

(No Model.)

S. J. WAKELEY.

GAS GOVERNOR.

No. 362,685.

Patented May 10, 1887.

Fig. 1.

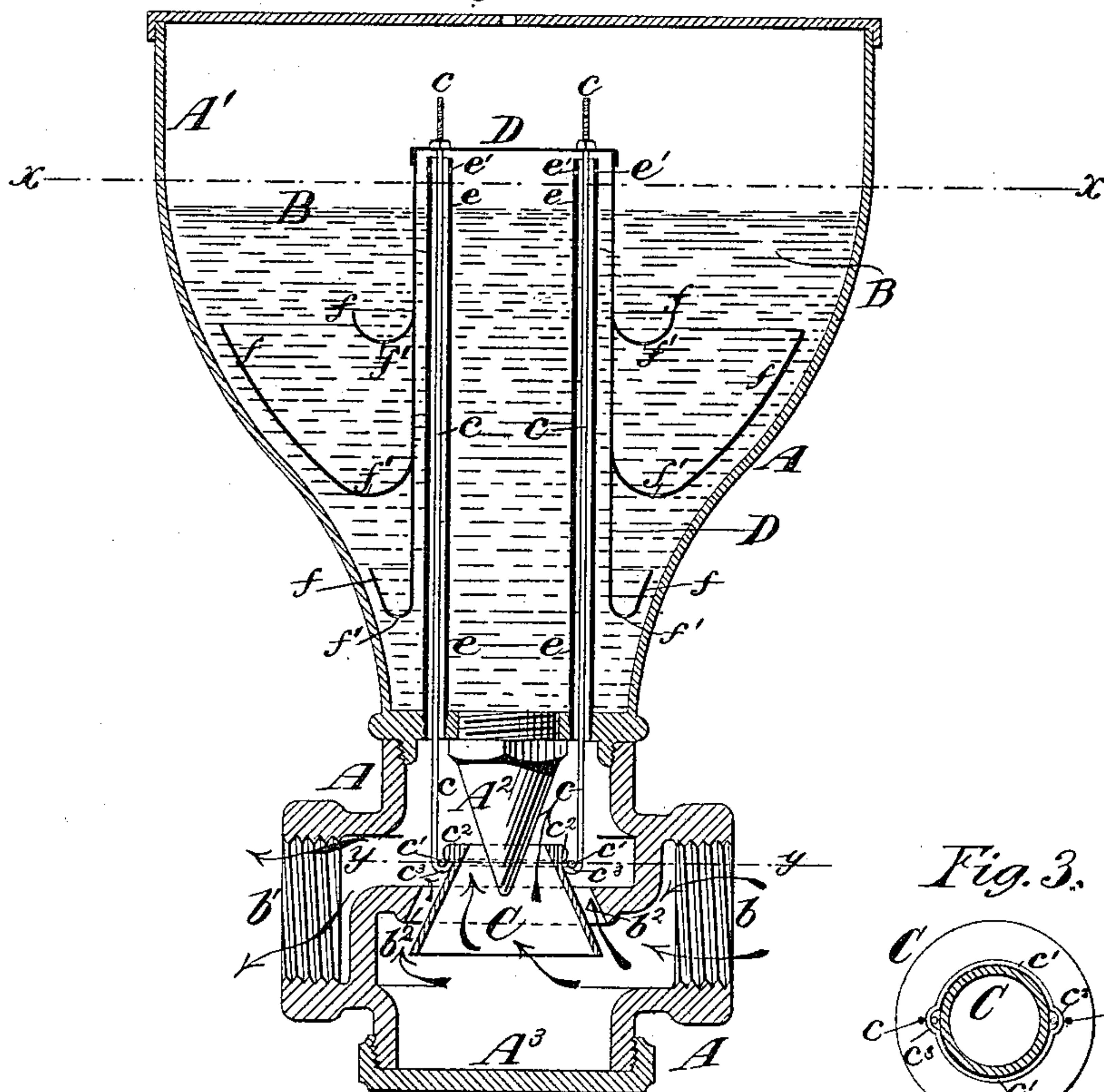


Fig. 3.

