

No. 711,925.

Patented Oct. 21, 1902.

C. F. JENKINS.  
HYDROCARBON BURNER.

(Application filed July 11, 1902.)

(No Model.)

Fig. 1.

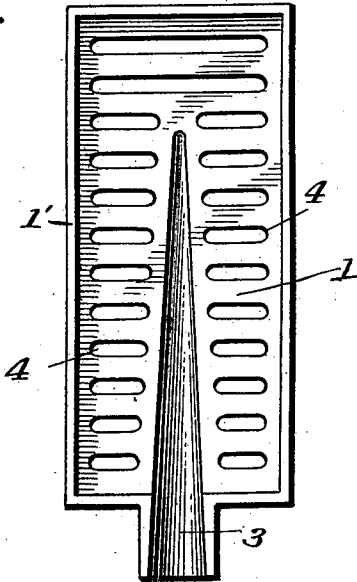


Fig. 2.

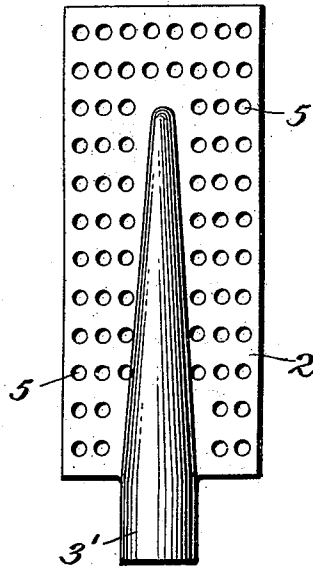


Fig. 3.

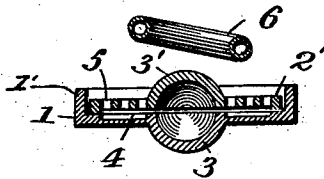
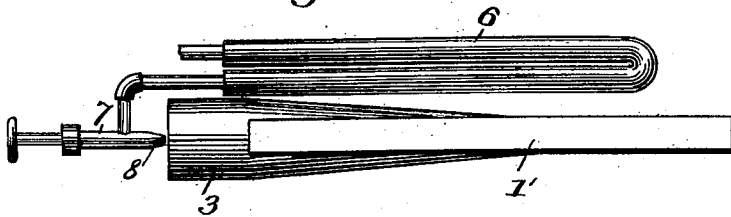


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 711,925, dated October 21, 1902.

Application filed July 11, 1902. Serial No. 115,153. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES FRANCIS JENKINS, a citizen of the United States, residing at Washington, District of Columbia, have invented a new and useful Improvement in Hydrocarbon-Burners, of which the following is a specification.

My invention relates to improvements in hydrocarbon-burners of the kind in which the oil is first vaporized and afterward mixed with the proper amount of air for perfect combustion, this being effected without steam-jets or other extraneous means. The burner is also constructed as to permit of initially heating the vaporizer, thus making it self-starting. I attain these objects in the devices and arrangement thereof substantially shown in the accompanying drawings, in which—

Figures 1 and 2 are top views of the two parts of the burner, the bottom and top plates, respectively; Fig. 3, a section, and Fig. 4 a side view.

Like numerals refer to like parts in all the views.

My burner comprises the two plates 1 and 2, the bottom plate having upwardly-extending flanges 1' at the sides. Such bottom plate is provided centrally with a semicone-shaped groove, the apex of which terminates short of the end of the plate. Such bottom plate is also provided in its upper face with shallow grooves 4, which are placed with their long axis at a right angle to the axis of the groove. The upper plate is provided at its edge with a depending rib or flange 2'. Such upper plate fits within the flange of the bottom plate, and the rib 2' serves to hold the two adjacent faces of the plates slightly apart, the rib being preferably of about one-sixteenth to one-eighth of an inch in height. The upper plate is perforated with holes 5, which are arranged to lie above the grooves in the lower plate when the parts are in position. The upper plate is also provided centrally with a semicone-shaped groove or recess, which alines with the groove in the lower plate and forms therewith a cone-shaped mixing-tube, into which the vapor from the vapor-jet nozzle 8 is delivered.

Immediately above the burner the vaporizer is located, a pipe 6, bent upon itself, one

end connected to the pipe leading from the oil-supply and the other terminating in the nozzle 7 in line with the mixing-tube.

While one-sixteenth to one-eighth inch space between the faces of the burner-plates is given herein as necessary to prevent the passing of flame between said plates, it has been found in practice that the distance between the faces must depend upon the rate of propagation of the flame, and I do not, of course, wish to limit myself to the distance mentioned.

The initial heating of the vaporizer is accomplished in the following manner: The holes 5 in the top plate 2 coincide when in position with the grooves or recesses 4 in the bottom plate 1. In these recesses the oil lodges when the valve of nozzle 7 is momentarily opened. A lighted match is then applied, and the burning vapor impinging on the vaporizer 6 so heats the latter as to soon convert the oil into gas, which can then be turned on at the nozzle 7. In case the heavier oils are used for fuel the depressions 4 may be supplied with asbestos wicking or the like, so that it will readily ignite when a match is applied.

What I claim, therefore, as my invention, and wish to secure by Letters Patent of the United States, is—

1. A burner comprising two plates held with their opposing faces slightly apart, the lower plate being provided with grooves in its upper surface and the upper plate having perforations lying above such grooves, and a cone-shaped mixing-tube formed in the two plates and terminating short of the ends thereof.

2. A burner comprising plates held with their opposing faces slightly apart, the lower plate being provided with recesses in its upper surface and the upper plate having perforations lying above such recesses, and a mixing-tube formed in the plates.

3. A burner comprising a plurality of plates held with their opposing faces closely approximating, one of said plates being provided with a cone-shaped groove, and another of said plates also having a cone-shaped groove, the two said grooves forming, when said plates are brought together into proper position, a

mixing-tube leading into the space between the plates.

4. A burner comprising a plurality of plates held with their opposing faces closely approximating, one of said plates being provided with a groove extending centrally of the plate, and another of said plates also having a centrally-placed groove, the two such grooves forming, when said plates are brought into proper position, a mixing-tube leading into the space between the plates.

5. A burner comprising a plurality of plates held with their opposing faces closely approximating, one of said plates being provided with a groove extending centrally of the plate, and another of said plates also having a centrally-placed groove, the two such grooves forming, when said plates are brought into proper position, a mixing-tube leading into the space between the plates, and a vaporizer in posi-

tion to receive heat from the combustion of the issuing gas.

6. A burner comprising a plurality of plates held with their opposing faces closely approximating, one of said plates being provided with a groove extending centrally of the plate, and another of said plates also having a centrally-placed groove, the two such grooves forming, when said plates are brought into proper position, a mixing-tube leading into the space between the plates, and upwardly-extending flanges on the bottom plate, and a vaporizer in position to receive heat from the combustion of the issuing gas, and to deliver vapor into said mixing-tube.

CHARLES FRANCIS JENKINS.

Witnesses:

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