

(No Model.)

2 Sheets—Sheet 1.

J. SHAW.

GOVERNOR FOR REGULATING THE SUPPLY OF GAS.

No. 426,148.

Patented Apr. 22, 1890.

Fig. 1.

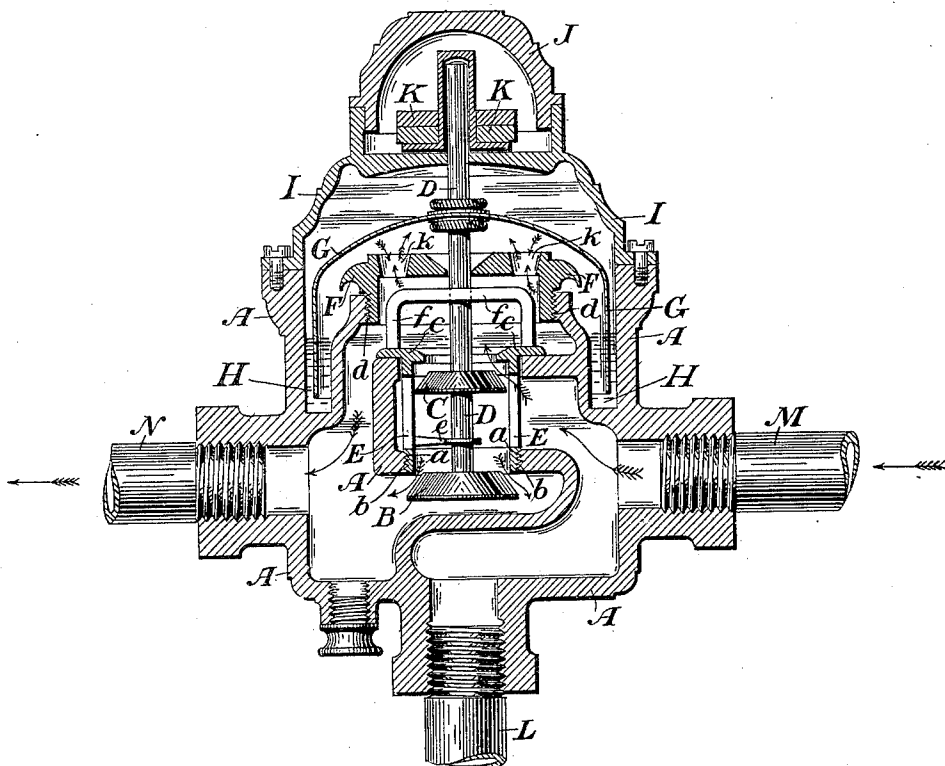
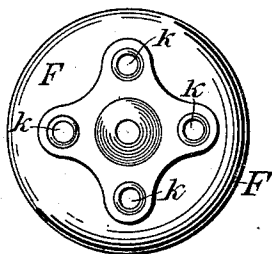


Fig. 3.



WITNESSES:

*C. T. Bell.*  
*V. B. Hillyard.*

INVENTOR:

