(No Model.)

A. FORD.

GAS GOVERNOR.

No. 498,543. Patented May 30, 1893.

Fig. 1.

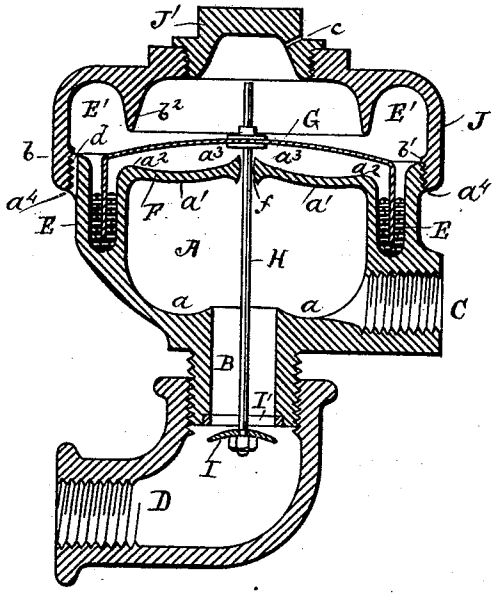
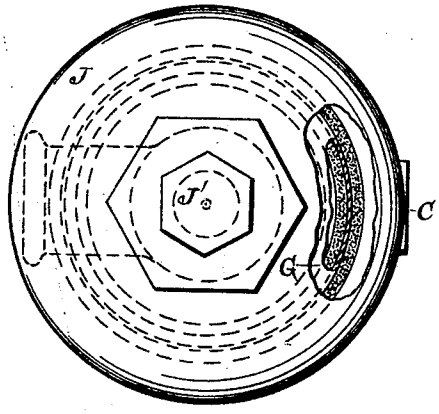


Fig. 2.



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UNITED STATES PATENT OFFICE.

ARCHIBALD FORD, OF GOLDEN GATE, CALIFORNIA.

GAS-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 498,543, dated May 30, 1893.

Application filed December 20, 1892. Serial No. 455,797. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD FORD, a citizen of the United States, residing at Golden Gate, in the county of Alameda and State of California, have invented a certain new and useful Improvement in Gas-Governors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to prevent the escape from gas-governors of the sealing-fluid in which the valve-controlling float is immersed and thereby avoid the escape of gas with the resulting danger to life and property.

A further object is to enhance the value of this class of devices, as economical appliances, by simplifying their construction and lessening the cost of their manufacture. To this end, I have devised a gas-governor of special design and composed of few pieces as compared with the larger number of gas-governors now in use.

Referring to the accompanying drawings for a detailed description of my invention,—Figure 1 is a sectional elevation of my improved gas-governor. Fig. 2 is a partly-broken top-view of the same.

A represents the casing or chamber through which the gas from the mains has to pass before it is allowed to reach the feed-pipes. The gas enters this casing through a tubular inlet B at the bottom thereof, and leaves it through an outlet C of similar shape located at the side of the chamber. Communication is established between the inlet and the supply-pipe through an L-coupling D. The outlet is secured to the delivery-pipe by means of the ordinary screw-thread connection. Close to the outlet and communicating with it is an annular depression *a* formed in the bottom of the casing, around the inlet B, and adapted to collect the sediment resulting from the impurities brought up by the gas, which, it will be observed, may be readily removed through said outlet.

E is a trough formed annularly between concentric walls running upwardly from the lower part of the casing. Into it is poured the sealing-fluid, quicksilver preferred.

F is the horizontal partition—commonly called diaphragm—which covers the empty space in the casing surrounded by the inner wall of the trough. This partition is downwardly-curved at *a'*, forming on the top of the gas-chamber a circular depression confined between two ridges a^2 a^3, one of which is located at the inner edge of the trough E and the other in a higher plane around the central opening *f* provided for the valve-stem hereinafter mentioned. The depression within the ridge a^2 affords a convenient means of collecting the quicksilver which may be accidentally thrown over the inner edge of the trough, while the higher innermost ridge a^3 effectively prevents its escape into the gas-chamber and thence into the pipes and meter. Above the diaphragm is the float G, which consists of an inverted cup having a slightly curved bottom and whose edges dip in the sealing-fluid contained in the trough. To the center of this cup is secured a spindle or stem H which runs vertically through the gas-chamber, passing through the opening *f* and inlet B, and carries the gas-regulating valve I at its lower end. The upper end of the stem H also projects in a vertical direction above the float G where it may be used to hold weights occasionally placed around it to regulate the pressure at which the float shall rise.

The valve I is placed so as to be easily accessible at the bottom end of the inlet B, which it closes and uncloses according to the gas-pressure. By preference, it is made of brass and provided with a ring-shaped seat of similar metal I' fitted in the lower end of the inlet.

J represents the cover which I have designed for my improved gas-governor. This cover may be cast in one piece, if desired, but I deem it best to supplement it with a central removable cap J' secured to it by screw-threads, as shown, it being preferable, for obvious reasons, not to remove the whole cover when putting weights on or removing them from the float, since this can be conveniently done through the opening covered by the cap.

The cover J is secured to the governor at a^4 by means of an internally screw-threaded flange *b* which engages an external screw-thread cut around the casing, upon the edges

of which a rib or shoulder b' cast around the inner periphery of the flange b is brought to bear. A tight joint is thus made which prevents the escape at this point of the quick-silver contained in the trough. Farther up the cover is provided with a second flange b^2 concentric with the first one and forming with it an inverted annular trough E′ situated diametrically opposite the trough E previously described. The flange b^2 which forms the inner side of the upper trough is made to extend far enough down to be quite close to the float G when the latter rises under the pressure of the gas, so that the upper trough will then practically close up all that part of the lower trough which lies outside the float. The effect of this construction is to prevent globules of mercury or drops of other sealing-fluid from being cast over the float or the weights thereon, when owing to the great pressure of the gas the quicksilver or other sealing-fluid is thrown out of the lower trough. If so thrown out, the sealing-fluid simply follows the curves presented by the opposite inverted trough and the edges of the float and immediately falls back into place. Loss of the sealing-fluid and escape of the gas are thereby effectively guarded against. The inverted trough is also found useful when carrying my improved governor from one place to another, as it may be then carried upside down without danger of losing any of the sealing-fluid, as the fluid can be readily transferred from the lower trough to the upper one.

A hole c is made in the cap J′ to provide for the ingress and egress of air according to the rise and fall of the float within the governor. A similar hole d is provided for the troughs E E′. By preference, the hole d is made by filing a small groove into the casing through its external thread. The groove d may be cut obliquely, if preferred.

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

The improved gas governor herein described and shown consisting of a casing having an inlet in its bottom and an outlet on its side, and provided with an annular trough at its upper end, a centrally perforated diaphragm extending over the casing and formed integral with the side walls of the same, said diaphragm having a slight annular concentric depression, sealing fluid partially filling the annular trough, an inverted cup-shaped float arranged above the diaphragm and having its edge playing in said fluid, a valve stem secured to the float and extending downward therefrom through the diaphragm, and into the inlet passage, a valve secured to the lower end of the said stem and adapted to close the lower end of the inlet and a cap secured to the upper end of the casing and provided on its inner side with a depending annular flange of about the same diameter as the diaphragm.

In testimony whereof I affix my signature in presence of two witnesses.

ARCHIBALD FORD.

Witnesses:
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