No. 850,395. PATENTED APR. 16, 1907.

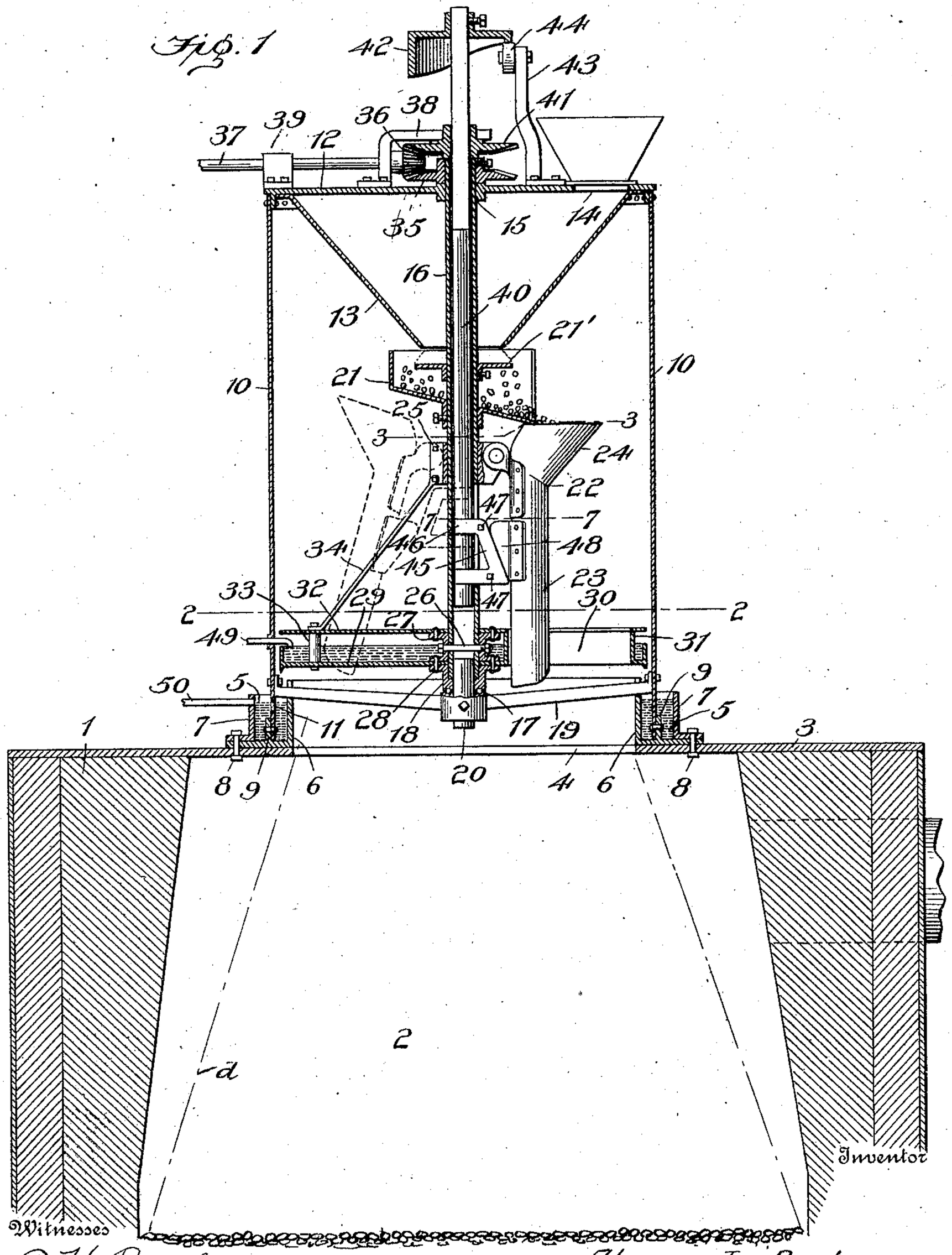
A. L. PARKER.

# FEED MECHANISM FOR GAS PRODUCERS.

APPLICATION FILED AUG. 25, 1906.

