J. RYCKMAN.

KEROSENE GAS GENERATOR AND BURNER.

APPLICATION FILED JULY 25, 1913.

1,105,104. Patented July 28, 1914.

Fig. 1

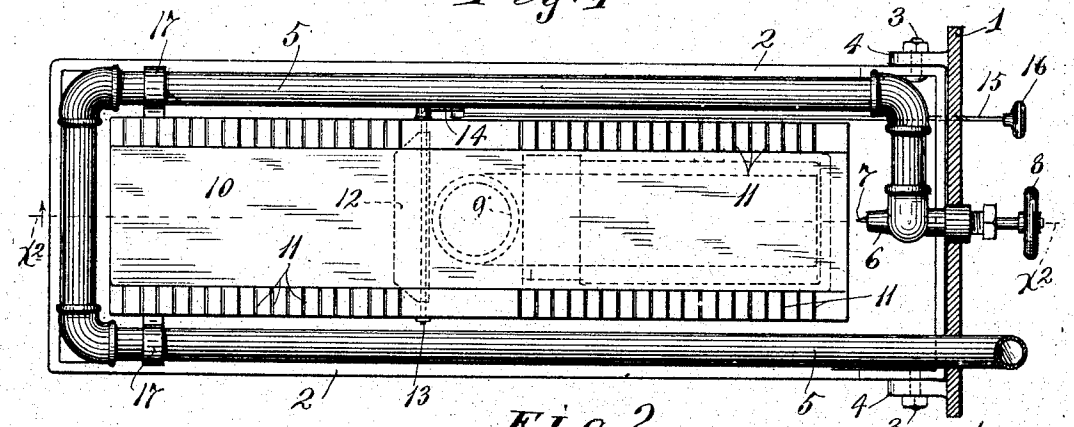


Fig. 2

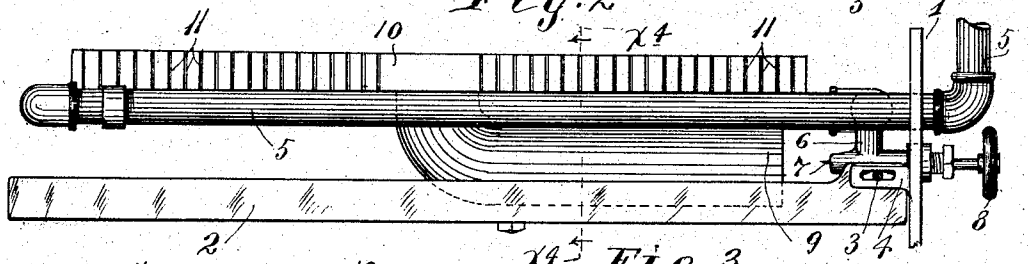


Fig. 3.

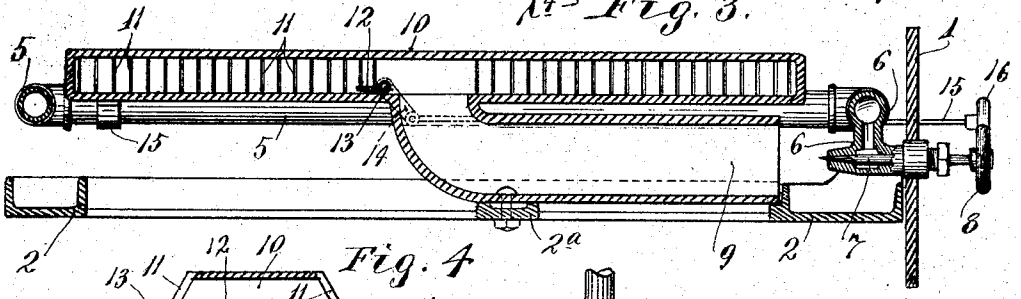


Fig. 4

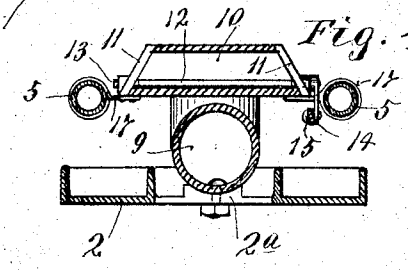
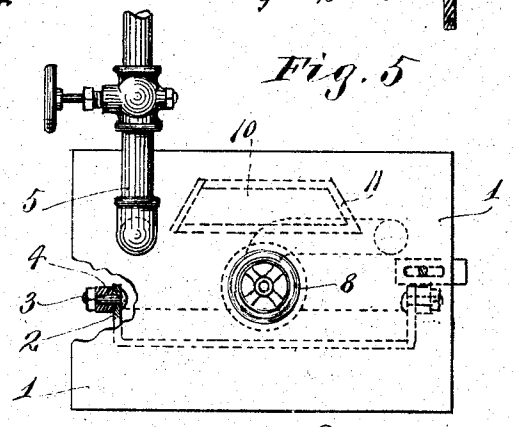


Fig. 5



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KEROSENE-GAS GENERATOR AND BURNER.

1,105,104. Specification of Letters Patent. Patented July 28, 1914.

Application filed July 25, 1913. Serial No. 781,142.

