

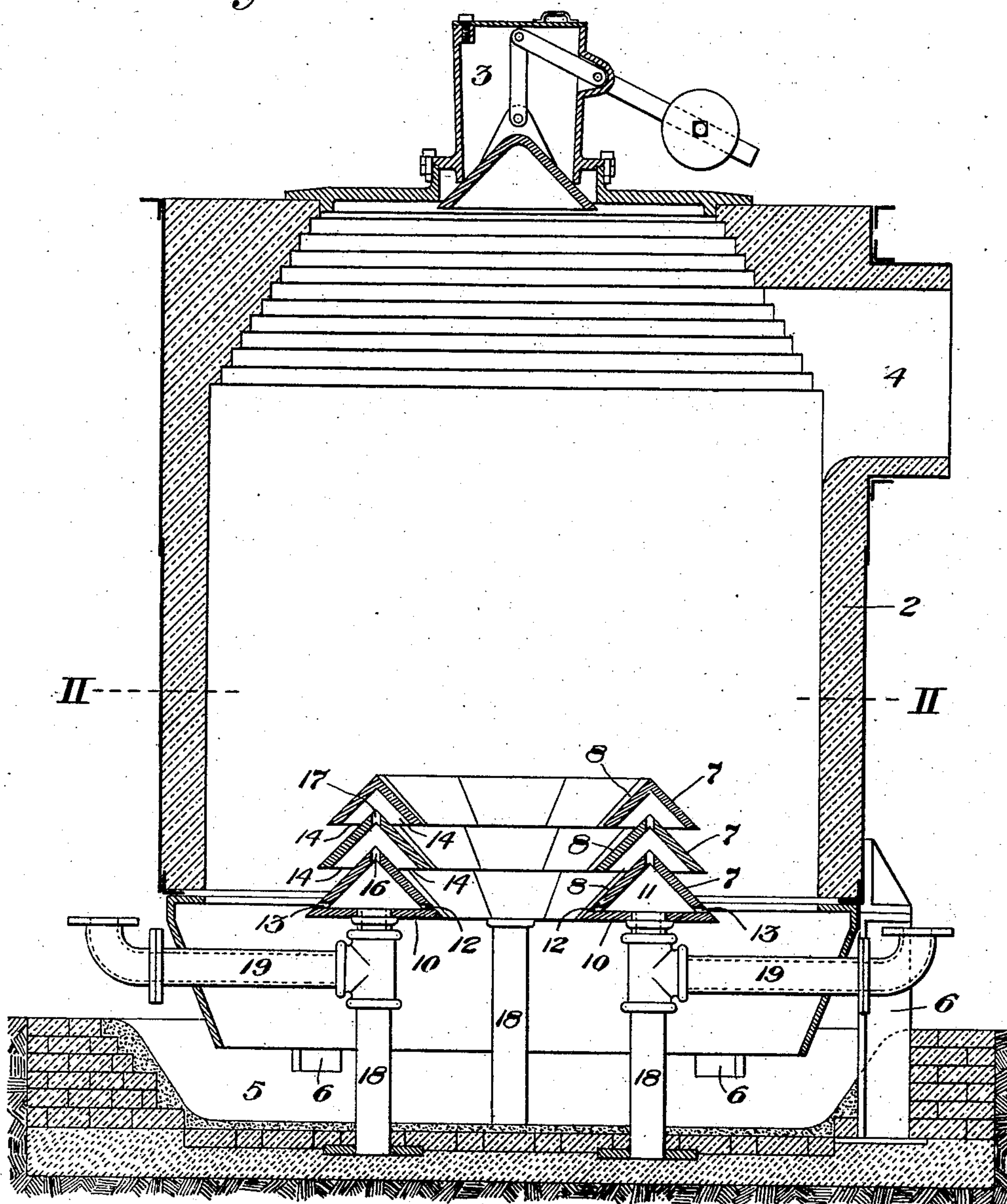
No. 849,848.

PATENTED APR. 9, 1907.

W. R. MILLER.
GAS PRODUCER.
APPLICATION FILED NOV. 12, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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Chas. S. Fipley

Inventor:

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2 SHEETS—SHEET 2.

Fig. 2.

