

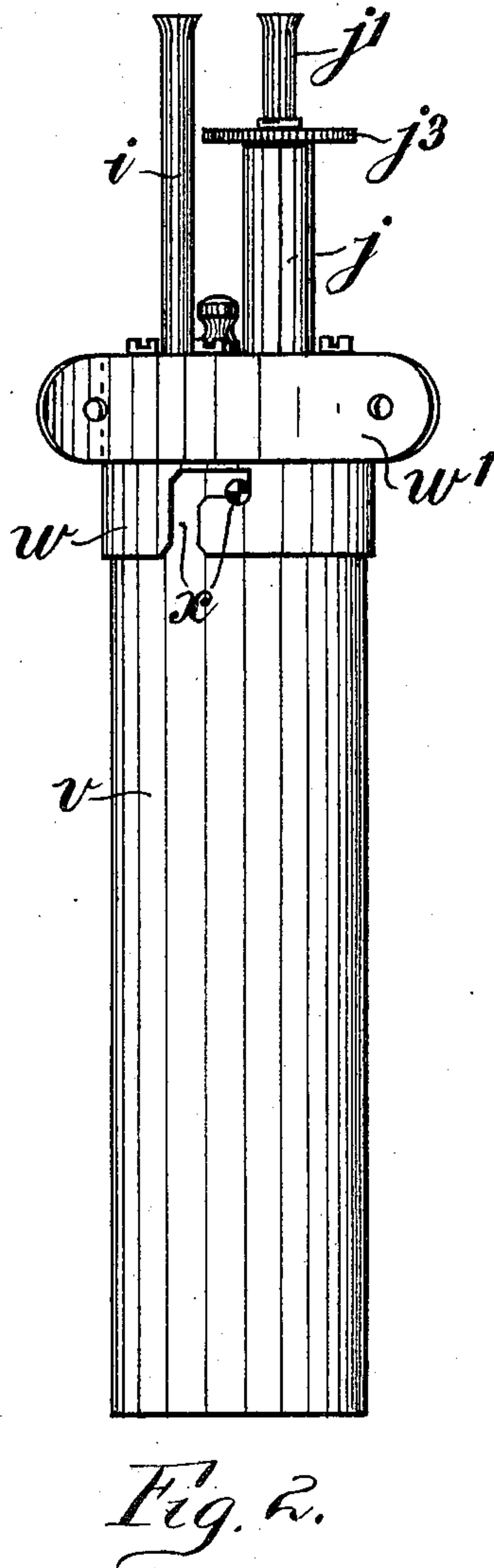
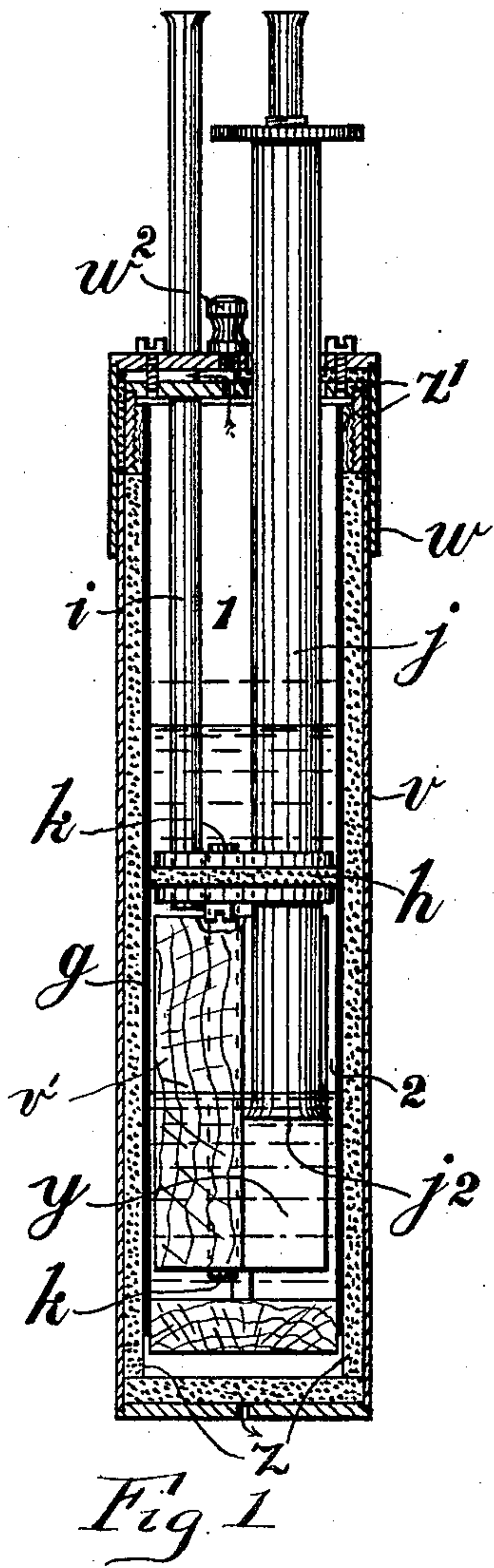
J. M. TOURTEL & W. R. MEALING.
 DEVICE FOR AUTOMATICALLY LIGHTING AND EXTINGUISHING GAS LIGHTS BY VARYING
 THE PRESSURE IN THE MAINS.

