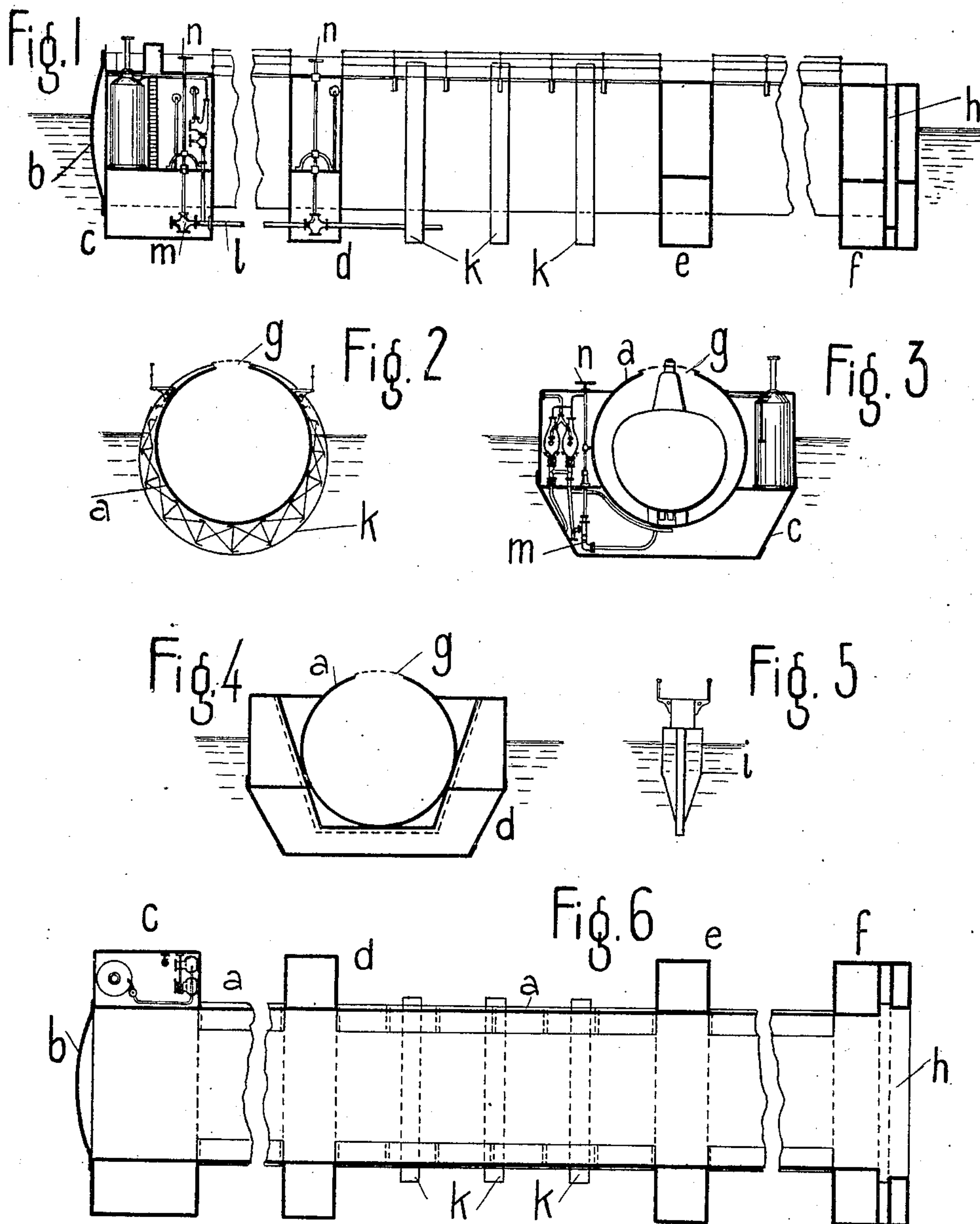


C. LAURENTI.
FLOATING DOCK.
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998,970.

Patented July 25, 1911.



WITNESSES:

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FLOATING DOCK.

998,970.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CESARE LAURENTI, engineer, of Spezia, Italy, have invented certain new and useful Improvements in or
5 Relating to Floating Docks, of which the following is a full, clear, and exact specification.

One of the greatest dangers to which submarine or submersible vessels are exposed
10 consists in the sunberging of the hull to great depths in order to ascertain its resistance to the effects of external pressure. These tests usually entail the risk of losing large sums and the lives of several persons.
15 The object of this invention is to provide a floating dock whereby the above mentioned results can be obtained without danger.

In the accompanying drawings: Figure 1 is a side elevation, of one construction of
20 floating dock according to this invention, Figs. 2, 3 and 4 are transverse sections, Fig. 5 a detail cross-view showing the door or gate, Fig. 6 is a plan of the floating dock.

a is a sheet-metal cylinder (Figs. 1, 2, 3, 4,
25 and 6) of sufficient length and diameter to accommodate the submarine or submersible vessel to be tested, and terminating in a domed cover *b*. In order to maintain this cylinder afloat, empty sheet-metal caissons
30 *c, d, e, f*, (Figs. 1, 3, 4 and 6) are attached to it, the said caissons displacing sufficient water to counterbalance the weight of the entire structure.