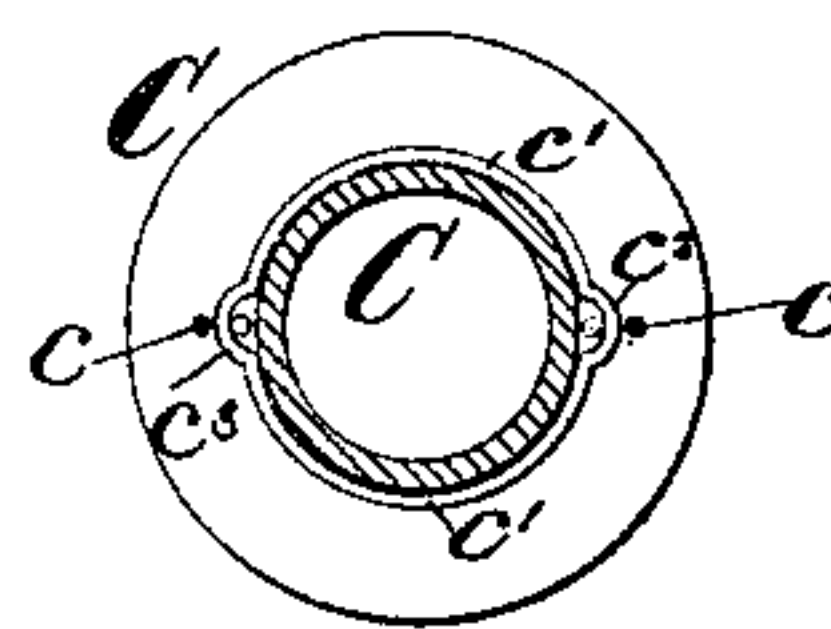
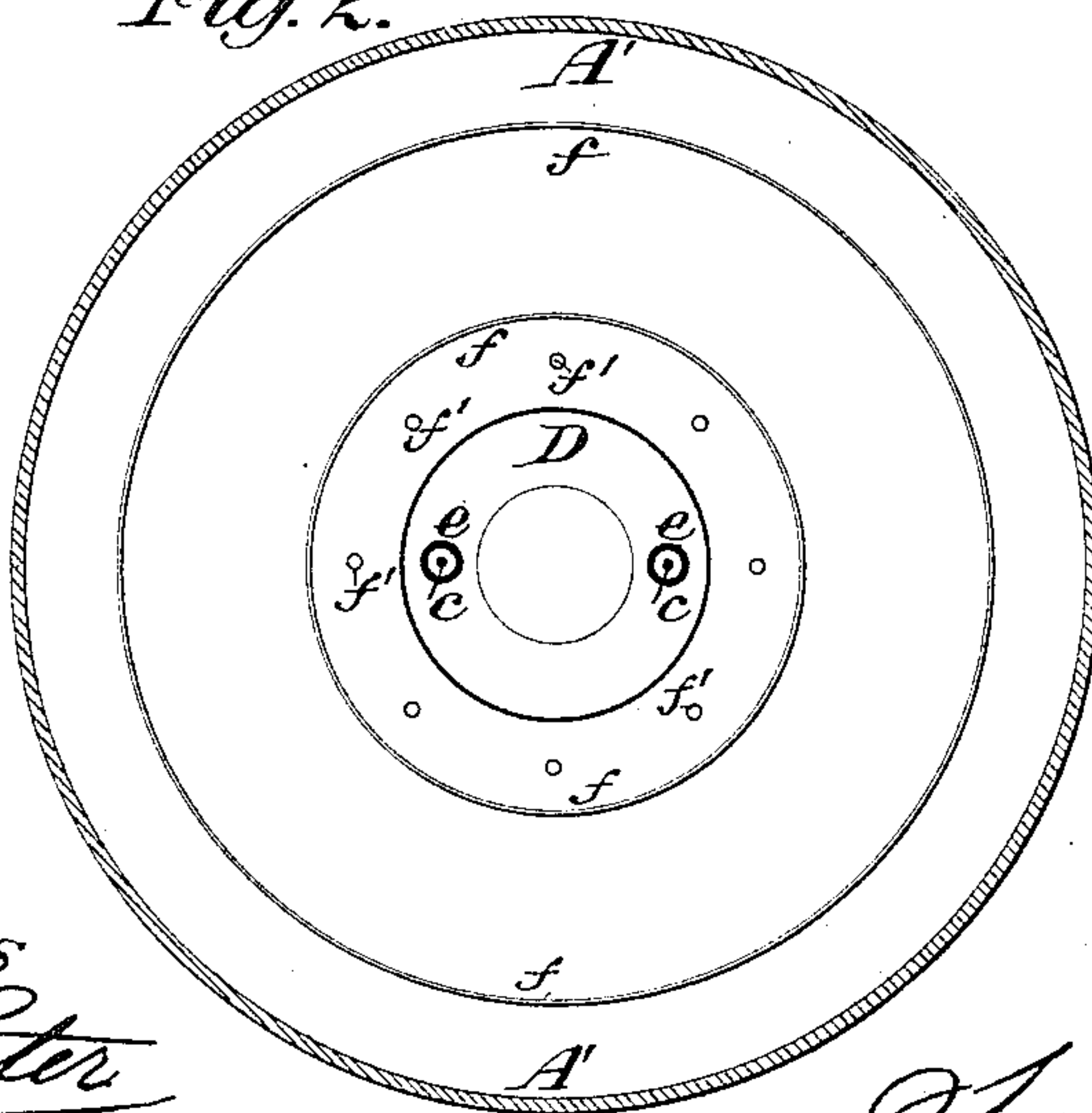


