

(No Model.)

2 Sheets—Sheet 1.

J. T. PHELAN.
FUMIGATOR.

No. 480,624.

Patented Aug. 9, 1892.

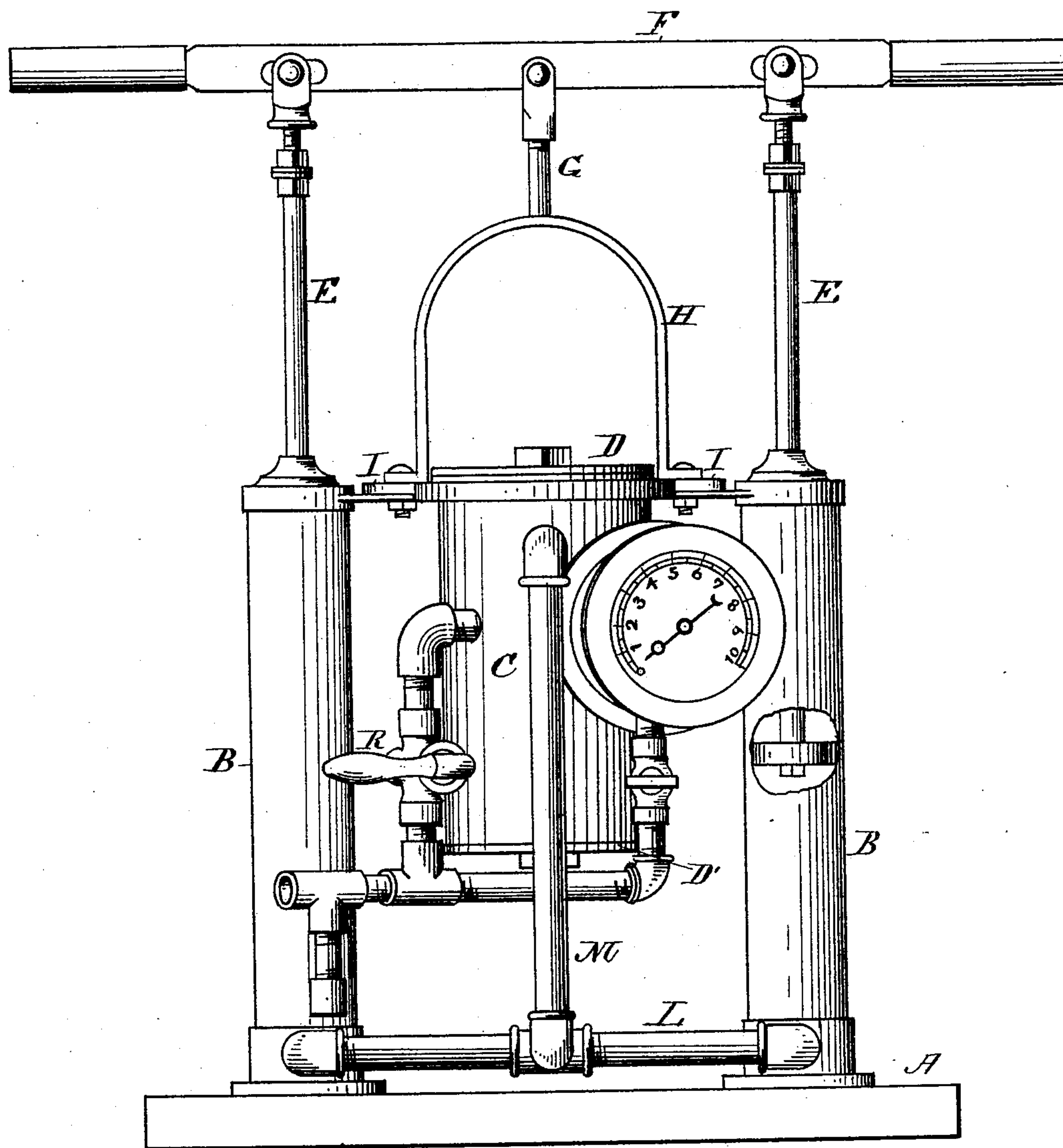


Fig. 1.

WITNESSES

Frankly. Parker
Edward S. Day

INVENTOR

John T. Phelan
by his attorney
Abby L. Hayes

(No Model.)

2 Sheets—Sheet 2.

J. T. PHELAN.
FUMIGATOR.

No. 480,624.

Patented Aug. 9, 1892.