2 SHEETS—SHEET 1.

Fig. 1




Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

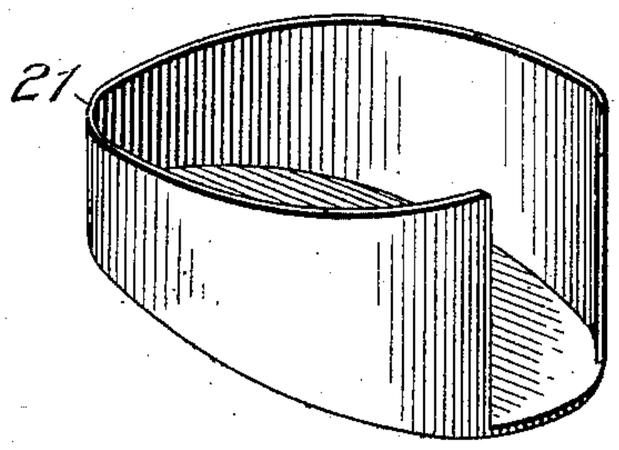



Fig. 3.

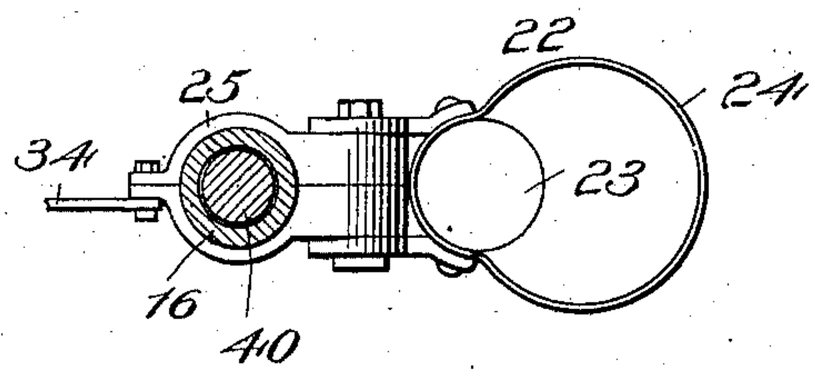



Fig. 2.

