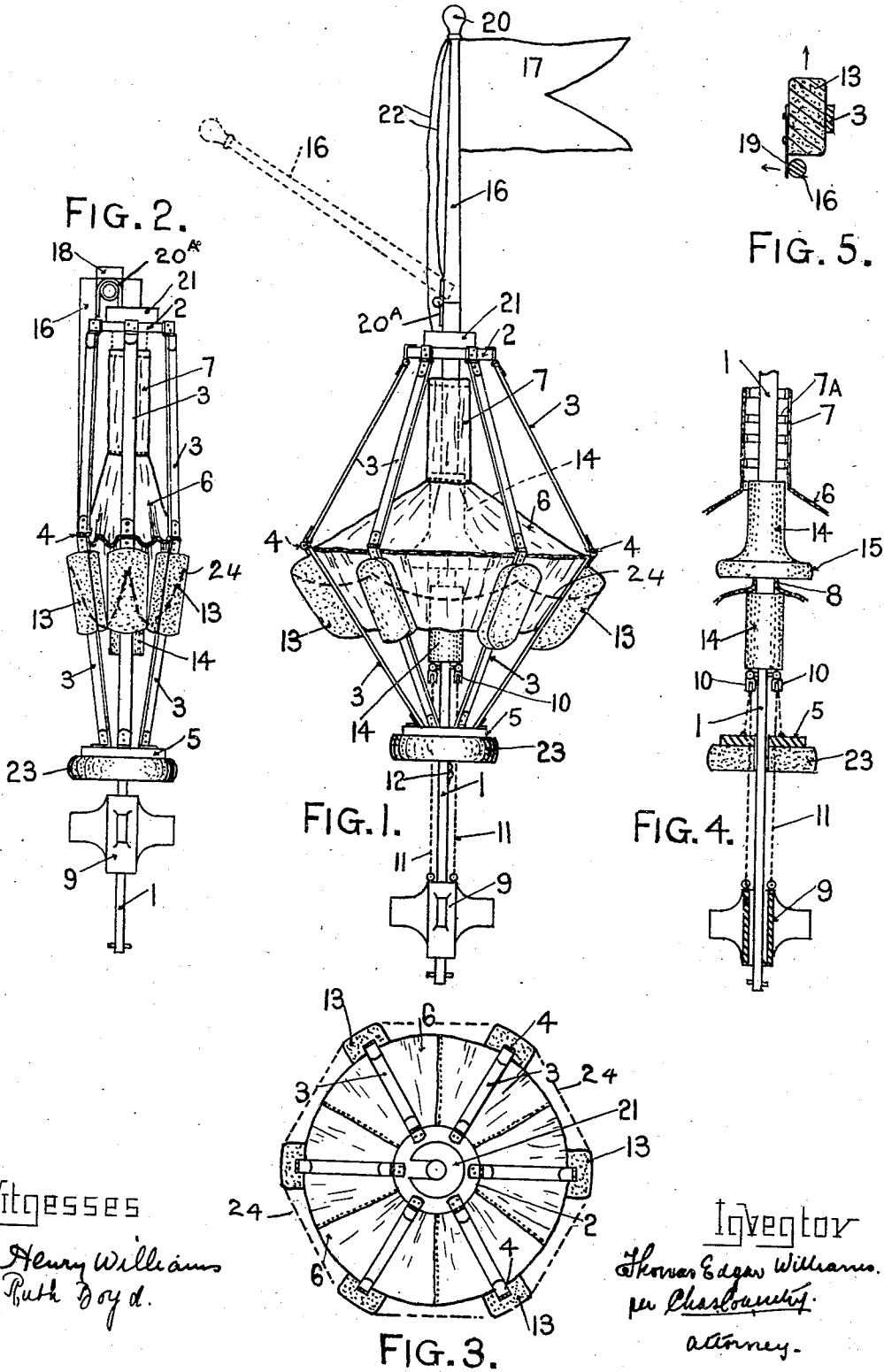


T. E. WILLIAMS.
LIFE BUOY.
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935,717.

Patented Oct. 5, 1909.



Witnesses

Henry Williams
Ruth Boyd.

Inventor

Thomas Edgar Williams.
per Charles H. Williams.
attorney.

