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PATENTED MAY 7, 1907.

F. ELLIS.  
GAS GOVERNOR.  
APPLICATION FILED MAR. 16, 1906.

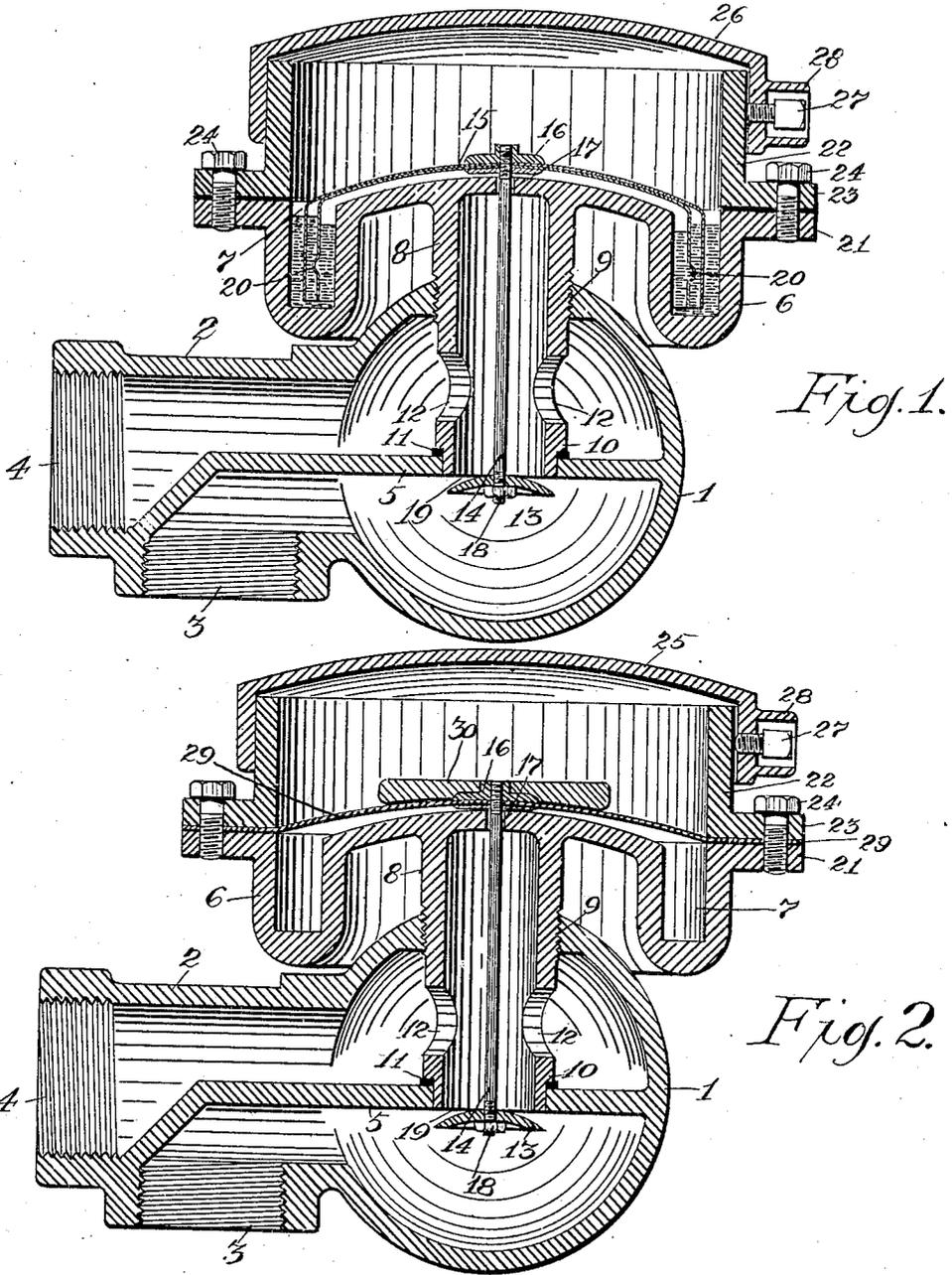


Fig. 1.

Fig. 2.

WITNESSES:

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## GAS-GOVERNOR.

No. 852,425.

Specification of Letters Patent.

Patented May 7, 1907.

Application filed March 16, 1906. Serial No. 306,380.

*To all whom it may concern:*

Be it known that I, FRANKLIN ELLIS, a citizen of the United States, and a resident of the city and county of San Francisco, in the State of California, have invented a new and useful Gas-Governor, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to that class of devices by which the flow of gases upon delivery from a supply pipe, can be regulated to a pressure desirable for the branch pipes.

One object of the invention is to provide a device which is simple in construction, and compact in form, and so constructed and arranged that the working parts are well protected against accumulation of foreign substances, and at the same time can be readily removed for inspection or repairs without disconnecting the stationary parts, which are connected to the supply and branch pipes.

Another object of the invention is to provide a device which will allow a change being made in the regulating mechanism—should that be found necessary in order to overcome exceedingly high pressure—without necessitating a reconstruction of the body of the device.

The invention embracing these new and important features and advantages is illustrated by the accompanying drawing, in which—

Figure 1 is a sectional view showing one form of this improved gas-governor. Fig. 2 is a similar view showing the governor arranged for extreme pressure.

The stationary part of the governor consists of a suitable casing 1, preferably globular, having a tubular extension 2, in which are formed an inlet 3 and an outlet 4, separated by a partition 5. This partition runs horizontally for the greater part of its length and divides the casing and its extension into two adjoining chambers.

