Aug. 30, 1955 F. E. DESJARLAIS ET AL 2,716,245

LIFE PRESERVER

Filed Aug. 12, 1952

4 Sheets-Sheet 1

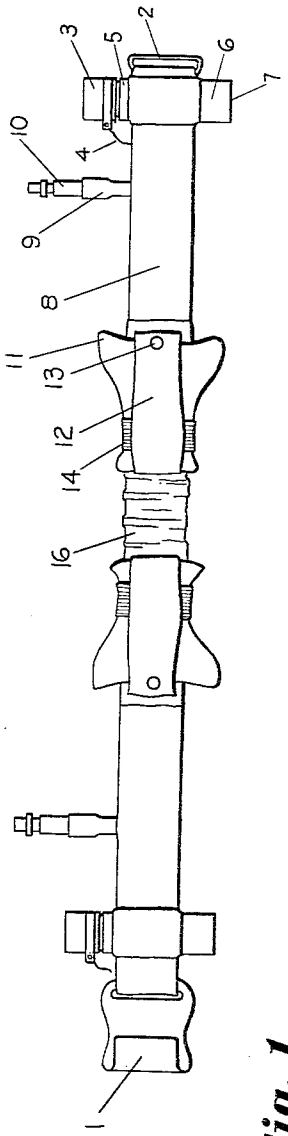


Fig. 1

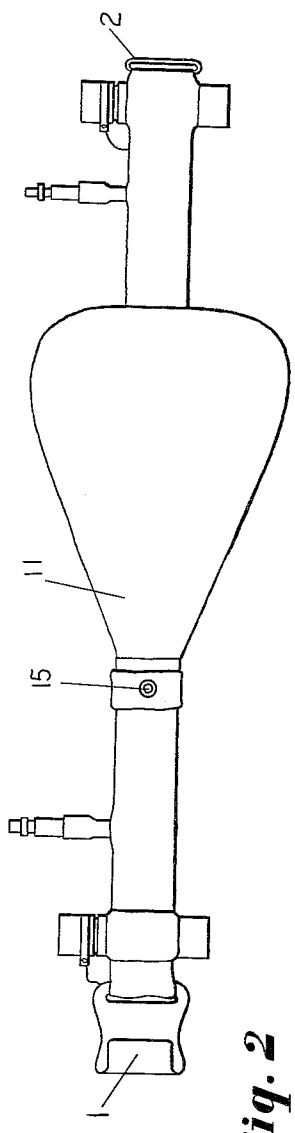


Fig. 2

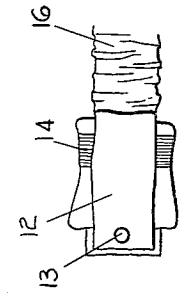


Fig. 3C

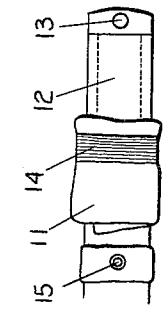


Fig. 3B

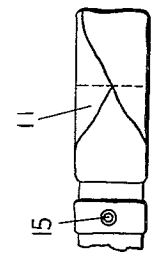


Fig. 3A

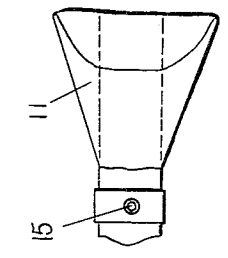


Fig. 3

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INVENTORS

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LIFE PRESERVER

Filed Aug. 12, 1952 4 Sheets-Sheet 2

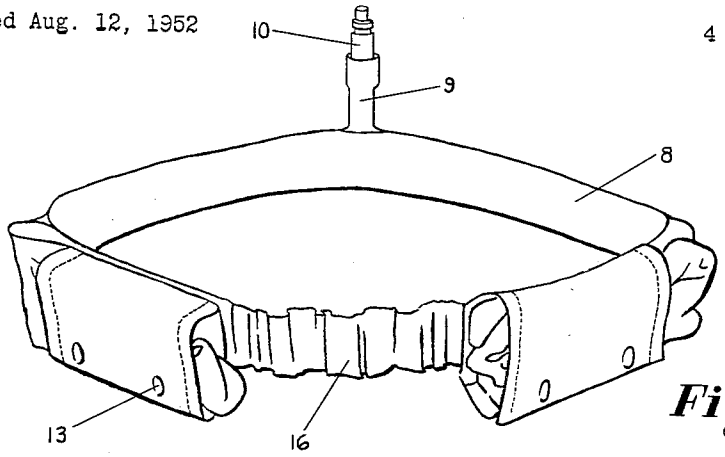


Fig. 7

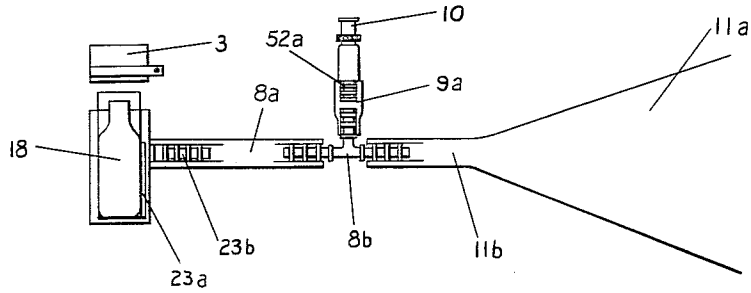


