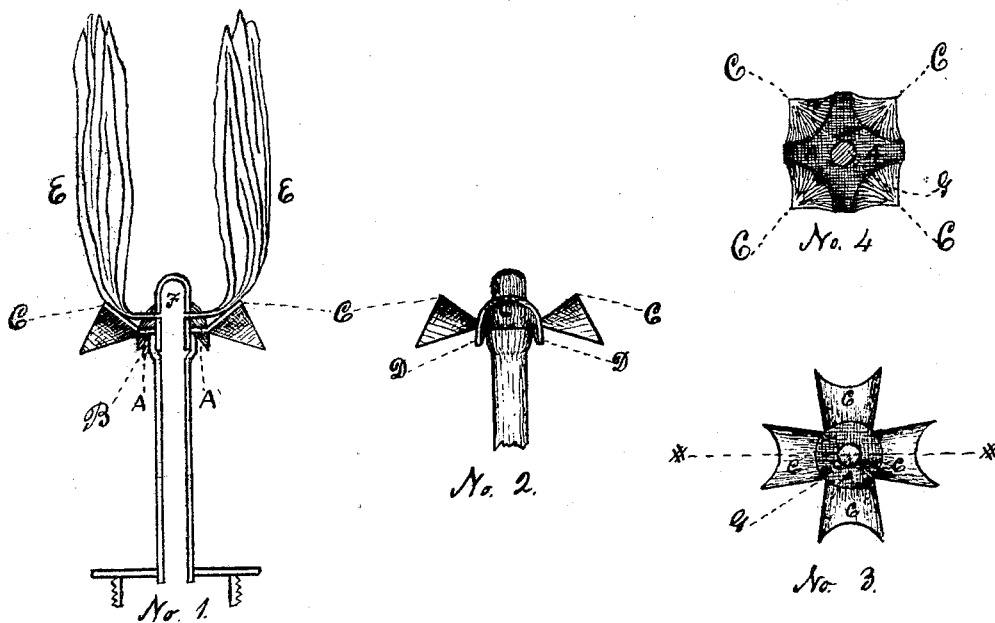


R. NUTTING.

Improvement in Protectors for Gas or Vapor Burners.

No. 114,329.

Patented May 2, 1871.



Inventor

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Witnesses

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# United States Patent Office.

RUFUS NUTTING, OF RANDOLPH, VERMONT.

Letters Patent No. 114,329, dated May 2, 1871

## IMPROVEMENT IN PROTECTORS FOR GAS OR VAPOR-BURNERS.

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

I, RUFUS NUTTING, of Randolph, county of Orange and State of Vermont, have invented certain Improvements in Protectors for Lamp, Gas, or Vapor-Burners, of which the following is a specification.

The nature of my invention consists in the construction of a plate called a protector, for combination with lamp, gas, or vapor-burners, to prevent their flames from going out so easily when a current of air strikes them, as they are being carried about the house, in such a manner that it may be instantly so adjusted as to deflect the flames from a nearly horizontal to a nearly perpendicular or vertical direction, and flatten or spread them so as to absorb more oxygen from the air by the flames or jets striking the raised or elevated portions of it, which thereby absorb more heat and conduct it to the burner-tip, which, by increased heat, converts the vapor within it into gas more rapidly, and produces a larger and more adhesive flame, and also, by its uneven surface, inclining the jets to hug and impart their heat to some part of the protector when blown out of their position by the wind, as well as be shielded from the greatest force of the current; and also so that it can be instantly so adjusted that the flames will be emitted in their naturally horizontal direction if desired.

The drawing—

Number 1 is a transverse sectional view of a protector, in combination with one of my patent lamp gas-burners, as if cut in two from \* to \* in No. 3, and showing two flames deflected.

Number 2 is an elevation view, with the upper section of the wick-tube.

Number 3 is a vertical view showing the flame or central part A, deflectors C, and hole G, through which the burner-tip projects.

The central part of the protector A is plain, and about half an inch in diameter, and when in use rests upon the upper end of the socket in the wick-tube, which holds to the gasificator or burner-tip, as seen at B, No. 1. (The protector is usually made of No. 28 sheet brass.)

The part C is inclined upward at an angle of about forty-five degrees with or from the plane A, in its central or highest part, and its sides curve downward, so as to form nearly a semicircle at its outward extremity, as seen at D, No. 2.

When it is desired to make the flames adhesive, or able to resist currents of air, the protector is turned so that the jets or flames issuing from the holes in the burner-tip shall strike the raised portions C about midway between the plane A and its outer extremity, and by so striking they are turned upward nearly perpendicularly, as represented at E, No. 1, and heat therefrom is absorbed by the raised parts C and con-

ducted by the plane A to the chamber F, which converts the vapor therein more rapidly into gas, and consequently produces a larger, more powerful, and tenacious flame, which, in conjunction with the other objects and effects of the protector, (which are to ward off or prevent currents of air from directly striking the jets at the point of emission from the chamber F, to deflect the flames upward, and also afford a condensing or heating plate of such form that the jets or flames will still hug or adhere to some part of it, although there may be quite strong and even counter-currents of air striking against it,) removes the greatest objection now existing to the general use of these burners for domestic purposes, to wit, that they "go out so easily."

When it is desired that the jets shall assume their natural or nearly horizontal direction, the protector is turned laterally one-eighth of a circle, if the burner emits four jets only equidistant from each other, so that the jets pass between the raised portions of the protector and not against any part of it.

In case the burner emits more than four jets, the protector should have a corresponding number of the raised parts C.

The hole G is of such size as to go easily over the burner-tip and allow the protector to be readily turned to any desired position by the point of the finger-nail, pin, or knife.

While I have found by many and protracted experiments that the form of the protector herein described is satisfactorily efficacious to the end desired, I have also found that other forms and proportions are nearly or quite as good, (e. g., see drawing No. 4,) if they embrace the chief and distinguishing features of this, i. e., the deflecting or inclined surface C, in connection with the general corrugated or uneven surface of the whole plate, (which neutralizes somewhat counter-currents of air,) and the concentrating or heat-accumulating power of the whole plate, and its ready adjustability for a domestic-carrying or a parlor-stand light, or pendent light for entries, door-ways, &c., where the frequent opening of doors creates a current of air.

When a perpendicular or vertical flame is required from the center of the burner-tip, as is the case for lantern use, instead of having the jet-holes in the sides of the tips, the hole or holes are made in the upper end of the tip, and the protector is made of such size, thickness, and form that the vertical jet or jets strike against some part of the protector, which part is elongated, raised, and bent over the jet for the purpose, and for receiving the heat and transmitting it to the vapor-chamber F, and of flattening and widening the flame, while its natural tendency to a vertical posi-

tion prevents it from being greatly deflected therefrom.

I am aware that there have been heretofore plates in combination with burners, some designed to accomplish one and some another part of the objects of my device, and less simple and practicable; but am not aware that there has ever been any device previous to my invention either designed for or accomplishing all of the same objects, and by substantially the same mechanism.

I claim as my invention—

The corrugated or uneven surface deflecting protector, in combination with lamp, gas, or vapor-burners, substantially as described, and for the purposes herein set forth.

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Witnesses:

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