C. E. BALL.

Improvement in Carbureting Gas-Lamp.

No. 132,132. Patented Oct. 15, 1872.

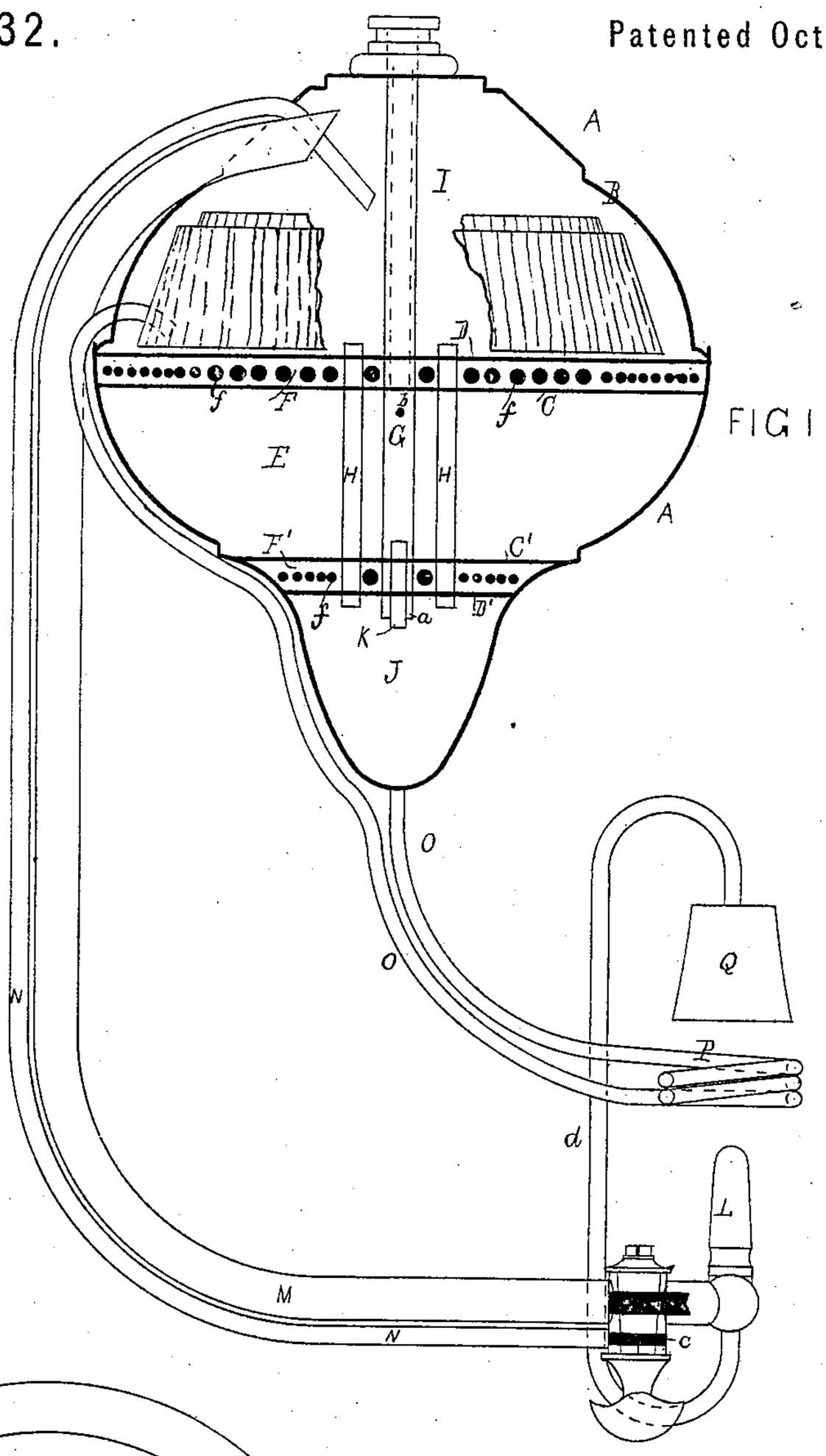

FIG 1

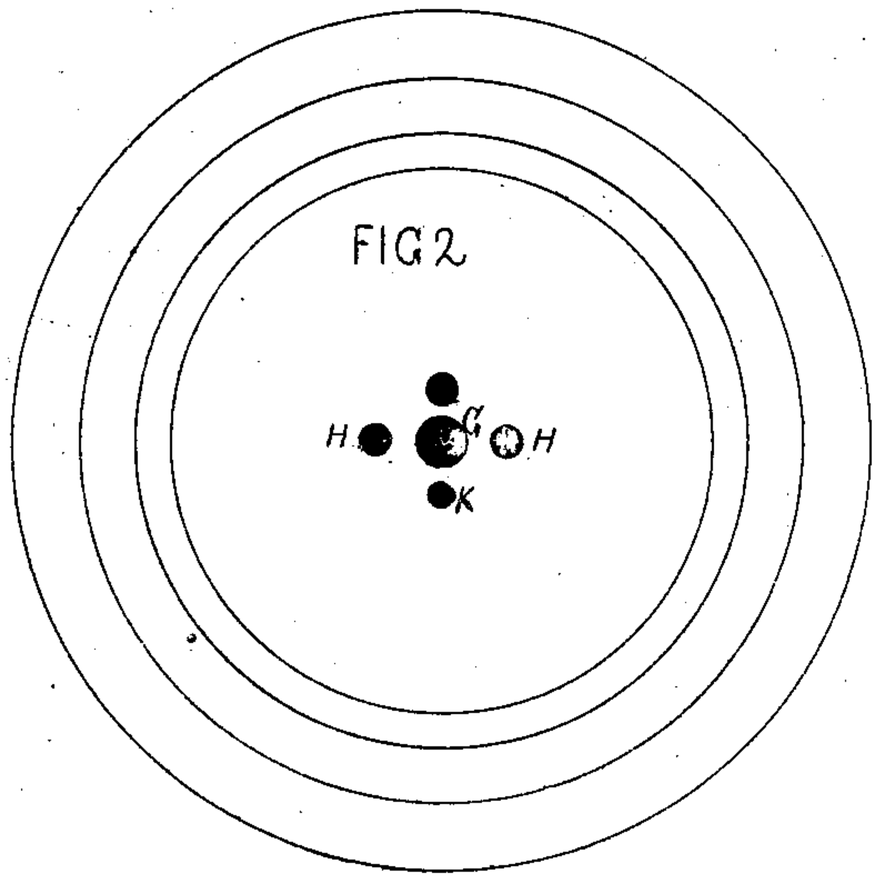

FIG 2

INVENTOR
Charles E. Ball
by Francis D. Pastorius
his Attyin fact

WITNESSES
Geo. Gulmardine
John Hill

UNITED STATES PATENT OFFICE.

CHARLES E. BALL, OF NEW YORK, N. Y.

IMPROVEMENT IN CARBURETING GAS-LAMPS.

Specification forming part of Letters Patent No. **132,132**, dated October 15, 1872.

To all whom it may concern:

Be it known that I, CHARLES E. BALL, of the city of New York, and State of New York, have invented an Improved Gas-Lamp, of which the following is a specification:

The invention relates to that description of lamp by which gas for illuminating is generated from hydrocarbon fluid. It consists, first, in keeping the generating fluid in the reservoir cool by means of annular cooling-chambers above and below the said reservoir, which communicate with the external atmosphere by means of openings in the shell of the fountain; second, in the construction of the said cooling-chambers; the parts of the same adjacent to the fluid-reservoir are of zinc or other low conducting metal, while the parts adjacent to the top and bottom reservoirs are of metal capable of receiving a high degree of heat, which rarefies the air contained in the cooling-chambers, and thereby causes currents of air through the openings in the shell of the fountain; third, in such other construction and arrangement as is hereinafter shown and described.

Figure 1 is a vertical section. Fig. 2 is a plan view.

A is the shell or case of the gas generating and holding tank or fountain. B is a cap of the same. C C′ D D′ are metal diaphragms, which are soldered or otherwise fixed to the shell of the fountain. The former are of zinc or other low conductor of heat, and compose the top and bottom of the fluid-reservoir E; together with the latter, which are of brass or other good conductor of heat, they form the horizontal sides of the air or cooling chambers F F′. G is a feed or supply pipe having its opening at the top of the cap B. Its lower end *a* is closed or sealed; it passes air-tight through the plates C C′ D D′. An opening, *b*, communicates with interior of the oil-chamber E. H H are pipes which extend from the carbureting-chamber I to the lower fluid-reservoir J. K is a small pipe leading from the reservoir E to the reservoir J. L is a gas-burner, of the pattern usually employed, on the extremity of the vapor-pipe M from the carbureting-chamber I. N is an air-pipe situated between the burner and the said carbureting-chamber. Its relation to the cock of the burner is such that when the cock is turned to regulate the flow of the gas the air vent or opening of the pipe is also proportionately closed by means of the opening *c* in the cock-plug. O is a heating-pipe which extends from the bottom of the chamber J to above the burner L, where it forms a coil, P, and then leads to the carbureting-chamber I. Q is a bell-shaped air-cup, which is suspended over the burner L by the pipe *d* of the same.