903,633.

APPLICATION FILED DEC. 21, 1907.

Patented Nov. 10, 1908.

2 SHEETS—SHEET 1.



Witnesses:
 David Walter Brown
 Walter N. Harris

Inventors:
 John Mealy Tourtel,
 William Robert Mealing.
 By *W. H. de Vos*
 Attorney.

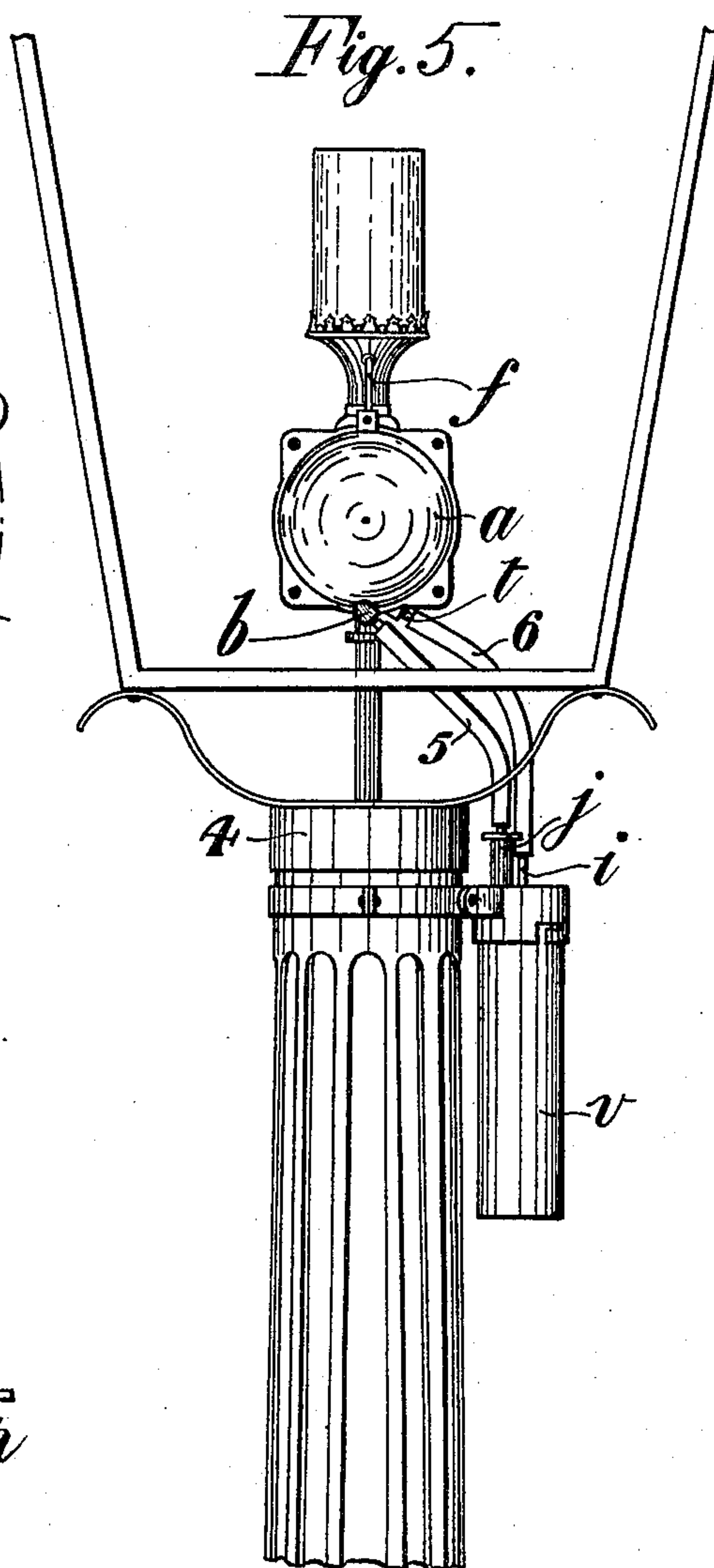
