

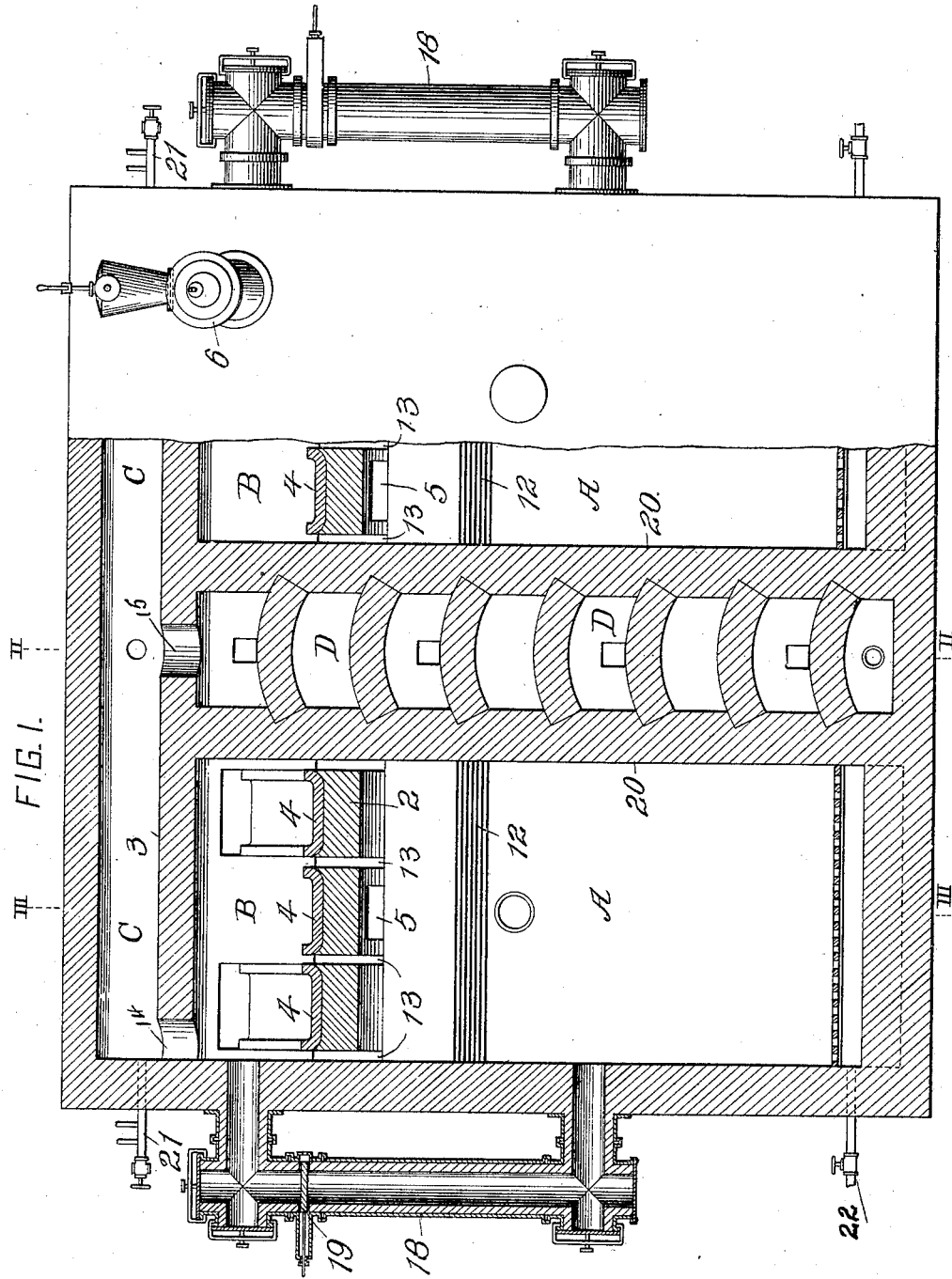
W. J. McCLURG.

GAS GENERATOR.

(Application filed Dec. 3, 1900.)

(No Model.)

2 Sheets—Sheet 1



WITNESSES:

Robert Bradley
M. Moss.

