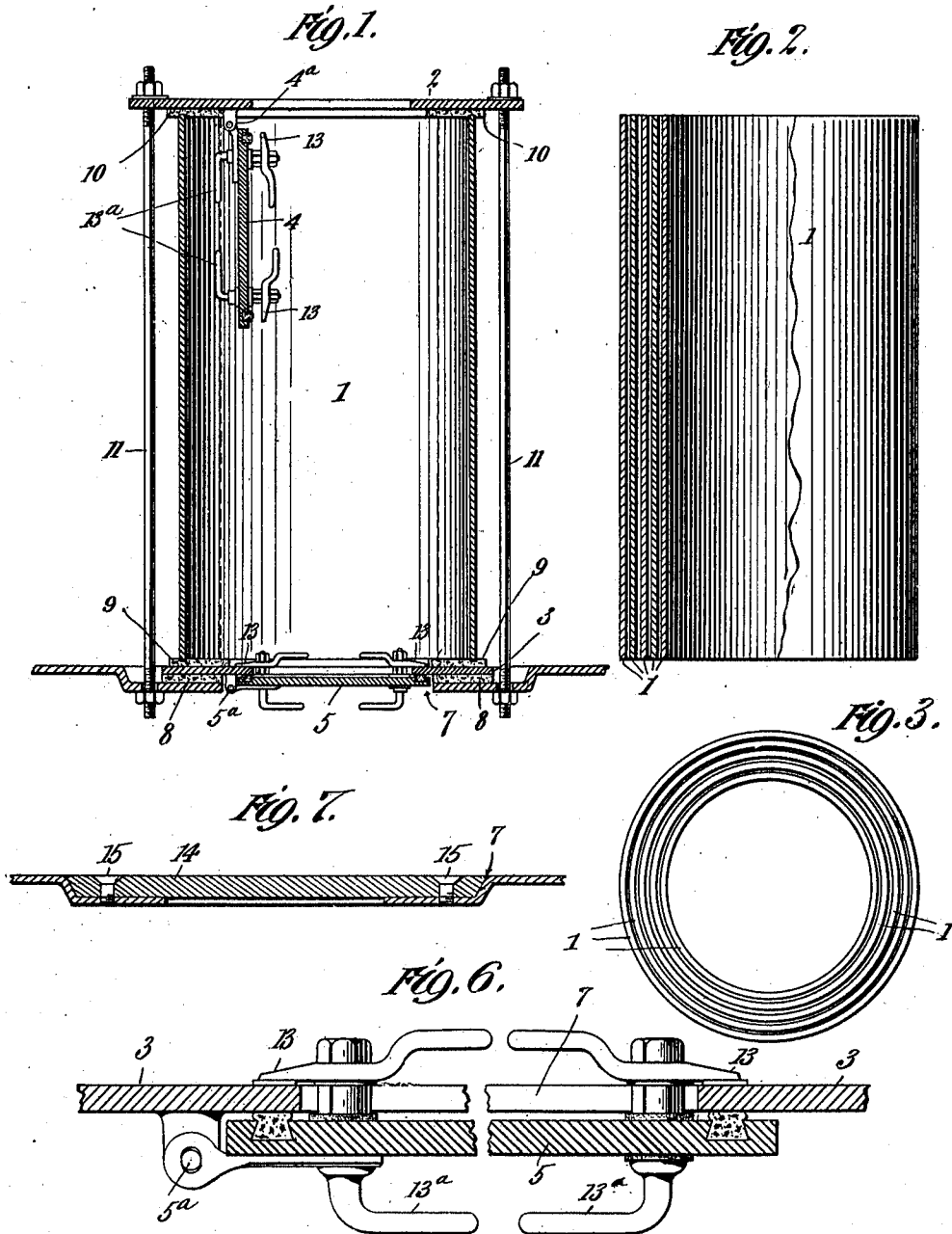


R. O. KING.
VESSEL CONSTRUCTION.
APPLICATION FILED JULY 27, 1909.

988,354.

Patented Apr. 4, 1911.

2 SHEETS—SHEET 1.



Witnesses:
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L. E. Morrison

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By His Attorneys Rogers & Kennedy

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Fig. 4.

