(No Model.)

P. KELLY.

GAS GOVERNOR.

No. 331,890. Patented Dec. 8, 1885.

Fig. 1.

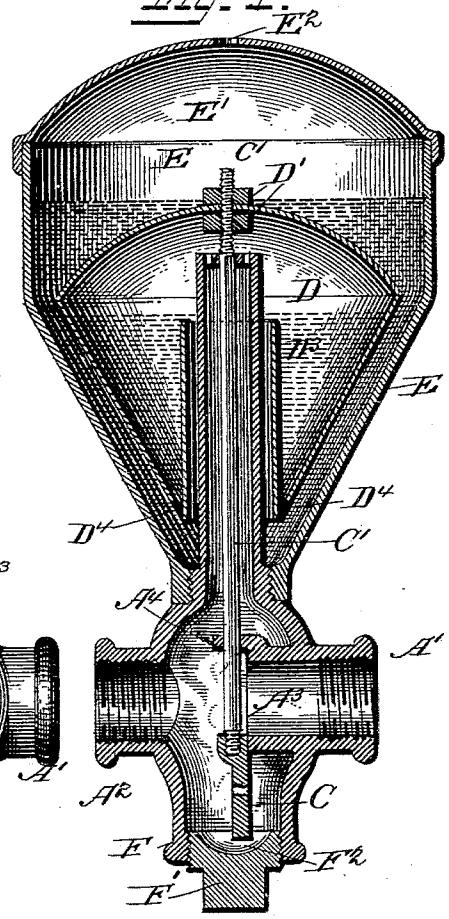


Fig. 2.

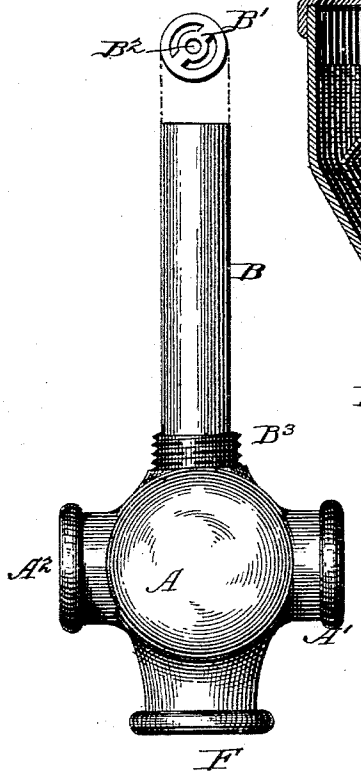


Fig. 3.

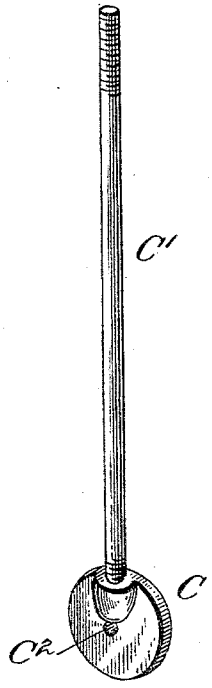
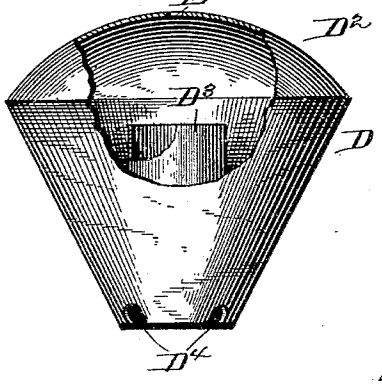


Fig. 4.



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GAS-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 331,890, dated December 8, 1885.

Application filed October 9, 1885. Serial No. 179,399. (No model.)

To all whom it may concern:

Be it known that I, PETER KELLY, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Gas-Governors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to gas regulators or governors of that class in which a float attached to a valve-rod is employed, my object being to provide a cheap simple device for regulating the flow of gas from the meter to the house-pipes and burners, one which shall consist of as few parts as possible, and which may be cleaned or repaired by a person unskilled in the construction of gas governors or regulators; and the invention consists in certain features of construction hereinafter described, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a central vertical section of a gas-governor constructed in accordance with my invention. Fig. 2 is a detached view in side elevation of the four-way coupling and valve-tube. Fig. 3 is a detail, in perspective, of the valve and its rod. Fig. 4 is a side elevation of my float, parts being broken away, showing internal construction.