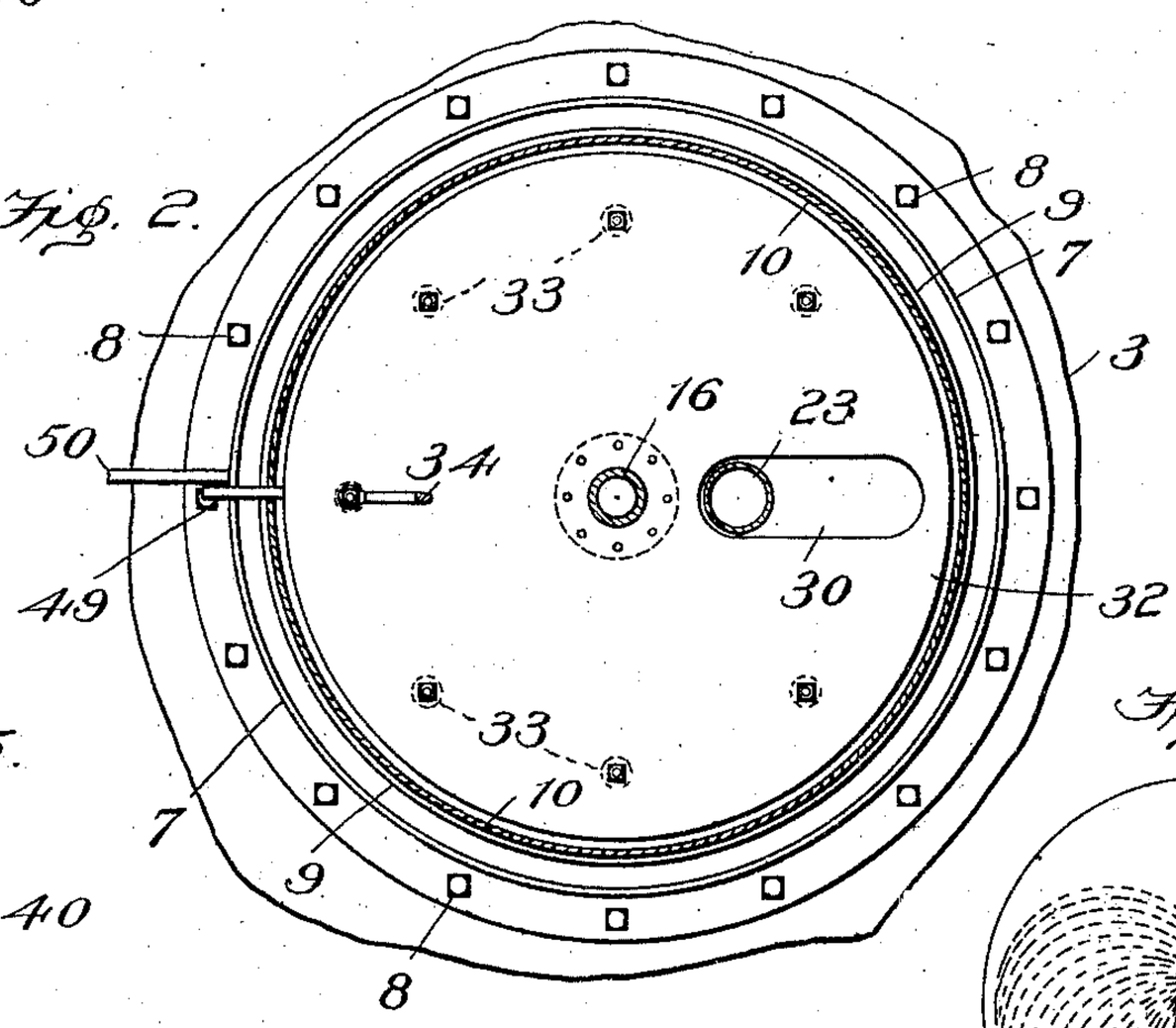



Fig. 5.

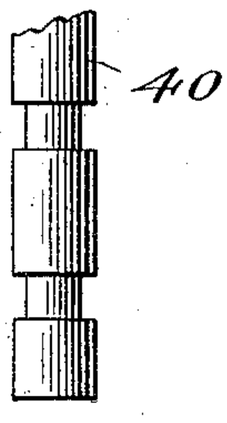



Fig. 6.

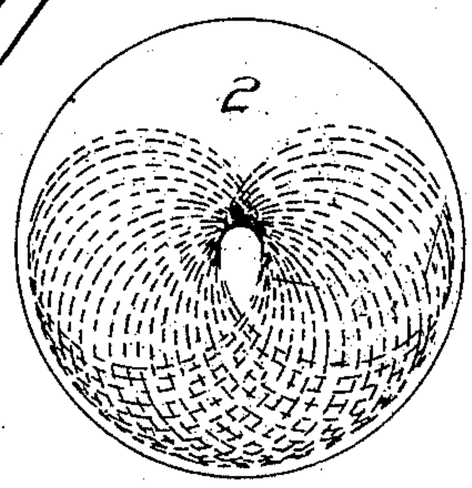
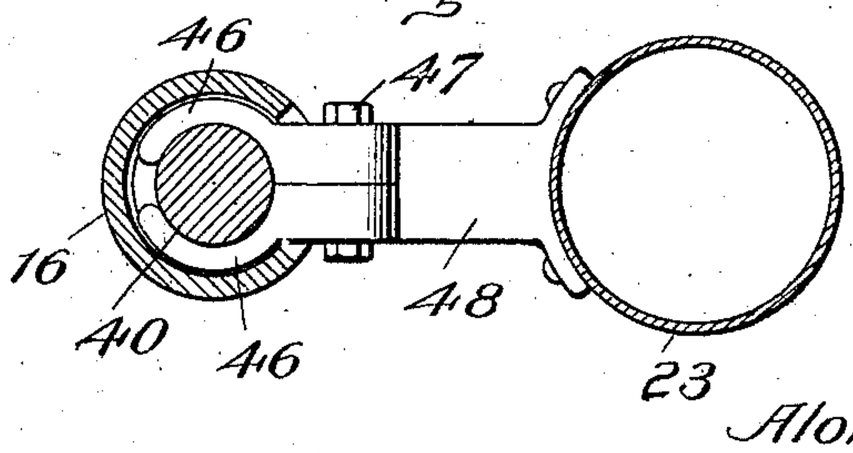



Fig. 7.

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# UNITED STATES PATENT OFFICE.

ALONZO LOFTUS PARKER, OF ST. JOSEPH, MISSOURI.

## FEED MECHANISM FOR GAS-PRODUCERS.

No. 850,395. Specification of Letters Patent. Patented April 16, 1907.

Application filed August 25, 1906. Serial No. 331,998.

*To all whom it may concern:*

Be it known that I, ALONZO LOFTUS 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 Feed Mechanism for Gas-Producers, of which the following is a specification.

The invention relates to devices for feeding fuel to the combustion-chamber of gas-producers; and its prime object is to provide for an even and uniform distribution of the fuel over the entire surface of said chamber.