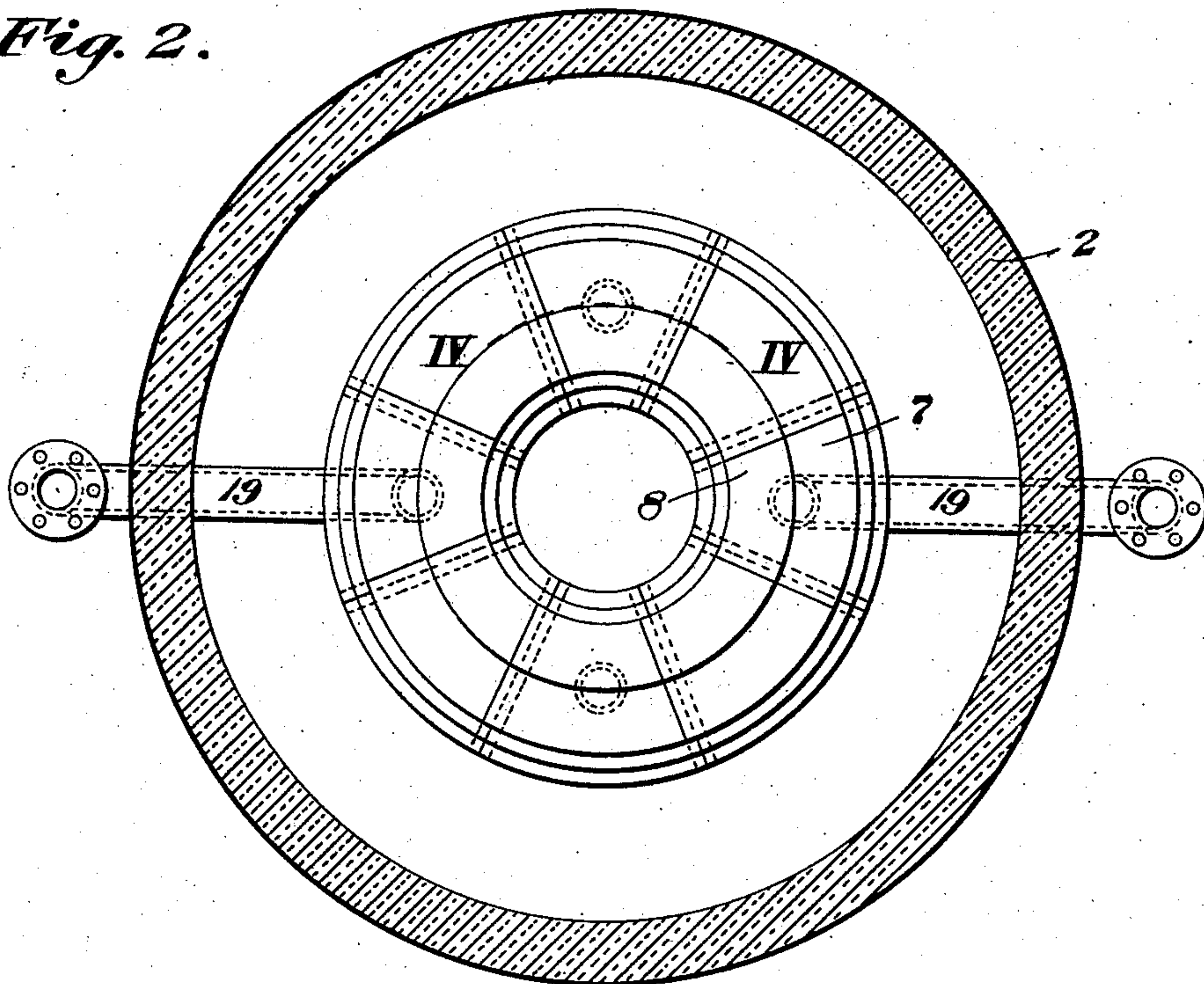


Fig. 3.

