

(No Model.)

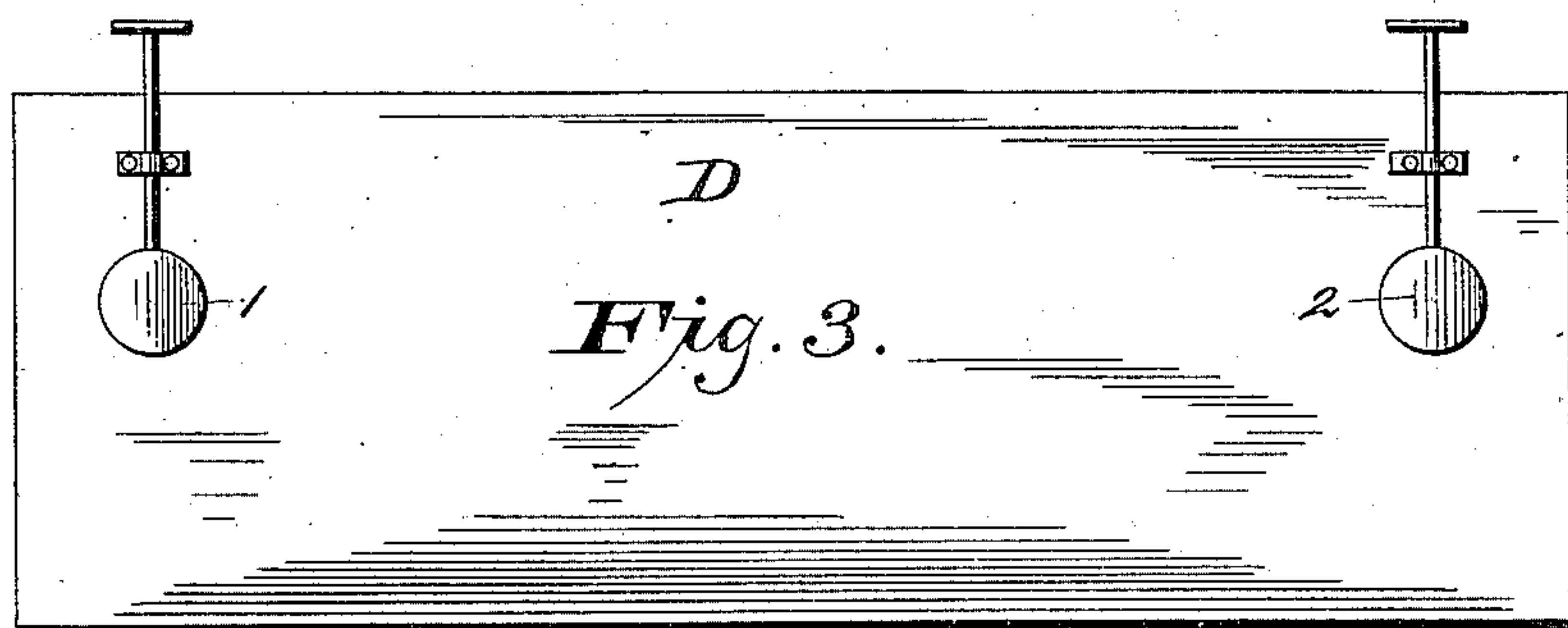
