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C. T. DÖRR.

MEANS FOR OPERATING BULKHEAD DOORS.

(Application filed Aug. 10, 1901.)

(No Model.)

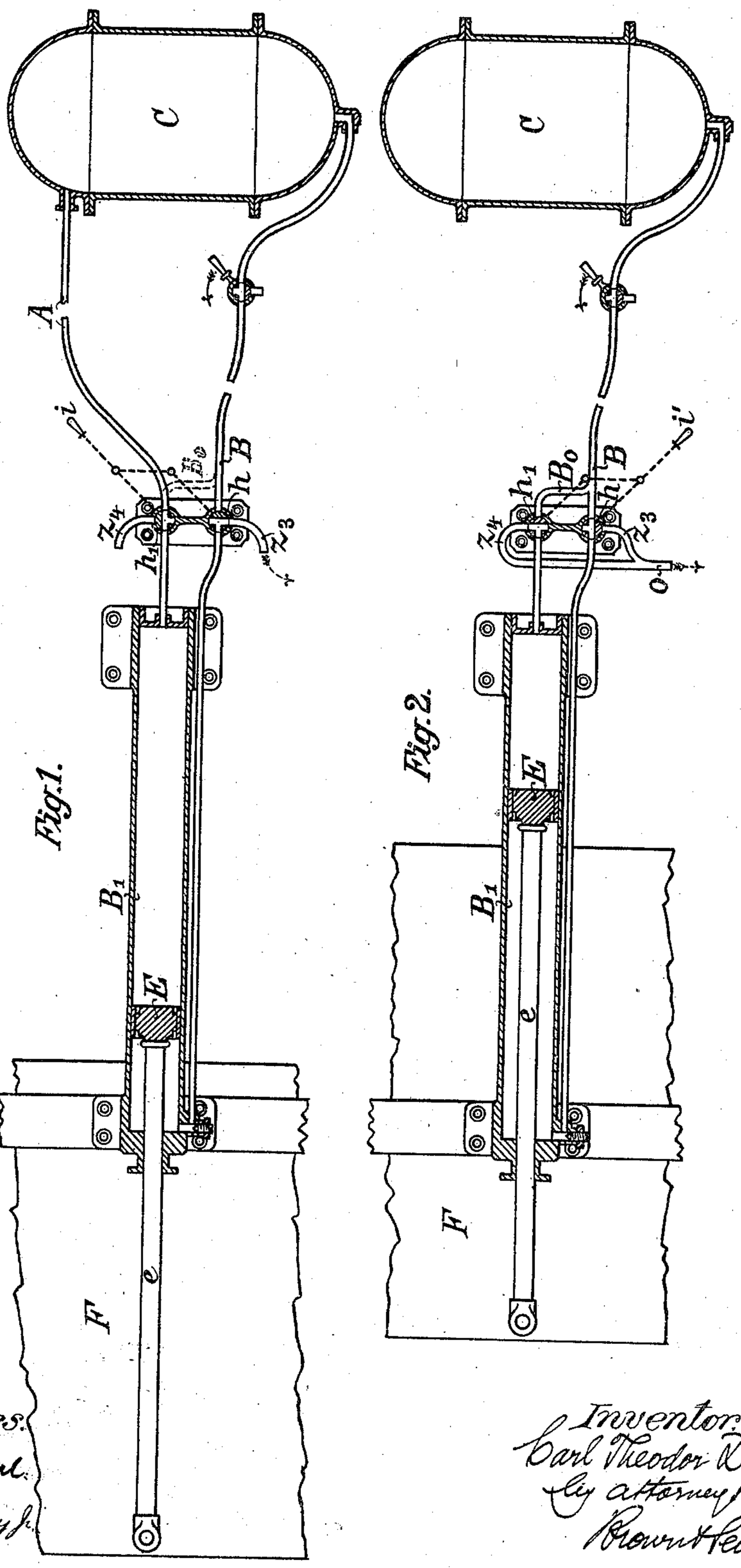

Fig. 1.

Fig. 2.

Witnesses:
Henry Thieme.
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UNITED STATES PATENT OFFICE.

CARL THEODOR DÖRR, OF OHLIGS, GERMANY.

MEANS FOR OPERATING BULKHEAD-DOORS.

SPECIFICATION forming part of Letters Patent No. 687,933, dated December 3, 1901.

Application filed August 10, 1901. Serial No. 71,593. (No model.)

To all whom it may concern:

Be it known that I, CARL THEODOR DÖRR, a subject of the King of Prussia, Emperor of Germany, and a resident of Ohligs, Rhineland, German Empire, have invented new and useful Improvements in Means for Operating Bulkhead-Doors, of which the following is a specification.

