Jan. 1, 1952 B. P. BAKER 2,580,639

PUNCTURING HOLDER FOR GAS CARTRIDGE

Filed June 9, 1948

Fig. 1.

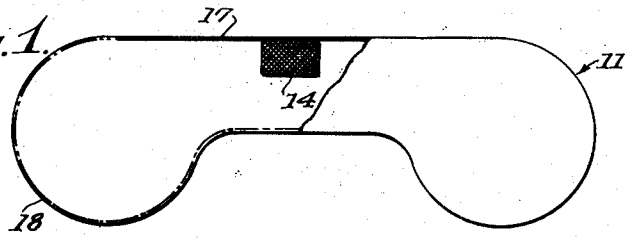


Fig. 2.

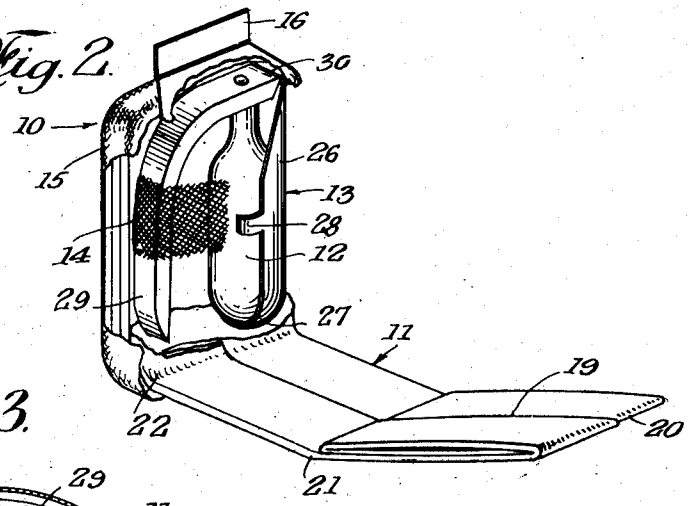


Fig. 3.

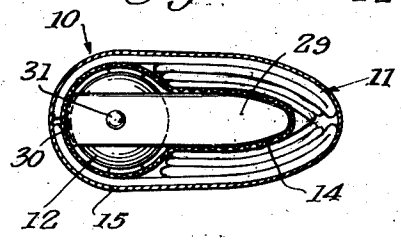


Fig. 4.

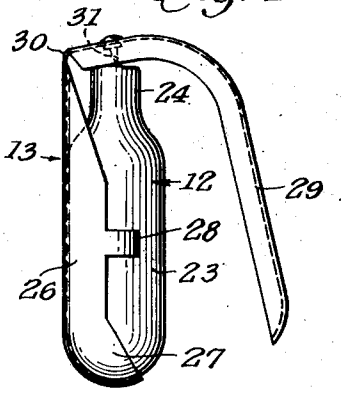
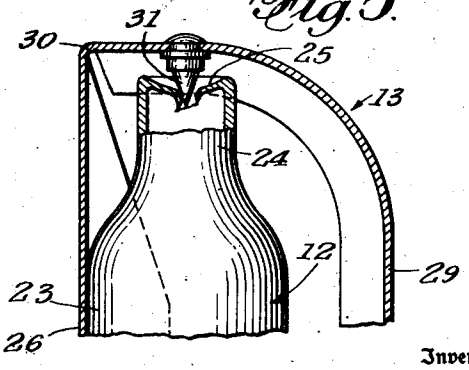


Fig. 5.



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PUNCTURING HOLDER FOR GAS CARTRIDGE

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Application June 9, 1948, Serial No. 31,856

2 Claims. (Cl. 222—5)

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This invention relates to life preservers and deals more particularly with a construction that is folded into a small unit for convenient wearing by bathers and swimmers and is adapted to be inflated by a simple pressure of the hand, when needed.

An object of the present invention is to provide a life preserver, as indicated, that embodies a cartridge of gas, such as carbon dioxide, and is provided with improved means for puncturing said cartridge to release the gas therein.

Another object of the invention is to provide a life preserver that is provided in the interior thereof with a gas cartridge and puncturing means, and is folded around said latter means to provide a compact easily carried or worn unit.

Another object of the invention is to provide a life preserver, as indicated, in which the cartridge and puncturing means are enclosed in a pervious container to reduce the rate of expansion of the gas and thereby protect the fabric of the preserver against the initial extremely cold blast of gas as the cartridge is first punctured.

A further object of the invention is to provide a life preserver, as above, that is contained within an outer envelope, the latter rupturing or otherwise disintegrating under the force of expanding gas.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawings merely show and the following description merely describes one embodiment of the present invention, which is given by way of illustration or example only.

In the drawings, like reference characters designate similar parts in the several views.

Fig. 1 is a partial plan and partial sectional view of a life preserver in open flat condition and embodying features of the present invention.

Fig. 2 is a perspective view, partly folded, of the life preserver, portions being broken away for clearer illustration.

Fig. 3 is a plan sectional view of the folded life preserver.

Fig. 4 is a side elevational view of the gas cartridge and puncturing means before the latter has been pressed.

