(No Model.)

R. V. SCHOONMAKER.

GAS REGULATOR.

No. 541,633 Patented June 25, 1895.

Fig. 2

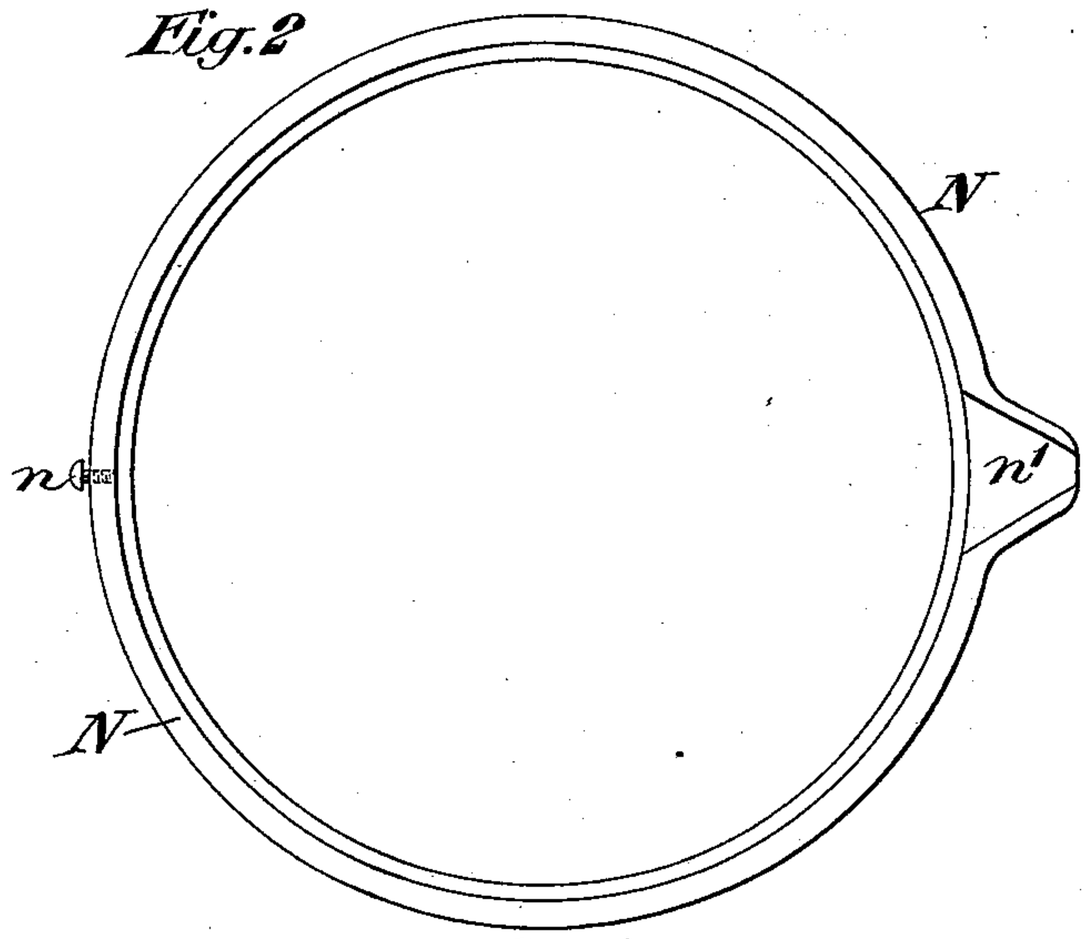

Fig. 1.

