

J. R. GEORGE.
GAS PRODUCER.
APPLICATION FILED MAY 31, 1902.

NO MODEL.

2 SHEETS-SHEET 1.

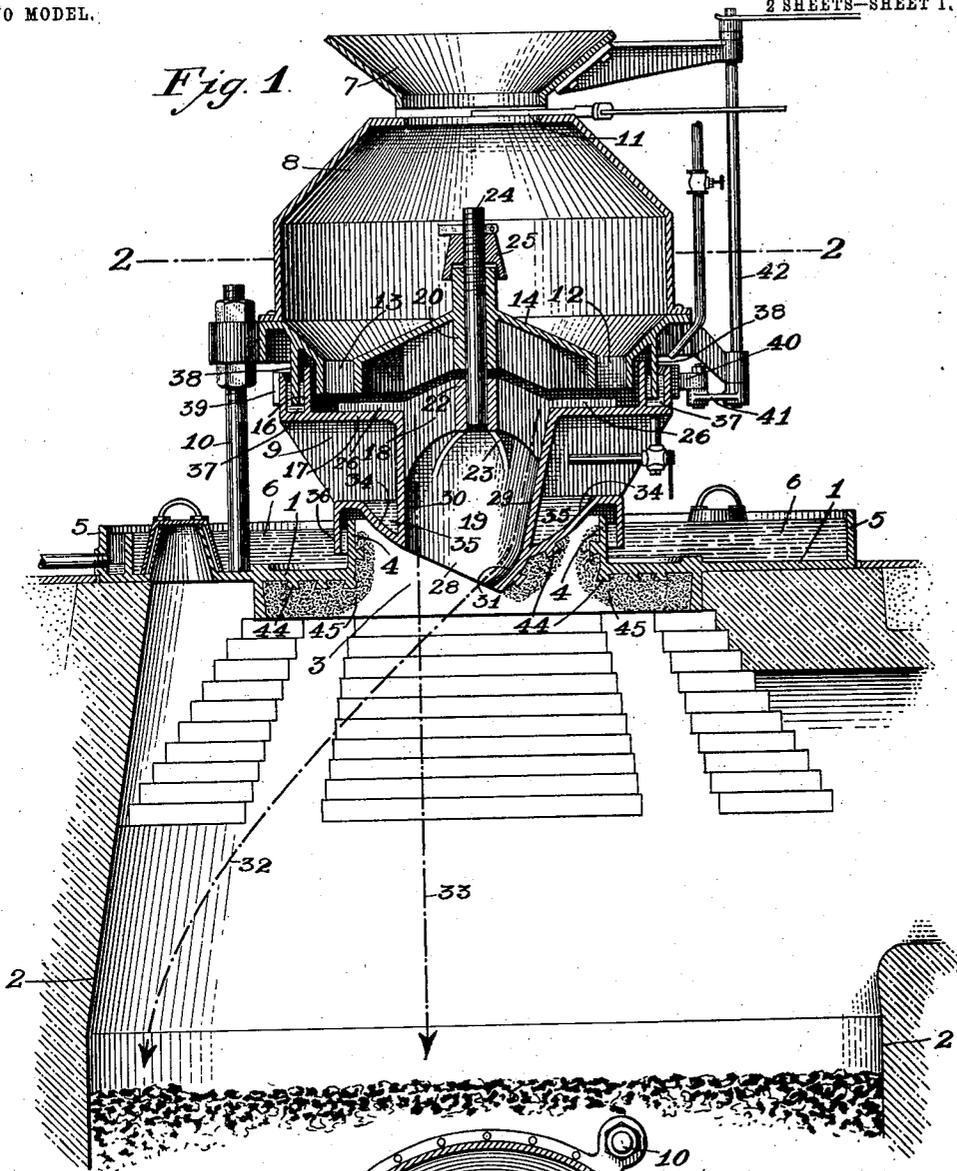
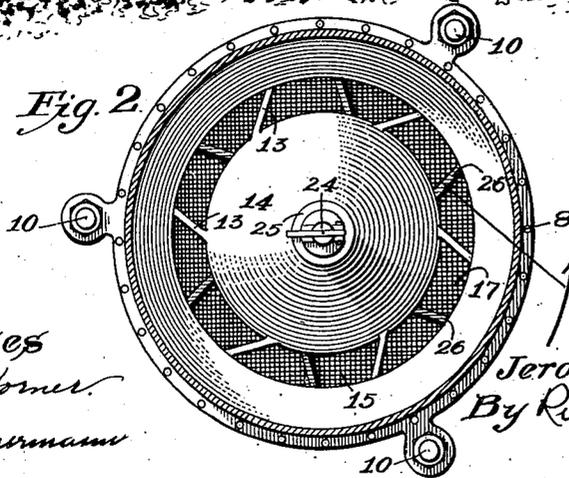


Fig. 2.