Fig. 2.



Witnesses
Emil Herter
O. Sundgren

Inventor:

S. J. Wakeley
by his attys
Brown & Hall

UNITED STATES PATENT OFFICE.

SETH J. WAKELEY, OF NEW YORK, N. Y.

GAS-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 362,685, dated May 10, 1887.

Application filed December 16, 1886. Serial No. 221,781. (No model.)

To all whom it may concern:

Be it known that I, SETH J. WAKELEY, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Gas-Governors, of which the following is a specification.

My invention is applicable, generally, to governors for regulating the supply of gas to a number of burners, but is particularly advantageous when employed for regulating gas of a comparatively high pressure—as, for example, from twenty-six to thirty inches, or thereabout, of water-pressure.

The invention relates to those gas-governors in which the valve has connected with it a float or drum immersed in a liquid contained within a suitable casing, the float or drum having its lower end open, so that the pressure of gas entering the float or drum, usually from the service-pipe, may act upon the top thereof to close the valve more or less by reaction upon the liquid contained in the casing, and said float or drum being provided with wings or cup-shaped projections, which, being immersed in the liquid in the casing, retard the movement of the valve and prevent its too sudden operation.

Important objects of my invention are, as aforesaid, to provide a governor which will act properly with gas under comparatively high pressure, and in which the valve will not be closed by any momentary increase in the pressure of gas.

The invention consists in novel combinations of parts, which are hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of a governor embodying my invention, the valve being shown open. Fig. 2 is a horizontal section upon about the plane of the dotted line *x x*, Fig. 1; and Fig. 3 is a horizontal section of the valve upon about the plane of the dotted line *y y*, Fig. 1.

Similar letters of reference designate corresponding parts in the several figures.

A designates a valve-shell, having at one side a pipe-socket, *b*, for an inlet-pipe, and at the other side a pipe-socket, *b'*, for the outlet-pipe. Within this shell is a main valve-seat, *b'*, (here represented as conical,) and the shell A is surmounted by a casing, A', which may

be of metal of any suitable form, and which is adapted to contain mercury or other liquid, B. The casing A' is, as here shown, screwed into the valve-shell A, and has a downwardly-projecting plug, A², (here shown as conical,) and which forms a supplemental or second valve-seat, as I shall now describe.

The valve C here shown is a hollow conical valve open at both ends, and which by a rising movement closes its exterior upon the seat *b'* and its interior at the upper end upon the plug A², which forms the second valve-seat; hence it will be seen that by a slight downward movement an opening for the passage of gas will be afforded between the seat *b'* and the exterior of the valve C and between the seat A² and the interior of said valve.