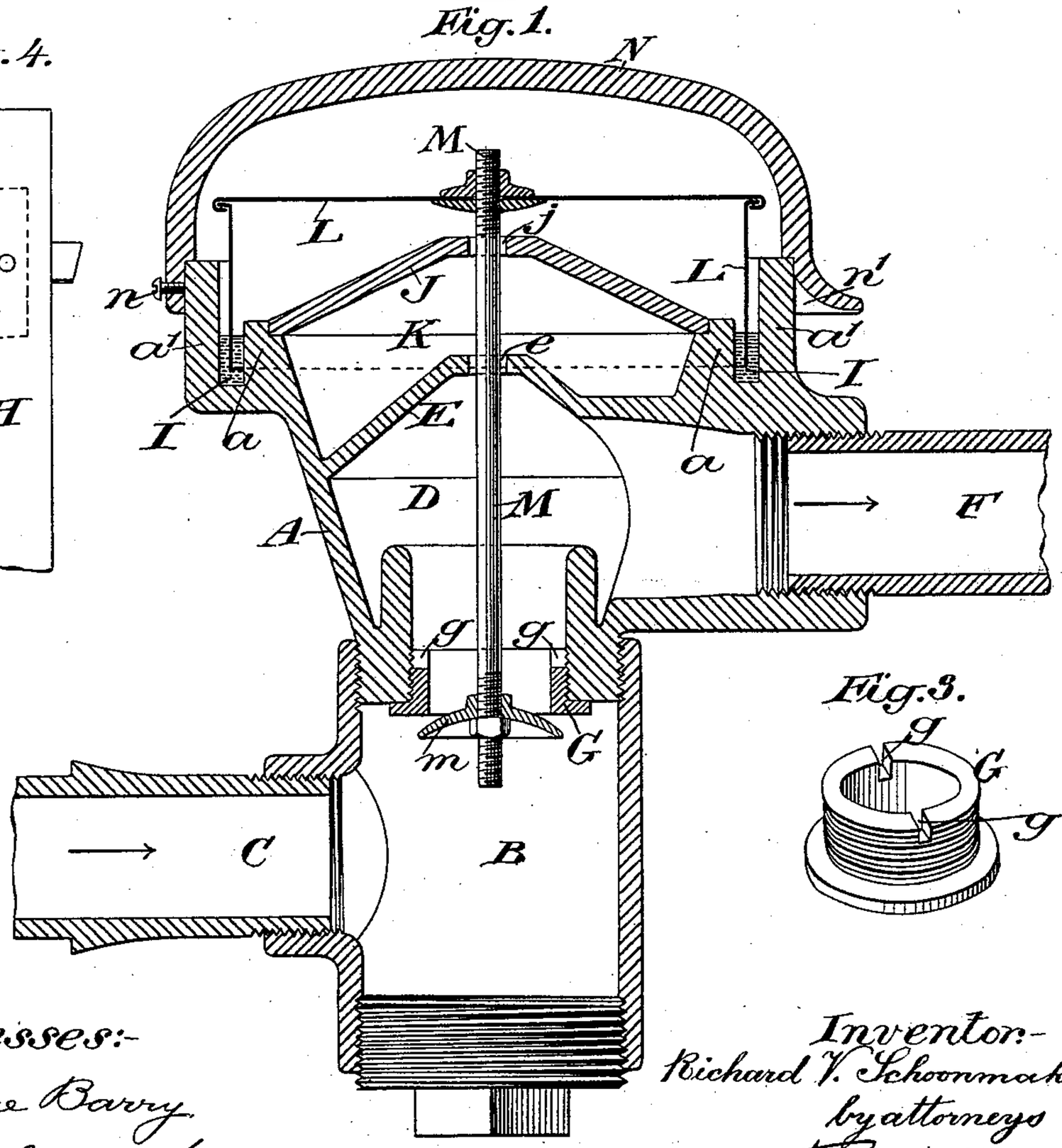

Fig. 4.

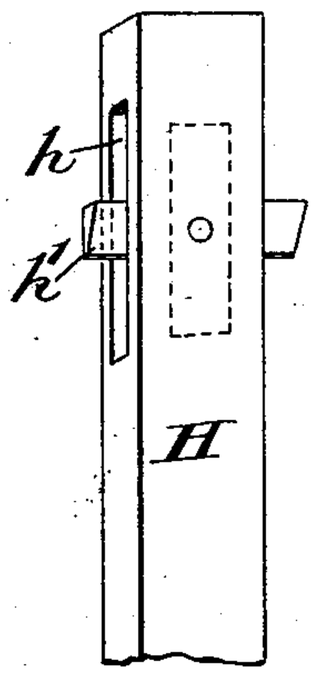

Fig. 3.

Witnesses:-
George Barry.
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UNITED STATES PATENT OFFICE.

RICHARD V. SCHOONMAKER, OF NEW YORK, N. Y.

GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 541,633, dated June 25, 1895.

Application filed March 14, 1895. Serial No. 541,680. (No model.)

To all whom it may concern:

Be it known that I, RICHARD V. SCHOONMAKER, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Gas-Regulators, of which the following is a specification.