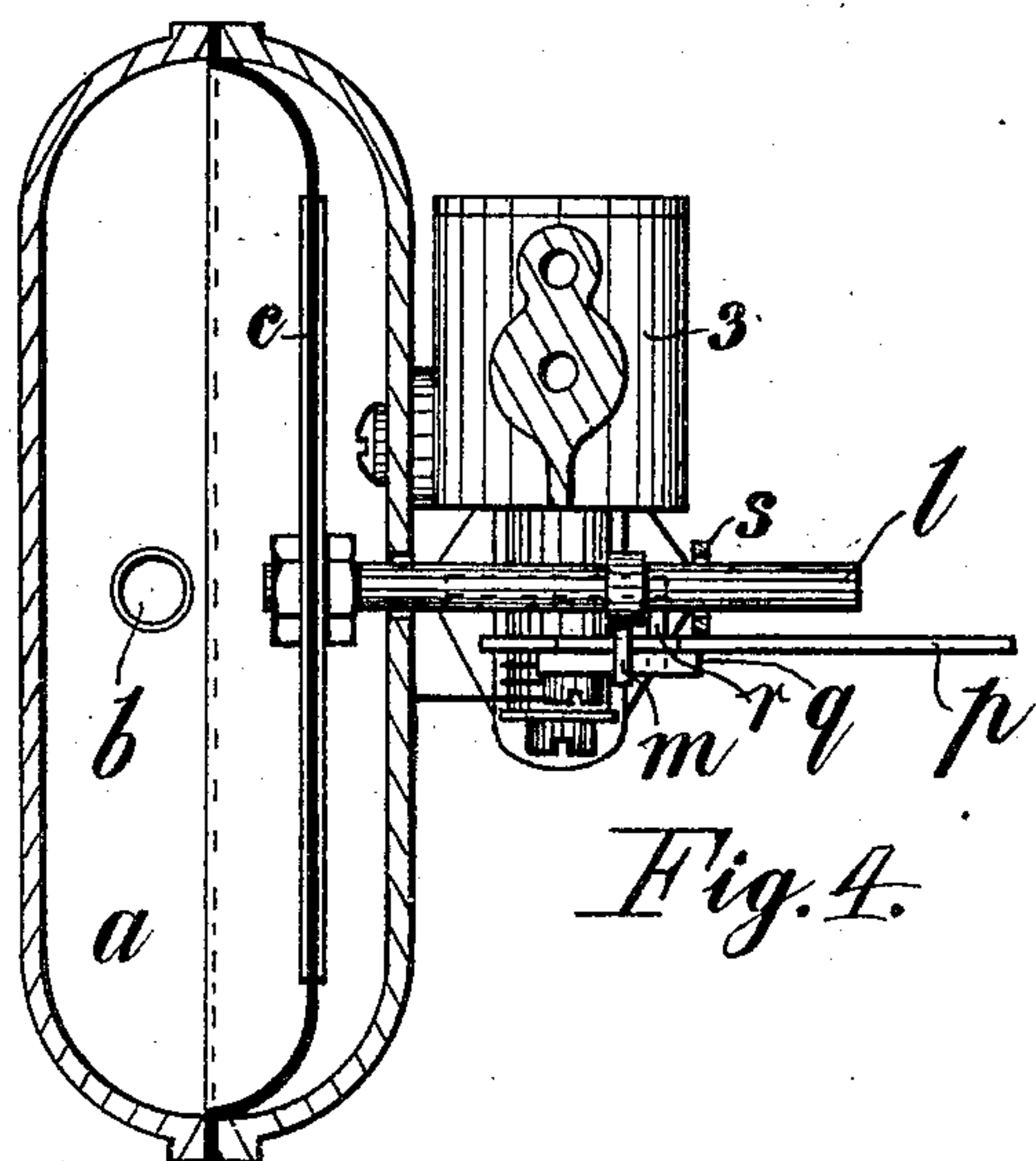
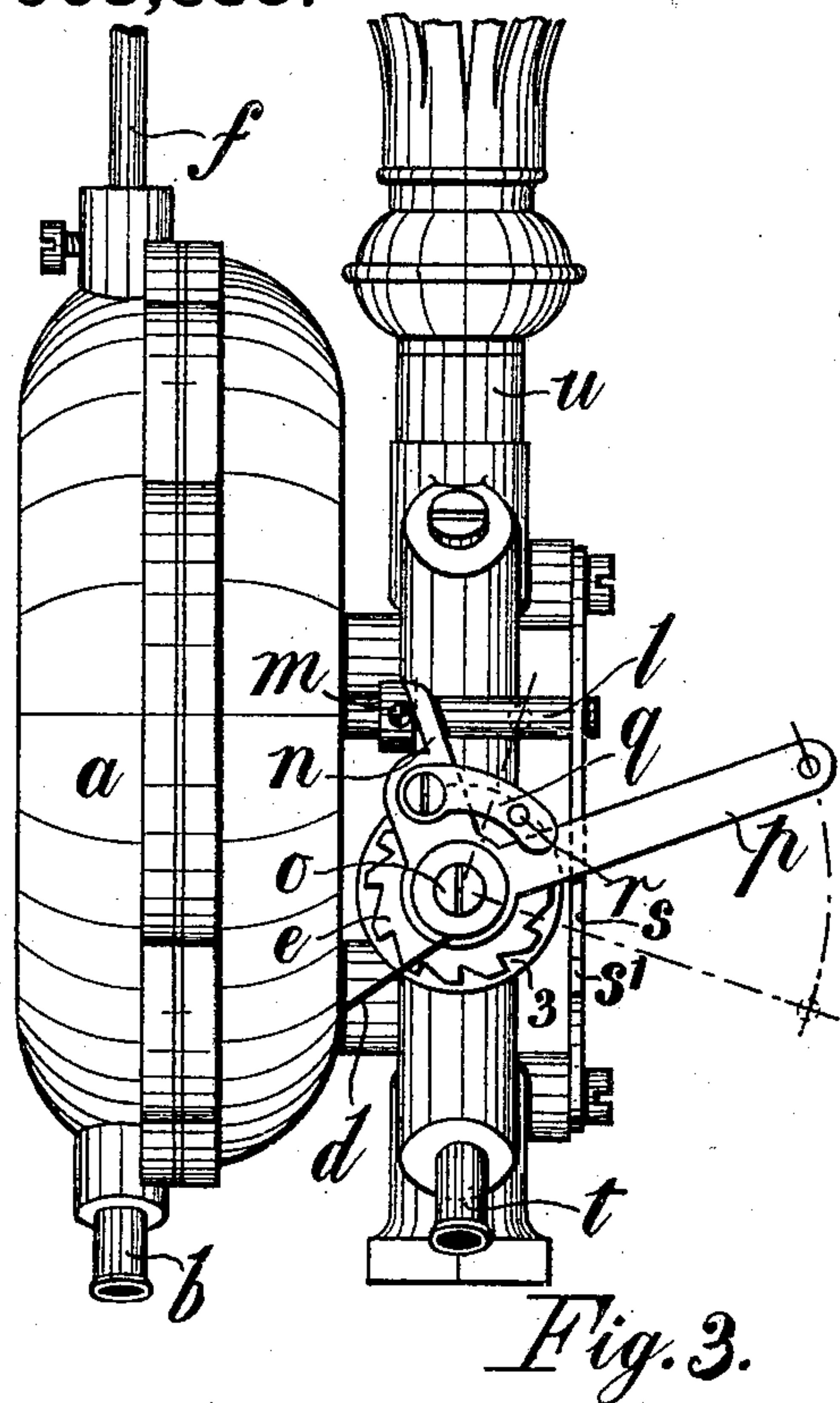
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UNITED STATES PATENT OFFICE.

