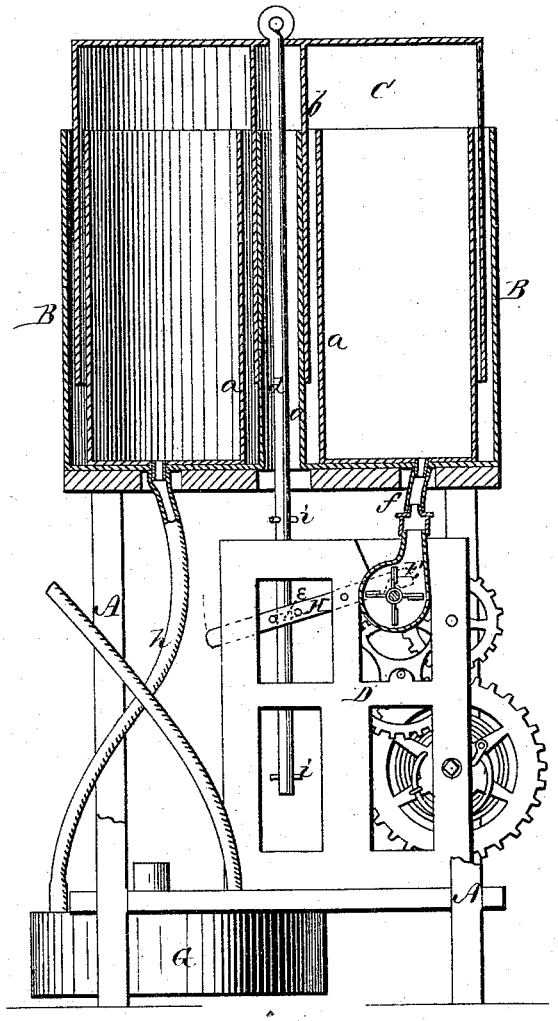
A. C. RAND.

Carbureting Gas-Machine.

No. 160,468. Patented March 2, 1875.



WITNESSES

Henry N. Miller

C. L. Everh.

INVENTOR

Alonzo C. Rand,

per

Alexander Mason

Attorneys

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

ALONZO C. RAND, OF MINNEAPOLIS, MINNESOTA.

IMPROVEMENT IN CARBURETING GAS-MACHINES.

Specification forming part of Letters Patent No. **160,468**, dated March 2, 1875; application filed December 15, 1874.

To all whom it may concern:

Be it known that I, ALONZO C. RAND, of Minneapolis, in the county of Hennepin and in the State of Minnesota, have invented certain new and useful Improvements in Carbureting Gas-Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

My invention relates to that class of carbureting gas-machines in which air is forced into a carbureter containing the hydrocarbon liquid to form illuminating-gas; and the nature of my invention consists in a gravitating holder connected with the air-forcing machinery, for automatically stopping and starting the same. It also consists in the construction and arrangement of the parts, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which fully illustrates my invention.

A represents a cast-iron frame, of any suitable dimensions, on top of which is the water-tank B with holder C. In the center of the frame is the machinery D for running a pump, fan-blower, or other air-forcing device, E. In the bottom of the frame A is the carbureter G. In the center of the water-tank B are two vertical concentric tubes, *a a*, of the same height as the tank, and in the center of the holder C is a similar tube, *b*, to pass in between the tubes *a a*, the space between them being filled with liquid to form a seal for the gas, in the same manner that the main part of the holder is sealed. From the center of the holder *c* a rod, *d*, extends downward through the inner tube *a*, and a suitable distance below the water-tank B. The machinery D, which runs the air-forcing apparatus E, may be of any suitable construction, and operated by one or more springs or weights, as desired. To the frame of the machinery D is pivoted a lever, H, the inner end of which is so constructed that when it is thrown down it will come in contact with some part of the machinery D and stop the same, and when the inner end of the lever is thrown up the machinery would be released and started again. The rod *d* passes down through a loop, *e*, on the side of the lever H, and is provided with two pins, *i i*, one above and the other below said loop, and a suitable distance apart. The air-forcing apparatus E is, by a pipe, *f*, connected with the bottom of the tank B, and the tank is, by a pipe, *h*, connected with the carbureter G, as shown.

When the machinery D is in operation, the air is forced by the apparatus E into the holder, which rises with the air forced therein. As the holder reaches its maximum height the lower pin *i* in the rod *d* operates on the lever H to stop the machinery. As soon as the holder has delivered the required amount of air into and through the carbureter, the upper pin *i* in the rod *d* operates on the lever H to liberate the machinery, allowing the same to start up and fill the holder with air; and as soon as the holder again reaches its maximum height the machinery is stopped. Thus it will be seen the machinery only runs at intervals.

The air from the apparatus E may be sent at once into the carbureter, and from thence into the holder, and the holder operate in the same manner to stop and start the machinery. In this case, when the holder becomes filled with gas the evaporation will cease until the gas in the holder is exhausted. This will permit the heat lost in the carbureter by evaporation to become restored by the intermission of rest.

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

The combination, in a gas-machine, of the water-tank B, with central concentric tubes *a a*, the holder C with central tube *b*, the rod *d*, extending through the tubes and having pins *i i*, the lever H, the air-forcing apparatus E, and machinery D, all substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of November, 1874.

ALONZO C. RAND.

Witnesses:
A. G. CHAPIN,
H. H. ALLEN.