Fig. 4

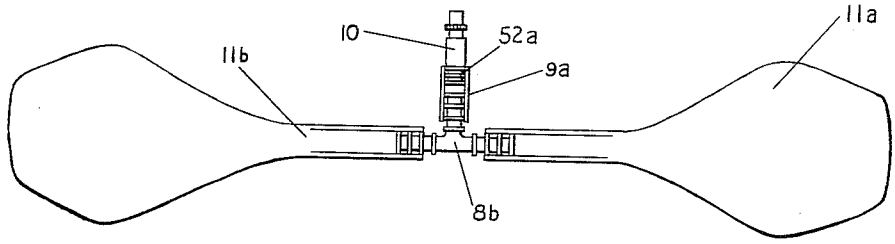


Fig. 9

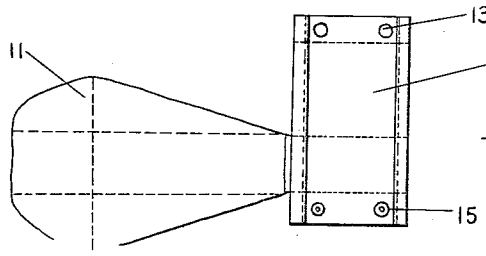


Fig. 8

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LIFE PRESERVER

Filed Aug. 12, 1952

4 Sheets-Sheet 3

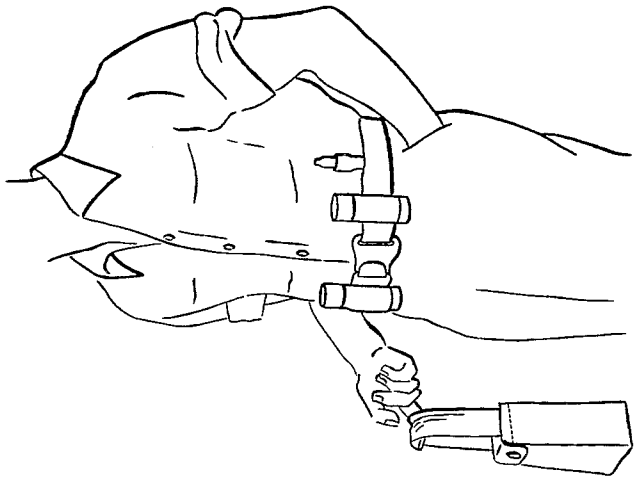


Fig. 6

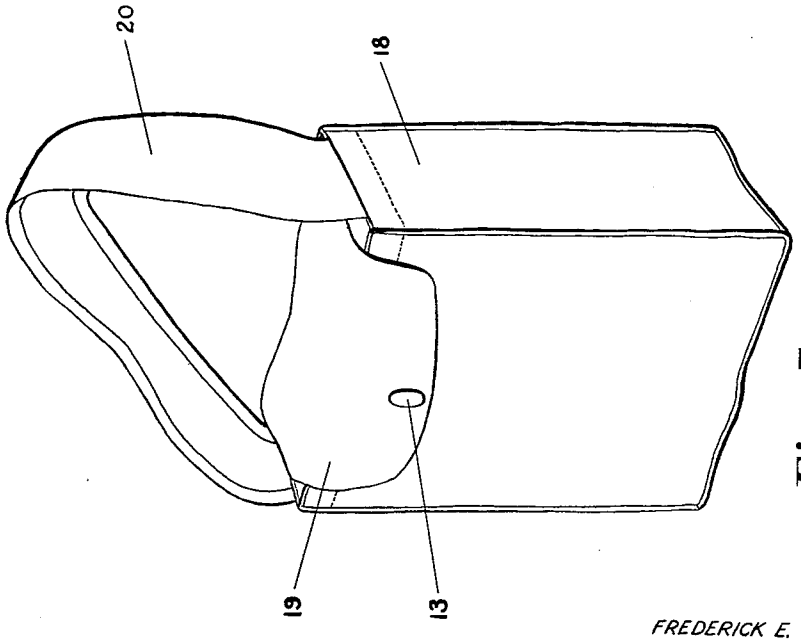


Fig. 5

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LIFE PRESERVER

Filed Aug. 12, 1952 4 Sheets-Sheet 4

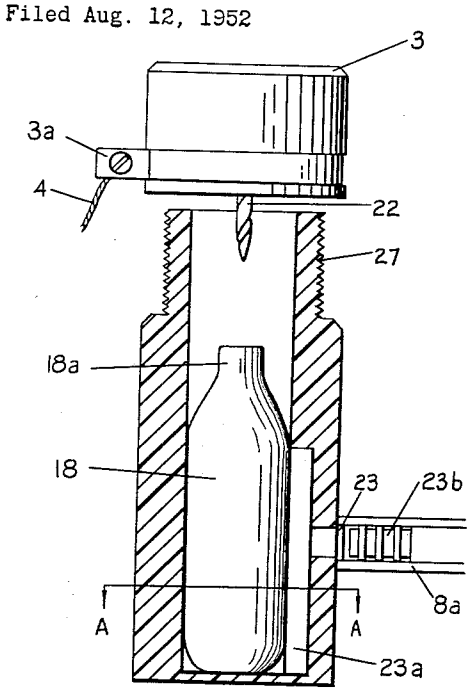


Fig. 10

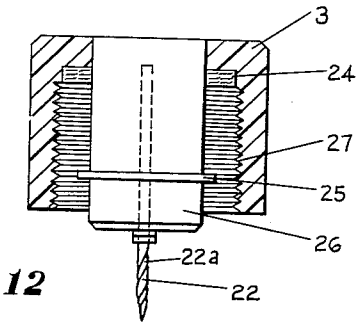


Fig. 12

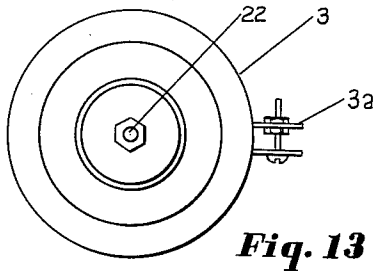


Fig. 13

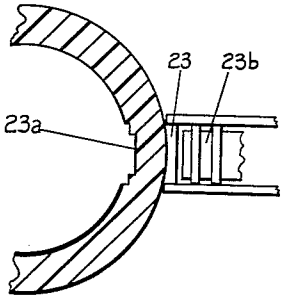


Fig. 11

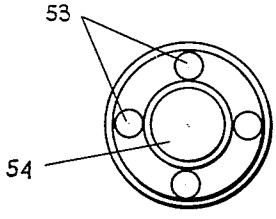