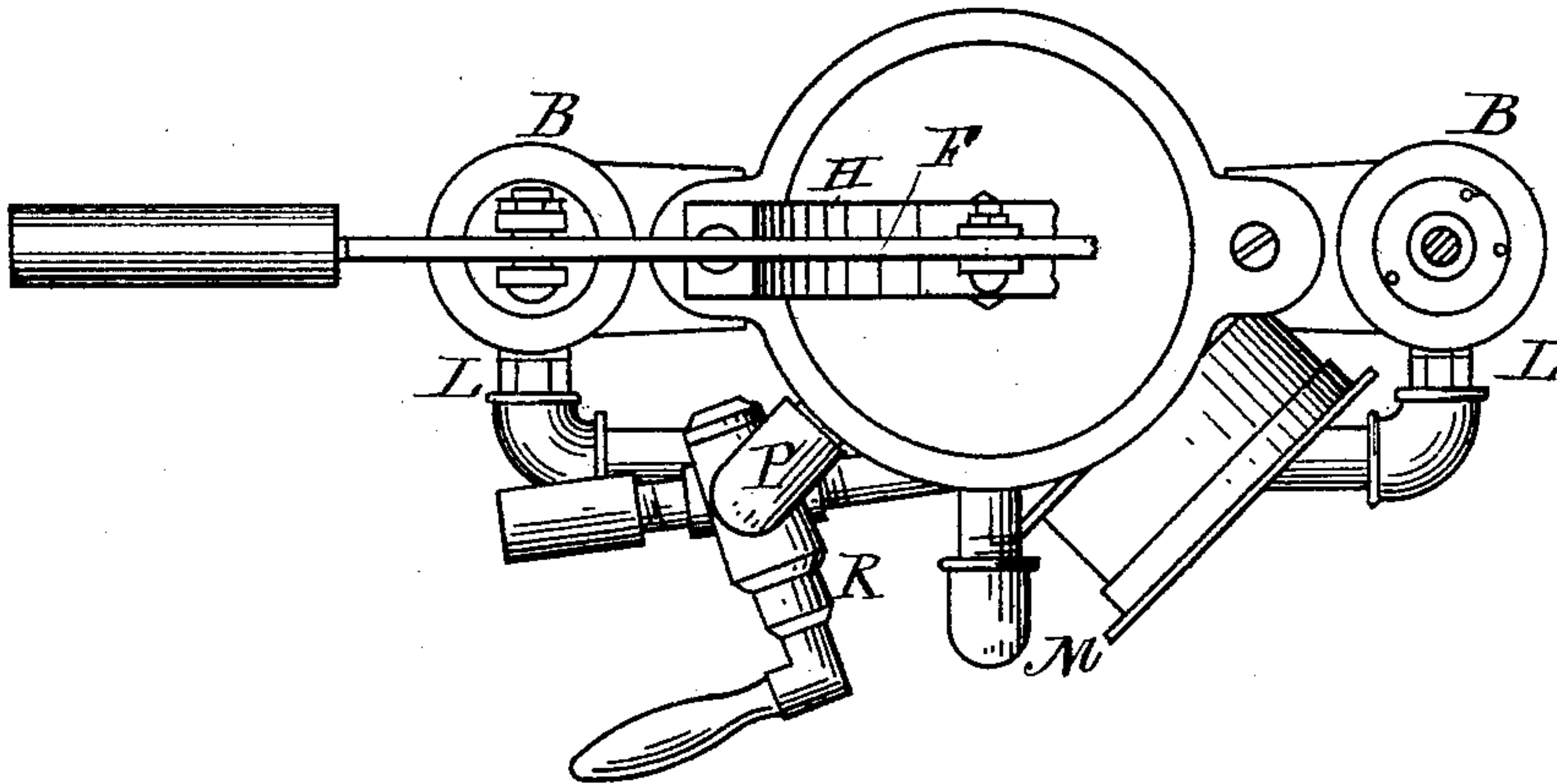
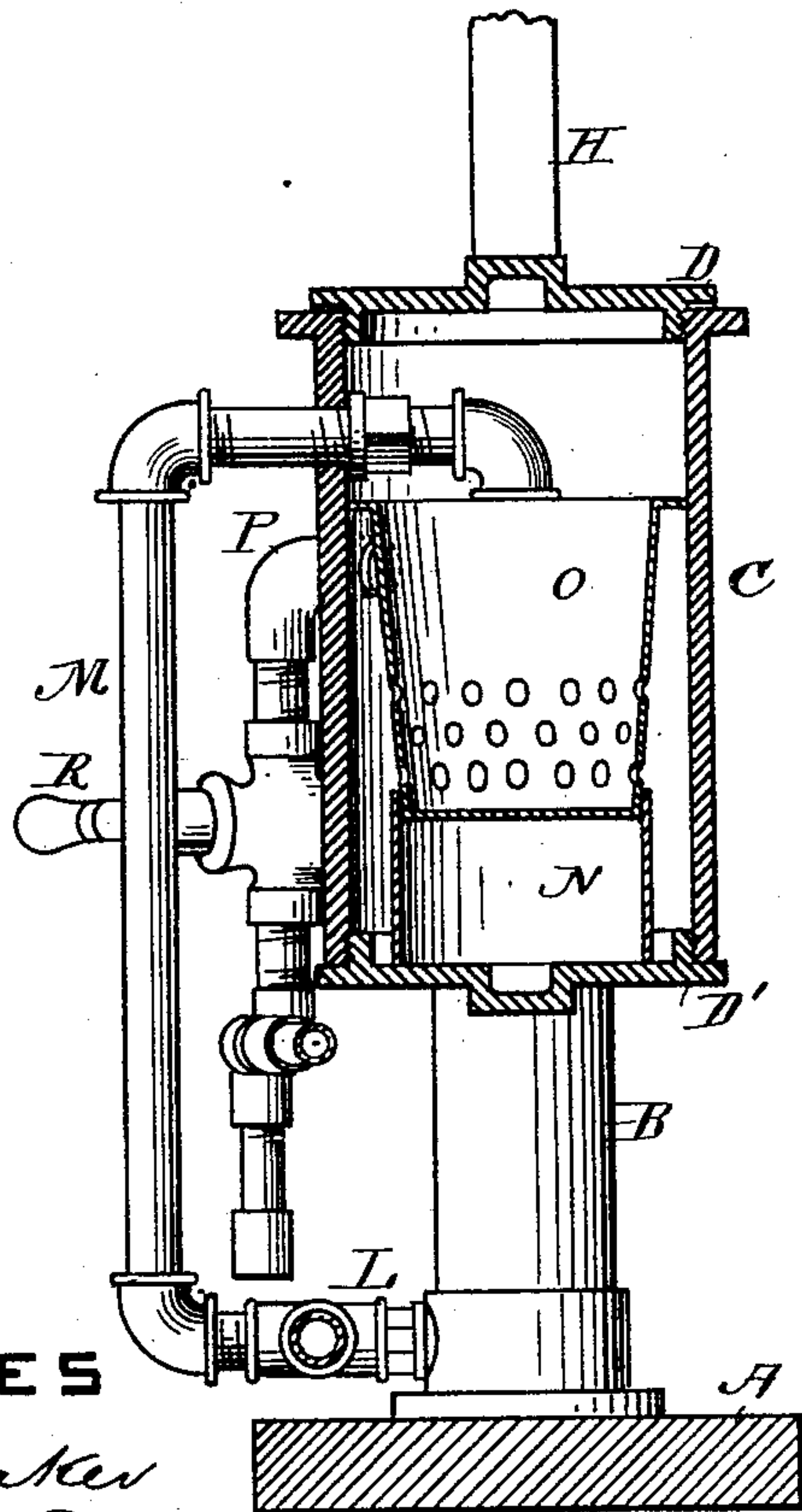