Like letters indicate like parts in all the figures.

A represents a four-way coupling, which, in order to reduce the number of parts, is preferably cast in a single piece. The branch B is the valve-tube, the top of which is open, except that it is provided with a cross-bar, B′, having a central aperture, B^2, that serves as a bearing for the valve-rod.

A′ represents the branch that receives the pipe leading from the meter, and A^2 the pipe leading to the burners. The branch A′ extends within the casting A, terminating, short of the middle thereof, in a valve-seat, A^3, adapted to slide, upon which is a gate-valve, C, said valve being secured to the lower end of a valve-rod, C′, by screw-threads or otherwise, which rod passes up through the valve-tube B and the apertures B^2 of the cross-bar B′.

Mounted upon the top end of the valve-rod C′, and secured in a desired position by two nuts, D′, is a float, D, which is made of light sheet metal and formed in the shape of an inverted truncated cone. This float is formed with a dome-shaped top, D^2, and from the truncated portion, and extending upwardly therein, is a cylindrical sleeve, D^3, adapted to loosely fit the valve-tube. For the purpose of retaining the valve C snugly against its seat A^3, the branch A′ has formed thereon, at its inner end, a guiding-lug, A^4, through which said rod passes.

The tube B has formed at its junction with the body portion of the casting A a screw-threaded shoulder, B^3, and screw-threaded thereon, and forming a jacket or covering for the float, valve, and rod, is a glycerine receptacle or reservoir, E, which conforms substantially in shape to the float D, it being provided with a closely-fitting dome-shaped cover, E′, at the top of which is a vent or opening, E^2. The vent E^2 in the cover may be omitted, if desired; but when retained it permits a passage of air in order that the float may be more sensitive to the variations of the supply of gas than it would be if cushioned against a confined body of air.

It will be noticed that all the parts of my governor are exceedingly simple, and that they are readily attached to or detached from each other for the purpose of inspection and repair.

It will also be noticed that the float D is apertured, as at D^4, (see Fig. 4,) in order that it may receive within itself a body of glycerine, which acts to secure a balance or steady movement in its elevations and depressions, so that there is a more direct action thereby in the line of and upon the valve-rod, and thus friction between the moving parts is greatly reduced.

In the course of time the governor may, by reason of grit, drip, and other matter coming in contact with the valve and its seat, fail to work satisfactorily. To remedy this a thorough cleaning is required. Now, by the peculiar and novel arrangement of the parts, as hereinbefore and hereinafter described, it will be seen that this may be readily and easily accomplished.

By removing the cover E′ and the adjusting-

nuts D′ upon the top of the valve-rod C′, and unscrewing the plug F′, it will be seen that the float may be withdrawn, cleaned, and replaced. So also may the interior of the reservoir or glycerine-receptacle be cleaned by removing the top E′. The valve may be readily cleaned by removing the cover E′ and nuts D′ and unscrewing the plug F′, which for that purpose is screw-threaded into the branch F of the casting A. Thus it will be seen that all the interior parts may be readily cleaned and replaced quickly and with little or no trouble. This removable plug F′, in connection with the valve and rod, forms an important novel feature of my invention.

A sufficient quantity of glycerine having been poured into the receptacle E, as clearly shown in Fig. 1 by dotted lines, will, by reason of the apertures D^4, arranged around the bottom of the float D, pass within the float and within the sleeve D^3, as before stated. The gas now entering through the branch A′ passes up through the valve-tube, out at the top through the openings thereof, and into the space bounded by the upper surface of the glycerine and the upper portion of the float, thence back down through said tube and out at the branch A^2, so that a body of gas subject to fluctuation by reason of variation of pressure is contained within the float and extends to and is connected with the supply, so that variations in the supply are communicated to the gas in the float and causes said float to rise and fall with the increase or decrease, respectively of said pressure. Now, should the pressure of gas become excessive, it raises the float in accordance therewith, which, by reason of its connection with the valve-rod, it in turn draws up the valve E, and thus diminishes the flow or passage of gas to the burners.

