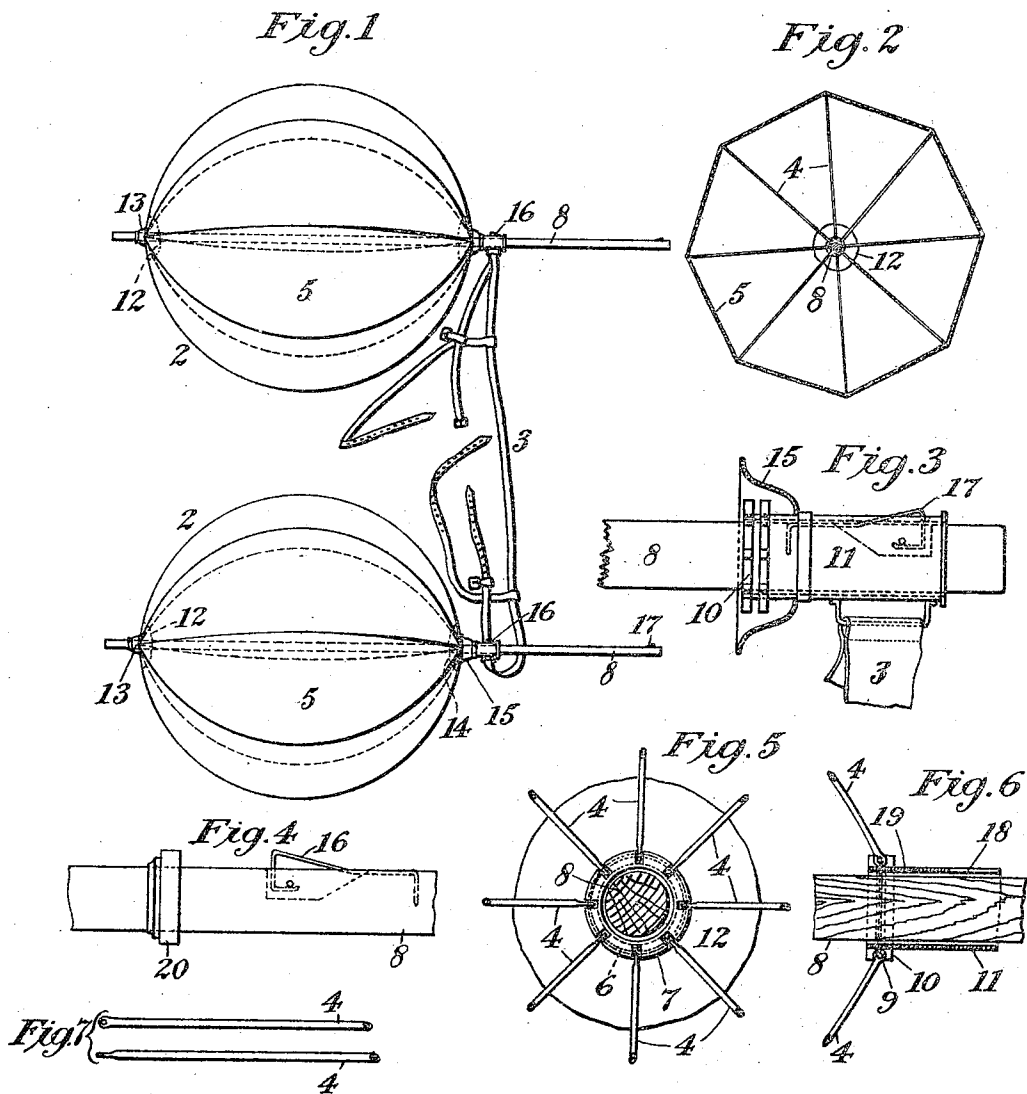


J. ELLENDMAN.
LIFE PRESERVER.
APPLICATION FILED JULY 23, 1908.

945,768.

Patented Jan. 11, 1910.



Witnesses:
R. Champion
Chas. E. McManis.

Inventors
Jacob Ellendman
By his Attorney

UNITED STATES PATENT OFFICE.

JACOB ELLENDMAN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-THIRD TO OSCAR GOLD-SCHLAG AND ONE-THIRD TO JOSEPH H. KORNBLUEH, BOTH OF NEW YORK, N. Y.

LIFE-PRESERVER.

945,768.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed July 23, 1908. Serial No. 444,911.

To all whom it may concern:

Be it known that I, JACOB ELLENDMAN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Life-Preservers, of which the following is a specification.

