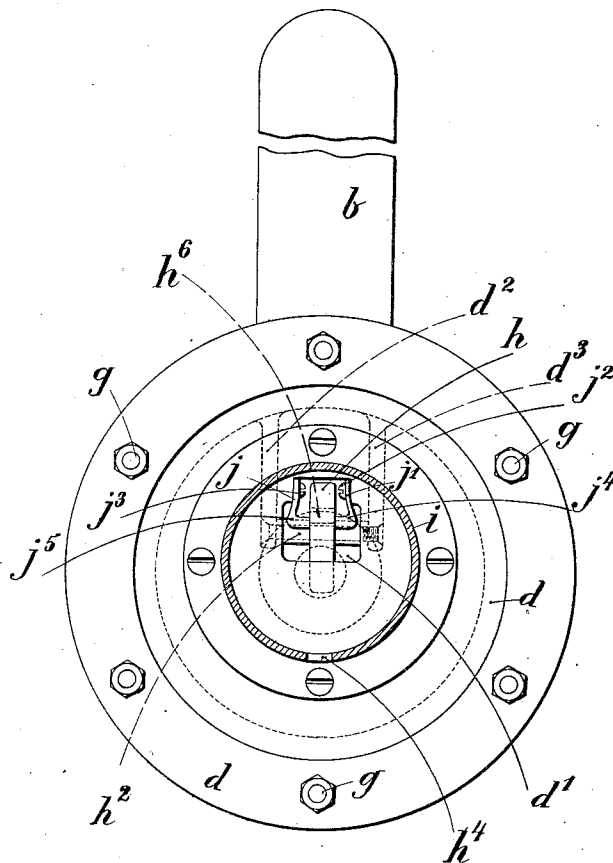
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Fig. 3.



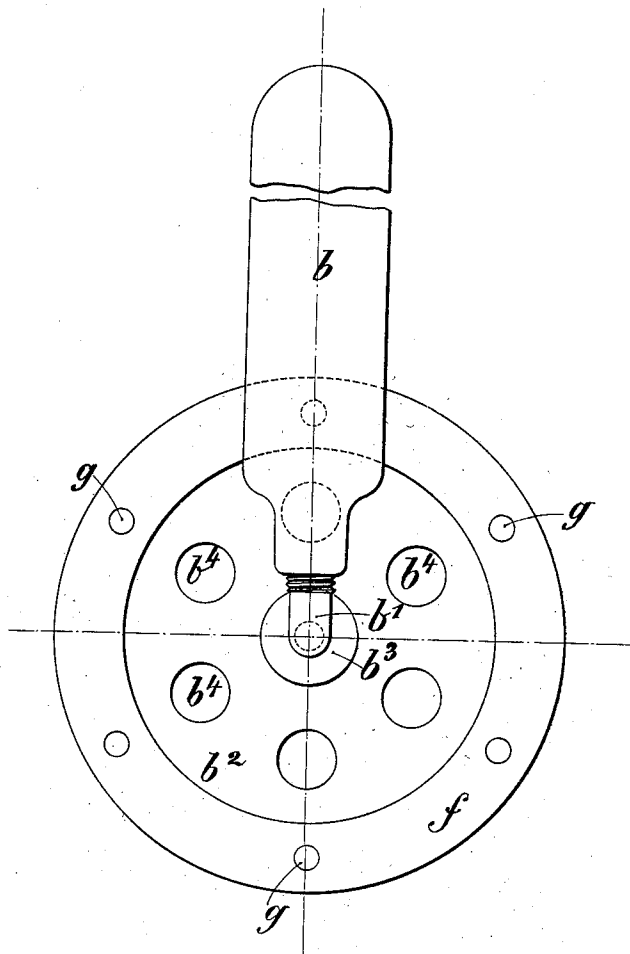
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Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM GOULD BROKAW, OF PARIS, FRANCE.

APPARATUS FOR INFLATING LIFE-PRESERVING BELTS.

1,226,857.

Specification of Letters Patent.

Patented May 22, 1917.

Application filed October 14, 1916. Serial No. 125,759.

To all whom it may concern:

Be it known that I, WILLIAM GOULD BROKAW, a citizen of the United States, whose post-office address is 41 Boulevard Haussmann, Paris, France, have invented new and useful Improvements in Apparatus for Inflating Life-Preserving Belts, of which the following is a specification.

The present invention relates to life-preserving belts and more particularly to that kind of belt which is inflated by means of cartridges containing air or a suitable gas, as distinguished from the kind which is inflated by means of the mouth, as is for instance the case with the belts described in applicant's British Patents No. 3441 dated March 3rd 1915, and No. 14007 dated October 2nd 1915.

