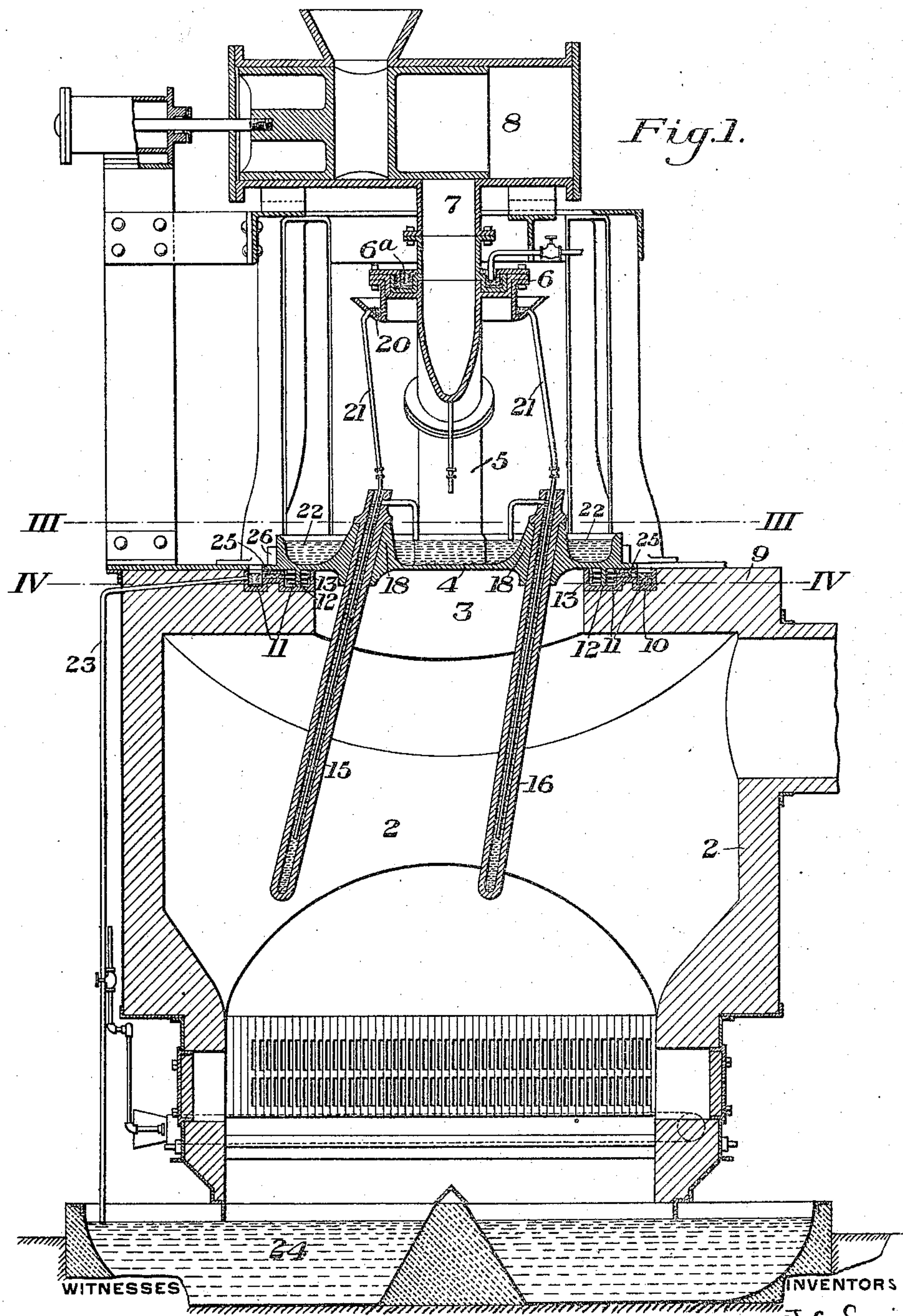


J. C. & J. A. SWINDELL.  
GAS PRODUCER.  
APPLICATION FILED JULY 24, 1909.

953,497.

