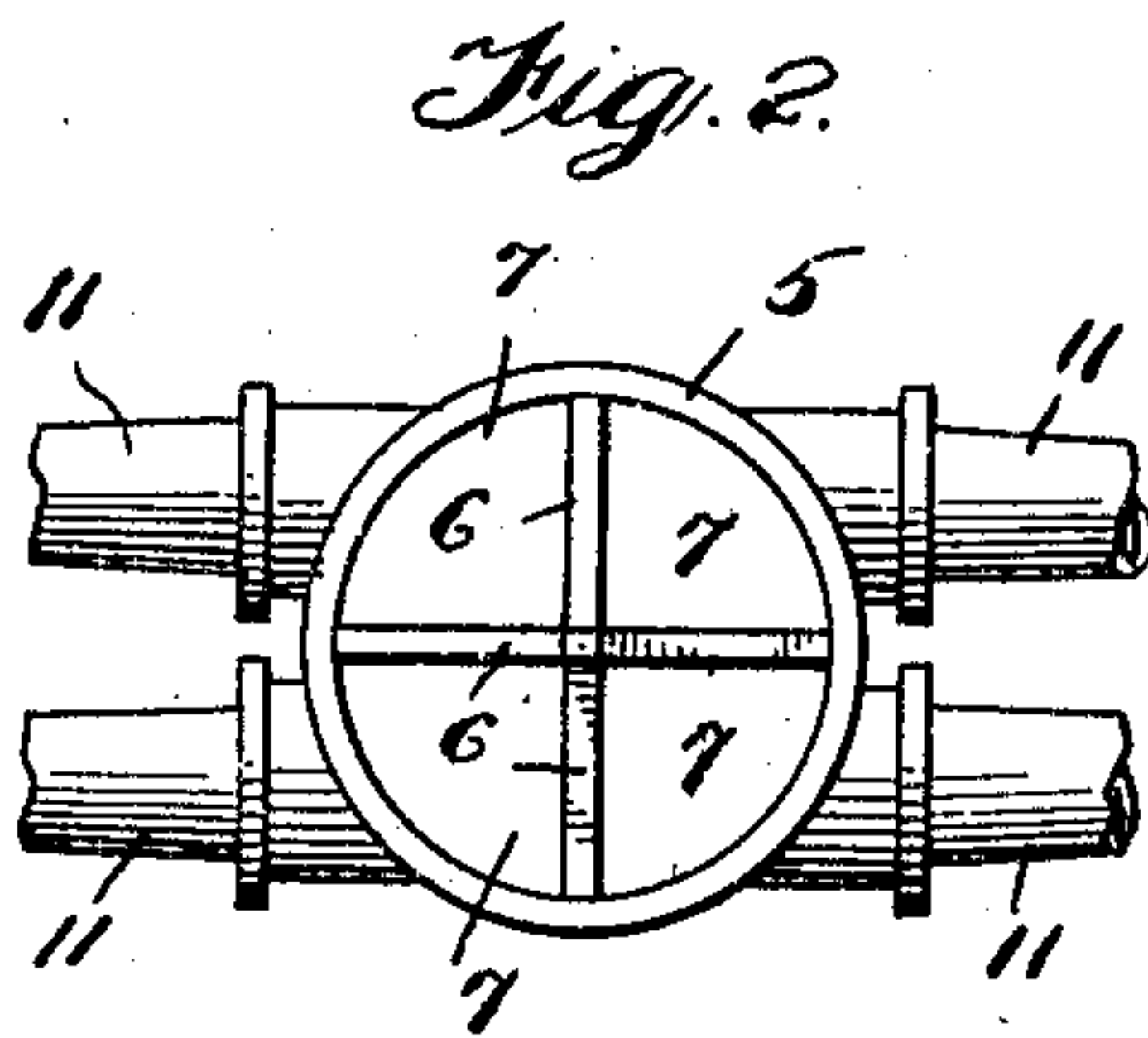
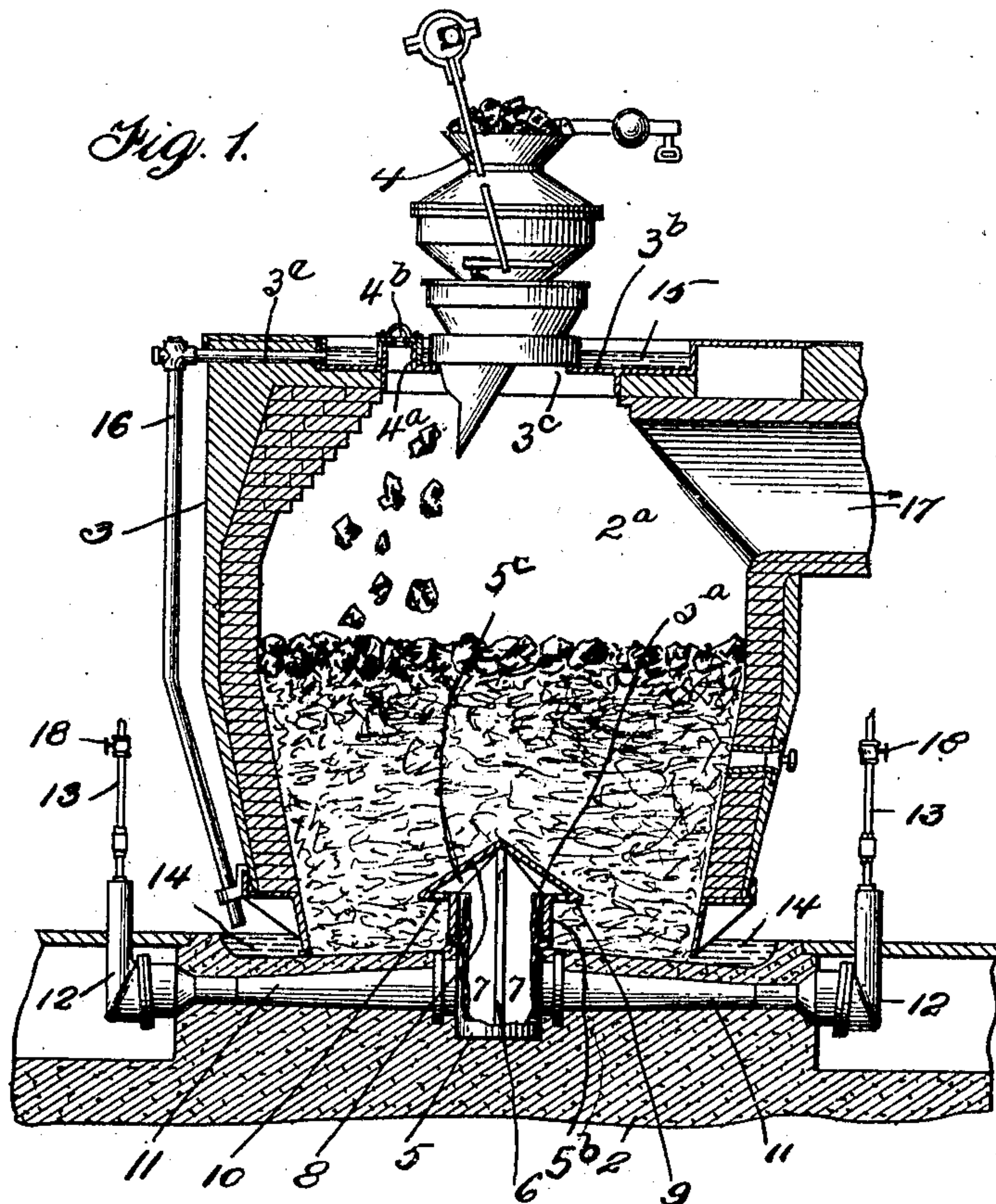