This invention relates to improvements in life preservers, and the main object of the invention is to provide a new type of device of this class which can be expanded by mechanical devices and maintained in its expanded condition to form a buoyant body.

In carrying the invention into effect the main element of the life preserver is formed as an expansible and collapsible bag, preferably secured at one of its ends to a rod and having an opening at its other end through which the rod passes, the parts being so combined that when the bag is expanded said opening in the bag will be sealed so as to prevent entrance of water and egress of the contained air.

Other features of the invention not hereinbefore referred to will be hereinafter described and claimed and are illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation of a life preserver containing a pair of devices each of which embodies the main features of my invention, the bag or float in each case being shown as expanded; Fig. 2 is a sectional elevation of the same showing the mechanical means for spreading the bag; Fig. 3 is an enlarged detail illustrating the devices for latching the bag in its closed or collapsed position, and also shows certain other parts; Fig. 4 is an enlarged detail, similar to Fig. 3, illustrating the latch for securing the bag in its open or expanded condition, and also illustrates means for sealing the opening in one end of the bag; Fig. 5 is a detail illustrating the mode of pivoting and spacing the ribs at the closed end of the bag, and means for permanently sealing said end of the bag; Fig. 6 is an enlarged detail illustrating partly in section and partly in side elevation means for pivoting and spacing the ribs at the opposite end of the bag and for operating the same; Fig. 7 is a detail illustrating on an enlarged scale in side and edge elevation a portion of one of the ribs.

Similar characters designate like parts in all the figures of the drawing.

Referring particularly to Fig. 1, I have shown in this view a pair of floats formed by expanded bags connected for convenience by suitable straps to permit the floats to be securely fastened under the arms or in any other suitable position about the body of the wearer. These floats or bags being preferably identical in construction are each designated generally by 2. The straps by means of which they are connected are designated generally by 3. These straps may be connected in any suitable way and be of any desired number, it being merely desirable that straps be provided for fastening the floats about the body.

Each of the floats 2 is formed by an expanded water-tight bag, preferably substantially spherical, said bag embodying a water-tight cover or fabric expansible by suitable mechanical devices capable of holding such cover or fabric constituting the bag proper in an expanded condition. Any means suitable for the purpose may be employed, but I deem it desirable to use elastic ribs, such as 4, which may be bent or bowed to form a substantially spherical framework for spreading the cover or fabric of the bag. This fabric or waterproof cover is designated by 5. The ribs 4 are preferably inclosed by this fabric or covering and so combined therewith that the ribs and the fabric will work in harmony. At their opposite ends all of the ribs are preferably joined by connecting means common thereto at each end of the bag, said connecting means in each case being preferably a ring on which the ribs are pivoted so as to turn freely and on which they may also be spaced proper distances apart. Pivoting and spacing rings similar to those used in umbrellas may be employed for this purpose. At one end of the bag the ribs 4 are shown as pivoted on a ring 6 passed through a slotted spacing-ring 7 in fixed relation with a rod 8; while at the other end of the bag the opposite ends of the ribs are similarly pivoted and spaced by pivoting and spacing rings 9 and 10 fixed to a sleeve 11 slidable on said rod 8. In their normal positions (not shown) the ribs are substantially parallel with the rod 8

and hence occupy but small space, but when the bag is to be expanded the sleeve 11 is slid in the direction of the fixed rings 6 and 7 to bend or bow the ribs and form a substantially spherical framework. Whether in their normal collapsed positions or in their working expanded positions, the enveloping covering of water-tight fabric 5 should, as before stated, move in harmony with the ribs, being distended as shown in Fig. 1 when the ribs are bowed, and being drawn in transversely and extended longitudinally when the ribs are returned to their normal positions of substantial parallelism. The covering 5 may be advantageously fastened to the ribs and stretched by them in substantially the same manner as the cover of an umbrella. The particular means employed to maintain the ribs and the cover in proper working relation is, however, immaterial, though it is desirable that at one end thereof the cover and the ribs be in fixed relation with each other, as by being fastened to the rod 8, while at the other end thereof they may also be in fixed relation with each other but movable relatively to the opposite end of the bag, as for example, lengthwise of said rod 8.

At one end thereof each of the bags should be entirely closed so as to prevent ingress of water or exit of the contained air when the bag is expanded. A waterproof patch is shown at 12 for sealing that end of the bag which is fixed to the rod 8. Movement of the bag at this end may be prevented by a stop such as the metallic flaring ferrule 13. At the opposite end of the bag there will preferably be a similar waterproof patch 14 and a similar ferrule 15, this latter ferrule, however, being secured to the sliding sleeve 11.

