2 Sheets—Sheet 1.

D. B. PEEBLES.

GAS-REGULATOR.

No. 172,768. Patented Jan. 25, 1876.

Fig. 1

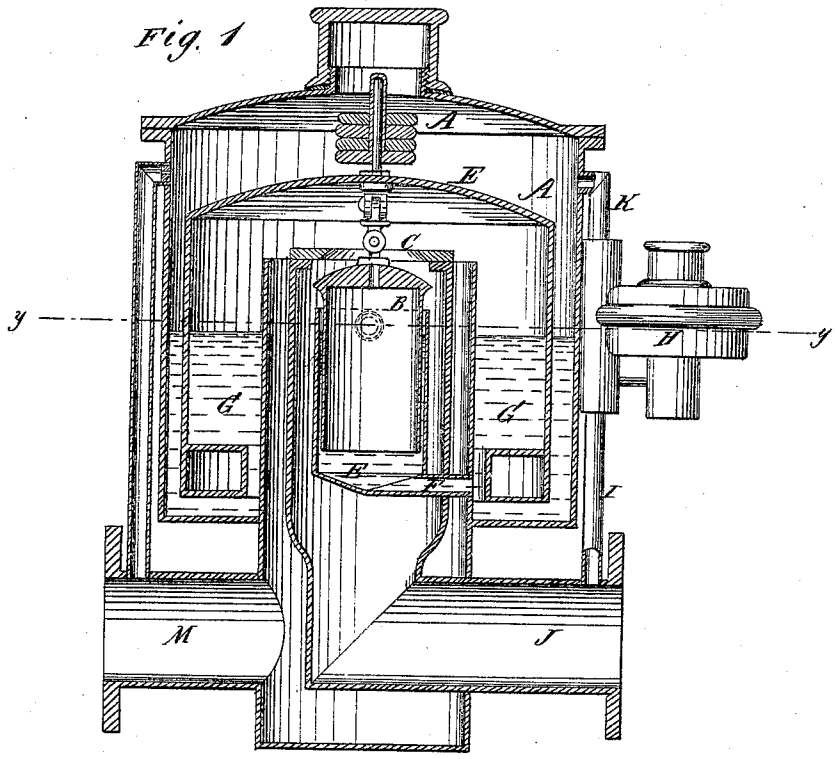
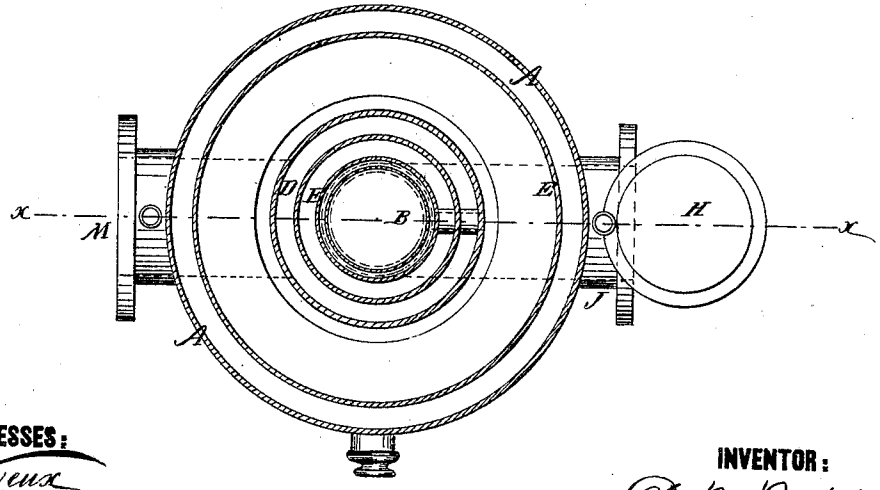


Fig. 2



WITNESSES:

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2 Sheets—Sheet 2.