Patented Mar. 29, 1910.

3 SHEETS—SHEET 1.



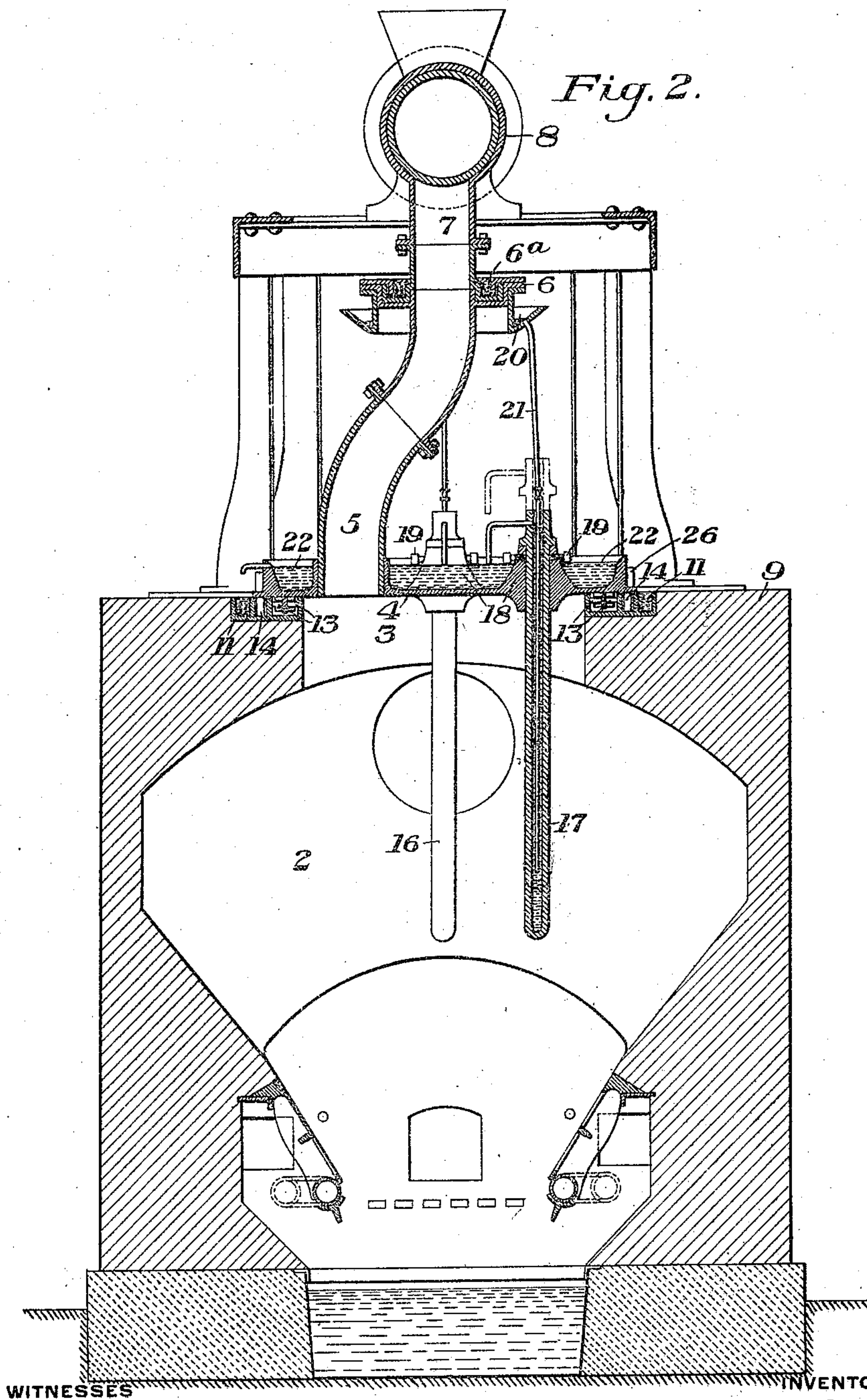
R. A. Baldwin  
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J. C. Swindell  
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by Baker, Byrnes & Pannell,  
their Attys.

