

No. 879,441.

PATENTED FEB. 18, 1908.

R. B. CISSEL.
GAS PRODUCER.

APPLICATION FILED MAY 11, 1907.

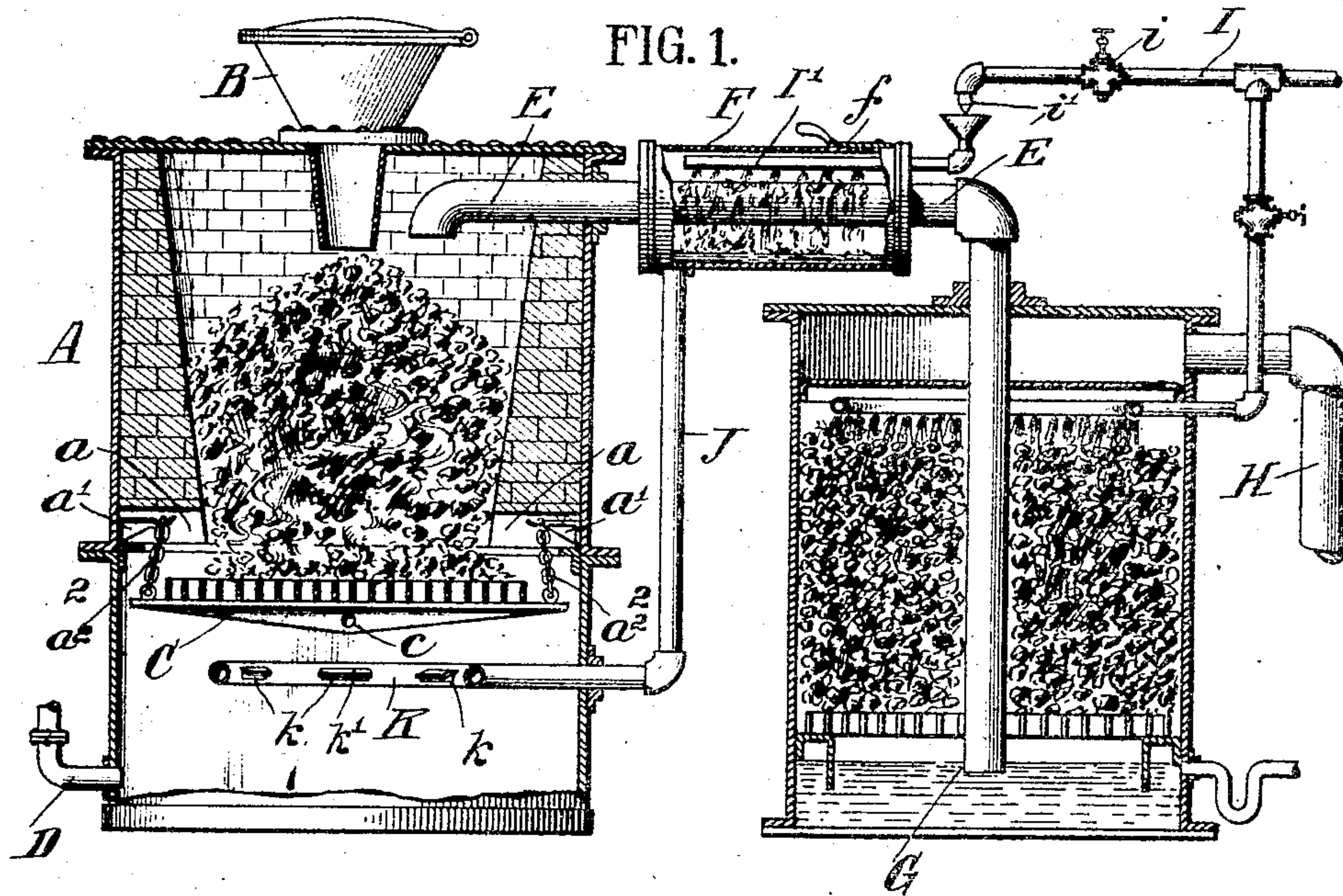


FIG. 2.