Fig. 16

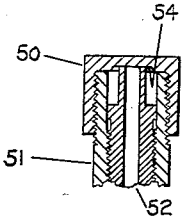


Fig. 17

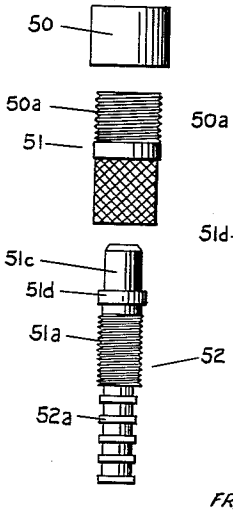


Fig. 14

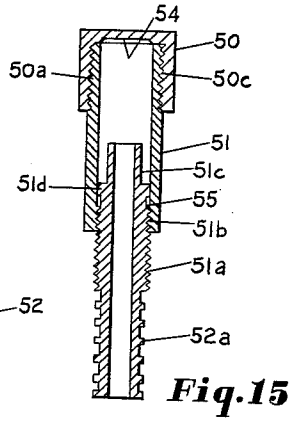


Fig. 15

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United States Patent Office 2,716,245 Patented Aug. 30, 1955

2,716,245

LIFE PRESERVER

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Application August 12, 1952, Serial No. 303,904

6 Claims. (Cl. 9—19)

This invention is concerned with improvements in life preservers and has for its primary object a means for providing a person on or near water with a light weight, yet safe and durable means for remaining afloat.

