C. LORD & B. J. McCABE.

Gas-Apparatus.

No. 168,909. Patented Oct. 19, 1875.

Fig. 1

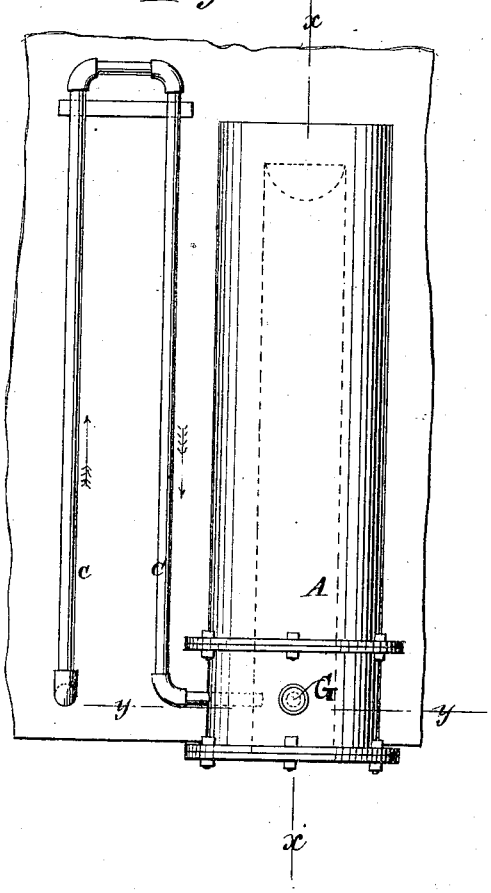


Fig. 2

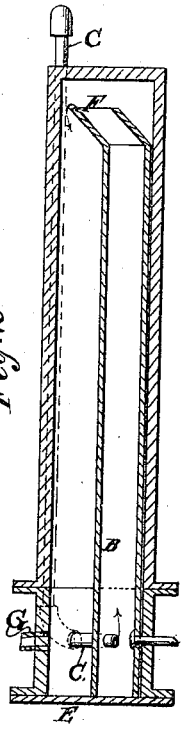
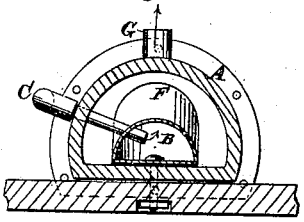


Fig. 3



WITNESSES:

A. W. Almqvist

A. D. Terry

INVENTOR:

C. Lord and

BY B. J. McCabe

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES LORD AND BERNARD J. McCABE, OF SHELBYVILLE, INDIANA.

IMPROVEMENT IN GAS APPARATUS.

Specification forming part of Letters Patent No. **168,909**, dated October 19, 1875; application filed August 28, 1875.

To all whom it may concern:

Be it known that we, CHARLES LORD and BERNARD J. McCABE, of Shelbyville, in the county of Shelby and State of Indiana, have invented a new and Improved Gas-Retort, of which the following is a specification:

Our invention consists of an exterior clay retort, containing an interior metal retort, into which the substance to be distilled is discharged from a pipe, which first conducts the material along the heated portion of the furnace for heating it to a certain extent before it enters the retorts. The object is to provide means for converting crude or refined coal and natural oils into more permanently fixed gas than they can be in the ordinary retorts, the essential novelty being in the contrivance by which a clay retort can be used for this purpose without injury by the oils, which, when coming in contact with the clay, saturate and disintegrate it, so as to destroy it in a short time. This is accomplished in this case by first vaporizing the oil in the feed-pipe, and then discharging it into the iron retort, where the vaporizing process is continued, so as to destroy the penetrating power, and then discharging it into the clay retort, where it is subjected to greater heat than the metal retorts are capable of sustaining, and is thereby converted into fixed gas. As a further safeguard for the protection of the clay retort from the oil, the iron retort is so constructed that any oil that may flow into it cannot escape until it is vaporized.

Figure 1 is a plan view of our improved retort. Fig. 2 is a longitudinal section of Fig. 1 on line *x x*, and Fig. 3 is a cross-section on line *y y*.

Similar letters of reference indicate corresponding parts.

A is the clay retort; B, the interior iron retort, and C the feed-pipe. The retorts are preferably of the ordinary **D** shape. The inner one lies on the bottom of the other, and is contrived so that the cover E for the mouth of A also forms its cover, and it has an elevation, F, of its open end, to retain any oil that may enter it until vaporized, so that it will not injure the clay. The feed-pipe discharges directly into B, near its closed end, so that the oil gets the benefit of the heat in B as it passes along to its discharge into A, where it is subjected to greater heat, and from which it passes off as fixed gas through the pipe G to the hydraulic seal. The feed-pipe will be suitably packed at its connections with the retorts to prevent leakage.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination of heating and vaporizing feed-pipe C, clay retort A, and metal retort B, substantially as specified.

2. The elevated portion F of metal retort B, in combination with clay retort A, substantially as specified.

CHARLES LORD.
BERNARD J. McCABE.

Witnesses:
J. T. HACKMAN,
N. B. BERRYMAN.