

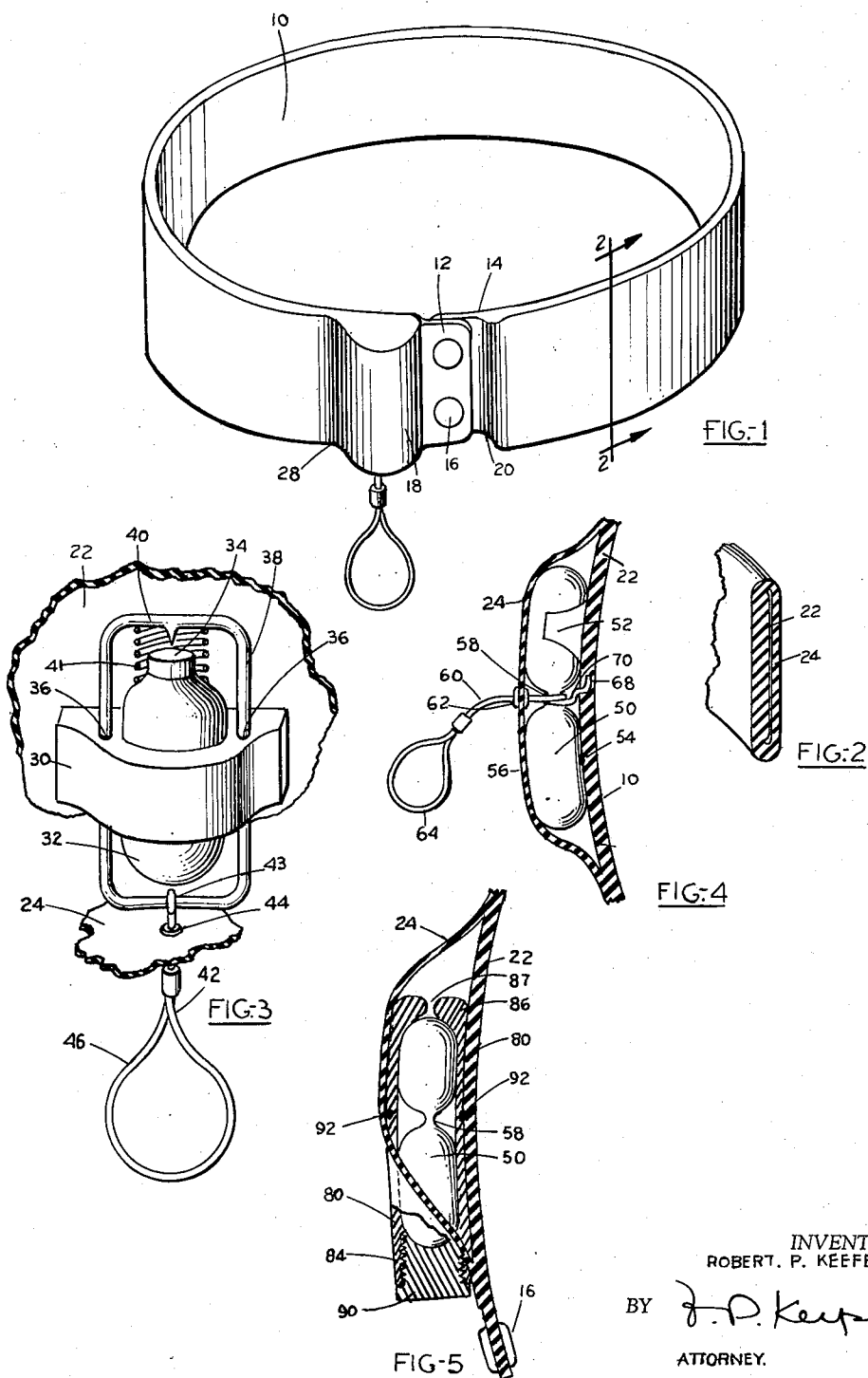
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SELF OPERATED EMERGENCY LIFE SAVING DEVICE

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SELF OPERATED EMERGENCY LIFE
SAVING DEVICE

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4 Claims. (Cl. 9—316)

This invention relates to an inflatable emergency life saving device to prevent drowning accidents, and more particularly to an inflatable neckband adapted to be neatly worn by those engaged in water sports.

Various garments having inflatable air cells have been heretofore proposed for life saving purposes. In general the air cells are located relatively low as respects the wearer and are not necessarily certain to maintain the wearer's head out of the water. Such garments are cumbersome and when inflated, tend to interfere with the freedom necessary to swimming and are generally not adaptable as an adjunct to beach attire of the type normally worn for water sports.

