L. C. PARKER.

GAS PRODUCER.

APPLICATION FILED JUNE 18, 1908.

901,823.

Patented Oct. 20, 1908.

Fig. 1.

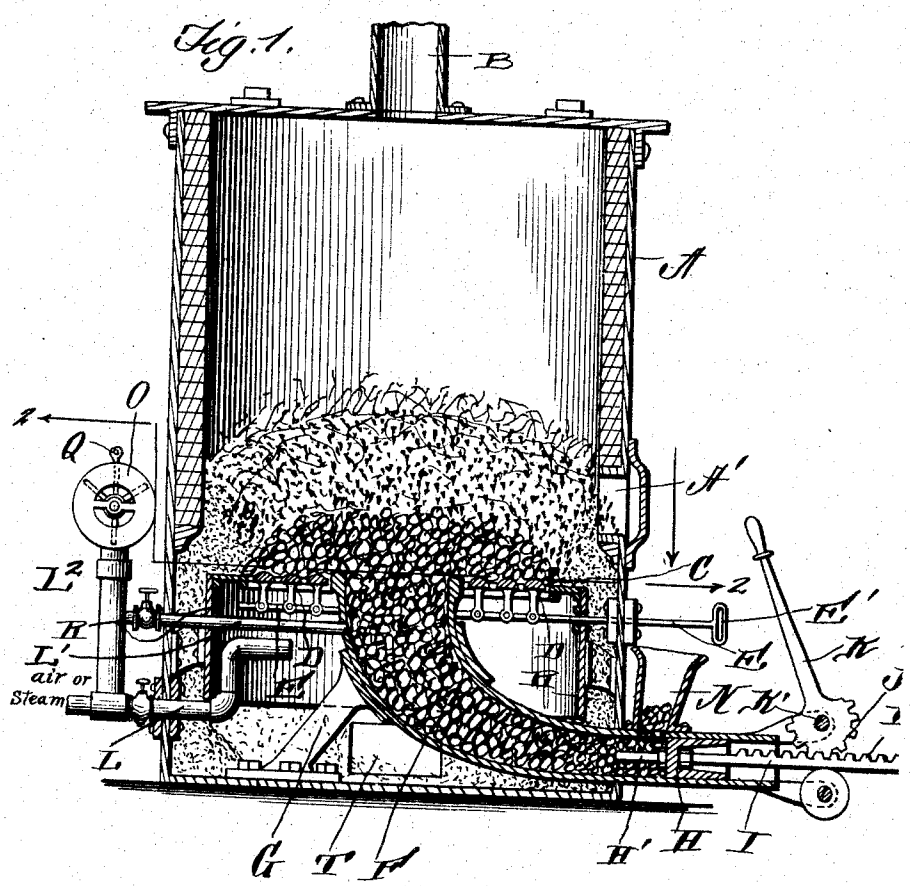
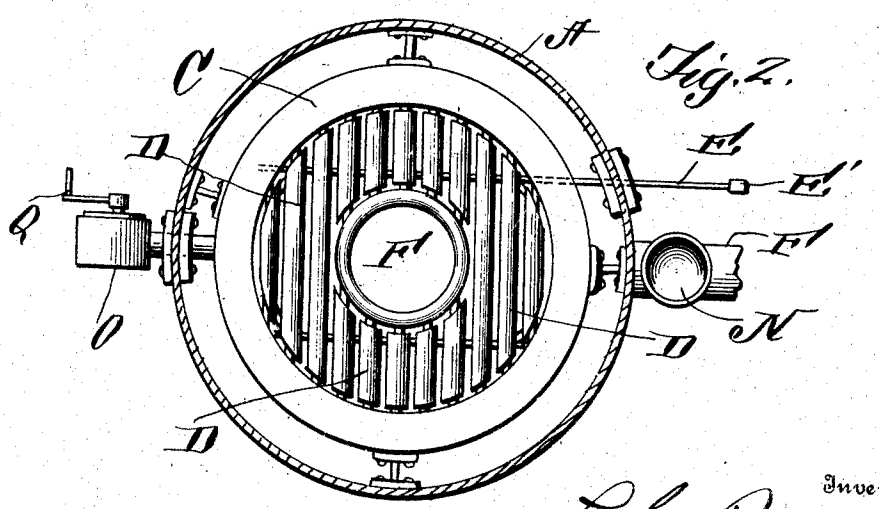


Fig. 2.



Witnesses

R. H. Boswell.

A. L. Hough

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Atto

UNITED STATES PATENT OFFICE.

LEWIS C. PARKER, OF HAMILTON, OHIO.

GAS-PRODUCER.

No. 901,823. Specification of Letters Patent. Patented Oct. 20, 1908.

Application filed June 18, 1908. Serial No. 439,137.

To all whom it may concern:

Be it known that I, LEWIS C. PARKER, a citizen of the United States, residing at Hamilton, in the county of Butler and State of Ohio, have invented certain new and useful Improvements in Gas-Producers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in gas producers, the object in view being to generally improve upon and render more efficient the under feed type of producers.

The invention comprises various details of construction, combinations and arrangements of parts which will be hereinafter fully described and then specifically defined in the appended claims.

I illustrate my invention in the accompanying drawings, in which:—

Figure 1 is a vertical sectional view through the producer, and Fig. 2 is a cross sectional view on line 2—2 of Fig. 1.

