

(No Model.)

P. McGEE.

PRESSURE EQUALIZER FOR GAS MAINS.

No. 414,070.

Patented Oct. 29, 1889.

Fig. 1.

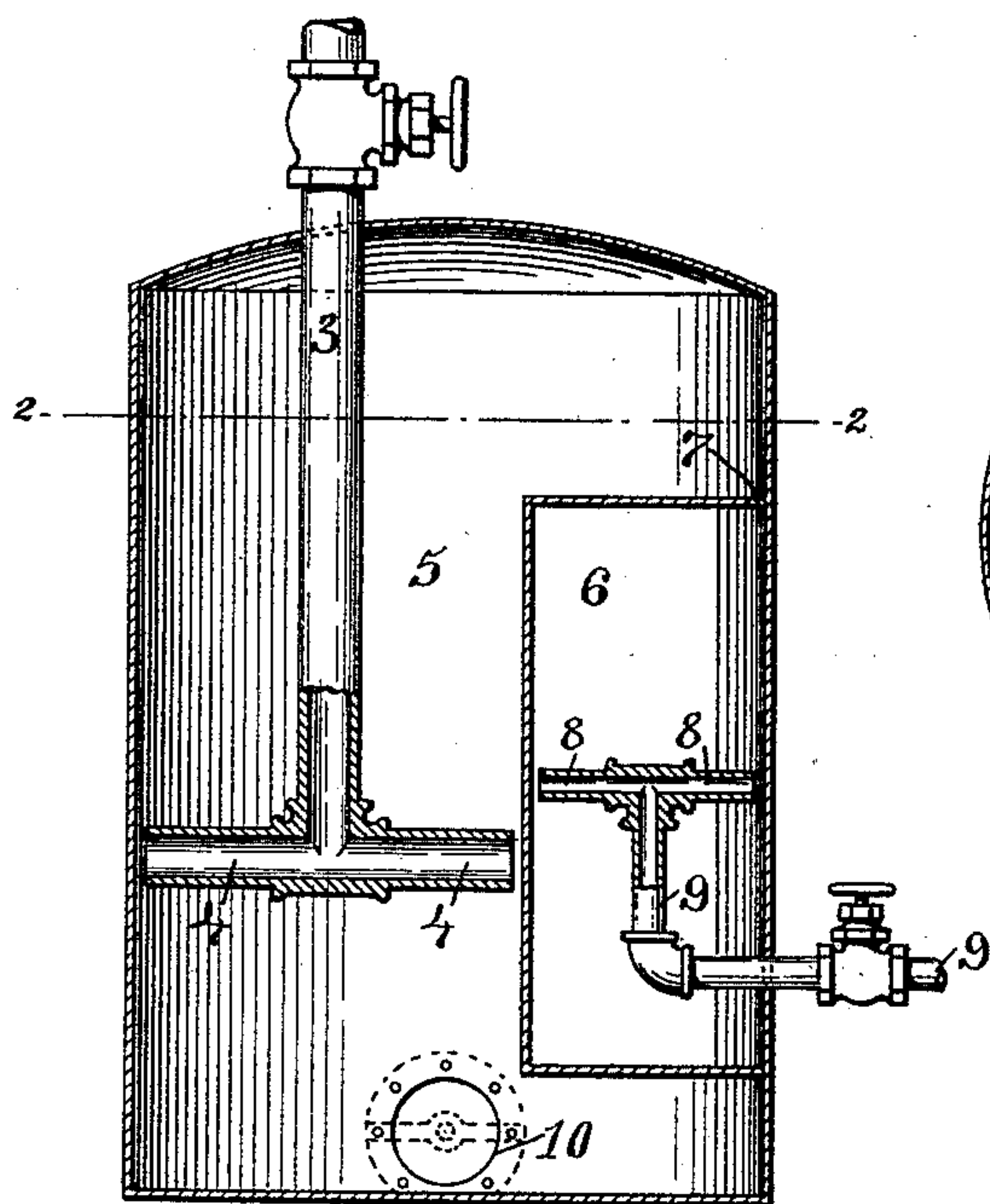
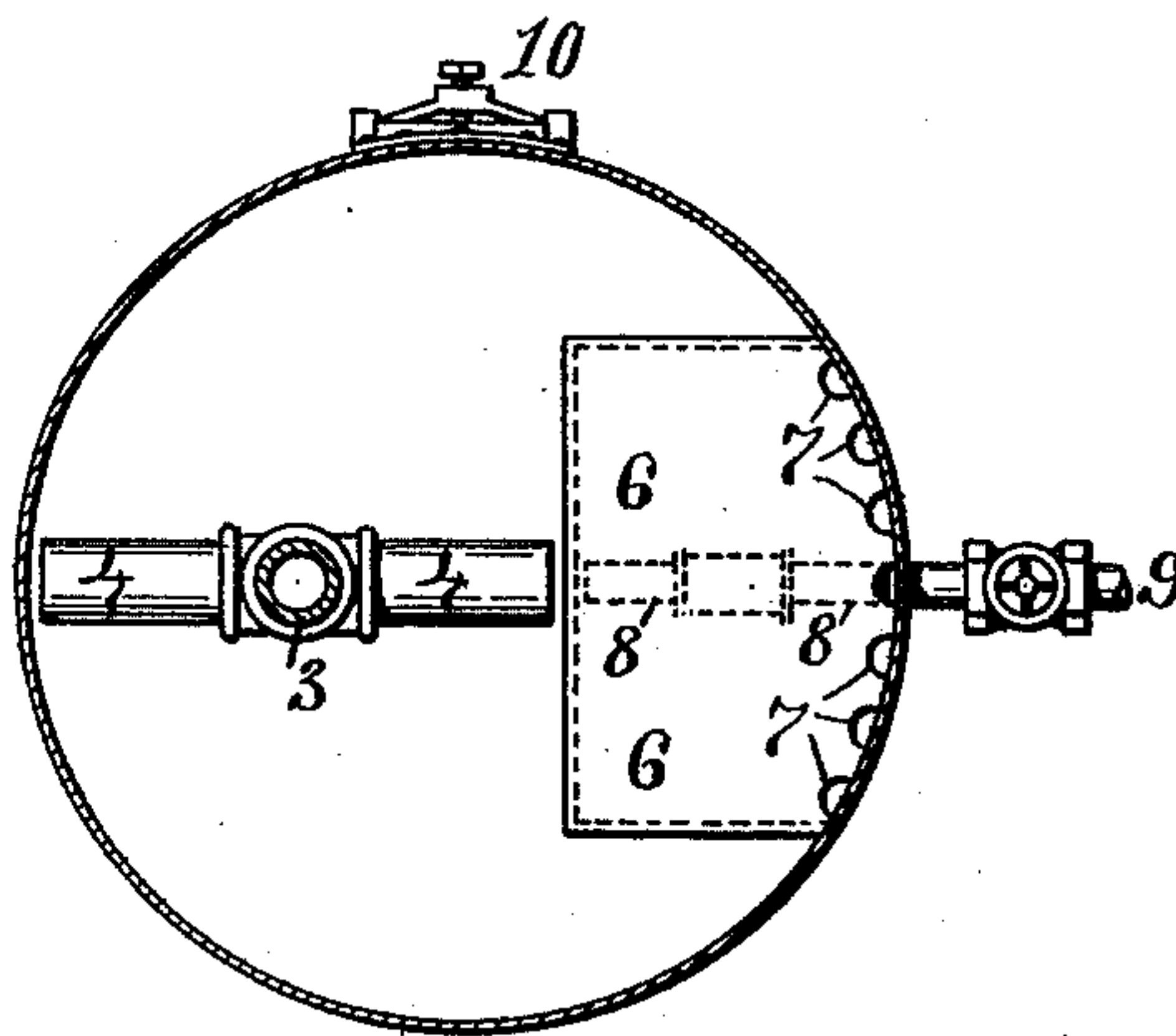


