

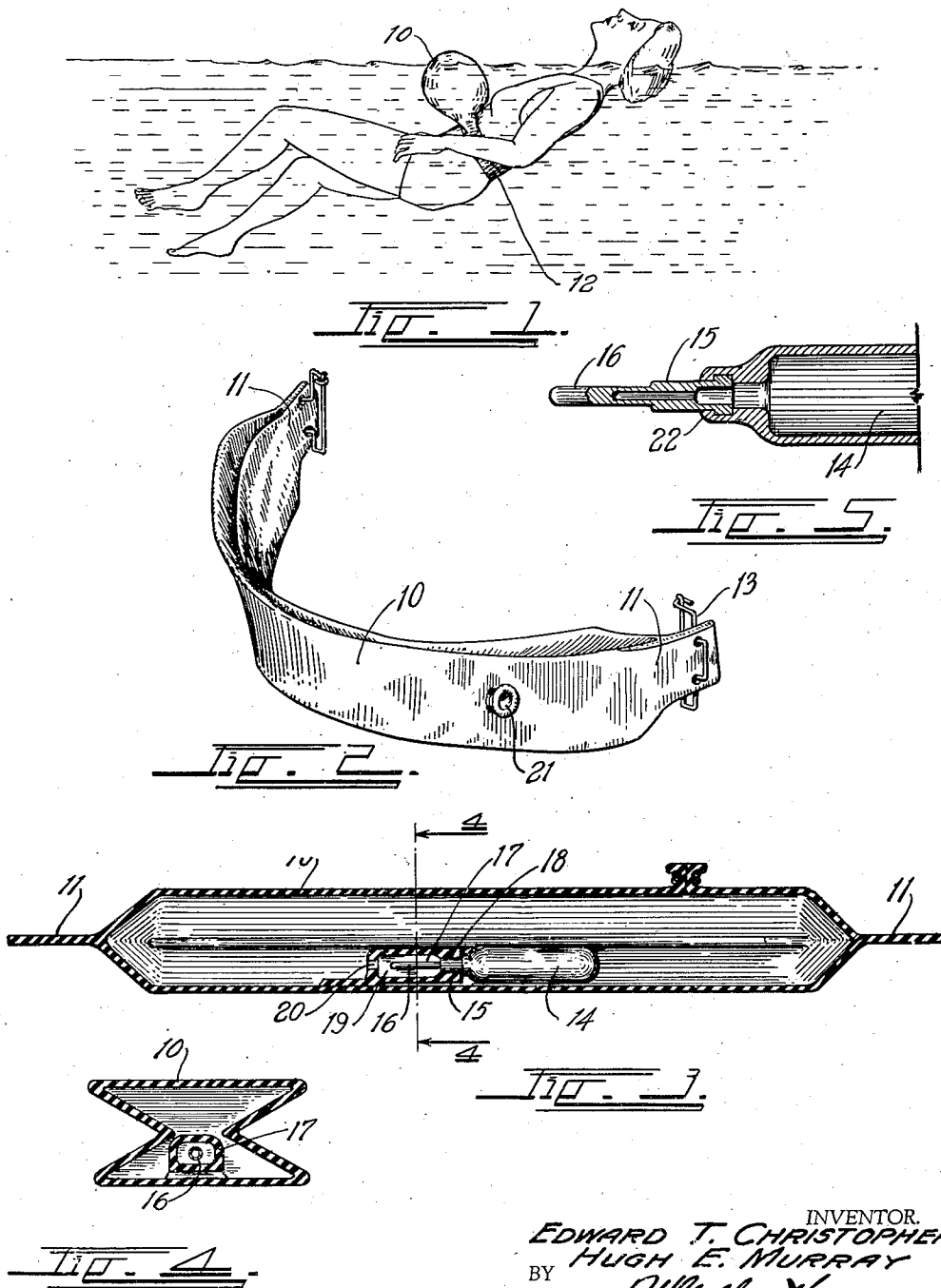
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SELF INFLATING LIFE PRESERVER

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SELF-INFLATING LIFE PRESERVER

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3 Claims. (Cl. 9—19)

This invention relates to a self-inflating life preserver, and has for its principal object, the provision of a neat, compact, easily worn, inconspicuous device which will in no way interfere with the usual activities of a swimmer, but which, in case of emergency, will inflate itself so as to support the swimmer upon the surface of the water.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:—

Fig. 1 illustrates the device as it would appear in use.

Fig. 2 is a perspective view of the complete, deflated preserver.

Fig. 3 is a longitudinal section therethrough.

Fig. 4 is a cross section taken on the line 4—4, Fig. 3.

Fig. 5 is a detail section through the head of the pressure bottle, which is employed for inflating the preserver.

