A. BARBARIN.

Gas Lighter.

No. 59,754.

Patented Nov. 20, 1866.

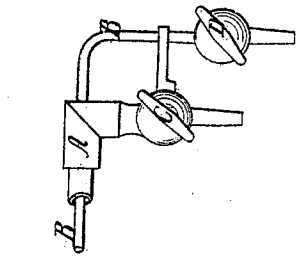



Fig. 1.

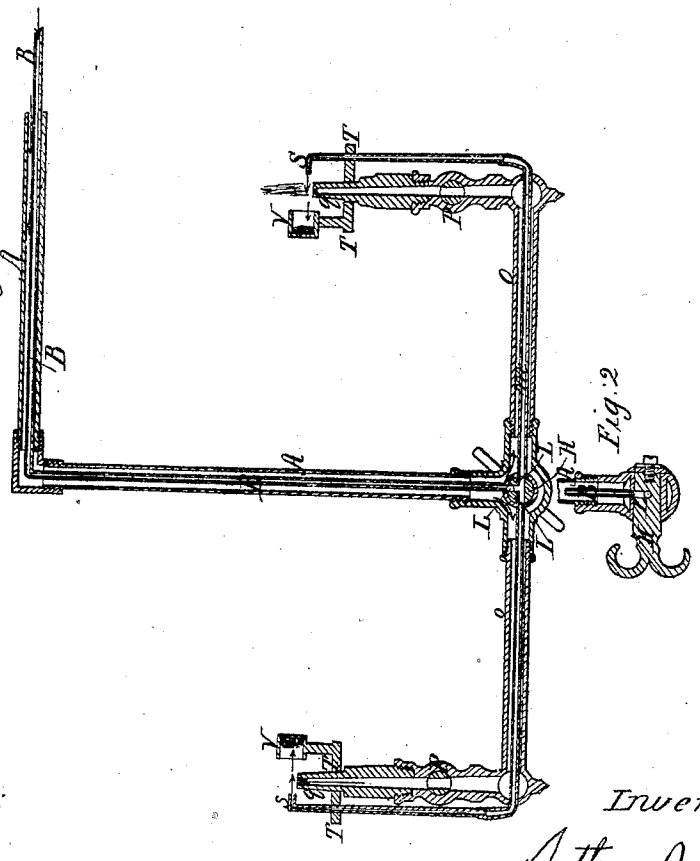



Fig. 2.

Witnesses;

S. A. Duncan

M. Bailey

Inventor;

Arthur Barbarin

by A. Pollok

his atty

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

# United States Patent Office.

## IMPROVEMENT IN LIGHTING GAS.

ARTHUR BARBARIN, OF NEW ORLEANS, LOUISIANA.

*Letters Patent No.* 59,754, *dated November* 20, 1866.

### SPECIFICATION.

TO WHOM IT MAY CONCERN:

Be it known that I, ARTHUR BARBARIN, of New Orleans, in the parish of New Orleans, and State of Louisiana, have invented a certain new and improved method of lighting gas, and I hereby declare the following to be a full, clear, and exact description of the same—reference being had to the accompanying drawings:

It is well known that if hydrogen gas be brought in contact with spongy or finely divided platinum, the latter will cause the hydrogen to unite with the oxygen of the air, the effect of which will be to raise the platinum to a red heat, and to ignite the gas.

The object of my invention is to utilize this property of platinum so as to effect the ignition of hydro-carbon or other gas issuing from ordinary burners, without having recourse to the ordinary methods of gas lighting.

To accomplish my object I employ hydrogen gas and spongy platinum in connection with an ordinary gas burner, a jet of hydrogen and the platinum being placed just above and on opposite sides of the burner, and facing each other, so that the stream of hydrogen which is inflamed by contact with the platinum shall traverse the path of the gas which issues from the burner, and thus cause its ignition.

In order to supply the necessary quantity of hydrogen, I provide a generator, from which a small pipe is taken out, which follows the course of the hydro-carbon or common gas pipe—being placed either inside or outside of such pipe—and thus extends to every branch and burner employed to consume the illuminating gas.

By this means I am enabled, as hereinafter explained, to substitute my method for electricity in order to simultaneously ignite any desired number of gas jets.

The arrangement and operation of the apparatus which I have found best fitted to attain the above results will be readily understood by reference to the accompanying drawings, in which figure 1 represents a vertical section of an ordinary gas pipe, provided with two branches and burners, to which my improvements are applied, and figure 2 is a detached part of the apparatus.

A is the pipe which conveys the illuminating gas to the burners, provided at the end nearest the gasometer with a stop-cock C for regulating the flow of gas from the meter. In order to fully illustrate my invention, the pipe is represented as bent downwards, so as to form a pendant or chandelier provided with two branches *o o*, and corresponding burners *q q*.

P P are the ordinary cocks for regulating the supply of gas to the burners.

Around each burner *q* is placed a collar or plate T, to which is secured a rod or support extending upwards and terminating in a cap *v*, of cylindrical or other suitable shape, which is somewhat higher than the burner. This cap is open on the side adjoining the burner, and has placed within it the spongy platinum which, in conjunction with the hydrogen, causes the ignition of the gas issuing from the burner *q*.

In order to conduct the hydrogen so that it may, when desired, be brought in contact with the platinum in the caps *v*, I employ the following arrangement:

The pipe B leads from a hydrogen gas generator, and, like the gas pipe A, is provided with a stop-cock D for regulating the flow of gas from the reservoir or generator. The pipe B is brought near the pipe A, so that the two regulating cocks C D may be close enough together to be operated, both at the same time, without trouble.