To enable the structure to be used continuously where it serves as a floating dock for long narrow vessels, the upper portion *g* of the large sheet-metal cylinder (Figs. 2, 3 and 4) is taken off, and the end caisson *f* (Figs. 1 and 6) is constructed in such a manner
40 that a door or gate *i* (Fig. 5) is arranged in the recess *h*, just in the same manner as in bricked graving docks. In order to strengthen the whole structure when the upper sheet-metal portion *g* has been removed, double frames *k k* (Figs. 1, 2 and 6) are provided. The end caisson *c* (Figs. 1,
45 3 and 6) is fitted with a steam boiler and pump (plunger or pulsometer pump), which discharge the water out of the caissons *c, d, e, f*, by means of pipes *l*. To dry-dock the submarine vessel after it has entered the cylinder, the end is closed by means of the gate *i*, the same means are adopted as in other docks, the valves *m m* being opened by
55 means of the operating mechanism *n, n*,

(Figs. 1 and 3) whereupon the water in the cylinder drains into the caissons *c, d, e, f*, lowering the water level in the cylinder and setting the gate *i* in operation. At the same time the pump draws the water out of the
60 caissons *c, d, e, f*, until the dock is entirely emptied and the vessel is on a dry floor.

To determine the resistance of the hull of a submarine to external pressure, all the projecting portions of the vessel that would
65 prevent it from entering the cylinder while the part *g* is in position, are removed. When the submarine has entered, and the plate *g* has been bolted in position, the entrance opening of the cylinder is closed by means
70 of a domed cover, similar to the cover *b*, fastened down by bolts. The space between the cylinder *a* and the body of the vessel is then filled with water, and the water pressure is raised, by means of the pump, to that
75 corresponding with the depth at which it is desired to test the submarine. Since it is not difficult to establish a communication between the interior of the submarine and the outside world all the phases of this opera-
80 tion can be carried out with the greatest security to the staff, which can stop the pumps on the least sign of danger.

What I claim is:

1. In a floating dry dock, the combination
85 of a cylindrical water-tight receptacle adapted to entirely inclose a vessel, means for admitting a vessel to said receptacle, and caissons supporting said receptacle.

2. In a floating dry dock, the combination
90 of a water-tight cylindrical receptacle, adapted to entirely inclose a vessel, an end gate in said receptacle, and caissons supporting said receptacle.

3. In a floating dry dock, the combination
95 of a cylindrical water-tight receptacle adapted to entirely inclose a vessel, caissons supporting said receptacle, and means for removing water from said receptacle.

4. In a floating dry dock, the combination
100 of a cylindrical water-tight receptacle adapted to entirely inclose a vessel, caissons supporting said receptacle, and having communication with said receptacle, and means for removing water from said caissons.
105

5. In a floating dry dock, the combination of a cylindrical receptacle, caissons supporting said receptacle, means for completely closing said receptacle and means for forcing water under pressure into said receptacle.
110

6. In a floating dry dock, the combination of a cylindrical receptacle, caissons supporting said receptacle, means for removing water from said receptacle and caissons, a closure for said receptacle, and means for forcing water under pressure into said receptacle.

7. The combination of a water-tight receptacle adapted to receive and entirely inclose a submarine boat, and means for applying pressure upon the exterior of said boat within said receptacle.

8. The combination of a water-tight receptacle adapted to receive and entirely inclose a submarine boat, and means for applying fluid pressure upon the exterior of said boat within said receptacle.

9. The combination of a water-tight receptacle open at its end to receive and entirely inclose a submarine boat, means for closing such end, and means for applying pressure upon the exterior of said boat within said receptacle.

10. The combination of a water-tight inclosing receptacle open at its end to receive a submarine boat, means for closing such end, and means for applying fluid pressure upon the exterior of said boat within said receptacle.

11. The combination of a water-tight inclosing receptacle, means for floating said receptacle, said receptacle adapted to receive a submarine boat and means for applying pressure upon the outside of said boat within said receptacle.

12. In a floating dry-dock, the combination of a receptacle adapted to receive a boat, and caissons supporting said receptacle, said caissons crossing under said receptacle and adapted to receive the water from said receptacle.

13. In a floating dry-dock, the combination of a receptacle adapted to receive a boat, an end gate in said receptacle, caissons supporting said receptacle, said caissons crossing under said receptacle and having valved openings leading to said receptacle whereby water is adapted to be received from said receptacle, and means for pumping water from said caissons.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

CESARE LAURENTI.

Witnesses:

GUIDO CORRADI,
ANGELO BORAGNIA.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."