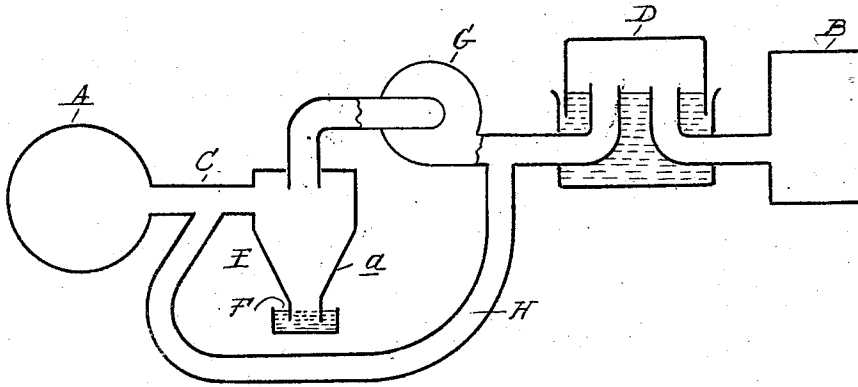


No. 889,228.

PATENTED JUNE 2, 1908.

N. T. HARRINGTON.
GAS PURIFYING APPARATUS.
APPLICATION FILED AUG. 4, 1908.



Witnesses

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UNITED STATES PATENT OFFICE.

NORMAN T. HARRINGTON, OF LANSING, MICHIGAN, ASSIGNOR TO OLDS GAS POWER COMPANY OF LANSING, MICHIGAN, A CORPORATION OF MICHIGAN.

GAS-PURIFYING APPARATUS.

No. 889,228.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed August 4, 1906. Serial No. 329,216.

To all whom it may concern:

Be it known that I, NORMAN T. HARRINGTON, a citizen of the United States of America, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Gas-Purifying Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

It is the object of the invention to provide a purifying apparatus particularly adapted for use where there is a variable demand for gas, and in which the purification is effected by centrifugal action. For instance, where an explosion engine is connected to a gas producer which it operates by suction, the demand varies according to the work produced, and consequently any apparatus which is dependent for its operation upon a constant velocity in the gas current cannot be successfully operated in this connection. The present invention overcomes the difficulty by providing a centrifugal purifying apparatus intermediate the producer and the engine through which the gas is passed constantly at substantially uniform velocity regardless of the varying demands of the engine.

A further object obtained by the present invention is the purification of the gas by passing it successively through the same centrifugal apparatus. Thus, a higher degree of purity is obtained with the use of a comparatively small piece of the apparatus.

In the drawings, my apparatus is illustrated diagrammatically in vertical longitudinal section.

A represents a gas producer of any suitable construction, and B a cylinder of an explosion engine.

C is a conduit connecting the producer to the engine. D is a gasometer or other collapsible chamber for regulating the flow of gas, and E is a purifier.

This purifier preferably is a centrifugal apparatus, preferably also of the cyclone type and comprises a casing *a* into which the gas from the producer A is introduced tangentially and is drawn out axially. The casing is of the usual conical form and its small end, through which the impurities pass out, is water-sealed, as indicated at F.

Thus a whirling or vortex current is produced within the chamber, resulting in the separation of the impurities which are suspended in the gas.

In the apparatus thus far described, the suction produced by the movement of the piston of the cylinder in the engine would create a gas current in the conduit C, which would pass through the cyclone E, but this current would vary in velocity according to the varying work of the engine. I therefore preferably provide independent means for propelling the gas through the purifier, such as the fan or blower G. This blower is of sufficient capacity to create a current of comparatively high velocity, and consequently intensifies the centrifugal action within the casing E. Inasmuch however as the volume of gas consumed by the engine in a given time varies according to the work, it is necessary to provide an escape for the excess of gas over the demand. This is accomplished by forming a return circuit H through which the excess of gas is passed from the discharge end of the purifier to the inlet connection therefor, resulting in the formation of an endless circuit.

It will be understood that with the construction above described, the gas, instead of passing only once through the purifying apparatus, may be caused to pass there-through a number of times before it is finally thrown into the engine cylinder. The greater the velocity at which the current is propelled by the blower G the higher the degree of purification attained, and thus the size of the apparatus may be diminished without decreasing the efficiency, if a corresponding increase in velocity is provided for.

What I claim as my invention is:

1. The combination with a variable demand and suction means, a suction gas generator, of means intermediate said demand means and said gas generator for purifying the gas, and means intermediate said demand means and said purifier for passing a constant volume of gas through said purifier and for returning and repassing that portion of said volume of gas in excess of the demand.

2. The combination with a variable demand and suction means, a suction gas generator, of a centrifugal gas purifier, means intermediate said demand means and said

purifier for propelling the gas through said purifier and a by-pass for returning the gas to repass it through said purifier.

5 3. The combination with a variable demand means, and a suction gas generator, of a gas purifier, a by-pass, means intermediate said demand means and said purifier for propelling the gas through said purifier in a greater volume than the average demand

whereby a portion of the gas is repassed 10 through said purifier.

In testimony whereof I affix my signature in presence of two witnesses.

NORMAN T. HARRINGTON.

Witnesses:

JAMES P. BARRY,
THOS. O'DONNELL.