

No. 788,720.

PATENTED MAY 2, 1905.

H. JOHNSON & A. A. NOYES.  
HYDROCARBON BURNER.  
APPLICATION FILED FEB. 16, 1903.

Fig. 1.

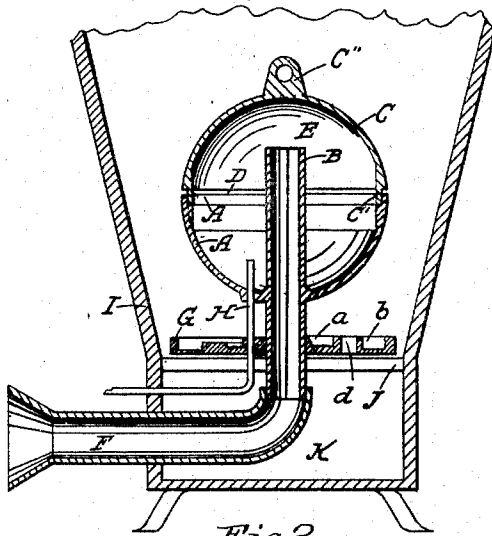
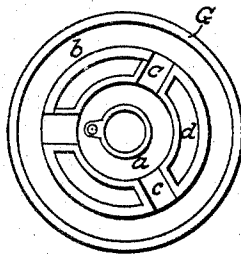


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 788,720, dated May 2, 1905.

Application filed February 16, 1903. Serial No. 143,707.

*To all whom it may concern:*

Be it known that we, HAMILTON JOHNSON and ASHBEL A. NOYES, citizens of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

Our invention relates to a burner designed to burn very light crude petroleum and distillate produced from petroleum without the use of steam; and the object thereof is to produce a simple and efficient burner for that purpose. We accomplish this object by the burner described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical central section of our burner and a fragment of a heating-stove. Fig. 2 is a plan of the starting-pan.

In the drawings, A is the fuel-cup in which the liquid fuel is generated into vapor. This cup is provided with a central draft-tube B, which extends both above and below the top and bottom thereof. In the upper interior surface of this cup is a ledge A', which supports the legs C' of the cover C, which is held thereby elevated above the top of the fuel-cup to provide an outlet or port D for the combined vapor and air to pass out of the generating-chamber E, which chamber is formed by the cup and cover. There are preferably four of these legs equidistant from each other, and the cover is preferably concave, as shown. To the bottom of the central draft-tube is affixed a funnel-mouthed air-tube F for the better directing of the air into the central draft-tube. The top of the cover is provided with a lug C'', having a hole extending therethrough for convenience in handling.

Surrounding the draft-flue a short distance below the fuel-cup is a starting-cup G, which preferably consists of concentric channels *a* and *b*, connected by channels *c* of less depth than channels *a* and *b*. Between channels *a*, *b*, and *c* are air-inlets *d*, which admit air for combustion, being particularly useful when starting a fire. Any other form of starting-

cup may be used; but we prefer this form, as the generation of liquid fuel into vapor is very quickly effected by reason of the large surface of burning fuel and the ready access thereto of air for combustion. The liquid fuel is supplied into the fuel-cup by pipe H, connected to a suitable supply. (Not shown.)

In the operation of our burner it is placed in the combustion-chamber of a furnace, stove, or other structure. We have illustrated it as placed in the combustion-chamber of a stove I, having grate-bars J and ash-pit K, with the starting-cup resting on the grate-bars. The liquid fuel is permitted to fill the fuel-cup and to flow out and fill channel *a* up to channel *c*, when it is cut off, and the fuel in the channel is lighted, and before it is all burned up the vapor is generated and passes out of port D and burns in a clear blue flame all around the top of the fuel-cup. At the same time air passes up through the central draft-tube and commingles with the vapor, and thereby aids combustion. Before the fuel in the cup is all vaporized the necessary supply to keep up the fire is permitted to flow into the cup. As it is impossible to exactly gage the amount of fuel necessary to start the fire, usually an amount in excess is permitted to flow out of the fuel-cup. This excess runs into channel *b* and is burned therefrom.

It will be observed that by this construction a retort-chamber is formed which is provided with a draft-tube, which brings air into the chamber to commingle with the vapor before either is fed to the flame. It is also manifest that other forms may be adapted for the retort without departing from the spirit of our invention, which consists, essentially, in a retort-chamber into which air is drawn to commingle with the vapor of the liquid fuel and then be discharged therefrom to feed the flame.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A hydrocarbon-burner comprising a fuel-cup, the upper free edge of which is thick-

ened, a ledge formed in the thickened portion of the cup, a cap, legs formed on the lower free edge thereof and resting upon the ledge, a draft-flue and an oil-supply pipe projecting into the cup and means for heating the cup and cap.

2. A hydrocarbon-burner comprising a vaporizing-chamber, a draft-flue and an oil-supply pipe projecting into the chamber, a starting-cup located beneath the chamber, the starting-cup provided with concentric channels and connecting radial channels of less depth than the concentric channels.

3. A hydrocarbon-burner comprising a fuel-cup and cap therefor, a draft-flue projecting through the fuel-cup and extending some distance therebelow, a starting-cup received upon the draft-flue beneath the fuel-cup, the starting-cup resting upon a grate below which the draft-flue projects and an air-tube removably secured to the projecting portion of the

draft-flue and extending outside a stove, the air-tube supporting the draft-flue.

4. A hydrocarbon-burner comprising a vaporizing-chamber, a draft-flue and an oil-supply pipe projecting thereinto and a starting-cup located beneath the vaporizing-chamber, the starting-cup provided with concentric and interconnecting channels, the cup also provided with segmental air-inlet ports located intermediate the concentric and interconnecting channels and separating the series of concentric and interconnecting channels.

In witness that we claim the foregoing we have hereunto subscribed our names this 9th day of February, 1903.

HAMILTON JOHNSON.  
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Witnesses:

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