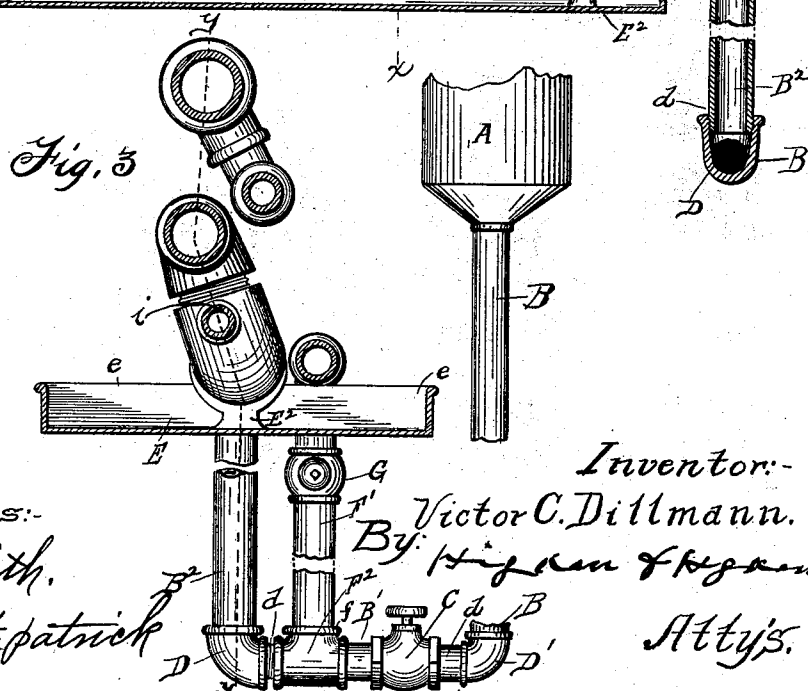
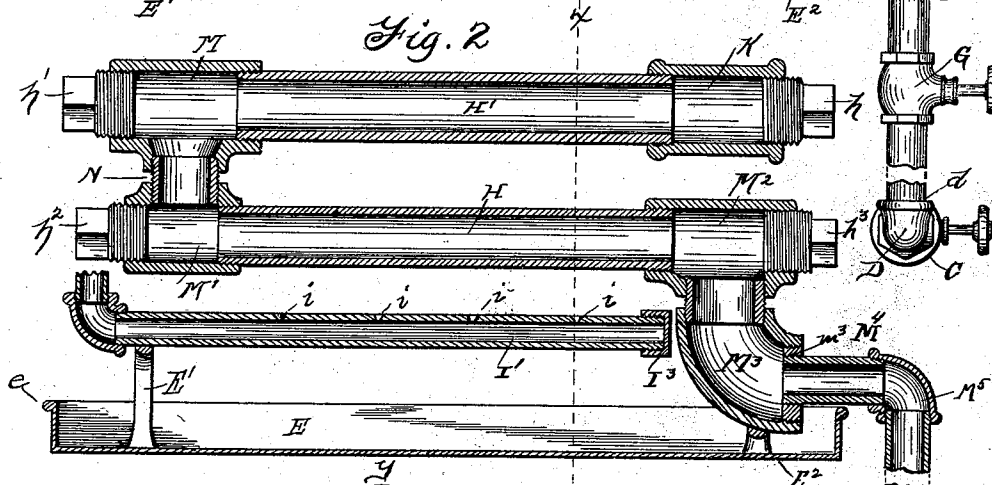
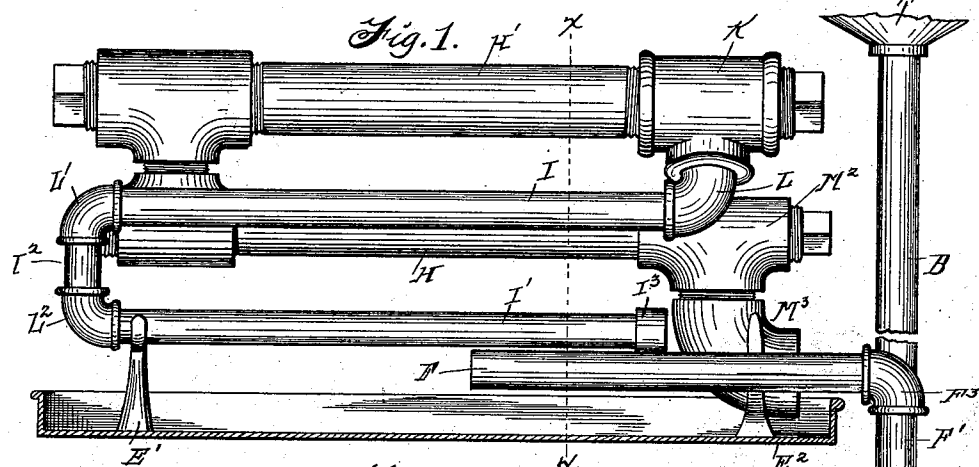