This invention includes various parts of novel and unique character that taken together make for a pleasant yet well engineered life preserver.

It is one object of this invention to have a life preserver that will stay afloat a long period of time.

It is another object of this invention to have a life preserver that has style in the sense of wearing apparel.

It is a further object of this invention to have a life preserver that can be inflated both automatically and manually.

It is yet another object of this invention to have a life preserver that has two independent air systems.

A further object of this invention is to provide a turning mechanism to release air from the cartridges to the air tubes.

Another object of this invention is to provide a new type of valve for releasing the air from the air system and for blowing air into the air system when the need arises.

With the foregoing and other objects in view, the invention consists in the construction, combination, and arrangement of parts hereinafter described and illustrated in the drawings in which:

Figure 1 is the side elevation of the preserver employing the compressed air cartridges.

Figure 2 is the same view as Figure 1 but with the water wing or air bladder opened on one side only.

Figure 3 is a view of the water wing showing the first fold.

Figure 3A is a view of the water wing showing the second fold.

Figure 3B is a view of the water wing completely folded, but with the retaining flap opened.

Figure 3C is a view of the water wing completely closed behind the retaining flap.

Figure 4 is a view of the air system on one side of Figure 1.

Figure 5 is a view of the preserver of Figure 1 around the waist of a person.

Figure 6 is a view of the container in which the preserver may be carried.

Figure 7 is a view of the preserver that is operated manually and has only one air system.

Figure 8 is a view of the water wing of Figure 7 unfolded and with dotted lines indicating the folds.

Figure 9 is the air system of the preserver shown in Figure 7.

Figure 10 is a cross section view of the container that holds and operates the compressed air cartridges.

Figure 11 is a view of the opening in the container of Figure 10, taken along line A—A of Figure 10.

Figure 12 is a cross section view of the cap of the container of Figure 10.

Figure 13 is a view of the cap of Figure 10 looking up into it from the bottom.

Figure 14 is a side view of the valve components unassembled.

Figure 15 is a side view in cross section of Figure 14 with the valve open.

Figure 16 is a view of the cap **50**, looking up into its inner surface.

Figure 17 is a side view in cross section of top of Figure 15 with the valve closed.

There is shown in Figure 1 the life preserver that can be inflated from a cartridge **18** (Figure 4) or by blowing into the valve at **10**. Following along the numbers **1** is one side of the buckle. The other portion of the buckle is **2** which receives the flange of **1**. Any type of buckle may be used without departing from the spirit of the invention. A cartridge holder is shown at **3** which is the cap (Figure 10). The main portion of the container is designated as **5** wtth a lower portion **6** and a bottom **7**. As can be seen from Figure 10 the cap **3** has a clamp **3***a* secured loosely to it and attached to a cord **4** which is affixed to the belt. Within the cap are screw threads **27** that are complementary to the screw threads **27** around the outside neck of the container. When the cap **3** is screwed down onto the neck since the clamp **4***a* is loosely connected to the cap, the cord **4** will not get wrapped around the parts but will hold the clamp stationary while the cap **3** moves. The main portion of the container is a continuous cylindrical surface except for the reduced neck portion which is also cylindrical. The container has been made of a heavy duty plastic material although the change of this material would not depart from the scope of this invention. The cartridge **18** fits snugly within the container. Because of this an arrangement to allow air to pass from the container to the air system has to be designed. A stem **23** is welded securely to the container. This stem is hollow so as to allow air to pass. On the stem are ridges for locking a rubber tube and preventing it from slipping. These are indicated as **23***b*. Rising vertically from the opening of **23** are elongated slots **23***a*. These slots **23***a* are crevices beneath the surface of the inside of the container and allow the air to pass into the stem **23** around the contour of the cartridge **18**.

