



# United States Patent Office.

DANIEL EDWARD RYAN, OF ST. LOUIS, MISSOURI.

Letters Patent No. 107,816, dated September 27, 1870.

## IMPROVEMENT IN VAPOR-GENERATING BURNERS FOR STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, DANIEL EDWARD RYAN, of the city and county of St. Louis and State of Missouri, have invented new and useful Improvements in Vapor-Generating Burners, for producing a heating flame from gasoline and other distillates of petroleum. I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a portion of this specification, in which—

Figure 2 is a sectional view; and

Figure 3 is a perspective view.

Figure 1 shows the method of applying the burner to cooking-stoves.

Similar letters of reference indicate corresponding parts in all the figures.

The object of this invention is the production of a safe, cheap, and powerful heating-flame from gasoline, and other distillates of petroleum, by means of a burner, which, in its principle and operation, shall be thoroughly under the control of the operator, wherein the fluids shall be perfectly vaporized, the combustion perfect, and the construction of the burner such that it can be readily put together, taken apart, and the gas-hole reached for cleaning instantly, if it fouls; also locating the gas or vapor-generating chamber at the point of greatest heat, so that all the heavy or greasy portions of the fluid will be fully vaporized and consumed.

To enable others to make and use my invention, I will proceed to describe its parts and operation.

M is a reservoir, to hold fluid to supply the burner.

N is an opening, through which M is filled.

P is a supply-pipe.

O is a continuation of P.

J and K is a cock and key, that regulates the supply of fluid to the burner.

I I I is a pack-tube containing about four inches of gauze, rolled close in the form of a pencil, and inserted in the end next the burner, it serving to break the force of the backward pressure of vapor in the expansion of the fluid, and being a substitute for cotton, which, in that position, would heat, by reason of the great heat of the burner. Behind the gauze is placed about six inches of cotton-wick, as a further regulator, to produce an equal flow of vapor.

C C is a ring or perforated plate, having attached to one side of its outer edge, and forming one piece or casting, a right-angle piece of metal containing a gas or vapor-generating chamber.

D is a plate or cap, having a flange of sufficient width to form, a continuous plate of the ring C C, when it is placed in the opening of the latter.

The object of forming C C and D in two parts is, that D may be instantly removed in case of the obstruction of the orifice of the nipple E, thus placing its working parts within immediate reach of the operator.

D may also be lifted to fill the drip-cup E with fluid, to heat the burner, before the fluid is turned on through the regulating keys.

A A is a right-angle generating-chamber, where a fine vapor is generated by the heating-flame partly enveloping it as the flame passes out from under the plate.

F is a tube, bent in the form shown, or an equivalent form, forming a continuation of the generating-chamber A A to the drip-cup and nipple E E, the gas as it is generated at A A passing downward, around, and through the tube F to the orifice G.

E is a drip-cup and nipple combined.

G is an orifice, whence issues the heating-flame, striking the plate above A, where it spreads out in a broad, round sheet, striking out and upward.

The location of the wire gauze and cotton-wick packing is indicated by words to that effect in fig. 2.

To operate the burner, open the key thereto, and allow the cup E to fill, shut the fluid off, and set fire to the contents of the cup; when it is nearly all consumed, turn the fluid on, and a bright, blue flame will appear, striking outward and upward from the edge of the plate C C, and partly enveloping in its passage the generating-chamber A A. The proper manipulation of the cock and key will produce a large or small flame.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The generating-chamber A A, as located, attached to the outer edge, and forming, in one piece or casting, an inseparable part of the plate C C.

2. The bent tube F, as located, in connection with the generating-chamber A A, plate C C, and the combined drip-cup and nipple E E, all constructed in the manner shown and described, and for the purposes set forth.

DANIEL EDWARD RYAN. [L. s.]

Witnesses:

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