

938,593.

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MAXIME ALFRED LAUBEUF, OF PARIS, FRANCE.

WATER-TIGHT HATCH OR MANHOLE COVER.

938,593.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MAXIME ALFRED LAUBEUF, a citizen of the Republic of France, residing at Paris, in the Department of the Seine, France, have invented certain new and useful Improvements in Water-Tight Hatch or Manhole Covers, of which the following is a specification.

My present invention pertains to water tight hatches and similar closures for the decks and bulkheads of vessels and particularly to hatchways for submarine boats.

The object of the invention is the construction of a rapidly closing hatch, which from the simplicity and fewness of its working parts shall operate with certainty even when hastily handled.

The hatches now in common use on submarine boats are characterized by a large number of working parts, are expensive to make and subject to frequent derangement and to the elimination of these defects and the securing of certain advantages which will hereinafter appear, my invention consists in certain constructions and combinations of parts now to be described and illustrated in the accompanying drawings, wherein—

Figure 1 is a sectional elevation of a hatchway embodying my invention, the plane of section being taken through the vertical center line of the hatch; Fig. 2, is a plan view of the same; Fig. 3, is a perspective view of a portion of the latching mechanism; Fig. 4, is a section of a portion of the latching mechanism, the plane of section being on the line *a-a* of Fig. 1; and Fig. 5, is a detailed view partly in section, of a modified form of latching mechanism.

Like parts are similarly numbered in the various views.

Referring now to Figs. 1, 2, 3 and 4, 1 is the shell of a submarine boat, deck or bulkhead of a ship or the like, in which the hatchway is formed, and 2 is the tube or shell securely fastened thereto in any suitable manner, as by angles as shown. This shell 2 forms the walls of the hatch and may be circular, elliptical or of any other desirable shape. Attached to the tube or shell 2 at its top is a ring 3 provided with a recess or groove in its upper face suitable to receive and retain a ring of packing 4 which may be of any material suited to the purpose. The ring 3 has attached to it also a bracket 5 preferably bifurcated, as shown,

and carrying a pivot 6. Turning on the pivot 6 is an arm or bar 7, and attached to this bar and projecting in an opposite direction past the fulcrum are the extensions 8, to the extremities of which are attached the ends of springs 9, whose other ends are attached to brackets 10 on the walls of the hatch, or on some other suitable fixed support, adapted to give them the necessary direction. Thus the arm 7 may be drawn down over the hatchway against the opposition of the springs 9. The arm 7 carries two other pivot bearings 11 and 12, the pivot 11 being a means of attachment for the hatch cover 13, and pivot 12 being a means of attaching the latch member 14, which is substantially hook shaped, as shown. The hatch cover 13 is preferably arched or crowned and provided with ribs to provide further strength. It may be of steel, bronze or any other suitable material. It is provided with a depending lip or rib about its periphery, so formed as to bear upon the packing 4, and since the hatch cover is pivoted rather loosely at 11 it will readily find an even seat upon the packing ring throughout its circumference and bear thereon with a uniform pressure.

The pressure requisite to hermetic closure is secured by a latching and sealing mechanism operative from within the submarine boat or beneath the deck, which mechanism will now be described. A latching member 16 of hook-shape, substantially as shown in the drawings, is adapted to engage the latching member 14 carried on the arm 7. This member 16 is pivoted at 17 to a sliding rod 20, having a squared portion 18 guided in square guides in the bracket 19, which is attached to the hatch-shell 2 or some other fixed support. The lower portion of the rod 20 is rounded and is threaded for a part of its length. This round portion passes through the deck, bulkhead or shell of the boat, a water tight joint being secured by means of a packing gland 21 of any suitable form.

22 is a wheel whose hub is threaded on the rod 20 and also swiveled in the bracket 23 rigidly attached to the deck or shell of the boat, as shown. Since the squared portion 18 prevents rotation of the rod 20, rotation of the wheel 22 must produce longitudinal sliding of the rod 20 and the attached latching member 16. Thus when 14 and 16 are in engagement, a right hand rotation of wheel 22 will draw down the rod 20 and also

draw down the arm 7 pressing the cover 17 firmly against the packing 4, thus sealing the hatch against the entrance of water.

The means of securing engagement and release of the members 14 and 16 is as follows: 24 is a curved arm carried by the bracket 19 and standing behind and against the member 20. The upper end of 24 has attached to it one end of a spring 25, whose other end is attached to the latching member 16, thus tending to draw it out of engagement with 14. The curve of the member 24 is so designed that when 16 is in its highest position it may swing back out of engagement with 14 under the tension of spring 25, but as 16 and 20 are drawn down from this highest position, 16 will be forced forward by 24 so as to engage 14 in opposition to the spring's action. After this engagement, further downward movement draws the hatch cover tightly down. If then the sliding member 20 be moved upward far enough for 16 to be released by the curved arm 24 and sufficiently to reduce the friction between the members 14 and 16 the spring 25 will draw arm 7 which may then rise carrying with the hatch cover 13. In this movement the springs 9 will assist, or if strong enough may cause the opening of the hatch automatically when released by the latching mechanism.

