

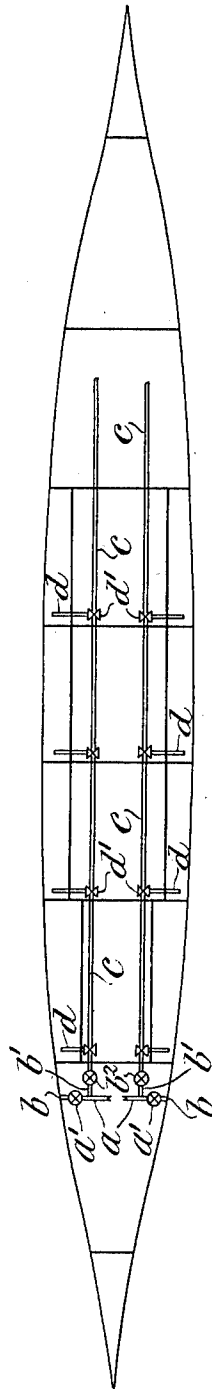
J. L. & W. P. BRUNTON.
 APPARATUS FOR FLOODING THE COMPARTMENTS OF SHIPS.
 APPLICATION FILED OCT. 25, 1912.

1,061,262.

Patented May 13, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
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 M. E. Bunkel

Inventors:
 J. L. Brunton
 W. P. Brunton
 by their Attorneys.
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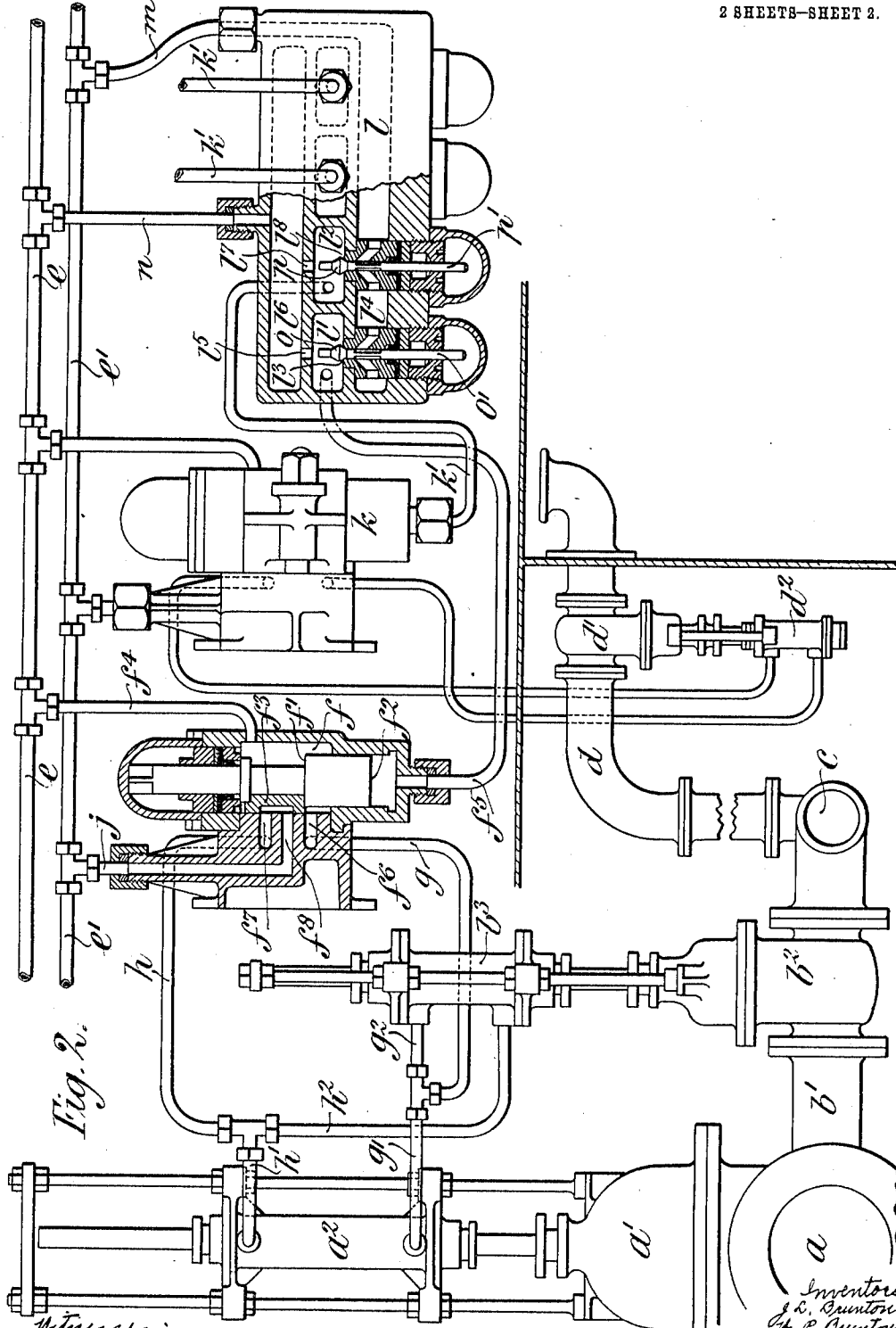


Fig. 2.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR FLOODING THE COMPARTMENTS OF SHIPS.

1,061,262.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed October 25, 1912. Serial No. 727,773.