UNITED STATES PATENT OFFICE.

THOMAS EDGAR WILLIAMS, OF LISCARD, ENGLAND.

LIFE-BUOY.

935,717.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS EDGAR WILLIAMS, a subject of the King of Great Britain and Ireland, residing at 54 Serpentine road, Liscard, in the county of Chester, England, have invented a new and useful Improvement in Life-Buoys, of which the following is a specification.

My invention relates to saving life at sea and has for its object a life buoy and its appurtenances which when not in use may be collapsed into relatively small compass and which in the act of being taken up in the hand and thrown into the water shall commence to expand and will continue to expand so as to rapidly produce an efficient buoyant support, and one readily seen at a distance.

A life buoy and mark constructed according to this invention has also additional advantage that it may be readily seen and located so that in case for instance of a person falling overboard the ship may be put about and the lookout will be able to find it and this I consider a very great merit because in my own experience and in that of many other sea-farers it has not infrequently happened that it has been very difficult and at times impossible for the ship after having been put about or boats lowered away to even find a life buoy, let alone the person for whose benefit it had been cast. The person in the water will also be able to locate it readily as the flag stands well above the water. Moreover a life saving device constructed in accordance with my invention takes up comparatively little room when collapsed and I contemplate that one or more shall be at hand on the bridge where there is constantly some one in charge, the life buoy being snugly stowed away in an easily opened and unobtrusive box ready at all times for immediate use in case or cases of emergency. And in order that this my invention may be readily ascertained I append hereto a sheet of drawings in which:—

Figure 1. is a side elevation partly in section of a life saving buoy constructed in accordance with my invention. Fig. 2. is a similar view showing the device as closed and showing also a modified hinge for the flag-staff. Fig. 3. a plan view of Fig. 1.

parts being omitted for the sake of clearness. Fig. 4. is a detached sectional view of parts of Fig. 1. Fig. 5. is a detail view showing a modification hereafter described.

1. is a central pole preferably made of wood at its upper part and metal tube at its lower part.

2. indicates a bracket near the top of pole 1. and affixed thereto, its object being to pivotally support the top ends of a series of ribs 3. These ribs are jointed about their middle parts as shown at 4. and their lower ends are pivoted to a plate 5. which is free to slide up and down on the pole 1. something after the manner of an umbrella.

The middle portion of the device is lined with canvas or other watertight fabric 6. The peak of this fabric is continued upward in the form of an air trunk 7. kept expanded by hoops 7^a. (see Fig. 4.) with an open top, while the lower portion of said fabric is tightly fastened around the pole 1. (See Fig. 4.)

I provide a weight 9 free to slide within suitable limits up and down on the lower portion of pole 1. and the function of this weight is partly to steady and balance the device in the water, and partly to open or expand the ribs 3. as hereinafter described. It will be seen that the weight is cast with projecting vanes and this is what I prefer as it makes the lifebuoy float more steadily and prevents it from being jerked over so readily as it might be if the weight were plain.

On the pole 1. and shortly above the position occupied by the sliding plate 5. when at its highest are two idle pulleys 10. having cords or chains 11. running over them and the ends of these are fastened to the sliding plate 5. and the weight 9. respectively, so that it will be seen that as the weight falls with respect to the pole 1. so is the sliding plate 5. raised an equal distance thus expanding the ribs 3. and ballooning the canvas 6. As the canvas is spread or ballooned air rushes into its interior by means of trunk 7.

12. shows a spring catch to keep the device expanded much after the manner of an umbrella catch save that I prefer to have it made with two or more notches or catching

edges so that it will act as a detent even if the device is not immediately expanded to its fullest capacity.

In order to render my device stable and also unsinkable even should it become water-logged I affix pieces of cork at various points.

13. 13. show pieces attached to the ribs 3.

14. 14. show pieces on pole 1. the upper one of which is preferably enlarged as shown at 15. to prevent the ribs 3. from bending too far inward when the device is collapsed.