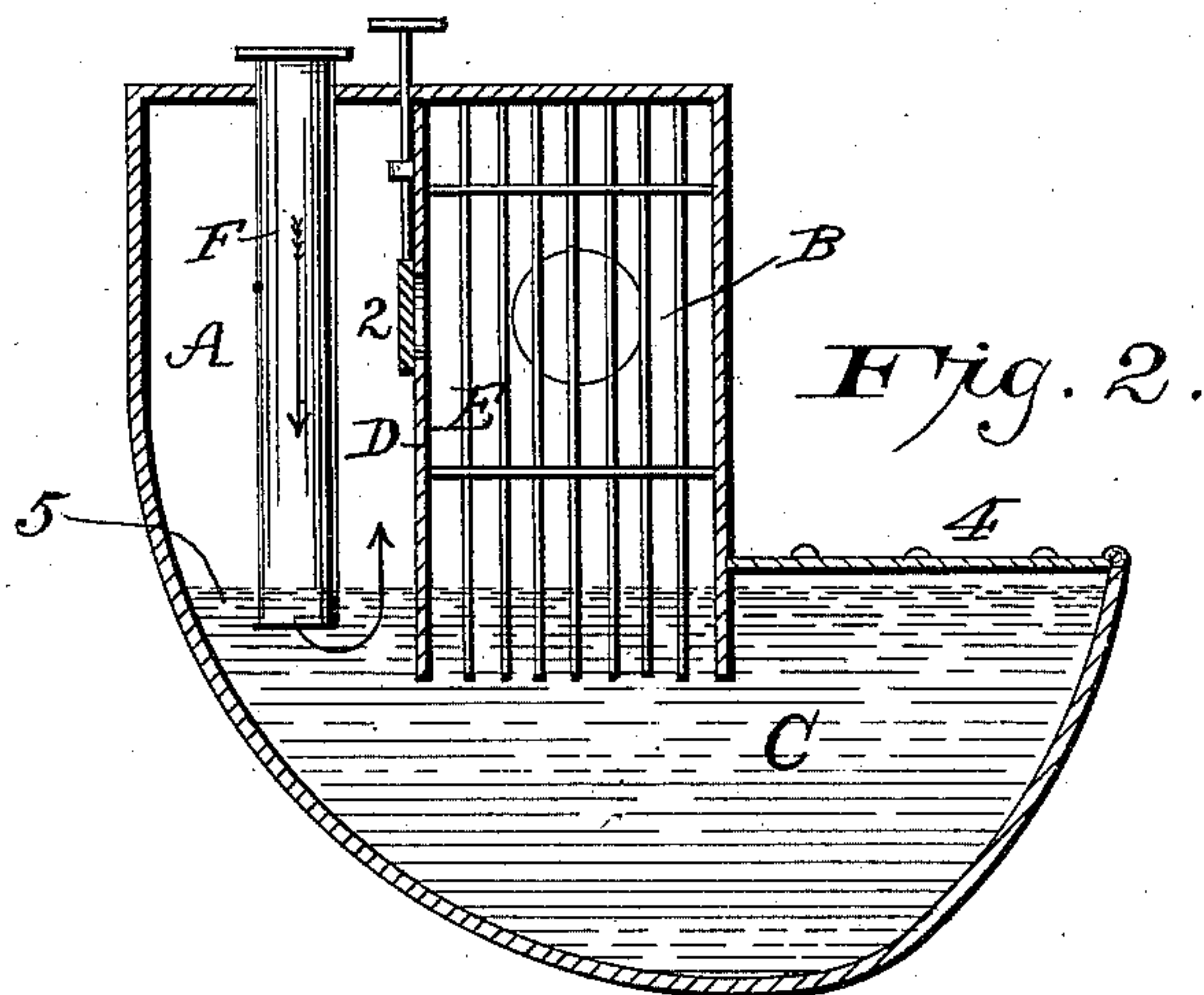
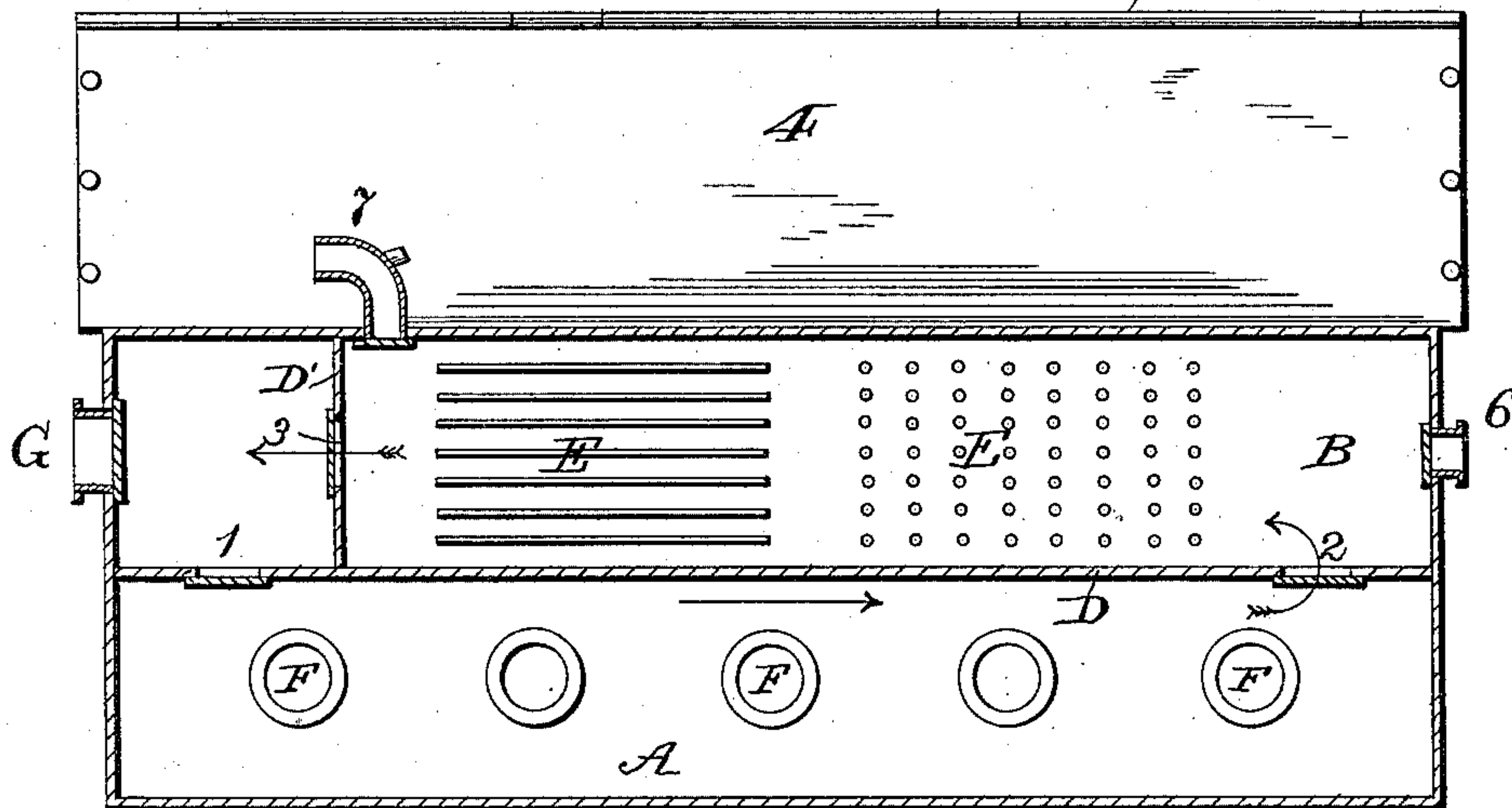
W. R. BEAL.