For the purpose of securing the ribs and the bag in either of their extreme positions, I prefer to make use of spring clips similar to those used in umbrellas for holding an umbrella open or closed. The clip for holding the bag open or expanded is designated by 16, and that for holding it closed or in a collapsed state is designated by 17. Both of these are fastened to the rod 8 and each may be of any suitable construction, each being in the construction illustrated a properly shaped bent wire driven at one end into the rod 8, which is here illustrated as a wooden rod, and working at its free end in a recess or slot cut in said rod.

The sliding sleeve 11 is here illustrated as the principal means for actuating the ribs and the bag to open and close the same. When moved along the rod 8 toward the fixed rings 6 and 7 the ribs will be bent or bowed, and will spread or stretch the fabric 5 to expand the fabric and form the substantially spherical hollow buoyant body 2. It will be noticed (see Fig. 6) that the

sleeve 11 is loose on the rod 8, leaving a considerable space between it and the rod through which air may enter the bag as the same is expanded, the opening being of sufficient size to assure the complete filling of the bag with air by the time it has been fully extended by the opening of the ribs to the position shown in Fig. 1. When the sleeve reaches the position shown in said figure the spring 16 will snap through a slot, such as 18, in the sleeve 11, and lock said sleeve in place in substantially the same manner that an umbrella is held open. Before the sleeve reaches the limit of this movement, however, the opening 19 communicating with the interior of each bag should be sealed in some suitable way. I prefer to accomplish this by sealing means, such as a rubber ring 20, fastened to the rod 8 at the proper point, and which will be engaged and slightly compressed by the inner end of said sleeve before the sleeve is latched in place by the clip 16, the parts being so organized that even when latched by the clip 16 the end of the sleeve 11 will be firmly pressed into the rubber ring. By this construction the only opening that there is at any time in either of the watertight bags 2 is securely sealed so as to prevent entrance of water or loss of the contained air. When expanded in the manner just described and maintained in its expanded condition with the only opening therein sealed, each of the expanded bags constitutes a sealed buoyant body or float held expanded not only by the elastic ribs 4 but also by the atmospheric pressure of the air therein, and each is capable of supporting a considerable weight, the amount of course depending upon the size of the bag. Two such bags, each having a length of twenty inches, for example, are ordinarily used, and these are capable of sustaining in the water a weight of two hundred pounds and upward.

It will be clear, that when the clip 16 is released and the sleeve 11 moved away from the fixed rings 6 and 7 the bent spring ribs will tend to return to their normal substantially straight positions, and that the air contained in the bag can then escape through the opening 19, owing to the fact that the sleeve will then be out of contact with the sealing-ring 20, and the air in the bag no longer confined. Thus by movement of the sleeve in one direction the ribs are bent and air permitted to rush into the opening 19 to fill the bag, and by movement of the sleeve in the opposite direction the springs are permitted to return to their normal positions and the air to escape from the bag, so that by the simple operation of sliding one end of the bag and ribs in the direction of their longitudinal axis the bag is filled with air at the same time that it is mechanically expanded. With this type of buoyant body

it is therefore unnecessary to blow up an expansible bag, the simple admission of atmospheric pressure to the bag and the practically automatic sealing of it accomplishing the same result.

It will be obvious that not only does the construction illustrated constitute a life-preserver of a new type, but that the device is one that requires but small space when it is not in use; while when in use it accomplishes all that can be accomplished by the larger and more cumbersome types of life-preservers, and is much stronger and less liable to injury than the ordinary types of floats formed by blowing up elastic membranes, the cover of the present life-preserver being a waterproof fabric of considerable strength and adapted to stand rough usage.

What I claim is:

1. A life preserver, comprising a watertight expansible and collapsible bag having a small hole therein and also having internal spreading devices for expanding the bag to form a buoyant body, each spreading device being a single resilient rib extending from

end to end of the bag, and unsupported except at its ends, means for holding said spreading devices and bag in said expanded condition, and means operative on the opening of the bag to its expanded condition for sealing said hole.

2. A life preserver, comprising a rod, a watertight expansible and collapsible bag fixed at one end relatively to said rod and having at its other end an opening surrounding said rod and also having spreading devices for expanding the bag by movement of said open end of the bag in one direction along said rod, each spreading device being a single resilient rib extending from end to end of the bag, and unsupported except at its ends and means operative on the opening of the bag to its expanded condition for sealing the opening therein.

Signed at New York, in the county of New York, and State of New York, this 18th day of July, A. D. 1908.

JACOB ELLENDMAN.

Witnesses:

C. S. CHAMPION,
R. CHAMPION.