Referring now to Fig. 5, I will describe a slight modification of the latching mechanism which removes the necessity of the spring 25, described in the other construction. Carried on the bracket 19 is an upwardly projecting arm 26, placed to one side of the latching member 16. This arm 26 has formed in it a cam slot 27 in which travels a pin 28 formed on the side of latching member 16. Under this construction latching member 14 is preferably formed integrally with the arm 7, as shown. When the mechanism is constructed in this manner an upward movement of sliding member 20 will cause a positive retraction of latching member 16.

It is thus obvious that by the various structures set forth I secure a hatch which is automatically latched and subjected to sealing pressure by the operation of a single wheel placed below the hatch, the entire mechanism being quick and certain in its operation, easily inspected and cheaply and easily manufactured. Also the device is entirely self-contained, requiring no tools and having no detached parts.

Having thus described my invention, what I claim is:—

1. A hatch closure comprising in combination with the walls of the hatchway, an arm pivoted to said walls; a hatch cover loosely pivoted to said arm; a latching member carried on said arm; a second latching member; means for bringing stress upon

said second latching member; and automatic means controlled by said stressing means for securing engagement and release of said latching members.

2. A hatch closure comprising in combination with the walls of the hatchway, an arm pivoted to said walls; a hatch cover pivoted to said arm and adapted to close said hatchway; a hook carried on said arm; a sliding member; a second hook pivoted to said sliding member; mechanism for moving said sliding member; and means adapted to move said second hook into and out of engagement with said first hook as the sliding member is moved.

3. A hatch closure comprising in combination with the walls of the hatchway, an arm pivoted to said walls; counterbalance springs attached to said arm; a hatch cover pivoted to said arm and adapted to close said hatchway; a hook carried on said arm; a sliding member; a second hook pivoted to said sliding member; mechanism for moving said sliding member; and means for throwing said second hook into and out of engagement with said first hook, as the sliding member is moved.

4. In combination with the walls of a hatchway, an arm pivoted to said walls; a hatch cover pivoted to said arm; a hook on said arm; a sliding member; means for guiding the same; means for moving said sliding member; a second hook pivoted to said sliding member and adapted to engage the first hook; a spring normally holding said second hook out of engagement; and a guide arm adapted to force the second hook into engagement or release it therefrom as the sliding member is moved in opposite directions.

5. In combination with the walls of a hatchway, an arm pivoted to said walls; a hatch cover pivoted to said arm; counterbalance springs attached to said arm; a hook on said arm; guides carried on the hatch walls; a sliding member mounted on said guides; means for moving said sliding member; a second hook pivoted to said sliding member and adapted to engage the first hook; a spring normally holding said second hook out of engagement; and a guide arm adapted to force the second hook into engagement or release it therefrom as the sliding member is moved in opposite directions.

6. In combination with the hull of a vessel and the walls of a hatchway therein, a hatch cover; an arm pivoted to said hull and to said hatch cover; a latching member carried by said arm; a second latching member carried on said hull; and means controlled from within the vessel to move said second latching member into and out of engagement with said first latching member and for stressing said latching members when in engagement.

7. In combination with the hull of a vessel and the walls of a hatchway therein, a hatch cover; an arm pivoted to said hull and to said cover; a hook on said arm; a sliding member passing through the hull of the vessel; means within the vessel for moving said sliding member; a second hook pivoted to said sliding member; and a guide whereby said second hook is moved into engagement with said first hook by the motion of said sliding member.

8. In combination with the hull of a vessel and the walls of a hatchway formed therein, a hatch cover; an arm pivoted to said hull and to said cover; a hook on said arm; a sliding member passing through the hull of the vessel; means within the hull of the vessel for positively moving said sliding member; a second hook pivoted to said sliding member; and means comprising a guide and an opposing spring adapted to effect the engagement and release of said hooks as the sliding member is moved.

9. In combination with the hull of a vessel and the walls of a hatchway formed therein, a sealing ring carried by said walls; a hatch cover adapted to bear on said sealing ring; an arm pivoted to said hull and to said hatch cover; counterbalance springs attached

to said arm; a latching member carried on said arm; guides carried on said hull; a sliding member mounted in said guides and passing through said hull; a bracket mounted on said hull; a wheel threaded on said rod and swiveled in said bracket; a second latching member pivoted to said sliding member and adapted to engage said first latching member; a spring tending to withdraw said second latching member from said engagement; and a guide arm adapted to force said second latching member into such engagement.

10. In combination with the hull of a vessel and a hatchway formed therein, a pivotally mounted arm; a hatch cover attached to said arm; counterbalance springs attached to said arm; latching means carried on said arm; latching means carried on said hull; and means controlled from within the vessel for securing the engagement and release of said latching means.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

MAXIME ALFRED LAUBEUF.

Witnesses:

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