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OIL GAS GENERATOR AND BURNER.

APPLICATION FILED JULY 20, 1911.

1,069,860.

Patented Aug. 12, 1913.

Fig. 1.

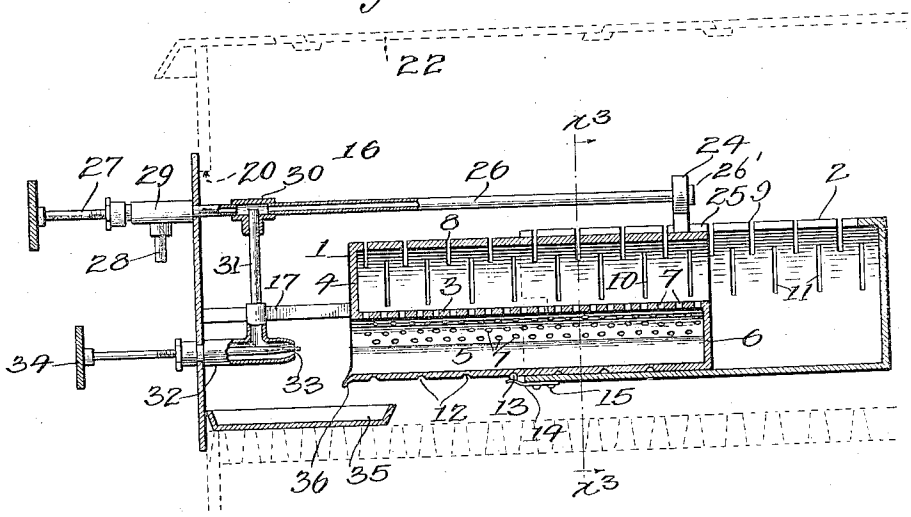


Fig. 2.

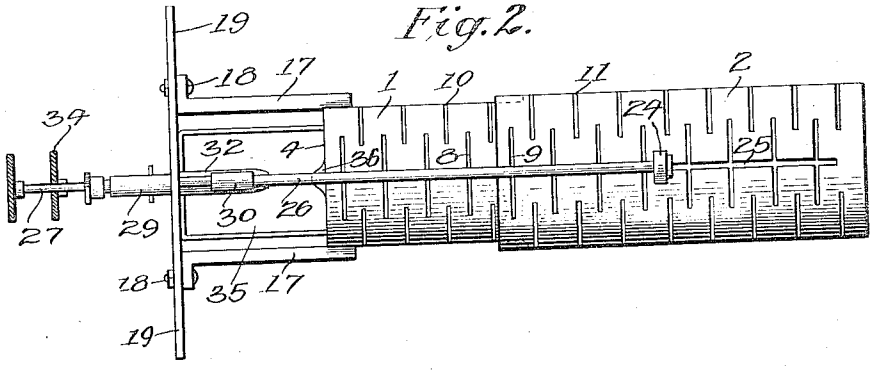
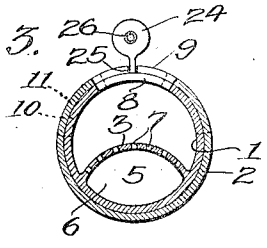


Fig. 3.



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UNITED STATES PATENT OFFICE.

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OIL-GAS GENERATOR AND BURNER.

1,069,860. Specification of Letters Patent. Patented Aug. 12, 1913.

Application filed July 20, 1911. Serial No. 639,670.

To all whom it may concern:

Be it known that I, ALBERT C. DALE, a citizen of the United States, residing at Longbeach, in the county of Los Angeles and State of California, have invented a new and useful Oil-Gas Generator and Burner, of which the following is a specification.

This invention relates to an apparatus for generating gas from hydrocarbon oils, mixing the gas generated with air and burning the mixture, and one of the main objects of the present invention is to produce a device of the character described in which the mixture is evenly distributed over a large area of the burner chamber so that an even flame may be produced.

Another object of the present invention is to produce a device of the character described so that a portion of oil is trapped in the generator, thereby preventing overheating of the generator.

Another object of the present invention is to produce a device of the character described in which the burner chamber may be extended to produce a greater flame surface.