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3 SHEETS—SHEET 2.



WITNESSES  
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INVENTORS  
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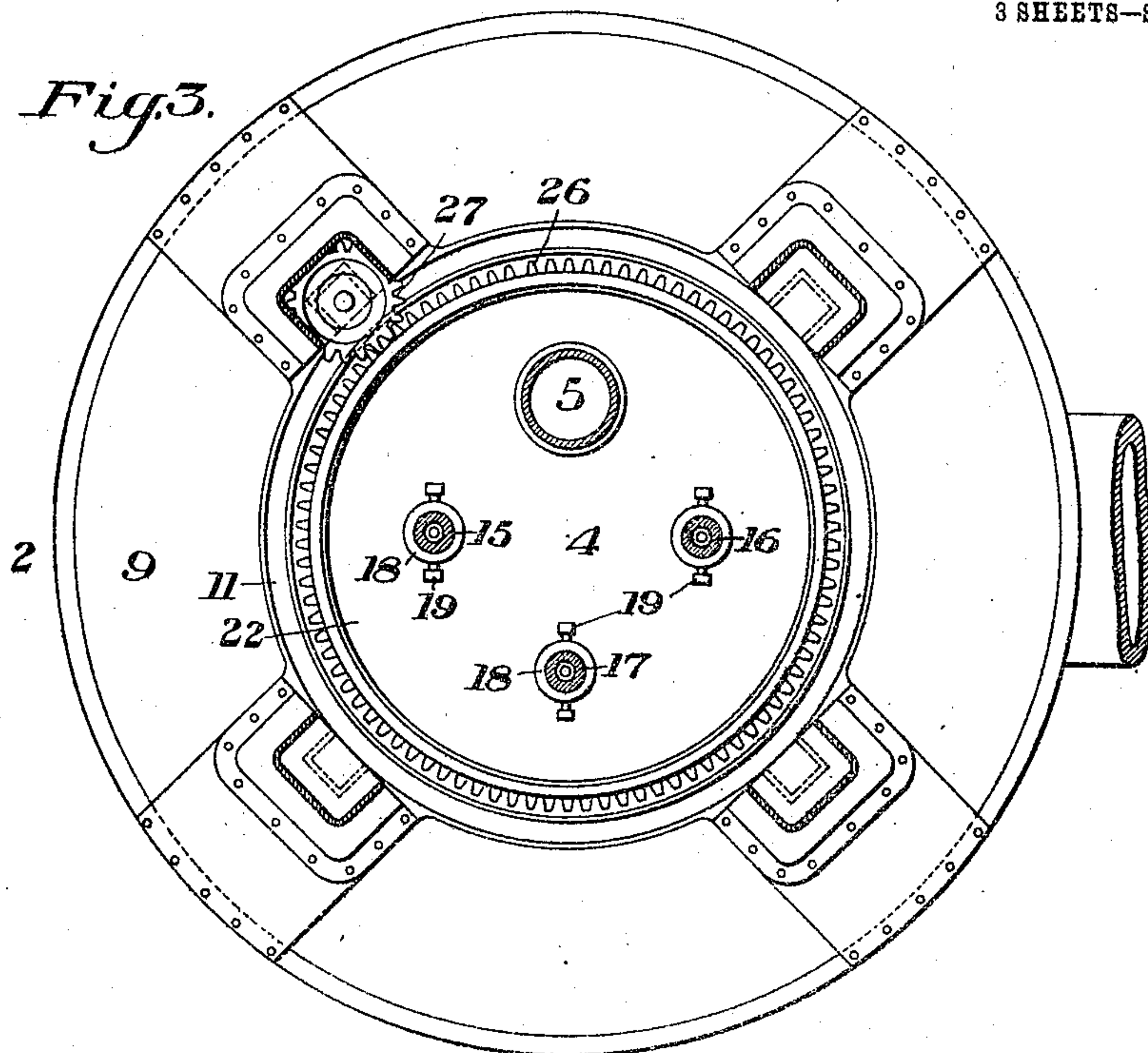
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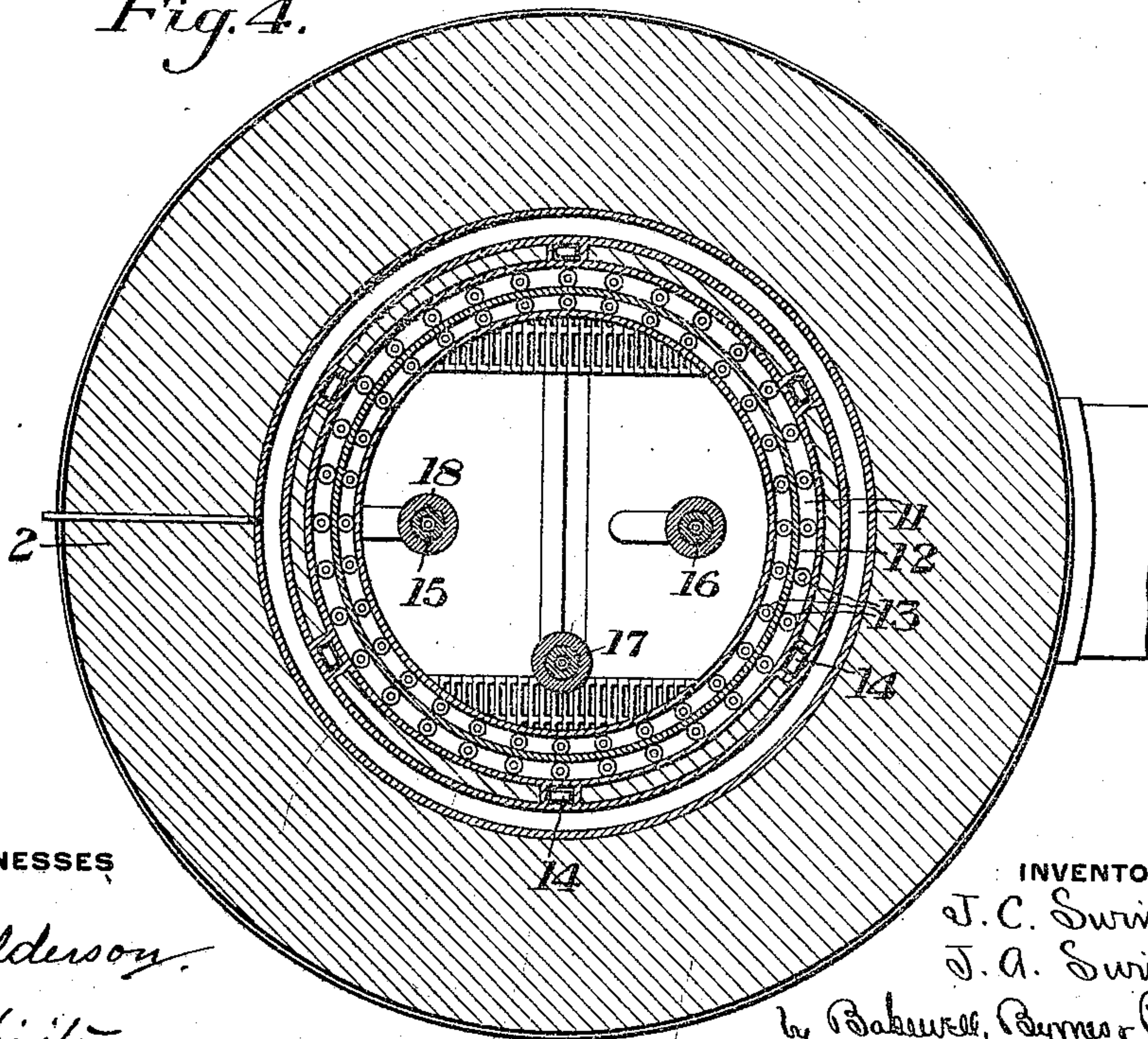
Patented Mar. 29, 1910.

