

J. R. GEORGE.  
 GAS PRODUCER.  
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998,168.

Patented July 18, 1911.

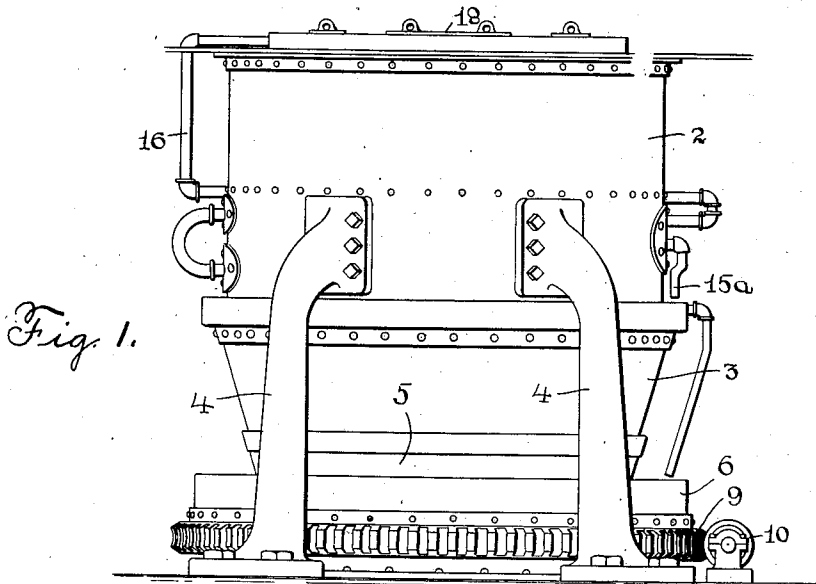


Fig. 1.

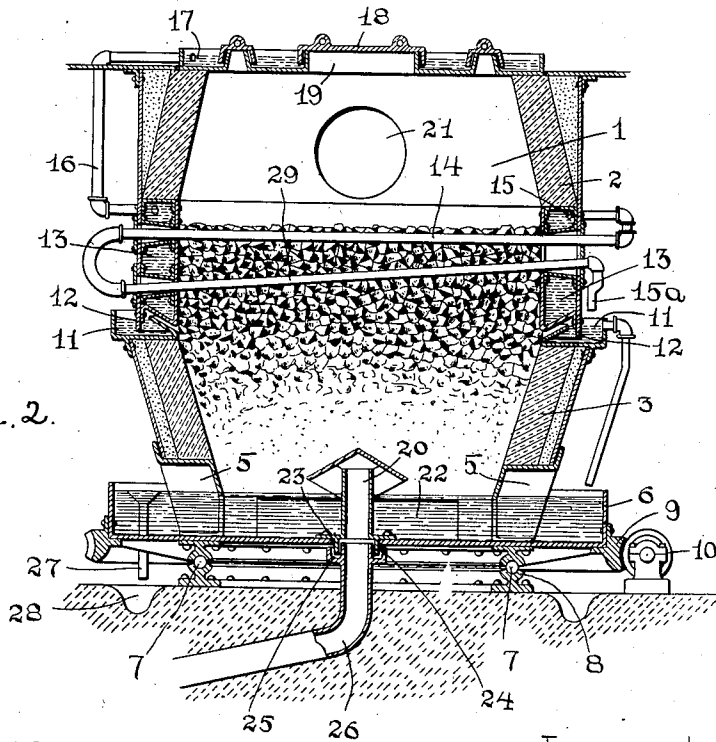


Fig. 2.

Witnesses

Roy D. Tolman.

*Pauline Bamberbach*

Inventor  
 Jerome R. George.  
 By *Rufus B. Fowler*  
 Attorney

# UNITED STATES PATENT OFFICE.

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

GAS-PRODUCER.

998,168.

Specification of Letters Patent.

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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, in which—

Figure 1 represents a side elevation of a gas producer embodying my invention, and Fig. 2 is a vertical central sectional view.

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

The object of my present invention is to secure a uniform distribution of coal within the gas producer, preventing the formation of flues or "pipes" due to the unequal combustion of coal and to maintain the disintegration of coal during the progress of combustion, and I accomplish these results by the construction and arrangement of parts as hereinafter described and pointed out in the annexed claims.

Referring to the accompanying drawings 1 denotes the gas producer chamber inclosed within walls of any suitable refractory material, and consisting of an upper section 2 and a lower section 3. The upper section 2 is stationary and is supported upon a series of legs 4. The lower section 3 is preferably hopper shaped and is supported upon an annular bracket 5 which rests upon the bottom of a water pan 6. The water pan 6 is supported upon a series of friction balls 7 running in an annular track 8. Attached to the water pan 6 is an annular rack 9 engaged by a rotating worm gear 10 by which a rotary motion is given to the pan 6 and to the lower section 3 of the gas producer. Mounted upon the upper edge of the lower section 3 is an annular water trough 11 which receives a depending flange 12 carried by the upper section 2 of the gas producer. The lower portion of the upper section 2 is constructed of boiler plate iron and incloses an annular water chamber 13 provided with openings on its opposite sides to receive a water pipe 14 which communicates at 15 with the annular water chamber 13, and passing diametrically through the gas producer chamber is returned upon itself and is arranged at its open end 15<sup>a</sup> to deliver water to the water trough 11. Water is supplied to the annular chamber 13 by a water pipe