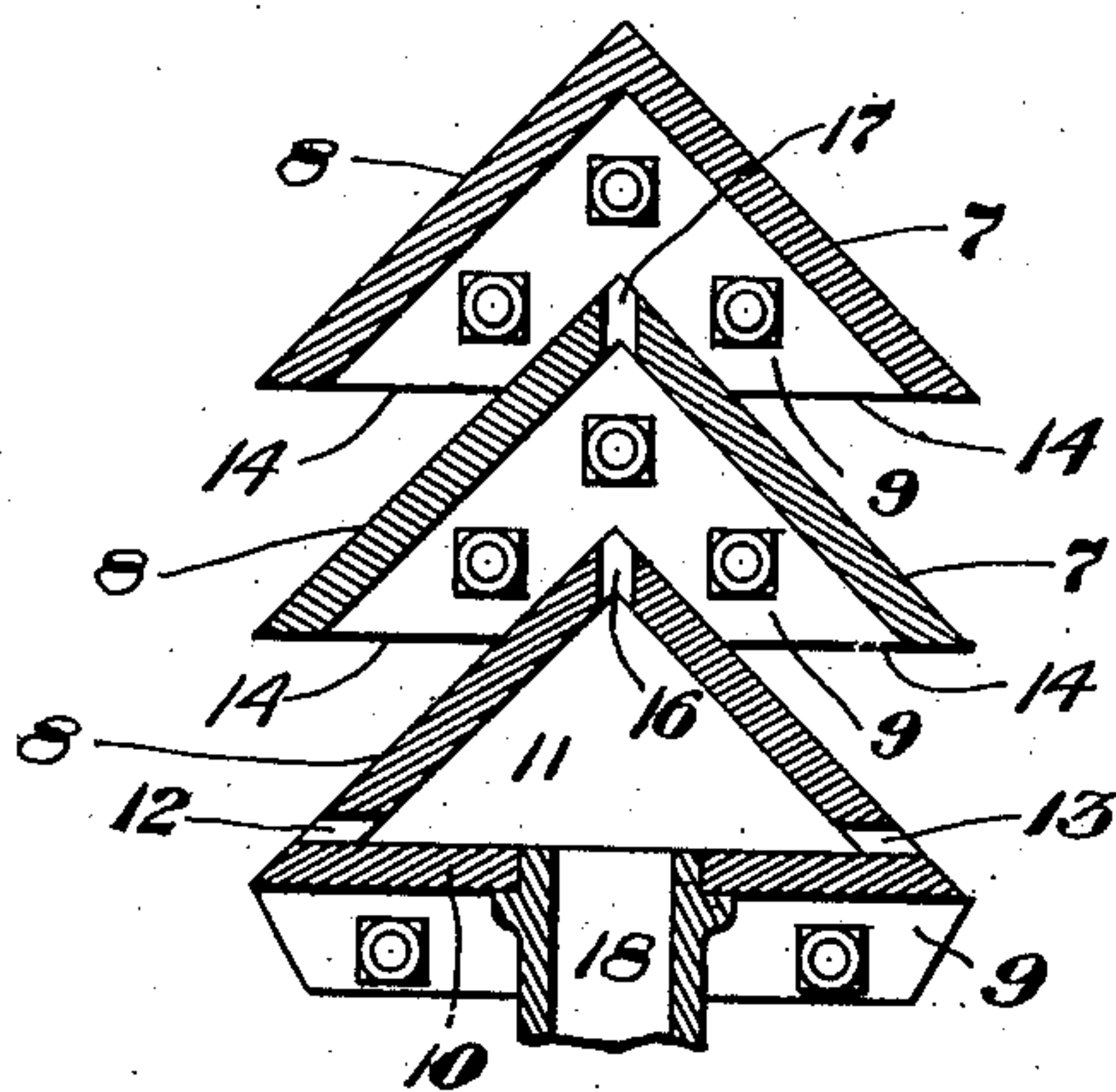


Fig. 4.

