

No. 745,781.

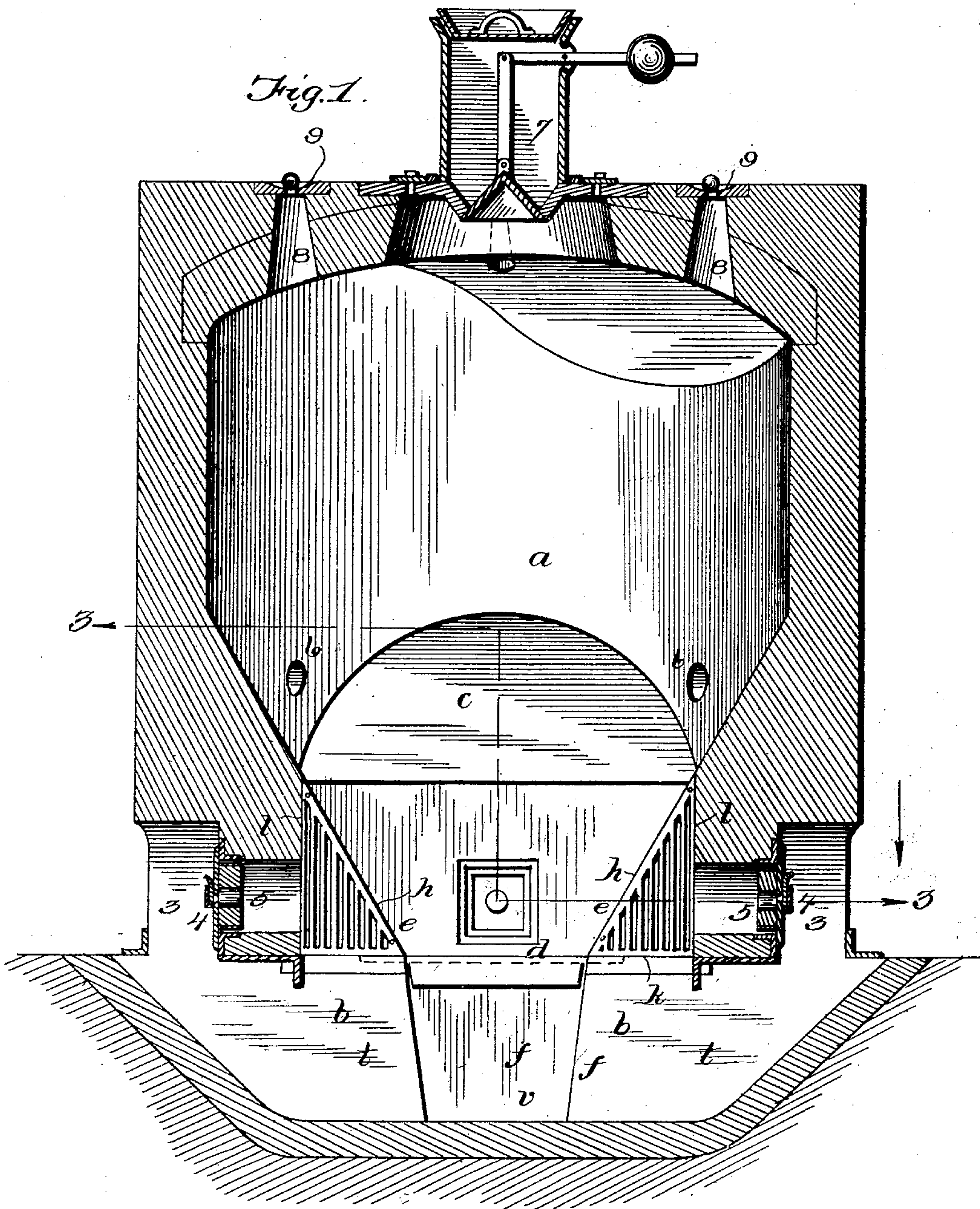
PATENTED DEC. 1, 1903.

