

A. HACKETT.
HYDROCARBON GAS PRODUCER.
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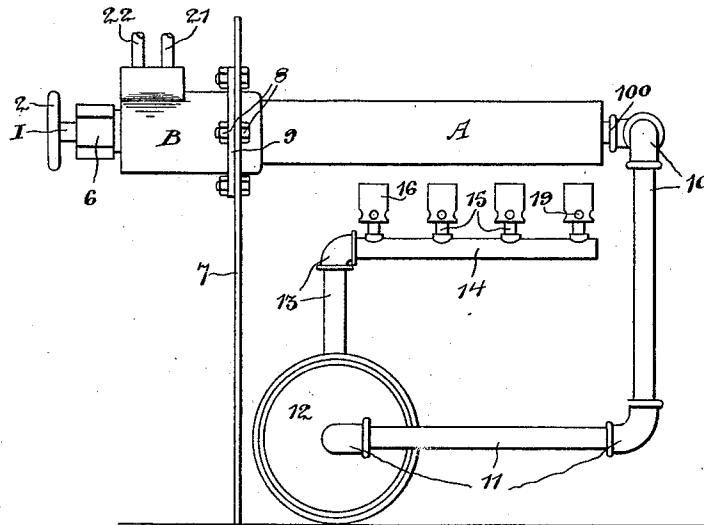


Fig. 1.

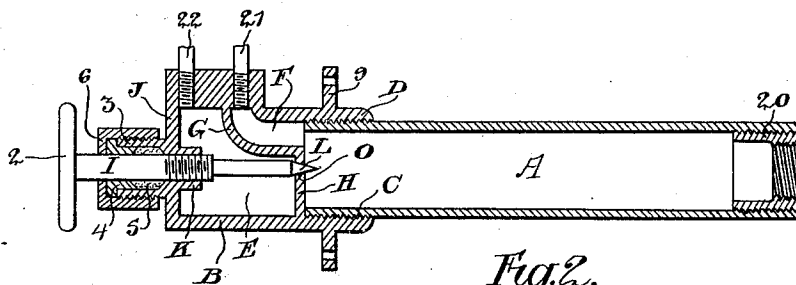


Fig. 2.

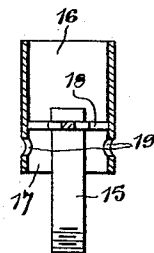


Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

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HYDROCARBON-GAS PRODUCER.

1,058,966.

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To all whom it may concern:

Be it known that I, ALFRED HACKETT, a subject of the King of Great Britain, residing at the city of Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Hydrocarbon-Gas Producers, of which the following is a specification.

My invention relates to improvements in hydrocarbon gas producers, and the principal object of my invention is to produce an apparatus of the class described which will economically and quickly generate gas from hydrocarbon oils.

Another object of my invention is to construct my device very simply and cheaply, and yet not sacrifice the efficiency and durability, so that any of the parts thereof may be easily and cheaply replaced, and, broadly considered, my invention comprises a gas generator, into one end of which opens the steam supply and the controlled oil supply; a distributing tube mounted underneath the said gas generator and provided with one or more burners; a suitable tank or drum connected with the said gas generator and the said distributing tube so that the component parts of the gas will be thoroughly mixed before the gas passes into and from the said distributing tube, as hereinafter more particularly set forth.

Figure 1 is a side elevation of my apparatus. Fig. 2 is a central longitudinal section through the gas generator, showing the construction whereby the controlled oil, and the steam are fed thereinto, and Fig. 3 is, in part, a vertical longitudinal section through the preferred form of burner used, the burner tube being shown in side elevation.

In the drawings, like characters of reference, indicate corresponding parts in each figure.

