

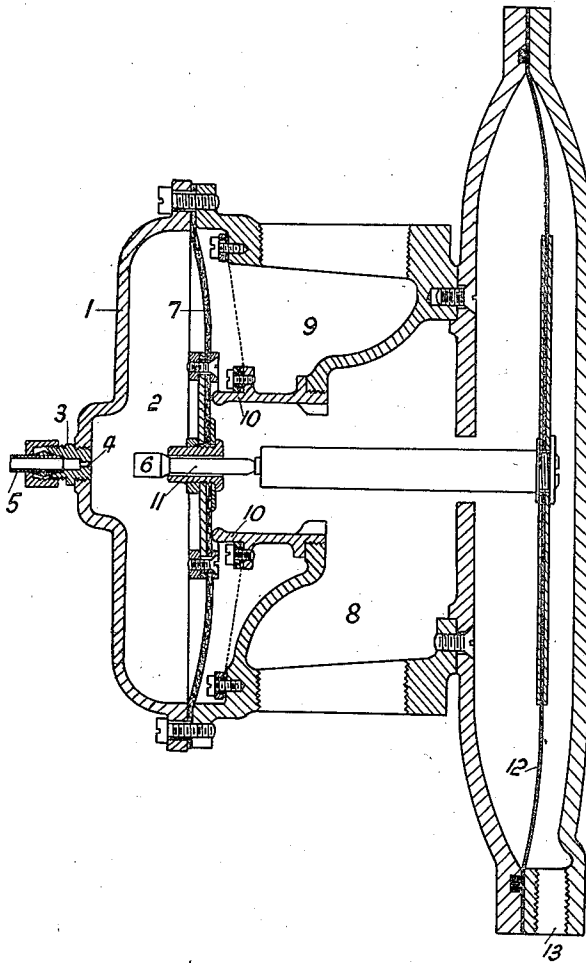
July 30, 1929.

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1,722,666

GAS GOVERNOR

Filed March 11, 1926



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UNITED STATES PATENT OFFICE.

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THE SURFACE COMBUSTION COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION
OF NEW YORK.

GAS GOVERNOR.

Application filed March 11, 1926, Serial No. 93,863, and in Great Britain March 27, 1925.

This invention relates to an improved diaphragm governor for governing the pressure of gas to be admixed with air for combustion, say in gas fired ovens.

5 When for governing the pressure of producer gas there is employed a governor arranged to operate on the principle set forth in the specification of Patent No. 1,301,272 dated 22nd April, 1919, but fitted with a relay valve of the diaphragm type, it is found
10 that the usual pilot valve for working the relay valve tends to become stiff, while the ports are liable to be choked with tar etc., present as impurities in the gas.

15 To obviate these drawbacks, according to the present invention I eliminate the small leakage hole affording communication between the inlet side of the governor and the back of the diaphragm and substitute there-
20 for a connection in the cover plate of the diaphragm chamber through which is fed continuously a small supply of clean gas or air from a suitable source.

25 In a practical construction the said cover plate is formed with a threaded orifice into which is fitted a connecting member having a small through-passage for air or clean gas supplied to said connecting member at a pressure superior to that of the fluid being
30 controlled.

When now the pilot valve opens by moving in the direction towards the air or clean gas connection air flows from the compartment at the back of the diaphragm to the
35 inlet side of the diaphragm, whereby the pressure at the back of the diaphragm is reduced to equal the pressure on the outlet side of the governor, so that the gas pressure acting on the diaphragm on the inlet side
40 moves the latter to open the main valve. Conversely, when the pilot valve closes, the pressure gathers up on the back of the diaphragm and moves the latter to close the main valve.

45 For so long as the pilot valve is open it is washed with air or clean gas flowing from the compartment at the back of the diaphragm. When the pilot valve is re-seated, pressure builds up again at the back
50 of the diaphragm. At no time can gas flow from the inlet side of the diaphragm past

the pilot valve to the compartment at the 55 back of the diaphragm.

The figure of the accompanying drawing is a section of a diaphragm governor according to the invention.

In the construction shown the cover plate 60 1 of the diaphragm chamber 2 has a screw-threaded opening for reception of a plug 3 formed with an orifice 4 and adapted for connection to a pipe 5 serving to lead air or clean gas from an external source to the 65 chamber 2.

When the pilot valve 6 is unseated, by means of its valve stem 11 i. e., moves in the direction towards the plug 3, the pressure in the chamber 2 acting on the back of 70 the diaphragm 7 is reduced to be equal to the pressure in the outlet branch 8 of the governor, so that the gas pressure in the inlet branch 9 acting on the diaphragm 7 moves the latter to uncover the main valve 75 opening in the seat member 10 between the inlet 9 and outlet 8. Conversely, when the pilot valve 6 closes, pressure accumulates in the chamber 2 and moves the diaphragm 7 to close the main valve opening. 80

As in previous constructions the stem 11 of the pilot valve is connected to a diaphragm 12, the side of which remote from the pilot valve is subject to the pressure of air led thereto through the opening 13 from 85 an air conduit serving for passage of air to be admixed with the gas beyond the governor. The opposite face of the diaphragm 12 is subject to the pressure of gas on the outlet side of the diaphragm 7. Closing 90 movement is imparted to the pilot valve 6 by the diaphragm 12 when the gas pressure on said diaphragm 12 exceeds the air pressure thereon at which time the pressure on the back of the diaphragm 7 is equal to the 95 pressure on the outlet side of the governor.

As the pilot valve 6 is always washed with air or clean gas, it is not liable to stick or to become clogged by impurities in the gas.

The small quantity of air or gas which 100 passes through the pilot valve 6 when the main valve is about in equilibrium finds its way into the gas supply leading to the usual mixing apparatus; but the quantity is so small that the effects on the mixture is 105

negligible. On the other hand the jet of compressed air introduced through the orifice 4 suffices to furnish the effort requisite to effect the proper seating of the diaphragm 7 on the member 10. 15

What I claim is:—

In a gas governor, in combination a chamber having an inlet and an outlet and a seat member presenting a main valve opening between said inlet and said outlet, a cover for said chamber, a diaphragm between said chamber and said cover, said diaphragm engageable on the chamber side with the seat member and presenting a pilot valve opening, a pilot valve extending to the cover side of said diaphragm and controlling said pilot valve opening, and a connection to said cover for the conduction of a small supply of aeriform fluid serving to prevent dirtying of the pilot valve and also to effect proper engagement of said diaphragm with said seat member. 20

In testimony whereof I have signed my name to this specification.

GEORGE KEITH.