In my United States Patents Nos. 588,793 and 617,855 I have described and shown means for automatically operating bulkhead-doors which mainly consisted of a compressor for containing compressed fluid (air or air and water) combined by pipes and valves with means capable of receiving motion through difference in pressure in said compressor and pipes and on said valves, and thereby actuating the doors with which said means are connected. In said means a differential valve in immediate connection with the cylinder the piston of which works the door played a prominent part for conducting the pressure means either in front or behind the said piston for actuating the same.

Now my present invention consists in arranging two three-way cocks or valves between the said compressor and the said piston and combining the plugs of the two cocks or valves by means of links with one handle, thereby affording means of simultaneously operating the two three-way cocks or valves for either causing the piston's stroke in one direction for closing the door or doors or for causing the piston's stroke in the reverse direction for opening the door or doors.

I hereby am enabled to do away with the differential valve above mentioned, thereby simplifying the device materially and insuring correct working of same.

The arrangement of the improved means for operating bulkhead-doors is shown on the annexed drawings, in which—

Figure 1 represents a longitudinal section showing the one position of the two combined three-way cocks or valves for the piston's outstroke to close the door, the movement of the latter for that purpose being from right to left; and Fig. 2, a longitudinal section showing the other position of the two combined three-way cocks or valves for the piston's instroke to open the door, said figure showing also the modified arrangement of having one conduit only from the compressor to the cylinder.

In the present arrangement the piston E in the fixed cylinder B′ is connected by the rod *e* either directly or indirectly to the door F. In Fig. 1 the cylinder is connected by pipes A and B to the compressor C, filled with air or with air and water, in which compressor a standard pressure is maintained by means of a pump or otherwise. The hereinabove-mentioned parts are all to be found in my above-recited United States patents. Into the pipes A and B, I arrange two three-way cocks or valves *h* and *h′* for conducting and for reversing the current of the pressure medium to the cylinder B′, the plugs of the two cocks or valves being connected by links to one handle *i*, so that the cocks or valves may be operated simultaneously. In Fig. 1 these ways in these cocks or valves have such a position that the current of the elastic pressure medium passes through the cock or valve *h′* into the cylinder B′ to cause the outstroke of the piston E, thereby closing the door F. The pressure medium on the other side of the piston may escape through the cock or valve *h* into the outlet z^3.

In reversing the position of the plugs in the cocks or valves *h h′* by the handle *i*, as indicated in Fig. 2, the elastic pressure medium will flow through *h* into the opposite side of the cylinder, thus causing the instroke of the piston E, and thus opening the door F again. In this instance the pressure medium on the opposite side of the cylinder will escape through *h′* into the outlet z^4.

The outlets z^3 and z^4 may, as indicated, Fig. 2, communicate into an outlet *o*, common to both. The last-named figure shows this further modification or simplification, that one pipe B only is branched off from the compressor C, so that the pipe A of Fig. 1 is dispensed with; but in this case a branch B^0 is provided, leading from pipe B into the cock or valve *h′*. With this arrangement if the ways in the cocks or valves *h h′* have assumed the position as indicated in Fig. 1 the pressure medium passing through B will flow through branch B^0, pass the cock or valve *h′*, and will work piston E for closing F,

while the waste pressure medium will escape by z^3 into o. If the handle i is reversed, as indicated in Fig. 2 by i', the elastic pressure medium passing through B will flow through cock or valve h and cause the instroke of piston E for opening door F. The waste pressure medium will escape through cock or valve h' through z^4 into o.

The pressure medium may be obtained by any convenient source—as, for instance, by means of the feed-pump of a boiler.

Although I have shown the two three-way cocks or valves h h' as individual bodies, I do not depart from my invention if I arrange the two plugs in one casing or even if I use one casing and one plug only, in which latter case I must provide so many passages in that one plug as will be necessary to direct the elastic pressure medium on either side of the piston and to allow the waste pressure medium to escape from the other side.

It is a matter of course that with the described arrangements the bulkhead-doors of a ship may be opened and closed individually or that a part or all of the doors may be worked simultaneously from any desired spot of the vessel—say, for instance, from the captain's bridge or from the engine or boiler room.

I claim—

In an apparatus for closing and opening bulkhead-doors in ships, the combination of a compressor, a cylinder, a piston in said cylinder and a connection between said piston and a door, pipes one for forming communication between the compressor and one end of the cylinder and another for forming communication between the compressor and the other end of the cylinder, three-way cocks one in each pipe and each having an escape-opening, a handle for working said cocks, and connections between said cocks and handle for the purpose of forming communication between the compressor and either end of the cylinder and closing the corresponding escape-opening and at the same time closing communication between the compressor and the other end of the cylinder and of opening the corresponding escape-opening, substantially as herein described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 25th day of July, 1901.

CARL THEODOR DÖRR.

Witnesses:

CHARLES L. SIMPLE,

CARL SCHMITT.