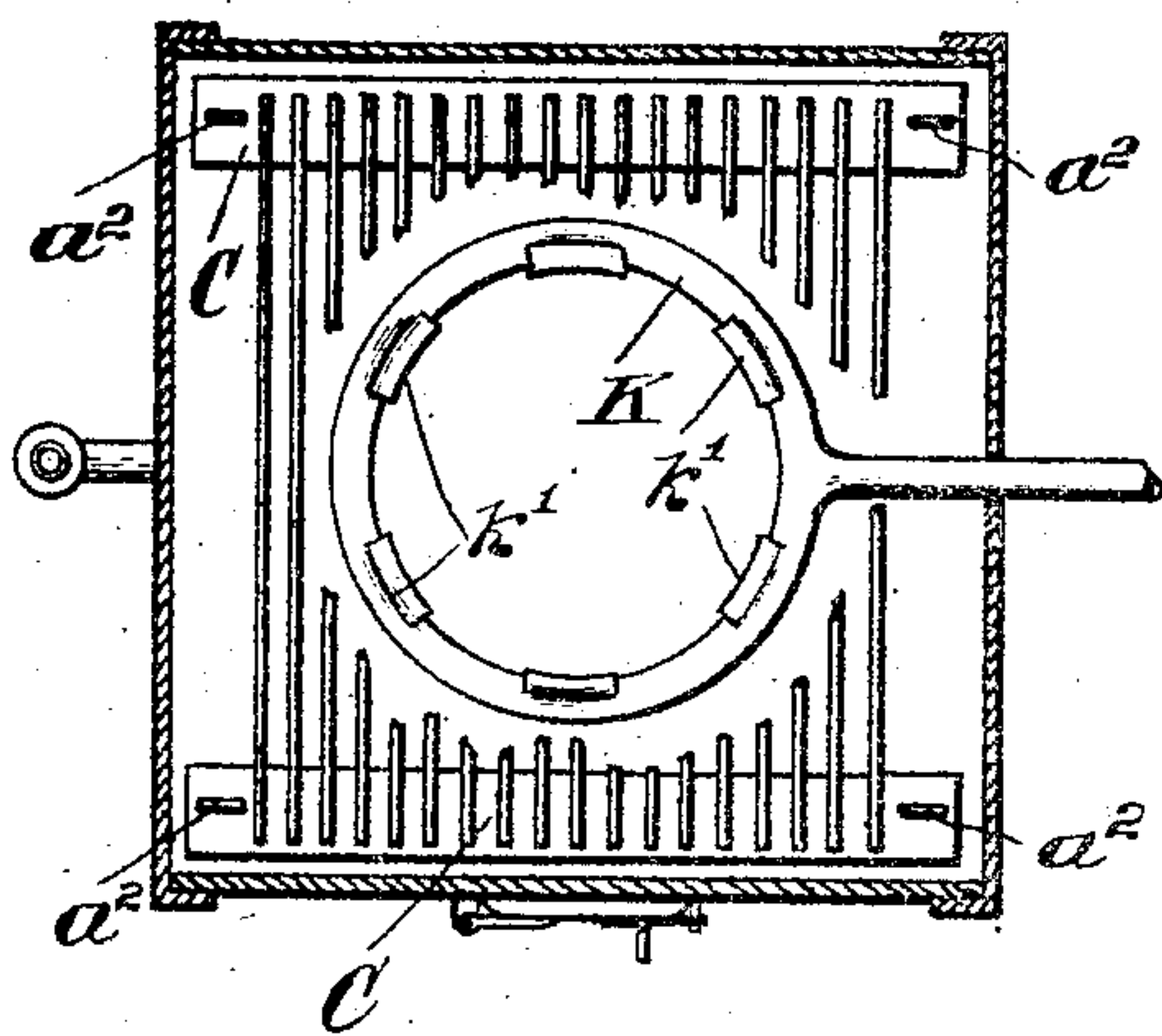
