

(No Model.)

G. E. HOYT.
IGNITING APPARATUS FOR GAS ENGINES.

No. 508,618.

Patented Nov. 14, 1893.

Fig. 1.

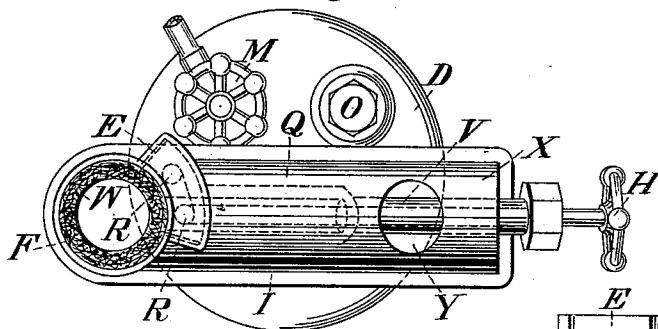


Fig. 2.

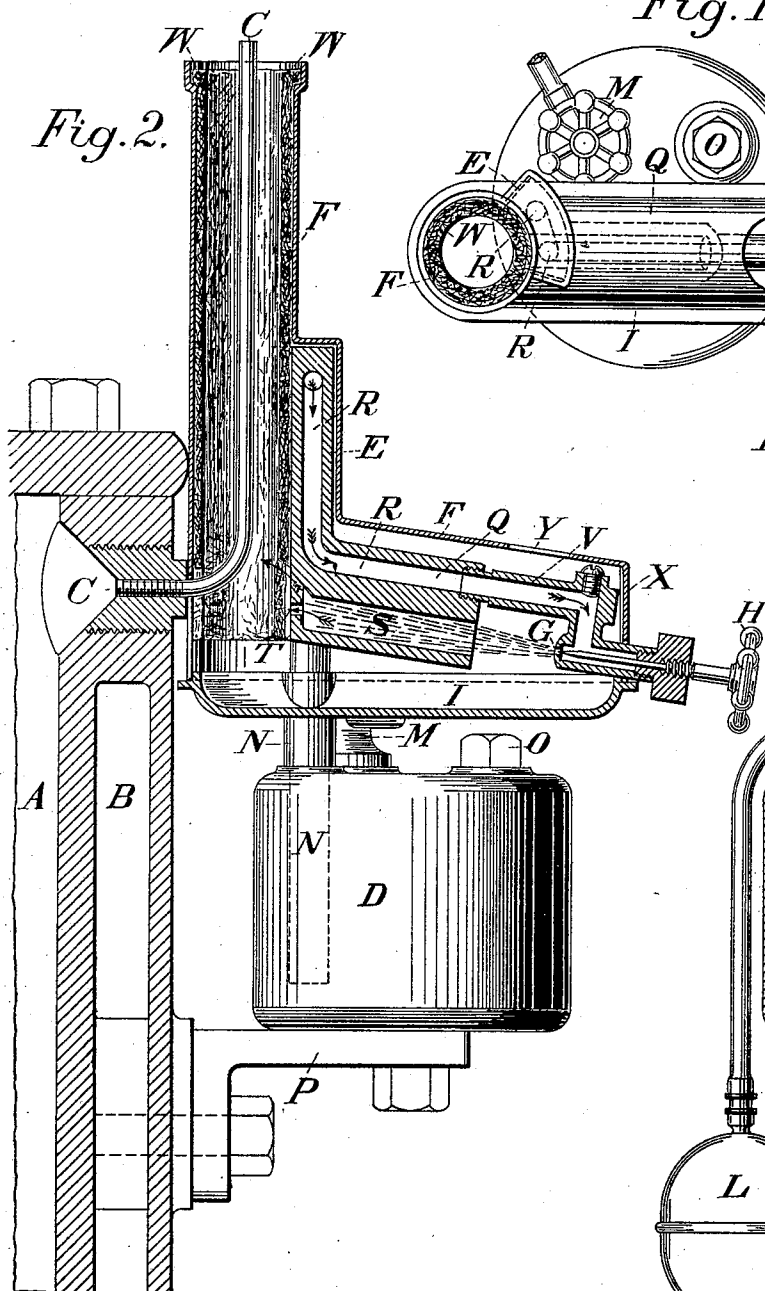
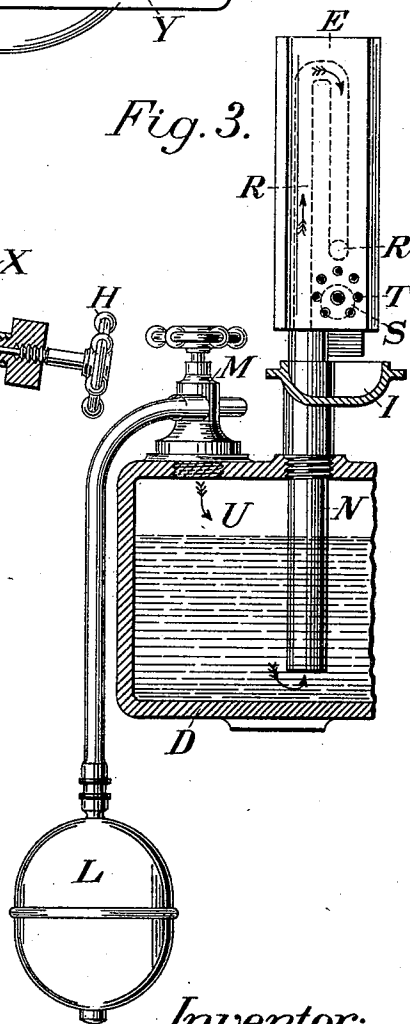


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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IGNITING APPARATUS FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 508,618, dated November 14, 1893.