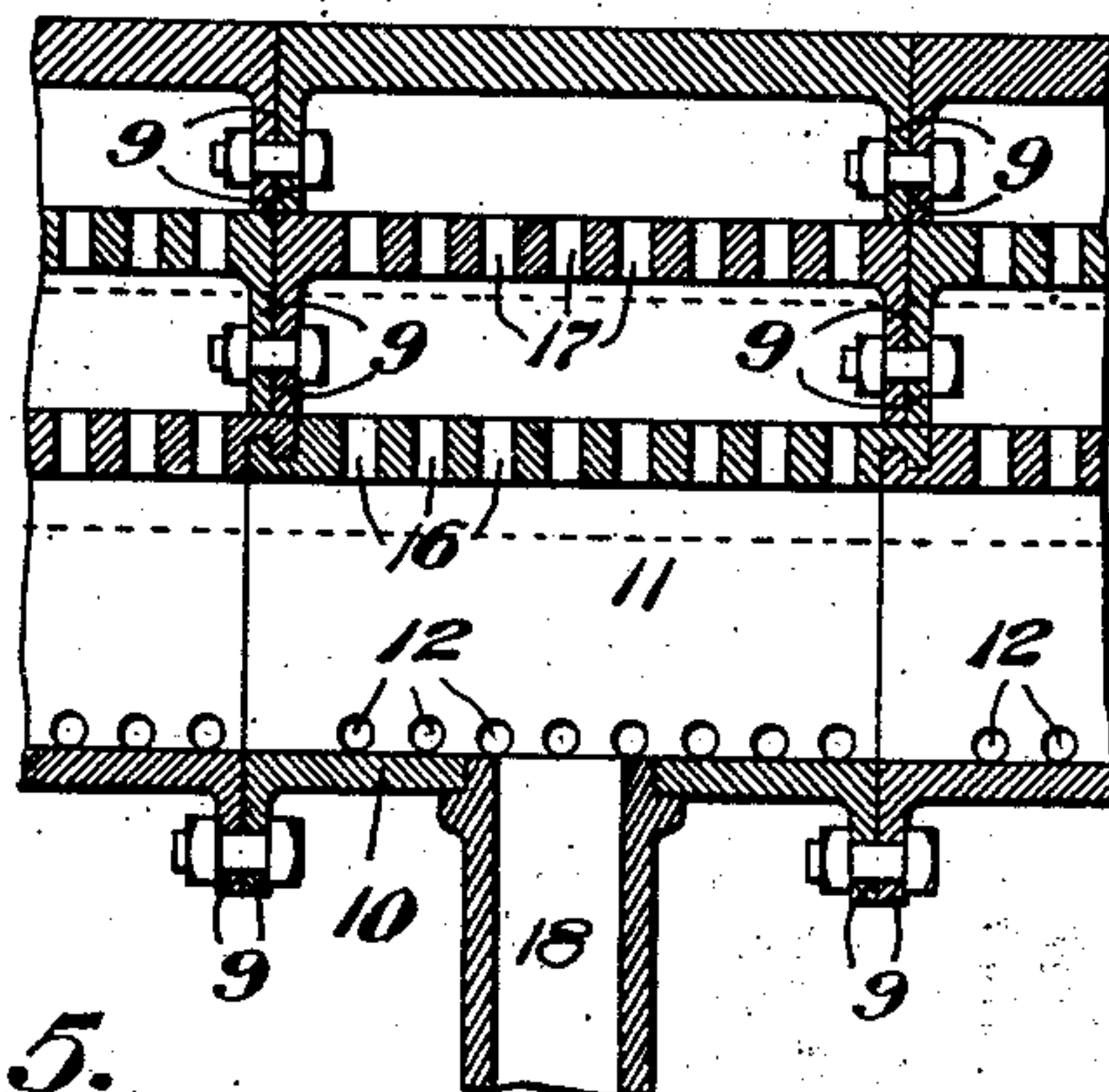
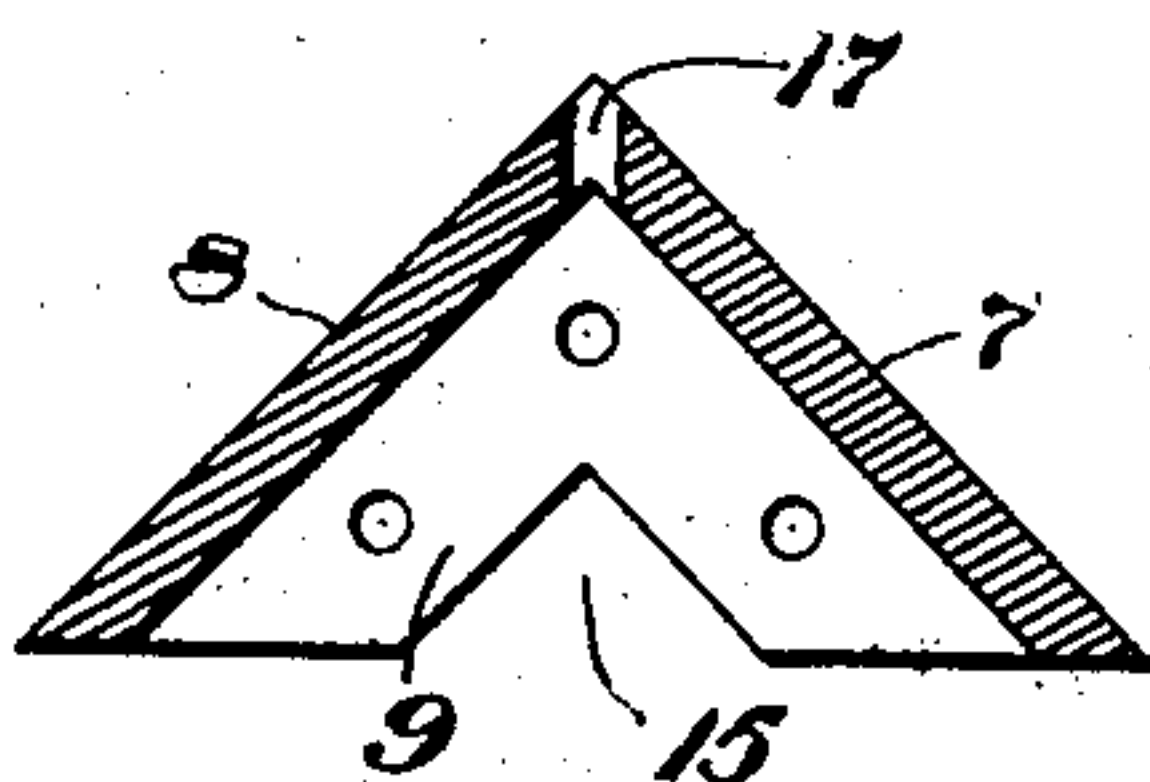