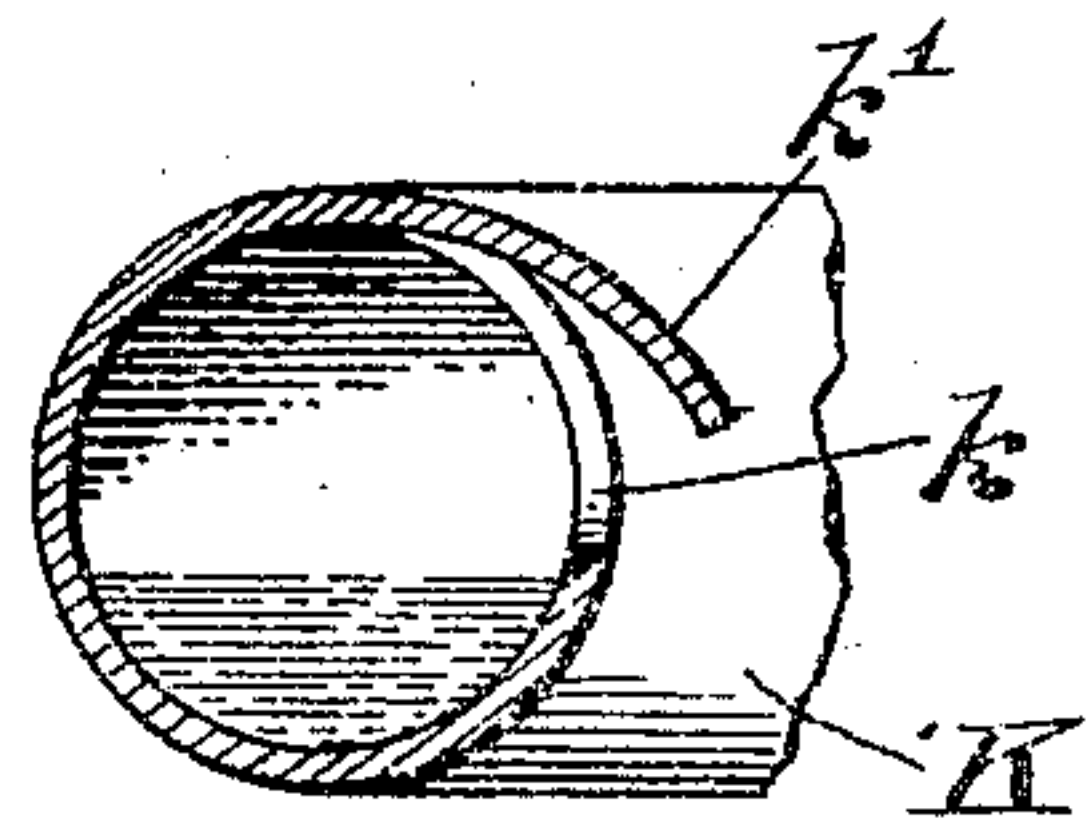