It is an object of the present invention to provide an emergency life saving device in the form of a neckband which may be quickly rendered effective to buoy up a wearer's head uppermost, and which may be worn as a decorative and attractive neckband without interfering with water sport activities. The invention further has to do with provision in the neckband readily operable by the wearer, for instant inflation in the case of an emergency so requiring.

The above and other novel features of the invention will appear more fully hereinafter from the following detailed description when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings wherein like reference characters indicate like parts:

Figure 1 is a perspective view of the neckband;

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1;

Figure 3 is a fragmentary perspective view of a form of manually operative inflating mechanism;

Figure 4 is a longitudinal sectional view of an alternative inflating mechanism; and

Figure 5 is a longitudinal sectional view of a further modified form wherein the cell is replaceable.

Referring to Figures 1 and 2 there is shown a neckband of tubular elastic air-tight material 10, having overlapping non-tubular ends 12 and 14 provided with snap fasteners or other means for joining the ends as indicated at 16. The tubular portion which extends from the region 18 around the entire band to the region 20, may be of rubber or rubber-like material such as neoprene. The inner portion or wall 22 is preferably relatively thick as compared to the outer wall 24, and may be of a higher durometer reading so as to render the same flexible but relatively inelastic, to provide a stiffness tending to prevent contraction or any tendency to buckle. The outer thinner wall 24 is highly elastic and readily capable of elastically expanding to form a toroidal air chamber on inflation, having a sectional diameter several times the width of the inner portion 22.

Preferably adjacent one end of the neckband, as at 28,

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and located within the tubular portion, is a mounting block 30 affixed to the back wall, having a compressed CO₂ cell 32. Such cell has a frangible or pierceable end 34. Slidably mounted in the block 30, in guide apertures 36, is a yoke 38 having a sharp hardened piercing point or pin 40 that is aligned with the end 34 of the cell 32. A light coil spring 41 is effective to maintain the point 40 out of engagement with the cell end 34. An operating cord 42 attached to the yoke at the lower side thereof, as at 43 below the cell, extends through the thin wall 24 of the neckband, in sealed relation thereto as at 44, and terminates in a finger loop 46 that is readily grasped by the wearer at such time as an emergency arises.

The cell 32 is charged with liquid CO₂ or other liquified gas, and is of a sufficient size to provide adequate gas to inflate the neckband, when the end 32 thereof is pierced by the pin point 40, on emergency operation by the wearer.

In Figure 4 there is shown a modified form of the invention wherein air cell 50 in the form of an elongated hourglass or dumbbell is provided, such cell having a slight lengthwise curvature to conform to the curvature of the band 10. A suitable mount for one end of the cell as at 52 may be provided, or the cell upon insertion into the tubular neckband may be provided with adhesive as at 54 to cause the same to adhere to the internal surfaces of the wall 22. The walls of the cell in the region of larger diameter as at 56 are relatively thick to withstand the pressure of the liquified gas contained therein. Such walls are appropriately thinned down in the connecting neck portion at 58, since the reduced cross section thereof renders such reduction in thickness possible. At the same time the metal at the neck portion 58 is preferably rendered brittle, so that when the wearer of the neckband is confronted with an emergency, the grasping of the neckband to abnormally bend the same will break the connecting neck portion 58 and thus cause the gas to escape and inflate the band.

If desired, a cord 60 looped around the cell neck 58, and extending through the resilient wall 24 in a sealed manner as at 62, and having a finger loop 64 may be provided, it being understood that the wearer may grasp the loop and apply sufficient tension upon the cell neck 58 to bend and break the same. Where such provision is made, it is desirable that a free end of the cord, within the neckband, be anchored to the wall portion 22, as at 66, and only sufficient slack as at 20 be provided so as to preclude the wearer in excitement from distending the resilient outer wall 24 to such an extent as to rupture the same.

In each of the forms heretofore referred to, the cell is sealed within the tubular portion of the neckband, and is thus not replaceable. In Figure 5 there is shown a modified form of the invention wherein an air cell of the elongated hourglass or dumbbell shape 50 is located within a flexible container tube. As shown, the tube 80 extends through the end of the resilient wall 24, at the belt end, and in sealed relation to the wall 24, so that the inner end 82 lies within the tubular neckband, and the other end 84 lies outside the tubular portion, adjacent the neckband end. Such tube at its ends will be preferably bonded to the inner wall 22 of the band as by vulcanizing or an adhesive bonding agent. The inner end of such tube is provided with a heavy internal annular bead or shoulder 86 to prevent the cell 50 from being inserted to a greater degree than is necessary. The central section 88 may have its wall reduced in thickness to facilitate bending of the tube.

