

(No Model.)

W. C. ROSSNEY.
GAS REGULATOR.

No. 411,062.

Patented Sept. 17, 1889.

Fig. 1.

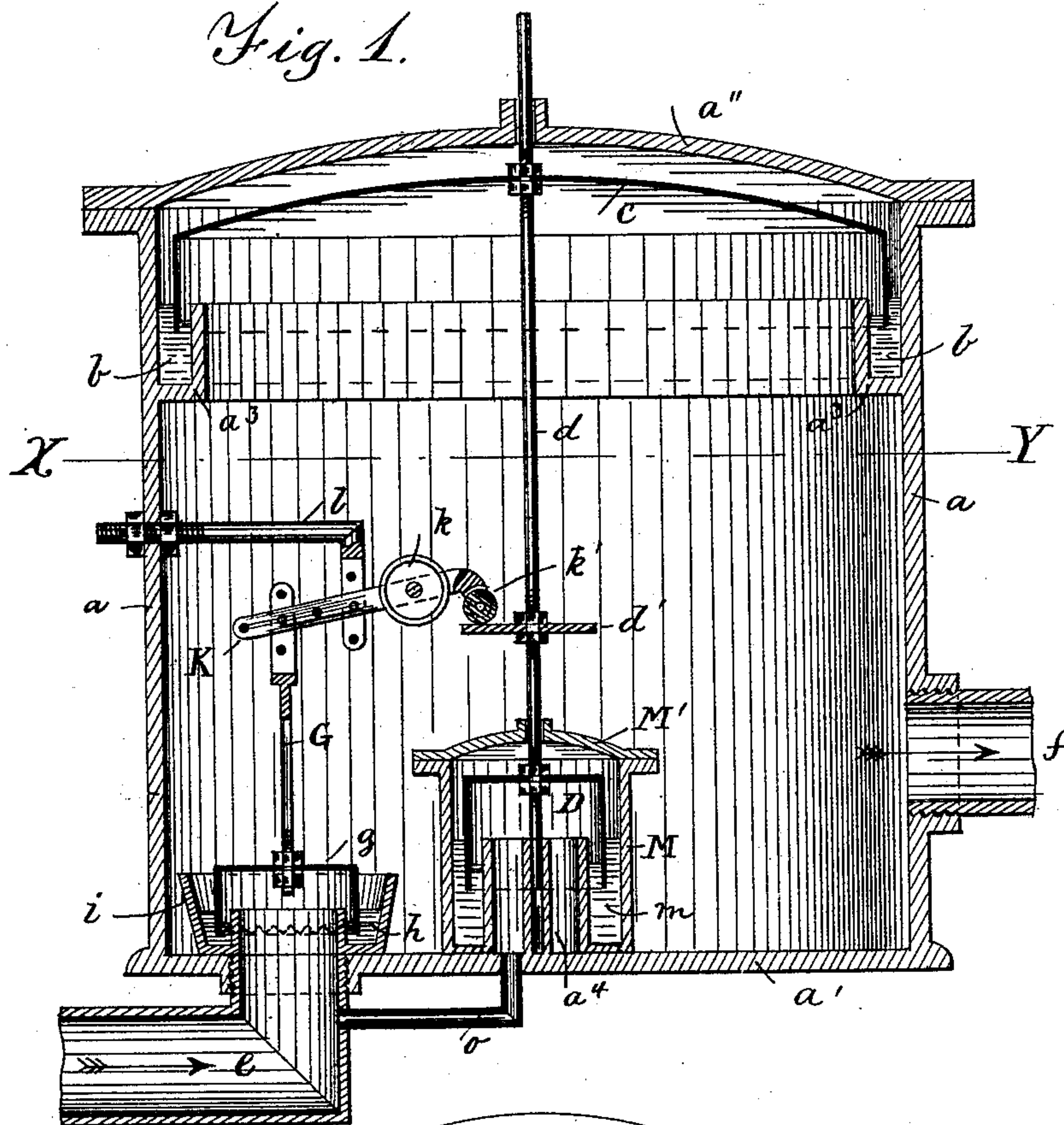
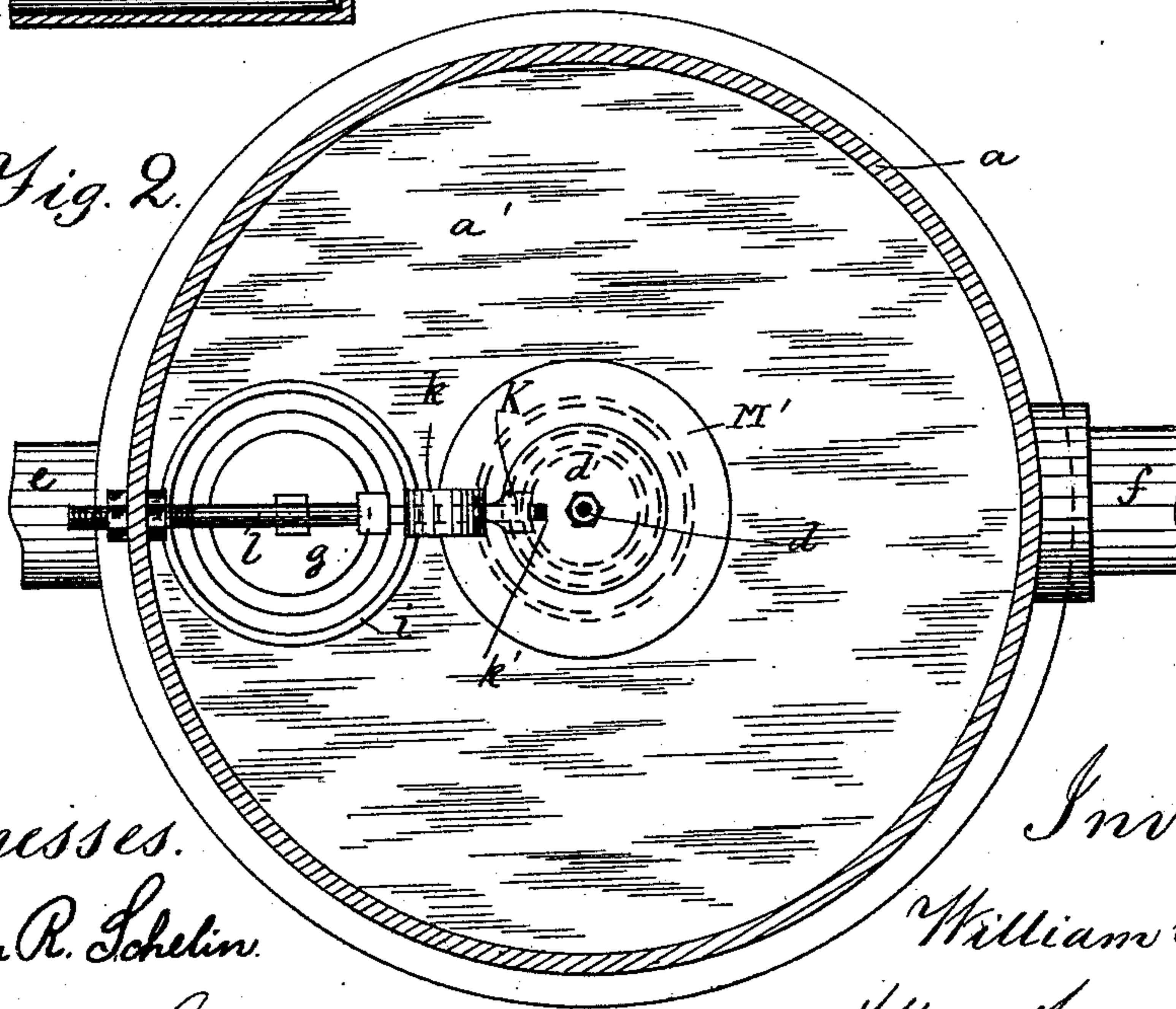


