

(No Model.)

L. W. MARTYR & H. ELDRIDGE.
GAS GOVERNOR.

No. 503,350.

Patented Aug. 15, 1893.

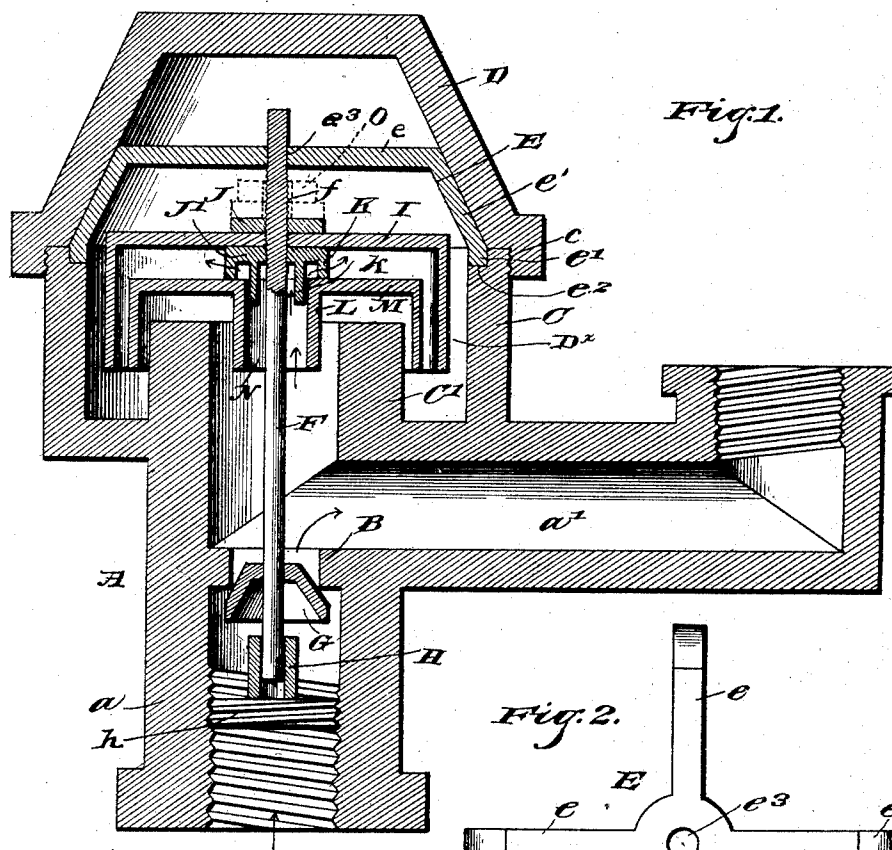


Fig. 1.

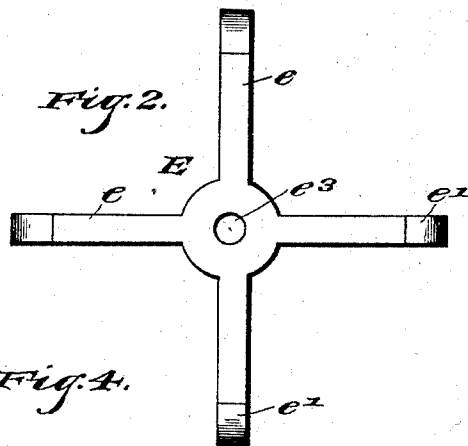
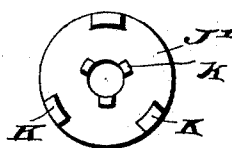
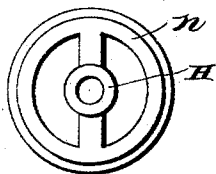


Fig. 2.

Fig. 4.

Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

LEONARD W. MARTYR AND HILLIARY ELDRIDGE, OF HOUSTON, TEXAS.

GAS-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 503,350, dated August 15, 1893.

Application filed February 11, 1893. Serial No. 461,923. (No model.)

To all whom it may concern:

Be it known that we, LEONARD W. MARTYR and HILLIARY ELDRIDGE, citizens of the United States, residing at Houston, in the county of Harris and State of Texas, have invented a new and useful Gas-Governor, of which the following is a specification.

This invention relates to gas-governors; and it has for its object to provide certain improvements in that class of gas governors which are employed in connection with the gas-meters used for supplying buildings, and designed to accurately regulate the flow of gas according to the pressure that is required in any particular place.

To this end the main and primary object of the invention is to generally improve upon the construction of gas governors whereby the efficient operation thereof will be insured and without a needless multiplicity of parts.

With these and many other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is an enlarged vertical central sectional view of a gas governor constructed in accordance with this invention. Fig. 2 is a detail plan of the upper valve stem guide. Fig. 3 is a similar view of the lower guide. Fig. 4 is a detail in plan of the legged guide cap.

Referring to the accompanying drawings:—A represents the governor casing having a lower interiorly threaded inlet neck *a*, adapted to be coupled to the gas-meter, and the laterally extending outlet neck *a'*, to which is coupled the house or distributing pipe. The governor casing A, is further provided at the upper end of the inlet neck *a*, with the inwardly projecting valve seat B, directly above which the said casing is extended into the outer and inner chamber or well walls C and C', respectively, which inclose therebetween the circular mercury well or chamber D^x, which is designed to be filled sufficiently with mercury to float the devices to be herein described. The outer well wall C, is higher than the inner wall C', and is exteriorly threaded as at *c*, to receive the lower inner threaded end of the inclosing lid or cap D.