Reference now being had to the details of the drawings by letter, A designates the shell of the producer which is of the usual construction and provided with a gas outlet opening B and an opening A′, through which access may be had to the interior of the shell for igniting the material and through which the burning of the fuel may be viewed.

Supported upon suitable bracket members C′ within the shell is an annular band C spaced apart a slight distance from the inner wall of the shell, and D—D designate grate bars which are convexed upon their upper surfaces.

E is a rod which is pivotally connected to the lower portions of the grate bars and extends through the wall of the shell and has a suitable handle E′ thereon, whereby the rod may be reciprocated for the purpose of rocking the grate bars.

F designates a feeding pipe flaring at its upper end and curved as shown, its lower contracted end extending through the wall of the producer shell. The upper flaring end of the feeding pipe is on a line with said band C and substantially in the same plane as the upper edge of the grate bars.

G designates a bracket arm which is fastened to the feed pipe and affords means for supporting and reinforcing the same. Mounted within the outer end of the feed pipe is a plunger H having a projecting pin H′ extending forward into said pipe and upon the opposite side of the plunger is a bar I having rack teeth I′ thereon adapted to mesh with the teeth J upon the curved end of the lever K which is pivotally mounted upon a pin K′. A coal hopper N leads into the feeding pipe adjacent to its outer end and through which fuel is admitted to the pipe. It will be noted that said plunger is elongated so that, when it is pushed forward by means of said lever, it will shut off the feeding of the coal into the pipe until the plunger is withdrawn past the lower end of the coal chute or hopper.

A pipe L′ having a valve L^2 therein, leads through the wall of the producer below the grate and communicates with the interior of the fuel feeding chute, to allow steam and water to be introduced therein for the purpose of preventing the coal in the pipe from coking and adhering thereto. A second pipe L leads through the wall of the producer and opens into the space below the grates and through which air and steam may be introduced. A blower is mounted within the casing O and which communicates with said pipe L, a handle Q being connected to the blower affording means whereby the same may be worked by hand power. Depending from the outer marginal edge of the band or ring C is a shell R which forms with the wall of the producer shell a passageway through which ashes, as they fall off the edge of the band or ring C, pass into the ash receptacle beneath, access to which is had through the door T.

The operation of the apparatus is as follows:—In starting, the space between shell A and shell R is filled with ashes when a fuel free from tarry or volatile hydro-carbons is used to feed the feed pipe. Fire is preferably started from dry wood or charcoal which is placed upon the grates and ignited. The blower within the casing O is operated to force the combustion and coal or coke delivered to the grate through the feed pipe, until the fuel column has a depth of fifteen or twenty inches of incandescent coal, after which soft coal may be introduced by feeding the same up through the feed pipe by working the plunger back and forth. As

the volatile vapors are gasified from the soft coal as it becomes heated, gradually the rich hydro-carbons are decomposed in passing up through the incandescent zone of coals above the grate and thus form a fixed producer gas. After the rich tarry vapors (hydro-carbons) are driven from the gasifying fresh coal, practically coke is formed which is forced upward by the introduction of the fuel and thus a mass of incandescent coke is above the fresh fuel during the operation of the producer. As the coke becomes consumed nearest the walls of the producer, the resultant ash naturally is forced to the walls and falls down between the shell or apron and the surrounding wall of the producer shell into the ash chamber beneath.

It will be noted that, by the construction of a gas producer as shown and described, all of the air is caused to pass up through the mass of fuel and is uniformly distributed through the incandescent coals, the ash as it is formed falling back down without effecting the combustion or gasification of the coal. By the arrangement of the grates which are on a line with the upper edge of the feeding pipe and also in a line with the band or ring over which the ash falls, it will be noted that the grate may be actuated to let the ash and clinker down and at the same time not produce any cracks or openings up through the fuel column, the air for combustion passing through the grate bars without any interference with the ash.

What I claim to be new is:—

1. A gas producer comprising a shell, an under feed fuel pipe with its upper end flaring and passing through the wall of the shell, means for feeding the fuel therein, grate-bars mounted within the shell and in a line with the exit end of said feed pipe, a band surrounding said grate bars and having a space intervening between the outer marginal edge thereof and the shell of the gas producer, and an apron depending from the outer marginal edge of said band and spaced apart from the wall of the shell, as set forth.

2. A gas producer comprising a shell, an under feed fuel pipe with its upper end flaring and passing through the wall of the shell, a plunger mounted within said pipe and having a pin projecting from the inner end thereof and extending into said feed pipe, means for reciprocating the plunger, grate bars mounted within the gas producer and in a line with the exit end of the feed pipe, a band surrounding said grate bars, with a space intervening between its outer marginal edge and the surrounding wall of the gas producer shell, and an apron depending from the band and forming with the wall of the shell an ash passageway, as set forth.

3. A gas producer comprising a shell, an under feed fuel pipe with its upper end flaring and passing through the wall of the shell, a plunger mounted within said pipe and having a pin projecting from the inner end thereof and extending into said feed pipe, rack teeth upon the stem of the plunger, a pivotal lever having rack teeth in mesh with the teeth of said stem, rocking grate bars mounted on a level with the upper exit end of said feed pipe, an operating rod pivotally connected to said grate bars, an ash band surrounding the grate bars and in the same plane therewith, a space intervening between the marginal edge of said band and the surrounding wall of the producer shell, an apron depending from said band, a pipe leading through said shell and having an exit end beneath said bars, as set forth.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

LEWIS C. PARKER.

Witnesses:

JAMES ECKHART,

HOWARD HALL.