Application filed February 1, 1893. Serial No. 460,526. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. HOYT, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Igniting Apparatus for Gas-Engines; and I hereby declare the following specification and drawings therewith to be a full, clear, and exact description of my invention.

My present invention relates to an improvement in retorts adapted for various purposes but more especially adapted for heating igniting tubes for gas engines, especially tubes that are heated generally or throughout, as set forth in my application for Letters Patent on igniting apparatus for gas engines, filed June 10, 1891, and consists in a heated retort for volatilizing gasoline or other volatile oils, a tank, a chamber or supply vessel, valves for controlling the flow of the gas and its application to the igniting tube, as shown in the drawings herewith, in which—

Figure 1 is a plan view of the operative parts of my apparatus with the igniting tube omitted. Fig. 2 is a vertical section through the complete apparatus, and a portion of a gas engine cylinder to which the apparatus is attached. Fig. 3 is a front view, partially in section, of the parts illustrated in Fig. 1.

Similar letters of reference on the different figures indicate corresponding parts thereof.

A is a portion of a gas-engine cylinder, with an annular water jacket B in the usual manner.

C is an igniting tube formed with a small contracted bore, the area of which is such that the flow of gas therein by frictional retardation will continue until after the piston in the cylinder A completes its compressing stroke, and pressure becomes equal in the cylinder and tube.

D is a containing vessel or tank for holding a supply of mineral oil, and E a retort for converting the oil to gas.

F is a cover and chimney for confining the heat around the igniting tube C, and direct the flame and gases upward.

G is a needle valve of small bore to permit the escape of gas at the point of ignition, regulated by the hand-wheel H, as shown in Fig. 2.

I is a shallow pan beneath the retort E and valve G, to contain inflammable oil or spirit that can be lighted so as to heat the retort E, and other parts before any gas is generated, and thus start the apparatus.

L is an elastic-pump bulb to be compressed by hand so as to force through the valve M into the tank D, a sufficient quantity of air to cause by compression a flow of the liquid up the tube N into the retort E.

O is a plug through which the tank D is filled, and P a bracket on which the whole apparatus is mounted.

The retort E is made integrally with the tubular extension Q, in which there is an aperture R passing to the top and thence downward, connecting with the tube N, extending into the tank D. Below this is a second aperture S, through which gas from the jet G mingled with air passes to the perforations T, and is there ignited before it impinges on the tube C. The principal object of these perforations is to prevent the flame from following back and igniting the gas in the tube S.

With this much in explanation of the working and component parts of my apparatus, I will now proceed to describe the manner in which it operates.

Air is forced into the vessel D by means of the hand-pump L, to cause some pressure on the contained fluid, which then rises in the tube N and flows through the passages R to the valve G. This valve is then opened to permit some of the fluid to flow into the pan I, where it is ignited, the flame heating the retort E and its connected parts until the fluid in the passages R is converted to vapor, then the valve G is again opened, and automatic action commences. The jet of gas being forcibly blown into the tube S, takes up by induction an amount of air required to produce an inflammable gas, which is ignited as it escapes at the apertures T, and is diffused around the igniting tube C, and throughout the interior of the chimney F, the latter having a refractory lining of asbestos as shown at W, Figs. 1 and 2. After the space U in the vessel D is once filled with air under pressure by means of the bulb pump L, such pressure is maintained by vapor generated there by the heat conducted down by the tube N

and by convection, so that no further charging by hand is required.

The hood or chimney F is made with an extension X to cover the tubes S and Q of the retort E, a hole Y being provided through which the burner at G can be observed and regulated.

Having thus explained the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an igniting apparatus for gas engines, the combination of the supply vessel containing volatile oil or fluid, a superimposed retort for converting the oil into gas, a pipe connecting the supply vessel with the retort, a superimposed chimney alongside the retort having an elongated chamber to contain the igniting tube or other article to be heated and having also an extension surrounding the retort and other parts, a pneumatic device for forcing air into the supply vessel and a valve for allowing gas to pass mingled with air to a point at the end of the heating-chamber in the chimney where it is ignited, substantially as described.

2. In an igniting apparatus for gas engines, the combination of the supply vessel containing volatile oil or fluid, a superimposed retort for converting the oil into gas, a pipe connecting the supply vessel with the retort, a chimney having an elongated chamber to contain the igniting tube or other article to be heated and having also an extension surrounding the retort and other parts, the shallow pan beneath the retort and likewise beneath the chimney heating-chamber for containing inflammable oil or spirit for the pri-

mary ignition, the tubular extension on the retort having a downwardly-leading passage therein and below it a second passage which leads to the bottom of the heating-chamber and a valve through which gas passes mingled with air to the perforations in the wall of the heating chamber at the end of the afore-said passage, substantially as described.

3. In an igniting apparatus for gas engines, the combination of the supply vessel containing volatile oil or fluid, a superimposed retort for converting the oil into gas, said retort having a tubular extension Q, having a downwardly-leading passage R therein and below it a second passage S, a chimney having an elongated chamber to contain the igniting tube or other article to be heated and having likewise an extension surrounding the retort and other parts, the heating-chamber of said chimney being provided with a refractory lining of asbestos or similar material, the shallow pan I for containing inflammable oil to be lighted before any gas is generated and a valve G through which a jet of gas passes from the passage R and mingles with air through the passage S until it reaches the point of ignition at the perforations T which lead into the end of the heating chamber wherein the object to be heated is located, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

GEORGE E. HOYT.

Witnesses:

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