J. P. HAYES.

Petroleum Burner for Cooking, &c.

No. 50,121. Patented Sept. 26, 1865.

FIG. 1.

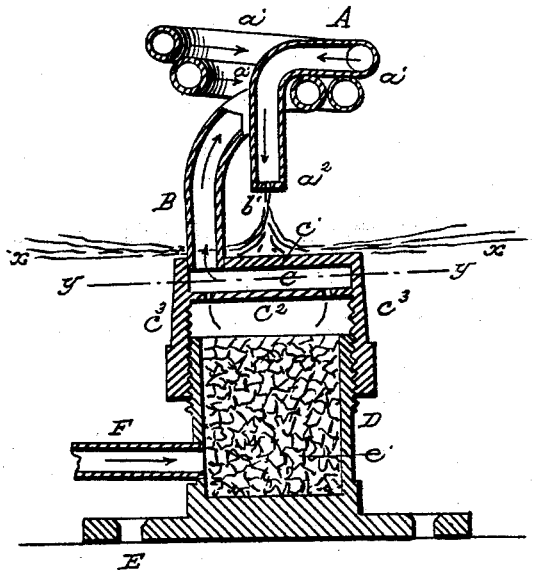


FIG. 2.

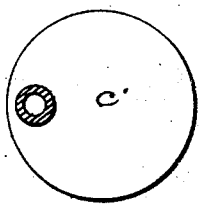
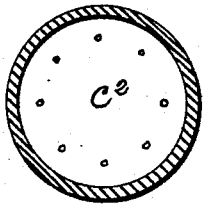


FIG. 3.



WITNESSES:

Benj Munson

Wm H. Morison.

INVENTOR.

John P. Hayes

UNITED STATES PATENT OFFICE.

JOHN P. HAYES, OF PHILADELPHIA, PENNSYLVANIA.

PETROLEUM-BURNER FOR COOKING, &c.

Specification forming part of Letters Patent No. **50,121**, dated September 26, 1865.

To all whom it may concern:

Be it known that I, JOHN P. HAYES, of the city of Philadelphia, in the State of Pensylvania, have invented a new and useful Improvement in Oil or Petroleum Burners for Heating and Cooking; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a vertical half-section of the said improved burner; Fig. 2, a plan view of the upper side of its heating-chamber, below the dotted line *x* of Fig. 1; and Fig. 3, a like view of the perforated diaphragm or bottom of the said chamber, below the dotted line *y* of the same figure.

Like letters of reference indicate the same parts when in the different figures.

The object of my invention is to produce a burner for cooking and heating by the combustion of oil, petroleum, or other hydrocarbons, that will give a much larger and more intensely-heated flame than any burner heretofore produced for the same purposes.

It consists in the combined arrangement of a bent heating-tube and a heating-chamber, (applied to the upper part of any suitable supporting stand or base connected with an appropriate reservoir of the oil or petroleum,) so that a small stream of the hydrocarbon will be forced downward from the tube and impinge against the upper side of the top of the heating-chamber in such a manner that, when ignited, the flame will heat both the tube and the chamber with their contents and produce an enlarged and intensely-heated horizontal flame for the purposes specified.

In the drawings, A B is the heating-tube; C, the heating-chamber; D E, the supporting stand or base, and F, a short section of a tube intended to lead into any suitable supplying-reservoir.

The base or stand D E is a cylindrical metallic cup, having a flanged bottom sufficiently large to support the whole burner firmly in a vertical position. At one side, near its bottom, the tube F, which leads to the reservoir, (not shown in the drawings,) is tightly inserted, and the interior of the cup is filled with small broken fragments of pumice-stone or gravel, e'. The heating-chamber C is also made of metal, and consists of a circular top plate, c', and a circular perforated bottom or diaphragm, c^2, each united by their edges to a hollow case or cylindrical band, c^3, so as to form together a shallow chamber, c, between them, at the upper end of the band c^3, while the lower end of the cylinder, formed by the band c^3 being adapted for the purpose, is screwed tightly over the upper end of the stand D E. (See Fig. 1.)

The tube A B is bent into one or more coils, a', or into a "goose-neck," and has one of its ends inserted tightly in the top plate, c', at a point near the edge of the latter, (see Figs. 1 and 2,) so as to communicate with the interior of the heating-chamber C, while its other end, a^2, is straight and brought so as to point downward or in a perpendicular position over the center of the top plate, c', of the chamber C, and with its said free end a^2 at about half an inch, more or less, above the said plate. (See Fig. 1.) The free end a^2 of the tube A B is closed with the exception of a very small hole, b', through the center of the plug or closing-disk.

Operation: The burner described being placed in an empty fire-place or grate, and connected by means of the pipe F with a sufficiently-elevated reservoir of the combustible fluid to be used, and the stop-cock of the said reservoir opened, the fluid passes in a diffused manner through the fragments or gravel, e', thence (as indicated by the arrows) through the perforated diaphragm or bottom c^2 into the heating-chamber C', thence up through the tube A B to the small orifice b', and, passing through this in a comparatively small stream, it finally impinges directly downward against the center of the top plate, c, of chamber C. This stream is now ignited, and the flame soon heats both the tube above and the chamber C below, and the combustible fluid therein becoming, of course, strongly heated is forced continuously downward out of the tube A B, and impinges against the plate c' more strongly, thus producing an intensely-heated circular horizontal flame, having a diameter of about six inches, more or less, the burner being of about the size shown in the drawings.

The whole burner is simple and inexpensive of construction, not liable to derangement,

and is more effective for heating and cooking by the combustion of hydrocarbons, either crude or refined, than any other device known.

Having thus fully described my improved burner, what I claim as new therein and of my invention, and desire to secure by Letters Patent, is—

In a hydrocarbon burner for heating and cooking, the combined arrangement of a bent heating-tube, A B, and a heating-chamber, C, so constructed as to operate together substantially as described and set forth, for the purposes specified.

JOHN P. HAYES.

Witnesses:
BENJ. MORISON,
WM. H. MORISON.