A. J. MORRISON, Jr.

DETACHABLE LIFE BOAT FOR SUBMARINE VESSELS.

APPLICATION FILED MAY 1, 1915.

1,184,981.

Patented May 30, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

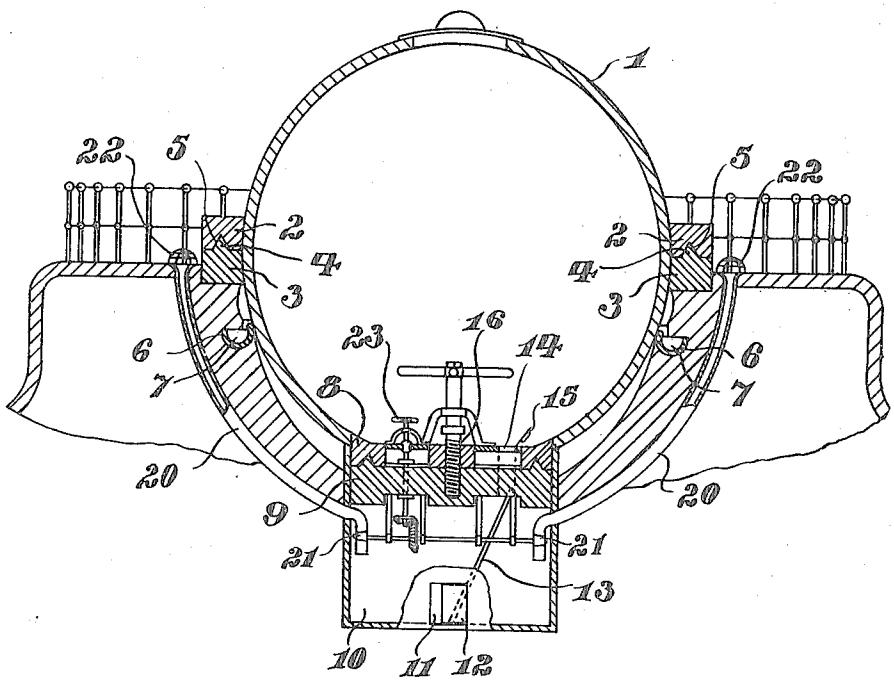
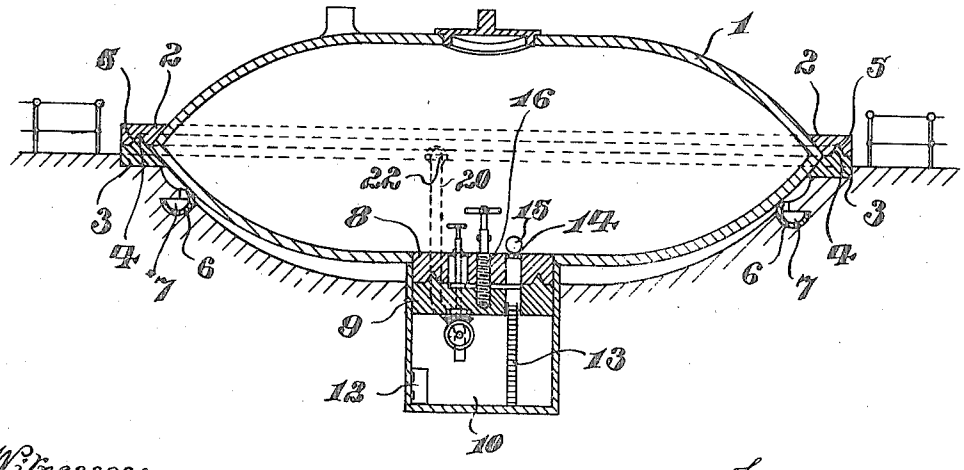


Fig. 2.



Witnesses:-
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Colin Douglas McCreddie.

Inventor:-
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2 SHEETS—SHEET 2.

Fig. 6.

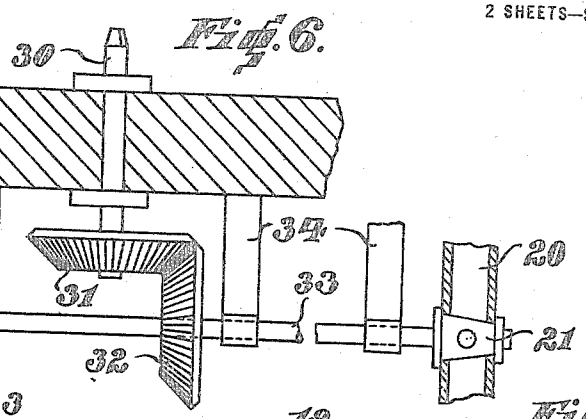


Fig. 4.