No. 871,497.

PATENTED NOV. 19, 1907.

S. C. GORSUCH.  
GAS GENERATOR.

APPLICATION FILED JULY 12, 1907.



Inventor  
*S. C. Gorsuch.*

Witnesses

Witnesses  
Samuel Payne.  
L. H. Butler.

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*A. C. Grant & Co.*  
Attorneys.



# UNITED STATES PATENT OFFICE.

SAMUEL C. GORSUCH, OF BRADDOCK, PENNSYLVANIA.

## GAS-GENERATOR.

No. 871,497.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed July 12, 1907. Serial No. 383,431.

*To all whom it may concern:*

Be it known that I, SAMUEL C. GORSUCH, a citizen of the United States of America, residing at Braddock, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Generators, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to gas generators, and its primary object is to provide an apparatus for producing artificial gas by the injection of air and steam into a mass of coal in such a manner as to insure an equal distribution of the injected fluid throughout the body of coal.

15 A further object of the invention is, to provide a gas-producing apparatus with an effective water seal to prevent the escape of gas.

20 The construction of the improvement will be fully described hereinafter, in connection with the accompanying drawing which forms a part of this specification, and its novel features will be defined in the appended claims.

25 In the drawing:—Figure 1 is a vertical section, partly in elevation, of a gas generator embodying the invention, and, Fig. 2 is a detail plan view of the injector with its conical cover removed.