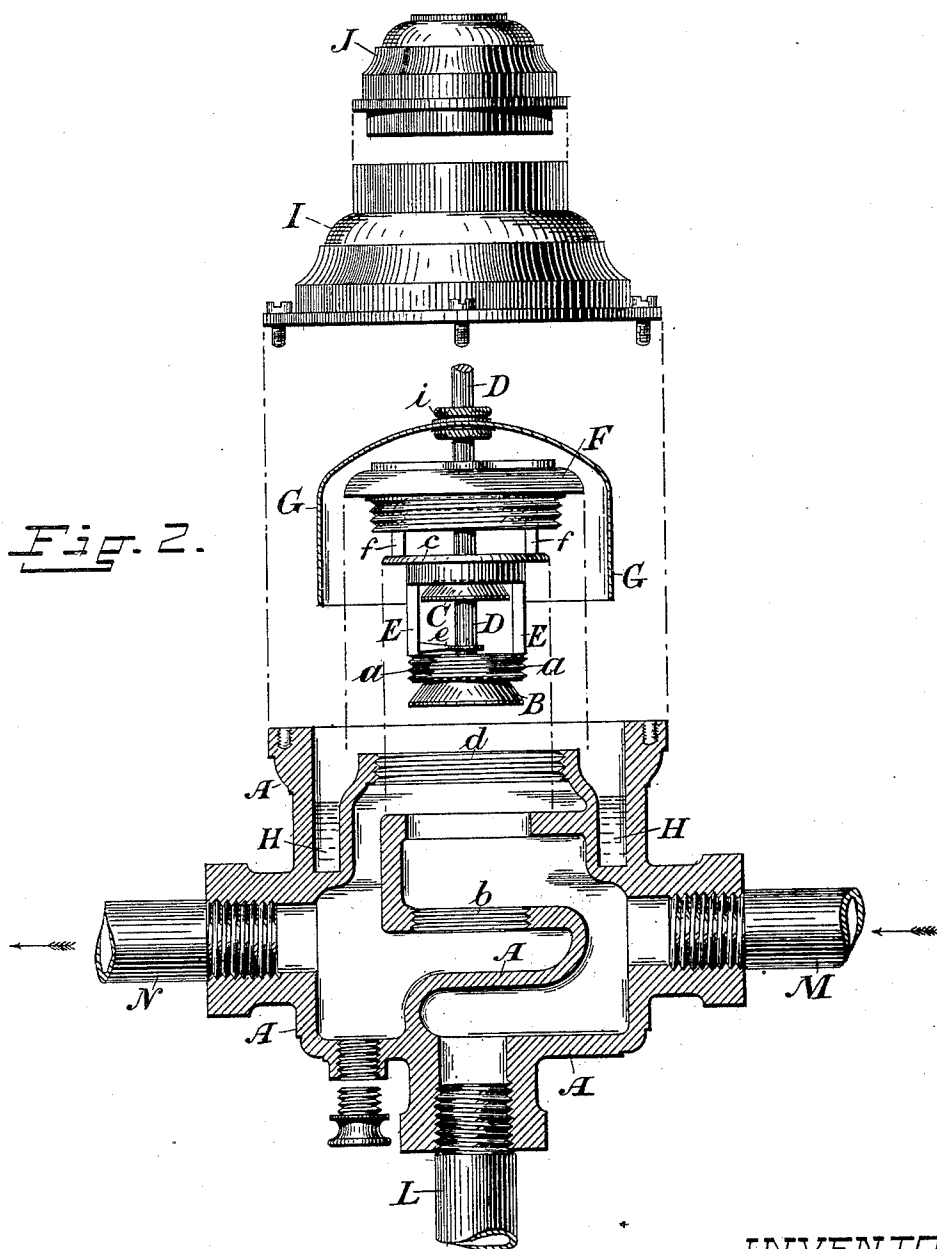
*Joseph Shaw.*  
*by Herbert H. Jenner.*  
*Attorney.*

J. SHAW.

GOVERNOR FOR REGULATING THE SUPPLY OF GAS.

No. 426,148.

Patented Apr. 22, 1890.



WITNESSES:

*C. T. Belt.*  
*V. B. Hilyard.*

INVENTOR:

*Joseph Shaw*  
*by Herbert W. Jenner.*  
*Attorney*

# UNITED STATES PATENT OFFICE.

JOSEPH SHAW, OF LOCKWOOD, NEAR HUDDERSFIELD, COUNTY OF YORK,  
ENGLAND.

## GOVERNOR FOR REGULATING THE SUPPLY OF GAS.

SPECIFICATION forming part of Letters Patent No. 426,148, dated April 22, 1890.

Application filed October 19, 1889. Serial No. 327,607. (No model.) Patented in England December 17, 1886, No. 16,565.

*To all whom it may concern:*

Be it known that I, JOSEPH SHAW, brass finisher, a subject of the Queen of Great Britain, residing at Lockwood, near Huddersfield, Yorkshire, England, have invented certain new and useful Improvements in Governors for Regulating and Governing the Supply of Gas, of which the following is a specification.

A patent for this invention has been obtained in England, No. 16,565, dated December 17, 1886.

My invention relates to governors for regulating and governing the supply of gas; and it consists, first, in arranging the equilibrium-valve and parts connected therewith, so that they can be easily and readily removed from the governor to be cleaned or repaired and placed back again without disturbing or removing the body of the governor from the inlet and outlet pipes and without in any way interfering with the proper and true working of the parts, and, secondly, to the means for conducting the gas from the valves and distributing it equally against the top of the float or inverted cup which floats in mercury in the governor, for the purpose of insuring the more perfect and reliable working of the governor.

In order that my said invention may be fully understood, I will now proceed more particularly to describe the same, and for that purpose shall refer to the several figures on the accompanying sheets of drawings, the same letters of reference indicating corresponding parts in all the figures.

Figure 1 is a section of a gas governor or regulator, showing the manner of arranging and fixing the equilibrium-valve and parts connected therewith in the interior of the governor, so that they can be easily and readily removed therefrom to be cleaned or repaired and replaced again without disturbing or removing the body of the governor from the inlet and outlet pipes. Fig. 2 is a part section and part elevation showing the valves and parts connected therewith removed from the governor. Fig. 3 is a detail plan view of the cap, which covers the cage which forms the valve-seats.

A is the body or casing of a gas governor or regulator constructed according to my invention.