In order to inflate a life-preserving belt by using cartridges containing compressed or liquefied gas, it has already been proposed to arrange the cartridge on a holder which is provided with an operating lever, in such a manner that the cartridge being in the inside of the belt and the lever at the outside thereof, it is possible, by operating the said lever, to act upon the valve of the cartridge and bring about an escape of gas which causes the belt to be inflated.

The apparatus devised according to the present invention solves the same problem, but it differs radically from the construction hitherto proposed as regards the means resorted to for its solution. The cartridge is in the inside of the belt and the operating means at the outside of the latter, as in the known construction, but the means which act upon the cartridge valve differ considerably; furthermore, the assembling of the parts is a more rational one and the operation is extremely simple. Finally, the arrangement is such that all risks of leakage, when the belt is in use, are reduced to a minimum.

Broadly speaking, the invention consists essentially in the application of a diaphragm which, placed between the cartridge valve and the operating member for such valve, enables the latter to be operated, while at the same time insuring a perfect hermetic joint between the inside of the belt and the external members serving to operate the said valve.

It consists, furthermore, in a device which

compels the valve, when once it has been moved away from its seat by the action of the outer operating member, to remain open until the cartridge has discharged the whole of its contents into the belt.

The accompanying drawing represents, by way of an example and at an intentionally exaggerated scale, an apparatus constructed in accordance with the herein described invention.

Figure 1 is a vertical section, the belt being partly broken away and the cartridge valve closed.

Fig. 2 is a similar section, with the valve after it has been opened.

Fig. 3 is a side view looking from right to left in Fig. 1 and partly in section substantially along the line 3, 3.

Fig. 4 is a side view of Fig. 2, looking from left to right in Figs. 1 and 2.

a represents in section, Figs. 1 and 2, the wall of the belt, which may be of any known kind. In the said belt is formed an opening for the introduction of the apparatus therein. b is the cartridge which is fitted to a nozzle b' screwed into a dish-shaped disk b^2 . Inside the hub b^3 of the latter is placed the valve c , the end of which projects toward the outside. The said disk is provided with holes b^4 and is fitted in place against the outer wall of the belt a as hereinafter explained. A shell d , which is in contact with a diaphragm e made of leather, rubber or other suitable material, clamps the diaphragm between itself and the disk b^2 . A tightening ring f , fitted inside the belt, enables the parts to be assembled in an airtight manner by means of studs or screws g . Within the shell d is arranged an elbow lever h, h' pivoted at h^2 , one arm h of which passes through an opening d' in the shell and is connected to a cord, rope, wire or chain h^3 . The said cord passes through a hole h^4 formed in a cap i and is connected to an operating ring h^5 . The other arm h' of the said lever bears against one face of the diaphragm e through the intermediary of a wearing surface e' , while the other face of the said diaphragm is in contact, through the intermediary of a similar wearing surface e^2 , with the end of the valve c . The said plates e', e^2 may, however, be dispensed with.

d^2 , d^3 are two ribs formed in the shell d and serving to receive the pivot h^2 of the elbow lever h , h' .

Against the two vertical walls of the opening d' in the shell d are fastened two springs j , j' by means of screws j^2 , j^3 or otherwise. At their lower end, these springs j , j' terminate in fingers or projections j^4 , j^5 of cylindrical or other shape, which, being opposite each other in one and the same plane, are both intended to engage a hole h^6 formed in the arm h of the elbow lever. When the latter assumes its uppermost position shown in Fig. 1, these fingers are away from the hole, as is shown in Fig. 3, while on the contrary when it occupies its lowermost position shown in Fig. 2, they have engaged the said hole.

The purpose of these fingers is to retain the elbow lever h , h' in its lowered position of Fig. 2, so as to compel the valve c to remain open until the whole of the compressed or liquefied air or gas has escaped from the cartridge b .

The operation is as follows: The apparatus, with its loaded cartridge, being fitted to the belt a , as hereinafter explained and illustrated in Fig. 1, and the belt being worn by the person whose life is to be saved, the person pulls the ring h^5 , thereby causing the elbow lever h , h' to descend from the position shown in Fig. 1 to that shown in Fig. 2, wherein the said lever is held by the springs j , j' , the fingers j^4 , j^5 having automatically engaged the hole h^6 in the arm h' of the said lever. At the same time, the said arm h' , acting upon the valve c through the intermediary of the diaphragm e , causes the gas contained in the cartridge b to escape, the diaphragm or membrane acting to insure an air-tight joint between the inner space of the life-preserving belt and the operating device for the valve.

The parts then assume the position shown in Fig. 2, the cartridge b having discharged its contents into the belt a now inflated. It is obvious that the capacities of the cartridge and belt, when inflated, should be proportionate to each other.

