M. MARX.

Life-Preserver.

No. 206,397. Patented July 30, 1878.

Fig. 1.

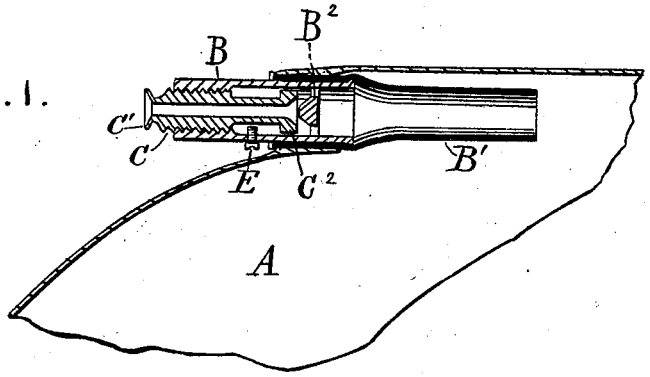



Fig. 2.

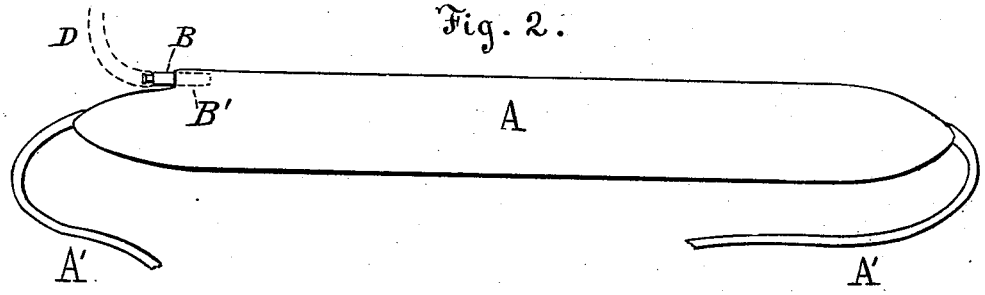
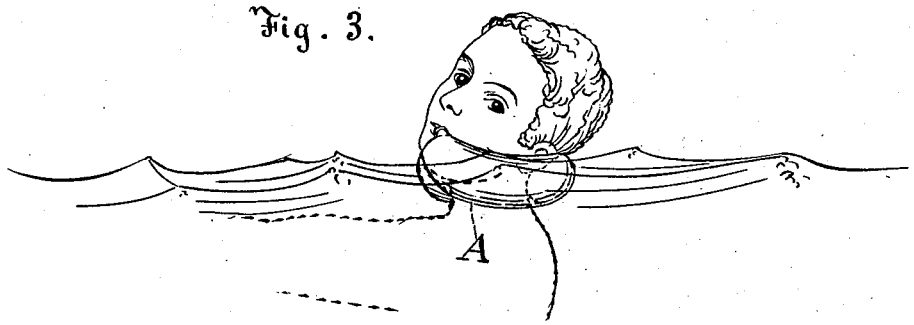



Fig. 3.




Witnesses:

W. Read

A. G. Ogl. Johnson

Inventor.

Marcus Marx

by his attorney

T. D. Stetson

# UNITED STATES PATENT OFFICE.

MARCUS MARX, OF NEW YORK, N. Y.

## IMPROVEMENT IN LIFE-PRESERVERS.

Specification forming part of Letters Patent No. **206,397**, dated July 30, 1878; application filed June 19, 1878.

*To all whom it may concern:*

Be it known that I, MARCUS MARX, of the city, county and State of New York, have invented certain new and useful Improvements relating to Life-Preservers, of which the following is a specification:

My improved device is of the class in which a flexible air-tight bag is provided to be fastened about the neck.

A difficulty of great practical importance arises from the liability of the material to leak air. Either by a very slow escape through the pores of the material, or by the presence of minute leaks at joints or elsewhere, the flexible envelope is liable to come a little short of absolute tightness. It follows that for long-continued use, as is liable to occur in disasters on the seas, or even on large rivers, the reliability and value of the life-preserver may be much increased by provisions for supplying air whenever required. The necessity for this has been recognized by some inventors, and elaborate pumping means provided.

