

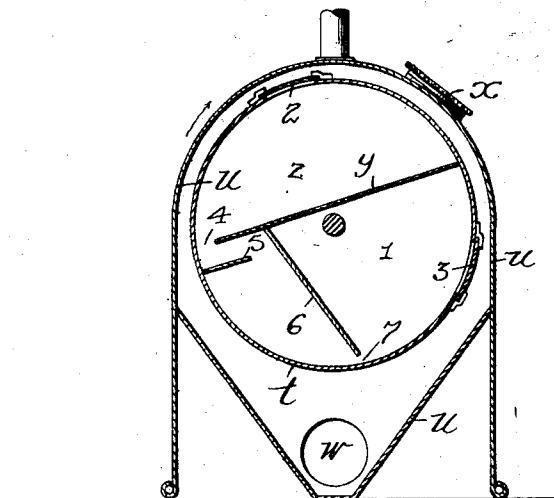
No. 753,818.

PATENTED MAR. 1, 1904.

G. J. ATKINS.
APPARATUS FOR GENERATING ACETYLENE GAS.

APPLICATION FILED JUNE 25, 1901.

NO MODEL.



Attest:

L. B. Middleton.

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UNITED STATES PATENT OFFICE.

GEORGE JONES ATKINS, OF TOTTENHAM, ENGLAND.

APPARATUS FOR GENERATING ACETYLENE GAS.

SPECIFICATION forming part of Letters Patent No. 753,818, dated March 1, 1904.

Original application filed June 5, 1900, Serial No. 19,121. Divided and this application filed June 25, 1901. Serial No. 65,987.
(No model.)

To all whom it may concern:

Be it known that I, GEORGE JONES ATKINS, metallurgical chemist, a subject of the King of Great Britain, residing at the Laboratory, Ruskin Road, Tottenham, in the county of Middlesex, England, have invented a certain new and useful Improvement in Apparatus for Generating and Storing Gas, (for which I have applied for patents in the following countries: Great Britain, dated November 9, 1899, No. 22,425; France, dated May 7, 1900; Belgium and Sweden, May 8, 1900; Italy, Austria, and Spain, May 9, 1900; Norway, May 15, 1900; Switzerland, May 16, 1900; Denmark, May 19, 1900, and Hungary May 21, 1900;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates more especially to apparatus for generating and storing acetylene gas made by the dry process, which consists in mixing any suitable carbide—such as calcium carbide, for example—with solid or comparatively dry salts or other compounds or substances containing hydrogen and oxygen, either in the form of chemical compounds combined with other elements or in chemical combination as water of crystallization or water of combination with other elements, not including, however, water in its ordinary liquid state uncombined with other substances; but the invention is also applicable to apparatus for generating and storing gases or vapors produced by any similar dry process.

The accompanying drawing shows the invention in vertical section.

In my improved gas-generating apparatus, *t* is a drum, which may be caused to rotate continuously or intermittently, as required, by any convenient and more or less automatic means within an air-tight casing *u*, which is furnished with a gas-outlet *v* and a normally closed outlet *w* for the exhausted residual products. The casing *u* is also provided with a charging-opening, which is normally closed by an air-tight cover *x*. The drum *t* is divided by a suitable partition *y* into practically two compartments, *z* being the carbide-com-

partment and 1 the mixing and generating compartment, the compartments being furnished with openings which are normally closed by slides 2 and 3, respectively.

In order to charge the apparatus, the cover *x* is removed, the drum *t* is rotated until the opening in the compartment *z* coincides with the opening in the casing, the slide 2 is pushed back, the charge of carbide introduced into the chamber *z*, and the slide 2 closed. The decomposing material is then introduced into the compartment 1 in a similar manner, the slide 3 is closed, and the air-tight cover *x* replaced in position.

When it is required to generate gas, the drum *t* is caused to rotate by any suitable and more or less automatic means in the direction of the arrow until a small quantity of carbide falls by gravity through the opening 4, first on the ledge 5, thence onto the plate 6, and through the opening 7 into the compartment 1, where it mixes with the decomposing material, and acetylene gas is thereby generated and passes through openings (not shown in the drawing) into the air-tight casing *u* and by the gas-outlet *v* to a reservoir or direct to the burners, as may be desired. The exhausted products may from time to time be removed by withdrawing the slide 3 in the manner hereinbefore described and rotating the drum until the opening at 3 is in the lowest position, when the products will fall into the bottom of the casing *u*, from whence they may be withdrawn through the outlet *w*.

This application is a division of a patent granted to me on June 23, 1903, No. 731,652, filed June 5, 1900, Serial No. 19,121, for process for generating acetylene gas.

I claim—

1. In an apparatus for generating acetylene gas from dry pulverized materials, a gas-holding chamber, a drum having a partition extending from one side of the circumferential wall into proximity to the other side of said wall, and within the said chamber, substantially as described.

2. In an apparatus for generating acetylene gas, a rotary drum having a partition extending from the circumferential wall on one side

into proximity to the other side, and a second partition extending from said first-named partition at an angle thereto and into proximity to said circumferential wall, substantially as described.

5 3. Generating apparatus for acetylene gas which consists of a drum *t* divided into compartments *z*, 1 communicating with one another by openings 4 and 7, said drum being
10 adapted to be rotated within an air-tight cas-

ing *u*, the drum *t* and casing *u* being provided with charging and discharging orifices, combined and operating substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

GEORGE JONES ATKINS.

Witnesses:

JOSHUA DAWSON WATTS,
STEPHEN EDWARD GUNYON.