HYDRAULIC MAIN FOR GAS WORKS.

No. 307,619.

Patented Nov. 4, 1884.

*Fig. 1.*



Witnesses:

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# UNITED STATES PATENT OFFICE.

WILLIAM R. BEAL, OF NEW YORK, N. Y.

## HYDRAULIC MAIN FOR GAS-WORKS.

SPECIFICATION forming part of Letters Patent No. 307,619, dated November 4, 1884.

Application filed June 20, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM R. BEAL, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Improvement in Hydraulic Mains for Gas-Works, of which the following is a specification.

The object of my invention is to combine in a hydraulic main effectual means for the elimination of the tarry substances contained in the crude gas as it passes from the retorts, with facilities for the removal of the thick tarry deposits without in any way interfering with the manufacture of the gas. I attain this object by constructing a hydraulic main, preferably divided by a vertical partition or partitions into two or more longitudinal chambers, said partitions at the lower edge sealed in the liquid of the main, and provided above the water-level with a communicating valve or valves, so that the chambers may be used together as gasways and for the condensation and elimination of the tarry substances, or shut off from each other by the closing of the valves. The chamber in which the dip-pipes enter I call the "primary chamber." The other I term the "secondary chamber." In the secondary chamber I arrange intercepting-surfaces—such as screens, bars, or continuous surfaces wetted by condensation or other means—so as to carry down into the fluid contained within the main the tarry substances sought to be eliminated from the gas. The two-chambered hydraulic main is accessible below the water-line for the removal of tarry deposits through a cleaning-chamber opening into the secondary chamber and constructed longitudinally therewith, or through plates or lids in the secondary chamber above the water-level.

In the drawings, Figure 1 represents a plan view of the improved hydraulic main. Fig. 2 represents a transverse vertical section of the main, showing the intercepting-surfaces in the secondary chamber and the cleaning-chamber adjacent thereto. Fig. 3 represents the partition dividing the main, having openings and valves therein.