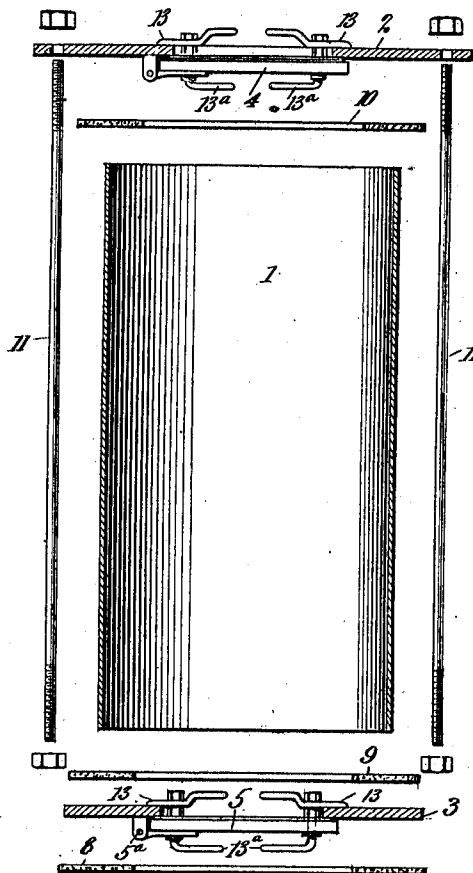
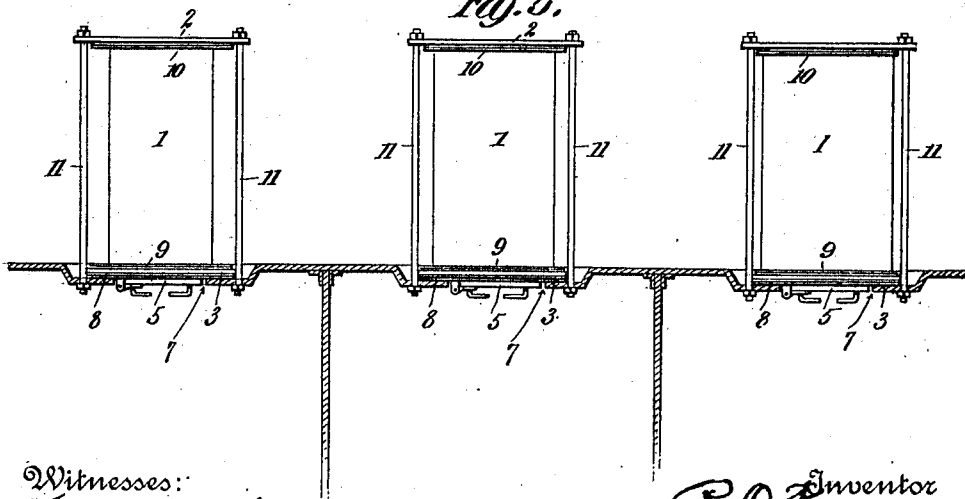


Fig. 5.



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UNITED STATES PATENT OFFICE.

ROBERT O. KING, OF NORTH TONAWANDA, NEW YORK.

VESSEL CONSTRUCTION.

988,354.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed July 27, 1909. Serial No. 509,320.

To all whom it may concern:

Be it known that I, ROBERT O. KING, a subject of the King of Great Britain, residing at North Tonawanda, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Vessel Construction, of which the following is a specification, reference being had therein to the accompanying drawing.

10 In the construction of ships it has been proposed, for instance as disclosed in the patent to Wotherspoon and King, No. 851,269, dated April 23d, 1907, to equip holds or compartments with air-locks, and
15 provide for the introduction of air under pressure into the holds or compartments in case of leakage of water therein, so as to expel the water, the air-lock affording a means for the entrance of workmen into the injured or leaking compartment while the pressure is kept on, and this for the purpose of repairing the leak. Air-locks applied in this manner as a permanent part of the ship's structure, occupy considerable
25 space, and cause inconvenience in obstructing the deck surface. In war vessels, where the space is necessarily contracted and limited, and where any unnecessary obstruction to the deck surface would cause serious inconvenience, the equipment of compartments with permanent air-locks is practically prohibitive.

It is the aim of the present invention to obviate the objections above pointed out, and the invention consists in forming the air-locks and compartments or holds so that the locks may be detachably connected, to enable them to be applied only when the occasion demands, the said locks when not in use being adapted to be nested one within the other so that but little space will be occupied for their storage.

Referring to the drawings: Figure 1 is a sectional view through one of my improved
45 air-locks, showing the same applied to the compartment. Fig. 2 is a view partly in section and partly in elevation showing a number of the hollow bodies of the air locks nested one within the other. Fig. 3 is an end view of the same. Fig. 4 is a vertical section through one of the air-locks, showing the end-closures and clamping devices disconnected therefrom. Fig. 5 is a vertical sectional elevation through several compartments with the air-locks applied thereto.

Fig. 6 is a transverse sectional elevation on an enlarged scale through one of the end-closures of the air-lock, showing the door therein. Fig. 7 is a sectional view showing the manner of closing the hole in the compartment when the air-lock is not in use.