Fig. 5.



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UNITED STATES PATENT OFFICE.

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GAS-PRODUCER.

No. 849,848.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed November 12, 1906. Serial No. 343,084.

To all whom it may concern:

Be it known that I, WILLIAM R. MILLER, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Producers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention refers to improvements in gas-producers, more particularly the class of water-seal gas-producers, and relates to the construction of the air and steam supply wind-box. In producers of this class it is desirable to provide a fuel-supporting blast-supplying structure so arranged as to uniformly distribute the steam and air blast through the whole area of the fuel-bed, while providing for free downward travel of the fuel-ash into the pan during combustion.

The particular improvement of the present invention relates to the construction of the wind-box in series, so as to provide for a more copious supply throughout a larger portion vertically of the burden.

Referring to the drawings, Figure 1 is a vertical sectional view of the producer in its entirety. Fig. 2 is a horizontal sectional view on the line II II of Fig. 1. Fig. 3 is an enlarged cross-sectional view illustrating a modified construction of the superimposed series of wind-boxes. Fig. 4 is a vertical sectional view on the line IV IV of Fig. 2. Fig. 5 is a cross-sectional detail view of one of the intermediate boxes.

The producer 2, as shown in the drawings, is preferably cylindrical in cross-section, provided with the usual charging-hopper 3 of any suitable type and having convenient feeding mechanism and a gas-outlet opening 4.

5 is the water-seal basin, into which the ashes are deposited and from which they are removed from time to time, the entire upper portion of the producer being supported above said basin by means of any suitable supporting structure, as posts 6.

