

**925,400.**

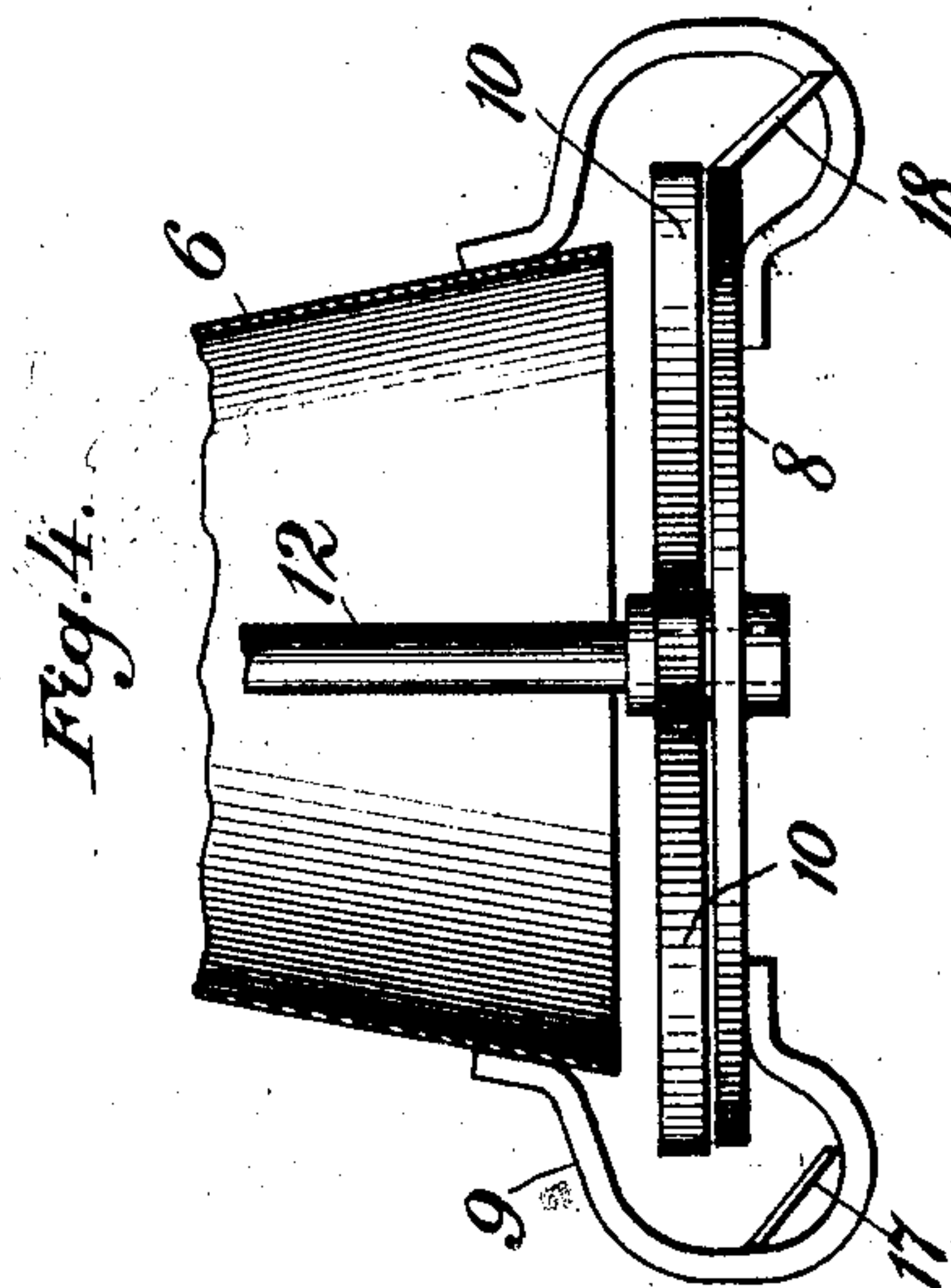
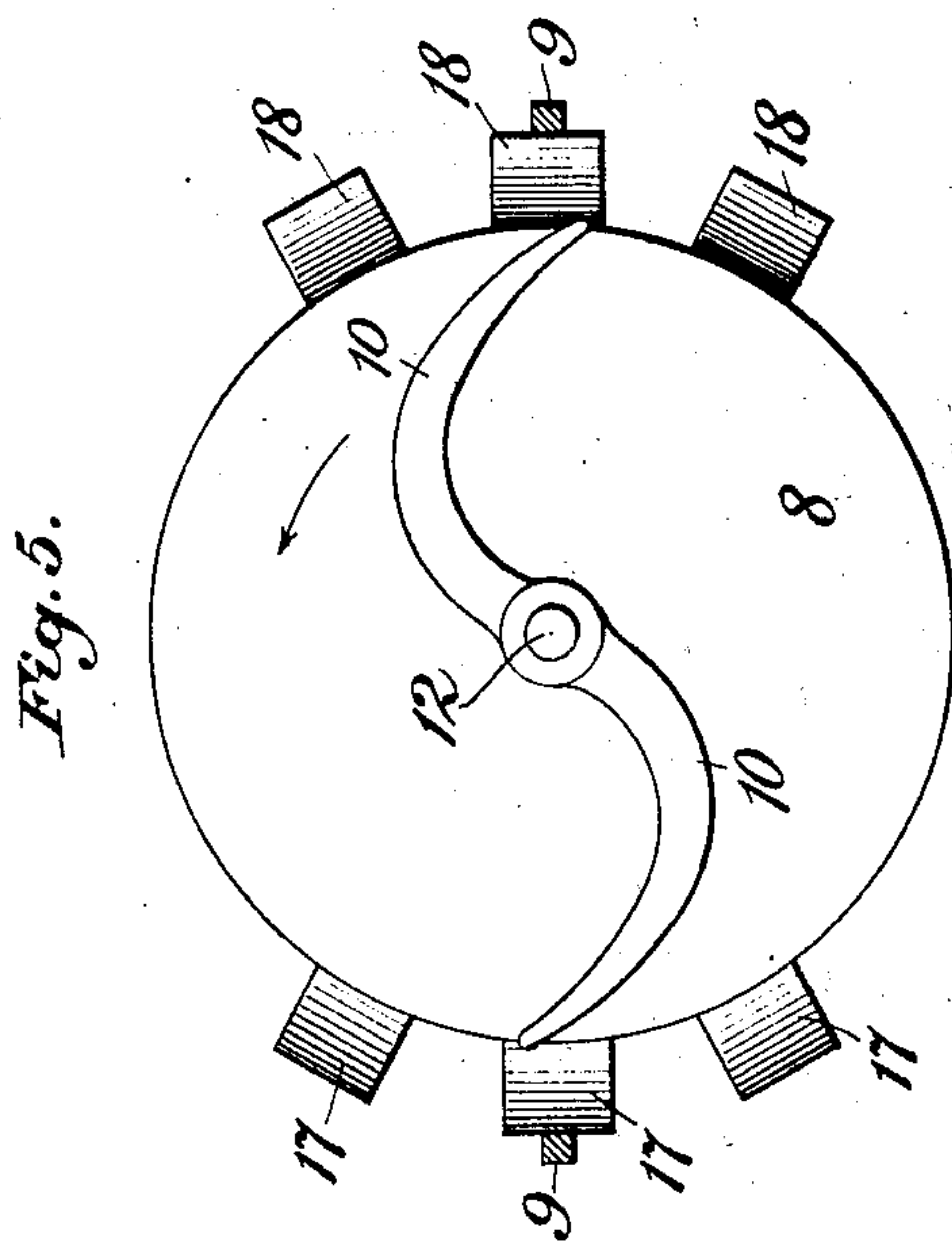
