

(No Model.)

2 Sheets—Sheet 1.

F. WESTON.

APPARATUS FOR INCREASING THE ILLUMINATING POWER OF GAS.  
No. 286,515.

Patented Oct. 9, 1883.

FIG. 1.

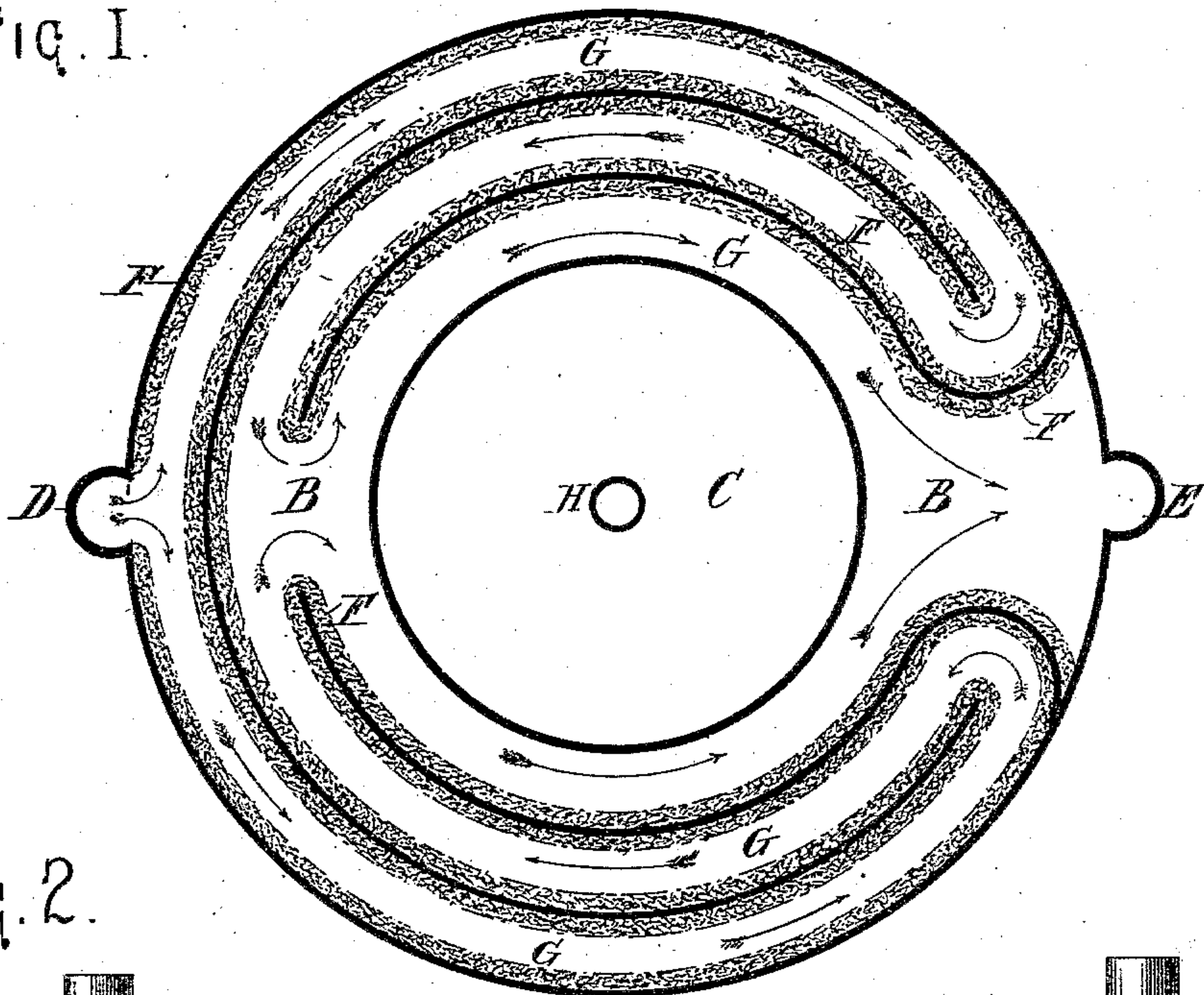
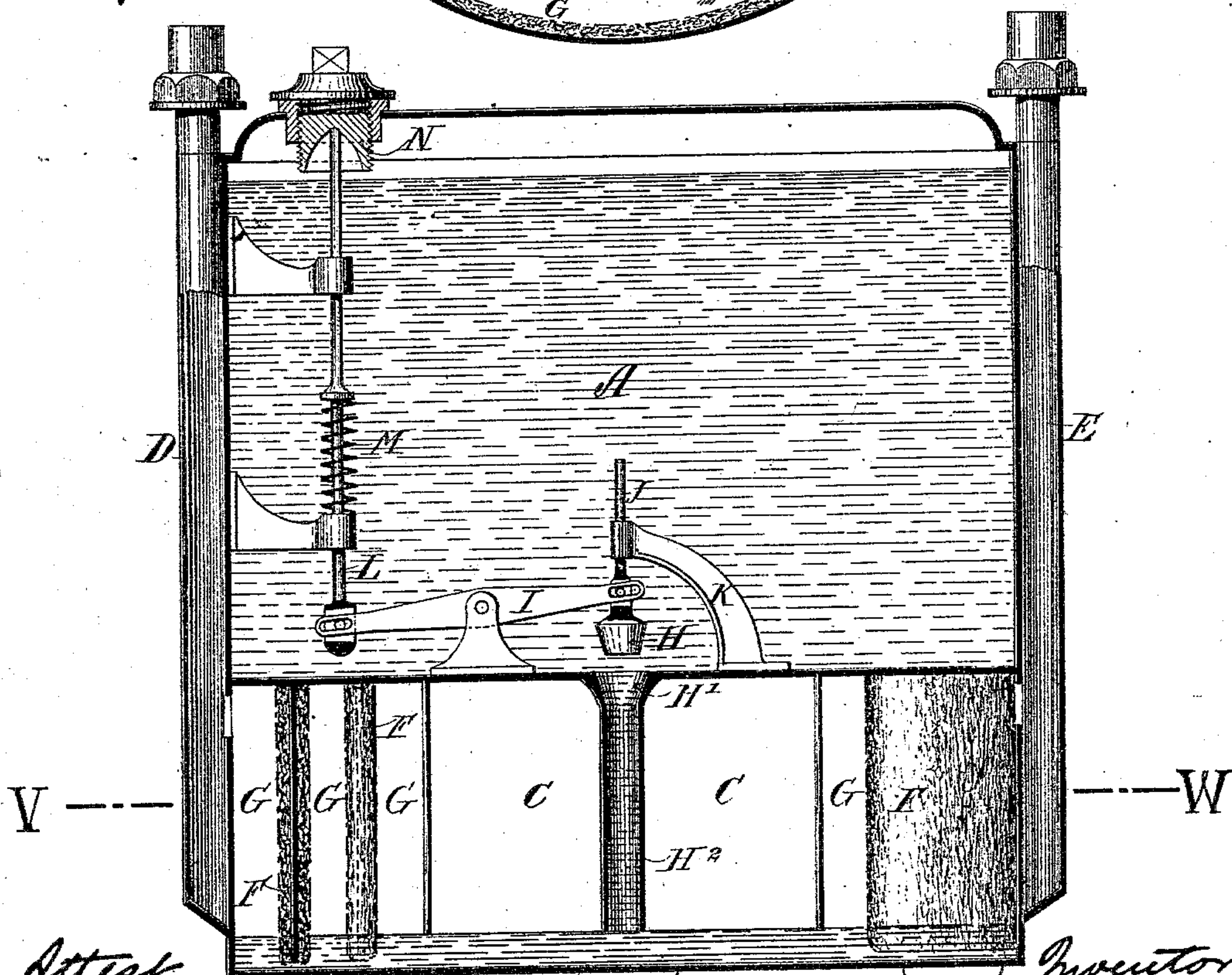