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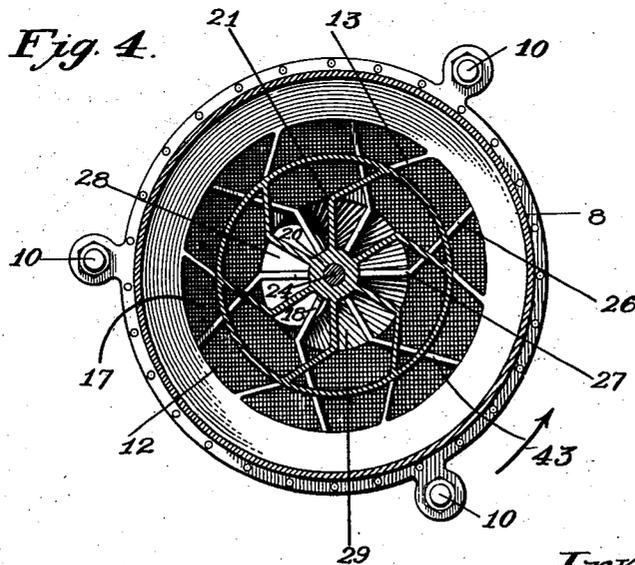
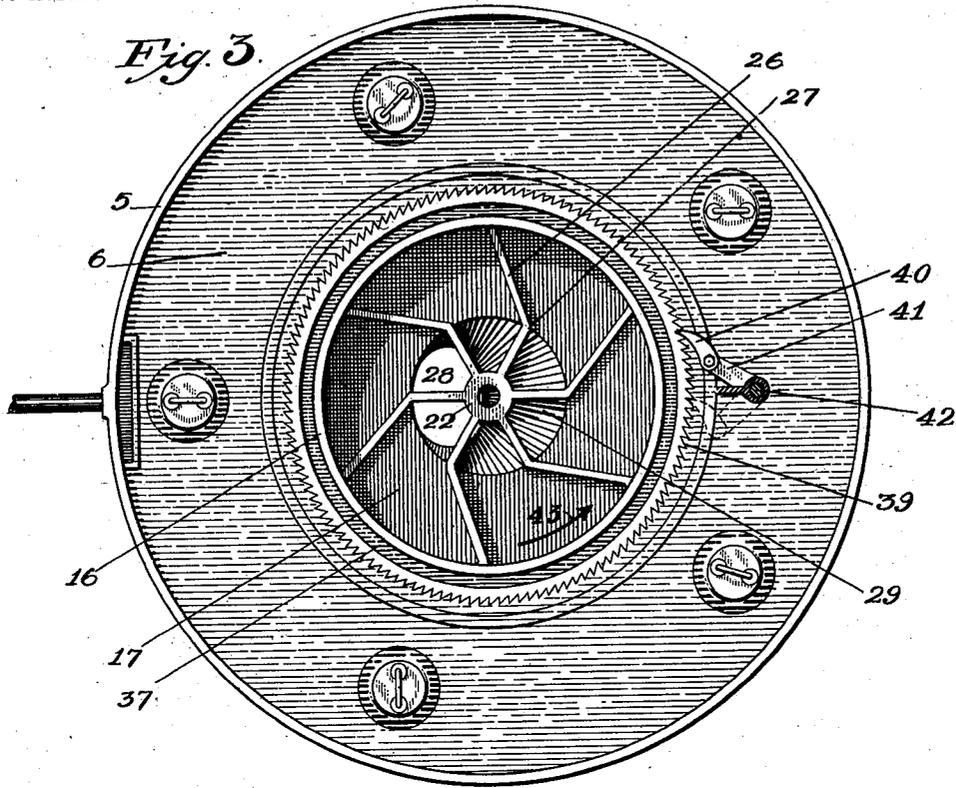
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JEROME R. GEORGE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO MORGAN CONSTRUCTION COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

GAS-PRODUCER.

SPECIFICATION forming part of Letters Patent No. 747,965, dated December 29, 1903.

Application filed May 31, 1902. Serial No. 109,767. (No model.)

To all whom it may concern:

Be it known that I, JEROME R. GEORGE, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Gas-Producers, of which the following is a specification, accompanied by drawings forming a part of the same.

My present invention relates to that portion of a gas-producer which is employed in supplying fuel thereto known as the "feeding mechanism;" and it has for its object to produce a feeding mechanism by which coal can be supplied to the heating-chamber of the producer with a uniform and even distribution and by which the operative parts of the feeding mechanism are protected from the injurious effects of the heat; and I accomplish this object by the construction and arrangement of parts as hereinafter described, the features of novelty being pointed out in the annexed claims.