Another object of the present invention is to produce a device of the character described of simple and economical construction having great efficiency for the purposes for which the device is designed.

Other objects and advantages will appear hereinafter from the following specification.

Referring to the drawings, which are for illustrative purposes only: Figure 1 is a longitudinal sectional view through a device embodying a form of my invention showing the manner of mounting the same in a fire box of a stove, a portion of the stove being indicated in dotted lines. Fig. 2 is a plan view of the device shown in Fig. 1. Fig. 3 is a transverse sectional view on line x^3—x^3 Fig. 1.

The device comprises a tubular burner chamber, a mixing chamber within the burner chamber, and a generator directly above the burner chamber having a connection to deliver gas into the mouth of the mixing chamber.

The burner chamber consists of an inner tubular member 1 telescoped within an outer tubular member 2. An arch or division wall 3 extends from the front wall 4 of the burner chamber 1 to the rear end of the chamber 1 forming a mixing chamber 5 within the burner chamber, the rear end of the mixing chamber 5 being closed by means of a wall 6. The arch 3 is provided with a series of perforations 7 which deliver the contents of the mixing chamber evenly throughout the length of the inner member 1 of the burner chamber.

The inner member 1 and outer member 2 are each provided with a row of transverse slots 8 and 9 respectively which extend across the top of the respective members 1 and 2. The inner member 1 and outer member 2 are also each provided at each side of said members with a row of transverse slots 10 and 11 respectively. The slots 8 and 9 of the members 1 and 2 respectively and the slots 10 and 11 of the members 1 and 2 respectively are arranged so that they register forming outlet openings or burner slots through which the mixture passes from the burner chamber to the exterior thereof where the mixture may be burned. To insure the registration of the slots in the members 1 and 2 the underside of the member 1 is provided with a series of indentations 12 which are adapted to receive a stop 13 mounted on a flat spring 14 secured to the underside of the member by means of rivets 15 or other suitable fastening means.

The burner portion of the device, as above described, is shown in Fig. 1 as mounted in a fire box 16 of a common cook stove, the member 1 being provided with arms or extensions 17 which extend forwardly therefrom and are secured at their forward end by means of bolts 18 to a plate 19 which may be secured in any suitable manner to the front of the stove over a door opening 20 therein.

When the burner is used in a short fire box, or when it is desirable to direct all of the heat under a single stove lid, as indicated in dotted lines at 22 in Fig. 1, the outer member 2 is moved forward on the member 1, telescoping the member, in which case the burner surface extends a length equal to the length of the outer member 2, the member 1 being telescoped within the member 2. When it is desirable to lengthen the burner surface, the member 2 is moved into the position indicated or to any desired position as long as the member 2 is not moved out of engagement with the member 1 and the slots in the members 1 and 2 placed in registration as above described.

When the member 2 is placed in extended position it is understood that the burner chamber is lengthened, the mixture passing through the open outer end of the member 1 to the interior of the member 2.

Projecting upwardly from the member 1 is a standard 24 which forms a support for the generator hereinafter described. The upper portion of the member 2 is provided with a slot 25 through which the standard 24 projects and serves to prevent rotation of the member 2 on the member 1, thereby insuring lateral registration of the slots in the respective members 1 and 2.

The generator consists of a pipe or tube 26 supported at its rear end by means of the standard 24, the end of the pipe 26 being closed by means of a cap 26'. The forward end of the tube 26 projects through the plate 19 to the exterior of the stove, at which point the tube 26 is provided with a needle valve 27 which regulates the flow of oil from supply pipe 28 through T 29 into the pipe 26. The pipe 26 is also provided with a T 30 for the purpose of receiving a gas delivery pipe 31 which opens at its lower end into needle valve 32, the orifice 33 of which is directly in front of the mixing chamber 5, the valve 32 being regulated by suitable handle means 34. It is desirable that all of the oil fed into the generating tube 26 should not be gasified, which would result in overheating the tube 26, and to prevent this the pipe 31 extends upwardly into the T 30 to about the center line of the tube 26, thereby forming a trap which insures that the lower portion of the generating tube 26 would be covered with oil.