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Fig. 5 is an enlarged longitudinal sectional view of the upper portion of Fig. 4 after the cartridge has been punctured.

The life preserver that is illustrated comprises, generally, an outer preferably liquid impervious envelope 10, water wings 11 adapted to be folded within said envelope, a gas cartridge 12, means 13 for holding said cartridge and for puncturing the same when release of the gas therein is desired, and an air or gas pervious container or sack 14, enveloping both the cartridge and the means 13, for decreasing the expansive force of the gas to obviate a deleterious effect on the water wings by the gas.

The envelope 10 may be formed as a sack 15 into the open end of which the folded life preserver is placed and the same is then sealed as at 16. As a variation, said sack 15 may be disruptable under inner pressure and may be formed as a cold dip plastic film provided on the outside of the folded water wings. In any case, the envelope 10 disrupts, disintegrates, or otherwise opens under pressure from within.

The water wings 11 are formed in any suitable manner of impervious material such as rubber, rubber coated fabric, or any suitable plastic sheet material. The shape shown is conventional and is provided for the convenience with which it may be grasped. The water wings are formed of a sheet that is folded at 17 and the superimposed edges are cemented together as at 18 to enclose the gas-containing unit within sack 14. The latter is preferably placed at the approximate middle of the water wings substantially as shown. The water wings are then longitudinally folded one or more times as indicated at 19 to quite closely confine said unit, and then folded transversely from the outer ends inwardly along successive lines 20, 21 and 22 to achieve the compact result indicated in Fig. 3.

It will be noted that the gas-containing unit, while within the water wings, is in the outer transverse fold thereof. Thus, when the gas is released, first fold 22 is opened, then fold 21, and finally fold 20. The gas is thus unhampered as it flows toward the ends of the water wings and rupture of the material of said wings, during the distending, is thus obviated. The water wings are completely inflated upon opening of the longitudinal fold or folds 19.

The cartridge 12 is generally conventional, the same comprising a cylindrical body 23 having a reduced neck 24 and a puncturable diaphragm 25 at the end of said neck.

The means 13 comprises a housing part 26 into

which the cartridge 12 is fitted. Said housing part comprises a single stamping that is integrally provided with a seat 27 for the cartridge and lateral encompassing prongs 28 that cooperate with the seat to retain the cartridge in the housing part. A handle part 29 is integrally connected at a hinge 30 to said housing part and is generally coextensive with the latter. A puncturing pin 31 is carried by the handle part adjacent hinge 30 and aligned with diaphragm 25. By grasping means 13 in one hand and squeezing, the handle part 29 is moved on its hinge to cause pin 31 to puncture the cartridge substantially as shown in Fig. 5. This squeezing action is readily effected because of the ready pliability of the folded water wings and the envelope therearound.

When the gas, in this case, carbon dioxide, is released, the rapid expansion thereof generates extreme cold that may deleteriously affect the material of the water wings. Accordingly, the fabric sack 14 is provided to enclose the gas-containing unit. Thus the gas must pass through the pores or interstices of said sack, is slowed up thereby and prevented from freezing the water wings.

While I have illustrated and described what I now regard as the preferred embodiment of my invention, the construction is, of course, subject to modifications without departing from the spirit and scope of my invention. I, therefore, do not wish to restrict myself to the particular form of construction illustrated and described, but desire to avail myself of all modifications that may fall within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a device of the character described, a gas-dispensing unit comprising a gas-filled cartridge, a single stamping formed to have a seat for the cartridge and laterally encompassing prongs that cooperate with the seat to retain the cartridge in the housing, a handle generally coextensive with the housing and integrally formed with and connected to the end of the housing opposite to said seat, said handle being provided with a portion extending across the end of the cartridge that is adjacent to the point of connection with the housing, said handle being pivotally movable relative to the housing on said point of connection in a direction toward the cartridge, and a cartridge-puncturing pin on the handle and directed toward the cartridge to puncture the same upon pivotal movement of the handle.

2. A holder for an elongated gas-filled cartridge having a puncturable end, said holder comprising a unitary stamping formed to have an elongated part housing said cartridge, said elongated part being provided with a seat for the end of the cartridge opposite to the puncturable end thereof and with lateral prongs encompassing an intermediate part of the cartridge, said seat and prongs retaining the cartridge in the housing, a handle having a portion extending above and across the puncturable end of the cartridge and a portion generally coextensive in length with the housing, said handle being integrally pivotally connected to the end of the housing opposite to the seat thereof, and a puncturing member on the portion of the handle that extends across the puncturable end of the cartridge and directed toward said end to puncture the latter upon movement of the coextensive portion of the handle on the pivotal connection toward the cartridge.

BILL P. BAKER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,670,591	Merifield	May 22, 1928
1,707,182	Whann	Mar. 26, 1929
2,036,695	Heigis	Apr. 7, 1936
2,173,567	Shafer	Sept. 19, 1939
2,209,956	Chase	Aug. 6, 1940
2,320,111	Ware	May 25, 1943
2,324,744	Ward	July 20, 1943

FOREIGN PATENTS

Number	Country	Date
284,379	Italy	Apr. 10, 1931