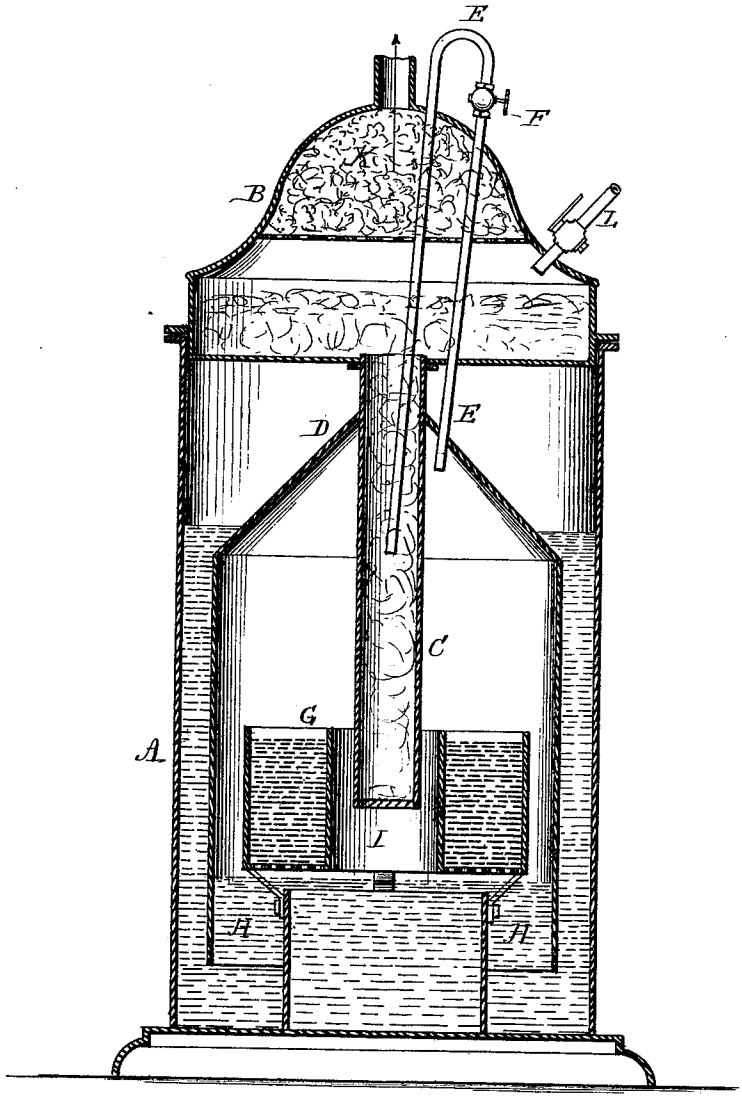
B. SLOPER.

HYDRO-CARBON GAS APPARATUS.

No. 176,411. Patented April 18, 1876.



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BYRON SLOPER, OF NEW YORK, N. Y.

IMPROVEMENT IN HYDROCARBON-GAS APPARATUS.

Specification forming part of Letters Patent No. **176,411**, dated April 18, 1876; application filed April 6, 1876.

To all whom it may concern:

Be it known that I, BYRON SLOPER, of the city, county, and State of New York, have invented certain new and useful Improvements in Hydrocarbon-Gas Apparatus for illuminating purposes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and the letters of reference marked thereon.

My invention relates to certain improvements in the manufacture of gas for illuminating purposes, its object being to produce an apparatus in which the gas will be automatically generated and supplied in quantities as desired, and of a uniform illuminating standard.

My invention consists in an improved apparatus for utilizing the temperature developed by the decomposition of the water in the generation of the gas, for the purpose of automatically controlling and regulating the temperature of the hydrocarbon liquid employed to carburet the gas, as more fully hereinafter set forth.

The drawing shows a sectional view of my improved apparatus, in which the letter A represents a tank or vessel, constructed of copper or other suitable material, and of any convenient size or capacity. The letter B represents a closed vessel or carbureter, adapted to fit upon the top of the vessel A, and provided with a tubular projection, C, extending down into the vessel A, for holding the hydrocarbon liquid, and bringing the same in contact with the acidulated water, for the purpose of heating and vaporizing the same by the heat developed by the decomposition of the water in the generation of the hydrogen gas. To the bottom of the carbureter, or to the tubular projection thereof, is secured a bell, D, which sets within the vessel A when the carbureter is in place thereon, and from the top of said bell D extends a pipe or tube, E, up through the carbureter and down into the tubular projection, for the purpose to be hereinafter explained. The said tube is provided with a stop-cock, F, by means of which the passage or the gas into the carbureter can be regulated. The letter G represents an annular perforated tray, supported within the vessel A upon standards or legs H, or in any other convenient manner, the tubular projection of the carbureter extending down into the central cylinder or opening I in the annular tray, as shown.

The letter K represents a compartment in the upper part of the carbureter, which is filled with curled hair, fibrous material, or other condensing material; and L, a pipe provided with a valve, through which the carbureter may be filled.

The operation of my invention is as follows: The vessel A being properly filled with sulphuric acid and water, and the annular tray with iron or other metal, when the carbureter is put in position the bell attached to the same covers the tray and receives the hydrogen gas generated by the decomposition of the water. The gas will be generated only in quantities as required for use, a more extended surface of the metal being exposed to the action of the acidulated water as the quantity of gas drawn off is increased, rendering the apparatus entirely automatic in its operation. The heat resulting from the decomposition of the water I utilize for maintaining the temperature of the hydrocarbon at the proper and uniform standard, as follows: The decomposition, when the acid is fresh and the apparatus is first started, is sufficient to properly evaporate the hydrocarbon; but, as the acid becomes neutralized after working, the chemical action is less active and the heat generated thereby becomes considerably diminished. But, as the chemical action becomes thus retarded, the acidulated water rises in the bell and surrounds the tubular projection of the carbureter containing the oil to an extent dependent upon the quantity of gas generated. The heat of the acidulated water raises the temperature of the oil, and as the water rises higher on the tubular projection of the carbureter maintains the temperature of the oil, which would be otherwise reduced by rapid evaporation, thus serving to automatically regulate the temperature of the hydrocarbon in the carbureter throughout the entire operation of the apparatus and furnishing a gas of a uniform illuminating standard at all times.

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

In an apparatus for generating gas the carbureter, provided with a tubular projection extending downward into the hydrogen-generator, for the purpose of automatically regulating the temperature of the hydrocarbon in the carbureter, substantially as herein set forth and shown.

In testimony that I claim the above as my invention, I have hereunto set my hand in the presence of two subscribing witnesses this 5th day of April, 1876.

BYRON SLOPER.

Witnesses:
CHAS. L. CORBULS,
W. E. CHAFFEE.