(No Model.)

H. CLUFF.

APPARATUS FOR VAPORIZING AND BURNING PETROLEUM.

No. 411,784. Patented Oct. 1, 1889.

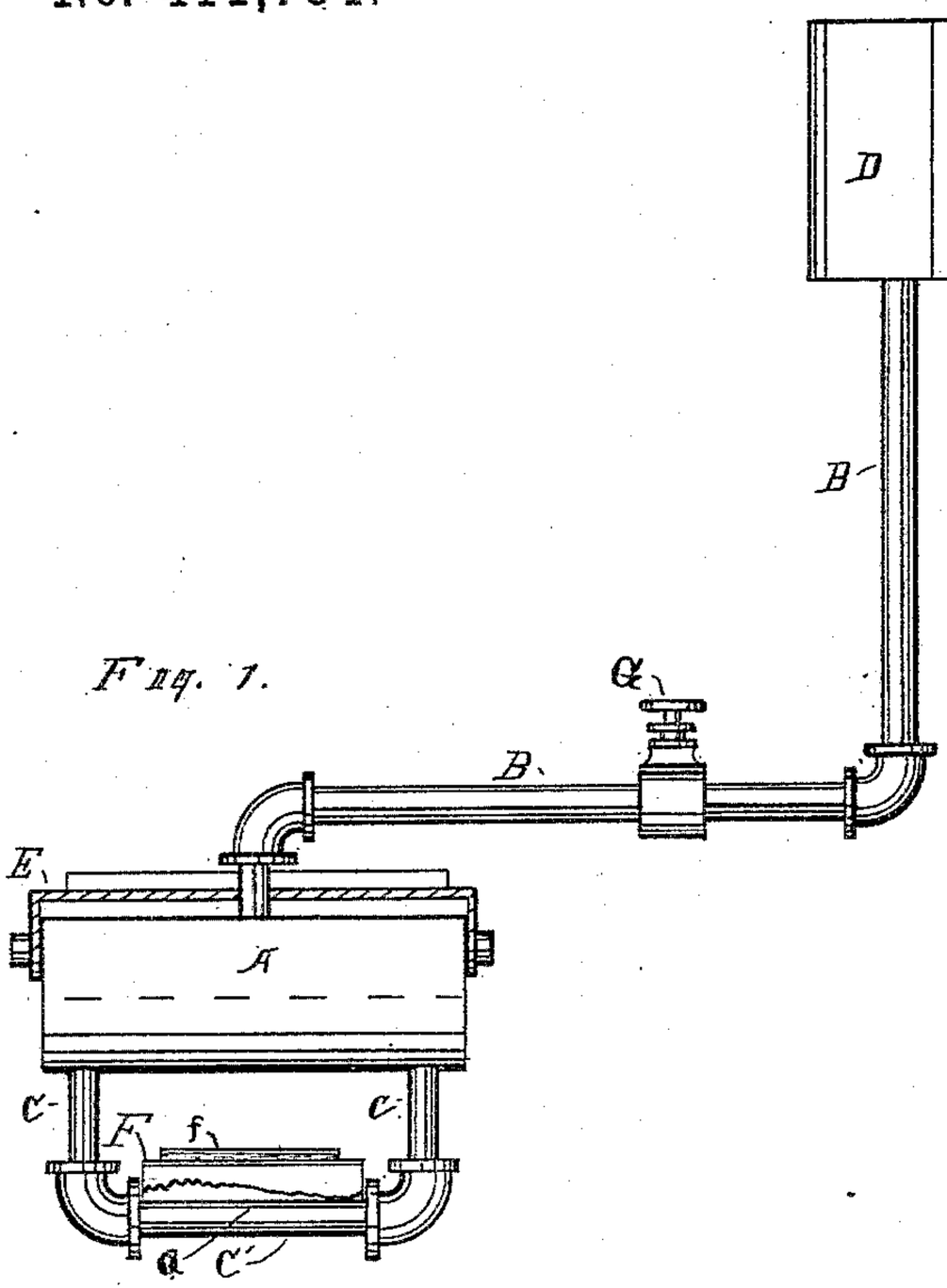


Fig. 1.