INVENTOR

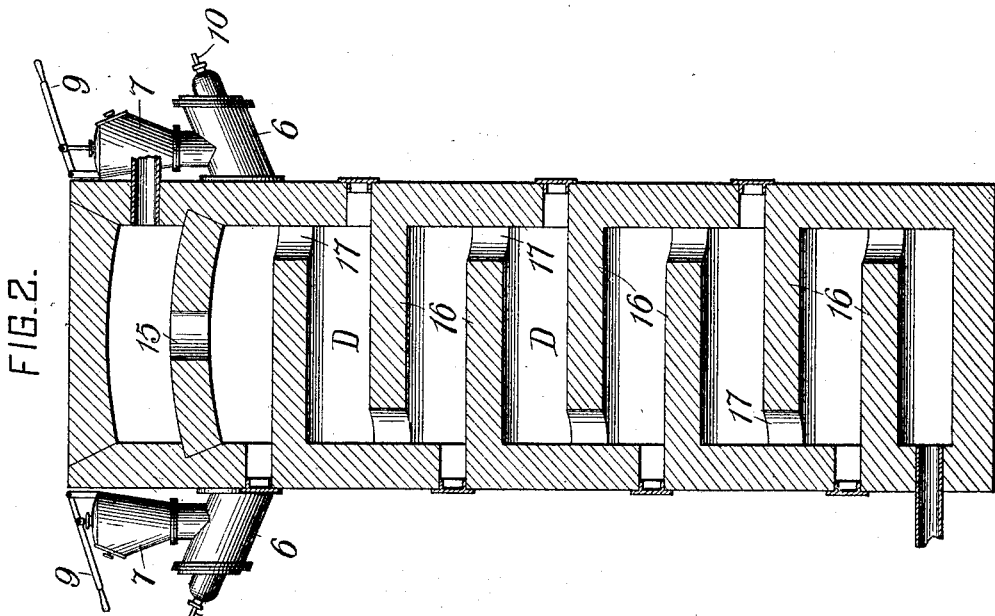
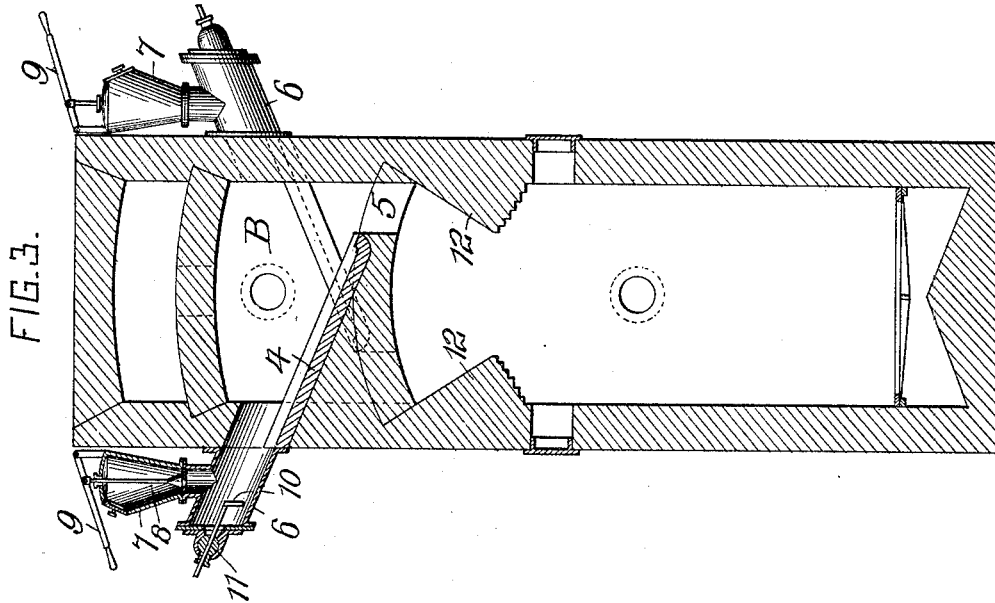
William J. McClurg
by Daniel S. Wolcott Att'y.

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WITNESSES:

Herbert Bradley
M. Moss.

INVENTOR

William J. McClurg
by Dennis S. Wolcott Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM J. McCLURG, OF PITTSBURG, PENNSYLVANIA.

GAS-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 676,992, dated June 25, 1901.

Application filed December 3, 1900. Serial No. 38,508. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. McCLURG, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Gas-Generators, of which improvements the following is a specification.

The invention described herein relates to certain improvements in gas-generators, said improvements being more especially applicable to the form or construction of generator consisting, generally stated, in a series of inclined supports or beds for coal arranged above and communicating with a combustion-chamber into which the coke or solid residue or distillation is pushed from the inclined supports and one or more carbureting-chambers above the inclined supports, as described and shown in application for Letters Patent filed May 8, 1899, by C. R. Miller, Serial No. 716,003.