Above the casing, and detachably connected therewith, is a cup-shaped vessel 6, having its bottom raised at the center considerably above the outer portion so as to form with its side an angular peripheral channel 7 depending below said central bottom. A tube 8 extends downwardly from the under side of said bottom, and passes through the upper wall of the casing 1, and is secured thereto by screw-threads 9. The lower edge

of the rim 6 is in close proximity to the globular casing 1 and considerably below the entrance into said casing of the tube 8. Thus the bottom of the vessel 6 is so constructed as not only to form the sealing channel 7, but also to protect the juncture of the tube 8 and casing 1 from moisture and from the deposition of foreign matter thereon, thereby maintaining the parts in a condition in which they can easily be separated for inspection or repairs. The lower end of the tube extends through the partition 5 and is formed with a shoulder 10, between which and the partition is placed a packing 11, thus making a tight joint between the partition and the tube. The tube 8 is provided with openings 12 near its lower end, through which the gas from the lower chamber passes to the upper chamber, where it flows into the riser pipe through the outlet 4.

A valve 13, preferably consisting of a hollow spherical segment with its convex side toward the open lower end of the tube 8, is supported by a rod 14, depending from the center of a bell-shaped float 15, as shown in Fig. 1, or from a diaphragm 29 as shown in Fig. 2. This float consists of a plurality of inverted cups of different diameter, two being shown, held together, one within the other, by nuts or buttons 16, on the rod 14. The sides or walls of these cups dip into a sealing liquid, such as mercury, which is contained in the groove 7. This construction will permit the float to rise and fall with the pressure of the incoming gas, which enters through a perforation 17, at the upper end of the tube 8; and the valve 13 is adjustably secured to the rod 14 by means of a screw-thread and a nut 18, and is set so that the opening 19, between the valve and the tube at low pressure, or when the cups are at their lowest point, is large enough to allow the desired amount of gas to pass from the lower to the upper chamber. Should the pressure of the gas increase, the float 15 will rise and consequently decrease the opening 19, and vice versa. One or more corrugations, as are formed in the side of the float to give it a hold on the mercury and thereby enable it to better withstand sudden impulses or variations in the gas pressure, and also to assist in preventing the mercury being blown out by excessive gas pressure.

A guard 22 is provided having a flange 23 registering with a flange 21 formed on the

upper edge of the vessel 6. The meeting plane of the flanges is therefore that of the top of the channel 7, and only slightly below the top of the tube 8.

5 The advantage of this construction is that in case the pressure is too great for the float, said float can be removed and replaced by a diaphragm 29, of any suitable material, as leather, rubber, silk, or linen, which is se-  
 10 cured to the rod 14 in precisely the same manner as the float. The diaphragm is stretched across the vessel 6, its edge being secured between the flanges 21, 22, which are held together by screws 24. Said diaphragm  
 15 is preferably weighted, as by a lead disk 30, which may rest upon the nut or button 16. By means of this construction the device can readily be used with either a float or a dia-  
 phragm.

20 Access is had to the interior by means of a cap-like cover 26, which fits over the guard 22 and is detachably secured thereto by means of a set-screw 27. The latter is preferably concealed within a hollow projection  
 25 or tubular boss 28. By guarding the head of the screw in this manner, tampering with the interior by unauthorized persons is prevented, as it requires a socket or key wrench to re-  
 30 lease the screw. Should it be found necessary to adjust the valve, this can be done by unscrewing the tube 8, which removes the upper part of the device from the casing, without disturbing its connection with the supply and branch pipes.

35 Having described my invention, I claim:

1. In a gas-governor, a globular, hollow body provided with an opening at one point and an inlet and an outlet at another, and having a flat, perforated partition for separating the inlet and the outlet and dividing  
 40 the body into two chambers, a perforated tube through the opening in the body and provided with a shoulder and fitting in said partition at its lower end, a packing between  
 45 the shoulder and the partition, a rod through the tube provided with a valve at its lower end, and means connected with the upper end of the rod for automatically controlling

the movements of the rod by the gas pressure.

2. In a gas-governor, a hollow body, a vessel detachably secured thereto provided with a perforated bottom having a groove around its edge, and a depending perforated tube, a cover for the vessel, a sealing liquid in the  
 55 groove, a plurality of cups of different diameters, one within the other and having their edges in said liquid, one of said edges being provided with a corrugation, a rod from said cups through the perforation in the bottom  
 60 and through the tube, and a valve in the lower end of the rod for controlling the entrance of gas to the tube.

3. In a gas-governor, a hollow body, a vessel having its bottom perforated and raised  
 65 in the center to form with its side an annular channel depending below said central bottom, and having a tube extending from the perforation of the bottom, and entering said hollow body at a point above the bottom of  
 70 said channel, a movable member in said vessel, a rod depending therefrom through said perforation and tube, and a valve at the lower end of the rod for controlling the entrance of gas to said tube, substantially as  
 75 described.

4. In a gas-governor, a hollow body, a vessel having a perforated bottom, a peripheral channel, a tube extending from said perforation of said bottom into said body and a  
 80 flange, a movable member in said vessel, a rod connected with said member and extending through said tube, a valve connected to the lower end of said rod to control the passage of gas to said tube, and a guard having  
 85 a flange adapted to register with the flange of the vessel, said flanges meeting in a plane near the top of said tube, whereby said member may be either a float or a diaphragm, sub-  
 90 stantially as described.

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

FRANKLIN ELLIS. [L. s.]

Witnesses:

A. H. STE. MARIE,  
 J. M. ELLIS.