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J. FROMM

2,084,636

LIFE OR SWIMMING BELT

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Fig. 1

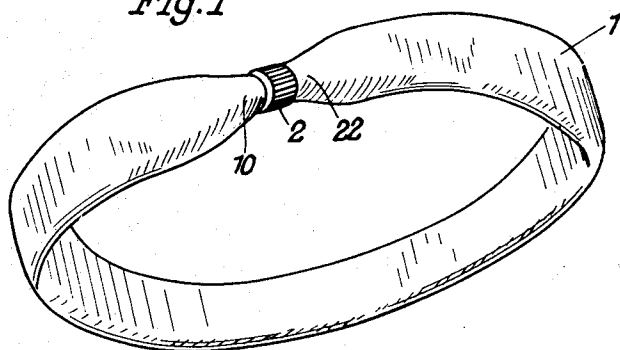


Fig. 2

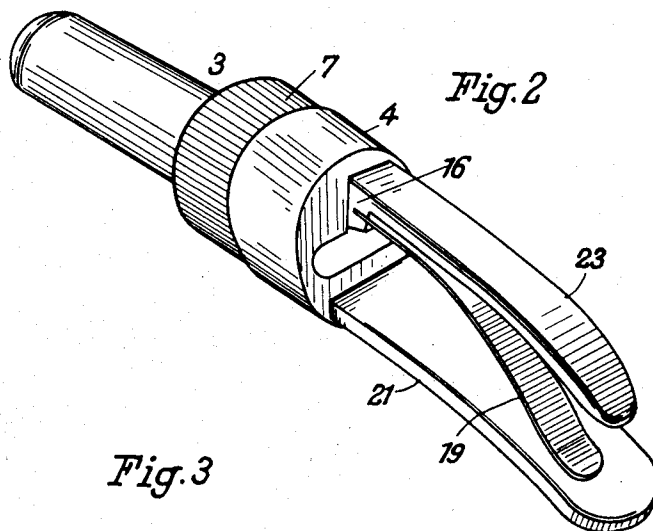
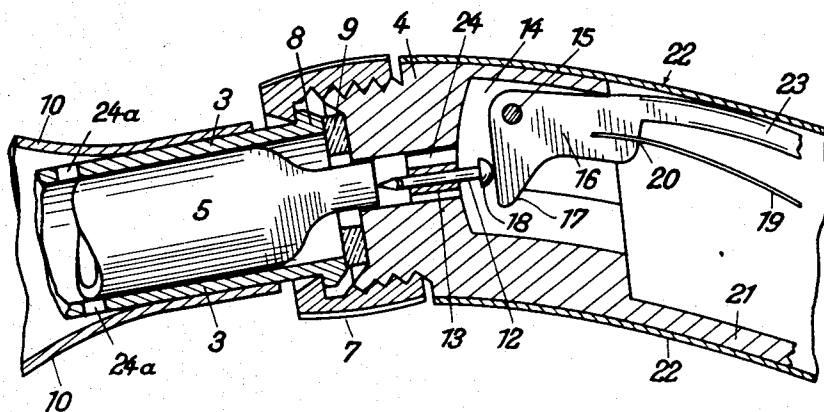


Fig. 3



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LIFE OR SWIMMING BELT

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3 Claims. (Cl. 9—19)

This invention relates to an improvement in swimming and life belts. More especially it relates to an improved closure for use in connection with such belts, viz. for connecting the ends of the belt with one another. In normal state the belt constitutes a flat girdle encompassing the body of the bearer, the air-tight closure of the belt containing a cartridge filled with a compressed gas which when permitted to escape into the hollow belt inflates it and the means for permitting the gas to escape. Such means are generally combined with the belt closure, but the known arrangements and combinations of this kind suffer from severe drawbacks in that they render the use of the life or swimming belt difficult just in cases of danger in which seconds may play a part.

The present improved belt closure is free from the above-mentioned drawbacks. The gist of the invention resides therein that, firstly, the body of the closure consists of three parts, of which the one is air-tight inserted into one end of the belt, another is air-tight inserted into the other end of the belt, and the third constitutes a connecting member for said parts, and secondly, the arrangement is such that no member protrudes to the outside and that springs or screw-threads or other unreliable members for effecting the discharge of the compressed gas from the cartridge are completely obviated.

The invention is illustrated diagrammatically and by way of example on the accompanying drawing on which Figure 1 shows a perspective view of a complete swimming and life belt provided with a closure designed according to this invention. Figure 2 is a separate perspective view of the closure with some of the cartridge actuating means, drawn to a considerably larger scale relatively to Figure 1, and Figure 3 is an axial section through the closure, the cartridge-actuating means, and the belt ends, all parts in their proper or normal position with respect to one another, prior to use.

On the drawing 1 (Fig. 1) denotes the inflatable belt proper which consists of rubber or another suitable material and has a thin wall, and 2 denotes the closure. It appears already from Fig. 1 that no part of the means for actuating the cartridge extends outwardly. The closure consists of three parts viz., firstly the tubular capsule 3 which is inserted into the narrower end 10 (Figs. 1 and 3) of the belt, is air-tight connected therewith by vulcanization or cementing or in any other suitable way and is, further-

more, provided with a few bores 24a; the second part is constituted by a closure piece 4 inserted into the other end (22) of the belt and likewise air-tight connected therewith by suitable means, and the third part is formed by a screw coupling sleeve 7 by which the closure parts 3 and 4 can be securely, tightly and detachably connected with one another. Owing to the provision of an elastic packing ring 9 in said screw coupling sleeve, or between the annular faces of the rim 8 of the capsule 3 and of the closure piece 4 respectively, the connection is air-tight, as well as water-tight. The shape of the parts 3 and 4 is such that the entire closure is accommodated to the curve of the waist of the bearer.