The invention comprises an envelope 10 formed of flexible expansible, sheet rubber or similar material. The envelope 10 is preferably formed with "accordion pleated" sides as illustrated so as to provide a maximum expansion area and so that it will lie flat when not in use. The envelope 10 terminates in flat end tabs 11.

The end tabs 11 may be provided with any suitable fastening devices, such as loops, safety pins, clasps, etc. As illustrated, they are provided with elongated belt loops 12 of the safety pin type through which the belt 12 of the user may be passed so as to secure the envelope at the waist line of the user. The envelope may be secured directly to the garments of the user, if desired.

Within the envelope is a pressure bottle 14 preferably of the size and shape commonly used upon carbon dioxide syphon bottles. The extremity of the bottle 14 is closed by means of a plug 15, from which a fragile, hollow tip 16 projects. If the tip 16 is broken from the plug 15, the solid or liquid gas within the bottle 14 will expand through the broken tip and inflate the envelope 10 to the position of Fig. 2.

The bottle may be allowed to lie within the envelope and the user can grasp it through the

envelope with a single hand, allowing the thumb to break the tip 16 therefrom. This method, however, provides no protection for the tip and the latter may become accidentally broken. It is preferred to definitely position the bottle in the envelope so that it may be readily located by the user so as to facilitate the breaking of the tip and provide protection for the tip against accidental breaking, and to protect the envelope from the broken tip.

This may be accomplished in many ways. One method of accomplishing it is illustrated in Fig. 3, in which a flexible receiving socket 17 is cemented or otherwise secured to the inner wall of the envelope. This socket is formed with a narrow neck portion 18 which grips the plug 15 after the tip 16 has been inserted therein. The socket is formed with an internal expansion chamber 19 which communicates with the interior of the envelope through a discharge port 20. The socket is formed of relatively heavy flexible rubber or similar material.

It has been found that if the tip 16 is broken against the side of the envelope, the rapid expansion of the escaping gas will freeze the rubber of the envelope at this point, and the expanding gas will blow the frozen portion from place, thereby puncturing the envelope. By inserting the plug into the socket 17, however, the preliminary expansion takes place in the protected expansion chamber, thence flows to the interior of the bag through the opening 20 away from the bag walls so that all danger of freezing is eliminated.

The user can easily feel the bottle through the walls of the bag, and by bending it at this point can break the tip 16 within the expansion chamber. The chamber also serves to protect the envelope from puncture against the rough edges of the broken tip.

If the envelope is formed by a dipping process or by the anode or rubber plating process, it is necessary to have an internal form in the envelope and means for supporting this form. The latter means forms an opening in the envelope. It is desirable to use this opening by forming a neck 21 thereon which can be tied by means of a wire clip, rubber band or other device to seal the envelope. The neck 21 provides access for inserting the bottles 14 and for renewing these bottles if desired.

Any suitable highly compressed gas or liquid or solid form may be used in the bottle 14. It is preferred, however, to have the plug 15 crimped into the extremity of the bottle as shown at 22

in Fig. 5. Before the plug is positioned therein, solid carbon dioxide is forced into the bottle. The plug is then immediately crimped into position. This prevents the gas from expanding and retains it in its original solid or liquid form. When the tip 16 is broken the pressure is released and the solid or liquid gas immediately becomes gaseous. It is preferred to form the plug 15 and the tip 16 of a relatively brittle friable material such as die cast pos metal, hard rubber, glass, etc. so that it may be readily broken but will not bend.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:—

1. A self-inflating life preserver comprising: a flexible envelope; a hollow receiving member secured to the inner wall of said envelope and provided with an expansion chamber; a container for fluid under pressure; a plug projecting from said container; a breakable tip projecting from said plug; and means on said receiving member for gripping said plug so that said tip will extend into said expansion chamber, there being a port for the release of gas from said chamber into said envelope.

2. In a self inflating life preserver comprising an expansible gas tight container in which is positioned a container for fluid under pressure

having a frangible tip for effecting a release of its contents, means for allowing a bending strain to be placed on said tip for breaking the latter and also protecting said container from the cooling effect of the sudden expansion of the gas released from the pressure container, comprising: a flexible, hollow protecting member attached at one end to the container and provided with an internal expansion chamber, the frangible tip extending into said chamber, whereby a flexing of the protecting member will serve to break the tip and release the inflating medium into said expansion chamber, there being a passage from said chamber to the interior of said container.

3. A self-inflating life preserver comprising: an expansible container; a bottle for fluid under pressure within said container and having a nipple means at one end; an elongated breakable tip secured to said nipple; and a flexible protecting member secured to said nipple and surrounding said tip and provided with an internal expansion chamber into which said tip projects so that flexing of said tip will serve to break said tip from said bottle to release the pressure therefrom into said expansion chamber, and so that said expansion chamber will protect said container from the chilling effect of the quickly released pressure, said flexible protecting member being secured to said pressure bottle at its one extremity and having a passage in its wall for the escape of gas therefrom.

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