

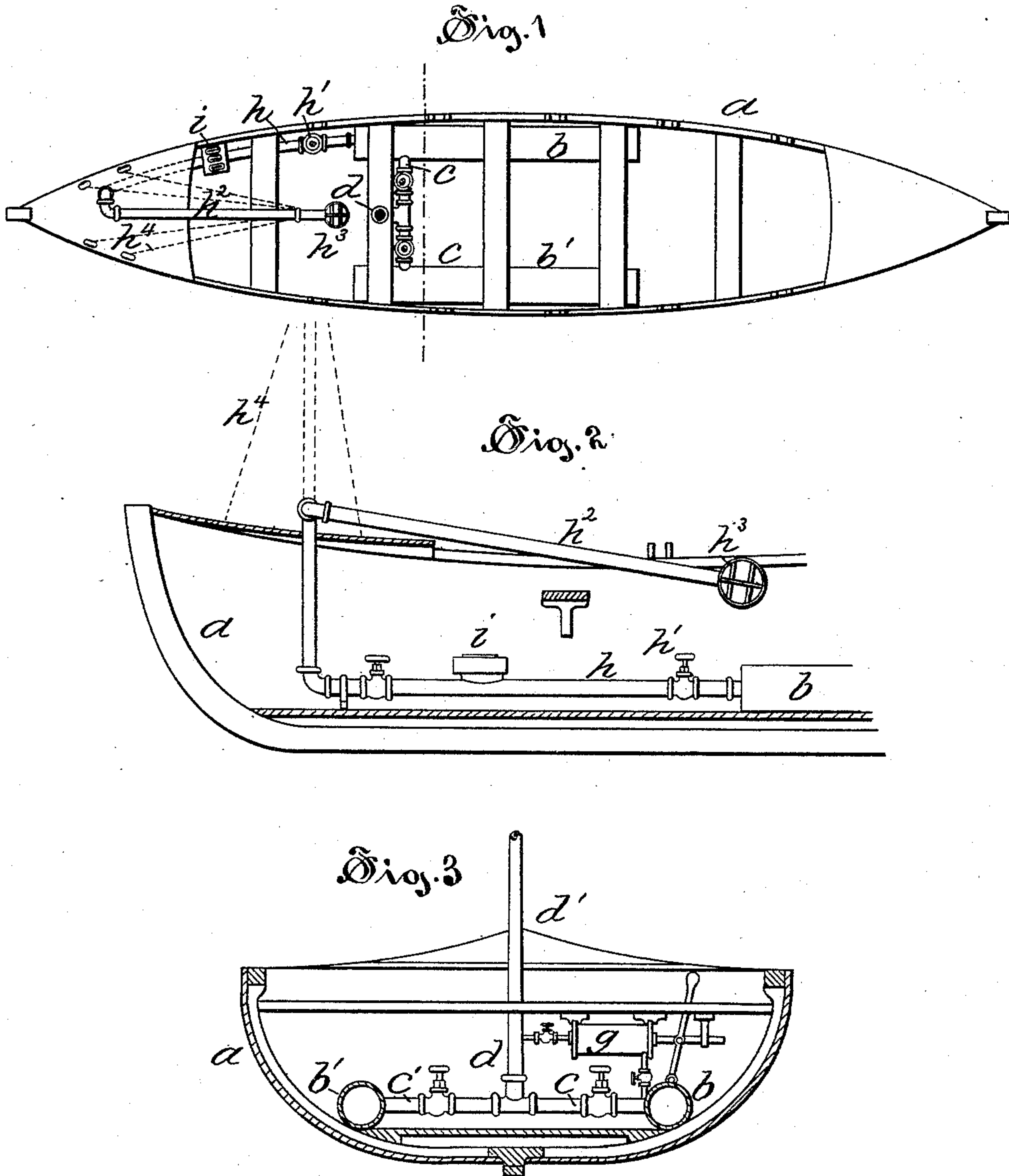
(No Model.)

2 Sheets—Sheet 1.

W. W. RILEY.  
LIFE SAVING APPARATUS.

No. 445,609.

Patented Feb. 3, 1891.



Witnesses:

Harry R. Williams.  
Arthur D. Jenkins.