For the purpose of preventing an entire cutting off of the supply, I have provided the valve C with a small opening, C^2, so that should the supply be so great as to draw the valve up and completely cover the supply-pipe a sufficient quantity of gas will still be allowed to escape through said opening to the burners to keep them lighted or to provide sufficient gas to keep the pipes full, ready for lighting at the burners. Now, on the other hand, should the supply become light, the valve, in contradistinction to the above described operation, will fall, and for the purpose of allowing an unobstructed passage for the gas—that is to say, to allow the valve to fall until the opening is completely unobstructed—I have formed a recess, F^2, in the plug F′ for the reception of the lower end of said valve.

It will be readily seen that minor changes in construction may be made—for instance, the valve may be upon the opposite pipe of the coupling, or the gas may be introduced at either side of the valve. It is also apparent that the entrance or induction pipe A′ may be formed separately and screw-threaded into the coupling A, as may also be the valve-tube B.

Having fully described my invention, what I claim is—

1. In a gas-governor of the class described, a lateral entrance-pipe projected inwardly and having at its end a vertical valve-seat and guiding-lug, in combination with a vertically-sliding valve adapted to close the end of said entrance-pipe, a valve-rod, and a float secured to said rod, substantially as specified.

2. In a gas-governor of the class described, a float and a vertically-acting valve connected centrally therewith, in combination with the supply-pipe projected inwardly beneath the center of the float and forming a vertical seat for said valve, an eduction-passage, and a receptacle for the float, substantially as specified.

3. In a gas-governor of the class described, a lateral entrance-pipe provided with a vertical seat for a valve and a guide-lug for the rod of the valve, substantially as specified.

4. The combination, with a four-way coupling, an entrance-pipe extending therein and projecting to the face of a sliding valve hung in the center and seated on the inner end of said pipe, substantially as specified.

5. The combination of a four-way coupling, of an entrance-pipe extending lateral therein, a vertical valve-seat on the inner end of said pipe, a governor-tube connected with the upper branch of said coupling, a receptacle supported on said tube and branch of the coupling, and a float mounted on the valve-rod and encircling the governor-tube, substantially as specified.

6. A gas-governor comprising a four-way coupling, one branch of which is inwardly extended and provided with a vertical valve-seat, a valve-tube mounted on said coupling, a valve-rod passing within the same, one end of which is provided with a vertical valve adapted to close said inwardly-extended branch, and upon the other end of which is mounted a float having a sleeve encircling said tube, the lower end of which is apertured, and a glycerine-receptacle forming a covering for said tube and float, substantially as specified.

7. The combination of the glycerine-receptacle E, float D, sleeve D^2, having apertures D^4, the tube B, having the screw-threaded base B^3, mounted upon the coupling A, with the entrance-pipe A′, having the valve-seat A^3 and guiding-lug A^4, the valve C, and the rod C′, substantially as specified.

8. The combination of the receptacle E, perforated as at E^2, the float D, adjustably mounted upon the rod C, nuts D′, the sleeve D^2, apertures D^4, with the valve-rod C′, having the valve C secured at its lower end, said valve being perforated, as at C^2, the coupling A, and the entrance A′, having the valve-face A^3 and guiding-lug A^4, substantially as specified.

9. The four-way coupling A, provided with

the interiorly-screw-threaded induction-pipe A′, having the guide A^4, and provided with the valve-tube B, substantially as specified.

10. The four-way coupling A, having the lateral entrance-tubes A′, forming a vertical valve-seat and valve-rod guide-lug A^4, the exit-tube A^2, the valve-tube B, and the tube F, having the removable plug F^2, substantially as specified.

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

PETER KELLY.

Witnesses:
WILLIAM P. GARMON,
JEREMIAH SULLIVAN, Jr.