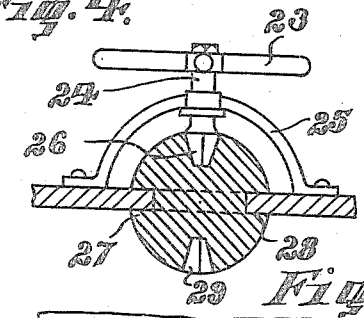


Fig. 7.

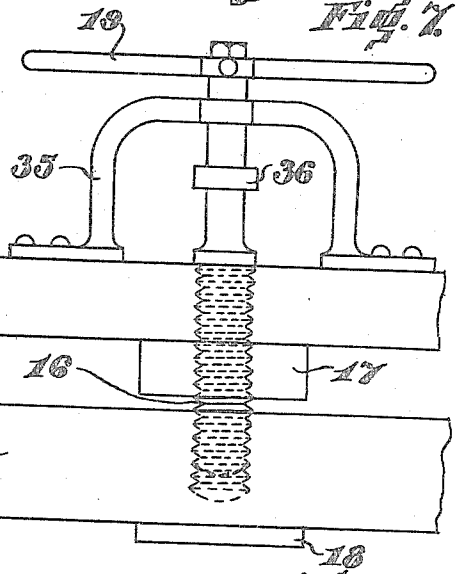


Fig. 5.

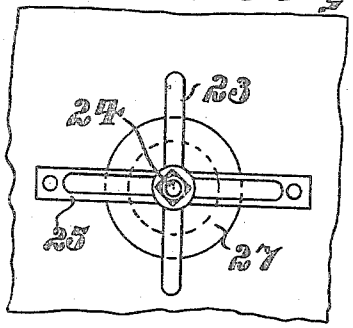


Fig. 3.

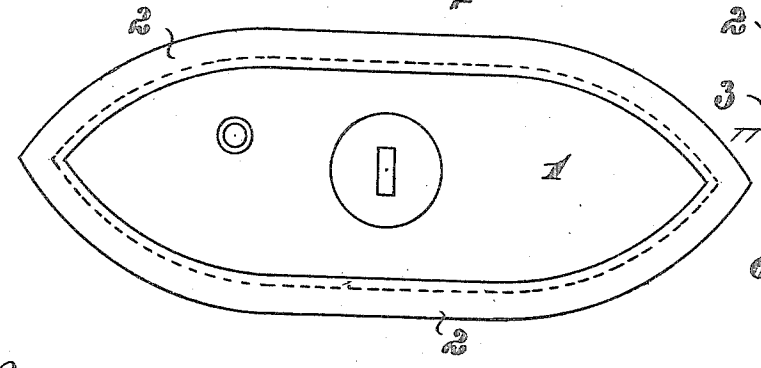
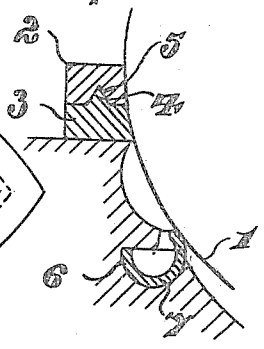


Fig. 8.



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UNITED STATES PATENT OFFICE.

ANDREW JOSEPH MORRISON, JR., OF LISCARD, ENGLAND.

DETACHABLE LIFE-BOAT FOR SUBMARINE VESSELS.

1,184,981. Specification of Letters Patent. Patented May 30, 1916.

Application filed May 1, 1915. Serial No. 25,312.

To all whom it may concern:

Be it known that I, ANDREW JOSEPH MORRISON, Jr., subject of the King of Great Britain and Ireland, residing at 43 Mill Lane, Liscard, in the county of Cheshire, England, engineer, have invented certain new and useful Improvements in Detachable Life-Boats for Submarine Vessels, of which the following is a specification.

My invention relates to detachable means secured to the deck of submarine vessels which may be entered from the interior of the submarine, and when released therefrom will rise to the surface with the crew, thus serving the purpose performed by a life boat on surface craft.

In order that my invention may be more readily understood, reference is had to the accompanying drawings in which:—

Figure 1 is a cross section showing my improved submarine and life boat secured in its bed arranged in the deck of a submarine. Fig. 2 is a longitudinal section of and Fig. 3 is a plan of same and Figs. 4 to 8 are details.

