

(No Model.)

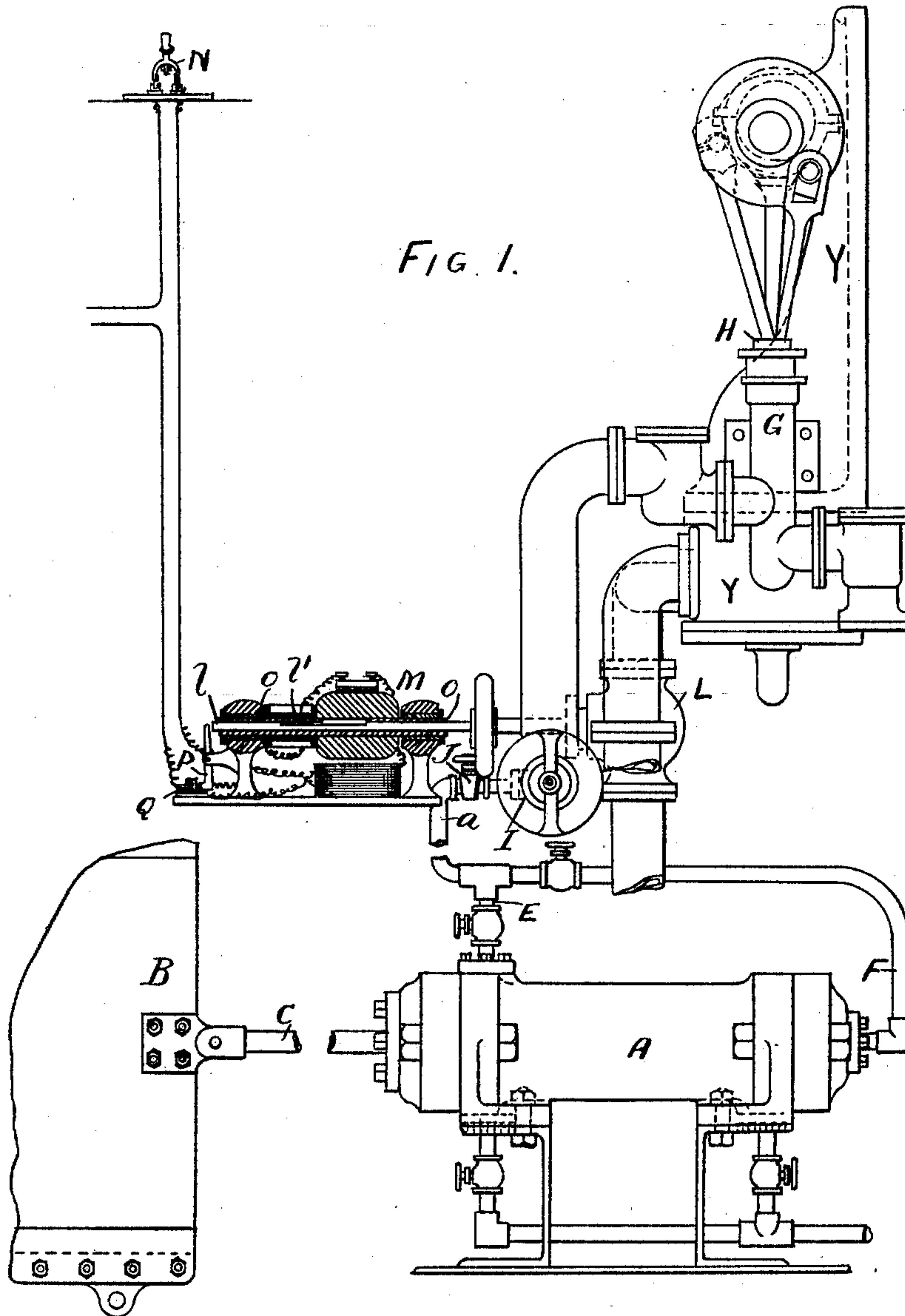
3 Sheets—Sheet 1.

T. MOODIE.

APPARATUS FOR CLOSING WATER TIGHT BULKHEAD DOORS.

No. 592,430.

Patented Oct. 26, 1897.



Witnesses:-  
W. C. Pinckney  
C. Holloway

Inventor:-  
Thomas Moodie,  
By J. E. Moore  
Attorney.

(No Model.)