(No Model.)

V. C. DILLMANN.
HYDROCARBON BURNER.

No. 508,923.

Patented Nov. 21, 1893.



Witnesses:-
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UNITED STATES PATENT OFFICE.

VICTOR C. DILLMANN, OF KANSAS CITY, MISSOURI.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 508,923, dated November 21, 1893.

Application filed October 1, 1892. Serial No. 447,455. (No model.)

To all whom it may concern:

Be it known that I, VICTOR C. DILLMANN, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Hydrocarbon Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to burners for generating vapor from inflammable oils, and for consuming said vapors, as they are generated, by the flame which produces them, to be used for heating, cooking, and for other analogous purposes.

The object of my invention is to produce a vapor burner which shall be simple, strong, durable and inexpensive, compact in construction and reliable in operation, and which may be easily accessible for cleansing its various passages by unskilled persons, to insure safety, reliability and economy in operation, which will have an extended heating surface, and is of size, proportion and arrangement of parts especially adapted to be applied to ranges, cook stoves, or heating stoves of ordinary construction by simply placing the burner and securing it in any suitable manner, in the fire chamber of the stove.

The upturned T-connection F², is located between the stop-cock C and the upturned pipe B² and the object in thus arranging the stop-cocks C and G, is to effectually regulate the supply of oil from the reservoir to the retort casings and the firing tray or pan.

In the accompanying drawings: Figure 1. is a side elevation of a vapor burner, showing a part of the oil reservoir and supply pipe broken away, and the firing tray in section. Fig. 2. is a longitudinal section thereof in the line *y y* of Fig. 3. Fig. 3. is a transverse vertical section in line *x x* of Figs. 2 and 3.

The reservoir, A, is supported at any convenient place above the burner, and its lower end is connected to an oil supply pipe, B, leading to the burners by a lateral pipe, B', and upturned pipe, B². The end of the lateral pipe, B', near its junction with the lower end of the supply pipe, B, has a stop cock, C, which regulates the flow of oil to the burner, and admits of its being completely turned off when required. The pipes, B, B', and B², are preferably sections of gas pipe joined together

by cast elbows, D, D', with screw threaded joints, *d, d'*, which admit of their being easily taken apart.

A firing tray, E, supported at any suitable place and in any convenient manner, has an upturned rim, *e*, and brackets, E', E², secured to the upper side of the bottom at the ends of the tray to support the burner, as will hereinafter appear.

A firing tray supply pipe, F, is open at its inner end, and is connected at its outer end by a stand pipe, F', with the lateral pipe joint, B', by an upturned T-connection, F², screw threaded at *f* to receive the lower end of the pipe, F', while the upper end of said pipe F' is similarly threaded to receive the cast elbow, F³, which screws upon one end of the firing tray supply pipe, F. The amount of oil allowed to pass through the pipe, F, is regulated by a stop cock, G, upon the stand pipe, F', which may be entirely closed when it is required to stop the supply of oil to the firing tray.

