

(No Model.)

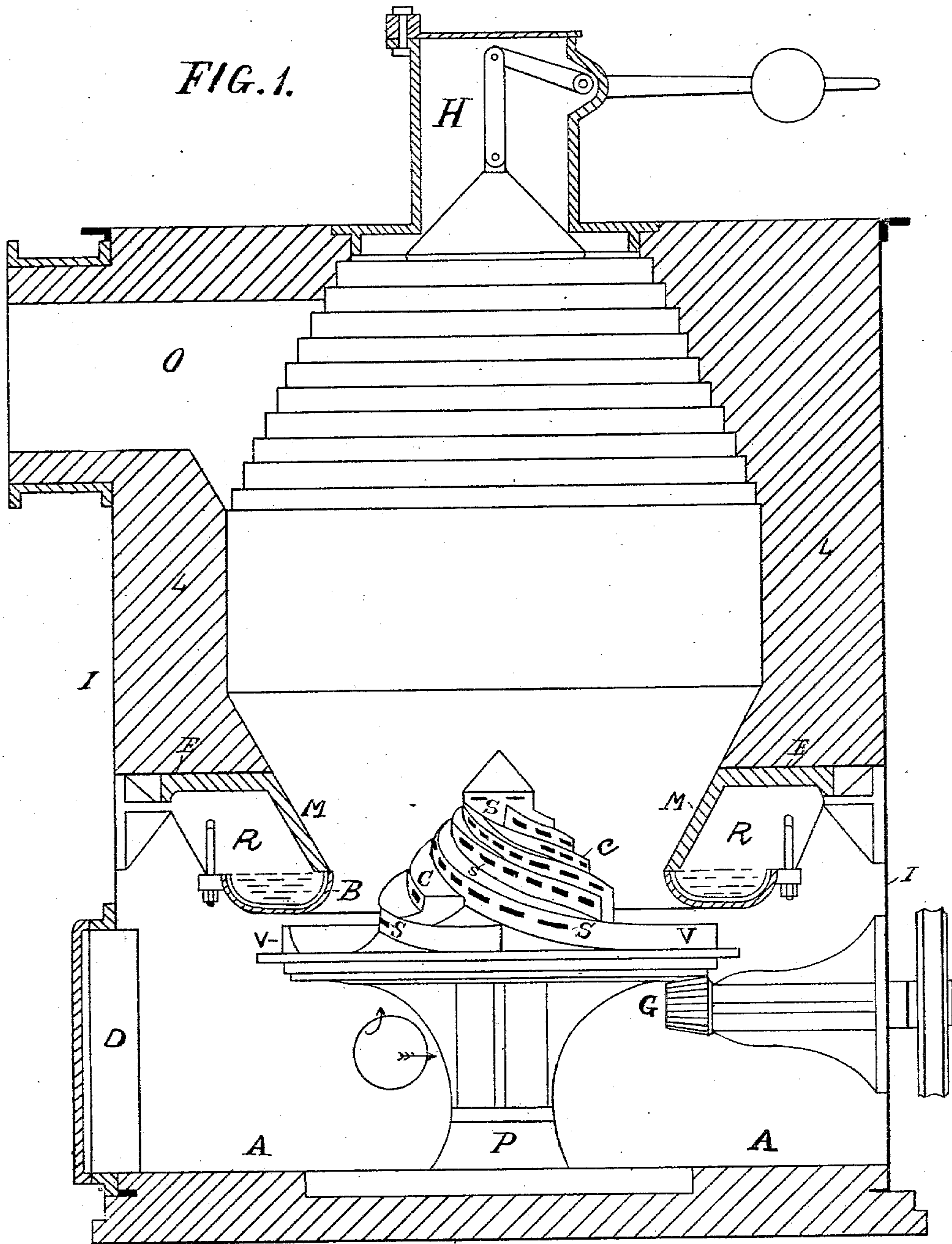
4 Sheets—Sheet 1.

E. BROOK.

APPARATUS FOR MAKING GAS.

No. 315,709.

Patented Apr. 14, 1885.



WITNESSES:

J. H. Blackwood
R. G. Du Bois

INVENTOR

Edward Brook

BY

W. A. Doolittle

ATTORNEY

(No Model.)