16 which connects the annular chamber 13 with a water reservoir 17 on the top of a gas producer and arranged to water seal the cover 18 of a central fuel opening 19. A blast of air and steam is supplied to the bottom of the gas producer chamber through a pipe 20 and gas produced by the combustion of the coal is removed through an opening 21 near the top of the gas producer chamber. The water trough 11 is so situated as to be approximately in the same horizontal plane as the zone of intense heat in the producer chamber. Steam formed in the water trough 11 is admitted to the producer chamber by a series of openings into said chamber, and as the steam comes immediately into contact with superheated fuel it is converted into its constituent elements, and the liberated oxygen unites with the carbon in the fuel to form CO.

Fuel is fed to the gas producer chamber through the central opening 19 as often as may be required, maintaining the line of fuel slightly above the water pipe 14. Rotary motion is imparted to the lower section 3 of the gas producer by means of the rotating worm gear 10 and the mass of fuel is thereby carried around with the lower section of the gas producer against the resistance of the water pipe 14, which in the present instance is made to pass twice through the mass of fuel, thereby maintaining the fuel at a uniform level, maintaining the disintegration of coal and preventing the formation of apertures or flues through the mass of fuel due to unequal combustion. Ashes that are formed at the bottom of the gas producer chamber fall into the water pan 6 which extends beyond the side walls of the gas producer to enable the ashes to be removed through openings 22. The air pipe 20 which extends into the gas producer chamber is provided with a flange 23 at the bottom which is attached to the bottom of the rotating water pan 6 and it is also provided with a depending annular flange 24 which dips into the annular water sealed space 25 around the upper end of a stationary inlet air pipe 26.

A pipe 27 delivers the overflow from the pan 6 as it rotates into an annular waste trough 28. The water pipe 14 is extended through the heating chamber in preferably a horizontal plane, but when it is returned through the heating chamber it is arranged

preferably at an oblique angle to a horizontal plane as shown at 29. By this arrangement of the pipe 14 the upper and horizontal section serves to level the upper surface of the fuel and the lower and oblique section of the pipe serves to agitate the fuel at a greater depth and maintain the disintegration of the mass.

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

1. A gas producer, having a stationary upper section and a rotatable lower section inclosing a heating chamber, with the upper section provided with an opening in its top for the admission of fuel, a poker with its ends supported by opposite sides of the lower portion of said upper stationary section, and means for rotating said lower section.

2. A gas producer, having a stationary upper section and a rotatable lower section inclosing a heating chamber, a poker with its ends supported by opposite sides of the lower portion of said stationary upper section, said upper section provided with an opening for the admission of fuel above said poker, and means for rotating said lower section.

3. A gas producer, having a stationary upper section and a rotatable lower section inclosing a heating chamber, a poker with its ends supported by opposite sides of the lower portion of said upper section and arranged to extend transversely through the fuel in said heating chamber, and means for rotating said lower section.

4. In a gas producer, the combination of a stationary wall inclosing the upper portion of the heating chamber, an annular water chamber forming a part of said stationary wall, a water pipe communicating with said water chamber and extending transversely through the heating chamber, a rotatable wall inclosing the lower portion of said chamber, and a water sealed joint between said stationary and said rotatable wall.

5. A gas producer, having a casing with a stationary upper section and a rotatable lower section and inclosing a heating chamber, a poker supported at its ends by said casing and arranged to pass through the fuel in said heating chamber in a plane transverse to the axis of said chamber, and means for rotating said lower section.

6. A gas producer, having a casing with a stationary upper section and a rotatable lower section and inclosing a heating chamber, a poker arranged to sever the mass of fuel in said heating chamber in a plane transverse to the axis of said heating chamber as said lower section rotates, and means for rotating said lower section.

7. A gas producer, having a stationary upper section and a rotatable lower section inclosing a heating chamber, with said upper section having an opening near the top of said upper section for the admission of coal thereto, a poker with its ends supported by diametrically opposite sides of the lower portion of said stationary section and arranged to pass through the mass of fuel in said heating chamber in a plane transverse to the axis of said chamber, and means for rotating said lower section.

8. In a gas producer, the combination with a stationary wall inclosing the upper portion of a heating chamber, of a water pipe held by said wall and extending transversely through said chamber, said pipe being returned through said chamber in a different plane, and means for moving the fuel against said water pipe.

9. In a gas producer, the combination with a heating chamber, of an inclosing wall for said chamber having a stationary and a movable section, a water cooled pipe held by said stationary section and passing transversely through said chamber, said pipe being returned through said chamber, and means for actuating said rotating section.

10. In a gas producer, the combination with a heating chamber, of an inclosing wall for said chamber having a stationary and a movable section, a water cooled pipe held by said stationary section and passing transversely through said chamber, said pipe being returned through said chamber on a lower level and at an oblique angle to a horizontal plane, and means for rotating said movable section, whereby the fuel held therein is carried against said water cooled pipe.

Dated this twenty-first day of April 1905.

JEROME R. GEORGE.

Witnesses:

RUFUS B. FOWLER,  
PENELOPE COMBERBACH.