(No Model.)

B. FRANKLIN.

GAS REGULATOR.

No. 353,548. Patented Nov. 30, 1886.

Fig. 1.

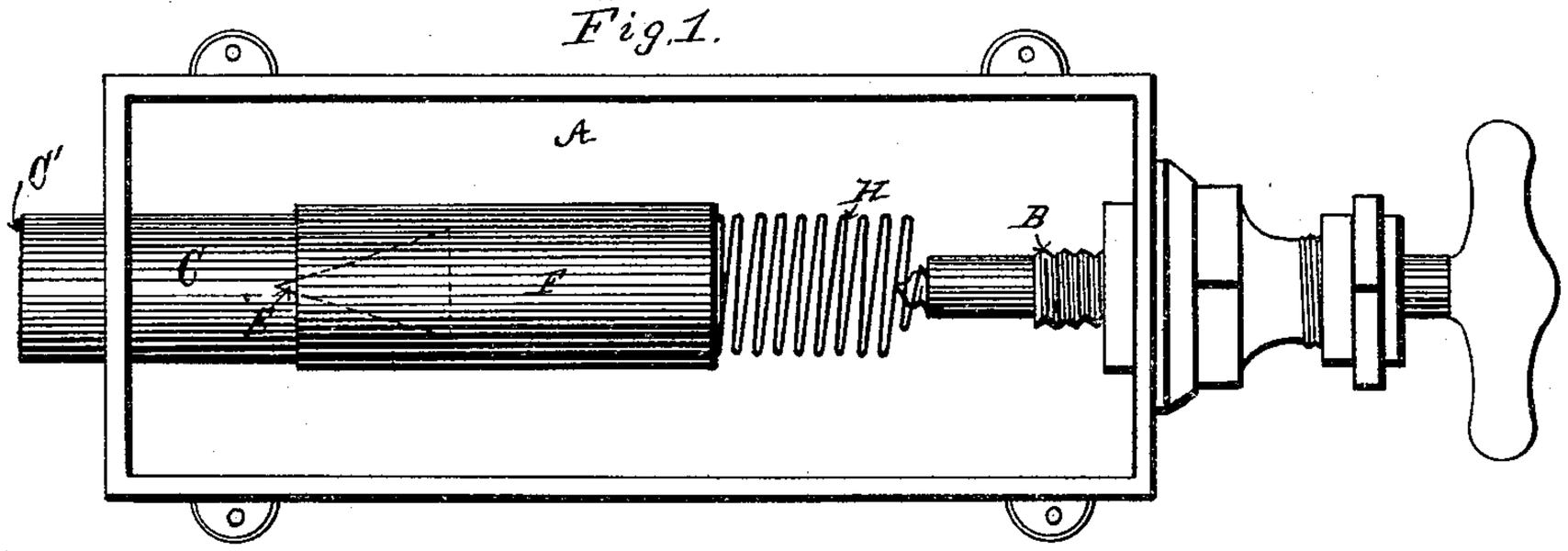


Fig. 2.