It is also to be remarked that the studs g may be screwed or fastened to the ring f , so as not to be separated therefrom and that they are introduced with a certain amount of friction into the holes of the belt a , so that when removing the apparatus, in order to replace an empty cartridge by a full one, the said ring f remains in place on the belt.

When it is desired to exchange a cartridge, the nuts on the studs g are removed, the shell d is taken off first, along with the parts thereto attached, after which the diaphragm e is withdrawn and then finally the disk b^2 , with the parts thereto attached, while the ring f remains inside the belt.

Finally, in cases where the cartridge is

made to contain oxygen, it will be possible, when desired, to utilize it for saving a drowned person, by causing the latter to inhale the gas by means of a pipe or connection previously fastened to the belt.

I claim:

1. The combination with an inflatable life-preserver or similar device, of a flexible diaphragm closing an opening therein, a cartridge containing a gaseous inflating medium inclosed within the life-preserver and in communication with one side of said diaphragm, a passage permitting escape of the inflating medium from the cartridge into the life preserver, a valve controlling said passage and attached to the diaphragm, and means for depressing the diaphragm to open said valve.

2. The combination with an inflatable life-preserver or similar device, of a flexible diaphragm hermetically sealing an opening therein, a cartridge containing a gaseous inflating medium inclosed within the life-preserver and in communication with one side of said diaphragm, a passage permitting escape of the inflating medium from the cartridge into the life-preserver, a valve controlling said passage and attached to the diaphragm and a lever for depressing said diaphragm to open said valve.

3. The combination with an inflatable life-preserver or similar device, of a flexible diaphragm hermetically sealing an opening therein, a cartridge containing a gaseous inflating medium inclosed within the life-preserver and in communication with one side of said diaphragm, a passage permitting escape of the inflating medium from the cartridge into the life-preserver, a valve controlling said passage and attached to the diaphragm, a casing covering said diaphragm, and a lever for depressing said diaphragm to open said valve.

4. The combination with an inflatable life-preserver or similar device, of a flexible diaphragm hermetically sealing an opening therein, a cartridge containing a gaseous inflating medium inclosed within the life-preserver and in communication with one side of said diaphragm, a passage permitting escape of the inflating medium from the cartridge into the life-preserver, a valve controlling said passage and attached to the diaphragm, a casing covering said diaphragm, and a lever pivotally held in said casing for the purpose set forth.

5. The combination with an inflatable life-preserver or similar device, of a flexible diaphragm hermetically sealing an opening therein, a cartridge containing a gaseous inflating medium inclosed within the life-preserver and in communication with one side of said diaphragm, a passage permitting escape of the inflating medium from the cartridge into the life-preserver, a valve con-

trolling said passage and attached to the diaphragm, a casing covering said diaphragm, a lever pivotally held in said casing, and a second casing secured to said first casing and inclosing the long arm of said lever.

6. The combination with an inflatable life-preserver or similar device, of a flexible diaphragm hermetically sealing an opening therein, a cartridge containing a gaseous inflating medium inclosed within the life-preserver and in communication with one side of said diaphragm, a passage permitting escape of the inflating medium from the cartridge into the life-preserver, a valve controlling said passage and attached to the diaphragm, a lever for depressing said diaphragm to open said valve, and means for locking said lever in a predetermined position.

7. The combination with an inflatable life-preserver or similar device, of a flexible diaphragm hermetically sealing an opening therein, a cartridge containing a gaseous inflating medium inclosed within the life-preserver and in communication with one side of said diaphragm, a passage permitting escape of the inflating medium from the cartridge into the life-preserver, a valve controlling said passage and attached to the diaphragm, a lever for depressing said diaphragm to open said valve, and means secured to the long arm of said lever for pulling the same.

8. The combination with an inflatable life-

preserver or similar device, of a flexible diaphragm closing an opening therein, a cartridge containing a gaseous inflating medium inclosed within the life-preserver and in communication with one side of said diaphragm, a disk-like holder supporting the cartridge and covering the diaphragm and having one or more passages permitting the escape of the inflating medium from the cartridge into the life-preserver, a valve seated in the hub of said holder, and controlling said passages, said valve being attached to said diaphragm and means for depressing the said diaphragm to open the valve.

9. In combination with a life-preserver, a cartridge contained therein having a gaseous inflating medium, a disk-like holder, a conduit connecting said cartridge with said holder, a valve in the hub of said holder and attached to a diaphragm, a casing covering said diaphragm, means for clamping said diaphragm between said casing and said holder and to said life-preserver, and means for depressing the diaphragm to open said valve.

In witness whereof I have hereunto set my hand this 25th day of September, one thousand nine hundred and sixteen, in presence of two subscribing witnesses.

WILLIAM GOULD BROKAW.

Witnesses:

R. H. BRANDON,
K. S. PATTON.