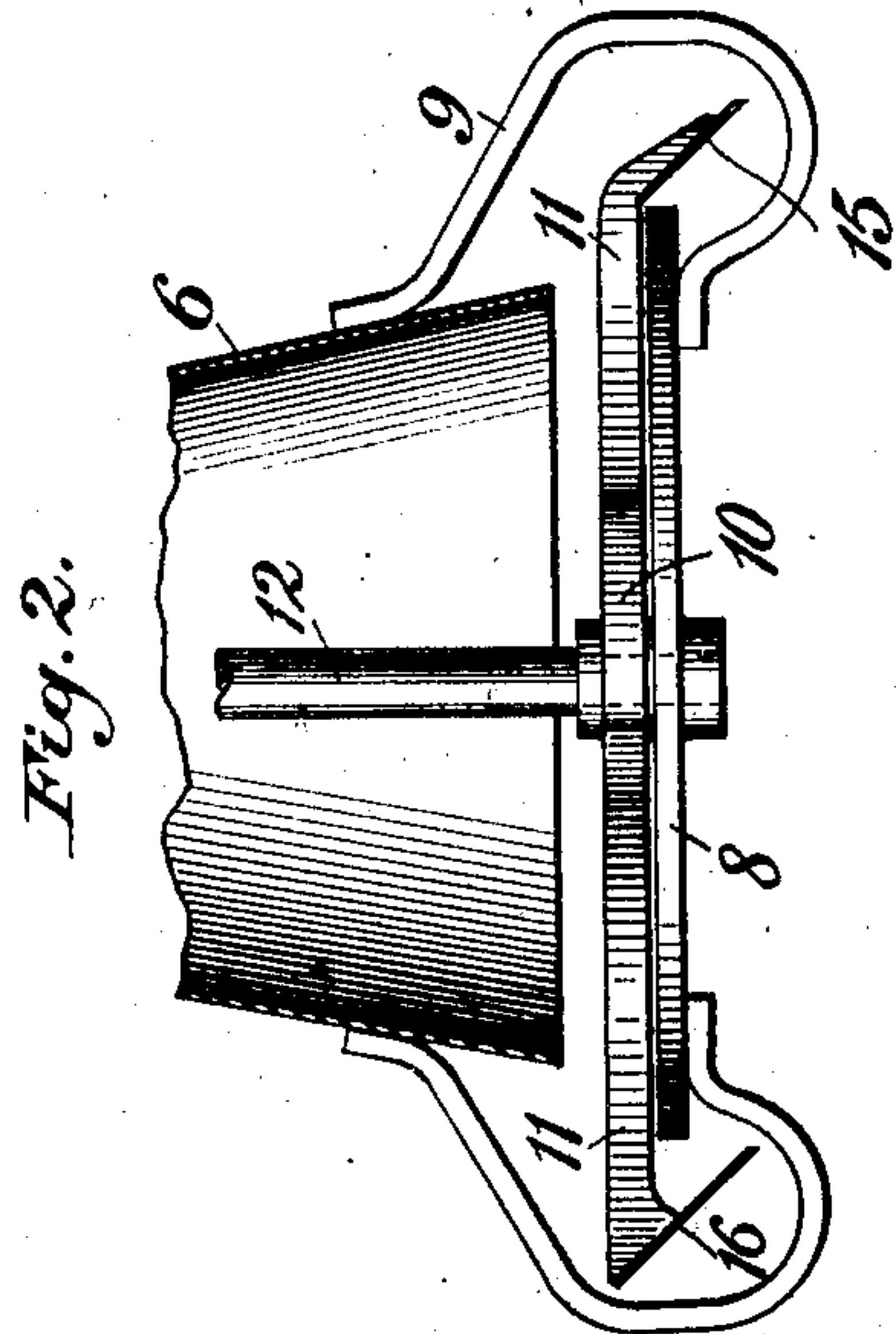
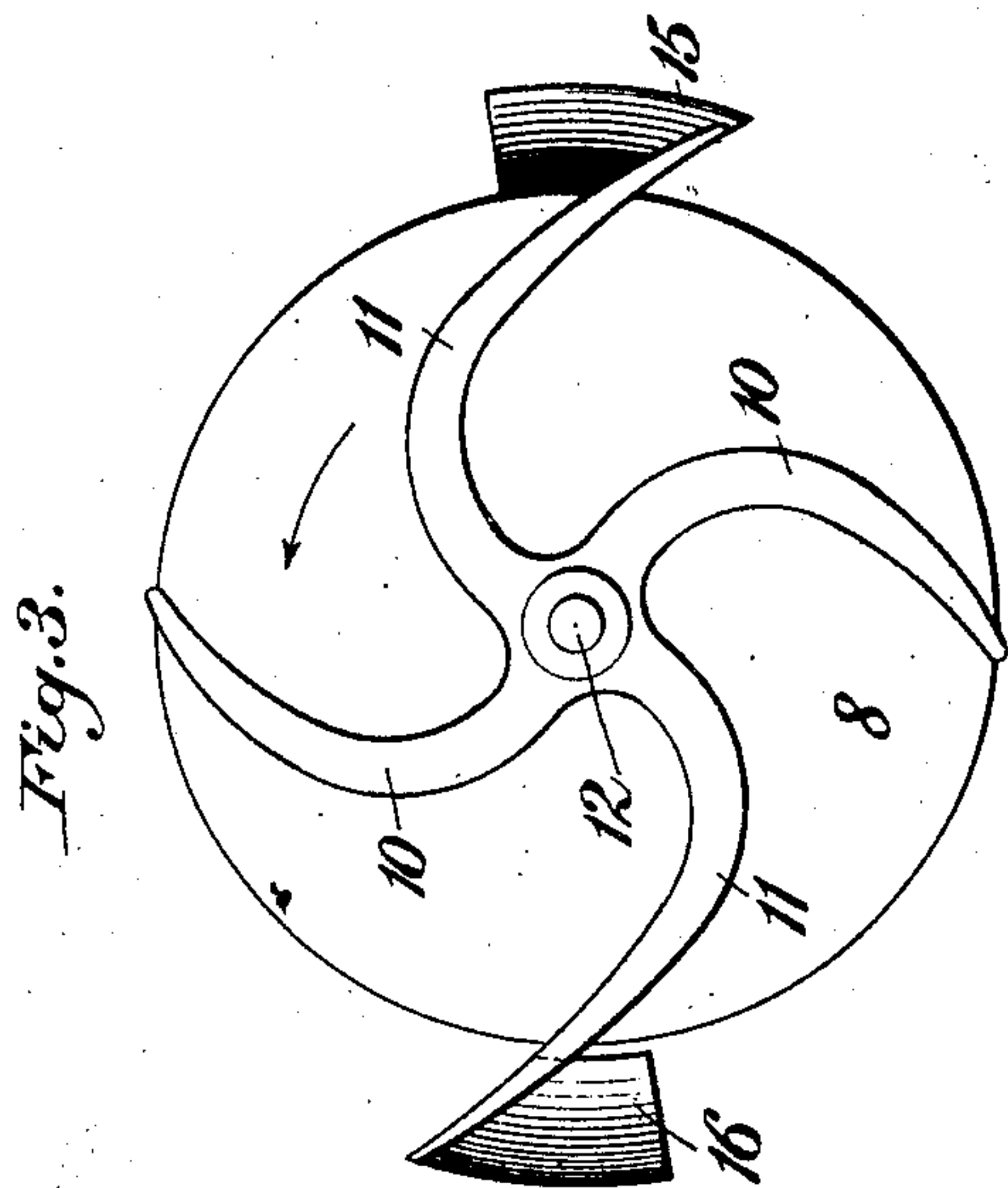
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E. N. TRUMP.  
FUEL FEED FOR GAS PRODUCERS.  
APPLICATION FILED APR. 3, 1905.