JOHN MESNY TOURTEL AND WILLIAM ROBERT MEALING, OF LONDON, ENGLAND.

DEVICE FOR AUTOMATICALLY LIGHTING AND EXTINGUISHING GAS-LIGHTS BY VARYING THE PRESSURE IN THE MAINS.

No. 903,633.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed December 21, 1907. Serial No. 407,513.

To all whom it may concern:

Be it known that we, JOHN MESNY TOURTEL, of 57 Chiswell street, London, England, consulting engineer, and WILLIAM ROBERT MEALING, of 19 Trafalgar road, Twickenham, London, England, of no occupation, both citizens of the United Kingdom of Great Britain and Ireland, have invented certain new and useful Improvements in and Relating to Devices for Automatically Lighting and extinguishing Gas-Lights by Varying the Pressure in the Mains, of which the following is a specification, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to apparatus for controlling gas lights at a distance by temporarily increasing the pressure in the gas mains, and refers particularly to that part of the apparatus known as the controller which is used to govern the operation of a diaphragm, liquid sealed bell, or the like.

The invention consists of improvements in that kind of controller in which liquid containing chambers are employed, one of which is connected to the gas supply, and another is open to the atmosphere, these chambers being connected by an opening or tube. In this form of controller when the gas pressure is increased beyond the ordinary maximum the liquid is forced from one chamber to another, and uncovers or unseals a pipe or outlet through which the gas, under pressure, passes to the diaphragm or bell and effects the desired turning on or off of the gas. Hitherto these controllers have been of complicated construction, or their liquid sealing chambers have been arranged side by side in which case three chambers have been employed into one of which the gas first enters and forces down the liquid thus causing it to rise in the other chambers until the water level drops to a hole between this gas chamber and one of the other chambers thus causing the water in this other chamber to drop and allow the gas to pass through these two chambers to the diaphragm or bell, the third chamber acting as a reservoir or liquid holder.

The chief objects of our invention are to provide a more efficient and compact controller, having simple means of adjustment.

In our improved controller we employ two chambers one of which is connected to the

gas supply and the other to the diaphragm or liquid sealed bell a tube serving to connect the two together. These chambers are superimposed and the connections and parts are arranged in the improved manner herein-after described.

By preference our controllers are of cylindrical form and they may be provided with clamps or clips by which they can be attached to lamp posts, brackets or the like. These cylinders are preferably made of glass inclosed in a metal case with suitable packing between the glass and the metal and are preferably constructed as follows:—The glass cylinder is divided into upper and lower chambers by any suitable means such as a partition formed of an elastic washer or disk pressed between two metal plates so as to effect the desired water-tight division. The gas inlet tube enters the upper chamber and passes through the partition and terminates in the lower chamber. A second or liquid tube passes from near the bottom of the lower chamber through the partition to the upper chamber. A third or outlet tube passes from the lower chamber through the partition and out of the controller preferably at the top where it is connected to the diaphragm or the like. This outlet tube may be raised or lowered through the partition for purposes of adjustment. When the gas is at normal pressure, the lower end of the outlet tube is sealed, but upon the pressure being increased, the gas forces the water through the liquid tube, and having thus unsealed the outlet tube passes through it to the diaphragm or the liquid sealed bell.