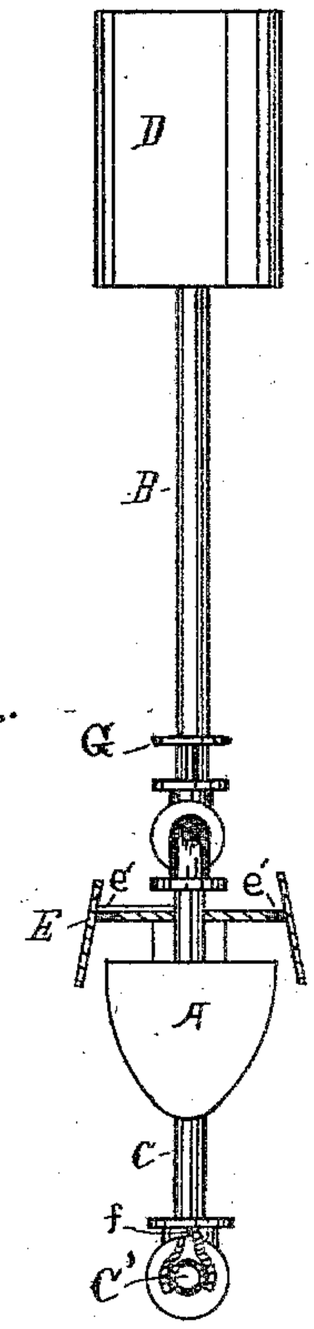


Fig. 2.

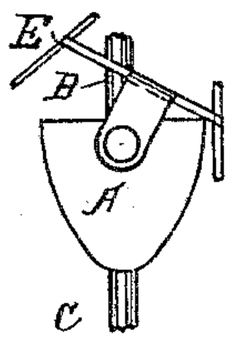


Fig. 4.

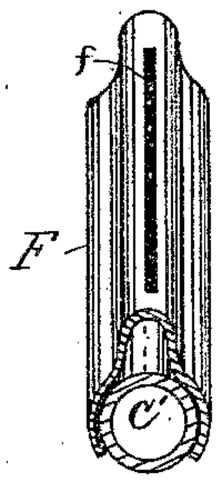
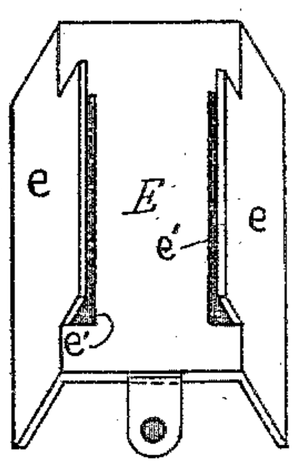


Fig. 3.



WITNESSES.

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HARVY CLUFF, OF GRAND RAPIDS, MICHIGAN.

APPARATUS FOR VAPORIZING AND BURNING PETROLEUM.

SPECIFICATION forming part of Letters Patent No. 411,784, dated October 1, 1889.

Application filed December 31, 1888. Serial No. 295,263. (No model.)

To all whom it may concern:

Be it known that I, HARVY CLUFF, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in Apparatus for Vaporizing and Burning Petroleum, of which the following is a specification.

My invention relates to an improvement in appliances for burning vaporized oil, natural gas, &c., in cooking-stoves; heating-stoves, &c.; and the objects of my invention are, first, to overcome the roaring sound incident upon burning vaporized petroleum, natural gas, &c., in an ordinary stove as fuel, and, second, to provide a hydrocarbon-burner with which the jet of burning vapor may be elongated and thrown to one side or the other of the vaporizer and otherwise regulated. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my appliance, the vaporizer A, conductor-pipes B and C, the oil-reservoir D, and the valve G in the conductor-pipe being substantially the same as those already in use for this purpose, and the adjustable vaporizer-hood E and regulator-bonnet F constitute the main features of my invention. Fig. 2 is an end view of the vaporizer with one of the conductor-pipes removed to show the position and form of the regulating-bonnet. Fig. 3 is a perspective of the generator or vaporizer-hood and the regulator-bonnet. Fig. 4 is an end elevation of the vaporizer, showing the manner of attaching the hood.