925,400.

Patented June 15, 1909.

2 SHEETS—SHEET 2.



Witnesses:  
Mae Hofmann  
Howard S. Okie

Inventor:  
Edward N. Trump  
by [Signature] date  
att'y



# UNITED STATES PATENT OFFICE.

EDWARD N. TRUMP, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE SOLVAY PROCESS COMPANY, OF SOLVAY, NEW YORK.

## FUEL-FEED FOR GAS-PRODUCERS.

No. 925,400.

Specification of Letters Patent.

Patented June 15, 1909.

Original application filed November 21, 1904, Serial No. 233,609. Divided and this application filed April 3, 1905. Serial No. 253,731.

*To all whom it may concern:*

Be it known that I, EDWARD N. TRUMP, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Fuel-Feed for Gas-Producers, of which the following is a specification.

My invention relates to feeding devices and is especially adapted to feeding fuel to gas producers, my object being to provide improved automatic and regulatable means for feeding the fuel to the combustion chamber of the producer.

My invention also comprises means for causing an even distribution, or any desired variation in the distribution of said fuel as the same is fed to the combustion chamber.

Referring to the drawings:—Figure 1 is a vertical section of a gas producer with my improved feeding means. Fig. 2 is a fragmentary view in elevation, on an enlarged scale, of the feeding device, a portion of the hopper shown in section. Fig. 3 is a plan view of the rotating deflecting blades and the table beneath the same, shown in Fig. 2. Fig. 4 is a similar view as Fig. 2 showing a modification of deflectors and deflector wings. Fig. 5 is a plan view of same.

Similar numerals refer to similar parts throughout the several views.

The cylinder or combustion chamber 1 is of the usual type of producer cylinder, or combustion chamber, lined with fire-brick 2, having the exit pipe 3 for the gas, and the inlet pipe 4 with discharge nozzle 5, for delivering the blast to the fuel bed. The combustion chamber 1 is stationary, and provided at the top with the hopper 6, adapted to be supplied with fuel by chute or conductor 7. The hopper 6 is provided with the stationary platform 8 which is hung upon the brackets 9 at a distance below the lower edge of the side walls of said hopper 6. The brackets 9 are secured to said hopper 6.