The air-locks comprise each a hollow open ended body 1, and two end-closures 2 and 3 adapted to be removably applied to close the ends of the body, and each containing a central opening closed by doors 4 and 5 respectively, hinged as at 4^a and 5^a to the edge of the openings. The hollow bodies of the several locks are of different sizes and cross-section, so that when the parts are disassembled these bodies may be nested one within the other, as shown in Figs. 2 and 3, and stored in compact form.

The air-locks are adapted to be applied to the compartments over holes 7 therein, and when so applied afford means whereby ingress may be had to the compartment while the same is under air pressure, so that in case of injury to the compartment, such as to cause leakage, air pressure may be employed to expel the water, and repairs may be made while the pressure is maintained. In attaching the locks, a ringlike gasket 8 is seated around the opening in the compartment, and upon this the bottom closure-member 5 is placed, on which is seated a second gasket 9. The hollow body of the lock is in turn seated on the gasket 9, and on the top of the hollow body a gasket 10 is placed, and finally the top closure-member 4 is applied. The parts are then clamped together and the whole fastened in place to the compartment by means of long clamping bolts 11 passed through holes in the wall of the compartment and through holes in ears on the upper closure-member, and these bolts firmly tightened up by nuts applied to the ends of the same.

The relative size of the bodies of the locks, and the supporting surfaces of the closure-members, is such that any one of the different sized bodies may be applied over the opening in the compartment, Fig. 1 showing the largest body so applied, and the dotted lines in said figure indicating the position the smallest body would occupy if applied thereto. Under these conditions, the openings in the several compartments may all be of uniform size, as well as all the end closure-members, packing gaskets and

other parts, the open ended body portions only being of different sizes to enable them to be packed one within the other, as shown.

A full equipment of air-locks, say for instance five as shown, would therefore consist of five hollow bodies of different sizes in cross section, and five pairs of end closure-members of the same size, together with their appropriate packing washers or gaskets and clamping bolts. From this description it will be seen that when the air-locks are not in use, they may in their collapsed or disassembled condition be packed away so as to occupy a minimum amount of space, the body portions being assembled or nested one within the other as shown in Figs. 2 and 3, and the end closure-members and their parts stacked one upon the other in a pile or set on edge alongside the nested bodies.

The air-lock doors may be held closed in any appropriate or well known manner, one form of mechanism for this purpose consisting of latches 13 adapted to engage over the edges of the end closure-members adjacent the holes therein, which latches are provided with handles 13^a extending on opposite sides so that they may be turned from either side.

I prefer to form the opening through the compartments in a depressed portion of the same, as shown in Fig. 7, so that a disk 14 may be set in the depression flush with the general surface, when the air-lock is not in use, which disk is secured firmly in place by screws 15 passed through the same openings provided for the clamping bolts.

It will be understood that the vessel will be properly equipped to furnish air under pressure to the compartments, and that in case of injury causing leakage, suitable means will be available for closing said compartments air tight or substantially so, in such manner that the air admitted under pressure will tend to force the water out, or lower the level of the same.

While in the accompanying drawings I have shown my invention as embodied in the form which I prefer to adopt, I wish it understood that the invention is not limited to any particular details of construction, except in so far as such limitations are specified in the claims.

Having thus described my invention, its construction and mode of operation, what I claim and desire to secure by Letters Patent of the United States is as follows:

1. The combination of a series of air-locks, each comprising a hollow open ended body portion and detachable end-closures, said body portions being of different sizes in cross section to adapt them to be nested one within the other.

2. In vessel construction, the combination with a series of compartments adapted to be closed air tight or substantially so, and provided with openings therein, of air-locks adapted to be detachably applied over said openings respectively, and each consisting of a main body portion and end-closures, the said body portions being adapted to be nested one within the other when the air-locks are detached.

3. In vessel construction, the combination with a series of compartments adapted to be closed air tight or substantially so, and provided with openings therein, of air-locks adapted to be detachably applied over the said openings respectively, and each consisting of a main open ended body portion and separable end-closures, the body portions being of different cross sectional sizes and adapted to be nested one within the other.

4. In vessel construction, the combination with a series of compartments adapted to be closed air tight or substantially so, and provided with openings, of air-locks adapted to be detachably applied over said openings respectively, and each comprising a hollow open ended body portion and end-closures, the said body portions being of different sizes in cross section, whereby they may be nested, and the said end-closures being of uniform size and adapted to close the ends of any of the body portions.

5. The combination of a series of air locks, each comprising a hollow open ended body portion and detachable end closures, said body portions being of a form to adapt them to be nested one within the other.

In testimony whereof I have affixed my signature in presence of two witnesses.

ROBERT O. KING.

Witnesses:

ERNEST D. CONDIT,
W. R. KENNEDY.