Similar letters refer to similar parts throughout the several views.

The generator A may be made of any ordinary form, of cast-iron or other metal, that will withstand the heat of the burning jet upon its outer surface and the pressure of the generating vapor within; but I prefer that it be made nearly of the form given in the accompanying drawings, the sides being mixtilinear and triangular, so that the heat generated from the burning vapor will be concentrated within the vaporizer to a line at or near the center of the top. I prefer to enter my oil-conductor pipe into the vaporizer at the top and depend the jet-pipes C from the bottom of the same, so that the oil may be reduced as nearly to a gaseous state as possible.

The vaporizer is fed from an oil-tank D through a conductor-pipe B, the flow of oil being regulated by means of a valve G, provided with a small orifice to prevent the back-flow of the oil.

The jet-pipes C depend below the vaporizer, and, turning at right angles, are provided with a small orifice *a*, for the escape of vapor in the usual manner.

To prevent the roaring sound incident upon burning petroleum-vapor and natural gas with this class of burners, I form a bonnet F to fit around the jet-pipe C, so that no air can enter or approach the burning jet from below, but only through the open ends of the bonnet, and provide the top of the bonnet with a long narrow aperture *f* for the escape of the burning vapor. I make this bonnet open at the ends instead of open at the bottom, for the reason that I find that where a direct draft of air is allowed to approach the burning jet from below, and, being confined, is only allowed to escape with the burning gas through the aperture *f* of the bonnet, the tendency is rather to increase than to diminish the roaring of the burner, while with currents of air meeting from each end the roaring is entirely overcome.

For the purpose of regulating the position of the flame, I arrange this bonnet by springing it around the pipe, so that it may be turned from side to side at pleasure, which I find very desirable in throwing the heat to the front of the vaporizer to heat the top of the stove, or back of the vaporizer for heating the oven, &c.

I sometimes pivot a bonnet to the ends of the vaporizer in such a manner that it may be thrown over from side to side and vary the position and action of the flame upon the body of the vaporizer and upon the surface of the stove. This bonnet (marked E) is provided with downwardly-projecting wings *e* and with openings *e'* for the purpose of drawing the flame to a narrow sheet at the sides of the vaporizer and allowing it to escape upward to the surface of the stove, thus bringing the concentrated volume of flame to bear upon the surface of the stove above the vaporizer with an intense degree of heat, the object of

pivoting it to the vaporizer being so that the throwing of the flame entirely on one side or the other of the vaporizer may be more fully utilized by carrying it to the desired point.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a hydrocarbon-burner, of a vaporizer provided with an oil-conductor pipe, an oil-tank, a valve, and a depending vapor-pipe having a small orifice for the escape of vapor with an adjustable bonnet fitting snugly to the vapor-pipe, open at the ends, and provided with a slot for the passage of the burning vapor, substantially as and for the purpose set forth.

2. The combination, in a hydrocarbon-burner, of a vaporizer, an oil-tank, an oil-pipe, a valve, and a depending vapor-pipe having a small hole for the escape of vapor with an adjustable bonnet upon the vapor-pipe, arranged to be thrown from side to side and having a slot for the passage of the burning vapor, and a bonnet pivoted to the ends of the vaporizer, provided with depending wings and long narrow apertures, substantially as and for the purpose set forth.

Signed at Grand Rapids, Michigan, this 26th day of December, A. D. 1888.

HARVY CLUFF.

In presence of—
GEORGE H. WHITE,
ITHIEL J. CILLEY.