No. 836,888. PATENTED NOV. 27, 1906.

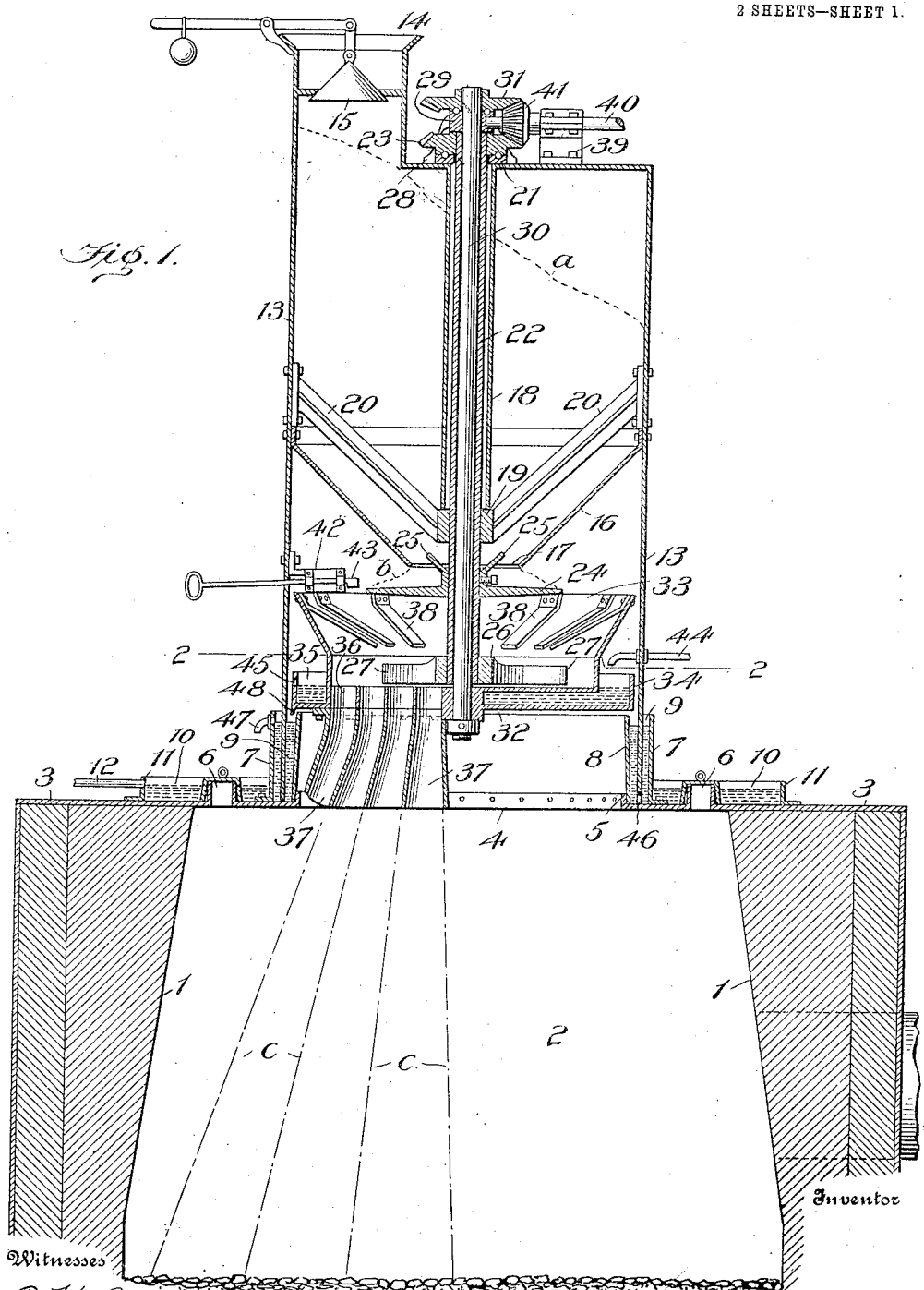
L. C. PARKER.

FEEDING MECHANISM FOR GAS PRODUCERS.

APPLICATION FILED FEB. 28, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2

Fig. 2.

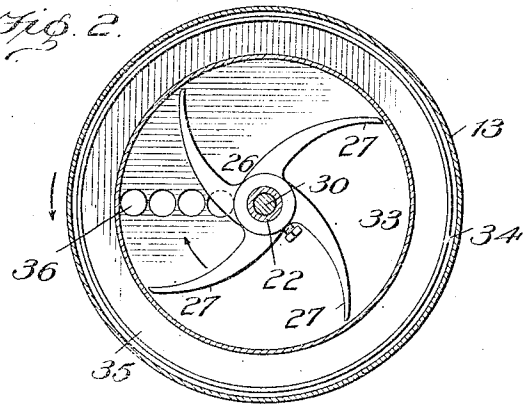



Fig. 3.