Fig. 2.



WITNESSES

Frank H. Parker
Edward S. Day

Fig. 3.

INVENTOR

John T. Phelan
by his attorney
Aly. C. Hayes

UNITED STATES PATENT OFFICE.

JOHN T. PHELAN, OF CAMBRIDGE, MASSACHUSETTS.

FUMIGATOR.

SPECIFICATION forming part of Letters Patent No. 480,624, dated August 9, 1892.

Application filed July 3, 1891. Serial No. 398,359. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. PHELAN, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Apparatus for Impregnating Air with Gas, Smoke, or Vapor, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of this invention is the production of a device whereby a large volume of air impregnated with tobacco-smoke, sulphurous-acid gas, or any other disinfecting gas or vapor, the vapor of oil of peppermint, or any other volatile oil may be produced under pressure or otherwise, so as to be available for use in testing the tightness of sewer-pipes, for disinfecting pipes or rooms by filling them with a disinfecting gas or vapor, or for destroying insects in green-houses by filling the latter with tobacco-smoke.

To this end the invention consists, first, in the combination, substantially as and for the purpose set forth, of the chamber of a receptacle for the burning tobacco-stems or other source of smoke, gas, or vapor, arranged under the mouth of the pipe through which air is forced into the chamber, separated from the inner walls of the chamber by a space with which the eduction-pipe communicates, and having in it near its base a series of perforations through which the smoke, gas, or vapor passes into the space between the receptacle and the inner walls of the chamber; and, second, in the combination, substantially as and for the purpose hereinafter more fully set forth, with the chamber aforesaid, of two vertical air-pumps supported upon a common base and arranged on opposite sides of the chamber and operated alternately by the same handle, whereby a compact, portable, and easily-operated apparatus is obtained.