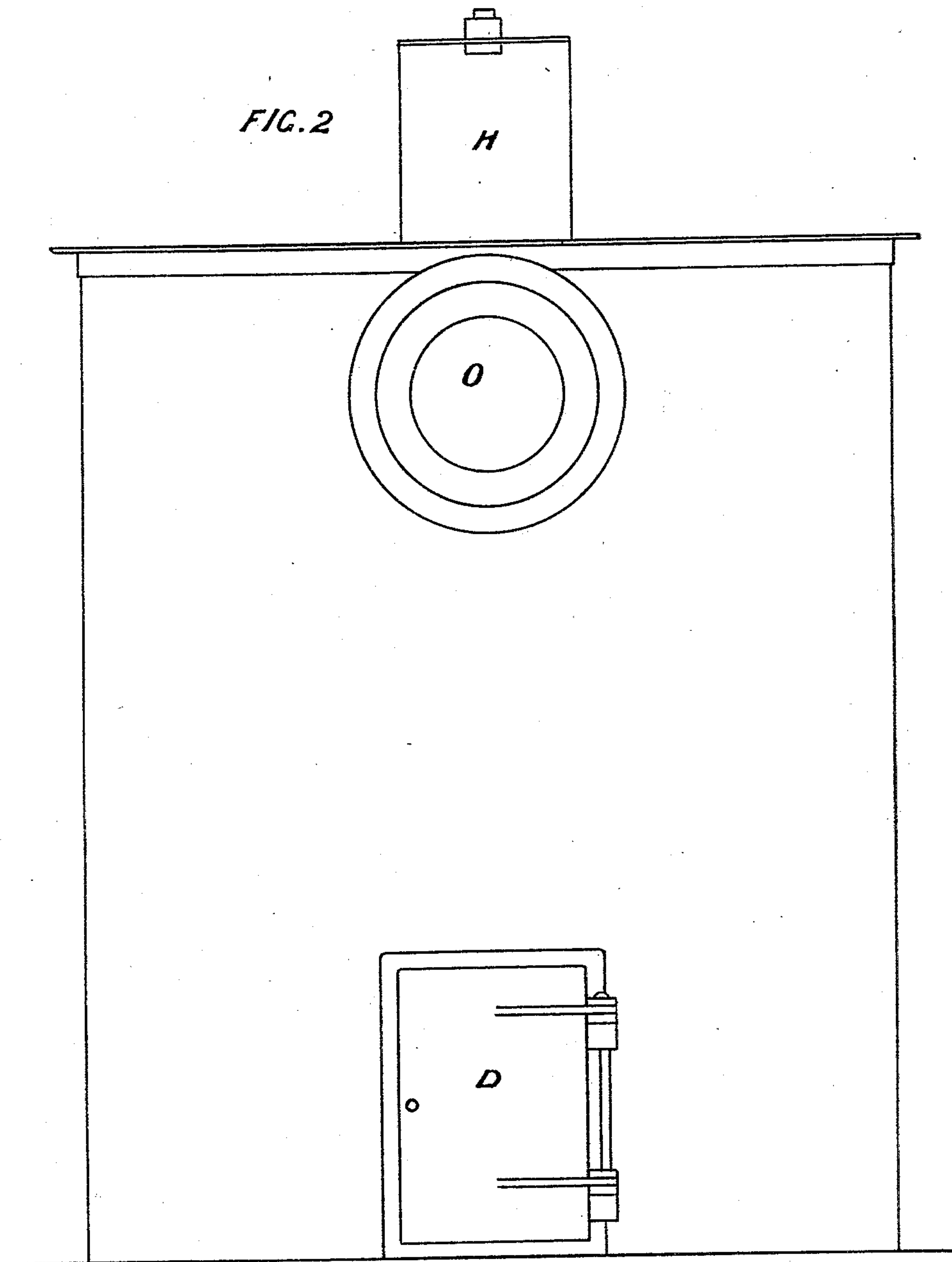
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Witnesses;
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R. G. DuBois