With the valve is connected a drum or float, D, which is closed at the upper end and open at the lower end, and which is immersed in the mercury or other liquid, B, contained in the casing A'. This drum B is connected with the valve C, so that a rising movement of the drum will close the valve. The stem which connects the drum D and the valve C is, as here shown, composed of a number of rods or wires, *c*, which are arranged external to or around the plug A², forming the second valve-seat, and which are preferably so connected with the valve C above the portion bearing on the seat *b'* as to provide for the self-adjustment of the valve relatively to its seats. As here represented, a wire, *c'*, surrounds the valve below a shoulder, *c'*, thereon, and the lower ends of the wires *c* are hooked, as shown at *c'*, to engage said wire. I have here shown two wires or rods, *c*, as composing the valve-stem; but it is obvious that a greater number might be used. A flexible connection or attachment between the rods or wires *c* and the valve C is important, because such flexible connection or attachment provides for the free self-adjustment of the valve to its seats, and it is advantageous to have the rods or wires *c* connected with an annular wire or band, *c'*, surrounding the valve, because, then, by simply removing the bonnet or cap A³, closing the lower end of the valve-shell A, the valve C may be turned to grind it upon its seats without disconnecting it from any of the parts employed in connection with it. I have here represented the

plug A², which forms the second or supplemental seat for the valve C, as screwed into the bottom of the casing A', and such screw-thread provides for the adjustment of the plug, so as to bring it into exact relation to the main valve-seat b².

The passage of gas into the drum D is provided for by means of tubes or pipes e, which surround the rods or wires c, and which are inserted liquid-tight into the bottom of the casing A'. These tubes e may have near their upper ends and above the liquid-level side perforations, e', to provide for the escape of gas from them into the drum D, even if the drum be lowered so that it rests upon the top of the tubes.

It will be observed that the drum D communicates with the delivery side of the valve, or with the service-pipe which extends from the socket b', and hence said drum will always contain the same pressure which is in the service-pipes, and any sudden increase of pressure cannot immediately shut off the gas, because the service-pipes are supplied from the drum.

It will be understood that gas is intended to flow through the valve C, in this example of my invention, in the direction of the arrows shown in Fig. 1.

In governors of this character it is important to prevent any sudden increase in the pressure of gas from acting too quickly to raise the drum D, and thus entirely shut off the supply of gas to the service-pipes. I retard the movement of the drum, which will be produced by an increased pressure of gas, by providing the drum D upon its outside with wings, fins, or projecting blades, which are immersed in the mercury or other liquid, B, contained in the casing A', and which consists of a series of cups which are presented upward and are formed upon or attached to the drum D. These cups present a large surface to the liquid within the casing A', and any upward movement of the drum will be retarded or controlled by the weight of the liquid until the liquid raised by the cups can have an opportunity of flowing downward around or through them. In the bottom of the cup-shaped wings f are perforations f', through which the mercury or other liquid, B, may pass slowly downward, and by such arrangement

the upward movement of the drum D, due to a sudden increase in the pressure of gas, is materially retarded, so that the drum and its attached valve can move upward but very slowly, and the closing of the valve will be slow.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a valve-shell containing two concentric valve-seats and a gas-valve substantially balanced and closing on said seats, of a gas-receiving drum connected with the valve and constructed with outwardly-projecting wings and a casing within which the drum is arranged for containing liquid to immerse the wings on the drum, substantially as and for the purpose herein described.

2. The combination, with a valve-shell and gas-valve, of a gas-receiving drum connected with the valve-stem and having outwardly-projecting cup shaped wings f, perforated at f', and a casing within which the drum is arranged for containing liquid to immerse the wings of the drum, substantially as herein described.

3. The combination, with a valve-shell and gas-valve and a gas-receiving drum to be immersed in liquid, of a stem connecting the drum and valve and composed of two or more wires or rods having at their lower ends a loose or flexible attachment to the valve at its periphery, to provide for its self adjustment to its seat, substantially as herein described.

4. The combination, with the shell A, having the seat b², and the surmounting casing A', having the downwardly-projecting plug A², forming a second seat, of the valve C, closing on both seats, the drum D, a stem connecting the valve and drum and composed of a number of wires or rods, c, around the upper valve-seat, and the tubes e, rising from the bottom of the casing and surrounding the wires or rods, substantially as herein described.

5. The combination, with the valve shell A, of the valve C, having a surrounding band, c', and wires or rods hooked onto said band and forming a valve stem, substantially as herein described.

SETH J. WAKELEY.

Witnesses:

FREDK. HAYNES,
EMIL HERTER.