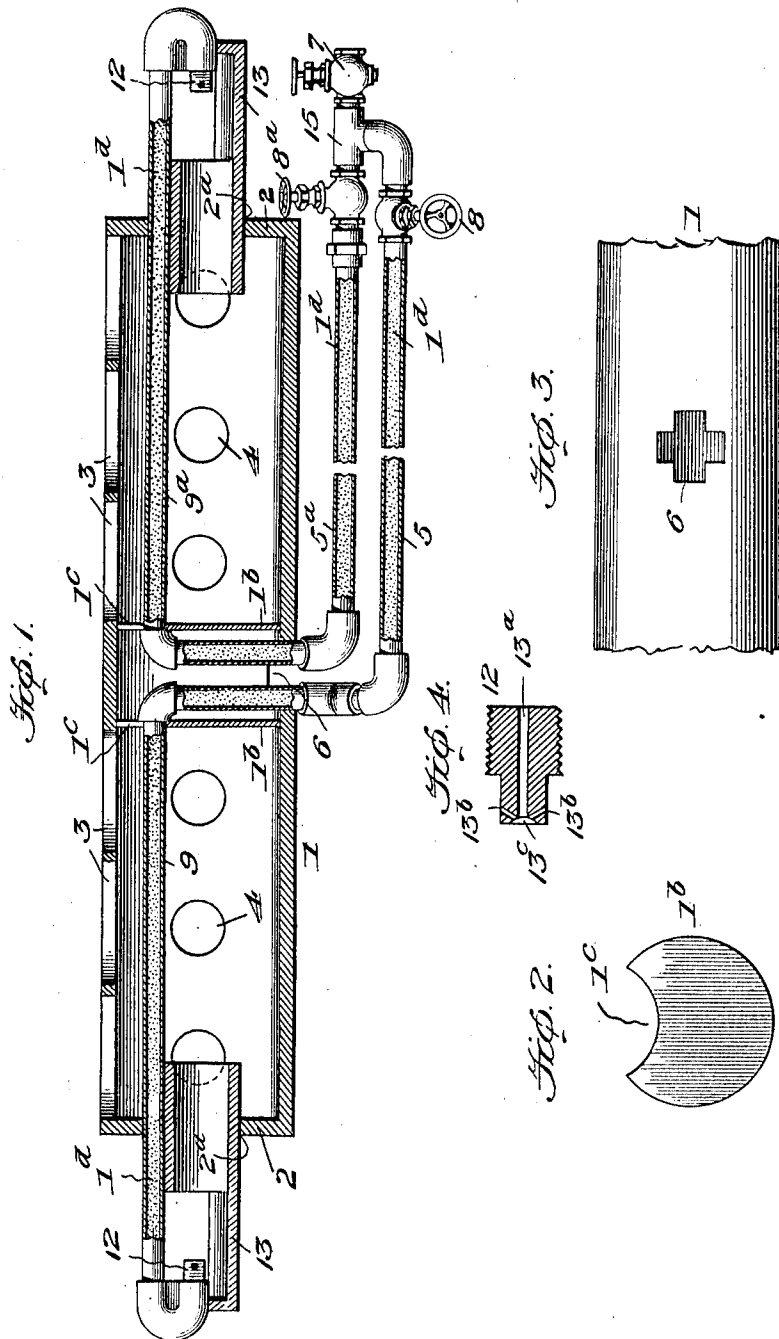


S. C. HIX.
HYDROCARBON BURNER.
APPLICATION FILED SEPT. 3, 1912.

1,066,496.

Patented July 8, 1913.



WITNESSES

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UNITED STATES PATENT OFFICE.

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HYDROCARBON-BURNER.

1,066,496.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL C. HIX, a citizen of the United States, residing at Hot Springs, county of Garland, and State of Arkansas, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

This invention relates to hydrocarbon burners.

The present invention has for one of its objects the provision of improvements on the burner set forth in my Patent No. 956094, dated April 26, 1910, whereby increased vaporization of the hydrocarbon fuel is obtained, the hydrocarbon fuel is more fully and completely subdivided, and the burners are arranged for independent control while using the same hydrocarbon fuel supply pipe.

The improvements constituting the present invention are more fully set forth hereinafter and they are recited in the appended claims.

In the accompanying drawings:—Figure 1 is a perspective view, partly in section; Fig. 2, a detail view of a partition; Fig. 3, a detail view showing the opening where the fuel pipes pass through; and Fig. 4, a detail view of a burner tip.

The mixing chamber 1 is preferably cylindrical in form and provided at its ends with heads 2 having openings 2^a for the reception of drip troughs 13. Orifices 3 and 4 are provided at the top and side, respectively of the chamber 1, through which the air and gas or vapor issues.