G. CAMPION & M. WYANT.
GAS PRODUCER.

APPLICATION FILED JULY 3, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses

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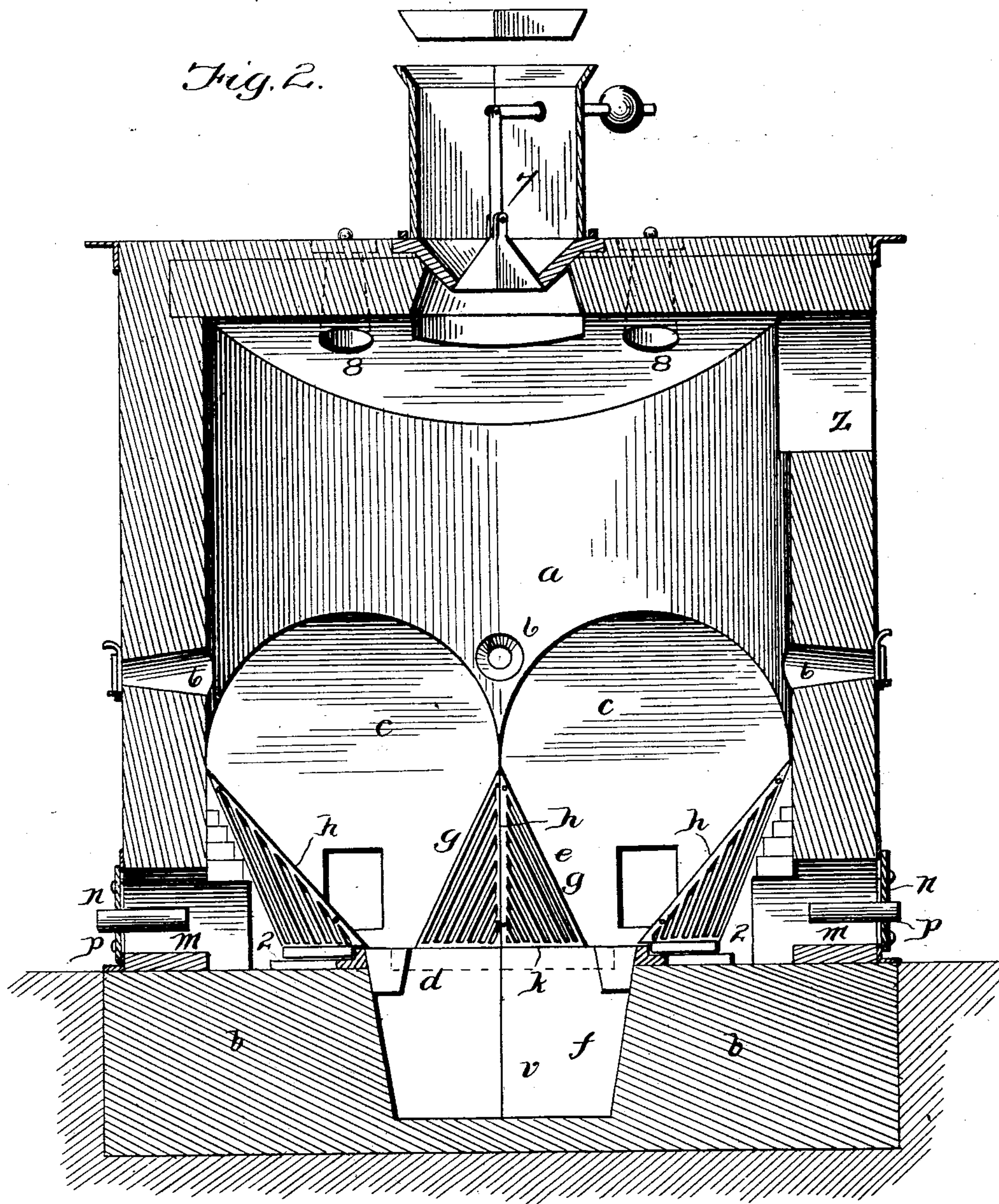
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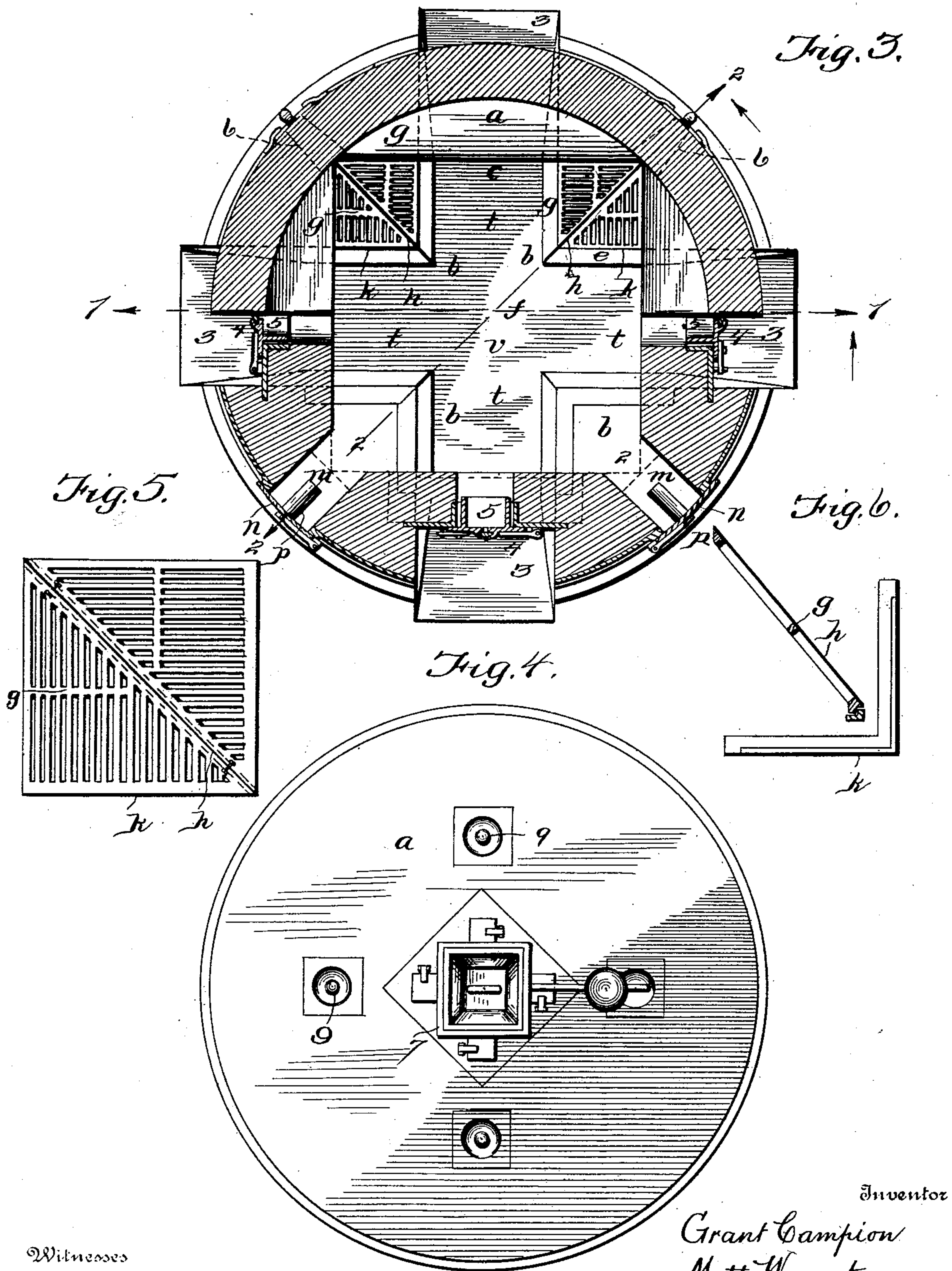
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UNITED STATES PATENT OFFICE.