30 Referring to the drawings, the base of the generator is indicated by the reference character 2, said base 2 forming the bottom of the generator chamber 2<sup>a</sup> constituted by the body portion 3 of the apparatus. The base 2 is provided with a depressed portion 14 in which is seated the lower end of the body portion 3. The said depressed portion 14 constitutes a water space which surrounds 40 the lower end of the body portion 3. Mounted upon the top of the body portion is an annular flanged plate 3<sup>b</sup> which supports a hopper 4. The plate 3<sup>b</sup> is formed with an opening 3<sup>c</sup> in which is positioned the lower portion 45 of the hopper 4. The hopper 4 is adapted to communicate with the generating chamber 2<sup>a</sup>. The flanged plate 3<sup>b</sup> not only acts as a supporting means for the hopper 4 but also forms a water space 15 with which communicates a pipe branch 3<sup>e</sup> having its outer end terminating in a depending pipe 16 which opens into the water space 14, the pipe branch 3<sup>e</sup> and pipe 16 supplying water from the water space 15 to the water space 14. 55 The water in the space 14 constitutes a seal for the lower portion of the generating cham-

ber 2<sup>a</sup> to prevent the escape of gas. The flanged plate 3<sup>b</sup> is formed with a tubular projection 4<sup>a</sup> closed by a cap 4<sup>b</sup>, the function of which allows communication to be had with 60 the generator chamber through the plate 3<sup>b</sup>, or when the cap 4<sup>b</sup> is removed the tubular projection 4<sup>a</sup> constitutes an outlet for the generating chamber 2<sup>a</sup>.

65 Arranged within the base 2 and extending in the generating chamber 2<sup>a</sup> is a steam and air injector, said injector comprising a vertically-disposed cylinder 5 having its lower portion seated in the base 2 and its upper portion extending into the generator chamber 2<sup>a</sup> at the bottom thereof. Within the cylinder 5 is arranged four vertically-disposed partitions 6 forming four independent chambers 7. The partitions 6 are of a length as to extend above the top of the cylinder 5 and off-set so as to rest upon the edge 75 of the cylinder 5 as at 5<sup>a</sup>. The top edge of each of the partitions 6 extend downwardly at an inclination. Secured to the outer face of the cylinder 5 at the top thereof is an angular member 5<sup>b</sup>, the laterally-extending portion of said angular member being indicated by the reference character 9 and is formed with a plurality of vertically-extending openings 10. The upper face of the laterally-extending portion 9 being flush with 85 the top edge of the cylinder 5. The said laterally-extending portion 9 constitutes a supporting flange for a conical cover 8, the apex thereof resting upon the partitions at the meeting point of their inner edges. The inclination of the conical cover 8 is not as great as the inclination of the upper edges of the partitions 6, thereby forming a passage 5<sup>c</sup> between the top edge of each of the 95 partitions 6 and the inner face of the cover 8.

Communicating with each of the inlets 7 is a pipe 11, said pipes being each provided at its outer end with an elbow 12 to which is connected a supply pipe 13 for air or steam. 100

The generating chamber is provided with an outlet passage 17 through which the gas is conducted to a suitable gasometer or storage tank.

105 The supply pipes 13 are provided with suitable valves 18 to control the admission of steam and air, and the hopper 4 is equipped with means for regulating the supply of coal to the generating chamber.

110 The distinguishing characteristic features of the improvement is the provision of the plurality of independent inlets for steam and



air in connection with the conical cover which serves as a spreader to insure an equal distribution of the injected steam and air throughout the mass of coal and further  
5 in the novel manner of supplying water to the water space 14.

The utility and operation of the apparatus will be readily understood and the generated gas passes off through the outlet 17 to a suitable storage tank or reservoir.  
10

Having fully described my invention what I claim and desire to secure by Letters Patent is:—

1. A gas generator comprising a base, a  
15 body portion mounted thereon and constituting a generating chamber, a vertically-disposed cylinder mounted in the base and projecting into the generating chamber, a series of partitions mounted within and of  
20 greater length than said cylinder, said partition forming a plurality of chambers within said cylinder and further having the top edge thereof inclined downwardly, an angular member fixed to the cylinder and having  
25 the laterally-extending portion thereof provided with openings, a conical cover mounted upon a part of the partitions and laterally-extending portion of said member, the in-

clination of the top edge of each of the partitions being greater than the inclination of  
said conical cover, a supply pipe communicating with each of said chambers. 30

2. In a gas generator, the combination with the generating chamber thereof, of an injector extending into said chamber and  
35 comprising a vertically-disposed cylinder divided by a plurality of partitions into a series of chambers, said partitions of greater length than said cylinder and having the top edge thereof inclining downwardly, an angular member secured to said cylinder and having  
40 the laterally-extending portion thereof formed with a series of openings, a conical cover for said cylinder, said cover resting upon a portion of the partitions and a part of  
45 said laterally-extending portion of said member, the inclination of said cover being less than the inclination of the top edge of the partitions, and a supply pipe communicating  
50 with each of said chambers.

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

SAMUEL C. GORSUCH.

Witnesses:

MAX H. SROLOVITZ,  
A. J. TRIGG.