3 SHEETS—SHEET 3.

*Fig. 3.*



*Fig. 4.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

JOHN C. SWINDELL AND JOHN A. SWINDELL, OF PITTSBURG, PENNSYLVANIA.

GAS-PRODUCER.

953,497.

Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed July 24, 1909. Serial No. 509,276.

*To all whom it may concern:*

Be it known that we, JOHN C. SWINDELL and JOHN A. SWINDELL, both of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Gas-Producers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figures 1 and 2 are vertical sections of a gas producer furnace showing our invention applied thereto, the two sections being taken in planes at right angles to each other. Figs. 3 and 4 are horizontal sections taken on the lines III—III and IV—IV respectively of Fig. 1.

Our invention has relation to gas producers, and more particularly to fuel poking or agitating mechanism therefor; and is designed to provide simple and effective mechanism of this character, whereby the fuel bed may be kept in proper condition and the fuel properly agitated and distributed.

The precise nature of our invention will be best understood by reference to the accompanying drawings, in which we have shown the preferred embodiment thereof, and which will now be described, it being premised, however, that various changes may be made in the details of construction and arrangement of the various parts by those skilled in the art without departing from the spirit and scope of our invention as defined in the appended claims.

In these drawings, the numeral 2 designates a gas producer furnace of the continuous water sealed type. The furnace is provided with a top opening 3 over which is mounted a rotary plate 4 to which is secured a bent feed pipe 5. This pipe has a rotation connection at 6 with the discharge pipe 7 of a feeding cylinder 8. This feeding cylinder, together with the feed pipe 5 and the water sealed rotary joint 6, is substantially of the construction described and claimed in the patent to John A. Swindell, one of the present applicants, No. 905,117, dated Nov. 24, 1908, to which reference may be had for a more complete description.

To support the rotating top plate 4, and to provide proper bearings therefor, the refractory top wall 9 of the furnace is provided with the annular plate 10 set therein, said plate having the two concentric annu-

lar water troughs 11. The cover plate 4 has a flange 12 depending into the inner trough 11, which forms a water seal for said plate. 13 designates anti-friction rollers which properly center the cover plates, said rollers being arranged within the trough 11. 14 (Fig. 2) designates supporting rollers mounted in the plate 10 between the troughs 11, and which carry the weight of the cover plate.

Secured within and extending through the rotary plate 4, are a plurality of pokers 15, 16 and 17, the cover plate being provided with bosses 18 to provide an extended bearing for the pokers. The pokers are adjustably secured in said bosses by means of set screws 19, or other suitable means, whereby the extent to which each poker depends into the fuel bed may be separately adjusted. The pokers are preferably made hollow as shown, to provide for the water cooling. In the construction and arrangement which we have shown in the drawing, and which may be conveniently employed in practice, the water sealed joint 6 is provided with the overflow pan or receptacle 20 which receives the overflow from the water sealed trough 6<sup>a</sup> of said joint. From this over-flow receptacle, a pipe 21 leads downwardly into each poker, and discharges therein. The pokers are open at the top and overflow into a water basin or receptacle 22 on the top of the plate 4. This basin overflows in turn into the outer annular trough 11, which is provided with one or more discharge pipes 23 leading downwardly into the water bosh 24 of the furnace. The two troughs 11 are preferably connected by a plurality of ports or openings 25, so that the inner trough which contains the anti-friction rollers 13 will also be kept filled with water. The rotary top plate is provided, as shown in Fig. 3, with peripheral gear teeth 26, which are engaged by an actuating pinion 27, which may be rotated in any suitable manner. The three pokers, 15, 16 and 17 preferably stand at different angles, one of said pokers, in the present case the poker 17, being vertical, and the other two pokers being inclined with respect thereto.