GRANT CAMPION AND MOTT WYANT, OF ANDERSON, INDIANA.

GAS-PRODUCER.

SPECIFICATION forming part of Letters Patent No. 745,781, dated December 1, 1903.

Application filed July 3, 1903. Serial No. 164,226. (No model.)

To all whom it may concern:

Be it known that we, GRANT CAMPION and MOTT WYANT, citizens of the United States, and residents of Anderson, in the county of Madison and State of Indiana, have made a certain new and useful Invention in Gas-Producers; and we declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a section on the line 1 1, Fig. 3. Fig. 2 is a section on the line 2 2, Fig. 3. Fig. 3 is a section on the line 3 3, Fig. 1. Fig. 4 is a top plan view of the gas-producer. Figs. 5 and 6 are detail views of the grate.

The invention has relation to the manufacture of gas; and it consists in the novel construction and combination of parts as hereinafter set forth.

The apparatus or plant may be constructed in single form, or it may consist of several like apparatus connected in battery.

In the accompanying drawings the letter *a* designates the body of the gas-producer, which rests upon the corner-supports *b*, which project somewhat inward. In the construction shown the body is exteriorly cylindrical and its inner wall-surface is also cylindrical in its upper portion, this cylindrical inner surface being intersected at the lower portion thereof by the interior shelving walls or faces, (indicated at *c*.) Below the inclined faces *c* the wall is sheer downward and in its middle or bridge portion is provided with a flange *d*, extending into the water-bosh, while at its end portions, which are over the corner-supports, the inner wall extends downward to the grate-ledges *e*, which project inwardly in angular form, as above indicated. The flanges *d* serve to provide, in connection with the plating of the angular projections and the water in the basin *f*, a gas-tight joint.