Inventor,

W. Willshire Riley  
by Simonds & Burdett,  
Attorneys



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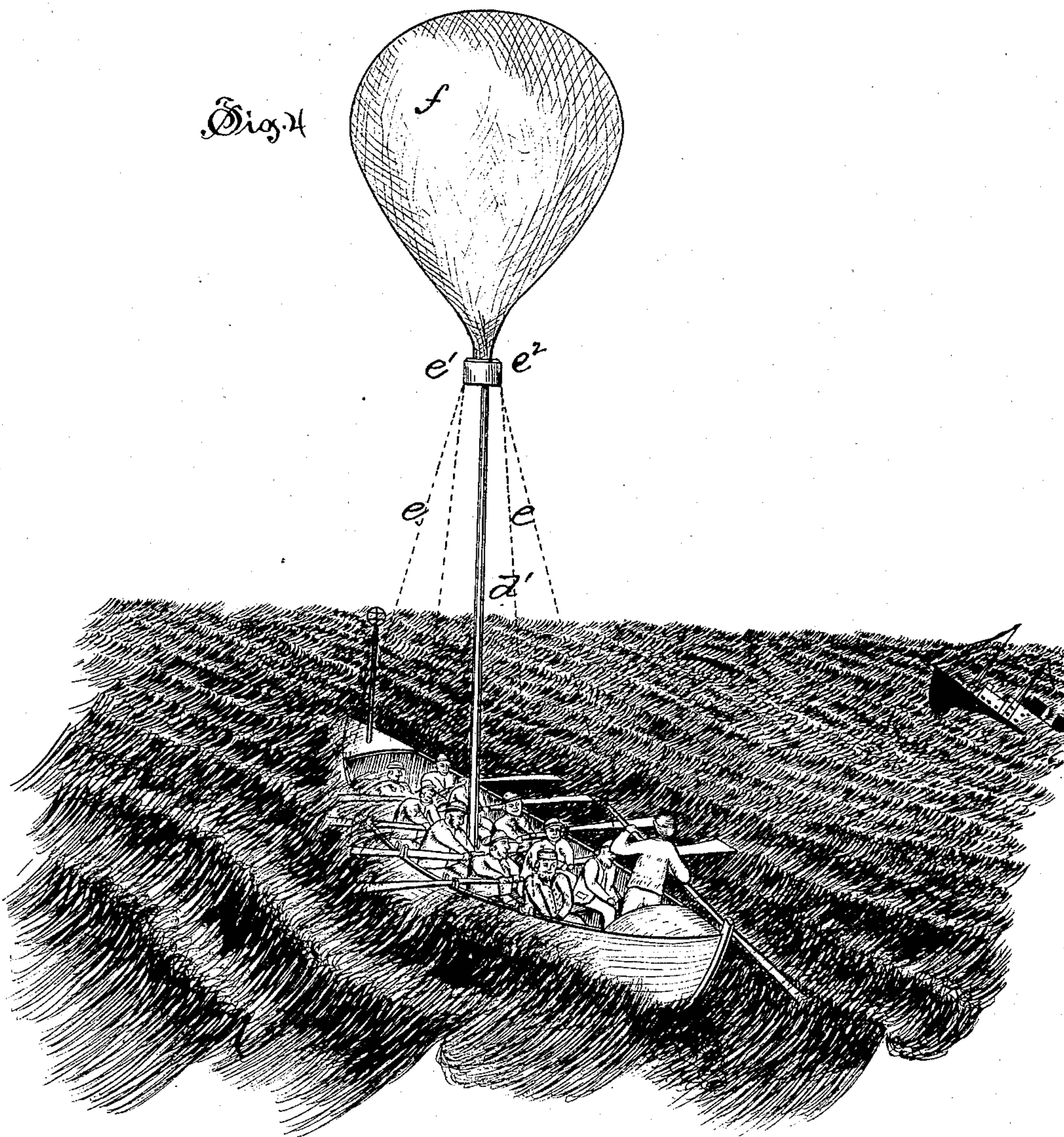
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Fig. 4



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# UNITED STATES PATENT OFFICE.

WILLIAM WILLSHIRE RILEY, OF CROMWELL, CONNECTICUT.

## LIFE-SAVING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 445,609, dated February 3, 1891.

Application filed June 29, 1889. Serial No. 316,064. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM WILLSHIRE RILEY, of Cromwell, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Life-Saving Apparatus, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide an apparatus by means of which the chance of saving the lives of persons cast adrift at sea in boats is greatly increased.

To this end my invention consists in the combination, with a boat or like floating object, of a balloon and the several parts of the apparatus making up the device as a whole; and it also consists in details of the several parts of the apparatus, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a plan or top view of a boat illustrating the embodiment of my invention. Fig. 2 is a detail view of one end of the boat in vertical central section. Fig. 3 is a view in cross-section of the boat taken amidships. Fig. 4 is a detail perspective view illustrating my invention in practice.

