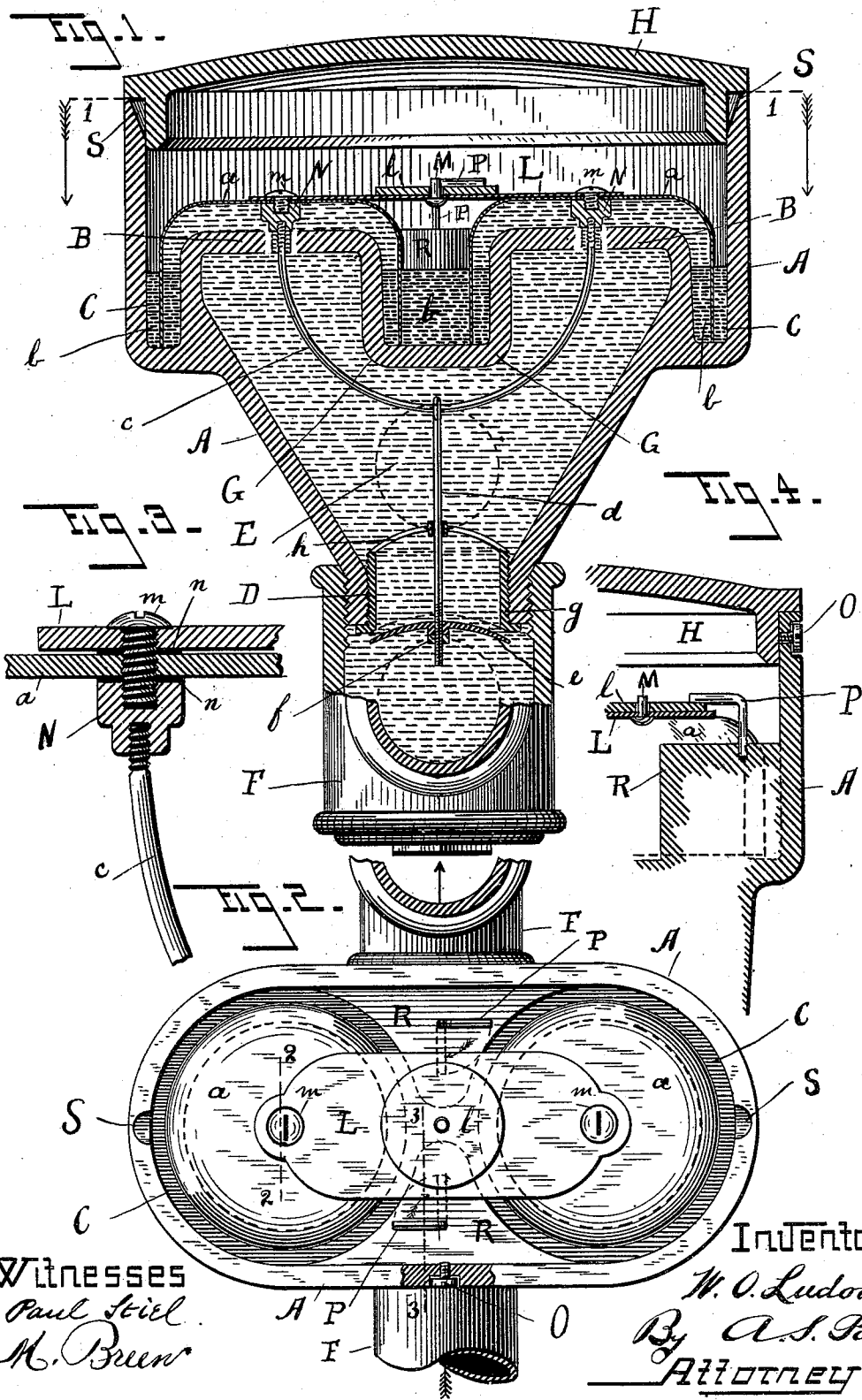


(No Model.)

# W. O. LUDOVICI. GAS GOVERNOR.

No. 522,263.

Patented July 3, 1894.



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# UNITED STATES PATENT OFFICE.

WILLIAM O. LUDOVICI, OF SAN FRANCISCO, CALIFORNIA.

## GAS-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 522,263, dated July 3, 1894.

Application filed December 10, 1892. Serial No. 454,760. (No model.)

### To all whom it may concern:

Be it known that I, WILLIAM OSCAR LUDOVICI, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Gas-Governors; and I do hereby declare that the following is a full, clear, and exact description of said invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved gas-governor, the objects of which are to provide a simple as well as effective mode of regulating the pressure of the gas from within the pipe and at some distance away from the point of consumption, to equalize the flow so that a steady and brilliant light can be obtained and at the same time to prevent waste from excess of pressure—and it consists of special features in the construction and arrangement of the parts composing the improved governor and in their various combinations to effect the object above mentioned and it is fully set forth in the following detailed description, and is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of my gas-governor. Fig. 2 is a top view of Fig. 1 looking in the direction of the arrows from dotted line 1—1. Fig. 3 is a detailed view of part of my invention taken from dotted line 2—2 Fig. 2; and Fig. 4 is also a detailed view taken from dotted line 3—3 Fig. 2.

Similar letters of reference are used to designate like parts throughout the drawings.

The letter A represents the body or outer shell of a gas-governor within which the different parts of my invention are inclosed.

B represents a partition at the top of the shell. This partition has an annular pocket *b* in its upper face extending around the sides of the partition and a central opening therein. This opening and pocket is designed to receive the lower parts of the floats *a* and the mercury or other suitable liquid in which the floats rest.

D is the inlet and E the outlet pipe. Both the inlet and outlet pipes are tubular and provided with threads cut thereon so that my device can be readily united to a gas-pipe by means of the usual fittings F.

