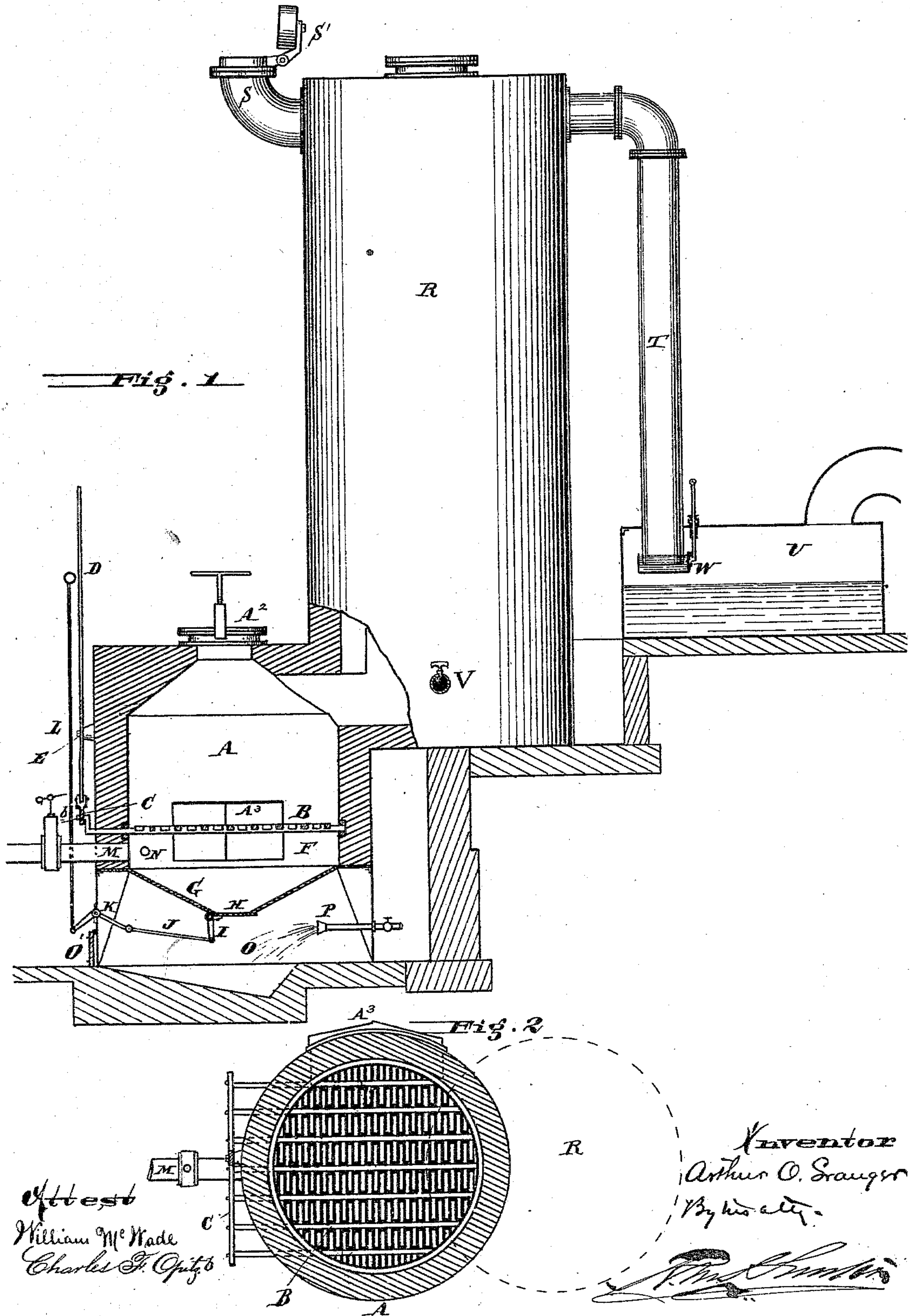


(No Model.)

A. O. GRANGER.  
GAS APPARATUS.

No. 295,118.

Patented Mar. 11, 1884.





# UNITED STATES PATENT OFFICE.

ARTHUR O. GRANGER, OF PHILADELPHIA, PENNSYLVANIA.