From Figure 12 the cap **3** of the container can be best understood. A central portion **26** holds a pin **22** on which are spiral grooves **22***a*. Just beneath the top of the cap is a rubber washer **24** for making the cap air tight. Half way down the central portion **26** is a rubber grommet **25** which seals the air within the container **5**. This grommet is designed to undergo extreme pressures in order to provide a safety factor to insure no leaking of air. It is especially designed for cases when the operator negligently fails to tighten the cap.

In operation the cartridge of compressed air **18** is inserted in the container **5**. The cap **3** is placed upon the container **5** and screwed on loosely until the needle comes in contact with the top of the cartridge **18***a*. When it is desired to release the air from the cartridge, it is only necessary to turn the top **3** a bit more and the needle **22** will pull open the cartridge **18** releasing the air. The air being under pressure will then flow through the opening **23** on into the air system. A marking to show the operator where to stop turning the cap can be employed so that the air will not be released although it is quite simple to feel how hard it is to turn the cap once it contacts the cartridge.

Wrapped around the container **5** and stitched in a conventional manner is the belt **8** which can be made of any durable fabric. A few inches from the container is a valve **10** which is covered with the fabric material as at **9**. A few inches from the valve is an air wing **11**. This air wing **11** is folded up as can be seen from a look at Figures 3–3C. Figure 2 shows the wing completely opened. Figure 3 shows it with the first fold. Figure

3A shows the second fold. Figure 3B shows the fourth fold of the air wing and also how it is inserted underneath the retaining strap **14**. The flap **12** is snapped into place at button **15** by snap **13** as shown in Figure 3C. This is how the air wing **11** appears all folded up and in place. The air wing is covered with an expandable fabric and is sewed at its ends to the belt. In the belt an elastic fabric is placed a few inches from the air wing. This is designated as **16**. Its purpose is to allow the preserver which is worn as a belt to fit most people without having to change the size of the waist. (Figure 5.)

The air system is shown in Figure 4. The container **5** with its cap **3** and the cartridge have previously been explained. Connected to the stem **23** is a rubber tube **8***a* which is within the belt **8**. This is cemented and mechanically locked to the stem because of the ridges **23***b* already mentioned. This rubber tube runs for a few inches until it reaches the valve **10**.

At the valve portion is an inverted T designated as **8***b* made of metal. One side of the T is connected to the tube **8***a* which runs from the container. There are ridges around the T just as there is on the stem **23**. The tube when cemented to the ridges is mechanically locked as explained previously. The vertical portion of the T is connected to a short tube as at **9***a* which tube is connected to the valve **10** in the similar manner. The other side of the T is connected to the bladder which has a tube portion **11***b* and a bladder portion **11***a*. The tube is part of the bladder, it all being one piece of rubber.

In operation the air system functions in the following manner. If the cartridge is employed, the cap **3** of the container is pressed down by turning the cap so that the needle **22** opens the cartridge **18**. The air passes from the container through **23***b*, the slot on the inside of the container, to the opening at **23** and through **23** and tube **11** which is the air wing. The valve is kept closed at all times. If it is desired to deflate the air wing **11**, it is only necessary to open the valve **10** or open the cap **3**. When the cartridge does not work, or where an emergency is involved, the air system may be easily inflated by blowing into the valve **10** and then closing it. The cap **3** must of course be kept tight on the container **5**.

The valve can be understood by reference to Figures 14–17. The valve designated as **10** comprises three main parts: a top portion **50**, a middle portion **51** and a lower portion **52**. The top portion **50** is cylindrical in shape and is closed at the top except for air holes **53**. Beneath the top, looking up into the portion **50** as shown in Figure 16 is a recess **54**. There are screw threads along the inside of **50**. These are designated as **50***c*. The middle portion **51** has threads **50***a* at its top outer portion. At the lower portion of **51** is a ridge **55**. Just below this ridge **55** are threads **51***a* both being on the lower inside surface. The lower portion **52** has a reduced neck portion **51***c* and just below this a ridge **51***d*. Below the ridge **55** are threads **51***a*. Below the threads **51***a* are ridges **52***a* for gripping the connection from the T. In the operation of the valve the top portion **50** is screwed permanently to the middle portion **51** so that each part is effectively one integral part. They are of course secured in this manner by means of the threads **50***a*. Prior to fastening parts **50** and **51** together, part **52** is placed from the top of part **51** into part **51** and the threads **51***a* and **51***b* make for the fastening means. Part **52** can be turned in part **51** only until ridges **51***d* and **55** come into contact. At this point the valve is fully opened as can be seen in Figure 15. When only a few turns have been made on the threads **51***a* and **51***b* the valve will be closed as can be seen in Figure 17. In the cap or top **50** is a recess **54** between the four openings **53**. The reduced neck portion **51***c* fits snugly within this recess **54**. No air can pass from the openings **53** in or out of the valve since the opening in portion **52** is sealed tight within the recess **54**.