3 Sheets—Sheet 2.

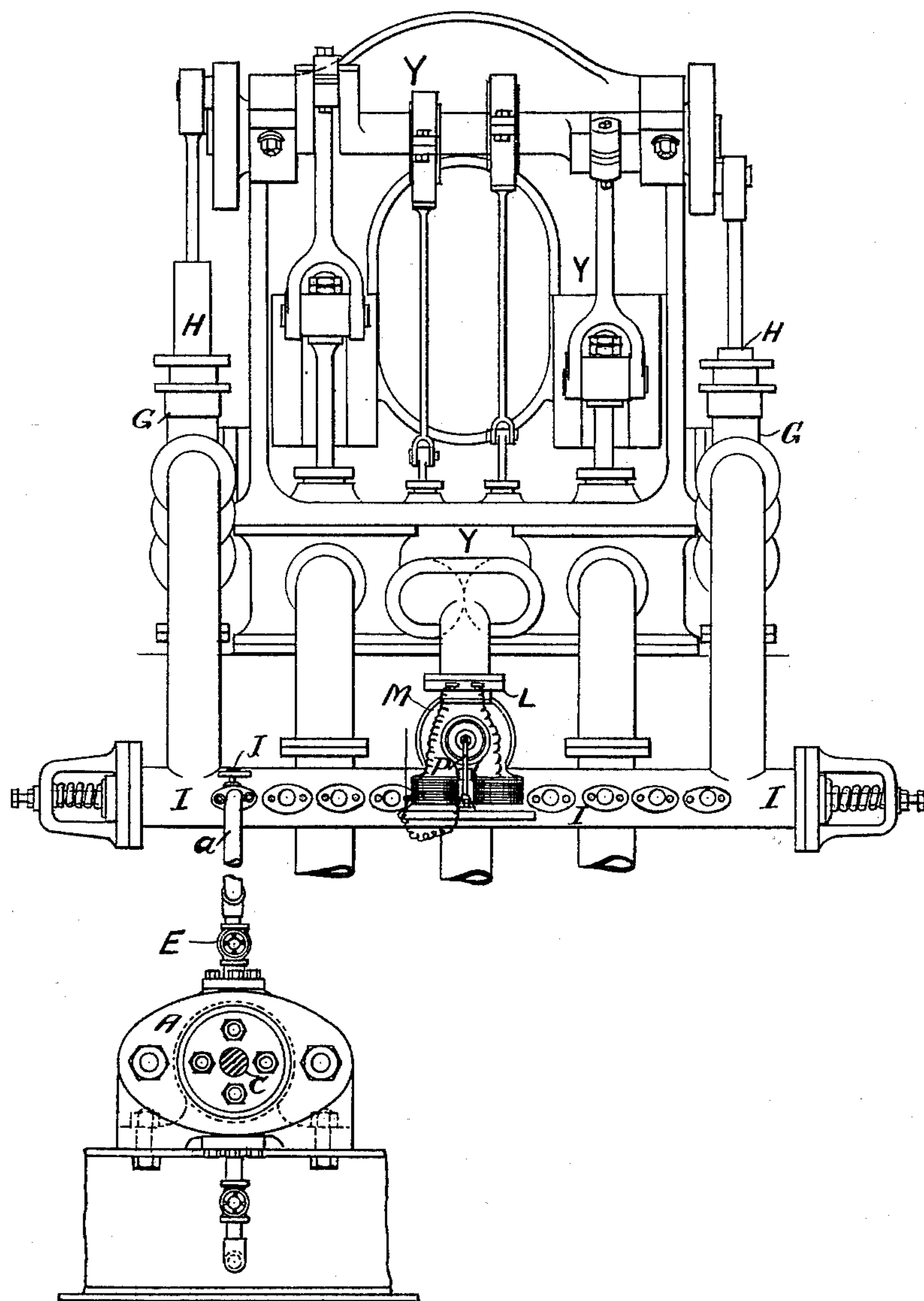
T. MOODIE.

# APPARATUS FOR CLOSING WATER TIGHT BULKHEAD DOORS.

No. 592,430.

Patented Oct. 26, 1897.

FIG. 2.



Witnesses: -

W. C. Pinckney  
C. Holloway

Inventor:—

Thomas Woodie,  
By J. M. Boone  
Attorney.

(No Model.)