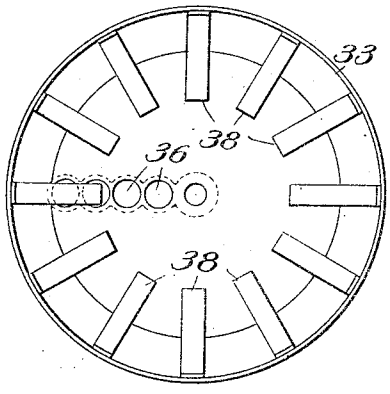
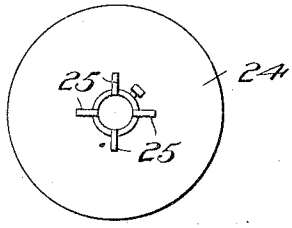



Fig. 4.

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# UNITED STATES PATENT OFFICE.

LEWIS C. PARKER, OF ST. JOSEPH, MISSOURI.

## FEEDING MECHANISM FOR GAS-PRODUCERS.

No. 836,888. Specification of Letters Patent. Patented Nov. 27, 1906.

Application filed February 28, 1906. Serial No. 303,494.

*To all whom it may concern:*

Be it known that I, LEWIS C. PARKER, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Gas-Producers, of which the following is a specification.

The invention relates generally to gas-producers, but more particularly to devices for feeding fuel to the combustion-chamber thereof; and it consists, essentially, of the novel construction of the several parts and their peculiar arrangement and combination, as will be hereinafter fully described in this specification and briefly stated in the claims.

The main objects of the invention are, first, to provide a mechanism for uniformly and evenly distributing the fuel to the combustion-chamber, second, to provide means for protecting the fuel-distributing mechanism from the intense heat generated in said combustion-chamber, and, third, to simplify and cheapen the cost of construction of said mechanism without impairing its durability and usefulness in operation.

Other objects of the invention will become apparent upon a full disclosure thereof.

In the drawings, Figure 1 is a vertical central section of my improved feeding mechanism; Fig. 2, a horizontal section on line 2 2 of Fig. 1; Fig. 3, a top plan of the rotatable fuel-distributer, and Fig. 4 a similar view of the fuel-distributing disk.

Referring to the several views, the numeral 1 indicates the upper portion of a gas-producer, and 2 the combustion-chamber thereof. The producer may be of any approved or well-known construction and is provided with a metallic top plate 3, having a central opening 4, surrounded by a flange or collar 5. The top plate is provided with the usual stoker-openings 6.

Secured to the top plate is an outer flanged collar 7, and secured to the collar 5 of said top plate is an inner collar 8, the space between the two collars forming a water seal 9. A water-chamber 10 is formed upon the top plate by means of the outer collar 7 and a flanged collar 11, the latter being provided with an overflow-pipe 12.

Mounted upon the top plate within the water seal 9 is a fuel-magazine 13, provided with a supply-opening 14, controlled by the usual damper or valve 15. Secured within the fuel-magazine is a hopper 16, having a delivery-opening 17 for the passage of the fuel. The fuel-magazine is provided with a downwardly-extending central tube or sleeve 18, the lower end of which rests upon a bearing hub or block 19, supported by upwardly-projecting arms 20 20, secured to the wall of the fuel-magazine. Within the tube or sleeve 18 and having bearings in the hub 19 and a block 21 is a tubular shaft 22, provided at its upper end with a beveled gear-wheel 23, supported by and rotatable upon a ball-bearing in the block 21, as shown in Fig. 1, and carrying near its lower end a fuel-distributing disk 24, having upwardly and outwardly projecting arms 25, extending up into the opening 17 of the fuel-hopper 16, said arms serving to keep the fuel constantly in motion and prevent clogging around the shaft and on the disk. The upper surface of the distributing-disk is slightly inclined from its center toward its outer peripheral edge, so as to facilitate the distribution of the fuel to the distributor, to be hereinafter described. Secured to the extreme end of the tubular shaft is a feeder 26, consisting of a plurality of curved arms or blades 27, radiating from a central hub.

Supported upon legs 28 is a bearing-block 29, and journaled in said block and passing through the tubular shaft is a shaft 30, provided at its upper end with a beveled gear-wheel 31, supported by and rotatable upon a ball-bearing in said block 29 and carrying at its lower end a distributer 32. The distributer 32 is composed of a hopper 33, having a double bottom spaced apart, the under bottom being formed with an upwardly-extending flange 34 to provide a water-chamber 35 beneath and around the upper bottom of the distributer, so as to protect the same from being overheated. Both bottoms are provided with a plurality of walled openings 36, and bolted to the under bottom in line with said openings is a plurality of peculiarly-shaped chutes or tubes 37, which distribute the fuel in the combustion-chamber. These chutes or tubes are so curved that the fuel will be distributed from the center outward toward the wall of the combustion-chamber. Projecting inwardly from the upper edge or rim of the distributer-hopper is a plurality of bars 38 for delivering a portion of the fuel toward the center of said distributer-hopper.