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Fig. 3

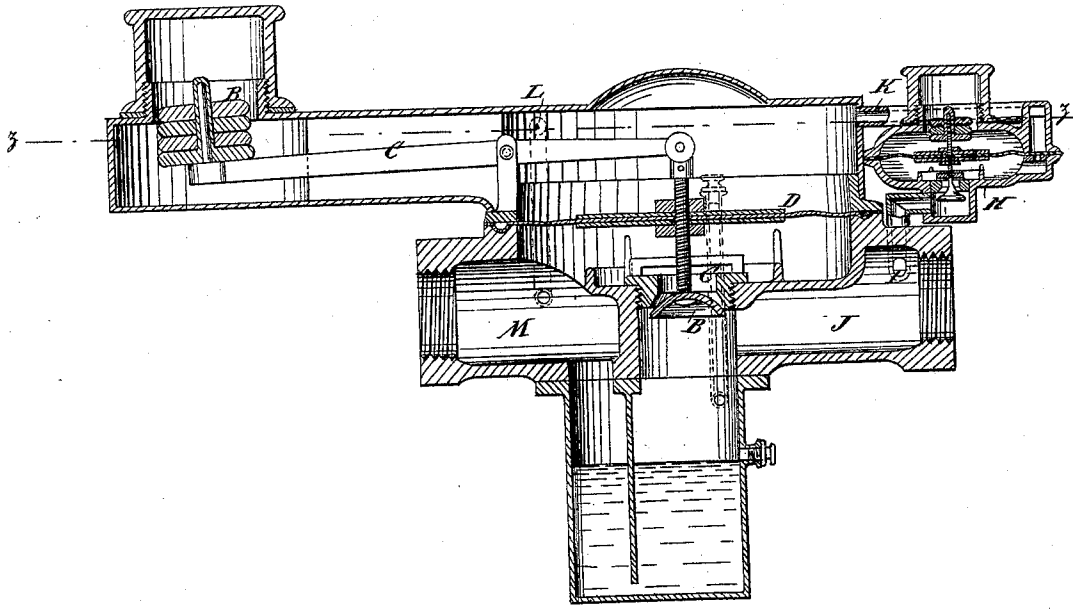
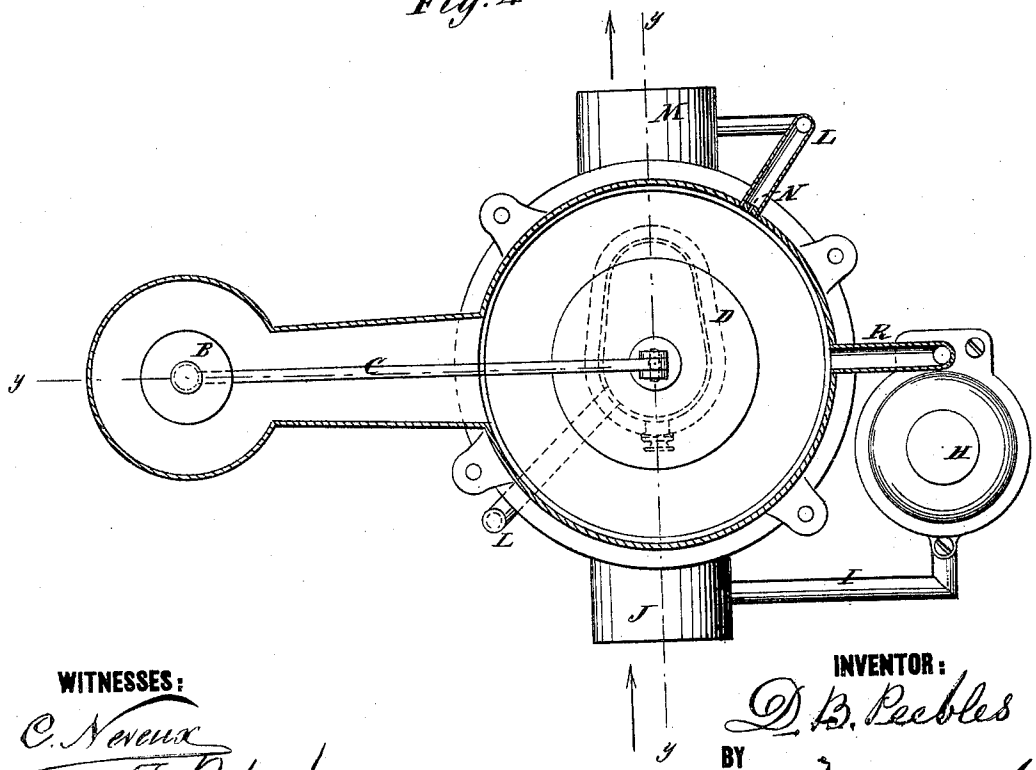


Fig. 4



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UNITED STATES PATENT OFFICE.

DAVID B. PEEBLES, OF EDINBURGH, SCOTLAND.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **172,768**, dated January 25, 1876; application filed October 8, 1875.

To all whom it may concern:

Be it known that I, DAVID BRUCE PEEBLES, of Edinburgh, Scotland, have invented new and useful Improvements in Apparatus for Controlling and Regulating the Flow of Gas, of which the following is a specification:

This invention relates to improvements applicable to station gas-governors, district governors, and governors for public halls, factories, and dwelling-houses. The governors may be of the kind known as wet or dry.