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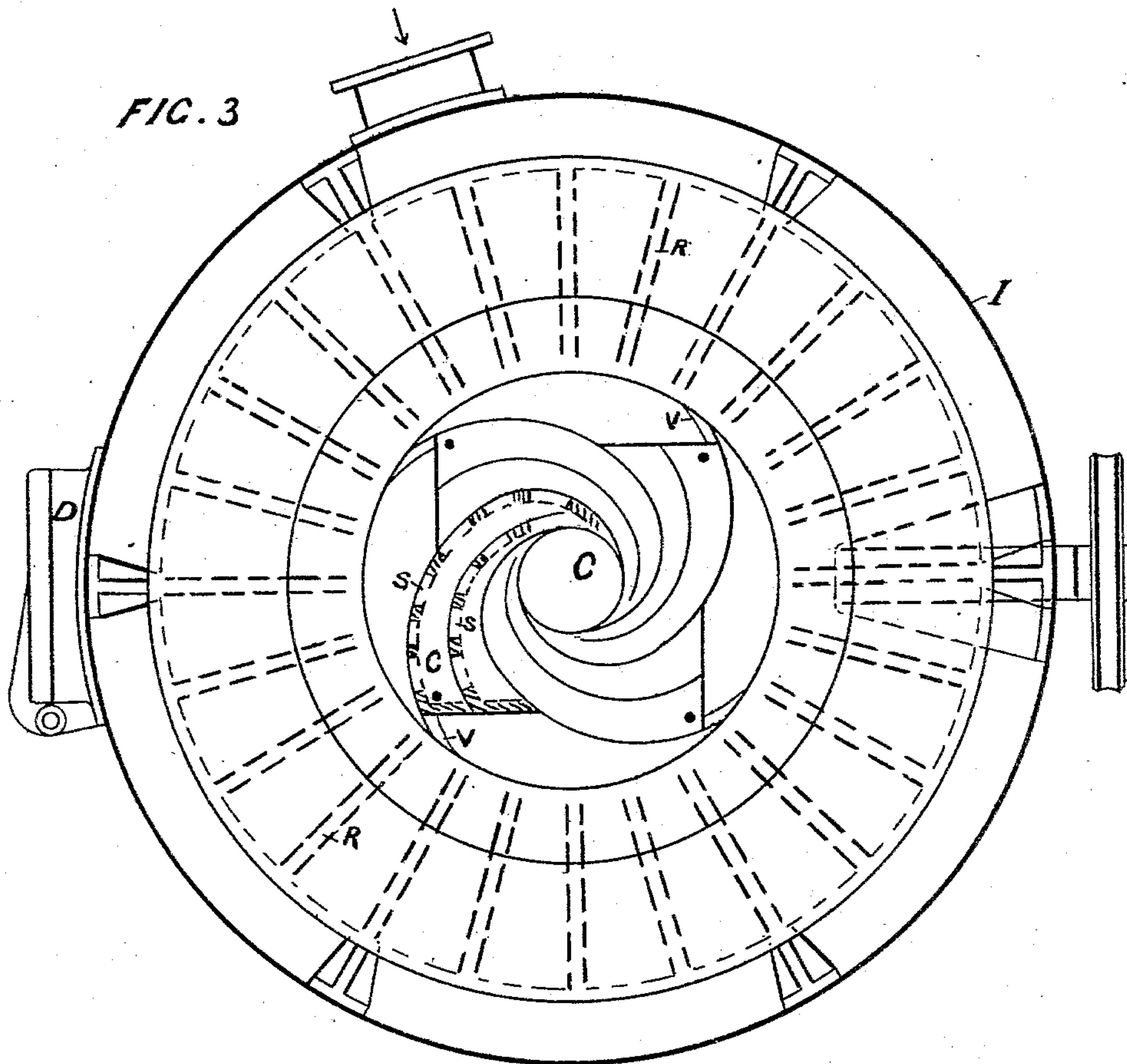
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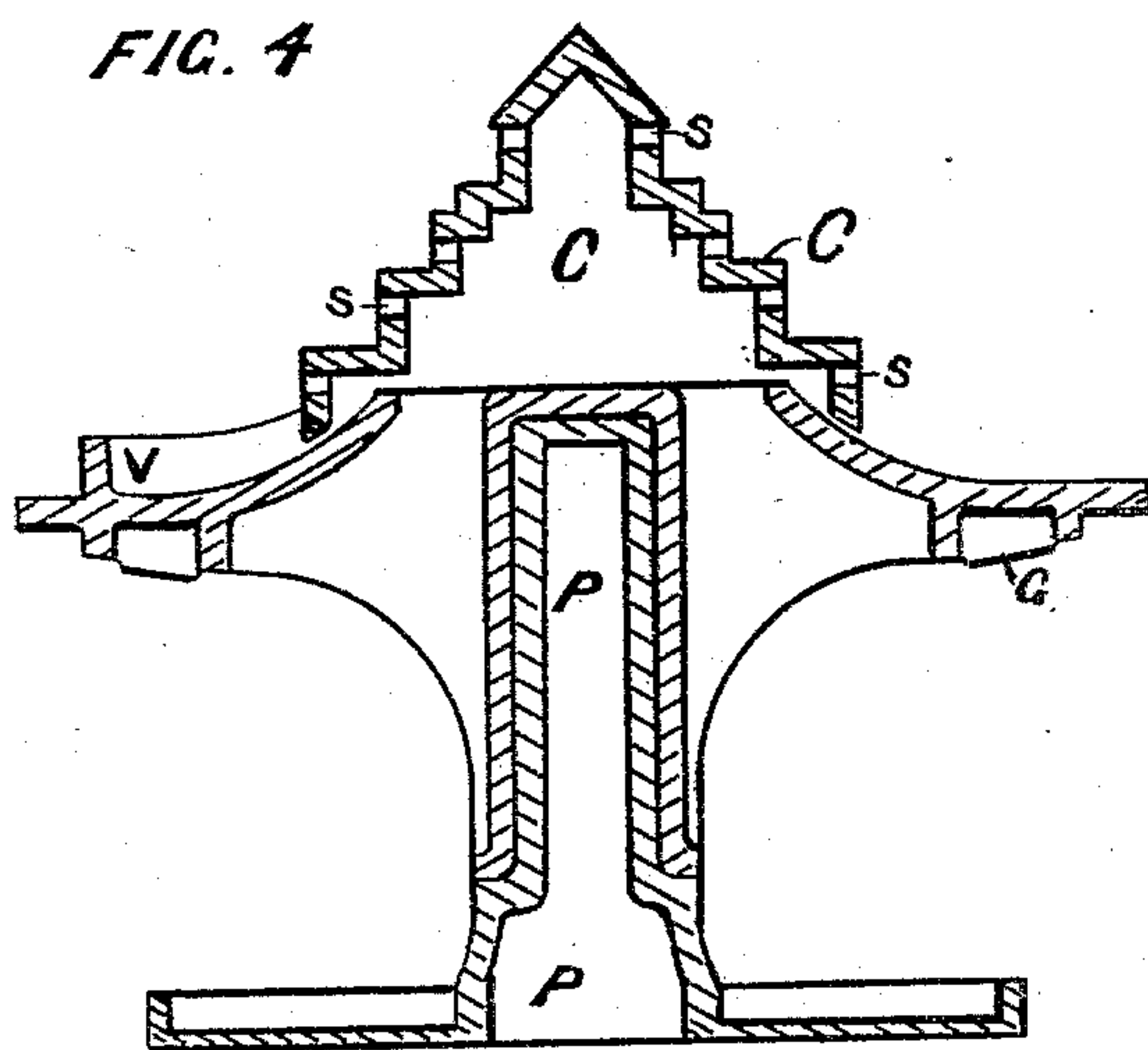
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Inventor;
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UNITED STATES PATENT OFFICE.