Referring to Figs. 1 to 3, 1 is the body of the submarine life boat of substantially similar shape to that of an ordinary submarine vessel and provided with a longitudinal flange 2 arranged from end to end on both sides of the submarine life boat. This flange beds upon a similarly shaped bed 3 in the deck of the submarine boat and is arranged in such a position that the submarine life boat is recessed into the deck of the submarine vessel to an extent of about half its diameter. The bed 3 is provided with a ridge 4 which engages in a groove 5 in the flange 2 so as to form a water-tight joint therewith and in order to further prevent any leakage into the space between the submarine life boat and the bed in which it rests, U-shaped leather packing 6 is provided in grooves 7 and arranged to bear against the body of the life boat so that any leakage past the flange 2 will expand the packing 6 and insure a water-tight joint. In the base of the life boat 1 is provided the ring or flange 8 which is bedded upon a similar flange or ring 9 which forms the upper portion or roof of a water-tight compartment 10 in the submarine. This water-tight compartment 10 is provided with an aperture 11 communicating with the submarine and adapted to be closed by the water-tight door 12 and a ladder 13 in the compartment 10 leads to an aperture or man-hole 14 in the base of the life boat through which the same may be entered from the water-tight compartment 10. This man-hole 14 is adapted to be closed by a water-tight door or man-hole cover 15 after the crew have all entered the life boat.

The life boat is securely held in position and retained upon its bed in the submarine by means of a screw 16 engaging in nuts 17 and 18 in the base of the life boat and its bed in the deck of the submarine, respectively. This screw 16 is provided at its upper end with a series of arms or spokes 19 by means of which it may be rotated by a number of men pressing or pulling on each of the arms for the purpose of screwing same out of the nut 18 and so releasing the means which held the life boat in its bed in the deck of the submarine.

In the case of an accident to the submarine, or if it is found impossible to rise to the surface, the crew will enter the water-tight compartment 10 and secure the door 12 over the aperture 11 and will then proceed to enter the life boat 1 through the man-hole 14, and when all are assembled therein the cover 15 will be secured in place. A sufficient number of men will then man the spokes 19 to rotate the screw 16 about its axis, unscrewing same from the nut 18 and thereby releasing the holding means which retain the life boat in its bed in the deck of the submarine. The pressure of the water, however acting upon the upper exposed surface of the life boat will still retain the same in its bed in the deck of the submarine, and in order to enable same to be gently released therefrom, means are provided for flooding the water-tight compartment 10 and thus equalizing the pressure upon all sides of the life boat, when it will gently float out of its bed and rise to the surface of the water through its own buoyancy. In order to flood the water-tight compartment 10, pipes 20 controlled by valves 21 lead from this compartment to the deck of the submarine where their orifice is covered and protected by cages 22 which prevent the ingress of refuse or other matter which might obstruct the passage. The valves 21 are arranged to be operated from within the submarine life boat by means of a hand wheel 23 on a spindle 24 mounted in a

bracket 25 (shown in greater detail in Figs. 4 and 5). This spindle 24 has a squared end 26 which engages in a socket in the ball 27. This ball 27 is provided with a groove 28 around its circumference in which engages the shell of the life boat. In line with the spindle 24 is a further socket 29 similar to that at 27 adapted to receive the squared end of the spindle 30, mounted to rotate about its axis in the roof of the water-tight compartment 10 (see Fig. 6). This spindle carries at its other end a bevel wheel 31 which gears with a similar wheel 32 and a spindle 33 mounted horizontally in suitable bearings 34 and connected at each end to one of the valves 21 which may thus be simultaneously operated thereby.

In Fig. 7 is shown in detail the screw device for retaining the submarine life boat in position. The screw 16 is provided with the spokes 19 on its upper end and by means of which it may be rotated to engage or disengage it with the nut 18 in the roof of the water-tight compartment 10. The screw 16 is journaled in the bracket 35 and engages in a nut 17 in the shell of the life boat 1 so that on rotation to withdraw it from the nut 18, it will also be screwed up in the nut 17 and still retain a water-tight joint. In order to insure this joint being tight after the screw 16 is released from the nut 18 a collar 36 is provided at a suitable distance from its upper end which may be brought to bear against the underside of the bracket 35 so as to press the threads of the screw 16 and the nut 17 into close engagement with one another. In Fig. 8 is shown the supplementary packing employed for insuring a water-tight joint between the periphery of the submarine life boat and its bed in the deck of the submarine itself. For this purpose a U-sectioned packing strip 6 of leather or other suitable material is retained in a groove 7 around the hollow bed in which the life boat rests. This groove 7 is open on the side toward the life boat and the packing strip 6 projects there-through and engages against the side thereof. Should any leakage occur past the flanges 2 and 3, the pressure exerted thereby will expand the packing strip 6 against the side of the life boat, thus preventing any access to the underside thereof.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a detachable life-boat for submarines, a closed vessel forming the life-boat, a recessed bed in the deck of the submarine, a horizontal flange around the middle of the life-boat adapted to make a water-tight joint with the upper face of the recessed bed so that half the volume of the life-boat lies in the recessed bed and half projects above, and means situated in the submarine for admitting water to the space between the bed and the underside of the life-boat and adapted to be operated from within the life-boat.