We will now describe our invention with reference to the accompanying drawings in which

Figure 1 shows a central vertical section of a controller constructed according to our invention. Fig. 2 shows a side elevation of our controller; Fig. 3 shows a view in elevation of the diaphragm case attached to the supply pipe of a burner. Fig. 4 is a sectional view of the same but with the diaphragm in position under gas pressure. Fig. 5 is a view on reduced scale of the top of a gas lamp column having an incandescent burner and a diaphragm, and shows our invention applied thereto.

The controller shown consists of case *v* with cover *w* held by bayonet catch on pin

x and having filling plug w^2 . A tube g preferably of glass is arranged in this case and is secured to inner cap z^1 by plaster of paris or the like, and protected by packing z , and closed at its lower end by a plug.

A partition h consisting of an elastic disk pressed between two metal plates divides the tube into upper compartment 1, open to the air, and lower compartment 2. The inlet tube i passes through partition h into compartment 2, which is connected by liquid tube k with compartment 1. The sealing tube j is shown passing through compartment 1 into 2, where it is sealed by the fluid. This tube is provided with a milled nut j^3 to facilitate raising or lowering it through the partition for the purpose of adjustment. When abnormal or extra gas pressure is applied it enters the chamber 2 by the tube i and forces the liquid up tube k into chamber 1, thus unsealing the lower end j^2 of the tube j which allows the gas to pass through that tube to the diaphragm and operate it, as before described.

The filling plug w^2 closes a hole in the cover w and below it a corresponding hole is provided in the cap z^1 which hole serves for filling, and also serves as an air hole, the air being allowed to pass through the packing and through a hole in the bottom of case v . Screws are provided to hold the cover w and the cap z^1 together, and to squeeze a leather or like joint which has filling and air passages in it. A block v^1 of wood, china, or other material, is shown in the chamber 2, and is for the purpose of reducing the liquid area of the same so that the movement in level of the fluid is more rapid in chamber 2 than it is in chamber 1.

In Figs. 2 and 3 a is the diaphragm case having inlet pipe b outlet f , and elastic diaphragm c . A spring d outside the same controls the double armed lever $p-n$ pivoted at o and through the arm n presses against a pin m on the diaphragm rod l and holds it back in the case a until the gas pressure against the diaphragm c overcomes the spring and thrusts out the rod l . When this movement takes place the pin m on the rod l pushes against the arm n of lever $p-n$ and turns it as shown by dotted lines. The arm n has a ratchet or dog q of which the pin r engages with a notched wheel e fixed to the tap which supplies the gas burner. At each outward movement of the rod l and the lever $p-n$ the gas tap is given a partial turn, which owing to the construction of the tap is sufficient to alternatively turn on and off the gas or to turn it up and down. A second ratchet or pawl may be employed to prevent the return movement of the wheel e when the gas pressure is removed and the lever $p-n$ is returned by the spring.

s and s^1 are respectively a guide for the rod l and a stop for the lever p . A pipe t is

arranged on the gas supply side of the burner tap and is connected with the inlet pipe i of the controller.

In Fig. 4, the apparatus is shown attached to a gas pillar 4 by a metal strap connected to lugs w^1 Fig. 1. A tube 5 connects the outlet pipe to the diaphragm chamber and tube 6 connects the pipe t with the inlet pipe i . It is of course quite possible to construct the controller in many shapes and tubes i and j need not be passed through one chamber into the other, but either or both can lead direct from the chamber in which they terminate to the outside of the controller.

What we claim and desire to secure by Letters Patent is:—

1. A gas-controller operated by temporary surplus gas-pressure, consisting of a casing divided into a lower, liquid-containing chamber and an upper chamber superimposed upon the lower chamber, the upper chamber being open to the air, means for supplying gas under pressure to the lower chamber; a tube connecting the two chambers and through which liquid passes from the lower to the upper chamber under the action of the gas pressure, and an outlet-tube communicating with the lower chamber and normally sealed by the liquid therein and adapted to be opened by passage of liquid from the lower to the upper chamber.