I have devised and practically worked out a construction which will allow the preserver to be inflated by the mouth while in use. I make the fabric sufficiently flexible and yielding, and make the device of such form and proportions that, by a mutual accommodation of the wearer and the flexible device, the mouth can be applied to the inflating-orifice and fresh air supplied whenever, by the failure to adequately support the head or by other test, as occasionally feeling with the fingers, it is found to require further inflation. I employ a screw-valve the action of which is entirely within the control of the operator.

The accompanying drawings form a part of this specification, and represent what I consider the best construction and the best proportions.

Figure 1 is a section of a portion, showing the india-rubber extension of the mouth-piece, which lies within the main body in its usual open condition. It can be compressed when required, as will appear farther on. Fig. 2 shows the entire body, on a smaller scale, in an extended condition; and Fig. 3 shows the life-preserver applied on the neck, with the mouth of the wearer applied to the mouth-piece.

Similar letters of reference indicate like parts in all the figures.

I make an elongated bag, A, of woven fabric, with the ends closed in a tapered or rounded form, and provided with strings $A'$ to facilitate its attachment to the person. This I carefully line with a continuous coating of vulcanized rubber by any of the approved processes, with as few joints as possible, and finish the whole structure with a view to making it as nearly air-tight as possible.

The orifice for inflation is made near one end, so that, by securing the apparatus with a little liberty for the ends to be moved relatively to each other, I can bring the nozzle up, and by twisting the head and neck in the right position can reach it with the mouth. I form the nozzle with a rigid case, B, of metal or other suitable material, strongly and tightly cemented to the flexible material A. From the rigid casing B extends a short flexible tube of vulcanized rubber or other material, $B^1$. This extends into the interior of the bag. On the exterior is a movable collar, $C^1$, which controls a screw-threaded tube, C, which applies within the device, and, by screwing down upon a seat, $B^2$, within the casing B, forms a valve, which is tightly closed when the ring $C^1$ is screwed down, or is open to allow a supply of air to be blown through it into the bag, when, by turning the collar $C^1$, the valve is temporarily adjusted in the proper position.

To use the device, it is first inflated by unscrewing the valve a little, blowing in the air, and again tightening the valve. Then the life-preserver is fastened around the neck, taking care to so adjust the strings that there may be a little play or movement of the ends. Whenever the wearer desires to supply more air, he or she first pinches on the exterior with the thumb and finger at the proper point to collapse the flexible interior tube $B^1$, and then opens the screw-valve C. Thus adjusted, the apparatus is in condition to receive a fresh supply of air blowing through the valve. The mouth is now applied to the collar $C^1$ by contorting the head and neck of the wearer, and also the life-preserver, to nearly their utmost extent to accomplish it. Then the air is blown in as much as may be desired, taking several rests during the operation, if necessary, but

always in such case pinching the tube $B^1$, so as to prevent the escape of air in the interval. When the life-preserver is thus sufficiently inflated, the screw-valve C is again tightened, and all is ready for another hour (more or less) of use before it shall again require a repetition of the operation.

Modifications may be made by any good mechanic. The bag A may be made in a flat or other special shape to better adapt it to the neck. It may be greatly enlarged, or even somewhat contracted in capacity, and still be of service; but I believe that a very small amount of buoyancy applied at the neck after the body has sunk to that point is sufficient to sustain the head above water, and a small device is more easily rolled and carried in a valise or in the pocket.

A small flexible hose of rubber or other material, indicated by D, may be attached to the collar $C^1$, to facilitate the operation of supplying further air after the device is in place on the neck; but my experiments do not indicate that such will be generally necessary.

I esteem it important that this construction, or any other in which a lining of rubber is employed, shall not be sharply folded and held in that position for any long period. A stop should be provided to keep the screw-valve from being unscrewed too far. I have shown it as a ring, $C^2$, engaging with a screw, E.

I claim as my invention—

The life-preserver A, provided with the compressible pipe $B^1$, extending into said life-preserver, in combination with the rigid supply-orifice, B, having the seat $B^2$ and controlling-valve C $C^1$, as and for the purpose described.

In testimony whereof I have hereunto set my hand this 17th day of June, 1878, in the presence of two subscribing witnesses.

MARCUS MARX.

Witnesses:

W. COLBORNE BROOKS,

CHAS. C. STETSON.