The gas generator is composed of a generator-tube A, which is coupled to the head-member B which receives the steam and oil, by any suitable construction. My preferred construction for this purpose, consists in providing the end of the tube A immediately associated with the head-member B, with an external thread C which screws into the internally threaded end D of the said member B. The said member B is provided with an oil chamber E separated from

the passageway F by the wall G. The wall G is integrally formed with the wall H, which latter wall closes the inner end of the said chamber. Any suitable valve operates within the chamber E to regulate or control the amount of oil passing through this chamber into the tube A. My preferred construction of valve for this purpose is composed of a valve-stem I which screws through the internally threaded portion of the wall J of the said member B, and through the bearing flange K thereof, which is internally threaded. The tapered end L of said valve-stem I, coacts with the tapered valve-seat O, formed in the wall H to control or regulate the passage of oil into the tube A. The valve-stem I is provided with the usual wheel 2, and the same is mounted in place and suitably packed by any suitable construction. My preferred construction consists in providing the wall J with an externally threaded neck 3 into which slips the gland 4. 5 is the packing, and 6 is the gland-nut screwing over the neck 3. This construction is of course well known.

I have illustrated my device to show the head-member B mounted in the supporting member 7, such as a metal plate, and the said head member is retained in place preferably by means of nuts and bolts designated by the common numeral of reference 8 which pass through the said member 7 and through the flange 9 with which the said head-member B is provided. By any suitable couplings, such as 10 and 11, the generator-tube A is connected with the tank or drum 12, and preferably opens into one end thereof. The said drum is of sufficient-size to permit the elements of the gas within the tank to be thoroughly mixed before they escape from said tank or drum through the coupling 13 to the distributing tube 14, which is positioned underneath the generator tube A. The distributing tube 14 is provided with a plurality of burner-tubes 15 suitably coupled thereto, and each burner tube 15 supports a mixing tube 16 provided with an open bottom 17. I preferably support the said tubes on said burner tubes by means of spiders 18. 19 are a plurality of air-holes formed in the sides of the said mixing tubes and near their lower ends.

I preferably provide the end of the gener-

ator tube A connected with the tank or drum 12 with an internally threaded thimble 20 into which the coupling element 100 screws.

Having now described the construction of my apparatus, I shall describe its operation.

Steam is fed through the pipe 21 into the passageway F, and it will be noticed in Fig. 2 that this passageway opens into the generator-tube A. In starting up my gas producer in the first instance, I use a limited quantity of gasolene or a like volatile oil, and pass the same into the generator E through the pipe 22. The tapered end L is positioned far enough away from its valve-seat O to permit the escape of volatile oil into the tube A. When the hot steam comes in contact with the gasolene, it vaporizes it sufficiently so that the vaporized oil may be ignited at the burners carried by the distributing tube 14. The heat from the said burners heats up the generator-tube, and then the hydrocarbon oil to be used, is passed through the pipe 22 into the chamber E, and in due course it escapes into the tube A, where it is atomized by the stream of steam escaping into the said chamber through the passageway F. The hot tube A vaporizes the oil, and the same with the steam passes through the couplings before described into tank or drum 12, where the elements thereof are thoroughly mixed before they escape into the distributing tube 14 to be consumed by the burners carried thereby. These burners are positioned directly underneath the tube A and they keep the same hot.

It is an important feature in my invention to have the tank or drum 12 positioned between the generator tube A and the burners already described. Not only does this tank permit the complete mixing of the elements of the gas, but it also acts as a reservoir to steady or regulate the stream of gas passing into the said distributing tube.

The couplings 13 are preferably connected to the top of the other end of the tank or drum 12 opposite the end thereof to which the couplings 11 are connected.

Although not illustrated in the drawings, it will be understood by one skilled in this art that any suitable coupling means may be employed to permit a supply of gasolene to pass through the pipe 22, for the purpose already described. When the temperature of the generator-tube A is high enough to generate gas from the less volatile hydrocarbon oils designed to be used in this apparatus, the use of gasolene or other highly volatile oil is discontinued, as will be understood.

Various changes in construction may be made in my apparatus without departing from the spirit of my invention.

What I claim as my invention is:

A hydrocarbon gas producer, comprising the combination of a gas generator comprising a generator tube; a head member provided with a passageway for a steam and an oil chamber provided with a hole in the inner end thereof, one end of said generator-tube being connected to said head-member so that the said passageway will open thereinto; a valve mounted in said head-member and coacting with said hole, to regulate the supply of oil into said tube; a distributing tube positioned underneath said generator tube and provided with a plurality of burners each positioned underneath said tube; a tank intermediate said distributing tube and said generator tube, and means for connecting the said tank with the said tubes.

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

ALFRED HACKETT.

Witnesses:

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S. I. THACHER.