

1,019,306.

F. A. CURTIS.
OIL BURNER.
APPLICATION FILED AUG. 11, 1911.

Patented Mar. 5, 1912.

Fig. 1.

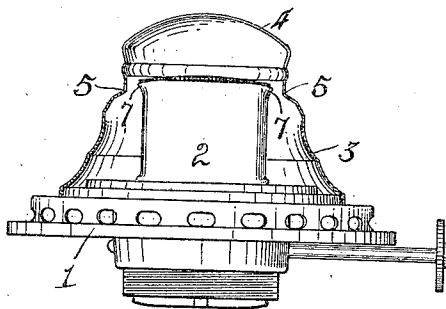


Fig. 2.

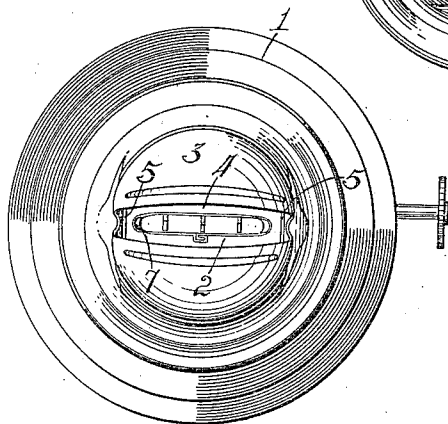
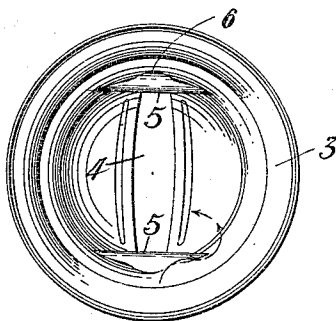


Fig. 3.

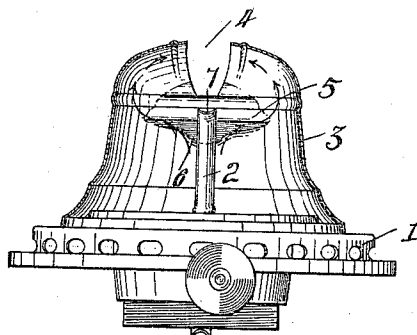


Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

FREDERIC A. CURTIS, OF TOLEDO, OHIO, ASSIGNOR TO THE STEEL MANTLE LIGHT COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

OIL-BURNER.

1,019,306.

Specification of Letters Patent.

Patented Mar. 5, 1912.

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To all whom it may concern:

Be it known that I, FREDERIC A. CURTIS, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Oil-Burner; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to burners of the type particularly adapted for the burning of kerosene or other hydrocarbon oils of low gravity for illuminating purposes.

The object of my invention is to enhance the practicability and commercial value of burners of this character by the provision of improved means in connection therewith for preventing a running up of the ends or corners of the flame and a consequent blackening of the burner chimney, and for providing a flame of maximum size and light giving qualities.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of a burner embodying my invention, with the dome thereof in central vertical section. Fig. 2 is a bottom view of the dome. Fig. 3 is a top view of the burner, and Fig. 4 is a side view thereof with the dome in central vertical section transversely of the wick-tube.

Referring to the drawings, 1 designates the base of a burner, 2 the wick-tube rising therefrom, and 3 the burner dome, which is mounted on the base over the tube 2 and is of the usual construction, except as hereinafter described.

The dome 3 is provided in its top with the usual flame slot or opening 4, which registers with the wick-tube 2 and is longer and broader than such tube for the purpose well understood in the art. The sides of the dome 3 below the ends of the flame slot 4 but adjacent thereto are provided with transversely extending internal ridges 5, which, for simplicity of construction, are

preferably formed by an inward drawing of the metal of the dome wall at such points. These ridges are disposed in horizontal planes which stand at right angles, or substantially so, to the plane of the flame opening 4, and tend to restrict the size of the dome at the ends of the top portion of the wick-tube, as shown in Fig. 1. The shape of each ridge in vertical cross-section is preferably such as would be occasioned by the inward pressure upon the dome wall of a die which is substantially V-shape in cross-section, so that the portions of the dome wall which are immediately above and below a ridge taper inwardly in converging planes to the maximum depth of the ridge. The tapered portion below each ridge preferably terminates in a point at its lower central portion, as at 6, to tend to deflect the air which rises in contact therewith toward the ends of the ridge, whereby such air is deflected from the flame ends and substantially follows the course indicated by the arrows in Figs. 2 and 4, which directs it against the sides of the flames to flatten and broaden it. It is thus apparent that the tapered centrally pointed portions 6 cooperate with the ridges 5 to direct the air, which rises rapidly at the ends of the wick-tube, laterally over such wick-tube ends and against the curved top portions of the dome 3 at the sides of the flame opening 4, and that such air is deflected thereby against the sides of the flame to broaden and enhance its light giving qualities.

In order to provide a greater deflection of air from the flame ends or corners than would be occasioned by the ridges 5, the ends of the upper end portion of the wick-tube are expanded longitudinally of such end to form the outwardly flared portions 7, which cooperate with the ridges 5 to restrict the space between the wick-tube ends and the adjacent portions of the dome wall. It is found in practice that the flared end portions 7 of the wick-tube are very important in the securing of a flame of maximum width, as the air rising within the dome at the wick-tube ends is thereby deflected outwardly from the wick-tube through the ends of the flame opening 4.

The shaping of the wick-tube in this manner also serves to slightly restrict the width of the wick-tube opening at the ends of the upper end portion thereof, as shown in Fig.

3, whereby to cause a greater frictional resistance at the corners of a wick than at the center thereof when the wick is turned up, so that the upper wick end will round, as shown in Fig. 1, when turned up. This form of wick-tube end also facilitates a trimming of a wick, as the outward drawing of the wick-tube corner slightly rounds or lowers the same, as shown.

10 It is evident from an inspection of my improved burner in operation that the co-operating action of the internal ridges 5 of the dome and the flared corner portions 7 of the wick-tube deflect the air from the corners or the ends of the flame and direct it against the curved top portions of the dome by which it is deflected against the flame sides to flatten the same and more effectually support combustion.

20 I wish it understood that my invention is not limited to any specific construction or arrangement of the parts, except in so far as such limitations are specified in the claims.

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

1. A burner of the class described, having its dome provided with a flame opening and with inwardly drawn portions below the ends of the flame opening which provide elongated horizontally disposed internal ridges for the purpose described.

2. A burner of the class described, having its dome provided with a flame opening and with internal ridges which are elongated transversely of the plane of the flame

opening and disposed below the ends thereof with their lower walls tapering downward and outward and terminating in a central air dividing portion, substantially as and for the purpose described.

3. A burner of the class described, having the corner portions of the upper end of its wick-tube flared outward and slightly contracted transversely of the tube to pinch the edges of a wick to retard the movement of the edges in the wick tube relative to the intermediate portion of the wick.

4. A burner of the class described, having its dome provided with internal horizontally elongated ridges below the base of its flame opening and having the corners of the upper end portion of its wick-tube flared outward to coöperate with said dome ridges in deflecting air rising within the dome at the ends of the wick-tube.

5. A burner of the class described, having its dome provided with a flame opening and with integral horizontally elongated ridges which are formed internally thereof below the ends of the flame opening transversely of the plane thereof, each ridge having a tapered lower portion which gradually diminishes in width downward to deflect rising air toward the ends of the respective ridges.

In testimony whereof, I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

FREDERIC A. CURTIS.

Witnesses:

S. T. KLOTZ,

WILBER A. OWEN.