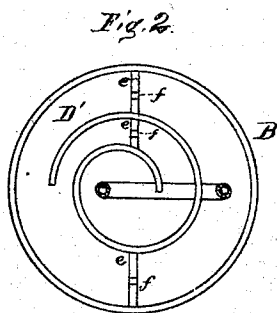
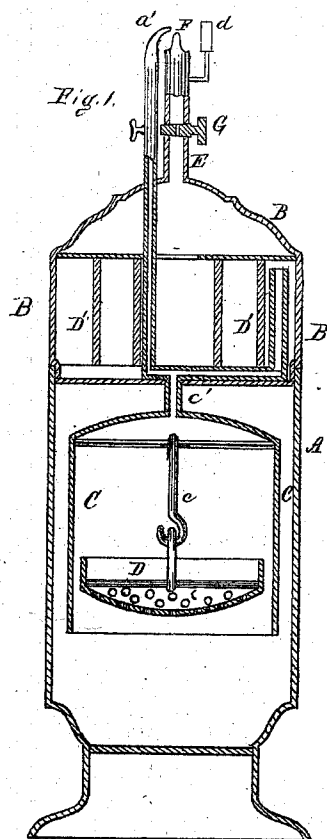


BYRON SLOPER.

Improvement in Apparatus for Generating, Carbureting,
and Burning Hydrogen Gas.

No. 115,369.

Patented May 30, 1871.



Witnesses
J. H. Coombs
J. L. Coombs

Inventor
Byron Sloper
by C. L. Coombs
Atty.

UNITED STATES PATENT OFFICE.

BYRON SLOPER, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN APPARATUS FOR GENERATING, CARBURETING, AND BURNING HYDROGEN GAS.

Specification forming part of Letters Patent No. 115,369, dated May 30, 1871.

To all whom it may concern:

Be it known that I, BYRON SLOPER, of St. Louis, in the county of St. Louis and State of Missouri, have invented a new and useful Improvement in Apparatus for Generating, Carbureting, and Burning Hydrogen Gas; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to an apparatus for generating, carbureting, and burning hydrogen gas; and it has for its object to provide a brilliant and steady light, in all respects equal, if not superior, to the ordinary gas-light, without the use of the expensive and cumbersome machinery heretofore employed. It consists of a vessel of convenient size and shape, to be used and handled as a lamp, provided with a gas-generating chamber in which pure hydrogen gas is automatically generated, as required, by the action of dilute acid on zinc or iron filings; and of a carbureting-chamber containing gasoline or other similar material, through which the gas is passed from the generating-chamber, and from thence, through a short tube, to the burner; and my invention further consists in so constructing the lamp that it may be automatically lighted by electricity by directing a stream of pure hydrogen directly from the generator upon a piece of platinum sponge secured to the lamp in suitable proximity to the burner.

In the drawing, Figure 1 represents a sectional view of my lamp, and Fig. 2 a sectional view of the carbureter.

A is a vessel, of glass or other suitable material, of convenient size, and of any desired shape. B is a closed vessel, of metal or other suitable material, so constructed as to fit into and rest upon the mouth of the vessel A. To the bottom of the vessel B is secured, in any convenient manner, a bell-shaped vessel, C, mouth downward. Inside of the vessel or bell C is secured, by means of a hook, *c*, or lugs, or in any other convenient manner, a perforated basket, D, of glass, metal, or other suitable material, at some distance above its mouth, as shown. From the upper part of the bell C extends a small tube, *c'*, through the bottom of the vessel or carbureter B, establishing a communication between said bell and carbureter, the said tube, through which

the hydrogen passes, branching after passing through the bottom of the carbureter, one branch terminating in said carbureter in order to deliver the gas to be carbureted, and the other extending up through the carbureter and terminating at a point, *a'*, near the burner, opposite to or above which point a piece of platinum sponge, *d'*, is secured. By this means an auxiliary jet of pure hydrogen may be thrown, when desired, upon the platinum sponge and ignited, which will transfer the flame to the carbureted hydrogen at the burner and automatically light the illuminating-gas. The interior of the carbureter or vessel B is constructed with a winding or convolute passage, D', commencing at the center, as shown in Fig. 2, and filled with curled hair or its equivalent. At suitable intervals in said passage are arranged partitions *e*, which are provided with pipes *f* extending from their upper parts down into the ore or hydrocarbon liquid for the purpose hereinafter described. To the top of the carbureting-chamber B is attached a short tube, E, surmounted with an ordinary gas-burner, F, and provided with a stop-cock, G'.

To put my lamp in operation, I first pour water into the vessel A until it reaches the ridge or bead *a*, which is blown thereon as a guide, and then pour in sulphuric acid until the contents reach the ridge *a'* above. I then fill the basket C with granulated zinc or iron filings, and pour a proper quantity of gasoline into the carbureter through the top, the tube E having been previously removed for that purpose. I then set the carbureter B in its place upon the mouth of the vessel A, immersing the bell C in the acidulated water. Upon opening the cock at the burner the air will escape, and the dilute acid will rise in the bell until it reaches the zinc in the basket, and the generation of gas will commence, and the gas, after passing through the carbureter, will escape at the burner, where it will be consumed.

To light the gas, it will only be necessary to turn the cock in the auxiliary tube so as to allow a stream of pure hydrogen to strike upon the platinum sponge for a few seconds, until the platinum sponge is heated to a white heat and ignites the jet of hydrogen. This will ignite the jet of carbureted hydrogen, af-

ter which the stream from the auxiliary jet may be shut off.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A carbureted hydrogen-gas lamp, consisting of a generating and carbureting-chamber combined, for the purpose described.

2. In combination with a carbureted hydro-

gen-gas lamp, the use of the auxiliary jet of pure hydrogen and the platinum sponge for the purpose of automatically lighting the carbureted hydrogen as it escapes at the burner.

BYRON SLOPER.

Witnesses:

CHAS. L. COOMBS,

JOS. L. COOMBS.