FIG. 2.



Attest  
Jas B. Wheeler  
Ralph Flaherty

Inventor  
Frederick Weston  
By Hal Bell  
att'y.



(No Model.)

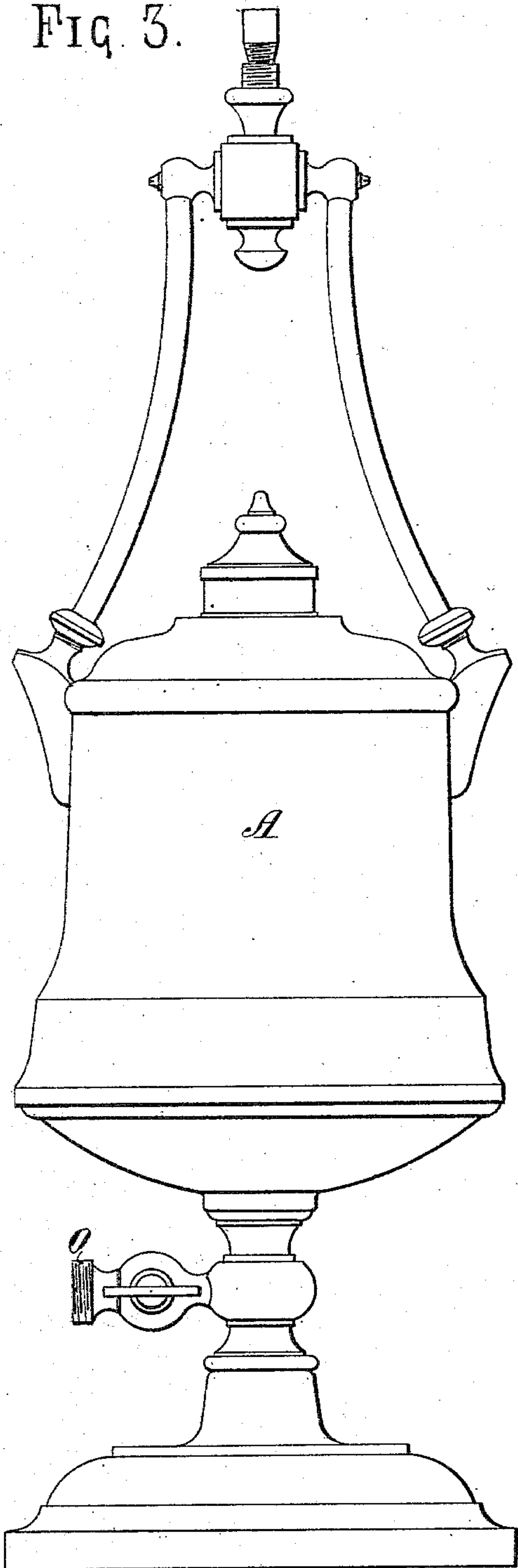
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FIG. 3.



Attest  
Jas. B. Wheeler.  
Robert Flaherty

FIG. 5.