To all whom it may concern:

Be it known that I, JOHN RYCKMAN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Kerosene-Gas Generators and Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an extremely simple and highly efficient kerosene gas generator and burner adapted for application in the fire pot of an ordinary range or cooking stove, as a substitute for the wood or coal burning grates, but adapted for more general use.

To such ends, generally stated, the invention consists of the novel devices and combinations of devices described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the views.

Referring to the drawings:—Figure 1 is a plan view with some parts sectioned, showing my improved generator and burner. Fig. 2 is a side elevation of the parts shown in Fig. 1. Fig. 3 is a vertical section taken on the line x^2 x^2 of Fig. 1. Fig. 4 is a transverse section taken on the line x^4 x^4 of Fig. 2; and Fig. 5 is a right side elevation of the generator and burner, some parts being broken away.

The numeral 1 indicates a door adapted to be bolted or otherwise secured to the range or stove at the open end of the fire pot thereof.

The numeral 2 indicates a rectangular marginal generating pan, which is trough-like or channel shape in cross section, so that it will contain the requisite amount of kerosene for effecting the preliminary generation of gas. This generating pan is of a size which will fit within the fire pot of the stove or range to which it is to be applied, and, at its outer end, it is rigidly secured to the door 1 with freedom for vertical pivotal adjustments, by means of short nut-equipped bolts 3 passed through flanges thereof and through slots of supporting lugs 4, which latter are preferably cast integral with said door.

The numeral 5 indicates an oil supply pipe which extends into the fire pot through the door 1 and is bent into approximately rectangular form, so that it fills and lies immediately over the marginal generating pan 2. The front end of this oil supply pipe 5 is connected to a valve casing 6, shown as extended through the door 1 and having a needle valve 7, the stem of which terminates in a hand piece 8 located outside of the door. The needle valve 7 controls a discharge orifice that is positioned to discharge into the open end of a mixing tube 9, shown as bolted to a cross bar 2^a of the generating pan 2. The inner end of this mixing tube 9 is turned upward and is rigidly secured, by being integrally cast, or otherwise, to the intermediate portion of the hollow, flat and approximately rectangular burner head 10. This burner head 10 has imperforate upper and lower plates, and it is of such size that it nearly, or not quite, fills the rectangular space inside of the rectangular loop of the oil delivery pipe 5. The longitudinal edges of the burner head 10 are beveled, preferably at an angle of about thirty degrees, and these beveled edges are provided with slots 11 that afford the desired gas escape passage. A considerable intermediate portion of each beveled edge of the burner head, in the vicinity of the upturned end of the mixing tube 9, is left solid or free for perforations, so that the gas will strike the top plate of the burner head and be deflected to the ends thereof, and thus evenly distributed.

Within the burner head 10 is a cut-off valve 12 that is secured to a small rock shaft 13 having, at its outer end, an arm 14. The arm 14 is connected to the inner end of an operating rod 15, the outer end of which extends through the door 1, and is provided with a suitable hand piece or knob 16. The rectangular loop of the oil pipe 5 is also shown as connected to the burner head 10 by a plurality of connecting loops 17. When the action of the entire burner head is desired, the cut-off valve is set in the position shown in Fig. 3, but when less heat is desired, and when it is desired to localize this heat, say to one of the griddles, said valve 12 is turned into a vertical position, so that it will cut off from the gas valve all that portion of the said burner head which is at the left of the said valve in Fig. 3. All of these adjustments, as is evident, may be accom-

plished by manipulation of the hand piece 16 of the rod 15, and by manipulation of the hand piece 8 of the needle valve 7, which latter regulates the supply of the oil.

The purpose of making the door 1 adjustable on the bolts 3 is to provide for the setting of the burner head, and parts rigidly connected therewith, in a true horizontal position, regardless of whether the door 1 is secured to the stove or range in a true vertical position or in an oblique position.

This improved generator and burner has been put into actual use and found highly efficient for the purposes had in view. It is adjustable or capable of regulation to meet all the conditions encountered in the use of a range or cooking stove, may be constructed at small cost, and very easily applied to standard ranges and cooking stoves, such as found on the market.

The improved burner above described is shown as designed for application in a range or cooking stove but it will, of course, be understood that the burner may be made in different forms and sizes and used for various other purposes. For instance, it may be used in hot water and steam heating systems, in boilers and in heating stoves.

What I claim is:—

1. The combination with an elongated burner head having an imperforate portion and having gas escape passages on the opposite sides of said intermediate imperforate portion, of a gas delivery tube connected to said burner head at the intermediate imperforate portion thereof, and a cut-off valve within said burner head located adjacent to the delivery end of said tube and operative to cut off one end portion of said burner head from the supply of gas.

2. A burner of the kind described comprising a marginal channel shape generating pan, an oil delivery pipe following and overlying said generating pan, a burner head supported and surrounded by said oil delivery pipe, a tube receiving from the said oil delivery pipe and delivering into the intermediate portion of said burner head, and a door to which the said generating pan, oil delivery tube and burner head are connected.

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

JOHN RYCKMAN.

Witnesses:
EMILY M. KING,
EDITH E. HANNA.

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