The table 8 is adapted to be swept by a deflector or series of deflectors consisting of radially extending arms 10 and 11 mounted upon the shaft 12 driven by the worm gear 13 from any suitable source of power such for instance, as the rheostat-controlled motor 14. These deflecting arms extend to the edge of the table, or they may extend slightly beyond said edge and are preferably curved as shown in Figs. 3 and 5, the con-

vex side, being the engaging sides thereof, so as to exert a gradual or wedge action against the fuel as they push the same over the edge of the table 8. These deflecting arms may also be provided with the wings 15 and 16 extending at different angles for the purpose of delivering the fuel in different directions to cause an even delivery over the top of the fuel bed in the combustion chamber. That is to say, referring to Figs. 2 and 3, the wings 15 and 16 are secured to the outer extensions of deflectors or arms 11, so as to divert the fuel as the same is worked over the edge of table 8 and from beneath the hopper 6. This fuel would normally fall in substantially vertical lines, were it not for the wings 15 and 16, which are positioned in advance of the deflecting arms 11 as shown in Fig. 3, so as to intercept the fuel falling just in front of said deflecting arms. The wing 15 is inclined so as to deflect or divert the falling fuel toward the circumference of the combustion chamber 1, while the wing 16 is so inclined as to divert the falling fuel toward the center of said combustion chamber. This results in an even distribution of the fuel than if the same all fell vertically from the edge of the table 8 as shown in Fig. 1. Further deflector wings, such as 17 and 18 shown in Figs. 4 and 5, may be added to or substituted for those indicated by 15 and 16, shown in Figs. 3 and 4, or it is obvious that these may be varied in a number of ways. The number of rotating deflecting arms may also obviously be increased or diminished as required. The fuel is carried through chute or conductor 7 to the hopper 6 and is discharged from said hopper over the edge of the table 8 by the rotation of said deflecting arms 10 and 11. By this means the fuel is distributed evenly in a circular direction over the whole fuel bed. This distribution may be varied in any desired way by the deflecting wings above described and indicated in the drawings by the numerals 15, 16, 17 and 18. By a proper adjustment or regulation of the motor, driving shaft 12, it is obvious that the required rate of feed may be secured and maintained.

As the solid fuel becomes consumed it settles as ash at the bottom of the combustion chamber, and is discharged by the revolving knife or deflector 20 which is



mounted on a ring or structure 21 surrounding the base of the combustion chamber and driven by the pinion 22 cooperating with the circular rack 23 on the under side of flange 21, said pinion being driven from any suitable source of power. This ash deflecting means is fully described in my copending application filed Nov. 21, 1904, Serial No. 238,609, of which this is a divisional application.

It is to be understood that the deflector 10 is adapted to operate continuously, and is especially adapted for use in a continuously operating gas producer, so that a constant feed of coal is delivered to the retort in a required relation to its consumption or combustion; the ash being discharged from beneath in a similar required relation to feed and combustion.

By a proper regulation of the motor 25 with respect to the regulation of motor 14, the required adjustment between the feed of the fuel and the discharge of the ash with respect to the distillation and combustion of the fuel, may be maintained at all times.

What I claim is:—

1. In combination with a gas producer, means for feeding coal into the combustion chamber thereof, comprising a hopper, a table spaced below the hopper, means for discharging the coal from the table and means for securing an even distribution thereof over the fuel bed.

2. In combination with a gas producer, means for feeding coal into the combustion

chamber thereof, comprising a hopper, a table spaced below the hopper, an arm actuated to sweep the surface of the table, and a deflecting wing for cooperating with the arm to secure the desired distribution of the coal over the fuel bed.

3. In combination with a gas producer, means for feeding coal into the combustion chamber thereof, comprising a hopper, a table spaced below the hopper, an arm actuated to sweep the surface of the table and a deflecting wing supported by said arm for cooperating with the arm to secure the desired distribution of the coal over the fuel bed.

4. In combination with a gas producer, means for feeding coal into the combustion chamber thereof, comprising a hopper, a table spaced below the hopper, an arm actuated to sweep the surface of the table, and deflecting wings adjacent the margin of the table for cooperating with the arm to secure the desired distribution of the coal over the fuel bed.

5. In combination with a gas producer, coal feeding mechanism therefor, comprising a hopper projecting into the combustion chamber of the producer, a table spaced below the hopper, means for discharging the coal from the table and means for securing an even distribution of the coal discharged over the fuel bed in the combustion chamber.

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