Referring to the accompanying drawings, Figure 1 represents a central vertical sectional view of the feeding mechanism of a gas-producer embodying my invention. Fig. 2 is a top view of the feeding mechanism shown in sectional view on line 2 2, Fig. 1. Fig. 3 is a top view of the rotating coal-distributor, the coal-reservoir having been removed; and Fig. 4 is a horizontal sectional view through the coal-reservoir similar to that shown in Fig. 2, but having the conical plate 14 removed in order to disclose the fixed ribs 13 of the coal-reservoir and the ribs 26 carried by the rotating coal-distributor.

Similar reference letters and figures refer to similar parts in the different views.

In the accompanying drawings, 1 denotes the top plate of a gas-producer, and the lines 2 2 indicate the inner walls of the heating-chamber. The top plate is provided with a central opening 3, which is surrounded by an upturned flange 4, and the outer edge of the top plate 1 is provided with a similar upturned flange 5, the flanges 4 and 5 inclosing an annular water-chamber 6.

Above the central opening 3 is placed a feeding mechanism embodying my invention

and comprising a coal-hopper 7, a coal-reservoir 8, and a rotating coal-distributor 9. The coal-hopper is supported upon the top of the reservoir 8, and the reservoir is supported upon legs 10, the lower ends of which rest upon the bottom of the water-chamber 6. The passage between the hopper 7 and the reservoir 8 is inclosed at will by a damper 11, and the lower end of the reservoir 8 is provided with an opening 12, through which coal is delivered to the rotating coal-distributor. The lower end of the reservoir is provided with cross-bars or ribs 13, upon which is supported a conical plate 14, which partially closes the opening in the bottom of the reservoir, but leaves an annular space 15 between the walls of the reservoir and the edge of the conical plate, through which coal is free to fall by gravity into the rotating coal-distributor 9.

The rotating coal-distributor comprises an upper cylindrical section 16, inclosing the lower edge of the coal-reservoir and having a horizontal bottom 17, in the center of which is an opening 18, forming the upper end of a spout 19. The opening 18 is less in diameter than the conical plate 14, so that coal flowing through the annular space 15 will be received upon the horizontal bottom 17 and lie at rest until movement is given the coal-distributor. The cross-bars or ribs 13, which extend across the opening 12, project radially a short distance from a central hub 20 and are then bent at 21 at an oblique angle to a radial line, forming a series of cross-bars or ribs, between which the coal passes. The central opening 18 through the bottom 17 of the coal-distributor contains a hub 22, which is supported by a spider 23, which connects the hub 22 with the walls of the spout 19. The hub 22 is attached to the end of a shaft 24, which is journaled in a long hub 20, which is supported by the cross-bars or ribs 13. The upper end of the shaft 24 carries a collar 25, which is held from turning on the shaft and is supported upon the upper end of the hub 20, either with or without interposed roll or ball bearings. Extending from the center outward over the horizontal bottom 17 of the coal-reservoir are cross-bars or ribs 26,

which are bent at 27 obliquely to a radial line similarly to but in the opposite direction from the stationary cross-bars or ribs 13. The opening 28 in the lower end of the spout 5 19 is slightly eccentric to its axis of rotation, caused by the inclination from a vertical plane of the walls of the spout on one side, as represented at 29, the wall of the spout on the diametrically opposite side being substantially vertical, as shown at 30, Fig. 1. 10 The inclined side 29 of the spout is slightly curved or bent at its lower end, as at 31, in order to give direction toward the walls of the gas-producer to the coal, which slides 15 over the inclined wall 29, and thereby acquires sufficient momentum so that when directed laterally by the curved section 31 of the spout it will be thrown to the outer portion of the heating-chamber, when the coal 20 falling by gravity in a vertical line through the opening 28 will fall nearer the center of the heating-chamber. The direction assumed by the coal delivered over the curved surface 31 is indicated by the broken line and arrow 25 32, while the direction of that falling by gravity through the opening 28 is indicated by the broken line and arrow 33. The coal, which when the distributor is at rest is supported at the angle of repose upon the flat or 30 horizontal bottom 17 of the distributor, is moved toward the center of the distributor and into the opening 18 by the action of the oblique rotating ribs 26, acting in conjunction with the oppositely-inclined fixed cross-bars or ribs 13. Projecting from the lower 35 end of the spout 19 is a cover 34, having its upper surface concave or depressed to form a water basin or chamber 35 and having at its outer edge a downwardly-depending flange 40 36, extending into the water held in the water-chamber 6, thereby water-sealing the lower end of the distributor. The upper end of the distributor is provided with an annular water-chamber 37 to receive and water-seal a depending flange 38 on the coal-reservoir, and thereby water-seal the joint between the coal-reservoir and the coal-distributor. The periphery of the coal-distributor is provided with a ratchet 39, which is 50 engaged by a swinging pawl 40, carried upon a radial arm 41, attached to the lower end of an oscillating shaft 42, to which an oscillating motion is given in any well-known manner, thereby imparting a rotary motion to the 55 coal-distributor, causing the cross-bars 26 to push the coal lying in front of them in the direction of the arrow 43, Fig. 3, and as the ribs 26 are bent or inclined forward in the direction of their rotation the coal which is 60 moved forward by the rotary movement of the ribs 26 will gradually be worked toward the center of the coal-distributor and pass through the central opening 18 into the spout 19, through which it is delivered into the 65 heating-chamber of the gas-producer.

