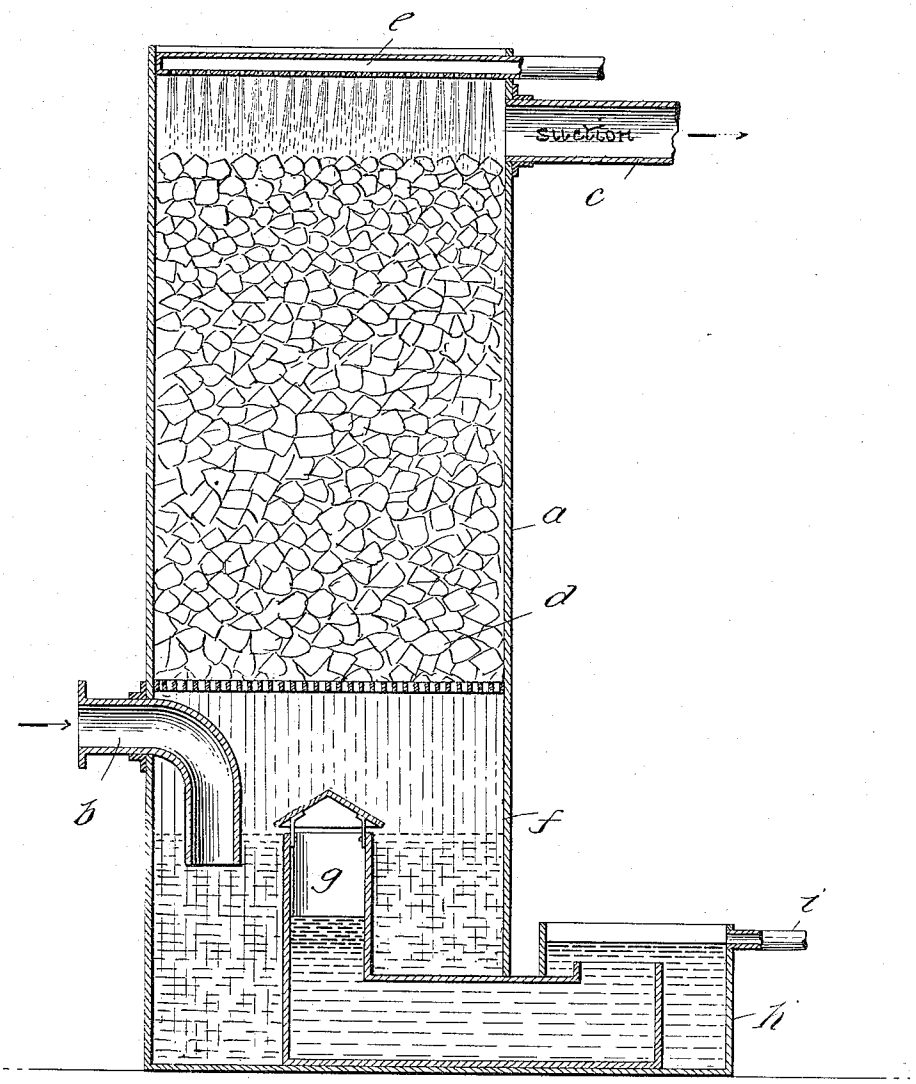
G. M. S. TAIT.

GAS SCRUBBER.

APPLICATION FILED OCT. 8, 1910.

1,165,348. Patented Dec. 21, 1915.



Witnesses:
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UNITED STATES PATENT OFFICE.

GODFREY M. S. TAIT, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO TAIT PRODUCER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

GAS-SCRUBBER.

1,165,348. Specification of Letters Patent. Patented Dec. 21, 1915.

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To all whom it may concern:

Be it known that I, GODFREY M. S. TAIT, a subject of the King of England, and a resident of Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Gas-Scrubbers, of which the following is a full, clear, and exact specification, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to gas scrubbers or washers used in connection with gas producers in which scrubbers the gas is drawn or forced from the producer through the tower, usually filled with refractory material and through which water falls constantly, for the purpose of condensing the volatile content of the gas and mechanically removing the impurities therein.