The outer end of the tube is provided with internal threads and a gas-tight screw plug 90 of plastic or other

suitable material. The tubular cell encasement 80 is sufficiently flexible to permit bending thereof centrally, to bend and break the cell neck, by the wearer's grasp of the neckband in the region thereof, whereupon the gas will escape into and inflate the neckband, through the end aperture 87 in the tube. Replacement of the cell may be readily effected by merely unscrewing the end plug 90, and inserting a new cell, the cells being somewhat curved lengthwise, and readily inserted when properly indexed so as to conform with the normal neckband curvature when inserted. It will be understood that the end portions of the cell will closely fit the tube, so as to be subject to bending by flexure of the tube.

A cord looped around the mid portion of the tube as indicated at 92 may be provided, such cord extending in a sealed manner through the thin wall 24. An outside finger loop as previously described may be provided if desired to facilitate applying sufficient pressure to bend the tube surrounding the cell and thus bend the cell at its neck 58 to rupture the same.

In practice the thin outer elastic wall 24 of the neckband may be vulcanized or otherwise attached to the inner heavier band 22, and the inner band may have fabric or webbing imbedded therein to provide a suitable stiffness and the properties referred to as aforesaid. In practice the width of the band during normal wear will preferably not exceed an inch and a half, and the exterior of the band may be imprinted or otherwise embellished decoratively so as to appear as a desirable addition to the normal water sport attire.

It will be appreciated that the neckband will be effective to establish confidence and a feeling of safety in the wearer so as to be a valuable adjunct to those learning to swim. At the same time, its neat appearance is such as to be attractive to experienced swimmers, who are aware that circumstances may arise where the buoyancy of the neckband inflated may prevent drowning, or provide the swimmer with sufficient buoyancy so that in an emergency, effective aid to others may be given.

While several embodiments of the invention have been illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made without departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. An inflatable neckband, comprising a narrow thin flat tubular band comprising a relatively heavy flexible inelastic neck engaging backing portion, and a thin highly elastic outer portion extending substantially the length of the band, and sealed at its ends, an elongated hourglass shaped cell mounted within said tubular band and containing liquified gas, a flexible air-tight tube closely surrounding said cell and disposed in said band, and having one end extending through an end of said thin

elastic outer portion in sealed relation thereto, said tube being open at its other end within said band, and having an air-tight removable closure in its one end whereby cells may be replaceable.

2. An inflatable neckband, comprising a narrow thin flat tubular band comprising a relatively heavy flexible inelastic neck engaging backing portion, and a thin highly elastic outer portion extending substantially the length of the band, and sealed at its ends, an elongated hourglass shaped cell mounted within said tubular band and containing liquified gas, a flexible air-tight tube closely surrounding said cell and disposed in said band, and having one end extending through an end of said thin elastic outer portion in sealed relation thereto, said tube being open at its other end within said band, and having an air-tight removable closure in its one end whereby cells may be replaceable, and means for manually flexing said tube to bend and break a cell contained there-within.

3. An inflatable neckband, comprising a narrow thin flat tubular band comprising a relatively heavy flexible inelastic neck engaging backing portion, and a thin highly elastic outer portion extending substantially the length of the band, and sealed at its ends, an elongated cell mounted within said tubular band and containing liquified gas, a flexible air-tight tube closely surrounding said cell and disposed in said band, and having one end extending through an end of said thin elastic outer portion in sealed relation thereto, said tube being open at its other end within said band, and having an air-tight removable closure in its one end whereby cells may be replaceable.

4. An inflatable neckband, comprising a narrow thin flat tubular band comprising a relatively heavy flexible inelastic neck engaging backing portion, and a thin highly elastic outer portion extending substantially the length of the band, and sealed at its ends, an elongated cell mounted within said tubular band and containing liquified gas, a flexible air-tight tube closely surrounding said cell and disposed in said band, and having one end extending through an end of said thin elastic outer portion in sealed relation thereto, said tube being open at its other end within said band, and having an air-tight removable closure in its one end whereby cells may be replaceable and means for manually flexing said tube to bend and break a cell contained therewithin.

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