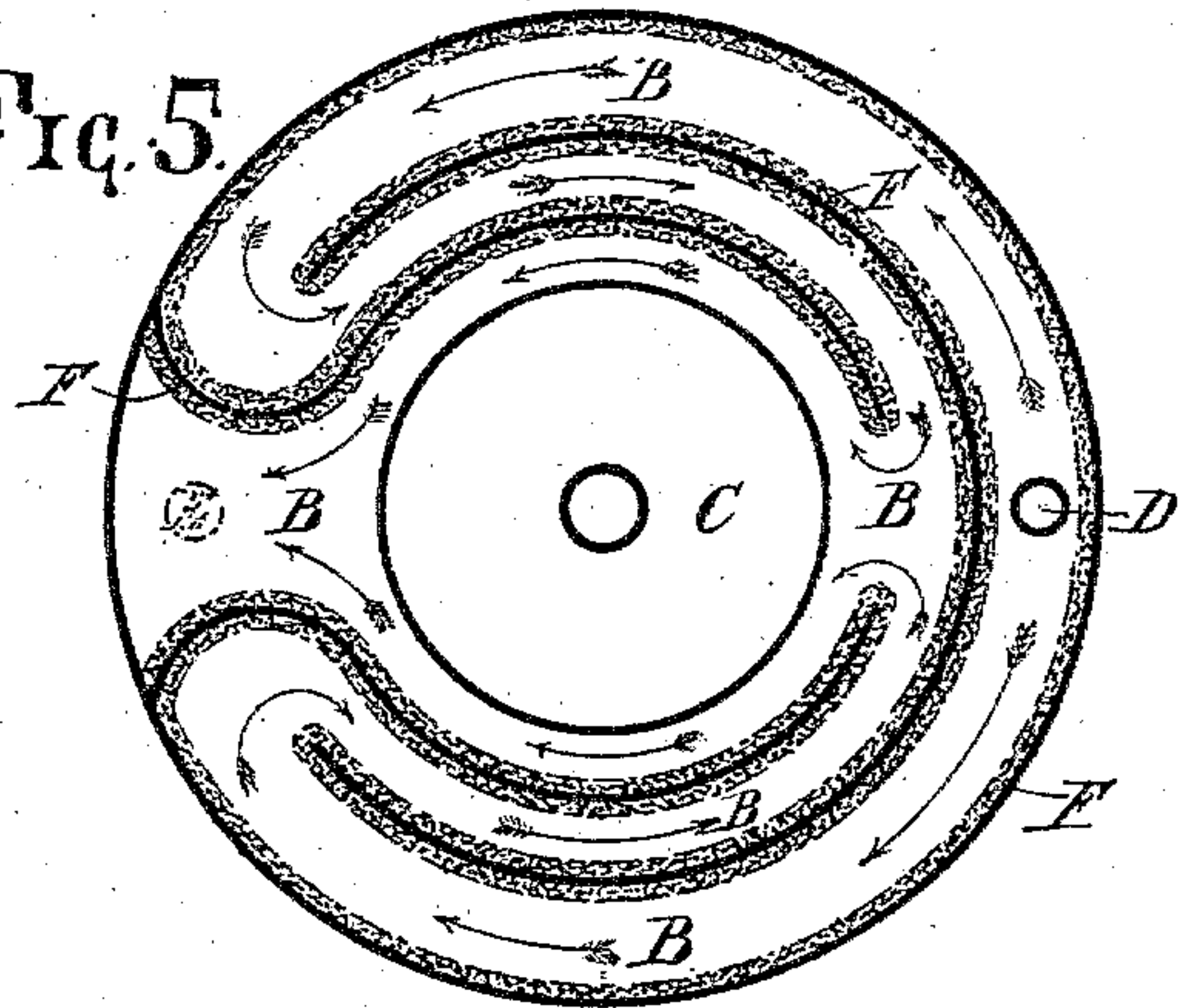
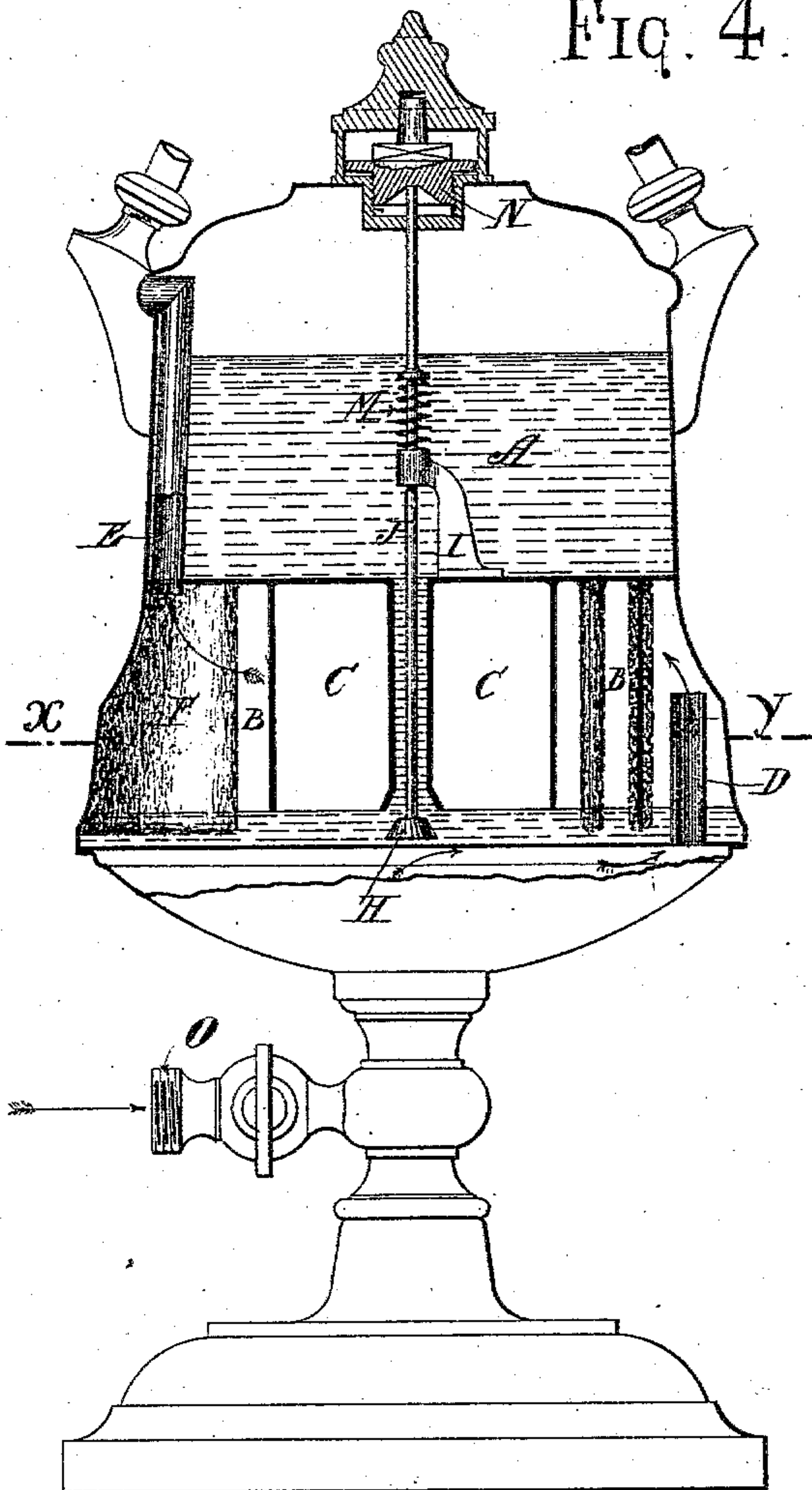