Another embodiment of the invention is shown in Figures 7–9. In this embodiment no cartridge is used but just the breath of the user. The air system is unitary rather than double. There are two water wings **11** that are placed on each side of the elastic webbing **16** which as mentioned previously enables the belt to fit people of various sizes. In Figure 8 is a view of the air wing opened with dotted lines showing how it may be folded so as to fit beneath the flaps **12** which are placed over the folded wing and snapped into position by the snaps **13** and **15**. The air system is shown in Figure 9 wherein **11***a* are the water wings or air bladders and **11***b* are the tubular portions of same. These tubular air portions are fastened to the T similarly as the other preserver already described. The valve **10** is the same, as previously described. When the valve is opened the operator can blow up the bladders and then turn the valve and lock in the air.

The belt as previously mentioned is made of a durable fabric material that will stand up in water. It is made in two surfaces, an outer and an inner. These are sewed together. The entire air system is placed within this structure including the cartridge container. It is felt that this construction of the fabric is obvious to one skilled in the art and for the sake of keeping the description clear, these details have been omitted from the drawings.

In Figure 6 is shown a view of a bag in which the preserver may be carried.

The proportions of the devices disclosed in the drawings have been exaggerated to teach better the details of the devices. In practice however the belt is very narrow and of extreme light weight and compactness.

We claim:

1. In a life preserver for assisting swimmers comprising a closed belt with an elastic section for allowing said belt to expand and contract freely, water wings comprising a rubber bladder covered with an expandable fabric, a water wing connected on each side of said elastic section, elongated flaps connected at one end to said belt for securing the water wings when in a folded position, said flaps having a width substantially the same size as said belt, snaps on said flaps at another end, eyes on said belt for locking said snaps into position with said folded water wings, a valve vertically mounted in said belt, an airtight T connection, said T connection being connected to said valve and to each water wing whereby air may pass from the valve to said water wings.

2. A life preserver for assisting swimmers comprising a belt having two ends and having an inside surface and an outside surface, an elastic portion in the middle of said belt for the expansion and the contracting of said belt, a buckle means for securing the ends together, two automatic air releasing devices, one on each side of said buckle, two T connections inside said belt, one on each side of said buckle, airtight means for connecting said automatic air releasing devices to said T connections, a valve means above each T connection, an expandable lining, a bladder inside of said expandable lining, means for connecting said expandable lining to said belt, and means for connecting said bladder to said T connections.

3. A life preserver for assisting swimmers comprising a belt having two ends and having an inside surface and an outside surface, an elastic webbing in the middle of said belt, two compressed air cartridges, a container for said cartridges, said container having a cap, spiral means in said cap for releasing air from said cartridges, a stem from said container extending inside said belt, T connections inside said belt, a resilient tube for passing air from said stem to said T inside said belt, a valve means connected to said T, and a bladder inside said belt connected to said T whereby air may pass from said cartridge to said bladder and from said valve means to said bladder.

4. A life preserver for assisting swimmers comprising a belt having two ends and having an inside surface and an outside surface, an elastic webbing in the middle of said belt, two compressed air cartridges, each cartridge a few inches from each end of said belt, a cylindrical con-

tainer for each cartridge, said container having a cap, spiral means in said cap for releasing air from said cartridges upon the turning of the cap, a grommet in said cap for preventing air from escaping, a stem opening in said container, crevice means on the inside surface of said container and extending from said stem opening for allowing air to pass around the cartridge, a bladder, airtight means for connecting said stem to said bladder whereby air may pass from said cartridge to said bladder.

5. A life preserver as recited in claim 4, said bladder being within an expandable cover, said cover being fastened to said belt, a flap secured to said belt, a button means on said flap for securing said bladder when in a folded position to said belt.

6. A life preserver as recited in claim 5 including valve means and a T shaped member having a hollow interior, one side of said T being connected to said stem, the vertical portion of said T being connected to said valve means, and the other side of said T being connected to said bladder whereby air may pass from said cartridge to said bladder and from said valve means to said bladder.

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