To all whom it may concern:

Be it known that we, JOHN LOCKHART BRUNTON and WILLIAM PATON BRUNTON, subjects of the King of Great Britain, both residing at 19 Glenluce road, Westcombe Park, in the county of Kent, England, have invented new and useful Improvements in Apparatus for Flooding the Compartments of Ships, of which the following is a specification.

According to this invention a main or preferably two mains one on each side of the ship are provided. Each main is connected to the various compartments by valves and it is also connected by a valve to the discharge pipe from the condensers or other source of supply so that the whole or part of the discharge can be led to any compartment. The valves are operated by hydraulic cylinders and the supply of high pressure water to these cylinders is controlled from the bridge or other distant point by apparatus similar to that now employed for opening and closing bulkhead doors.

Figure 1 is a diagrammatic plan of the general arrangement it is preferred to adopt. Fig. 2 is a diagram partly in section of the mechanism. In Fig. 2 the mains, the valves upon them and the cylinders operating these valves are to a much smaller scale than the rest of the apparatus.

a are the condenser discharge pipes, a' are sluice valves upon them and a^2 are hydraulic cylinders operating these valves.

b are the usual outlets through the side of the ship and b' are other outlets connecting the pipes a through sluice valves b^2 to the longitudinal mains e .

b^3 are hydraulic cylinders operating the valves b^2 .

d are branch pipes connecting the mains c to the various compartments of the ship through sluice valves d' operated by hydraulic cylinders d^2 .

The apparatus for supplying high pressure water to the cylinders a^2 , b^3 and d^2 is similar to that now employed for opening and closing bulkhead doors and no claim *per se* is made to it in this specification.

This apparatus is as follows: e is a high pressure water main and e' is an exhaust main. f is a small hydraulic cylinder having in it a differential area ram f' , f^2 to which a slide valve f^3 is fixed. The upper end of the cylinder f is always supplied with

high pressure water from the main e by the pipe f^1 . The lower end of the cylinder f is connected to the main e by the pipe f^5 and it also is normally supplied with high pressure water but the supply can be cut off and the pipe f^5 put to exhaust in the manner hereinafter described. Normally therefore the ram f' , f^2 is held in its upper position as shown since the area f^2 is greater than f' . When in this position the port f^6 is uncovered and high pressure water is supplied to the bottom of the cylinder a^2 and top of the cylinder b^3 from the main e through the pipe f^1 , the cylinder f , the port f^6 , pipe g and branch pipes g' , g^2 , while the top of the cylinder a^2 and the bottom of the cylinder b^3 are connected to the exhaust main e' through the branch pipes h' , h^2 , pipe h , port f^7 , slide valve f^3 , exhaust port f^8 and pipe j . The valve a' therefore is normally held open and the valve b^2 is normally held closed. The valves d' are all also normally held closed, the bottom and top of each cylinder d^2 being connected respectively to the mains e and e' by a slide valve operated by a differential area ram in the cylinder k , only one of these is shown but there is one for each compartment in exactly the same manner as that already described. The pipe f^5 from the bottom of the cylinder f and the pipes h' from the bottoms of the cylinders k are led to compartments l' and l^2 , l^2 in a valve box l . The compartment l' is connected by a hole l^3 to the chamber l^4 and by a hole l^5 to the chamber l^6 and each of the chambers l^2 are similarly connected to the chambers l^4 and l^6 by holes l^7 and l^8 . The chambers l^4 and l^6 are in turn connected to the mains e and e' by the pipes m and n . o and p are valves carried on stems o' , p' which normally close the holes l^5 and l^8 .

When it is desired to flood any compartment the stem p' of the valve p belonging to that compartment is lifted causing the valve to close the hole l^7 and open the hole l^8 . The bottom of the cylinder k belonging to the compartment is thus connected to exhaust and the ram in it descends carrying its slide valve with it, thus putting the bottom of the cylinder d^2 to exhaust and the top to pressure and opening the valve d' . When this has been done the stem o' of the valve o is lifted closing the hole l^5 and opening the hole l^3 . This in a similar manner

causes the valve a' to close or partly close and the valve b^2 to open so that the condenser discharge or part of it is now diverted from the usual outlet b to the pipe b' 5 and flows through the main c and pipe d into the compartment in question. The valve box l may be placed in any convenient place for example on the bridge or in the engine room.

10 What we claim is:—

1. The combination of a condenser discharge pipe, a valve on the discharge pipe, a main connected to the discharge pipe, a valve on the main near the connection, valves 15 connecting the main to the various compartments of the ship and hydraulic mechanism for operating all the valves from a distance.

2. The combination of a main, valves connecting the main to the various compartments of the ship, a hydraulic cylinder operating each of the valves, a slide valve supplying pressure to and exhausting it from the ends of each hydraulic cylinder, a differential ram operating the slide valve the 20

smaller area of such ram being always exposed to pressure and means at a distance for admitting pressure to and cutting it off from the larger area of the ram. 25

3. The combination of a condenser discharge pipe, a valve on the discharge pipe, a main connected to the discharge pipe, a valve on the main near the connection, valves connecting the main to the various compartments of the ship, a hydraulic cylinder operating each of the valves, a slide valve supplying pressure to and exhausting it from the ends of each hydraulic cylinder, a differential ram operating the slide valve the smaller area of such ram being always exposed to pressure and means at a distance for admitting pressure to and cutting it off from the larger area of the ram. 30 35 40

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Witnesses:

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