The invention is especially adapted to gas scrubbers, wherein the gas is drawn or sucked through the scrubber and which I provide with a water seal to prevent admission of air. In such scrubbers upon an overload of the engine an excessive sucking action takes place with the result that the level of the water seal is raised and a very heavy flow is required to draw the gas through the body of water.

The object of my invention is to obviate this difficulty and to keep the level of the water seal through which the gas is drawn at a constant point, allowing the excessive suction to exert itself at other points.

To this end my invention comprises a certain novel arrangement of parts which will be now fully set forth and particularly pointed out in the claims. For this purpose reference is had to the accompanying drawing which illustrates in vertical section, as an example, a conventional type of gas scrubber shown with my improvements adapted thereto.

In the drawing *a* illustrates the shell of the tower, *b* the gas inlet and *c* the gas outlet. The tower is illustrated as filled with a refractory material supported on a grate and provided with any suitable means *e* for supplying a stream of water.

The water flows through the scrubber and the gas is sucked in at *b* and passes out at *c*. It is necessary to water seal the gas inlet as well as the water outlet to prevent the admission of air. For this purpose the inlet pipe *b* is turned down with its lower end just below the level of the water in the bottom of the tower indicated at *f*. This water accumulates from that which flows through the scrubber and it overflows into an outlet pipe *g*. The outlet pipe passes down from the predetermined water level and thence laterally out of the producer into a box or reservoir *h* with an overflow *i* which determines the level of water in the reservoir *h*. The water level determined by the outlet *i* also prevails in the discharge pipe *g* effectually sealing such pipe. But it will be observed that the water level maintained in the reservoir *h* and discharge pipe *g* is considerably below that outside of the pipe indicated by the letter *f*. Pipe *i* is lower than the top of outlet pipe *g* by a distance greater than that to which the water in pipe *g* can be raised by the maximum suction to be applied to the gas outlet *c* of the scrubber.

With this arrangement, upon the excessive sucking action exerted in the scrubber the water level *f* surrounding the pipe *g* cannot be affected since it is not exposed to atmospheric influence. The water level in the pipe *g*, however, is so exposed that the body of water in said pipe will, upon fluctuation in the sucking effort, respond and will rise and fall according to those fluctuations. In this manner, therefore, I attain the result in view, the water seal of the gas inlet being removed from the atmospheric pressure and therefore being unaffected by the changes in the pressure exerted.

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

1. Gas treating apparatus comprising a receptacle adapted to contain water in its lower portion and having a water discharge conduit, open at the top within said receptacle and extending downward and thence upward and having an outlet outside of such receptacle, the height of the opening in said conduit, within such receptacle, determining the water level in such receptacle, a gas inlet for the receptacle terminating below the water level so determined, and a gas outlet for said receptacle above such water level, to which outlet suction may be applied, the inlet of said water discharge conduit being above the outlet of said conduit by a distance greater than that to which water can

be raised within such conduit by the maximum suction to be applied to such gas discharge connection.

2. Gas treating apparatus comprising a receptacle adapted to contain water in its lower portion and having a water discharge pipe, open at the top within said receptacle and extending downward and thence upward, a reservoir outside of said receptacle, within which the said outer portion of said pipe terminates, said reservoir having an overflow outlet, the outer end of said pipe being below such overflow outlet, the height of the opening of said pipe, within such receptacle, determining the water level in such receptacle, a gas inlet for the receptacle terminating below the water level so determined, and a gas outlet for said receptacle above such water level, to which outlet suction may be applied, the inlet of said water discharge pipe being above the said overflow outlet of the reservoir by a distance greater than that to which water can be raised within such pipe by the maximum suction to be applied to such gas discharge connection.

3. Gas treating apparatus comprising a receptacle adapted to contain water in its lower portion and having a water discharge conduit, open at the top within said receptacle and extending downward and thence upward and having an outlet outside of such receptacle, the height of the opening in said conduit, within such receptacle, determining the water level in such receptacle a gas inlet for the receptacle terminating below the water level so determined, and a gas outlet for said receptacle above such water level, to which outlet suction may be applied, the inlet of said water discharge conduit being above the outlet of said conduit by a distance greater than that to which water can be raised within such conduit by the maximum suction to be applied to such gas discharge connection, the outlet of said water discharge conduit being below the gas inlet.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GODFREY M. S. TAIT.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."