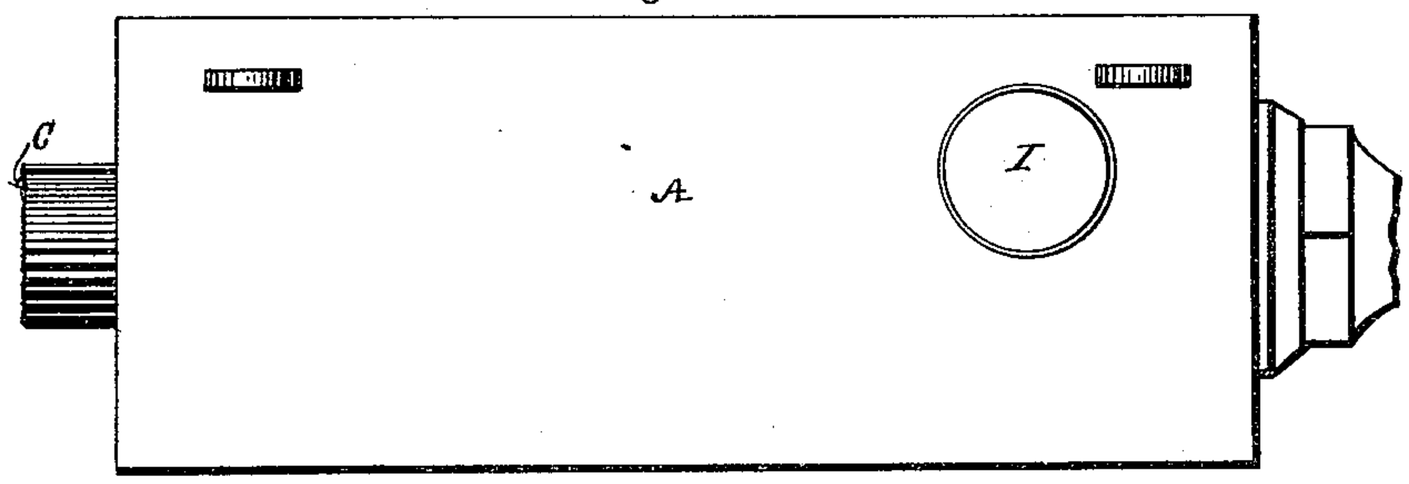


Fig. 3.

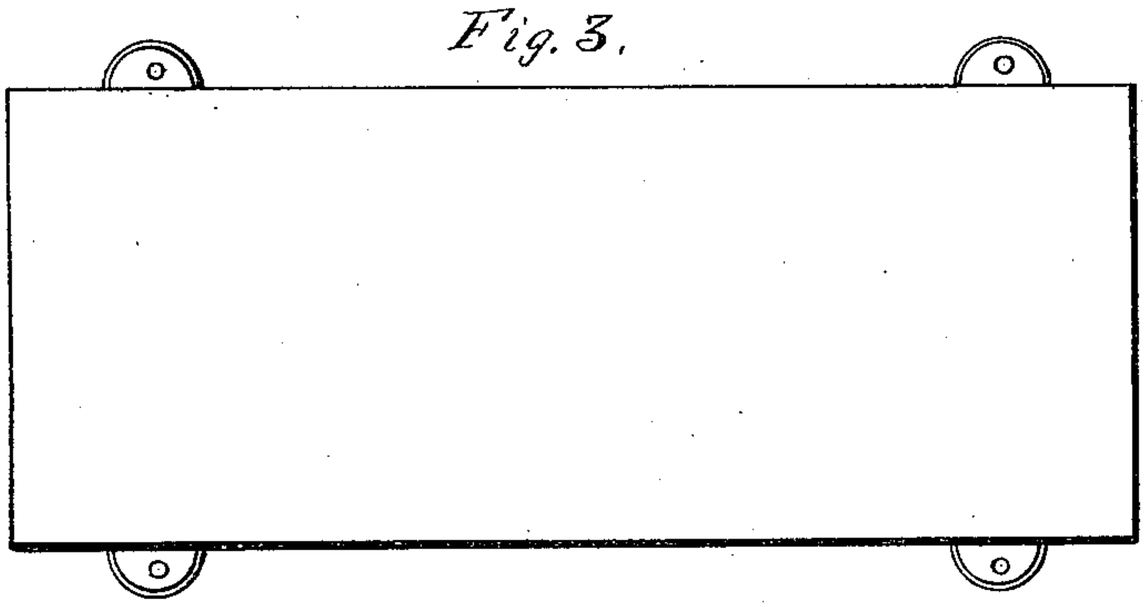
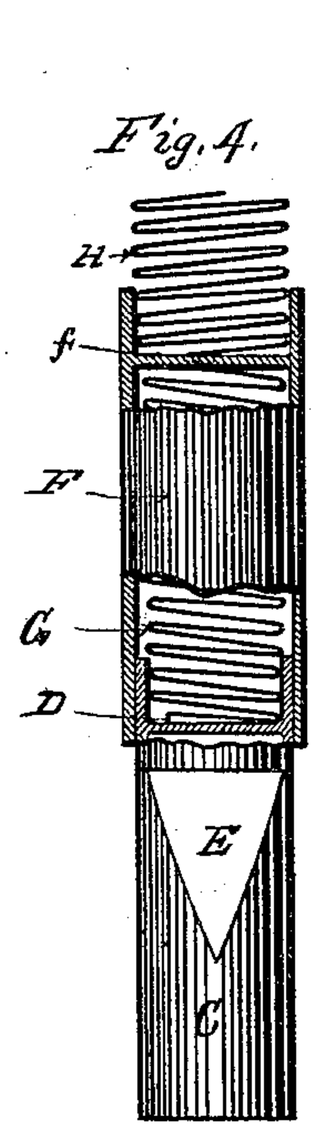


Fig. 4.