At the corners of the lower portion of the inside wall of the body of the producer, extending downward from the intersections of the shelving-faces *c* to the supporting-ledges *e*, are the pyramidal angular ridge-grates, located opposite and detached from each other

in the corners of the polygonal fire-box, into which they extend. Each grate is double, being composed of two triangular grates *g*, which meet along their inclined long edges *h*, which have the same or nearly the same inclination as the shelving-faces *c*. These grates incline downward and outward from their meeting-line on each side to their lower edges *k*, which rest on proper bearings of the ledges *e* of the inner supporting projections *b*. The rear edges *l* of these grates are in approximate contact with the wall of the body, and the pyramidal interval or chamber *2* behind and under each grate, communicates with an opening *m* for the introduction of air or steam through the wall of the body of the producer, this opening being provided with a closing valve or gate *n*. A steam-conduit is also usually provided through this opening, as at *p*, where such steam-conduit is shown as a pipe-section connected to the gate.

The cavity of the basin *f* or water-bosh is branched or of crucial form, its branches *t* extending from the middle portion *v*, where they are in communication outward under the middle portions of the sheer walls below the shelving-faces *c* to the exterior or open portion of the basin. The outer ends of the branches *t* have bottoms which slope gradually upward to the margin of the basin and serve for the removal or manipulation of the ash and cinder pile in the middle portion. Openings *3* are provided through the bridge portion of the wall over the branches *t*, these openings being provided with proper valves or gates *4*, which are constructed with poke-holes *5*. These openings serve for inspection of the lower portion of the fuel-bed and for the removal of any undesirable accumulations which may appear.

Through the cylindrical portion of the wall above the shelving portion or between these portions are made poke-holes *6*, which serve an important purpose in the reduction of clinkers and otherwise manipulating the fuel-bed.

The hopper *7* is formed in the upper portion of the body, being preferably in the center of the top wall and of square shape, conforming to the contour of the interior chamber of the producer, as such angular form will cause the fuel to bank toward the grates,

when it can be readily reached through the top poke-holes 8 and evenly spread. Through the top are also provided peep-holes 9 for the examination of the fuel-bed. The gas formed in the producer can be conducted off for use through the opening z.

This producer is designed for the manufacture of gas from coal with the proportionate use of water and steam or air. The water bosh or basin and body of the producer can be constructed of brick, proper jacketing of metal being provided where advisable. The outlets of the water-bosh point in different ways, so that the operations upon the ash and cinder accumulation in the basin are not confined to one point.

The form of the grates being pyramidal and increasing in area downward and inward provide for the access of the greater portion of the blast of air or steam through the heavier thickness of the fuel-bed, the lighter blast operating through the thinner portions in a graduated manner, whereby it is designed to avoid the production above the fuel-bed of flames, which would destroy the gas. It is also designed to avoid cold points in the fuel-bed, such cold places having the effect to cause the coal to clinker and waste.

The triangular pyramidal grates are designed to provide, therefore, a suitable distribution of the air or steam necessary for gasification. It is intended also to require a comparatively small pressure of steam to the outlet-pipes, and in this way to maintain a cleaner gas-line and more even distribution.

Having described this invention, what we claim, and desire to secure by Letters Patent, is—

1. In a gas-producer, the combination with the shelving portions of the interior wall, of the pyramidal ridge-grates, alined with said shelving portions, substantially as specified.
2. In a gas-producer, the combination with

the branched water-bosh, and the corner-supports and ledges, of the pyramidal corner-grates on said ledges, substantially as specified.

3. In a gas-producer, the combination with a branched water-bosh, and corner-supports and ledges, of a body having downward and inward inclined inner wall portions, and triangular grates on the ledges of such corner-supports having similar inclination to said wall portions, substantially as specified.

4. In a gas-producer, the combination with the branched water-bosh, of the corner-supports and ledges, the grates on said ledges, and the body portion bridging the branches, and having downward flanges at their bridge portions, substantially as specified.

5. In a gas-producer, the combination with a branched water-bosh, of a body having bridge portions, and corner-supports, inclined grates on said corner-supports and shelving-walls above the bridge portions, substantially as specified.

6. The combination with a gas-producer having a polygonal fire-box, of corner-grates detached from each other and extending into the fire-box, substantially as specified.

7. The combination with a gas-producer having a polygonal fire-box, of pyramidal corner-grates detached from each other, and extending into the fire-box, substantially as specified.

8. In a gas-producer, the combination of the corner-supports, a branched water-bosh between said supports, and pyramidal grates upon the inner ends of said supports, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

GRANT CAMPION.
MOTT WYANT.

Witnesses:

JULIA A. MOORE,
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