Fig. 2.



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PRESSURE-EQUALIZER FOR GAS-MAINS.

SPECIFICATION forming part of Letters Patent No. 414,070, dated October 29, 1889.

Application filed July 1, 1889. Serial No. 316,181. (No model.)

To all whom it may concern:

Be it known that I, PATRICK MCGEE, of the city of Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Pressure-Equalizers for Gas-Mains, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The objects of this invention are the construction of a more durable and positive acting device than the rubber gas-bags now in use on supply-pipes of gas-engines, and also to prevent the sudden changes of pressure in gas-mains and on the gas-meter and the consequent flickering of the gas-flames.

To these ends the invention consists in the peculiar construction of a gas-chamber and inlet-main to receive the gas and a distributing-chamber, with its outlet-main, by which the inherent elasticity of the gas is utilized to cushion the reaction of the gas when the gas-discharge is suddenly stopped by the cutting off of the gas-engine, as will be more fully set forth hereinafter.

Figure 1 is a vertical sectional view of my improved gas-pressure equalizer. Fig. 2 is a horizontal section of the same.

In the drawings similar numbers of reference designate corresponding parts throughout.

The number 3 indicates a branch pipe from the gas-main in the building in which a gas-engine is connected with the gas-main.

4 4 are the lateral outlets of the gas-supply branch or inlet pipe 3. They form with the inlet 3 an inverted letter T.

5 is a large chamber preferably made cylindrical in form. As the chamber 5 is subjected only to the low gas-pressure, it can be made of light sheet metal. The ends may be slightly curved or made straight. The discharge-chamber 6 is connected with the chamber 5 by a series of small openings 7.

The inlets 8 8 to the pipe 9 are placed lateral to the same, forming a letter T. The pipe 9 is connected with the gas-engine.

The outlets 4 4 and inlets 8 8 may have disks placed in front of the same, so as to form annular inlets or outlets, or the ends of these inlets and outlets may be placed so near

the walls of the chambers as to form annular openings through which the gas must pass from and to the pipes. The joints between the pipes and the chamber are made gas-tight in any suitable manner. The hand-hole 10 is used for removing any water or other matter that may collect in the chamber.

The operation of this gas-pressure equalizer is as follows: The gas flowing from the main through the branch 3 enters the chamber 5 through the outlets 4 4 in a thin radial sheet. The pressure in the chamber 5 being the same as the pressure of the gas supplied, and the area of the chamber being, as shown in the drawings, about three hundred times the area of the interior of the supply-pipe 3, the flow of the gas into the chamber is very slow. The gas from the chamber 5 passes through the holes 7 into the chamber 6. The gas used by the gas-engine is drawn from the chamber 6 at two opposite points through annular openings. When, now, the engine takes its supply of gas, the gas in the chamber 6 is only locally and very slightly disturbed, owing to the thin film that is drawn into the pipes 8 8. As the aggregate area of the holes 7 is many times the area of the pipe 9, and as they connect the chamber 6 with the large chamber 5, the momentum of the flowing gas in the large chamber is not increased. The reaction by the sudden closing of the gas-valve on the engine does not act directly on the gas in the branch 3, but acts radially on the large mass of gas in the chamber 6 and locally through the openings 7 on the much larger mass of gas in an upward direction at a point far removed from the outlets 4 4. The pressure in the pipe 3, and consequently in the gas-main, is not disturbed, owing to the absence of any direct impulse, the large quantity of the gas in the chambers, and most essentially by the instantaneous enlargement of the volume of the gas by any diminution of pressure, acting as a cushion against the reaction.

Practical use of the device has demonstrated that all the lights in the building burn perfectly steady while the gas-engine is running, and a water-gage connected with the branch pipe 3 or to the gas-main shows no perceptible change in the pressure of the gas, where, before the use of the pressure-equalizer, the fluctuations in the gage and the lights were

excessive and made the use of both the lights and gas-engine simultaneously impossible.

The pipes 3 and 9, either or both, may be provided with three or more lateral openings, like 4 and 8.

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

1. A pressure - equalizer consisting in a supply-pipe provided with lateral outlets opening into a large chamber, a smaller chamber connected with the larger by a series of openings, and a discharge-pipe having lateral openings in the small chamber, as described.

2. In a pressure-equalizer placed intermediate between a gas-engine and the gas-supply pipe, the combination, with the pipe 3, pro-

vided with the lateral outlets 4 4 and the chamber 5, of the chamber 6, provided with the openings 7, and the pipe 9, having the lateral inlets 8, as described.

3. The combination, with the chamber 5, of the pipe 3 and lateral outlets 4, constructed to discharge the gas radially, the chamber 6, provided with the openings 7, and the pipe 9, having the lateral inlets constructed or placed so as to receive the gas through an annular opening at their ends, as described.

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Witnesses:

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