Another object of the invention is to simplify and cheapen the cost of construction of this type of fuel feeding and distributing mechanism and to render the same more effective and durable in operation.

Still another object of the invention is to protect the mechanism from being injuriously affected by the intense heat generated in the combustion-chamber.

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

The invention consists generally of the novel construction, arrangement, and combination of the several parts, as will be hereinafter fully described in this specification and briefly stated in the claims.

In the drawings, Figure 1 is a vertical central section of my improved feeding mechanism as applied to a gas-producer; Fig. 2, a horizontal section on line 2 2 of Fig. 1; Fig. 3, a similar section on line 3 3 of the same figure; Fig. 4, a perspective view of the feed-chute; Fig. 5, a detail view of the lower end of the inner shaft; Fig. 6, a diagrammatic view showing the manner in which the fuel is distributed in the combustion-chamber, and Fig. 7 a horizontal section on line 7 7 of Fig. 1.

Referring to the several views, the numeral 1 indicates the upper portion of a gas-producer of any approved construction, and 2 the combustion-chamber thereof. The producer is provided with the usual metal top plate 3, having a central opening 4, and mounted upon said top plate is a water seal 5.

The water seal is formed of two flanged collars 6 and 7, respectively, the collar 7 being seated upon the flange of the collar 6, and said seal is firmly attached to the top plate by bolts 8, which pass through the flanges of both collars. The water seal is provided with a central partition 9, integral with the flange of the collar 6, and secured to said partition is a shell or casing 10. The lower end of the shell or casing is provided with an opening 11 for the passage of the water from one side of the shell to the other in order to form a complete water seal around the said lower end. The shell or casing is provided with a suitable top or cover 12, and attached to the under side of said top or cover is a fuel-hopper 13, an opening 14 being provided for supplying fuel to said hopper. The top or cover is provided with a central aperture 15, through which projects the upper end of a hollow or outer shaft 16, the lower end of said shaft being supported upon a ball-bearing 17, made in a flanged hub 18, and a horizontal beam or brace 19 and maintained in a true line by a pin or stud 20, secured to said beam and projecting into the hollow shaft.

Secured to the hollow shaft below the hopper is a fuel-delivery chute 21, which delivers the fuel from the hopper onto a disk 21′ and thence into an oscillatory distributer 22, consisting of a tubular body 23, having a flaring mouth 24. The oscillatory distributer is pivoted to the hollow or outer shaft by means of a two-part clamp 25 and revolves with said shaft.

Secured to the lower end of the hollow shaft by a bolt 26 is a double-flanged hub 27, and secured between the lower flange of said hub and the flange of the hub 18 by bolts 28 is a water-base 29, provided with an elongated opening 30, surrounded by a vertical wall 31, through which opening the lower end of the distributer-chute travels in its oscillatory movements. The water-base is provided with a top plate or cover 32, which is bolted to the upper flange of the hub 27 and has an elongated opening corresponding to the walled opening 30. The top plate rests upon the vertical wall 31 and is partly supported thereby and by the posts 33. The water-base at one side is supported against "swagging" by a brace-rod 34, which has one end attached to the clamp 25 and the other end to one of the posts 33, as shown in Fig. 1.

The upper end of the hollow shaft is provided with a beveled gear-wheel 35, which meshes with a beveled pinion 36, secured to a driving-shaft 37, journaled in a bearing-bracket 38 and a bearing-post 39. The shaft 37 may be driven from any suitable source of power. (Not shown.)

Operative within the hollow shaft is a shaft 40, which has its upper portion squared and provided with a loosely-mounted beveled gear-wheel 41, arranged to be driven by the pinion 36, the hub of said gear-wheel being journaled in the outer end of the bracket 38. Attached to the upper end of the shaft 40 is a cam-wheel 42, and pivoted to an arm 43, secured to the cover of the shell or casing, is a friction roller or wheel 44, upon which the cam is adapted to ride to cause a vertical movement of the shaft 40 in either direction.

Attached to the lower portion of the shaft 40 and projecting through a slot in the hollow shaft, as shown in Fig. 1, is a wedge-cam 45, made in two parts and having curved arms 46 46 which encircle reduced portions of said shaft, the two parts being clamped loosely to the shaft by bolts 47 47. Secured to the distributer-chute is a wedge-cam 48, which has its inclined face in contact with the inclined face of the cam 45.

Water is supplied to the water-base by means of a pipe 49, and the water seal is supplied by the overflow from the water-base, a pipe 50 being provided for the overflow from said water seal.