3 Sheets—Sheet 3.

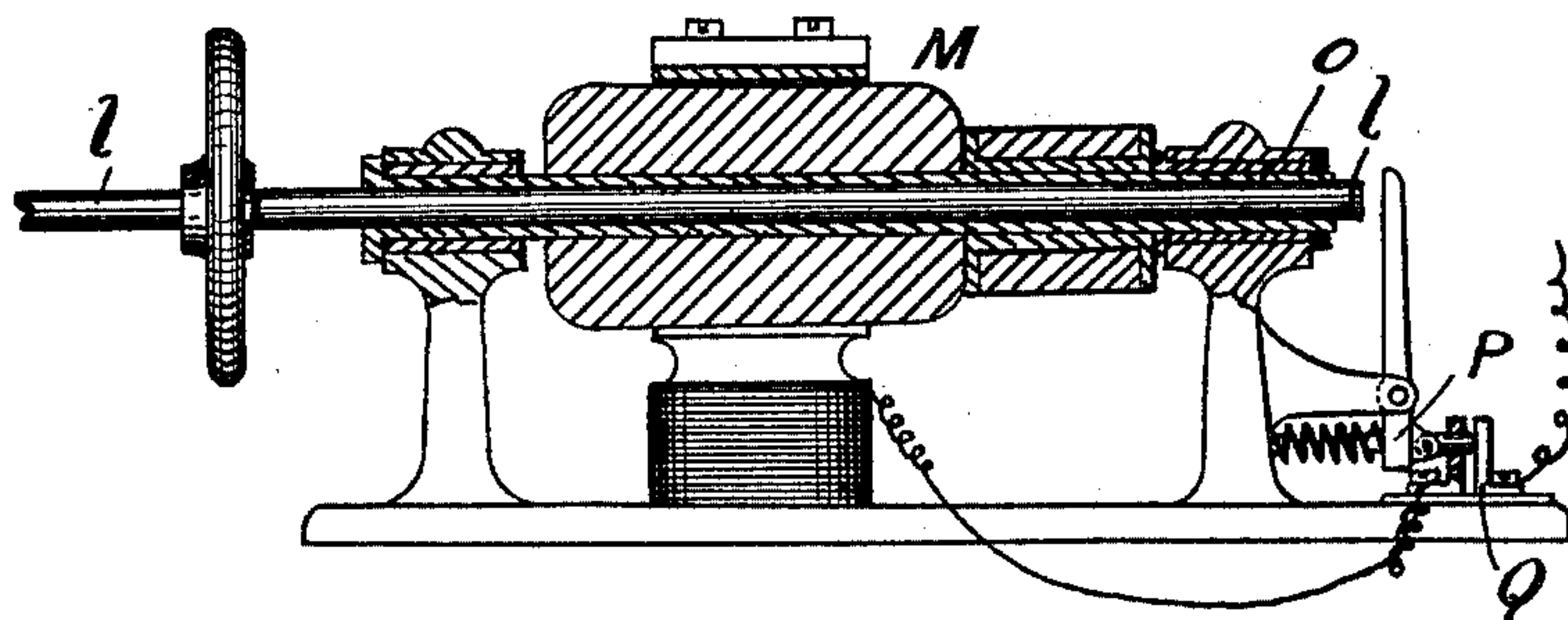
T. MOODIE.

APPARATUS FOR CLOSING WATER TIGHT BULKHEAD DOORS.

No. 592,430.

Patented Oct. 26, 1897.

FIG. 3.



Witnesses:  
W. C. Pinckney  
C. Holloway

Inventor:  
Thomas Moodie,  
By J. M. Doreen  
Attorney.



# UNITED STATES PATENT OFFICE.

THOMAS MOODIE, OF HAMILTON, SCOTLAND.

## APPARATUS FOR CLOSING WATER-TIGHT BULKHEAD-DOORS.

SPECIFICATION forming part of Letters Patent No. 592,430, dated October 26, 1897.

Application filed November 7, 1896. Serial No. 611,339. (No model.) Patented in England July 7, 1896, No. 15,001.

*To all whom it may concern:*

Be it known that I, THOMAS MOODIE, colliery-manager, of Earnock Villa, Hamilton, in the county of Lanark, Scotland, have invented certain new and useful Improvements in Apparatus for Closing Water-Tight Bulkhead-Doors in Steamships, (for which I have obtained a patent in Great Britain, No. 15,001, dated July 7, 1896,) of which the following is a specification.

This invention relates to bulkhead-doors of ships; and it has for its object the provision of apparatus whereby the opening and closing can be effected either from the engine-room or bridge of the ship.