Extending in opposite directions from the central part of the mixing chamber 1 are the retort tubes or pipes 9, 9^a, two being employed instead of the single tube of my patent. There are provided jet plugs 12, 12, disposed over the drip troughs 13, said plugs having a central fuel duct 13^a and inclined air ducts 13^b leading to an enlarged distributing concavity 13^c whereby a thorough mixing of the gas and air entering the chamber 1 is insured. The drip troughs 13 catch the oil drippings from jet plugs 12, 12.

Circular plates 1^b fit the interior of the mixing chamber 1. These plates instead of being provided with apertures or holes through which the retort pipe passes, as in my patent, have notches 1^c in their periphery through which the respective retort pipes 9, 9^a pass. In my patent, the entire retort pipe is supplied by a single pipe and

both burner tips or jets 12 receive their supply therefrom, rendering it necessary for both to be used. In the present invention, the retort pipes are separate and each is supplied by its own pipe, one being shown at 5 and the other at 5^a, said pipes passing into the mixing chamber 1 through a cross-shaped opening 6 in the bottom thereof which performs the two-fold function of preventing movement of the pipes and of allowing the escape of the gas from the mixing chamber and into contact with the pipes 5, 5^a, preheating and gasifying the hydrocarbon liquid entering said pipes on its way to the respective retort pipes 9, 9^a. The pipes 5, 5^a are provided with independent valves 8, 8^a, whereby the control of the flow to the respective retort pipes 9, 9^a, is rendered independent, both pipes 5, 5^a, joining the main hydrocarbon supply pipe 15 on the side nearest the burner from a check valve 7 which is interposed in the main supply pipe. Not only are the retort pipes 9, 9^a, filled with iron or steel shavings or filings 1^d, but such shavings or filings extend the full length of the pipes 5, 5^a, so that, inasmuch as these latter pipes are subject to the heating action of the gas issuing through the cross shaped opening 6, the subdivision of the inflowing hydrocarbon fluid assists in the gasification thereof, even prior to entry in the retort pipes 9, 9^a. By providing a separate branch pipe and valve for each burner, economy of operation is obtained, as only one burner may be used if both are not required, whereas in my former patented construction, it was necessary to employ both jets if the burner was to be ignited.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a burner, the combination with a mixing chamber having drip troughs at its end parts, of independent retorts contained within the mixing chamber and provided with jets disposed above the drip troughs, independent feed pipes for the respective retorts, and independent valves for the respective feed pipes, whereby the jets may be independently controlled.

2. In a burner, the combination with a mixing chamber having drip troughs at its end parts, of independent retorts disposed within the mixing chamber, jets connected to the respective retorts and disposed over

the respective troughs, said mixing chamber being provided in one wall with an enlarged opening, independent feed pipes extending through said opening and engaged
5 by the walls thereof and connected, respectively, to the retorts, and independent valves for the said feed pipes, the enlarged opening aforesaid providing means for the escape of the flame from the mixing chamber and its contact with the feed pipes to
10 preheat the hydrocarbon flowing there-through to the respective retorts.

3. In a burner, the combination with a mixing chamber having drip troughs at its
15 end parts, of independent retorts disposed within the mixing chamber, jets connected to the respective retorts and disposed over the respective troughs, said mixing chamber being provided with a cross-shaped
20 opening, independent feed pipes connected to the respective retorts and extending through branches of said cross-shaped opening, the remaining part of the cross-shaped opening being adapted to permit the flame
25 from the burner to play upon the feed pipes and preheating the hydrocarbon flowing therethrough to the retorts, and independent valves for the feed pipes.

4. In a burner, the combination with a
30 mixing chamber, of partitions therein pro-

vided with notches in their peripheries, said partitions being spaced apart and subdividing the mixing chamber into three parts, independent retorts disposed in the respective end compartments of the mixing chamber and provided with jets at the end parts
35 of the mixing chamber, and independent controllable feed pipes extending through the wall of the mixing chamber and disposed between the partitions and connected
40 to the respective retorts.

5. In a burner, the combination with a mixing chamber, of a retort therein and a feed pipe disposed exteriorly of and adjacent to the mixing chamber and connected
45 to the retort, the mixing chamber being provided with an opening adapted to direct the flame onto that part of the feed pipe which is disposed exteriorly of the mixing chamber, and loose particles of material contained within the retort and also within
50 the exterior feed pipe adapted to subdivide the hydrocarbon.

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

SAMUEL CROSBY HIX.

Witnesses:

HENRY WARREN,
D. H. SCOTT.