WITNESSES:

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BENJAMIN FRANKLIN, OF BRADFORD, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO SOLOMON R. DRESSER, OF SAME PLACE.

GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 353,548, dated November 30, 1886.

Application filed April 30, 1886. Serial No. 200,755. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN FRANKLIN, a citizen of the United States, residing at Bradford, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Regulators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to gas-regulators; and it consists in the improvements hereinafter set forth and explained.

My invention is illustrated in the accompanying drawings, in which Figure 1 is a longitudinal side elevation of my improved gas-regulator with the cover removed. Fig. 2 is a side elevation of the same. Fig. 3 is a view of the cap thereof in elevation. Fig. 4 is a view, partially in elevation, of the valve mechanism of my improved gas-regulator removed therefrom.

Like letters refer to like parts in all the figures.

In the construction of my improved gas-regulator, A is a case, one end of which is provided with an adjusting-screw, B, and the other end thereof with a tube, C, adapted to be secured to a gas-supply pipe. This tube C extends into the case A some distance, and has its end closed at D. (See Fig. 4.) The tube C is also provided with one or more V-shaped openings, E, the small ends of which are toward the end of the case A, where the tube C is fastened. The outside of this tube C is also turned off and fitted to receive a sleeve, F. One end of this sleeve F is closed at *f*, and is fitted to the tube C by a gas-tight joint, so that it can be moved up and down upon C, so as to cover the V-shaped openings therein, the part C operating as a hollow stationary valve and the part F as a movable seat therefor.

Between the closed end D of the valve C and the closed end *f* of the movable valve-seat F, I place a spiral spring, G, which operates to open the valve C F, as illustrated in Fig. 4; and between the closed end of the movable valve-seat F and the adjusting-screw B, I place another spiral spring, H, the spring G, however, being somewhat stiffer than the spring H, so that it will equalize the spring H, as well as the normal pressure of the gas in the case A, acting in unison with the spring H upon the end *f* of the sleeve or valve-seat F. For example, suppose it is desired to have three pounds pressure in the pipe connecting with the outlet I of the case, (see Fig. 2,) while there is a greater pressure in the line connecting with the outlet C′, the adjusting-screw B may be turned down upon the spring H, and thereby produce a sufficient tension of the spring H, so that it, together with a pressure of three pounds of gas on the closed end *f* of the sleeve F, will equalize the tension of the spring G. The gas will thus pass into the case A through the V-shaped openings E, so as to maintain a continuous three-pound pressure in the case A; but if it enters too rapidly at any time, because of an increase in the pressure at C′, the pressure in the case A will be correspondingly increased and operate to slide the sleeve F down farther on the V-shaped opening E until the pressure in the case A is at its normal point, and vice versa. If the pressure at C′ decreases, the pressure in the case A will correspondingly decrease, and the sleeve F will move back, opening the V-shaped passage to a greater extent, the valve thus constructed being substantially a balance-valve, adapted to be adjusted to automatically maintain any desired pressure in the case A and the outlet-pipes therefrom.

Having thus fully described and shown a convenient mechanism for utilizing my invention, such as will enable others skilled in the art to which it appertains to construct and operate the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a gas-regulator, of an inclosing-case provided with inlet and outlet pipes, and a stationary hollow valve inside of said case on the end of the inlet-pipe, having its end closed and its sides perforated,

with a movable sleeve valve-seat adapted to operate over said hollow valve, a spiral spring between the stationary valve and its seat, and a weaker spring between the movable valve-seat, and a regulating-screw in the case, substantially as and for the purpose set forth.

2. In a gas-regulator, the combination of the case A with the stationary inlet-valve C, provided with V-shaped openings E, the spring G, the sleeve valve-seat F, the spring H, and the adjusting-screw B, substantially as and for the purpose set forth.

3. In a gas-regulator, the combination of the stationary inlet-valve C with the spiral spring G, the sleeve valve-seat F, and the spring H, substantially as and for the purpose set forth.

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

BENJAMIN FRANKLIN.

Witnesses:
GEO. A. STURGEON,
J. K. WALLACE.