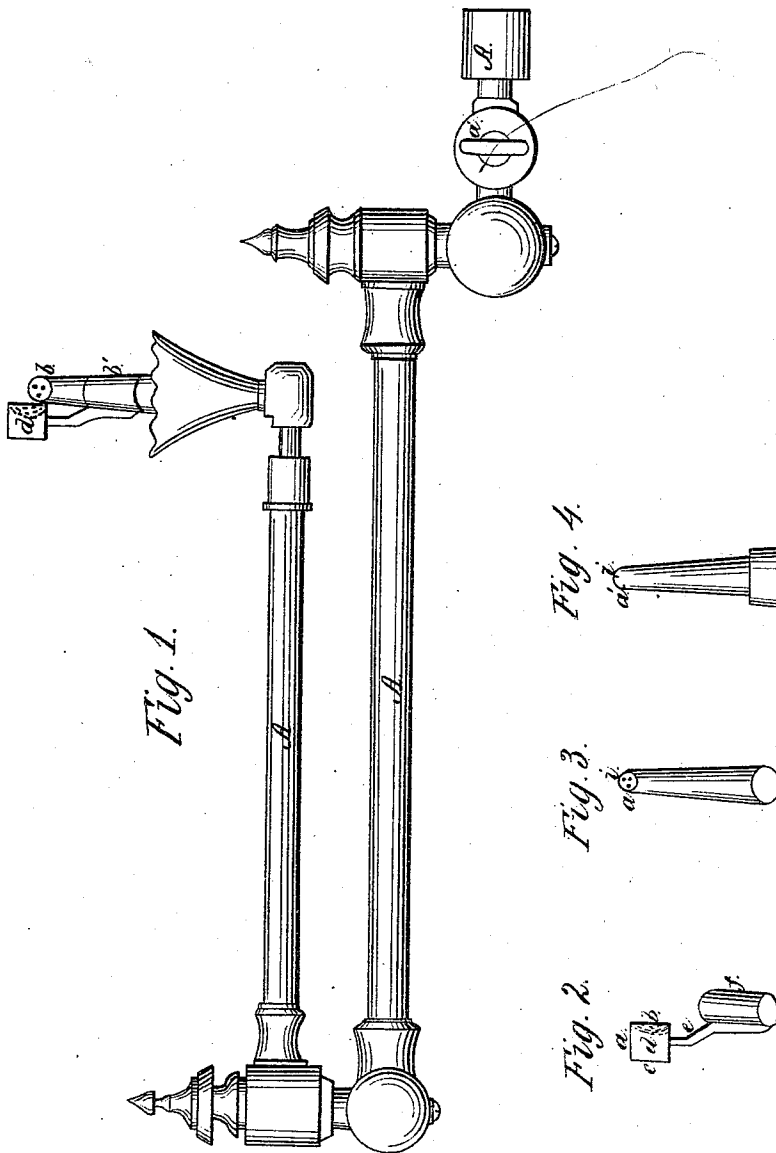


A. BARBARIN.

Lighting Gas.

No. 64,188.

Patented April 30, 1867.



Witnesses,
Rufus R. Rhoads
J. B. Eustis

Inventor.
Arthur Barbarin

United States Patent Office.

ARTHUR BARBARIN, OF NEW ORLEANS, LOUISIANA.

Letters Patent No. 64,188, dated April 30, 1867.

IMPROVED MODE OF LIGHTING 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, ARTHUR BARBARIN, of the city of New Orleans, parish of Orleans, and State of Louisiana, have invented a certain new, useful, and improved Mode of Lighting Gas; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification.

It is well known that if hydrogen gas be brought into contact with spongy or finely-divided platinum, the latter will cause the hydrogen to unite with the oxygen of the air. The effect of this union will be to raise the platina to a red heat, and thus to produce an ignition of the gas. The same effect takes place when hydrocarbon gas comes into contact with spongy or finely-divided platinum, but not with the same regularity. To overcome this defect of the hydrocarbon gas it is necessary to increase its volume of hydrogen. To accomplish this I combine both hydrogen and hydrocarbon gases, prepared separately in their respective retorts or generators, and from their respective gasometers allow them to flow separately, by any known and convenient means, through the same main pipes and their branches, in order that they may therein be combined or mixed, and act conjointly or separately upon any spongy platina, or other metal having the same properties, that may be placed in their path.

The object of my invention, as will be perceived, is to utilize this property of platinum for the ignition of hydrocarbon or other gas issuing from ordinary burners without having recourse to the ordinary methods of lighting the same, and without the use of more than one main pipe and its branches for conveying both gases separately, or when they are combined with each other.