The pipe B is considerably less in diameter than the pipe A, and enters the latter pipe, so as to be concentric therewith, at any convenient point as shown in the drawings. The hydrogen-gas pipe thus follows the course of the larger surrounding pipe throughout its entire length—having branches *m m* corresponding with the branches *o o*—until it comes in the vicinity of the burners *q q*. At this point the branches *m m* are taken out from the pipes *o o*, just below the burners, and are then turned upwards along that side of the burners opposite to the caps *v*. They then are carried above the burners so as to be about the height of the caps *v*, passing through and being braced and held by the supports T, which also sustain the caps *v*.

The ends of the branch pipes *m m* are provided with small tips or nozzles *s*, axially facing the caps *v*, so that when the hydrogen issues from the tips it shall strike against the platinum contained in the opposite caps, (which are perforated at their centres,) at the same time traversing the course of the gas issuing from the burners *q*. The branches *m m* are not provided with separate stop-cocks, but instead thereof a two-way cock H is placed at the junction of the branches *m* with their main pipe B. The form of the cock H is shown in figure

2; it has openings L L formed in it corresponding in number to the branches *m* and supply pipe *b*, which openings connect with each other, with the main hydrogen pipe B, and with the branch pipes *m*. It will be readily seen that by turning the stopper H to the right or left, the hydrogen may be supplied to or cut off from either or both of the tips *s* at pleasure.

The operation of the apparatus is substantially as follows:

The cocks C D are opened to permit the carburetted hydrogen and the hydrogen gases to enter their respective pipes A and B, the cocks P on the burners *q* being closed, and the cock H open. The hydrogen passes through the openings L L in the cock H into the branch pipes *m m*, and then issues from the tips or nozzles *s*, coming in contact with the platinum in the opposite caps *v*. In a moment or two, as soon as the platinum has time to become incandescent, so as to cause the ignition of the hydrogen, the cocks P are opened, thus permitting the escape of the illuminating gas, which is almost instantaneously ignited by the inflamed jet of hydrogen gas. As soon as this is accomplished, the cock H may be turned so as to extinguish the hydrogen flame, of which there is no longer any need.

When my method of lighting gas is employed in private houses, or in places where but one or two burners are needed at one time, the arrangement of cocks, &c., shown in the drawings may be used. But when many burners are required to be in use at once, as in theatres, churches, &c., then the cocks H and P will be practically useless, and will only serve to delay the operation of lighting; for in such places, the burners are so numerous, and access to them, on account of their height, is generally so difficult, that much time would be consumed in lighting them.

In this case the cocks H and P are entirely dispensed with and form no part of the apparatus, the only ones needed being the regulating cocks C D, which are placed near each other and in a place convenient of access. Under this arrangement, no matter how great the number of burners may be, by turning the cock D of the hydrogen pipe so as to allow the gas to flow through the pipes B and *m*, the hydrogen will immediately heat the spongy platinum of each burner, and will be inflamed thereby; and by now opening the illuminating gas cock C, which has hitherto remained closed, the illuminating gas when discharged from the burners will be sure to meet with the flame of the hydrogen gas, and will thus be ignited.

When this is accomplished the flow of hydrogen gas is stopped and its flame extinguished by closing the stop-cock D, the illuminating gas being left to burn as long as desired.

It will be seen, therefore, that by my method the gas from any number of burners, no matter where located, may be simultaneously ignited—a result which hitherto has only been successfully accomplished by the employment of electricity.

If, however, the apparatus is used in a hotel or large boarding-house, both the cocks H P and C D may be used. The cocks H and P can be used in private rooms, while the stoppers C D, or other similar cocks, may be located near or in the office of the hotel, thus enabling the proprietors of the house to control the lights.

It will be understood that the hydrogen-gas pipes B *m* need not be enclosed within the gas pipes A *o*. The advantage of this arrangement is that it economizes space, and obviates the danger of the hydrogen pipes being injured or damaged in any way; at the same time, however, they will work just as effectively when located outside instead of inside the gas pipes A, &c.

Having described my invention and the manner in which the same is or may be carried into effect, what I claim and desire to secure by Letters Patent is as follows:

I. In combination with ordinary burners for burning illuminating gas, I claim the application and use of spongy platinum in connection with the means for projecting through or upon it a jet of hydrogen gas substantially as described, for the purpose of igniting the gas issuing from the burners as herein shown and set forth.

II. I claim arranging the hydrogen-gas pipe and spongy platinum above and on opposite sides of the gas burner to which they are applied, so that the hydrogen when issuing from its pipe shall traverse the course of the gas discharged from the burner substantially as and for the purposes shown and set forth.

III. I claim the method of and apparatus for simultaneously igniting two or more ordinary gas burners by the use of spongy platinum acted on by hydrogen in the manner and by the means herein described, whether the pipes by which the said hydrogen gas is conveyed to the platinum be within or exterior to the pipes by which the illuminating gas is conducted to the burners.

IV. I claim the concentric arrangement of the pipes for conveying the illuminating and the hydrogen gases to their respective burners, the pipe by which the hydrogen gas is thus conveyed being within and surrounded by the pipe which conducts the illuminating gas substantially as herein shown and set forth.

In testimony whereof, I have signed my name to this Specification before two subscribing witnesses.

ARTHUR BARBARIN.

Witnesses:

FELIX N. TRIPAGNIER,

EUGENE GRANGER.