Fig. 2.



Witnesses.

Selma R. Schelin.

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by Alban Andren, his atty.

UNITED STATES PATENT OFFICE.

WILLIAM C. ROSSNEY, OF HYDE PARK, ASSIGNOR OF TWO-THIRDS TO
WILLIAM THRELKELD AND CHARLES L. HUNT, OF BOSTON, MASSA-
CHUSETTS.

GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 411,062, dated September 17, 1889.

Application filed October 2, 1888. Serial No. 287,011. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. ROSSNEY, a citizen of the United States, and a resident of Hyde Park, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Gas-Regulators, of which the following, taken in connection with the accompanying drawings, is a specification.

10 This invention relates to improvements in gas-regulators for the purpose of automatically regulating and controlling the supply of gas delivered to the burners independent of the pressure in the gas main or supply
15 pipe leading from it to the regulator; and the present invention is an improvement on the patents granted to me July 6, 1886, Nos. 344,988 and 344,990, in each of which is shown a single valve adapted to open upwardly
20 against the gas-pressure in the main or gas-supply pipe leading to said valve.

The invention is carried out as follows, reference being had to the accompanying drawings, wherein—

25 Figure 1 represents a vertical section of my improved gas-regulator, some of the parts being shown in elevation. Fig. 2 represents a cross-section on the line X Y shown in Fig. 1.

30 Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In the drawings, *a* represents the casing or body of the regulator, having base or bottom
35 *a'* and detachable cover *a''*.

On the interior of the casing *a* is an annular cylinder *a³*, containing mercury or quicksilver *b*, in the same manner as shown in my aforesaid patents.

40 *c* is the gas-holder, made in the form of an inverted cup, the lower edge of which is sealed in the liquid *b* in the cylinder *a³*.