The wet governer consists of a bell working in a tank in water. Around the bottom of the bell a float is made, which tends to raise it when immersed, and from the top and center of the bell is suspended a valve, the seat of which is fixed on the top of the vertical inlet-pipe of the governor. On the bottom of the valve I arrange a closed tube about one and a half times its diameter, and this works inside a tube which communicates with the water by means of a pipe or connection passing laterally through the vertical inlet and outlet pipes, and fixed thereto by nuts, the object of this arrangement being to give a pumping action to the valve when it moves, which tends to steady the bell and obviate bobbing or oscillation by the gas-waves; or the tube at the bottom of valve may be open and work over another closed tube, which also acts as a guide. The pumping action, in this case, being with air, instead of water, makes it suitable for wet or dry governors.

The bell is inclosed in an air-tight tank or casing, and may be guided, in the well-known ordinary way, by pulleys working against the sides of the tank.

Another important feature of my invention is the manner in which the governor is acted on so as to increase, diminish, or maintain pressure.

In any part of the inlet gas-pipe or main a small tube is fixed, and in the casing of the governor, preferably as near the cover as possible, another small tube is fixed. These tubes are connected to a small dry or wet governor, which may be of the well-known ordinary construction.

Another tube connects the chamber above the bell with the outlet-pipe or main, and into this tube is inserted a disk of tin or other incorrodible metal, through which a small hole is pierced, or a lava burner-tip may be used. A stop-cock may also be employed separately or in conjunction with this small aperture.

Figure 1 is a sectional elevation of a wet governor with my invention applied, the section being taken on line *x x* of Fig. 2. Fig. 2 is a horizontal section of Fig. 1. Fig. 3 is a section of a dry governor, showing the application of my invention, the section being taken on the line *y y* of Fig. 4. Fig. 4 is a horizontal section of Fig. 3.

Similar letters of reference indicate corresponding parts.

A is the bell of the wet governor; B, the valve suspended from it to regulate the passage of gas through the opening C to the exit-pipe D. On the bottom of this valve I have arranged the closed tube E, having connection with the water-space G by a small pipe, F.

This contrivance is to prevent, by the suction and pressure offered by the water, the bell from dancing by the vibrations of the gas sometimes set in motion by the sudden opening and closing of cocks.

H is the small dry governor to be used for regulating the large governor. It is connected by a pipe, I, with the main J, and by the pipe K with the upper chamber of the large governor, and said upper chamber is connected by pipe L with the outlet-pipe M, but the orifice admitting the gas into this pipe is very small, to limit the flow of gas into the outlet-pipe.

The governor E may be of any ordinary construction, and it may be located any distance from the large governor—for instance, in the office or room of the manager.

Instead of loading or unloading the bell of the large governor, in the usual manner, with weights, the small governor only requires to be adjusted to give any desired pressure.

When weights are placed on the small governor an increased pressure of gas is thrown on the bell of the large governor, opening the valve and giving an increased outlet-pressure, and when weights are taken off the small governor the pressure is taken off the bell of the large governor, which thus responds with

great nicety to every fluctuation in the inlet or outlet pipes when more or less gas is drawn off for consumption.

The action of the apparatus, when applied to the dry governor, is precisely similar to that of the wet.

The leather diaphragm or bellows D′ represents the bell, which is raised by the weights at the end of the lever as the float raises the bell of the wet governor. The small governor is fixed and regulates the action of the large dry governor exactly in the same way as the wet.

The small governor, applied in this manner to the wet or dry form, may be so weighted and adjusted as to come into action at a fixed initial pressure, thus fitting them for district governors, which rise and fall with the initial pressure when charged at the works. This responsive action only continues so long as the small governor does not act; but the moment it comes into action by the increase of initial pressure its controlling power keeps the outlet-pressure steady at that point, however much the initial pressure may be increased.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of valve B, suspended from bell A, with tube E, connected by a pipe, F, with the water-space G, as and for the purpose specified.

2. The combination of a small governor, H, with the large governor, to control and regulate the pressure of the gas in the large governor, substantially as specified.

3. The tube L, with the perforated disk or burner-tip, connecting the chamber above the bell or diaphragm to the outlet-pipe, in combination with an auxiliary governor, substantially as specified.

D. BRUCE PEEBLES.

Witnesses:
T. B. MOSHER,
ALEX. F. ROBERTS.