In the accompanying drawings, the letter *a* denotes a boat that is of ordinary construction and preferably of a shape and size best adapting it for general use as a life-boat. This boat is provided with the reservoirs *b b'*, that are of metal and so constructed as to enable them to withstand the pressure of gas that is forced into them under great pressure and condensed therein. These gas-reservoirs are preferably two in number and are stored on opposite sides of the boat, as illustrated in Fig. 1 of the drawings, and they are connected by the branches *c c'* to the upright pipe *d*, that forms the base of an extensible mast *d'*, that may be permanently jointed to the base or united thereto by a joint that enables the mast to be raised to an upright position that is held by means of stays *e* of rope or wire. The upper end of the mast is provided with a ball-and-socket joint having, preferably, a cap *e'*, to which the stays are fastened, and of sufficient size to form a guard to prevent the

cutting and fraying of a balloon *f*, that is made fast to the upper end of the hollow mast or standard.

The balloon *f* is stored while in a collapsed condition either in the bottom of the boat or under cover under the deck at either end.

The connecting-pipes are provided with valves or gates *e<sup>2</sup>*, by means of which the flow of gas from either reservoir into the hollow mast is controlled.

An air-pump *g* is connected to the hollow mast and on the suction side of the air-pump, while the delivery side of the air-pump is connected to one of the reservoirs *b*, the object of this pump being to exhaust the gas from the balloon and compress it again into the cylinder in order to prevent wasting of the gas when it is again desired to collapse the balloon after it has been filled. This air-pump or gas-compressor may be of any ordinary construction.

From one of the gas-reservoirs, as *b*, a pipe *h*, provided with gate *h'*, is led to a suitable position, as at the bow of the boat, where a folding or extensible pipe *h''*, that is provided with a suitable gas jet or burner *h<sup>3</sup>* at the extremity, is arranged so that it may be raised in a vertical position, as indicated in dotted outline in Fig. 2, and held there by means of the stays *h<sup>4</sup>*. This may be lighted and the gas burned to serve as a signal or for other purposes.

In addition to the device for utilizing the compressed gas for a signal-light, pipes may be connected, as from the reservoir *b*, to a stove *i*, the flow of gas being controlled by a suitable gate or valve and the gas used for cooking purposes.

It is my object to have sea-going vessels provided with a boat fitted out with the within-described balloon attachment, as the latter may be filled and serve to give to the boat the necessary power of flotation to prevent the sinking of the latter in case it becomes filled with water, thus giving increased courage to the occupants of the boat and enabling them to better endure the hardships incident to exposure in an open boat at sea. It also increases their chance of escape by providing a signal of peculiar appearance that stands high enough above the surface of the sea to



attract attention at a much greater distance than would a boat or like low-lying object alone.

In addition to the advantages of the balloon as a means of keeping the boat afloat, it may also serve the purpose of a sail in light winds, and can be taken in by first exhausting the gas from the balloon, so as to collapse it. This may be done by means of the air-pump  
10 above described.

I claim as my invention—

1. In combination with the boat or like floating structure, the gas-reservoir, the hollow mast, the pipe connections from the hollow mast to the gas-reservoir, the valves in  
15 the connecting-pipes, the balloon adapted to be secured to the upper end of the hollow mast, the flexible connecting part between the mast and the balloon, and the guard on  
20 the upper end of the mast, arranged to prevent the abrasion of the neck of the balloon, all substantially as described.

2. In combination with a boat, raft, or like floating structure, the gas-reservoir, a hollow  
25 mast, the pipe connections from the mast to the gas-reservoir, the valve or gate in the connecting-pipes, the stays for supporting the mast in a vertical position, the balloon, and the ball-and-socket joint forming a means of  
30 connection between said balloon and the mast, all substantially as described.

3. In combination with a boat, raft, or like floating structure, the gas-reservoir, the pipe connection with the tubular signal-standard,

the gas-burner on the upper end of the signal-standard, and the folding standard with the supporting-stays, all substantially as described. 35

4. In combination with a boat or like floating structure, the gas-reservoir, the hollow  
40 mast, the pipe connections from the mast to the gas-reservoir, the valve in said connecting-pipe, the balloon secured to the upper end of the hollow mast, the flexible connecting means between said balloon and the mast,  
45 and the air-pump connected on the suction side of said pump to the gas-pipe at a point beyond the valve in said pipe and on its delivery side to the gas-reservoir, all substantially as described. 50

5. In combination with a boat, raft, or like floating structure, the gas-reservoirs located at opposite sides of the boat, the pipe connection from said reservoirs to a tubular mast adapted to support a balloon, stays for sup-  
55 porting said mast, the balloon connected to the upper end of said mast, the ball-and-socket joint forming the means of junction between the balloon and the pipe, the pipe connection to the folding signal-mast, and the  
60 stove with the tubular connection to one of the cylinders provided with gate or valve, all substantially as described.

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Witnesses:

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