Immediately above the partition are the cup-shaped floats *a* made of thin light metal of suitable substance. The sides of said floats and their lower edges dip into the liquid *b* which is poured into the annular receptacles and forms a seal at this point.

*c* is a light wire bent in the shape of a semi-circle the ends of which pass through the holes bored centrally through the partition and secured to the middle of said floats. The manner in which I propose to secure said wire to the float will be more fully described hereinafter.

*d* is the valve stem which may be attached to the wire *c* by any suitable means, however, I prefer to carry out this feature of my invention in the manner shown in the drawings, where it will be seen in looking over Fig. 1 that the stem is made in the shape of an eyebolt having male threads cut thereon at its lower end corresponding with the female threads of valve *e* and through the opening at the farther end passes wire *c* to which it is held in position. Thus constructed in this manner all vibrations of the valve stem caused by the movement of the floats will be prevented as the stem is held loosely to the semicircular wire *c* and will keep always its perpendicular position no matter how much vibration or oscillation the floats are subject to.

*f* is a jam-nut screwed to the stem *d* in order to prevent accidental unscrewing of the valve *e*. However if by accident or otherwise the valve should become loose from its stem and the floats be forced up by the pressure of the gas, the wire *c* will act as a stopper and prevent the floats from going too far up as soon as said wire strikes the lower edge of the partition B or the outer edge of the receptacle *b* as at G plainly shown in Fig. 1, and prevent thereby the gas escaping through the cover or cap H.

*g* represents bushing adjusted to the inlet D and used as a seat for the valve; *h* stem guides attached to or near the upper edge of bushing *g* and form part thereof.

Placed upon the top part of floats *a* and secured thereon is a plate L, which may be made of any suitable material intended to bind the floats together and keep them at a proper distance apart. With this plate I

have a further object in view which is to counterbalance the floats by putting a weight *l* in the middle of the top part of said plate between the two floats as shown in the drawings.

5 *M* is an ordinary pin secured to plate *L* and serves to hold the weight in place. Plate *L*, floats *a*, and the semicircle wire *c* are fastened together by intermediate double nuts  
10 *N N*.

*m m* are screws passing through plate *L*, and floats *a* and screwed to the nuts *N*, then the semicircle wire *c* is screwed to the lower part of said nut as particularly shown in Fig. 3  
15 of the drawings. I have found that this mode of binding together these different parts is very simple and effective.

*n* are washers placed between the plate *L*, and floats *a*, also between nuts *N*, and the  
20 floats *a* in order to make these connections gas-tight.

The usual cover *H* is held to the body *A*, by an ordinary screw *O* countersunk into the wall of said body as plainly shown in Figs. 2  
25 and 4.

When my invention is in practical use if it is desired to stop the working of the valve *e* either to test the reliability or usefulness of my devices, I provide a pin *P* which may be  
30 screwed to the top part of the projections *R* as plainly shown in the drawings. The pin *P* is bent at right angles and when used to lock the floats down it overlaps the plate *L*. Fig. 4 shows said pin in operation while in Figs.  
35 1 and 2 it is open.

The projections *R* are naturally formed between the two diaphragms when making the annular receptacles *C* and may be cut open near the center line to allow the mercury to  
40 run freely from one receptacle to the other as plainly shown in Figs. 1, and 2. For more convenience when drawing the mercury from the receptacles for safe keeping or otherwise when my governor is out of use I provide the  
45 wall of body *A*, within or near the inner upper edge with one or more grooves *S* shown in Figs. 1 and 2, into which the mercury passes out.

When putting up together the different  
50 parts which compose my improved governor for operation—the stem *d* is first inserted through the inlet *D* then one end of the semicircle wire *c* is pushed through one of the openings on the diaphragm into the eye of the stem  
55 *d* and out through the other opening in the next diaphragm. At each end of said semi-circle wire I screw tightly the nut *N*. I then place

the floats over each partition and plate *L* over the floats—and provide them with suitable washers and thus screw all these different parts  
60 tightly together. This being done the bushing *g* with guide *h* is adjusted within the inlet aperture and the valve *e* with its jam nut *f* is screwed to the stem *d*; thus my governor is ready to be connected to the gas-pipe—and  
65 by pouring the mercury into the receptacle *C*, then placing the weight *l* upon plate *L* and cover *H* in position my gas-governor is ready for operation.

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

1. In a gas governor, the combination with a liquid containing shell, of a valve seat within the shell, a valve for the valve seat, a valve  
75 stem for the valve having an eye at its upper end, a partition at the upper end of the shell having circular pockets in its upper face and a depending central projection forming one section of the pockets and apertures at the  
80 center of the pockets, floats having their lower edges located in the pockets, a plate connecting the floats, a curved bail loosely passing through the eye in the valve stem and apertures in the partition, nuts *N* on the ends of  
85 the bail, a screw *m* passing through the plate and floats and secured to the nuts, and packing between the plate and floats and floats and nuts, substantially as described.

2. In a gas governor, the combination with  
90 a liquid containing shell, of a valve seat within the shell, a bushing surrounding the valve seat, a valve resting on the bushing, a valve stem on the valve, a guide on the bushing for the valve stem, an eye on the end of the valve  
95 stem, a partition at the upper end of the shell having circular pockets in its upper face and a depending central projection forming one section of the pockets, and openings at the center of the pockets, floats having their lower  
100 edges located in the pockets, a plate connecting the floats, a counter weight on the plates, and a curved bail passing through the openings in the partition having its opposite ends secured centrally to the floats and loosely  
105 passing through the eye in the valve stem, substantially as described.

In witness whereof I have hereunto set my hand and affixed my seal.

W. O. LUDOVICI. [L. S.]

Witnesses:

H. P. TRICOU,  
GEO. W. HIND.