In operation the two shafts move in opposite directions; but as the gear-wheel 41 has one tooth more than the gear-wheel 35 it will be evident that when the latter wheel has made one complete revolution the former wheel will lack one tooth of having made a complete revolution. In other words, gear-wheel 41 will be one tooth behind gear-wheel 35 when the latter has made a complete revolution, so that when gear-wheel 35 has made a second revolution gear-wheel 41 will be two teeth behind, and as the operation proceeds said gear-wheel will continue to drop behind one tooth each revolution. Therefore the point of distribution of the fuel will be changed with each revolution of the gear-wheels, and as the fuel is delivered in circles eccentric to the center of the combustion-chamber, as shown in Fig. 6, it will be evident that each circle of fuel distributed will overlap the preceding one, thus insuring an even and uniform distribution. This operation is accomplished in the following manner, viz: Power being applied to the driving-shaft, the outer and inner shafts are caused to revolve, the fuel-chute, distributer-chute, water-base, and wedge-cams moving with and in the same direction as the hollow or outer shaft. At the commencement of the operation the cam 42 begins to rise upon the wheel or roller 44, raising the inner shaft and causing the wedge-cam 47 to ride up the wedge-cam 48 and gradually push the distributer-chute out toward the wall of the combustion-chamber. When the lowest point on cam 42 has been reached, the gear-wheel 41 will have made a half of a revolution and the distributer-chute will have reached its extreme outward movement, as shown in dotted lines in Fig. 1, and in a position to distribute the fuel close to the wall of the combustion-chamber, as indicated by dotted lines *d*. As soon as the lowest point on cam 42 has been reached the inner shaft begins its downward movement, carrying with it the cam 47, which allows the distributer-chute to swing toward the center of the combustion-chamber, and when said distributer-chute has returned to about its normal or vertical position it will have distributed a complete circle of fuel; but, as before stated, as gear-wheel 41 has one tooth more than gear-wheel 35, the latter will have moved a tooth farther by the time gear-wheel 41 has made its complete revolution, so that when wedge-cam 47 begins its operation to again force outward the distributer-chute the distribution of the next circle of fuel will begin at a new point, and so on through the entire operation of fuel-feeding.

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

1. In a mechanism for feeding fuel to gas-producers, the combination of a fuel-chute, a pivoted distributer-chute, means for rotating both chutes, and means for causing the distributer-chute to move from and toward the center.

2. In a mechanism for feeding fuel to gas-producers, the combination with an outer rotatable shaft carrying a feed-chute and a distributer-chute, of an inner rotatable shaft carrying means for causing the distributer-chute to move from and toward the center.

3. In a mechanism for feeding fuel to gas-producers, the combination with an outer rotatable shaft carrying a feed-chute and a distributer-chute, of an inner rotatable shaft provided with a cam for vertically moving said shaft, and with a cam for causing the distributer-chute to move outward and inward.

4. In a mechanism for feeding fuel to gas-producers, the combination with a rotatable feed-chute, of a rotatable distributer-chute, and means for imparting an oscillatory movement to said distributer-chute.

5. In a mechanism for feeding fuel to gas-producers, the combination with outer and inner rotatable shafts, a feed-chute and a distributer-chute carried by the outer shaft, of a cam arranged to vertically move the inner shaft in either direction, and a wedge-cam, and means for imparting an oscillatory movement to the distributer-chute.

6. In a mechanism for feeding fuel to gas-producers, the combination with the outer and inner rotatable shafts, a feed-chute and a distributer-chute carried by the outer shaft, of a cam arranged to vertically move the inner shaft in either direction, and a wedge-cam, loosely attached to the inner shaft and

moving with the outer shaft, for imparting an oscillatory movement to the distributer-chute.

7. In a mechanism for feeding fuel to gas-producers, the combination with an outer shaft carrying a feed-chute, a distributer-chute and a water-base, means for rotating said shaft and attachments, of an inner shaft carrying mechanism arranged to cause the oscillation of the distributer-chute, and means for rotating said shaft.

8. In a mechanism for feeding fuel to gas-producers, the combination with an outer shaft carrying a feed-chute, a distributer-chute, and a water-base, and means for rotating said shaft and attachments, of an inner shaft carrying a cam for vertically moving the same, means for rotating said shaft, and a cam arranged on the inner shaft for causing the oscillation of the distributer-chute.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALONZO LOFTUS PARKER.

Witnesses:

H. E. RICH,

E. L. SNYDER.