FIG. 4.



Inventor  
Frederick Weston  
by Hal Bee  
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# UNITED STATES PATENT OFFICE.

FREDERICK WESTON, OF BRIXTON, COUNTY OF SURREY, ENGLAND, ASSIGNOR  
TO THE WESTON GAS IMPROVEMENT COMPANY, OF NEW YORK.

## APPARATUS FOR INCREASING THE ILLUMINATING-POWER OF GAS.

SPECIFICATION forming part of Letters Patent No. 286,515, dated October 9, 1883.

Application filed January 19, 1883. (No model.) Patented in England September 24, 1880, No. 3,865; in Germany June 3, 1881, No. 16,458; in Belgium December 18, 1882, No. 59,898; in France December 20, 1882, No. 152,765, and in Canada December 21, 1882, No. 16,009.

*To all whom it may concern:*

Be it known that I, FREDERICK WESTON, of Brixton, in the county of Surrey, England, gas-engineer, have invented new and useful  
5 Improvements in Apparatus Connected with Increasing the Illuminating-Power of Coal-Gas, (for which I have obtained patents in Great Britain, dated September 24, 1880, No. 3,865, and in Germany, dated June 3, 1881,  
10 No. 16,458,) of which the following is a specification.

The object of this invention is to improve apparatus wherein the gas is carbureted and its illuminating-power greatly increased by  
15 its being caused to come into contact with and absorb hydrocarbon fluids or other liquids possessing the same or similar properties. I am aware it has been proposed to use such apparatus wherein the liquid is taken up and  
20 held in suspension by columns of sponge or other fibrous matter, and the gas, in its passage through or in between such fibrous matter, takes up or absorbs a certain quantity of such liquid in the form of vapor, and becomes  
25 thereby greatly enriched in quality and illuminating-power. Such apparatus consists, mainly, of a reservoir for the hydrocarbon fluid, the carbureting-chamber, an air-chamber within the latter, whereby the height of  
30 the liquid within the carbureting-chamber may be regulated and be fed automatically from the upper chamber or reservoir. An inlet-tube is also provided for the gas to enter the chamber, an outlet for the same after it  
35 has passed through the carbureting-chamber, and in some cases a float to indicate the height of the liquid.

My improvements consist in so constructing the carbureting-chamber that its efficiency in  
40 carbureting and improving the gas is greatly increased. This I do by dividing the chamber into passages, and these passages I line on either or both sides with sponge or other fibrous matter, so that the gas, in passing through the  
45 same, cannot fail in its course to be cleansed, and the spongy or fibrous matter more effectually takes up or absorbs and holds suspended the liquid to be taken off in vapor by the gas.

My improvements consist, further, in the means of replenishing the reservoir. For this purpose I employ a valve fitted with a self-acting spring, by means of which valve and spring the supply of fluid to the carbureting-chamber is admitted or shut off. The valve  
55 and spring are actuated through a connecting-spindle by a screw-cap placed at the top of the reservoir, at the opening thereof.