The present improvement consists of a series of concentrically-located hollow rings constituting a composite wind-box, the sections of which are preferably triangular in cross-section through one side, providing the upper outwardly and inwardly sloping faces

7 8, oppositely disposed and so arranged that the ashes, &c., will pass downwardly and to the outside and inside of the wind-box, respectively, due to such inclined faces. As shown in Fig. 2, the box is so arranged as to the cross area of the interior of the producer that it will distribute the air to the fuel from the inside and outside of the wind-box in a very thorough and efficient manner. Each section of the wind-box is preferably composed of a plurality of sections, bolted together by means of flanges 9, extending across their lower portions, the upper, outer, and inner slanting walls 7 and 8 being joined together in any convenient manner, so that the entire series of sections of each particular box is rigidly and tightly connected together. As shown in the drawings, I provide a plurality of such boxes, comprising an entire circular series, having a hollow interior, set one upon the other, the lower box having a closed bottom wall 10 and a closed interior chamber 11. Said lower box is provided at the lower portion of the slanting walls 7 8 at the inside and outside, respectively, and preferably just above the level of the base, with series of air-supply ports 12 13, the interior hollow cavity 11 preferably extending continuously throughout the circular interior. The next upper section and the additional upper sections are preferably left open at their lower portions, as indicated at 14, being mounted upon the apex of the lower box by means of the flanges 9, which are cut out, as indicated at 15, Fig. 5, so that the flanges will thus solidly rest upon the upper body portion of the lower box. Said lower box is also provided along its apex with a series of apertures 16, through which a portion of the air and steam will escape upwardly into the next upper box, which likewise is also provided with a similar series of apertures 17, from which a portion of the mixture will pass upwardly into the next adjacent box. Any number of boxes may be thus assembled, the uppermost box, as shown, being closed at its top portion, and when so arranged the mixture will pass successively from each under box to the next upper one and also outwardly through the spaces 14 at each side into the center and outer portions of the charge. The entire wind-box structure is supported upon suitably-located standards

or columns 18, which may conveniently be made of hollow pipe, and for the purpose of supplying air and steam under pressure to the interior of the boxes one or more of said supports are connected with supply-pipes 19, communicating with a blower or any suitable air and steam supply apparatus. The supply of air and steam through these pipes to the wind-box is controlled, so that the gas-maker can control its progress to the wind-box, depending upon the nature of the fuel or the condition of the gas required.

As shown in Fig. 1, the width of each box is made somewhat less than the next lower box, which construction will give good results in practice, the fuel falling from the inner and outer lower edges of the upper box upon the next lower one, or, if preferred, the width of the several boxes may be made the same as shown in Fig. 3, and I do not desire to be limited in this regard.

As thus constructed the entire apparatus is very strong and substantial and is capable of distributing a copious supply of air and steam to all portions of the fuel and throughout a greater vertical distance, contributing to very even combustion and greatly facilitating the operation.

The device is simple and economical in construction, will not readily burn out, and may be easily and quickly removed as to some or all of its parts.

It will be understood that with producers of greater diameter a plurality of sets of concentric circular boxes may be utilized or that with producers of oval, square, or other form the boxes may be made to correspond, and all such changes or modifications which may be made within the province of the skilled mechanic are understood to be included within the scope of the following claims.

What I claim is—

1. A combined wind-box for gas-producers consisting of a plurality of hollow rings hav-

ing an interior clearance-space and outer and inner downwardly-diverging sloping walls provided with air-supply openings, and means for furnishing a volume of air to the interior of one of the hollow rings, substantially as set forth.

2. In a wind-box, the combination of a lower hollow ring having an interior clearance-space, outer and inner downwardly-diverging sloping perforated walls, a lower closing-wall and air-apertures through its top, and a superimposed hollow ring having an interior clearance-space, and similar sloping walls mounted above the lower ring, with an intervening air-outlet opening at each side, substantially as set forth.

3. In a wind-box for gas-producers, the combination of a lower hollow ring having an interior clearance-space and one or more superimposed hollow rings, said rings having inner and outer downwardly-diverging sloping walls, and means providing a circulation of air to and from the interior of said rings, substantially as set forth.

4. In a wind-box, the combination of a lower circular hollow box triangular in cross-section and an upper box provided with transverse supporting-flanges conforming to the cross-section of the lower box, substantially as set forth.

5. In a wind-box, the combination of a lower circular hollow box triangular in cross-section and an upper box provided with transverse supporting-flanges conforming to the cross-section of the lower box, with means for establishing a circulation of air to and from the interior of said boxes, substantially as set forth.

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

WILLIAM R. MILLER.

Witnesses:

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C. M. CLARKE.