2. A gas-controller operated by temporary surplus gas-pressure, consisting of a casing divided into a lower, liquid-containing chamber and an upper chamber superimposed upon the lower chamber, the upper chamber being open to the air, means for supplying gas under pressure to the lower chamber; a tube connecting the two chambers and through which liquid passes from the lower to the upper chamber under the action of the gas pressure, and an adjustable outlet-tube communicating with the lower chamber and normally sealed by the liquid therein and adapted to be opened by passage of liquid from the lower to the upper chamber.

3. A gas-controller operated by temporary surplus gas-pressure, consisting of a casing divided into a lower, liquid-containing chamber and an upper chamber superimposed upon the lower chamber, the upper chamber being open to the air, a tube communicating with the lower chamber for supplying gas under pressure thereto, a tube connecting the two chambers and through which liquid passes from the lower to the upper chamber under the action of the gas pressure, and an outlet-tube communicating with the lower chamber and normally sealed by the liquid therein and adapted to be opened by passage of liquid from the lower to the upper chamber.

4. A gas-controller operated by temporary surplus gas-pressure, consisting of a casing

divided into a lower, liquid-containing chamber and an upper chamber superimposed upon the lower chamber, the upper chamber being open to the air, means for supplying
 5 gas under pressure to the lower chamber, a tube connecting the two chambers and through which liquid passes from the lower to the upper chamber under the action of the gas pressure, an outlet-tube communicating
 10 with the lower chamber and normally sealed by the liquid therein and adapted to be opened by passage of liquid from the lower to the upper chamber; a shell containing a diaphragm, said outlet tube communicating
 15 with said shell; and means operated by the movement of the diaphragm to control the movement of gas to a gas-burner.

5. A gas-controller operated by temporary surplus gas-pressure, consisting of a casing
 20 divided into a lower, liquid-containing chamber and an upper chamber superimposed upon the lower chamber, the upper chamber being open to the air, means for supplying gas under pressure to the lower chamber, a
 25 tube connecting the two chambers and through which liquid passes from the lower to the upper chamber under the action of the gas pressure, an outlet-tube communicating with the lower chamber and normally sealed
 30 by the liquid therein and adapted to be opened by passage of liquid from the lower to the upper chamber; a shell containing a diaphragm, said outlet tube communicating with said shell; and means operated by the
 35 movement of the diaphragm to control the movement of gas to a gas-burner, and comprising, in part, a rod connected to the diaphragm and projecting through the diaphragm-shell, a lever pivoted outside the

diaphragm-shell and having a dog carrying 40 a pin, said lever being engaged and moved by the diaphragm-rod, and a ratchet-wheel engaged by said pin for controlling the passage of gas through a gas-burner.

6. A gas-controller operated by temporary 45 surplus gas-pressure, consisting of a casing divided into a lower, liquid-containing chamber and an upper chamber superimposed upon the lower chamber, the upper chamber being open to the air, means for supplying 50 gas under pressure to the lower chamber, a tube connecting the two chambers and through which liquid passes from the lower to the upper chamber under the action of the gas pressure, an outlet-tube communicating 55 with the lower chamber and normally sealed by the liquid therein and adapted to be opened by passage of liquid from the lower to the upper chamber, a shell containing a diaphragm, said outlet tube communicating 60 with said shell; and means operated by the movement of the diaphragm to control the movement of gas to a gas-burner, and comprising a rod connected to the diaphragm and projecting through the diaphragm-shell, 65 a spring-pressed lever pivoted outside the diaphragm shell and having a dog carrying a pin, said lever being engaged and moved by the diaphragm-rod, and a ratchet-wheel engaged by said pin for controlling the pas- 70 sage of gas through a gas-burner.

In witness whereof we have hereunto set our hands in presence of two witnesses.

JOHN MESNY TOURTEL.

WILLIAM ROBERT MEALING.

Witnesses:

WALTER I. SKERTEN,
 GEO. J. B. FRANKLIN.