2. In a detachable life-boat for submarines, a closed vessel forming the life-boat, a recessed bed in the deck of the submarine, a horizontal flange around the middle of the life-boat adapted to make a water-tight joint with the upper face of the recessed bed so that half the volume of the life-boat lies in the recessed bed and half projects above, means situated within the submarine for finally releasing the life-boat from its bed after the locking means have been released comprising pipes or conduits leading from the exterior of the submarine to the water-tight compartment, valves controlling the said pipes or conduits, and means for operating said valves from within the life boat to enable the valves to be simultaneously opened for the purpose of flooding the water-tight compartment and the space beneath the life boat, thus equalizing the pressure both above and below the life-boat and enabling same to float gently out of its bed and rise to the surface of the water under the influence of its own buoyancy.

3. In a detachable life-boat for submarines, a closed vessel forming the life-boat, a recessed bed in the deck of the submarine, a horizontal flange around the middle of the life-boat adapted to make a water-tight joint with the upper face of the recessed bed so that half the volume of the life-boat lies in the recessed bed and half projects above, a water-tight compartment in the submarine, means for communicating from this water-tight compartment with the interior of the life-boat, means for closing such communication when desired to launch the life-boat from the deck of the submarine when submerged, means for locking the life-boat in its bed in the deck of the submarine comprising a vertical screw mounted in bearings in a bracket on the underside of the life-boat and engaging in a nut therein, spokes or other means for rotating the said screw for the purpose of engaging same in a second nut secured in the bed in the submarine in which the life boat rests, means situated in the submarine for finally releasing the life boat from its bed after the locking means have been released comprising pipes or conduits leading from the exterior of the submarine to the water-tight compartment, valves controlling the said pipes or conduits, a shaft connecting said valves, a vertical shaft journaled in the submarine bed and engaging at its upper end in a ball mounted in the shell of the life boat and adapted to be rotated by a wheel mounted in a bracket thereon, gearing between the two shafts so that the two valves may be simultaneously opened to flood the water-tight compartment and the space beneath

the life boat, thus equalizing the pressure above and below same and enabling same to float gently out of its bed and rise to the surface of the water under the influence of its own buoyancy.

4. In a detachable life boat for submarines a closed vessel forming the life boat, a bed in the outer surface of the submarine, a flange around the longitudinal periphery of the life boat adapted to engage and make a water-joint with the bed upon the deck of the submarine which is suitably shaped to accommodate the lower half of the life boat, a water-tight compartment in the submarine, means for communicating from this water-tight compartment with the interior of the life boat, and means for closing such communication when desired to launch the life boat from the deck of the submarine when submerged and supplementary means for retaining the water-tight joint between the periphery of the life boat and its bed in the deck of the submarine comprising a U-shaped strip in a groove in the bed arranged so that any leakage will expand the U-shaped strip against the side of the life boat, thus forming a supplementary joint.

5. In a detachable life boat for submarines a closed vessel forming the life boat, a bed in the outer surface of the submarine, a flange around the longitudinal periphery of the life boat adapted to engage and make a water-tight joint with the bed upon the deck of the submarine which is suitably shaped to accommodate the lower half of the life boat, a water-tight compartment in the submarine, means for communicating from this water-tight compartment with the interior of the life boat, and means for closing such communication when desired to launch the life boat from the deck of the submarine when submerged, means for locking the life boat in its bed in the deck of the submarine comprising a vertical screw mounted in bearings in the underside of the life boat and engaging in a nut therein, spokes or other means for rotating the said screw for the purpose of engaging same in a nut secured in the bed in the submarine in which the life boat rests, means for finally releasing the life boat from its bed after the locking means have been released comprising pipes or conduits leading from the exterior of the submarine to the water-tight compartment, valves controlling the said pipes or conduits, and means for operating said valves from within the life boat to enable the valves to be simultaneously opened for the purpose of flooding the water-tight compartment and the space beneath the life boat, thus equalizing the pressure both above and below the life boat and enabling same to float gently out of its bed and rise to the surface of the water under the influence of its own buoyancy and supplementary means for retaining the water-tight joint between the periphery of the life boat and its bed in the deck of the submarine comprising a U-shaped strip in a groove in the bed arranged so that any leakage will expand the U-shaped strip against the side of the life boat, thus forming a supplementary joint.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ANDREW JOSEPH MORRISON, JUNR.

Witnesses:
H. WILLIAMS,
E. WILLIAMS.