The fluid to be vaporized is poured into the tube G until it fills to the opening *b*. It then runs into the chamber E, from which it passes through the pipe K into the lower chamber J, which it fills. The hydrocarbon fluid rises in the pipes H until it attains the level of the oil in the chamber E, above the plate C. The fluid then stops running from the pipe G. The fluid in the lower chamber flows by its own gravity through the bottom pipe O to the coil P, where it is heated by the flame of the burner L. Passing along the same pipe, it enters the carbureting-chamber I slightly above the surface of the diaphragm D. The wicking or other fibrous material takes up the fluid, thereby forming an increased carbureting-surface for the carbureting of the hydrocarbon fluid. The carbureted air, being heavier than atmospheric air, settles down the pipe M to the burner, partly by reason of its gravity and partly by reason of the suction of the said burner. On a lighted match being applied to the gas, as it issues, it burns with a steady and brilliant flame. The rising currents of heated air created by coming in contact with the flame of the burner L are caught by the bell Q and conducted by the pipe *d* into the burner, where, mixing with the gas from the carbureting-chamber, they are again fed to the flame to assist combustion. The openings *f* in the shell of the burner opposite the chambers F F′ are the means whereby they are kept cool and the fluid in the chamber E held at a low degree of temperature.

I claim as my invention—

1. The cooling-chambers F F′, substantially as and for the purpose shown and described.

2. The diaphragms C C′ D D′, in combination with the chambers F F′, substantially as and for the purpose shown and described.

3. Perforating the shell A of the gas-gener-

ating fountain opposite to the chambers F F′, substantially as and for the purpose shown and described.

4. The gas-burner L, in combination with the pipe N and the carbureting-chamber I, substantially as shown and described.

5. The chambers I and J, in combination with the pipe O and the coil P, as shown and described.

6. The hot-air cap Q, pipe *d*, and the burner L, as shown and described.

7. The pipes H H, in combination with the chambers I J, as shown and described.

8. The pipe K, in combination with the chambers E and J, as shown and described.

In testimony whereof I hereunto sign my name in presence of two subscribing witnesses.

CHAS. E. BALL.

Witnesses at signing:
FRANCIS D. PASTORIUS,
A. F. WALTER.