16. is a flag-staff carrying a flag 17. and hinged at its bottom end to the top of the pole 1. When the device is closed up for placing in a box the flag pole is laid down snug alongside the straightened ribs of the device as shown in Fig. 2. In this figure 18. indicates a short piece which enables the flag-staff to have a double bend so that it may lie close to the folded ribs 3. When this or any other form of hinge is used that enables the flag-staff to lie flush with the closed ribs 3. I may affix to the cork 13. carried by said rib a projecting metal strip 19. (see Fig. 5.) and the flag-staff lying behind said strip is prevented from springing up thereby until such time as the apparatus is cast overboard when the ribs expand or open as hereafter described and allow it to escape from the clutch of the strip 19.

20^A, 20^A. are a pair of springs that constantly tend to raise flag-staff 16. to its upright position.

20. is an electric glow lamp surmounting the flag-staff 16.

21. is a battery, for instance a dry battery and 22. are the wires. When the flag-staff is folded down the circuit is broken about its hinge by means of contact pieces in any suitable manner obvious to any electrician and there is thus no loss of current, but when the flag-staff is erected contact is made and the lamp energized. The lamp of itself forms no part of my invention and if desired any suitable flare or colored light may be used and ignited electrically as aforesaid. As it will be seen from Fig. 3. the battery is shown circular in general plan but has a space to accommodate the flag-staff 16. in its various positions.

I affix a large lump of cork 23. below the sliding plate 5. and when this strikes the water it serves partly by impact and partly by its inherent buoyancy to sharply and immediately expand the ribs 3. and inflate the canvas 6.

24. are life lines to be grasped by persons in the water.

The mode of action is as follows:—The device in its closed up position is intended to be kept always at hand in a box on the vessel's bridge and on other readily accessible places. One or more for instance may

stand in the chart room being kept closed by a quickly removable lashing, or by being placed through wall rings, somewhat after the manner of umbrella stands. In any case as soon as the device is seized and lifted clear of its receptacle or bond the flag-staff 16. springs up in a line with the pole. Where a burning light is used the flag pole may be controlled till the entire affair is let go over-board. In either case the lifebuoy is dropped or thrown into the sea and the weight 9. having the greater specific gravity will tend to over run the lighter portions and this will pull on the cords 11. and these in turn will tend to relatively raise the sliding plate 5. and to expand the device. This action is enhanced by the drag of the flag rushing through the air. It will thus be seen that the device is partly open before it reaches the water but some portion of the opening action is effected by the cork lump 23. striking the water as the weight continues to descend. As soon as the weight reaches its lowermost position the device is fully expanded and buoyant and forms a valuable life buoy embodying the advantages above indicated.

I claim,

1. In a life buoy the combination of a series of ribs, a disk about their tops and hinges connecting them, hinged joints about their middles, a buoy and plate about their lower ends, hinges which connect said lower ends and plate, a canvas lining to said ribs, an open air trunk to said canvas lining, a central rod about which the ribs are disposed, a weight adapted to slide on said rod, cords connecting said weight and plate, and pulleys attached to said rod and adapted to guide said cords, in such manner that the fall of the weight relative to said pole expands the ribs and canvas lining, substantially as described.

2. In a collapsible life buoy the combination with a central pole thereof of a spring impelled pivoted flag-staff adapted to rise vertical when the life buoy is cast, with an electric lamp on said flag-staff, a battery adapted to energize same, and contact strips adapted to close the circuit and cause the lamp to be energized on the rising of the flag-staff, substantially as described.

3. In a collapsible life buoy the combination with a central pole thereof of a spring impelled pivoted flag-staff adapted to rise vertical when the life buoy is cast, a strip 19. adapted to prevent the flag-staff from rising when the buoy is collapsed but to allow it to spring up in place when the latter is expanding, substantially as described and shown.

4. In combination with a collapsible ribbed life buoy having a central pole to

which the upper ends of its ribs are attached
and a slidable plate to which the lower ends
of said ribs are attached, and means adapt-
ed to expand said ribs, an erectile flag-staff
5 pivoted to the top of said central pole and
a flag attached to said flag-staff whereby the
flag-staff may be folded for storage but will

arise and prominently show the flag when the
life buoy is floating, substantially as de-
scribed.

THOMAS EDGAR WILLIAMS.

Witnesses:

CHAS. COVENTRY,
WOODVILLE GRAY.