

A. W. WILKINSON
Oxy-Hydrogen Burner.

No. 123,537.

Patented Feb. 6, 1872.

Fig. 1.

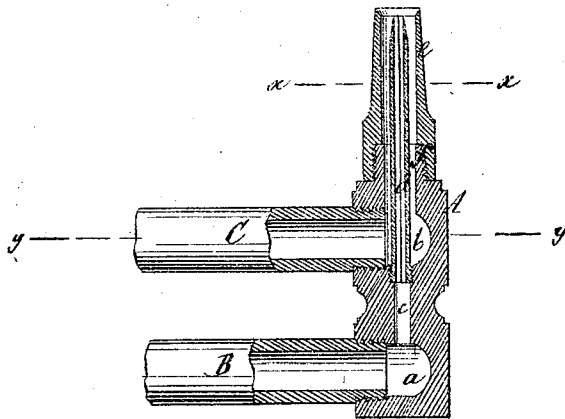


Fig. 2.

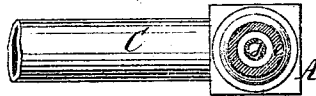
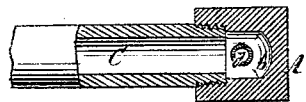


Fig. 3.



Witnesses:
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his attys

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IMPROVEMENT IN OXYHYDROGEN BURNERS.

Specification forming part of Letters Patent No. 123,537, dated February 6, 1872.

To all whom it may concern:

Be it known that I, ASA W. WILKINSON, of the city, county, and State of New York, have invented a new and useful Improvement in Oxyhydrogen Burners; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a longitudinal central section of my invention. Fig. 2 is a transverse section of the same in the plane *xx*, Fig. 1. Fig. 3 is a similar section in the plane *yy*, Fig. 1.

Similar letters indicate corresponding parts.

This invention consists in the arrangement of two chambers, one of which communicates with the hydrogen-supply pipe and the other with the oxygen-supply pipe, in combination with a compound nozzle, made of an external tube, which screws on a nipple formed on the hydrogen-chamber, and of an internal tube, which screws in a socket communicating with the oxygen-chamber, and which extends up through the center of the external tube in such a manner that the oxygen is not permitted to mingle with the hydrogen until it reaches the point of combustion, thereby avoiding all danger of an explosion; and at the same time the burner can be readily taken apart for the purpose of cleaning; or, if desired, different-sized tubes can be inserted to bring the quantity of oxygen carried to the point of combustion in the proper relation to the quantity and quality of the combustible gas.

In the drawing, the letter *A* designates my burner, in the body of which are formed two chambers, *a b*, one of which connects with a pipe, *B*, through which oxygen is supplied, while the other communicates with a pipe, *C*, which supplies a combustible gas, such as hydrogen or carbureted hydrogen. These two chambers are formed in the same piece of casting, and they communicate with each other through a channel, *c*, which is provided with an internal screw-thread to receive a small tube, *d*, and, if this tube is secured in position, the direct communication between the chambers *a* and *b* is cut off. The tube *d* extends through the center of the hydrogen-chamber *b* and through a tube, *e*, which is screwed on a nipple, *f*, formed at the end of said hydro-

gen-chamber, as shown in Fig. 1 of the drawing.

By these means a compound nozzle is formed composed of the inner oxygen-tube *d* and the outer hydrogen-tube *e*; and, if both the pipes *B* and *C* are opened, the gases admitted through them are not permitted to mingle with each other until they have reached the point of combustion; and since the oxygen-tube *d* extends up through the center of the hydrogen-tube, the oxygen discharging from said tube *d* is caused to mingle intimately with the combustible gas discharging from the tube *e*, and a complete combustion is effected. Furthermore, the oxygen is not mixed with the combustible gas until it reaches the point of combustion, and consequently all danger of an explosion is avoided.

The tubes *d* and *e* can easily be removed for the purpose of cleaning; or they can be changed for others of a larger or smaller capacity, according to the quality of the two gases, and particularly of the combustible gas; and if only one gas is to be used, the tube *d* may be entirely removed, so that a burner is obtained which is cheap and simple in construction, free from all danger, and capable of being used for gases of different nature or quality, separately or combined.

I do not broadly claim a burner connected with oxygen and hydrogen pipes in such a manner that the oxygen is prevented from mingling with the hydrogen until it reaches the point of combustion, as such is not new; but

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

A burner constructed and operating as herein shown and described, the body of which is composed of a single piece of casting provided with two chambers, one of which connects with the hydrogen-supply pipe and with the hydrogen-discharge pipe, while the other connects with the oxygen-supply pipe and with the oxygen-discharge pipe, the latter extending up through the center of the hydrogen-discharge pipe, all the pipes being secured to the casting, which forms the body of the burner, by means of screw-threads, as and for the purpose set forth.

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Witnesses:

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