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MEANS FOR THE MANUFACTURE OF CARBURETED WATER GAS.

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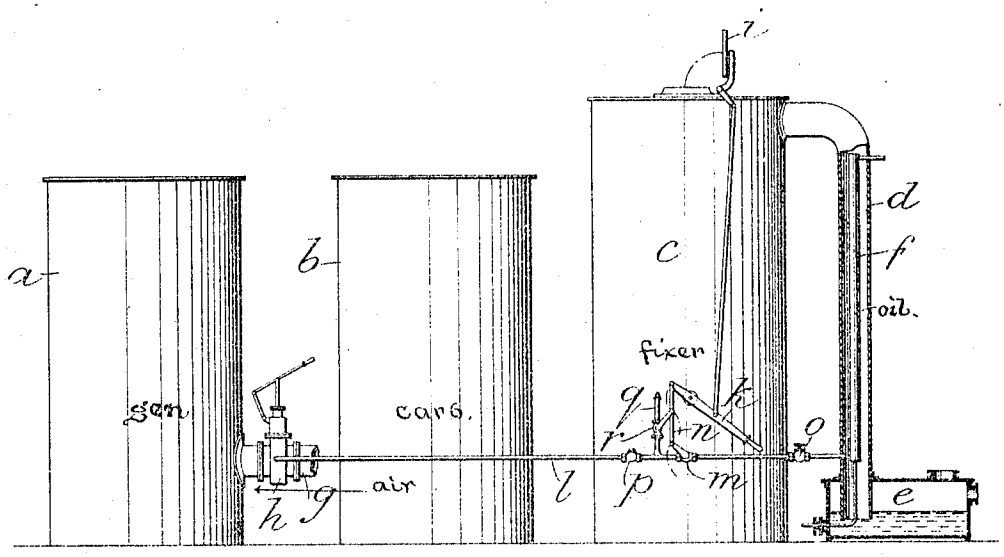
1,055,317. Patented Mar. 11, 1913.



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MEANS FOR THE MANUFACTURE OF CARBURETED WATER-GAS.

1,055,317. Specification of Letters Patent. Patented Mar. 11, 1913.

Application filed September 7, 1911. Serial No. 648,111.

To all whom it may concern:

Be it known that I, LAFAYETTE DALY CARROLL, a citizen of the United States of America, residing at Westminster, England, have invented Improvements Relating to Means for the Manufacture of Carbureted Water-Gas, of which the following is a specification.

My invention relates to the preheating of oil for carbureted water gas manufacture, and reference may be had to the specification of British Letters Patent No. 6324 of 1893 which describes an oil heater situated in the gas conduit between the fixing chambers and the washer-seal and heated by the sensible heat of the hot newly made carbureted water gas issuing from the fixing chambers before this gas has been cleaned and cooled by contact with the water in the washer-seal. This oil heater has been and is still extensively used, but has not proved wholly satisfactory for the following reasons:—First, the oil is heated only during the period of gasmaking, and cools during the period of blasting; and secondly, the heater although efficient when new and clean soon has its heating surface fouled with carbonaceous matter deposited by the crude carbureted water gas and becomes ineffective. To overcome this latter difficulty oil heaters in many cases have been placed in the outlet conduit from the washer-seal, but, as the temperature of the partially-cleaned gas at this point is below 200° F., heaters so located are useless.

As the broad result of the above difficulties, the preheating of oil for carbureted water gas manufacture has been largely abandoned. Nevertheless, the gradual accumulation of the carbonaceous deposit in the gas conduit necessitates periodical stoppage and cleaning. I have recently found that this deposit can be burned and its accumulation prevented by introducing a regulated supply of air into the bottom of the gas conduit when at its ordinary working temperature; and, by careful experiment, I have discovered that carbonaceous matter deposited during the gas-making period upon an oil heater within this conduit can be safely, regularly and automatically burned during the blast period in such a manner as, not only to keep the oil heater in clean and efficient condition, but also to utilize this otherwise objectionable deposit to continue the heretofore interrupted preheating of the oil throughout the blast period; thus the oil in the heater will be at the proper temperature at the beginning of each period of gas-making, and the almost prohibitive difficulties hitherto attaching to oil heating are effectively overcome.