The cover *a''* has a central perforation, in which is loosely guided the rod *d*, that is adjustably secured to the gas-holder *c* in a gas-tight manner.

e is the gas-supply pipe leading from the main or other gas-supply to the lower part of the interior of the body or casing *a*, and *f* is

the delivery-pipe leading from said case *a* to 50 the burners.

g is a valve adapted to close and open the supply-pipe *e*, it being shown as made in the form of an inverted liquid-seated cup, the lower edge of which is shown sealed in the liquid *h*, contained in the valve-seat *i*; but this is not essential, as a hard-seated valve may be used instead of a liquid-seated one, if so desired, without departing from the essence of my invention. 60

G is the valve stem or rod of the valve *g*, its upper end being adjustably connected to the weighted lever *K*, that is pivoted to the adjustable fulcrum bar or bracket *l*, that is secured in a suitable manner to the case or body *a*, as shown. 65

k is the weight, adjustably secured in a suitable manner to the lever *K*, as shown. To the weighted end of the lever *K* is journaled the wheel or roller *k'*, which by the influence 70 of the weight *k* is made to press and rest on the top of a disk *d'*, that is secured to the gas-holder stem *d*, as shown. The lower end of said stem *d* is guided in a vertical pipe *a⁴*, secured to the bottom or base *a'*, as shown in 75 Fig. 1.

To the stem *d*, near its lower end, is secured an inverted cup-valve *D*, which is of a size equal to that of the valve *g*, and said valve *D* has its lower edge constantly sealed in the liquid *m*, preferably mercury or quicksilver, contained in the valve-case or cylindrical cup *M*, secured to the interior of the base *a'*, as shown. 80

M' is a cross bar or cover secured to the top of the cup *M*, it having a central perforation, through which the stem *d* passes loosely and in which it is guided. 85

o is a small pipe or channel leading from the supply-pipe *e* to the interior of the cup *M* below the valve *D*, as shown in Fig. 1. 90

It will thus be seen that the valves *g* and *D*, being of equal size and actuated by the same gas-pressure from the supply-pipe *e*, are balanced and are actuated independent of the pressure in said main or supply pipe *e*. We will suppose the gas-holder *c* and the constantly-sealed cup-valve *D* to be in their 95

highest positions, as shown in Fig. 1, and the valve *g* closed. If the pressure of the gas within the regulator be now reduced by the opening of one or more burners leading from the pipe *f*, the gas-holder *c* descends, causing a downward movement of its stem *d*, disk *d'*, and liquid-sealed valve *D*, and by the gradual descent of the disk *d'* the weight *k* on the lever *K* causes the roller *k'* to partake of the movement of said disk *d'*, and thereby trips the lever *K* and causes the valve *g* to open for the admission of gas to the regulator from the pipe *e*. As long as the consumption of the gas is equal to the supply the valve *g* will remain open; but if the consumption should be lessened by the shutting off of one or more burners communicating with the pipe *f* the holder *c* will rise, and in so doing its disk *d'* will gradually move the weighted lever *K* to the position shown in Fig. 1, thereby closing the valve *g*. The valve *g* will remain closed until the gas-pressure in the body *a* is lowered, when the holder *c* will descend, and thus cause a gradual opening of the said valve, and so on.

The disk *d'* enables the holder *c*, its valve *D*, and stem *d* to be turned freely around without disconnecting the roller *k'* from said disk *d'*.

What I wish to secure by Letters Patent, and claim, is—

1. In a gas-regulator, the body *a*, having arranged within it the liquid-seated gas-holder *c* and liquid-seated cup *D*, connected rigidly to said gas-holder, combined with the balanced valve *g*, the inlet and outlet pipes *e f*,

a pipe or channel *o*, leading from the pipe *e* to below the cup *D*, and a weighted pivoted lever *K*, connected in one end to the valve *g* and having its free end resting on a disk *d'*, secured to the stem of the gas-holder, substantially as and for the purpose set forth.

2. In a gas-regulator, the body *a*, having arranged within it the liquid-seated gas-holder *c* and liquid-seated cup *D*, connected together by means of the stem or rod *d*, combined with the balanced valve *g*, the pivoted and weighted lever *K*, connected to said valve and having roller *k'* in its free end adapted to rest on a washer *d'*, secured to the gas-holder stem *d*, substantially as and for the purpose set forth.

3. In a gas-regulator, the body *a*, having inlet-passage *e*, covered by a balanced valve *g*, a liquid-seated cup *D*, and pipe or passage *o*, leading from the inlet *e* to said cup, a liquid-seated gas-holder arranged within the body *a* and connected to the cup *D*, and a pivoted weighted lever *K*, connected in one end to the valve *g* and having its free end resting on a disk or projection on the gas-holder stem, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 12th day of September, A. D. 1888.

WILLIAM C. ROSSNEY.

Witnesses:

ALBAN ANDRÉN,
SELMA R. SCHELIN.