In the closure part 4 is a recess 14 (Fig. 3) in which is supported on a pin 15 a bell-crank lever 16 having a shorter arm 17 and a longer arm 23. Said arm 17 forms at its end a nose which is located opposite the head 18 of a grooved piercing pin 12 loosely guided in a bore 13. The longer lever arm 23 extends into the belt (Fig. 3) and is subject to the action of a plate-spring 19, one end of which is affixed at 20 to the bell-crank lever and the other end of which bears upon an extension 21 of the closure piece 4 (Figs. 2 and 3). The parts 21, 23 and 19 extend in the axial direction of the hose, as shown in said figures.

Counter to these members, the closure piece 4 projects out of the hose and is there provided with a screw-thread onto which is screwed the cap-nut 7. The free end of this sleeve engages a flange 8 provided at the likewise projecting end of the tubular capsule 3 which, as has already been mentioned, constitutes a member of the three-parted closure. In said capsule 3 is located the cartridge 5 which contains the compressed gas and the discharge end of which is located just opposite the pointed end of the grooved pin 12 which is able to pierce the stopper of the cartridge when it is driven forward by means of the bell-crank lever. When all members are in the position shown in Fig. 3, which position they assume when the closure parts are firmly connected with one another and the packing ring 9 is, therefore, compressed, the entire closure is in operative condition.

It is not necessary to close the belt already prior to use. It may be closed partly after it has been laid around the waist when it will form a sort of a flat girdle which does not in the least prevent the bearer from performing in the water all sorts of movements he may desire, including, as a matter of course, swimming. If any circum-

stance occurs which necessitates the bearer to inflate the belt so as to convert it into a life-belt proper, nothing else is requisite but to compress the belt at the place where there is the lever-arm 23 whereby the grooved piercing pin 12 will be driven through the stopper into the discharge end of the cartridge 5, whereupon the gas will escape through the channels 24 into the belt and inflate it.

It is, of course, also possible to inflate the belt already prior to use, for instance on shore, and to throw it in this state towards a man who is in danger to drown.

After use the belt can be easily drawn off from the body and kept anywhere in inflated state. Or, if it is thought proper to provide it with a fresh filling, or with a fresh cartridge respectively the cap nut 7 is loosened whereafter the gas present in the belt can freely escape and another cartridge can be inserted into the tubular capsule 3. When then the sleeve 7 is again screwed home, the belt is again ready for use.

I claim:

1. In an inflatable swimming and life belt, in combination, a hollow belt proper consisting of an air-tight material; a tubular capsule provided with an open end, inserted air-tight into the one end of said belt and positioned with the open end adjacent the end of the belt; a cartridge containing a compressed gas; a destructible stopper closing the discharge end of said cartridge, said cartridge being inserted into said capsule, the discharge end of the cartridge being located at the open outer end of the capsule; a closure piece inserted air-tight into the other end of the said belt; a member suited for destroying the stopper of the said cartridge being located in said closure piece; and means for connecting both ends of the belt with one another securely, air-tight, and detachably.

2. In an inflatable swimming and life belt, in combination, a hollow belt proper consisting of an air-tight material; a tubular capsule provided with an open end, inserted air-tight into the one end of said belt, positioned with the open end adjacent the end of the belt and projecting

partly therefrom; a cartridge containing a compressed gas; a destructible stopper closing the discharge end of said cartridge, said cartridge being inserted into said capsule, the discharge end of the cartridge being located at the open outer end of the capsule; a closure piece inserted air-tight into the other end of the said belt, projecting partly therefrom; a member suited for destroying the stopper of the said cartridge being located in said closure piece; and means for connecting both parts projecting from the ends of the belt with one another securely, air-tight, and detachably.

3. In an inflatable swimming and life belt, in combination, a hollow belt proper consisting of an air-tight material; a tubular capsule provided with an open end, inserted air-tight into the one end of said belt, positioned with the open end adjacent the end of the belt, projecting partly therefrom and having a flange at its projecting end; a cartridge containing a compressed gas; a destructible stopper closing the discharge end of said cartridge, said cartridge being inserted into said capsule, the discharge end of the cartridge being located at the open outer end of the capsule; a closure piece inserted air-tight into the other end of the said belt, projecting partly therefrom and having a screw-thread on its projecting part; an easily shiftable grooved pin suited for piercing the stopper of the said cartridge and located in said closure piece; a bell-crank lever pivotally mounted in the closure piece and having a short arm and a long one, the short arm being located opposite said pin and the long arm extending longitudinally into the belt counter to the said pin; a spring so arranged as to be adapted to hold the lever in its position of rest; a threaded coupling sleeve engaging the flange of the said capsule and the screw-threaded part of the said closure piece for connecting the two belt-ends with one another; and a packing ring inserted between the oppositely located faces of the rim of the capsule and of the closure piece.

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