United States Patent Office.

JOHN F. BOYNTON, OF SYRACUSE, NEW YORK.

Letters Patent No. 110,427, dated December 27, 1870.

IMPROVEMENT IN THE METHODS OF PRODUCING ILLUMINATING-GAS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN F. BOYNTON, of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Method of Producing Illuminating-Gas by Carbonizing Nitrogen-Gas; and I do hereby declare that the following is a full, clear, and exact description of my invention.

The extreme cheapness and admirable illuminating qualities of the light products of petroleum, and the oils obtained from the distillation of coal, have made it a desirable object among inventors and others to devise some cheap and safe method of using such products for the purposes of heating and illuminating. The most practicable methods as yet known have been to combine such products in the form of vapor with atmospheric air, or hydrogen, or carbureted hydrogen-gas, and to burn such carbureted air or gas in the same manner as ordinary coal-gas. Both these methods are liable to objections.

It is a well-known fact that a mixture of air and any inflammable vapor, under certain conditions, forms a highly-explosive compound, and many accidents have arisen from the use of carbureted air as an illuminating agent, while pure hydrogen is too expensive to be used for such purposes.

The object of my invention is to overcome these difficulties, and form an illuminating-gas that can be used with absolute safety, and, at the same time, be produced at a cost very little exceeding that of the light spirits used in its production.

To this end, I make use of pure nitrogen-gas, which is a non-supporter of combustion, to combine with the vapor of such light spirits, or a mixture of nitrogen and hydrogen.

The nitrogen may be obtained by any known method, but I prefer to obtain it from the atmosphere by burning out the oxygen, or absorbing it by any salt or substance having an affinity for it.

In carrying out my invention, I use a holder constructed after the manner of the ordinary holder used at gas-works. This holder I so arrange that it may be lifted from the tank in which it is suspended, and a car or other vessel containing inflammable material be placed under it, and such inflammable material ignited, and the holder be brought back to its proper position. The material will continue to burn as long as any oxygen remains in the air contained in the holder, forming water and carbonic-acid gas, which will be taken up and absorbed by the water in the tank, leaving pure nitrogen in the holder, with, perhaps, a trace of carbonic-acid gas, which may be removed by placing caustic alkali in the holder.

The nitrogen thus obtained may be carbureted by any of the known methods, and the spirits for carbureting may be obtained from petroleum, or by the distillation of coal.

To increase the capacity of the nitrogen for taking up the inflammable vapor it may be heated before passing to the carbureter. To effect this I have found it convenient to attach a small carbureter to the gas-pipe just below the burner, and pass said gas-pipe, in the shape of a coil or otherwise, over the burner before reaching the carbureter, by means of which the heat of the burner is utilized.

The gas-pipe, after entering the carbureter may be coiled once or twice below the surface of the oil in order to heat the contents of the carbureter.

Having thus described my invention,

What I claim, and desire to secure by Letters Patent, is

1. The use of nitrogen-gas, prepared and carbureted, substantially as and for the purposes herein set forth.

2. The mixture of nitrogen and hydrogen, for the purposes herein described.

JOHN F. BOYNTON.

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C. L. COOMBS,

J. L. COOMBS