In order that the nature of my said invention and the manner in which the same is to  
60 be carried into practical effect may be particularly described and ascertained, this specification is accompanied by a sheet of drawings having figures and letters of reference marked thereupon.

Figure 1 is a horizontal section on line V W of Fig. 2, which is a sectional elevation of my apparatus. A is the reservoir; B, the carbureting-chamber; C, the air-chamber; D, the inlet-tube for the gas; E, the outlet for the  
65 same after it has been enriched by the hydrocarbon. The spongy or fibrous matter lining the passages of the carbureting-chamber is marked F. The passages themselves are denoted by the letter G. The plug of valve for  
75 the admission of the hydrocarbon from the reservoir A to the carbureting-chamber B is marked H, the seat H', the supply-tube to carbureting-chamber H<sup>2</sup>. The valve-plug is carried, as shown, at one end of a lever, I, and  
80 is provided with a guide-spindle, J, working vertically in the arm K. To the other end of lever I is secured a vertical spindle, L, provided, as shown, with a spiral spring, M. This spindle extends upward to the screw-  
85 cap N, into a recess of which its upper end enters. The hydrocarbon fluid is supplied to the reservoir A by the unscrewing of the cap N. When the screw-hole in the cover of apparatus is opened, the pressure of the cap is  
90 removed from the spindle, the spring M presses the vertical spindle upward, and thereby operates the lever I and closes the valve H H'. The hydrocarbon fluid is then poured into the reservoir A, and then by replacing the cap  
95 N the spindle L is forced down, depressing the lever I and opening the valve. In some cases I may prefer to dispense with the lever



I and attach the plug of valve directly onto the spindle L. It will be apparent that the valve is only necessary when the cap is opened, and is not required in any way for the proper action of the apparatus. The air-chamber is open at the bottom and its edge is on the same level as the supply-tube. Thus when the liquid passes down into the carbureting-chamber to reach the level of the supply-tube from the reservoir, it thereby seals the air-chamber. A pressure is then created sufficient to counteract the weight of the hydrocarbon fluid within the reservoir A and hold it in check, while a continuous supply is insured, as the fluid is consumed, until the volume in the upper chamber is exhausted. The gas which has entered by the tube O passes through the passages G, lined with fibrous material F, and thereby cleansed and purified, and takes up a certain quantity of the hydrocarbon fluid. Thence, purified and enriched, it passes out through tube E, ready for consumption.

Fig. 3 shows in side elevation; Fig. 4 in longitudinal vertical section, and Fig. 5 in horizontal section through the line *xy* of Fig. 4, the apparatus as before described as applied to a lamp suitable for domestic purposes, offices, and other places. A is the reservoir, B the carbureting-chamber, C the air-chamber, D inlet-tube for the gas, E outlet-tube for same, all as before described. H is the valve for admission of hydrocarbon from reservoir A to the chamber B. This valve H is carried on the end of spindle J, which is supported by bracket I, and extends upward to the screw-cap N. M is a spiral spring to carry up the valve-rod and valve when the screw-cap N is removed. Coal-gas is admitted to the carbureting apparatus by the pipe O, which may be supplied with gas through a

flexible tube coming from any convenient source. The action of the apparatus is precisely similar to that before described.

I am aware that prior to the date of my invention carburetors embodying this principle under various forms were in use—such as that shown in patent of T. Varney, No. 15,829, granted September 30, 1856—and therefore do not claim such construction, the novelty of my invention consisting in the special arrangement and construction of parts hereinafter set forth in the claims.

I claim—

1. In a carburetor, the combination of reservoir A, air-chamber C, and carbureting-chamber B, with its supply-tube D, arranged as described, whereby the air-chamber may be sealed and a pressure created therein sufficient to counteract the weight of the hydrocarbon fluid in the reservoir, substantially as described.

2. The combination of the hydrocarbon-chamber, the air-chamber, and the carbureting-chamber, consisting of a series of concentric walls having a lining of fibrous absorbent material, and openings in said walls, substantially as described, whereby circuitous passages are provided for the fluid, as set forth.

3. In a carburetor, the device for filling or replenishing the reservoir A, consisting of valve H and its stem, the rock-lever I, slotted at its ends, rod L, with its spring M, and cap N, the whole being constructed to act in combination with the air-chamber C, substantially as described.

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