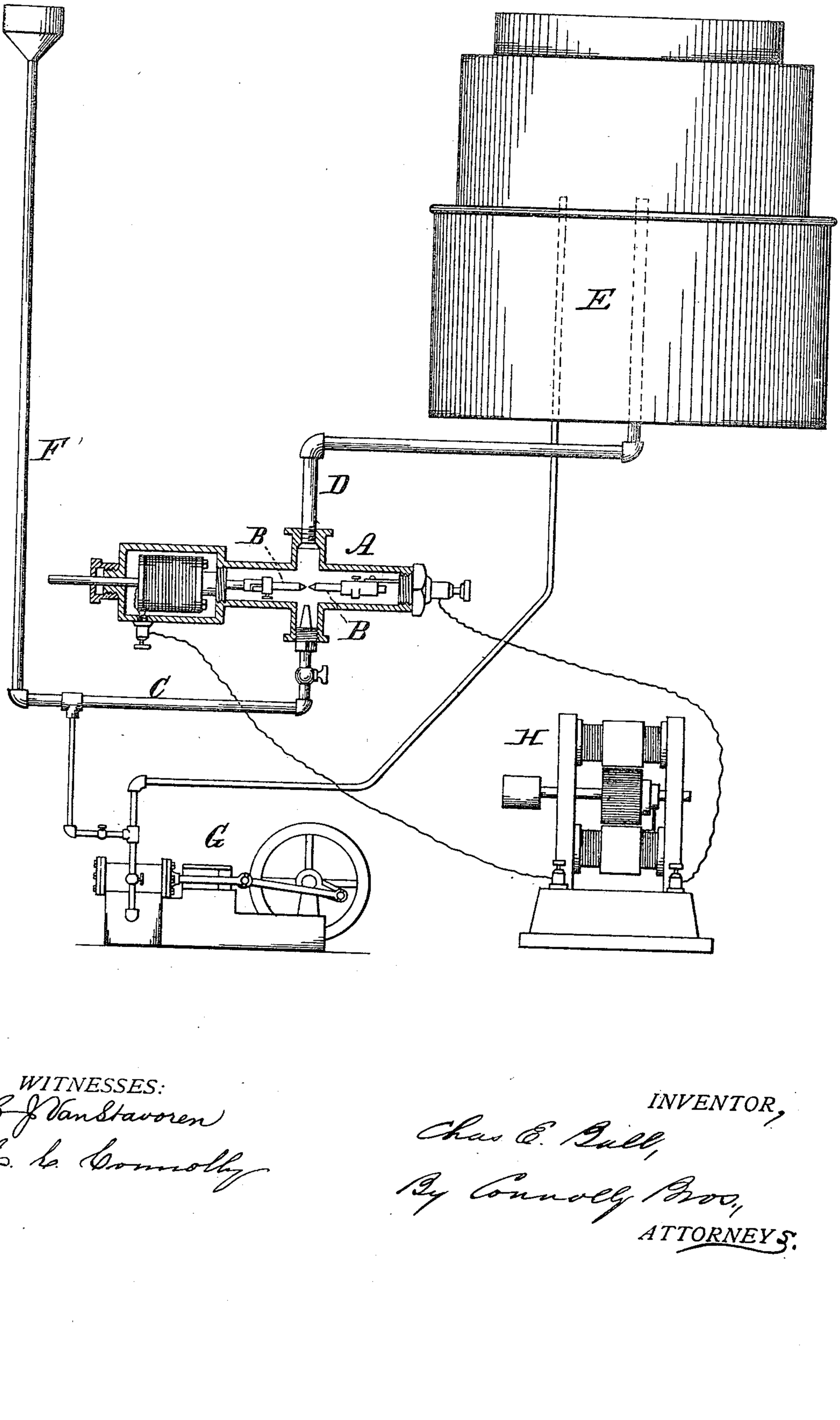
(No Model.)

C. E. BALL.

ELECTRIC GAS GENERATOR.

No. 272,187. Patented Feb. 13, 1883.



WITNESSES:
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UNITED STATES PATENT OFFICE.

CHARLES E. BALL, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRIC GAS-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 272,187, dated February 13, 1883.

Application filed November 8, 1881. Renewed January 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BALL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Electric Gas-Generators; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawing, which forms part of this specification, and which is a diagram, partly in section, illustrating an arrangement of mechanism for practicing my invention.

The object of my invention is to produce illuminating and heating gas from hydrocarbon or olefiant liquors by the employment of the electric arc as the heating agent.

My invention consists in generating gas from hydrocarbon or olefiant liquid by spraying or injecting such liquid into, upon, or through an electric or voltaic arc, whereby such liquid is not only volatilized, but converted into a fixed gas of high illuminating and heating properties.

In carrying my invention into effect I provide means for producing the electric arc in a close chamber or pipe. Into this chamber I inject the liquid in such manner that it will pass directly into the arc. The intense heat of the latter instantly converts the liquid into a gas of a fixed character, which is transferred from the generating-chamber to a reservoir or gasometer. The carbon (of which there is but very little) thrown down in the act of generation is deposited upon the electrodes, re-enforcing the latter, or supplying the waste wholly or in part resulting from the combustion of the latter.

Referring to the accompanying drawing, A represents a generating-chamber of any suitable construction. It may be merely a pipe; but preferably it is of globular or approximately bulbous form, as shown. Into this chamber are introduced electrodes B B, which may be of any suitable material for conducting the electric current and producing a voltaic arc, preferably carbon. The electrodes should be so arranged that one or both of them shall have liberty of movement, in order that they may be brought together and then separated to establish the arc in the usual manner.

C represents an inlet-pipe entering the chamber A at any suitable point, so as to discharge its contents in, upon, or against the arc, or between the carbon points. Said pipe preferably terminates in a minute jet or opening, so as to discharge the liquid in the form of spray or thin stream.

D represents an exit-pipe for leading off the gas to a reservoir or gasometer, E.

F represents a stand-pipe (for which a pump may be substituted) for supplying the liquid to the pipe C under sufficient pressure to introduce it to the chamber A.

G is a gas-engine supplied with fuel from the gasometer E, and serving as the motor for a magneto or dynamo machine, H, which generates electricity for sustaining the arc between the electrodes B B.

The operation is simple and obvious. The electric arc being established in the usual manner in the chamber A, hydrocarbon or other olefiant liquid is admitted through pipe C to said chamber A. Impinging upon the electric arc, it is by the latter instantly converted into gas, the intensity of the heat of the arc serving not only to volatilize the liquid, but to give the gas a fixed character. Such gas is led off from the chamber A through pipe D, a portion of it being used as fuel to supply the engine G. Nearly every particle of the liquid is converted into gas in the chamber A, the only substantial residue found being carbon, which is deposited upon the carbon electrodes, or one of them, serving to repair the natural waste which the latter undergo in operation.

What I claim as my invention is as follows:

1. The process herein described of generating gas from hydrocarbons or other olefiant liquids, which consists in spraying or discharging the latter into or upon an electric arc, substantially as shown.

2. The combination, with a generating-chamber, A, having inlet and outlet pipes for the admission of liquid and withdrawal of gas, respectively, of electrodes B B, a source of elec-

tric energy, and connections, as described, for maintaining a voltaic arc in said chamber and generating gas, substantially as set forth.

3. The combination, with generating-chamber A, of electrodes B B, pipes C D, supply vessel or pump F, gasometer or reservoir E, engine or motor G, and dynamo-machine or electric generator H, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of November, 1881.

CHAS. E. BALL.

Witnesses:
S. J. VAN STAVOREN,
CHAS. F. VAN HORN.