FIG. 3.



WITNESSES

L. F. Browning.
E. F. Hicks

Robert B. Cissel INVENTOR
BY Edward C. Davidson ATTORNEY

UNITED STATES PATENT OFFICE.

ROBERT B. CISSEL, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO BACKUS WATER MOTOR COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

GAS-PRODUCER.

No. 879,441.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed May 11, 1907. Serial No. 373,129.

To all whom it may concern:

Be it known that I, ROBERT B. CISSEL, a citizen of the United States, residing in Elizabeth, county of Union, State of New Jersey, have invented certain Improvements in Gas-
Producers for Supplying Internal-Combustion Engines, of which the following is a specification.

This invention is designed to afford an efficiently acting gas producer of moderate size and of convenient and economical construction that will produce a substantially uniform quality of non-carbureted producer gas for fuel supply of internal combustion engines.

The details of construction are hereinafter set forth.

In the accompanying drawing: Figure 1 is a vertical section through the apparatus; Fig. 2, a horizontal section through Fig. 1 taken immediately above the grate, and Fig. 3, a detail perspective view of the air and aqueous vapor supply device located symmetrically beneath the grate.

The producer A comprising the usual shell, refractory brick lined fuel chamber and ash pit is provided with the usual fuel charging hopper B. The producer is shown square in horizontal cross section. At the base of the brick work there is at each corner (or at four equi-distant points) left a recess *a* in which is secured a bracket *a'* to the horizontal arm of which is applied a chain *a''*. These four pendent chains support two parallel end bars C of a rectangular grate of any appropriate construction, and one of which has a suitable stud, or an aperture *c* for the reception of a shaker. The swinging oscillatory motion imparted to the suspended grate acts sufficiently to clear the base of the fuel column.

D indicates a pipe or connection for the introduction of an air blast to blow up the fuel. Products of combustion, or gases produced pass by a flue E through a somewhat elongated chamber shown as a cylindrical drum F and then downward to a water seal G at the bottom of an ordinary washer through which the gaseous products rise and pass out through the pipe H. Water supplied through pipe I passes through a supply regulating valve *i* to a drip nozzle *i'* which delivers water to the receiving funnel perforated pipe I' arranged above the flue in the vaporizer or drum F, which is provided with a slide valve *f* for admission of regulated

quantities of air. From the bottom of the drum, the air, mixed with the aqueous vapor created by the heat of flue E, and such water as may not be vaporized descends through pipe J which enters the ash pit and communicates with a hollow ring K symmetrically disposed beneath the grate. This ring is formed with apertures *k* in its side which are protected by hoods *k'* against entrance of ashes.

As seen in Fig. 3, the capacity of ring K below the level of the apertures *k* is such as to contain a substantial quantity of water. Should there be a surplus, it will merely overflow into the ash pit from which it may be withdrawn if desired. This volume of water, under the temperature present in the ash pit, continuously throws off vapor which with that supplied through pipe J is drawn upwardly through the fuel in the producer the usual re-actions occurring for the production of so-called producer or water-gas. The special construction of the vapor supply ring beneath the grate indicated in the drawing has been shown by experience to be highly efficient. The ring is composed of a section of pipe and the apertures are formed in its side by transverse slits connected at the bottom by a horizontal slit, the flap of metal thus formed being turned outwardly somewhat, as shown. Experience has demonstrated that a vapor device having the characteristics of that described and provided with equidistant exit apertures for the aqueous vapor and having the capacity of retaining surplus water is highly efficient in this class of apparatus since the vapor is supplied with a very substantial degree of uniformity with reference to the bottom of the fuel column. The vapor supply device K has been shown as circular since the refractory brick lining, as is usual in this class of apparatus, is so built in as to afford a fuel chamber circular in cross section.

I claim:

1. A producer having a grate in its lower portion and an aqueous vapor supply device consisting of a hollow ring symmetrically disposed beneath the grate and having in its side substantially equidistant apertures extending downwardly along the sides provided with downwardly inclined hoods to prevent the admission of ashes to the ring and to facilitate the passage of ashes from the top of the ring.

2. A producer provided with a grate and having a vapor supply device located beneath the grate composed of a continuous hollow horizontally arranged body having a
5 curved top and provided with apertures extending downwardly along the sides but terminating above the bottom of the vapor supply device which are protected by laterally projecting downwardly extending hoods and

which have space beneath the level of the apertures for holding a substantial quantity of water.

In testimony whereof, I have hereunto subscribed my name.

ROBERT B. CISSEL.

Witnesses:

MAURICE J. MOORE,
L. L. BROWNING.