The under surfaces of the top plate 1 and of the distributing-cover 34 are provided with

ribs 44 or projections to engage and support a heat-protecting lining 45, of fire-clay or similar refractory material. 70

I am aware that it is not broadly new to interpose a revolving spout or coal-distributor between the gas-producer and a stationary coal-reservoir.

My present invention is an improvement 75 upon that class of feeding mechanisms for gas-producers which employ a rotating spout for the distribution of coal in the producer-chamber by which I greatly simplify the construction of the mechanism, provide a more 80 rigid and durable bearing for the vertical supporting-shaft of the coal-distributor, and remove the pressure of the coal in the reservoir from the rotating parts of the mechanism.

What I claim as my invention, and desire 85 to secure by Letters Patent, is—

1. In the feeding mechanism of a gas-producer, the combination with a stationary coal-reservoir having an opening in its bottom, of a stationary plate held concentrically above 90 said opening, but of less diameter than the opening, whereby an annular space is left around said plate for the passage of coal, a rotating coal-distributor provided with a horizontal bottom extending beneath said plate, 95 bent, fixed ribs on the under side of said plate and oppositely-bent, rotating ribs carried by said coal-distributor, whereby the coal is moved from said horizontal bottom, substantially as described. 100

2. The combination of a stationary coal-reservoir having a conical or tapered lower section leading to a concentric opening for the delivery of coal, a stationary plate placed 105 above said opening, a rotating coal-distributor beneath said opening provided with a horizontal bottom and a spout and means for moving the coal supported by said horizontal bottom into said spout, substantially as described. 110

3. In the feeding mechanism of a gas-producer, the combination of a stationary coal-reservoir having an opening in its bottom for the delivery of coal, a stationary plate placed 115 above said opening, but of less diameter, forming an annular space around said plate for the delivery of coal and a rotating coal-distributor beneath said plate, substantially as described.

4. In the feeding mechanism of a gas-producer, the combination of a stationary coal-reservoir having an opening at its lower end for the passage of coal by gravity, a rotating coal-distributor beneath said opening, a stationary plate placed above said distributor 125 and of less diameter than the opening in said reservoir, whereby an annular space is formed for the passage of coal, a central opening in said coal-distributor and means for moving the coal as it passes through said annular 130 space toward said central opening, substantially as described.

5. In the feeding mechanism of a gas-producer, the rotating coal-distributor compris-

ing a cylindrical section having a horizontal bottom and a central opening and a spout leading from said opening with the opening in the lower end of said spout eccentric to its axis of rotation, with the inclined side of said spout curved or bent at its end to change the direction of the coal, substantially as described.

6. In the feeding mechanism of a gas-producer, the combination of a coal-reservoir having a central opening at its lower end, a hub held concentrically in said opening and forming a journal-bearing for a rotating shaft, a rotating shaft journaled in said hub, a coal-distributor attached to the lower end of said shaft, a collar attached to said shaft and supported by the upper end of said hub and a plate projecting radially from said hub of less diameter than the opening in said reservoir, substantially as described.

7. In the feeding mechanism of a gas-producer, the combination with the top plate of

the producer provided with a central opening to the heating-chamber and an annular water-space around said opening, of a coal-reservoir having an opening in its bottom and provided with legs by which it is supported on said top plate, a hub held concentrically in said coal-reservoir, a shaft journaled in said hub and held from longitudinal movement by gravity, a coal-distributor below said coal-reservoir and having a central opening for the delivery of coal to the producer, a fixed plate above and extending over said opening in the distributor and means for moving coal from the periphery of said fixed plate toward said opening in the coal-distributor, substantially as described.

Dated this 19th day of May, 1902.

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Witnesses:

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