Like letters and figures indicate like parts.

A is the primary chamber of the hydraulic

main, and F F the dip-pipes which are sealed in the fluid therein, the water-level within being indicated by 5 in Fig. 2.

B is the secondary chamber, opening into A below the line of partition D.

1 and 2 indicate the openings provided with valves in said partitions, and through which the gas passes from A to B.

D is a vertical partition acting as a seal, set transversely in secondary chamber B, and is provided with an opening, 3, having a valve.

E E are the intercepting-surfaces, in contact with which the gas passes on its way through the chamber. By closing valve 1 and opening valves 2 and 3 it will be seen that the gas passes, in the direction of the arrow, into the secondary chamber B, through opening 2; thence in contact with the intercepting-surfaces E, and through opening 3 into the outlet-pipe G.

For the purpose of examining, cleansing, and repairing the secondary chamber, it may be disconnected from the primary chamber, without stopping the manufacture of gas, by opening valve 1 and closing valves 2 and 3.

I arrange the secondary chamber with inlet and outlet pipes 6 and 7, provided with valves, through which steam may be introduced or discharged therefrom, to assist, when necessary, in cleansing the gas and steam or air for emptying the chamber of gas.

C is the cleaning-chamber, provided with removable cover 4. This chamber has preferably sides sloping toward the bottom of the hydraulic main, so as to facilitate the introduction of the cleaning-tools and the removal of the tarry deposits. It will be seen that the water-level of the main is maintained within the cleaning-chamber, and that the outer wall of the main extends sufficiently below the surface of the fluid to effectually seal the chamber against the escape of gas.

While I do not confine myself to any particular form of main, I prefer to have the bottom of the main sloping toward the cleaning-chamber, so that the tarry deposits will gravitate toward the point where they may be most readily removed.

The cleaning-chamber may be dispensed with, and removable plates in the side of the



secondary chamber close to the water-level may be substituted therefor.

The intercepting-surfaces are kept in position in the secondary chamber by any approved means, and can be so arranged as to be easily examined or replaced through removable plates, as occasion may require.

I do not confine myself to the use of a single secondary chamber, as two or more may be conveniently employed for the purpose designed, in connection with the dip-pipe or primary chamber.

What I claim as new and of my invention, and for which I desire to secure Letters Patent of the United States, is—

1. In a hydraulic main having inlet and outlet pipes, a vertical longitudinal partition provided with valves for the passage of gas, said partition sealed in the liquid of the main, and dividing said main into longitudinal chambers for the passage and cleansing of gas, substantially as and for the purposes set forth.

2. In a hydraulic main, a longitudinal chamber separated from the chamber into which the dip-pipes project by a partition having openings therein provided with valves, said partition sealed by the liquid in the main, in combination with a cleaning-chamber opening into said main below the water-level, substantially as and for the purposes set forth and described.

3. In a hydraulic main, the combination of chambers A and B, partition D, having valves therein, cleaning-chamber C, with dip-pipes and outlet-pipes, substantially as set forth.

4. In a hydraulic main having a cleaning-chamber connected therewith, the combina-

tion of chambers A and B, partitions D and D', valves 1 2 3, with dip-pipes and inlet and outlet pipes 6 and 7, substantially as set forth.

5. In a hydraulic main provided with a cleaning-chamber, the combination of partitions D D', having valves therein above the water-line for the passage of gas, chambers A and B, communicating with each other through said valves and below the partitions, intercepting-surfaces-E, and dip-pipes and inlet and outlet pipes, arranged and combined substantially as set forth and described.

6. In a hydraulic main, two or more longitudinal chambers separated by a vertical partition sealed in the liquid of the main, and connected by means of a valve or valves, so that either or both or all chambers may be used for the cleansing of gas on its passage from the dip-pipes, with openings provided with removable plates or lids for cleaning out the main without stopping the manufacture of gas, substantially as set forth.

7. In a hydraulic main, in combination with the dip-pipe or primary chamber, and communicating therewith below the water-line, one or more chambers, the gas-spaces of said chamber being separated by a water seal or seals, and communicating openings or valves connecting said gas-spaces above the water-line or disconnecting them at will, so arranged and operated that all the chambers may be used for the cleansing or passage of gas, or any one or more of the secondary chambers may be separated from others in active use.

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Witnesses:

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THEO. H. ROTH.