The operation will be readily understood. As the top plate 4 with its attached feed pipe is rotated, the fuel is charged into the furnace, and the pokers, rotating with the



top plate, properly distribute the fuel over the fuel bed and also plow furrows in such bed, thereby maintaining the fuel in a properly loosened condition. The action of the 5 pokers is peculiarly effective by reason of their arrangement at different angles, whereby a much better distributing and loosening effect is obtained. In practice the pokers are also preferably adjusted so as to 10 extend to different distances into the fuel bed, the vertical poker 17 being preferably set higher in the furnace than the others. In this manner, the furrows produced in the fuel bed by the other two pokers will be 15 filled by the fuel displaced by the vertical poker.

While we have shown three of the pokers, it will be obvious that any desired number may be employed, either all or a portion of 20 the pokers being set at different angles, and all or a portion of them being capable of separate vertical adjustment. The invention is also applicable to other types of gas producers, and may also be used in connec- 25 tion with other forms of feeding apparatus, the particular gas producer shown, together with the feeding apparatus therefor being illustrative only. It will also be obvious that the water for cooling the pokers may 30 be supplied in various other ways, and that various other changes may be made in the details of construction and arrangement within the scope of our invention.

What we claim is:

35 1. A gas producer having a rotating top member, and three pokers carried by said member and projecting downwardly into the fuel bed of the furnace, said pokers being rigidly set at different angles, substantially 40 as described.

2. A gas producer having a rotating top member provided with three pokers depend- ing into the fuel bed of the producer, two 45 of said pokers being inclined at an angle to the vertical axis of the producer, and the third poker being substantially vertical, substantially as described.

3. A gas producer having a rotating top member provided with three pokers rigidly 50 secured therein with respect to lateral movement and depending at different angles into the fuel bed of the producer, said pokers being secured to rotate in fixed paths and capable of vertical adjustment to vary the

extent of their projection into the fuel bed, 55 substantially as described.

4. A gas producer having a rotating top member provided with an eccentric fuel feed opening therein, and a plurality of pokers rigidly carried by the rotating top member 60 and inclined at different angles, substantially as described.

5. In a gas producer, the combination with a rotating top member having a water receptacle thereon and carrying a plurality 65 of hollow pokers extending downwardly into the producer and also having a fuel supply pipe fixed thereto, of means for supplying fuel to said pipe, a water-sealed joint between said pipe and the fuel supply means, 70 an overflow basin for the water seal of said pipe, a connection leading from said basin downwardly into each of the pokers, and an overflow leading from each poker into said water basin, substantially as described. 75

6. In a gas producer, a rotary top member having a plurality of hollow pokers extending downwardly into the producer and also having a water basin on its upper sur- 80 face, a fixed plate supported on the furnace and having two annular troughs therein, the rotating top member having a flange member depending into each of said troughs, a plurality of antifriction rollers arranged in one of said troughs, connections for in- 85 troducing water into each of the pokers and for discharging the water from the troughs into the water basin, said basin being arranged to overflow into one of said troughs and the two troughs being connected by a 90 water passage, substantially as described.

7. In a gas producer, a rotary top member having a plurality of hollow pokers extending downwardly into the fuel bed of the producer, and a relatively stationary water 95 supply pipe extending downwardly within each of said pokers and terminating at a point above the lower end of the poker, the pokers being capable of vertical adjustment on the relatively fixed pipe, substantially as 100 described.

In testimony whereof, we have hereunto set our hands.

JOHN C. SWINDELL.  
JOHN A. SWINDELL.

Witnesses:

GEO. B. BLEMING,  
GEO. H. PARMELEE.