Journaled in a bearing 39, secured upon the top of the fuel-magazine, is a driving-

shaft 40, carrying at one end a beveled pinion 41, meshing with the gear-wheels 23 and 31 and receiving power from any suitable source.

Slidable in suitable bearings secured to a bracket 42, secured to the inner wall of the fuel-magazine, is a scraper 43, the outer end of which projects through an opening in the wall of said magazine, so as to permit of the scraper being operated to scrape or clean the upper surface of the fuel-distributing disk 24, which can be readily accomplished by setting the disk in operation and gradually pushing the scraper toward the center of the disk.

A supply-pipe 44, passing through the wall of the magazine, supplies the chamber 35 with water, and an overflow-hole 45 allows the water to flow into the water seal 9, the water flowing through holes 46 (only one being shown) in the lower edge of the magazine-wall. The outer wall of the water seal is provided with an overflow-spout 47, which conducts the water into the chamber 10. It will be noticed that said chamber is provided with a lip 48, directly beneath the overflow-hole 45, and as the water falls from said overflow-hole it will be conducted into the water seal away from the bottom of the chamber.

In operation the fuel is delivered through the supply-opening to the magazine, the direction assumed by the fuel being indicated by the dotted line *a*. As the fuel passes from the hopper 16 it is caught by the arms of the revolving distributing-disk 24 and laid upon said disk substantially as indicated by the dotted line *b*. The fuel is thrown from the distributing-disk into the distributer-hopper and fed, through the openings 36, into the chutes or tubes 37, which by reason of their peculiar shape distribute the fuel uniformly and evenly throughout the combustion-chamber, said fuel being delivered as indicated by the dotted lines *c*. It will be obvious from the arrangement of the driving-gear that the distributing-disk and the feeder-arms will be rotated in a direction opposite to that of the distributer 32, so that the feed of the fuel into the distributing chutes or tubes will be rapid and uninterrupted.

In feeding fuel to the producer it is important that the fuel should be uniformly distributed and that it be fed uninterruptedly. In order to accomplish these objects, it is necessary to distribute the fuel over as much of the surface of the distributer as possible, and this I accomplish by arranging below the exit of the fuel-hopper 16 the rotatable distributing-disk 24. This disk forms an important feature of my invention, as by its use I am able to distribute the fuel upon the outer portion of the surface of the distributer 32, which is of a much greater diameter than the exit of the fuel-hopper 16 and not all at the center of said distributer, as would be the case if the distributing-disk were dispensed with, in which case it will readily be seen that the fuel would pass through the exit of the fuel-hopper 16 down upon the distributer in a pile around the sleeve 22. Such a contingency would necessarily render the operation of the feeder 26 exceedingly difficult.

In practice it is of the utmost importance that the fuel be distributed over the surface of the distributer 32 from the center to the outer periphery thereof, so that the feeder-arms will sweep a line of fuel extending from the center of the said distributer to the outer periphery thereof into the line of chutes or tubes to be distributed in and around the gas-producer.

By arranging the distributer and its chutes to rotate in a direction opposite to that of the feeder 26 a much more rapid and a continuous feed of the fuel will be attained than if the distributer and feeder moved in the same direction, in which case the feeder would have to be rotated at a much greater speed than the distributer.

It will be noted that all of the parts of the mechanism subject to the intense heat of the combustion-chamber are protected by the water seal and the water-chambers, into which a constant flow of water may be maintained, and that the operating-shafts are protected from the fuel in the magazine by the tube or sleeve 18.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a feeding mechanism for gas-producers, the combination with a producer having a top plate, of a fuel-magazine mounted upon the top plate, a distributing-disk and a feeder arranged within the magazine one above the other, and rotatable in the same direction, means for rotating the disk and feeder, a distributer arranged below the feeder and rotatable in a direction opposite to that of the disk and feeder, and means for rotating said distributer.

2. In a feeding mechanism for gas-producers, the combination with a producer having a top plate provided with a water seal, of a fuel-magazine seated in the water seal, a distributing-disk and a feeder arranged one above the other within the magazine and rotatable in the same direction, means for rotating the disk and feeder, and a distributer arranged below the feeder and rotatable in a direction opposite to that of the feeder, and means for rotating said distributer.

3. In a feeding mechanism for gas-producers, the combination with a producer having a top plate provided with a water seal and a water-chamber, of a fuel-magazine seated in the water seal, a distributing-disk and a feeder arranged one above the other within the magazine and rotatable in the same di-

rection, means for rotating the disk and feeder, a distributer arranged below the feeder and rotatable in a direction opposite to that of the disk and feeder, and means for rotating said distributer.