The invention described herein consists, generally stated, in the arrangement of a carbureting-chamber between two generators, preferably of the class or kind described and shown in said application.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view, partly in side elevation and partly in section, of my improved generator. Figs. 2 and 3 are transverse sections on planes respectively indicated by the lines II II and III III, Fig. 1.

In the practice of my invention the gas-generators are preferably made oblong in horizontal contour, and across the upper portions of the chamber are formed arches 2 and 3, dividing the generators into three compartments A, B, and C, which for convenience I will term the "combustion-chamber," the "gasifying-chamber," and the "conduit." Between the inner walls of the generators proper is formed a carbureting-chamber D, which connects at its upper end with the conduit C of the generators, the generators being so constructed as regards their upper portions that the conduit C forms a common chamber extending across both generators and the carbureting-chamber. In the gasifying-chamber B are formed chutes 4 for the reception

of the fuel to be gasified. These chutes are arranged alternately at opposite angles, and at the lower ends are formed openings 5 for the passage of the fuel when coked into the combustion-chambers A. The fuel is charged into the gasifying-chambers through openings in the side walls of the generators at the upper ends of the inclined beds or chutes. In order to prevent the escape of gas when charging new fuel, it is preferred that the charging of the fuel should be effected by closed hoppers. To this end closed boxes 6 are formed around the charging-openings, and on the upper sides of these boxes are secured the hoppers 7, which are provided with removable covers for their upper ends and with valves 8, closing their lower ends, said valves being provided with stems which extend up through the hoppers, where they are connected to operating-levers 9. In order to spread the fuel on and to remove the coked material from the chutes, which are arranged at an angle corresponding to the angle of rest of the material being treated, pushers 10 are supported by balls 11, mounted in the outer ends of the boxes, and are adapted to be slid back and forth and also oscillated in order to push the material from the chutes down through the openings 4. In order to effect a distribution of the material passing through the openings 5 to the middle of the combustion-chamber, inclined walls 12 are formed on the sides of the combustion-chamber immediately below the openings 5. In addition to the openings 5 for the passage of hot gas to the gasifying-chambers, slots or openings 13 are formed through the arches 2 between the inclined beds or chutes, as clearly shown in Fig. 1. The fuel lying upon these beds or chutes 4 is thus subjected to the heat of the gases from the combustion-chamber and also to the heat absorbed by the arches 2, which are preferably made as thin as compatible with the strength required to support the fuel.

In the gasifying-chamber the hot gases from the combustion-chamber take up the gases distilled from the fuel lying upon the chutes and flow mingled through the openings 14 into the carbureting conduit or chamber C, over which they pass by opening 15 into the fixing-chamber D. This chamber, as clearly

shown in Figs. 1 and 2, is divided into a series of compartments by a series of horizontal arches 16. The compartments communicate one with the other by openings 17, formed
 5 through the arches at alternate ends, so that the gas in passing through the carbureting-chamber traverses the latter back and forth a number of times.

When the fuel is fed into the combustion-
 10 chamber, it is likely to agglutinate and form an impervious cover on top of the fuel in the combustion-chamber and confine the gases therein. In order to provide an escape for these gases, a by-pass 18 is arranged so as to
 15 connect the combustion-chambers at points below the normal fuel-level with the gasifying-chambers B. These by-passes are provided with valves 19, which are closed as soon as the fresh material is coked sufficiently to
 20 permit the passage of gases through it. Steam or steam and air are forced through the fuel in chamber A, being introduced through pipe 22, entering below the grate.

It will be observed that the side or end walls
 25 20 of the combustion and gasifying chambers form the side walls of the fixing-chamber, so

that the latter is maintained at approximately the heat of the combustion-chamber or at such a temperature as is necessary to fix the gases.

When necessary to enrich the gas, oil or
 30 oil and steam are injected into the gas generated, preferably by pipes 21, projecting through the walls of the common conduit C'.

I claim herein as my invention—

35 In a gas-generator, the combination of two combustion-chambers, two fuel-gasifying chambers arranged above the combustion-chambers, said chambers being connected for
 40 the passage of gas and fuel from one to the other, a conduit connected to the gasifying-chambers, and a fixing-chamber arranged between the combustion and gasifying cham-
 45 bers, the said chambers having common side walls, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM J. McCLURG.

Witnesses:

DARWIN S. WOLCOTT,
 F. E. GAITHER.