My invention relates to an improvement in gas regulators, the object being to provide a device for automatically regulating the flow of gas to the burner so that the pressure of gas within the discharge pipe will be held at a certain point, thereby insuring an even flame at the burner.

A further object is to provide certain new arrangements and combinations of parts, so as to produce the above named results in a simple and effective manner.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view in vertical central section of my improved regulator. Fig. 2 is an inverted plan view of the cap or cover. Fig. 3 is a perspective view of the tubular valve-seat, showing clearly the location of the notches for screwing the valve-seat into the casing; and Fig. 4 is a perspective view of one form of a screw-driver which may be used for screwing the tubular valve-seat into position.

The casing is denoted as a whole by A and a coupling B is secured to the lower end of the casing, preferably by screwing thereon. The coupling B serves to connect the casing A with a suitable supply pipe C. The chamber D is formed within the casing A between the lower end of the casing and a diaphragm E, which diaphragm is preferably dome shaped and is provided at about its center with an opening *e* for the passage of gas therethrough. This diaphragm is preferably cast integral with the casing A.

A suitable discharge pipe F is secured to the casing A and communicates with the gas chamber D. This discharge pipe leads to any point where the gas is desired to be used.

The lower open end of the casing A is interiorly screw threaded for the reception therein of a tubular valve seat G. The tubular valve seat is provided on its inner or upper end with suitable notches *g* which are preferably cut diametrically opposite each other, which notches are for the reception of a screw driver, whereby the valve seat may be screwed firmly into position without marring or indenting the valve seat itself. Furthermore, cutting the notches in the inner end of the tubular valve seat obviates the necessity of forming lugs on its inner walls, which would tend to impede the flow of gas through the tubular valve seat into the regulator.

The screw driver, which I have found convenient for screwing the tubular valve seat G home, is shown in Fig. 4 and consists of a suitable shank H having an elongated slot *h* extending lengthwise therethrough, in which slot is pivoted a rocking piece *h'* for engaging the notches *g*, when it is swung horizontally so as to project beyond the edges of the shank.

The casing A is provided at its top with inner and outer annular walls *a*, *a'*, thereby forming a trough for the reception of a suitable sealing fluid I.

Above the diaphragm E, I provide a second diaphragm J which seats upon the top of the inner wall *a* of the casing A, thereby forming a chamber K. This diaphragm J is provided with a suitable aperture or opening *j* which is in alignment with the aperture or opening *e* in the diaphragm E.

L designates the bell float and its sides and lower edges dip into the sealing fluid I in the trough formed by the annular walls *a*, *a'*. To the center of the bell float L, I secure the upper end of a valve stem M, which valve stem extends downwardly through the apertures *j* and *e* and through the tubular valve seat G and is provided beyond the valve seat with a suitable valve *m* secured thereon. By this arrangement, the raising of the bell float L by pressure will draw the valve *m* toward its seat G, thereby reducing the flow of gas into the regulator.

To the top of the outer wall *a'* of the casing A, I seat a suitable cap or cover N. This cover is removably secured to the top of the casing by means of a suitable set screw *n*, which engages the wall *a'*. The cover is provided with a pouring lip *n'*. This cover may be used for holding the sealing fluid, whenever it is desired to remove it from the trough in the casing, and the pouring lip *n'* enables the operator to pour the liquid back into the

trough between the outer wall a' and the side of the bell float L, without spilling the same This is a very advantageous construction, as heretofore it has been necessary to provide a separate vessel and funnel for such purpose.

By forming a plurality of diaphragms between the valve and the float, I am enabled to form gas cushions, thereby preventing sudden variations in the pressure of the gas from acting too quickly upon the float and causing it to jump. This feature enables the regulator to more effectually control the flow of gas through the outlet and thereby causing the burner to produce a much steadier flame.

By casting the diaphragm E integral with the casing A and removably seating the diaphragm J upon the casing, I am enabled to form a very simple and effective construction.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein set forth, but

What I claim is—

In a gas regulator, a casing having an inlet and an outlet, the top of the casing being provided with an inner and an outer annular wall to form a trough, a float having its lower edge resting within said trough, a cover removably secured to the outer wall, an upper perforated diaphragm resting on the inner wall, a lower perforated diaphragm within the casing spaced from the upper diaphragm, a valve and a tubular valve seat located at the inlet to the casing and a valve rod connecting the float with the valve for regulating the flow of gas through the regulator, substantially as set forth.

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Witnesses:
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