The invention is illustrated by the accompanying drawings, Figure 1 being a side view, and Fig. 2 a front view, of the apparatus.

The apparatus consists of a hydraulic cylinder A, situated in proximity to each of the bulkhead-doors B in a vertical or horizontal position, according to the closing direction of the door, the piston-rod C of which cylinder A is connected to a bracket on the door B. The pressure of water, steam, or compressed air which is admitted to either side of the piston by pipes E F to open or close the bulkhead-doors B is obtained from a ram or rams G, the plunger or plungers H of which are actuated by eccentrics or otherwise from the shaft of a high-speed engine Y, preferably of the admiralty type. Between the hydraulic or other cylinder A and the ram or rams G a cylindrical receptacle or pipe I is situated, to which the branches *a* for the several cylinders A are connected, each branch being provided at this point with a stop-cock J, these being open normally and the pipes *a* being constantly filled with water ready for action. A small snifter-valve (not shown) is or may be provided at the highest level, the inlet end of which is connected by a pipe with any source of water-supply, the water first passing through a wire-gauze filter to prevent any deposit in the valve. The object of this valve is to supply any leakage that may take place, the valve closing automatically upon its seat immediately water under pressure is admitted to the pipes *a*. A safety valve (or valves) is also situated on the cylindrical receptacle or pipe I, to which the branches *a* are connected in order to prevent any accident should the

doors close with less power than has been considered necessary.

The throttle-valve L of the high-speed engine is connected to an electric motor M, the current of which is supplied by the ship's dynamo (not shown) through wires X, the circuit of which is normally broken, contact being made when it is desired to operate the motor by the officer on the bridge or other part of the ship by means of a double-pole switch N.

In the drawings the armature-spindle O is hollow and surrounds the throttle-valve spindle *l*, being keyed thereto, a long slot *l'* being provided in the valve-spindle to allow it to travel in opening the valve L.

The motor is shown horizontal; but it is evident that it may be placed in any position to suit the position of the valve-spindle.

On the bridge or other switch being operated to complete the circuit the motor is started, and as the throttle-valve begins to open to admit steam to the engine its spindle *l* acts upon one end of a double-ended lever P, placed in the circuit, the other end of which lever normally makes connection between two portions of a terminal Q on the wire X by means of a conducting-piece *p* on that end of the lever P. The continued travel of the throttle-valve spindle *l* tilts the double-ended lever P, so that when the valve L has been opened the requisite distance the end of the lever passes out of contact with the portions of the terminal Q, and the circuit being then broken the motor stops and the further opening of the throttle-valve L is prevented.

The officer on the bridge may, if disposed, instead of setting the high-speed engine in operation himself, signal to the engineer, who by opening a valve under his control or by operating the hand-wheel on the valve L can admit steam to the engines Y and close all or any number of bulkhead-doors.

Having now described the invention, what I claim, and desire to secure by Letters Patent, is—

1. Apparatus for closing bulkhead-doors in steamships consisting of a steam-pump whose steam-supply valve is connected to and actuated by an electromotor brought into operation by a switch on the bridge or other part of the ship and a hydraulic or other pressure



cylinder connected to each bulkhead-door and whose plunger is actuated by fluid under pressure supplied by the pump substantially as described.

5 2. In apparatus for closing bulkhead-doors in steamships the combination of a hydraulic or like pressure cylinder having its piston-rod or plunger connected to the bulkhead-door, a ram or pump operated by a steam-  
10 engine to supply fluid under pressure to the hydraulic cylinder, an electromotor having its armature-spindle arranged to operate the steam-supply valve of the engine and con-  
15 ductors provided with switches on the bridge and at other suitable points for bringing the electromotor into operation substantially as described.

3. In apparatus for closing bulkhead-doors

in steamships, the combination with a steam-  
pump adapted to transmit power for actuat- 20  
ing the door, of an electromotor having its armature-spindle connected to the steam-supply valve of the engine and adapted by the  
action of the motor upon the throttle-valve  
to open it and admit steam to a high-speed 25  
engine provided with rams which supply fluid under pressure to the cylinders, the motor  
by its rotation opening a throttle-valve to ad-  
mit steam to the engine, substantially as de-  
scribed. 30

Signed at Hamilton, in the county of Lan-  
ark, this 19th day of October, 1896.

THOMAS MOODIE.

Witnesses:

WALLACE FAIRWEATHER,  
JNO. ARMSTRONG, Jr.