EDWARD BROOK, OF WIGAN, COUNTY OF LANCASTER, ENGLAND.

APPARATUS FOR MAKING GAS.

SPECIFICATION forming part of Letters Patent No. 315,709, dated April 14, 1885.

Application filed April 30, 1884. (No model.) Patented in England October 11, 1883, No. 4,843; in France April 4, 1884, No. 161,365; in Belgium April 4, 1884, No. 64,737, and in Germany April 18, 1884, No. 29,316.

To all whom it may concern:

Be it known that I, EDWARD BROOK, a subject of the Queen of Great Britain and Ireland, residing at Wigan, in the county of Lancaster, Kingdom of Great Britain and Ireland, have invented new and useful Improvements in Apparatus for Making Gas, (for which I have obtained a patent in Great Britain, No. 4,843, bearing date October 11, 1883,) of which the following is a specification.

According to this invention of improvements in gas-producers or apparatus for making gas, a producer is constructed with its lower part of metal—such as iron—suitably formed to receive water for cooling the metallic walls or sides, and in conjunction therewith there is provided a revolving grate of conical form so constructed as to move the ashes and incombustible material mechanically to its outer edge, where they are allowed to drop over into the ash-pit, a space being provided between the revolving grate and the bottom of the metallic portion of the producer, such as will allow of large pieces passing out without its being necessary to previously break them up. The area or diameter of the producer at the lower part is contracted, and in one arrangement the conical grate is of a step-like form. It is rotated either intermittently or continuously by manual or other motive power through the intervention of toothed wheels or gear. The ash-pit at the base of the producer is a closed one, and into it the air or air and steam required for the combustion of the fuel is or are blown, the ashes and incombustible matter being removed through one or more doorways provided for the purpose.

Gas-producers according to this invention, as above set forth, may be fed with fuel by any well-known or suitable means, either automatically or otherwise.

Figures 1, 2, 3, and 4 of the accompanying drawings show a gas-producer according to my invention, Fig. 1 being a vertical section, Fig. 2 an external elevation, Fig. 3 a sectional plan with the brick-work removed, and Fig. 4 a sectional elevation, of the rotating conical grate and center pivot.

H is a hopper through which the fuel may be fed into the producer.

O is the gas-outlet, and M M are the metallic walls of the producer, having fins or ribs R cast on their outer sides, which fins dip into an annular channel, B, containing water, the channel B being bolted to the fins or ribs R.

C is the conical grate, having spiral steps formed thereon for pushing the ashes and incombustible matter toward its outer edge or periphery, these spiral steps having perforations S on their vertical sides for admission of air to the fire. At the outer terminations of these steps curved ribs or vanes V are provided for expelling the ashes into the ash-pit A. This conical grate is supported and retained in position by a center pivot, P, around which it is caused to rotate at the required speed by means of the wheels or toothed gear G, or by other suitable means worked from the exterior, it being caused to rotate either intermittently or continuously by manual or other motive power. The conical grate C is fixed in such a position as to leave an annular space several inches deep between it and the channel B, through which space the ashes and incombustible matter find exit, and a further supply of air gains admission to the fire, from which it will be seen that air is admitted all over the under side of the fire, and that no fuel or products can escape into the ash-pit without coming in contact with the entering air.

For convenience of construction I prefer to make the upper portion of the rotating grate separate from the lower part, and to secure them together by bolts.

A is the closed ash-pit, into which the air or air and steam is or are blown by means of a steam-jet or other mechanical apparatus, and from whence it or they passes or pass into the fire partly through the perforations S in the conical grate and partly through the annular space between the conical grate and the under side of the channel B, the ashes being removed from the ash-pit from time to time through one or more doorways, D, kept closed when the producer is at work.

L L are the fire-brick walls of the producer, supported by the plate E, which in turn rests upon brackets bolted to the external iron casing, I.

What I claim is—

1. In a gas-producer or apparatus for making gas, a rotating conical grate having spiral steps thereon, in combination with curved ribs V, central pivot, P, and gearing G, whereby
5 ashes and incombustible material are moved outward toward its outer periphery in the manner and for the purposes specified.
2. In a gas producer or apparatus for making gas, a rotating conical grate with spiral
10 steps thereon, said steps being provided with perforations in their vertical sides in the manner and for the purposes set forth.
3. The improved gas-producer or apparatus
15 C, having spiral steps formed thereon for pushing the ashes and incombustible matter toward its outer edge or periphery, perforations S, ribs or vanes V, center pivot, P, means

for rotating said grate, channel B, annular space between said conical grate and channel 20 B, closed ash-pit A, into which the air or air and steam is or are blown by means of a steam-jet or other mechanical apparatus, and from whence it or they passes or pass into the fire partly through said perforations S in the 25 conical grate and partly through the annular space between the conical grate and the under side of the channel B, hopper N, fire-brick walls L L, metallic walls M, supporting-plate E, and external iron casing, I.

EDWARD BROOK.

Witnesses:

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