A drip pan 35 is provided, which may be set on the grate of the stove, the pan 35 being of sufficient size to extend a short distance under the burner for the purpose of catching any oil which might drop from the mixing chamber, the mixing chamber being provided with a lip 36 which prevents oil from running back on the underside of the chamber.

The device operates as follows: Oil is admitted from a suitable reservoir placed so that the oil from the same will be delivered by gravity through the pipe 28 and valve 27 into the generating tube 26. The valves 27 and 32 are opened until a small quantity of oil is delivered into the pan 35 where the same is lighted, and the heat generated thereby gasifies a portion of the oil in the tube 26. When the oil in the pan 35 has been burned, the valve 32 is opened and the gas in the tube 26 passes through pipe 31, valve 32 into the open end of the mixing chamber 5, at the same time drawing in a supply of heated air from the fire box of the stove and thoroughly mixing the gas with the air, the outlet 33 of the valve 32 being placed a short distance directly in front of the inlet opening of the mixing chamber. The mixture thus formed passes from the mixing chamber 5 out through the numerous perforations 7 in the wall thereof into the burner chamber from whence it escapes through the slots to the exterior of the burner chamber where it is lighted and burned.

It is to be noted that the generating tube 26 is above the single row of slots formed in the top of the burner, as it is desirable that the generating tube be placed so that the generating tube does not receive the direct heat from the whole burner surface.

What I claim is:—

1. An oil gas generator and burner comprising a burner chamber formed with an inner tubular member, an outer tubular member having a longitudinal slot therein, slidable on said inner tubular member, each of said members having transverse slots therein, a standard extending upwardly from said inner member through the slot in said outer member, a perforated division wall in said inner member extending longitudinally therein forming a mixing chamber within said inner member, said mixing chamber having an inlet opening at its forward end, a generating tube supported in said standard above the burner chamber, an inlet means for said generating tube, and outlet means for said generating tube in front of the inlet opening of said mixing chamber.

2. An oil gas generator and burner comprising a burner chamber formed with an inner tubular member having an open end, an outer tubular member telescoping said inner tubular member and having a longitudinal slot therein, each of said members having a series of similarly spaced transverse slots therein adapted to register, a standard extending upwardly from said inner member through the longitudinal slot in the outer member, a perforated arch extending through said inner member forming a mixing chamber therein, said mixing chamber having an inlet opening, a generating tube supported on said standard above the burner chamber, oil inlet means for said generating tube, and outlet means for said generating tube for delivering the gas therein into the inlet opening of the mixing chamber.

3. An oil gas generator and burner comprising a burner chamber formed with an inner tubular member having an open end, an outer tubular member telescoping said inner tubular member and having a longitudinal slot therein, each of said members having a series of similarly spaced transverse slots in the upper face thereof and a series of transverse slots in each side of said members adapted to register, a standard extending upwardly from said inner mem-

ber through the longitudinal slot in the outer member, a perforated arch extending through said inner member forming a mixing chamber therein, said mixing chamber having an inlet opening, a generating tube supported on said standard above the burner chamber, oil inlet means for said generating tube, and outlet means for said generating tube for delivering the gas therein into the inlet opening of the mixing chamber.

4. An oil gas generator and burner comprising a burner chamber formed with an inner tubular member having an open end, an outer tubular member telescoping said inner tubular member and having a longitudinal slot therein, each of said members having a series of similarly spaced transverse slots therein adapted to register, means for registering the transverse slots in the inner and outer members, a standard extending upwardly from said inner member through the longitudinal slot in the outer member, a perforated arch extending through said inner member forming a mixing chamber therein, said mixing chamber having an inlet opening, a generating tube supported on said standard above the burner chamber, oil inlet means for said generating tube, a substantially vertical pipe extending upwardly into said generating tube above the bottom thereof, and outlet means for said vertical pipe adjacent to the inlet opening of said mixing chamber.

In testimony whereof I have hereunto set my hand at Los Angeles, California, this 14th day of July, 1911.

ALBERT C. DALE.

In presence of—
FRANK L. A. GRAHAM,
P. H. SHELTON.