To accomplish this object I apply spongy or finely-divided platina to an ordinary gas burner in any manner, as, for example, as shown in Figures 1, 2, 3, and 4 of the drawings, and in connection with any means that shall cause the platina to be in the path of any gas or gases issuing through a burner, that the gas or gases may ignite themselves whenever it or they shall come into contact with the platina. In order to supply the necessary quantity of hydrogen gas for limited purposes I employ an ordinary generator, but when a large quantity is to be supplied I employ a retort, made of thin boiler plate, (iron lined with fire-brick,) which boiler is provided with a small cylinder of fire-brick in its centre, divided by a partition. The main cylinder is nearly filled to its top with coke, which is set on fire and allowed to become red hot, when steam, under a pressure of two atmospheres, is introduced into the burning mass. This steam is decomposed by the burning coke, its hydrogen set free, and its oxygen, uniting with the carbon of the coke, forms carbonic oxide CO , and carbonic acid CO_2 . All of these gases, then, flow into the bottom of the cylinder, and, rising above the top of the partition, pass out through a pipe to the purifiers, and thence to the gasometer. In the passage through the small cylinder the carbonic oxide is met by a fresh supply of steam coming through a pipe at the bottom of the cylinder, which it decomposes, taking on another equivalent of oxygen from the steam, and becomes carbonic acid, while the hydrogen from the steam is set free, and thus increases the quantity of hydrogen produced by the apparatus, and from the gasometer is mixed or carburetted for action on the spongy platina on the burners; or is permitted to flow separately from its gasometer through the same pipes used for the hydrocarbon, and therein mixed with the latter; or permitted to flow first through the same pipes and act upon the spongy platina in time to light itself, that the hydrocarbon gas may meet its burning flame as it issues from the same burner, and be at once ignited.

When a large number of burners are used, as in lighting a city, it would be preferable to employ a different or extra main pipe and branches for the especial supply of the street lamps, as, in that case, any number of lamps can be placed under the control of one man at a main or central station, and the lamps be lighted or not, at the will of that man, without interference with the lights or gas supplies of churches, theatres, stores, private dwellings, &c.; and yet at the same time a connection might be made from the hydrogen gasometer with the gasometer of the hydrocarbon gas, or the main pipe of the latter, for churches, theatres, &c., and work, as before stated, without the slightest difficulty as regards either lamps or private burners, as, in such case, two main gas stoppers can be used in order to regulate the flow of the hydrogen through either side, independently of the other.

For the purpose of more fully explaining my invention I now refer to the annexed drawings.

Figure 1, A, is an ordinary store or house branch of a main gas pipe used as a conduit of illuminating or other gases, either separately, or combined from private or public generators or gasometers, and a' is the ordinary stop-cock.

Figure 2 shows a platinum supporter, with its spongy platinum in position for action.

In this figure a is the cup in which is placed the platinum d ; b is the mouth or opening through which the platinum is placed in the cup, and e is a small hole in the back of the cup to facilitate the exit of any excess of heated air or gas in the cup during the incandescence of the spongy platinum d ; e is a small rod or support of the cup attached to an elongated ring, f , by means of which the cup and platinum may be placed in a gas burner, (or removed,) as at $b b'$, fig. 1, and there be acted upon either by the hydrogen or hydrocarbon gas issuing through an ordinary jet or jets i of a burner or burners, separately or when combined together, or through one or more additional perforations or jets a , as shown in figs. 3 and 4, made in ordinary burners for the purpose of guiding the gas or gases against the platina should the jets now in use not be properly constructed to secure that end.

I am aware that my Patent No. 59,754 secures to me the use and application of spongy platina to ordinary gas burners, but this is in connection with the means of projecting a jet of hydrogen gas upon the platina so that the flame of the burning hydrogen shall traverse the path of the hydrocarbon gas issuing through the burner for the purpose of lighting the same. I am aware that my patent secures to me the right also to use and apply an extra pipe for conveying the hydrogen gas upon the platina. This I do not claim herein; but, having fully described my invention, what I now do claim, and desire to secure by Letters Patent, is—

1. The direct use and application of spongy or finely-divided platinum (without extra pipe for conveying the hydrogen gas upon the same) to an ordinary gas burner in any manner that shall cause the platina to be directly in the path of hydrogen or hydrocarbon gas when issuing through such ordinary burner, whether these gases be separate from each other or mixed together, whether the burners have additional jets or not, and whether the platinum be used and applied permanently or temporarily to said burners for the purpose set forth.
2. The lighting of hydrogen or hydrocarbon gas, whether separate or mixed, by means of spongy or finely-divided platina, placed on a gas burner, as herein specified, whether the said platinum be temporarily or permanently attached to the burner, or whether it be temporarily applied in any other way to hydrogen or hydrocarbon gases, either separate or in a mixed state, when issuing from a burner.
3. The use of the same pipes and branches, as herein described, for the purpose of conveying the gases, whether they are mixed or separate, to the burners, for the purpose set forth.
4. Conveying the gases in a separate or mixed state, or one before the other, through the same pipe and branches, as described, for the purpose set forth.

ARTHUR BARBARIN.

Witnesses:

RUFUS R. RHODES,
I. B. EUSTIS.