The accompanying drawings represent an apparatus which embodies the principle of my invention, and in which—

Figure 1 is a view in elevation. Fig. 2 is a plan view, and Fig. 3 is a view showing the chamber in vertical sections and the arrangement of the induction and eduction pipes.

In the several figures the same letters refer to the same parts.

Referring to the drawings, A is a suitable base-plate, and B B are two vertical condensing air-pumps of the ordinary construction supported upon this base.

C is a chamber, of metal, preferably cylindrical, which is located between the air-pumps and is attached at each side to the top, the cylinder of the air-pump on that side. The top and bottom of the chamber C are each formed by a plate D D, which is capable of being screwed to the walls of the cylinder, thus making it gas-tight. In order to permit the convenient removal of the bottom of the cylindrical chamber C, the length of the cylinder is preferably only about two-thirds the length of the cylinders of the air-pumps.

E E are the piston-rods of the air-pumps, and these rods are attached to a horizontal bar F, which bar is pivoted to a rod G, which is attached to the top of an arch of metal H, attached at each end to ear-pieces I, extending out from the top of the walls of the chamber C or to the top of the pump. This arch is used for the purpose of permitting the convenient removal of the top D of the chamber C.

Upon each end of the bar F is a suitable handle, which is grasped in each hand when it is desired to oscillate the bar and operate the pumps. The bottom of each cylinder communicates with the external air by means of an opening closed by a suitable valve, and from near the bottom of each cylinder extends a pipe L L, which is connected to the vertical pipe M, which opens into the chamber C near its upper part. This pipe M extends into the chamber C and is then bent downward.

Secured to the bottom plate D' is a ring of metal N, into which is fitted the bottom of the conical receptacle O, which at its upper part is provided with a lip, by which it is caused to fit tightly to the walls of the chamber and whereby a space is formed between the receptacle O and the inner walls of the chamber. The pipe P, extending out from this chamber, communicates with this space,

and in this pipe is a suitable stop-cock R. To the end of this pipe may be attached a rubber tube or any other pipe, by means of which the smoke, gas, or vapor produced in the chamber C can be carried to the desired place, and there may also be a branch pipe in which may be placed a pressure-gage.

I have represented the receptacle as placed between two air-pumps, the pistons of which are attached to a common handle, which is grasped by both hands. By this means I obtain a convenient machine, which is very easily operated; but I do not limit my invention to this particular form of apparatus, but can use any suitable form of pump for forcing air into the chamber, which contains the tobacco-stems or the other smoke or vapor producing material.

When tobacco-stems are used, they are placed in the receptacle O and are then ignited by placing a burning coal upon them or in any other suitable manner. Air is then forced through the pipe M by means of the air-pumps or in any other suitable manner and a large volume of smoke is produced, which passes through the perforations in the walls of the receptacle O into the space between the receptacle O and the chamber C, and thence to the pipe P. The ashes fall into the receptacle N, which is attached to the bottom D' of the chamber C. If it is desired to produce sulphurous-acid gas, sulphur may be burned in the receptacle O, or, if any volatile vapor is to be produced—as, for example, the vapor of oil of peppermint—a sponge or any other suitable article saturated with this substance producing the volatile vapor may be placed in the receptacle O and a current of air from the pipe M may be forced onto the same. The pressure-gage is convenient as indicating the amount of pressure at which the smoke or vapor escapes from the pipe P.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, substantially as and for the purpose set forth, of the chamber C, removable plates D D' for sealing the chamber C air-tight at top and bottom, the conical receptacle O, fitting tightly at its top into the chamber, but below separated from the walls of the chamber by a space, perforations in said receptacle, a pipe M, opening above the receptacle, a pipe P, communicating with the space between the receptacle and the walls of the chamber C and provided with a stop-cock, an air-pump, or any other device for supplying air under pressure and connected to the pipe M, and a chamber N for receiving the bottom of the receptacle and secured to the removable plate D'.

2. The combination, substantially as and for the purpose set forth, of the base-plate A, the vertical air-pumps B B, supported upon the same, the chamber C, supported between the air-pumps, the arch H, secured at each end, respectively, to opposite sides of the chamber C, the handle F, pivoted to the arch H and attached to the rods E E, the cross-pipe L, connecting the pumps B B at the bottom, the vertical pipe B, extending into the chamber C and opening above the receptacle O, the pipe P, extending from the chamber C and opening into the space between the receptacle and the chamber, and the stop-cock R in the said pipe.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN T. PHELAN.

Witnesses:

ALEX. L. HAYES,
AUGUSTINE J. DALY.