The burner, proper, is composed of horizontal generator pipes, H, H', arranged one above the other, the upper pipe, H', being connected at the supply pipe end with the end of a jet supply pipe, I, by means of cast iron T-joint, K, upon the end of the pipe H', and a cast elbow, L', upon the jet supply pipe, I. The pipe, I, runs parallel with and slightly above the lower generator pipe, H, and is connected at its opposite end to the jet pipe, I', by means of cast elbows, L' L², and a short connecting pipe, I², the outer end of the jet pipe being closed by a cap, I³. The corresponding ends of the generator pipes, H H', are also connected by T-joints, M, M', and a short connecting pipe, N, and the supply pipe end of the lower generator pipe, H, is connected by a T-joint, M², cast elbow, M³, plug, *m*³, short connecting pipe, M⁴, and cast elbow, M⁵, with the upper end of the upturned oil supply pipe, B², whereby oil from the reservoir is allowed to pass successively through the lower generator pipe, the upper generator pipe, the jet supply pipe and the jet pipe, from which latter the gas issues through openings, *i*, and is consumed beneath the various other pipes composing the burner proper.

The outer ends of the T-joints of the pipes H H' are each screw threaded to receive screw

plugs, h' , h^2 , h^3 , h^4 , fitting securely into them, and each having squared heads, h , upon which a wrench may be fitted to remove or replace the plugs. The plugs are removed when it is
 5 required to clean the inside of the pipes from sediment or incrustation that may form upon it, and which would impair its heat producing properties. The cap, I^3 , upon the end of the jet pipe, I' , may also be easily removed and
 10 replaced upon the end thereof for the same purpose, and as this pipe, and the generator pipes $H H'$, are more liable to become coated or obstructed, as the oil is converted into gas in these pipes, it is important that the interiors thereof may at all times be readily accessible. By means of the constructions herein shown, this can easily be done by any unskilled person.

The burner is supported in the pan by
 20 means of brackets, E' E^2 , at its ends, the bracket E' being the longer, and supporting the jointed end of the jet pipe, I' , and the bracket E^2 having wider and broader jaws to embrace the elbow joint M^3 , and extend to
 25 the lower end of the T-joint, M^2 , thus holding the burner in an upright position with the generator pipe, H' , located above the pipe H , and also holding both of the generator pipes above the jet pipe.

30 In operation, the valves C and G are opened, and the oil is allowed to flow from the reservoir and into the firing pan and to the upturned pipe B^2 , until a sufficient quantity is accumulated in the pan. The supply-cock C
 35 is now operated to stop the flow of oil from the generator, and should the oil have been forced up into the lower retort casing H , it will immediately flow back and contribute to the supply in the pan, until its own level in
 40 the pipe F has been reached; and thus prevent any accumulation of oil in the generating casing or retort, before the generation of the oil has begun. The oil in the firing pan is now lighted and sufficient heat is thus supplied to thoroughly heat the retort or gener-
 45 ating casing, and the jet and jet supply pipes. The stop-cock G is now closed to cut off the

supply of oil to the firing pan, and the cock C opened to supply oil to the generating casings, where it is immediately vaporized or gener-
 50 ated into gas, and, issuing in jets through the openings, i , in the jet pipe I' , will afford sufficient heat through its combustion to continue the process of completely decomposing the oil that is allowed to pass through the pipes $H H'$,
 55 and generate it into gas, the size and number of the openings i being regulated to produce the required amount of flame to produce the best results.

From the above description, it will be seen
 60 that I have produced a simple and efficient hydrocarbon burner, by which the supply of oil to the firing pan and to the retort casings may be regulated, and from the peculiar arrangement of the valves or stop-cocks, all ac-
 65 cumulation of oil that may have gathered in the retort casing, may be withdrawn and emptied into the firing pan, before the generation of the gases is commenced.

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

In a hydro-carbon burner, having an oil-supply, a firing pan and retort and burner casings, the combination with a supply pipe hav-
 75 ing a valve C therein, an upturned pipe B^2 , a horizontal pipe M^4 and elbows connecting the supply-pipe and pipe B^2 and the pipe B^2 and M^4 , and an elbow resting in one end of the drip-pan and communicating with the lower
 80 retort casing and with the pipe M^4 , of a branch-supply pipe communicating with the supply-pipe between the valve thereof and the upturned pipe and extending upwardly and also communicating with the firing-pan, and a
 85 valve G located in said branch-pipe, substantially as and for the purpose set forth.

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

VICTOR C. DILLMANN.

Witnesses:

MARGARET R. REMLEY,
 MAUD FITZPATRICK.