The inclosing lid or cap D, is preferably constructed with tapered sides, so as to hold the upper valve stem spider guide E, firmly in position. The upper valve stem guide E, comprises a series of angularly disposed arms *e*, having angled or tapered ends *e'*, fitting the inner sides of the lid or cap D, and having their extremities registering with the shouldered seats *e*², at the upper inner edge of the outer well wall C. The upper valve stem guide E, has a central guide opening *e*³, to receive and guide the upper end of the reciprocating valve stem F. The reciprocating valve stem F, is exteriorly threaded for a portion of its length as at *f*, near its upper end, and carries a bell-shaped valve G, working below and onto the inwardly projecting valve seat B^x, so as to control the flow of gas through the inlet *a*. The lower extremity of the valve stem *f*, below the valve thereon, works in the guide tube H, of the lower valve stem guide *h*, circular in cross section and exteriorly threaded so as to be adjusted in position on the interior threads of the inlet neck *a*. The valve stem F, accommodates on the exterior threaded portion *f*, thereof, the upper inverted pressure cup I. The upper inverted pressure cup is designed to have the lower edges thereof floated in the mercury in the well D, and said cup is held firmly in position on the valve stem by means of the upper and lower taps J and J', respectively, threaded onto the threads of the valve stem above and under the upper inverted cup I.

The lower clamping tap J', is provided with an outer series of depending rest legs K, and a concentric inner series of longer guide legs or stem *k*, which are designed to work inside of the central elongated passage tube or neck L, of the lower smaller inverted pressure cup M, the edges of which are also floated in the mercury in the well D so that such cup is always floated out of contact with the inner wall C', irrespective of the pressure contained within the casing. As illustrated, the passage tube or neck L, of the smaller inverted cup M, is much larger than the valve stem F, which it encircles so that said tube or neck not only forms a guide embracing the guide legs or stems *k*, to hold the lower cup in its proper position, but also forms a passage N, for the entrance of gas

into the space inclosed by the upper cup I, as will be readily apparent. The top portion of the cup M, bears under the rest legs K, of the tap J', the legs or stems k, thereof preventing the lower cup from wobbling out of position. By the construction herein described, the flow of gas is accurately and quickly regulated according to the pressure thereof, and in order to adjust the governor to operate under a certain pressure of gas, suitable pressure weights O, are placed over the valve stem on top of the upper cup as shown in dotted lines in Fig. 1, for the purpose of opening and closing the valve G, according to the pressure of gas needed.

In operation, the gas passes from the meter through the inlet a, by the valve G, and out through the outlet a'. The regulating pressure of the gas passes upward into the lower cup M, which is thus placed under gas pressure, and also through the tube L, into the upper cup I, so that a variance of pressure beyond that which the governor is adjusted to be open under, will lift the valve onto its seat or vice versa as the pressure might decrease. It will be apparent that by reason of the smaller size of the lower cup M, such cup will immediately respond to any variation in the pressure of gas, so as to vary the valve opening, before the same pressure exerts itself on the upper larger cup I, immediately above said lower cup, and this is effectually secured, to render the governor exceptionally sensitive, by entirely freeing the lower smaller cup of the valve stem, in order to permit of a gas passage centrally therethrough which communicates with the space inclosed by the upper larger cup. This construction possesses many advantages over the complicated gas governors which have separate and independent passages to the separate cups, and cannot therefore attain the same degree of sensitiveness or quick response to the pressure of the gas, as the governor herein described.

Changes in the form, proportion and the minor details of construction as embraced within the scope of the appended claims, may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a gas-governor, the combination of the casing having a lower interiorly threaded inlet neck, an interior valve seat and an upper single mercury well in a line with and above the inlet neck, the outer wall of the well having an inner shouldered seat, an inclosing tapered or conical cover removably connected to the outer well wall, an upper spider valve-stem guide having angled ends clamped into said shouldered seat by the conical cover, an exteriorly threaded valve stem guide adjustably engaging the threads of the inlet neck and having an upwardly projecting guide tube, a weighted valve stem having its upper and lower ends working in the upper spider and lower guide tube respectively, a bell-shaped valve attached to the valve stem and working onto the interior valve seat, and separate inverted pressure cups floated in the single mercury well, one of said cups being attached to the valve stem and the other lower cup being entirely disconnected from the valve stem and the upper cup and provided with a central gas passage leading into said upper cup, substantially as set forth.

2. In a gas governor, the casing having an interior valve seat the inlet and outlet necks and an upper mercury well, the valve stem carrying a valve, separate inverted pressure cups floated in said well, one of said cups being attached directly to the valve stem and the other cup being independent thereof and provided with a central gas passage leading to the former and a legged tap secured to the stem between the two cups and forming a spacing rest for the unattached cup, substantially as set forth.

3. In a gas governor, the casing having an interior valve seat an inlet and an outlet neck and an upper mercury well, the valve stem guided in said casing and provided with a valve and an exteriorly threaded portion at its upper end, an inverted pressure cup arranged on the upper end of said valve stem and floated in said well, upper and lower taps threaded onto the threaded portion of the valve stem above and below said upper cup, the lower of said taps being provided with an outer series of depending rest legs and a concentric inner series of longer guide legs, and a lower smaller inverted pressure cup arranged inside of the upper cup and bearing on said rest legs, said lower cup being disconnected from the stem and provided with a central neck embracing the lower ends of said longer guide legs and forming a gas passage into the upper cup, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

LEONARD W. MARTYR.
HILLIARY ELDRIDGE.

Witnesses:

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D. J. CASTEEL.