## GAS APPARATUS.

SPECIFICATION forming part of Letters Patent No. 295,118, dated March 11, 1884.

Application filed June 25, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR O. GRANGER, of the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Gas Apparatus, of which the following is a specification.

My invention has reference to gas apparatus for the manufacture of heating and illuminating gas, but more specifically to the generator therefor. I provide the generator with a sloping or tapering bottom terminating in a valve, through which the dust and ashes may be deposited into an ash-pit, where they are sprinkled with water, and perform the raking of the fire by means of a shaking or rocking grate, whereby the fire may be raked without admitting air at the bottom, and the ashes produced or separated removed from the generator proper, which may be closed at once for the generation of water-gas, and the ashes removed from the ash-pit in a damp condition at the leisure of the operator.

In the drawings, Figure 1 is an elevation of gas-works with the generator in section, embodying my improvements; and Fig. 2 is a sectional plan view of the generator.

A is the generator, which is lined with fire-brick in the usual way, and is provided with a charging-door A<sup>2</sup> on the top.

B is the grate, and may be formed of the well-known shaking or rocking grate-bars, which are connected together by cranks b and bar C, and simultaneously rocked from above by a lever, D, pivoted at E. Any other form of grate may be used.

F is a chamber immediately below the grate, and into which the air is fed by pipe M, and steam by pipe N. The bottom of this chamber F is made sloping or tapering, as shown at G, and is preferably made of sheet metal. A valve, H, closes its bottom, which valve may be worked by arm I, rod J, bell-crank K, and rod L, or any other suitable means.

A<sup>3</sup> is the usual door to the grate and chamber F, though heretofore it was used to clean out the ash-pit. Now it is only used for inspection—as, for instance, to examine the grate.

O is the ash-pit, and is formed under the chamber F, and within the extended casing A' of the generator. The ashes are sprinkled

with water from a nozzle, P, and may be withdrawn by door O'.

R is the superheater, and is provided at the bottom with the oil-nozzle V, and at the top with the chimney-outlet S, having a valve, S'.

T is the gas-flue, which enters the seal-box U, provided with an adjustable water-seal, W, which is raised to close the mouth of the flue T when heating up the generator and superheater, but which is lowered when the chimney-valve is closed and the generator is making gas.

The operation of making gas is well understood, and requires no explanation.

To clean the fire in the generator, I proceed as follows: Raise seal W and open the chimney-valve S' and valve H, all other doors being closed. Then work the lever D, which rocks the grate B. The ashes and dust pass down into chamber F and slide down the sloping bottom G into the ash-pit O, where they are wet with water from nozzle P. As no air is admitted from below, none of the dust will ascend. When the raking operation is completed, the valve H is closed and door O' opened, and while the process of making gas is going on the ashes may be removed.

I am aware of the patents granted to Van Steenberg, No. 248,070, of 1881, and Taylor, No. 252,910, of 1882, and claim nothing therein set forth or shown.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A closed gas-generator provided with steam and air pipes at the bottom and an outlet at the top, in combination with a rocking or shaking grate, whereby the fire may be raked without admitting air to the bottom of the generator, a chamber below said grate-bars, having an inclined or sloping bottom terminating in a hole, an ash-pit below said chamber, and a water sprinkler or nozzle to wet the ashes in said ash-pit, substantially as and for the purpose specified.

2. A closed gas-generator provided with steam and air pipes at the bottom and an outlet at the top, in combination with a rocking or shaking grate, whereby the fire may be raked without admitting air to the bottom of the generator, a chamber below said grate-



bars, having an inclined or sloping bottom  
terminating in a hole, a valve to close said  
hole, an ash-pit below said chamber, and a  
water sprinkler or nozzle to wet the ashes in  
5 said pit, substantially as and for the purpose  
specified.

3. The generator A, having chamber F, pro-  
vided with an inclined or sloping bottom, G,  
having an opening therein, and an ash-pit, O,

in combination with valve H and sprinkler- 10  
nozzle P, substantially as and for the purpose  
specified.

In testimony of which invention I hereunto  
set my hand.

ARTHUR O. GRANGER.

Witnesses:

R. S. CHILD, Jr.,

FRANCIS T. CHAMBERS.