B and C are valves forming the ordinary equilibrium-valve, and D is the valve-spindle.

E is a cage, the upper and lower ends of which form valve-seatings for the valves B C, such cage being made secure by a screw-thread *a*, formed on the lower end thereof, which corresponds to a screw-thread *b*, formed in the central portion of the casing A; or they may be secured in any other convenient manner. A flange *c* is also formed on the upper end of the cage, so that when the said cage is screwed firmly into its place, as shown in Fig. 1, the flange rests upon the upper face of the central portion of the casing, thereby preventing the passage of gas between the cage and the casing when the valves are closed.

The cage E is covered by a metal cap F, screwed into the casing at *d*, such cap acting as a support and guide to the spindle D. Above the cap F and secured to the valve-spindle is a float or inverted cup G, floating in mercury or other suitable liquid contained in the annular channel H, formed in the casing A.

*e* and *f* are supports extending from the cage E for the purpose of supporting and guiding the valve-spindle D. When the parts are properly fixed and adjusted, the lid or dome I is secured by screws or other suitable means to the body of the casing. A second dome or lid J is also employed, so that the valves can be weighted as and when required by placing weights K on the upper end of the valve-spindle, this being done without having to remove the dome I.

By the arrangement and construction of a gas-governor as above described it will be seen that when the working parts of the governor require cleaning, repairing, or otherwise renewing it is only necessary to remove the dome I, unscrew the cap F and cage E, when the whole of such working parts can be easily removed from the casing, (see Fig. 2,) cleaned, repaired, or renewed, and then placed back again without having to disconnect the governor from the service-pipes and without interfering with the proper and efficient work-

ing of the valves and parts connected therewith.

My invention relates, secondly, to the means for equally distributing the gas to all parts of the float, so that the valves and float will work in unison and better command and govern the supply of gas. This part of my invention is shown in section, Fig. 1, and in plan view, Fig. 3, and consists in forming a number of bell-mouthed openings *k* in the metal cap F. The gas enters the regulator at either or both of the inlet-pipes L M, and passes into the cage E, from which a portion issues through the valve B to the outlet-pipe N, the remainder passing through the valve C and through the bell-mouthed openings *k* in the cap F to the inside of the float G, from which it returns through the said openings *k* to the outlet-pipe N. If the pressure of gas be equal, the valves and float remain stationary, the valves being open, as shown in Fig. 1; but as soon as the pressure begins to increase it causes the float G, and consequently the valves B and C, to rise and so lessen or reduce the quantity of gas passing through the regulator, and if the supply is not equal to the demand the absence of the necessary pressure will at once allow the float to lower, thereby opening the valves still further and allowing a larger quantity of gas to pass through the governor.

By forming a number of bell-mouthed openings in the metal cap F the gas passing through the governor is distributed equally to all parts of the float, whereby the slightest fluctuation in the pressure of gas admitted to the governor is at once communicated to the float, which rises or falls, as the case may be, and therefore opens or closes the valves, so as to increase or reduce the supply of gas, by which means the supply of gas is automatically regulated according to the demand, and the waste, damage to furniture and other effects, and injury to health occasioned by the escape of unconsumed gas entirely prevented.

The upper portion of the metal cap F is suitably curved or shaped, as at *s*, so that if the gov-

ernor should be tilted and the mercury in the annular channel H caused to rush to one side such mercury will be prevented from entering or passing through the openings *k* to the inside of the governor.

What I claim is—

1. In a gas-governor, the combination, with the body provided with inlet and outlet pipes, the annular chamber H at its upper part, and concentric supports for the valve-seat and perforated cap, of the valve-seat E and perforated cap F, removably secured to said supports, the equilibrium-valve provided with a stem, the float-bell secured to said stem, and the removable dome permitting all of the said internal parts to be removed without breaking the pipe-joints, substantially as set forth.

2. In a gas-governor, the combination, with the body provided with the annular chamber H, and the equilibrium-valve, of the cap F, provided with a series of bell-mouthed perforations, and the float-bell secured to the valve-stem over the cap and depending within said annular chamber, substantially as and for the purpose set forth.

3. In a gas-governor, the combination, with the body provided with the annular chamber H, and the equilibrium-valve working in the body, of the cap F, provided with a series of bell-mouthed perforations, and an outwardly and downwardly curved flange for retaining the fluid in the annular chamber when tilted, and the float-bell secured to the valve-stem over the said cap and depending within the said annular chamber, substantially as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOSEPH SHAW.

Witnesses:

C. W. WHITMAN,  
U. S. Consular Agent at Huddersfield.

THOMAS H. BARRON,  
Clerk to Messrs. Tasker & Crossley, Market Place, Huddersfield.