The accompanying diagram illustrates carbureted water gas apparatus embodying this invention.

a is the gas generating chamber, *b* the carbureting chamber and *c* the fixing chamber; these chambers are provided with the usual connections but for the sake of clearness these are not shown. *d* is the gas conduit from the fixing chamber to the washer seal *e* and *f* is the oil heater, which may be substantially as described in the specification of the said former Letters Patent or of any other suitable type. *g* is the air blast pipe fitted at *h* with a double disk valve of well known kind and *i* is the stack valve which is operated by a lever *k*. *l* is a pipe connecting the space between the disks of the air blast valve at *h* with the lower part of the conduit *d* and fitted with a valve *m* coupled by links *n* with the lever *k* so that the valves *i* and *m* open and close together. *o* is a regulating stop valve. With such an arrangement, when the valves *h* and *i* are open for blasting, the valve *m* is also open and air under pressure passes at a rate regulated by the valve *o* into the conduit *d*, where it causes combustion of the hot carbonaceous deposit which continues the heating of the oil. The products of combustion escape through the stack valve. This combustion of the deposit prevents its accumulation thereby keeping the oil heater clean and efficient.

As the valve *h* is closed during the gas-making period, by connecting the pipe *l* to the space between the disks of the valve *h* air would be prevented from flowing into the conduit *d* during gas-making even if, as through any mishap to its connections, the valve *m* should not then be closed. Furthermore, there is fitted in the pipe *l* a non-return valve *p* so that gas from the conduit *d* cannot pass back through the pipe *l* to the valve *h*. As additional protection a vent pipe *q* is attached to the pipe *l* between the valves *m* and *p* through which vent pipe gas will escape in view of the operator if the valve *m* is not closed during gas-making.

To avoid waste of air this vent pipe is fitted with a valve r coupled to the links n so as to close when the valve m is opened.

What I claim is:—

1. Carbureted water gas apparatus comprising a generator, a conduit through which the carbureted water gas is led off, an outlet for discharge of blast gas before it reaches said conduit, a vessel within said conduit and adapted to contain carbureting liquid, and means for admitting air to said conduit during the period of blasting.

2. Carbureted water gas apparatus comprising a generator, a conduit through which the carbureted water gas is led off from the generator, an outlet for discharge of blast gas before it reaches said conduit, an oil heater in said conduit, a stack valve controlling said outlet, a blast pipe connected to the generator, a pipe connection between said blast pipe and said gas conduit and a valve controlling said pipe connection.

3. Carbureted water gas apparatus comprising a generator, a conduit through which the carbureted water gas is led off, an outlet for discharge of blast gas before it reaches said conduit, a stack valve controlling said outlet, an oil heater in said conduit, a blast pipe connected to the generator, a pipe connection between said blast pipe and said gas conduit, a valve controlling said pipe connection and means coupling said valve to the stack valve so that said valves open and close together.

4. Carbureted water gas apparatus comprising a generator, a conduit through which the carbureted water gas is led off, an outlet for discharge of blast gas before it reaches said conduit, a stack valve controlling said outlet, an oil heater in said conduit, a blast pipe connected to the generator, a pipe connection between said blast pipe and said gas conduit, a valve controlling said pipe connection, means coupling said valve to the stack valve and a non-return valve in the pipe connection.

5. Carbureted water gas apparatus comprising a generator, a gas conduit leading therefrom, an oil heater in this conduit, a blast pipe connected to the generator, a stack valve, a pipe connection between said blast pipe and said gas conduit, a valve controlling said pipe connection, and a gas vent on the blast pipe side of the controlling valve.

6. Carbureted water gas apparatus comprising a generator, a gas conduit leading therefrom, an oil heater in this conduit, a blast pipe connected to the generator, a stack valve, a pipe connection between said blast pipe and said gas conduit, a valve controlling said pipe connection, mechanism for operating said controlling valve, a vent on the blast pipe side of said controlling valve and means connected with said operating mechanism whereby the vent will be closed when said mechanism is set to open the controlling valve and vice versa.

7. Carbureted water gas apparatus comprising a generator, a conduit through which the carbureted water gas is led off, an outlet for discharge of blast gas before it reaches said conduit, an oil heater in said conduit, a blast pipe connected to the generator, a double seated blast valve, and a valve-controlled connection between the gas conduit and the space between the seats of the double seated blast valve.

Signed at 38 Victoria street, Westminster, England, this twenty-fifth day of August 1911.

LAFAYETTE DALY CARROLL.

Witnesses:
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