4. In a feeding mechanism for gas-producers, the combination with a producer having a top plate, a fuel-magazine mounted upon the top plate, a distributing-disk and a feeder arranged one above the other within the magazine and rotatable in the same direction, a distributer provided with a water-chamber, said distributer being arranged below the feeder and rotatable in a direction opposite to that of the feeder and disk, and means for rotating said distributer.

5. In a feeding mechanism for gas-producers, the combination with a producer having a top plate provided with a water seal and a water-chamber, of a fuel-magazine seated in the water seal, a distributing disk and a feeder arranged one above the other within the magazine and rotatable in the same direction, means for rotating said disk and feeder, a distributer arranged below the feeder and provided with a water-chamber, said distributer being rotatable in a direction opposite to that of the feeder, and means for rotating the distributer.

6. In a feeding mechanism for gas-producers, the combination with a producer having a top plate, of a fuel-magazine mounted upon the top plate, a distributing-disk and a feeder arranged one above the other within the magazine and rotatable in the same direction, means for rotating said disk and feeder, a distributer arranged below the feeder and provided with depending chutes or tubes, said distributer and chutes being rotatable in a direction opposite to that of the feeder and disk, and means for rotating the distributer.

7. In a feeding mechanism for gas-producers, the combination with a producer having a top plate provided with a water seal, a fuel-magazine seated in the water seal, a distributing-disk and a feeder arranged one above the other within the magazine and rotatable in the same direction, means for rotating said disk and feeder, a distributer arranged below the feeder and provided with depending chutes or tubes, said distributer and chutes being rotatable in a direction opposite to that of the disk and feeder, and means for rotating the distributer.

8. The combination with a producer having a top plate provided with a water seal, a magazine seated in the water seal, a distributing-disk and a feeder arranged one above the other within the magazine and rotatable in the same direction, means for rotating said disk and feeder, a distributer arranged below the feeder and provided with a water-chamber and with depending chutes or tubes, said distributer and chutes being rotatable in a direction opposite to that of the disk and feeder, and means for rotating said distributer.

9. The combination with a producer having a top plate, a magazine mounted upon the top plate, a rotatable fuel-distributer arranged within the magazine and provided with a plurality of depending chutes or tubes, so constructed and arranged as to distribute the fuel from the center in an outward line, and means for rotating said distributer and chutes.

10. The combination with a producer having a top plate, a magazine mounted upon the top plate, a rotatable fuel-distributer situated within the magazine and provided with a water-chamber and with a plurality of depending chutes or tubes, said chutes or tubes being so formed and arranged as to distribute the fuel from the center in an outward line, and means for rotating said distributer and chutes.

11. The combination with a producer having a top plate, of a magazine mounted upon the top plate, a distributing-disk and a feeder arranged one above the other within the magazine and rotatable in the same direction, means for rotating said disk and feeder, a fuel-distributer arranged below the feeder and provided with a plurality of depending chutes or tubes, said chutes or tubes being formed and arranged to distribute the fuel from the center in an outward line, and means for rotating said distributer.

12. The combination with a producer having a top plate, of a magazine mounted upon the top plate, a distributing-disk and a feeder having curved arms, said disk and feeder being arranged one above the other within the magazine and rotatable in the same direction, means for rotating said disk and feeder, a distributer arranged below the feeder and provided with a plurality of depending chutes or tubes, said distributer and chutes being rotatable in a direction opposite to that of the disk and feeder, and means for rotating said distributer and chutes.

13. The combination with a gas-producer and a fuel-magazine mounted thereon, of a rotatable feeder arranged within the magazine, means for rotating the feeder in one direction, a rotatable distributer arranged below the feeder and provided with a plurality of inwardly-inclined guides for directing a portion of the fuel toward the center, and means for rotating the distributer in a direction opposite to that of the feeder.

14. The combination with a gas-producer and a fuel-magazine mounted thereon, of a rotatable feeder arranged within the magazine, means for rotating the feeder, a rotatable distributer arranged below the feeder and provided with a plurality of inwardly-inclined guides for directing a portion of the fuel toward the center, and means for rotat-

ing the distributer in a direction opposite to that of the feeder.

15. The combination with a gas-producer and a fuel-magazine mounted thereon, of a rotatable feeder arranged within the magazine, means for rotating the feeder, a rotatable distributer arranged below the feeder and provided with a water-jacket and with a plurality of fuel-guides for directing a portion of the fuel toward the center, and means for rotating said distributer in a direction opposite to that of the feeder.

16. The combination with a gas-producer and a magazine mounted thereon, of a rotatable distributing-disk arranged within the magazine, means for rotating the disk, and a reciprocatory scraper arranged to be moved across said disk, whereby the disk may be cleaned while in motion.

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

LEWIS C. PARKER.

Witnesses:
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