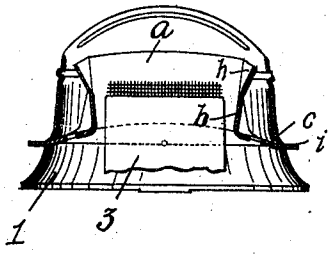
F. A. CURTIS.

DEFLECTOR FOR OIL BURNERS.

APPLICATION FILED FEB. 24, 1910.

980,497. Patented Jan. 3, 1911.

Fig. 1.



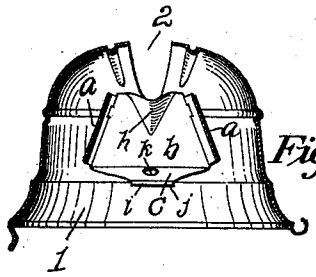
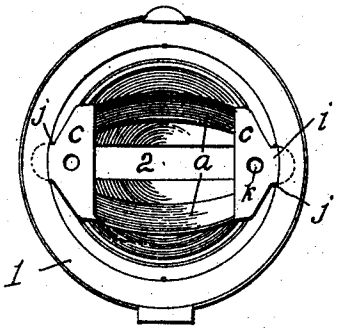


Fig. 2.

Fig. 3.



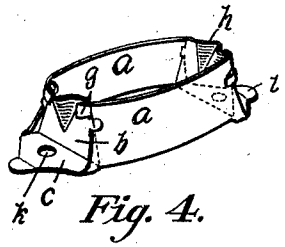


Fig. 4.

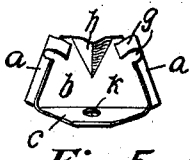


Fig. 5.

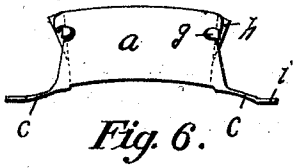


Fig. 6.

Fig. 8.

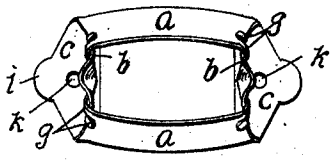


Fig. 7.

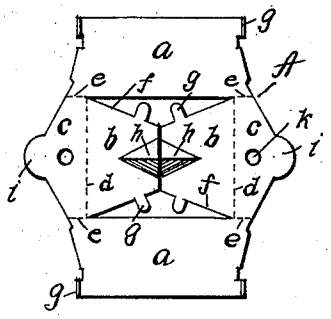


Fig. 9.

Witnesses.

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UNITED STATES PATENT OFFICE.

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

DEFLECTOR FOR OIL-BURNERS.

980,497. Specification of Letters Patent. **Patented Jan. 3, 1911.**

Application filed February 24, 1910. Serial No. 545,705.

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 Deflector for Oil-Burners; 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 letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to deflectors for burners of the class particularly adapted for use in connection with the burning of hydrocarbon oils of low gravity, such, for instance, as kerosene, in lamps for illuminating purposes, but is not restricted to such use as it may be employed in any connection for which it may be adapted or appropriate.

The object of my invention is the provision of an improved deflector of this class, which is simple and inexpensive of construction, efficient in its operation, and which effects a perfect combustion of the carbonaceous gases rising from the burning wick, thus creating a larger and whiter flame than has been possible with the deflectors heretofore used for such purpose, and reducing the carbon deposits on the chimney to a minimum.

The invention is fully described in the following specification, and a preferred embodiment of the same is illustrated in the accompanying drawings, in which,—

Figures 1 and 2 are different central vertical sections of the usual dome of a lamp-burner with my invention associated therewith and the wick-tube partly shown in position in the former. Fig. 3 is a bottom view of the same. Fig. 4 is a perspective view of the deflector, Figs. 5, 6 and 7 are end, side and top plan views of the same, and Figs. 8 and 9 are end and plan views of a blank, partly formed, from which the deflector is formed.

Referring to the drawings, 1 designates a burner dome which has the usual slot or flame opening 2 in vertical register with the wick-tube 3, all of which parts are common in illuminating burners.

The deflector comprising my invention is preferably formed in a single piece from a sheet-metal blank A, which is fashioned substantially as indicated in Figs. 8 and 9. The blank comprises the outer parts *a*, *a* for forming the side walls of the deflector, the inner parts *b*, *b* for forming the end walls of the deflector, and the outer parts *c*, *c*, which form laterally projecting ledges or wings at the bases of the parts *b*, *b* and attach at their inner edges throughout their lengths to the outer or base edges of the parts *b*, *b*, as indicated by the dotted fold lines *d*, *d* and at their ends to the ends of the inner or base edges of the parts *a*, *a*, as indicated by the dotted fold lines *e*.

In forming the deflector from the blank A the ends or parts *b*, *b* are bent outwardly in the same direction relative to the blank, at substantially right-angles thereto, along their base lines *d*, and the sides or parts *a*, *a* are likewise bent in the same direction along the lines *e* until stopped by contact with the tapered side edges *f* of the ends *b*, *b*, as indicated, thus causing the sides *a*, *a* to incline inwardly from vertical planes whereby to effect a gradual upward transverse restriction of the passage through the deflector, as shown. The parts *a* and *b* are retained in this form by the provision on their ends of ears *g*, which are bent around the adjacent edges of the parts.

The sides *a*, *a* are preferably slightly bowed longitudinally thereof to narrow the deflector opening at its ends, and the upper edges of the ends *b*, *b* are struck outwardly at their central portions, as at *h*, to permit a horizontal lengthening of the flame, and to also serve as outward deflecting means for air rising within the burner dome without the ends of the deflector to prevent it from striking and narrowing the flame.

The ledges or outwardly projecting parts *c*, *c* serve to fill the space between the bases of the deflector ends *b*, *b* and the dome wall to prevent air from rising between such wall and ends, and are provided with tongues *i* for projecting into slits *j* provided in the adjacent walls of the dome whereby to support the deflector in proper position within the dome, as shown. To prevent a dead air space between the deflector ends and dome wall, the ledges *c*, *c* are provided with small

openings *k*, which permit a sufficient circulation of air at the ends of the deflector to obviate the dead air spaces and to prevent a too highly heating of the deflector ends and dome.

In the use of my improved deflector, the walls thereof become highly heated by radiant heat from the flame, and these walls in turn heat the air passing upwardly within and without the same. A sufficient quantity of air rises through the deflector opening to support combustion, and, being heated, more effectually performs such function, while the heated air which rises without the deflector sides impinges against the flame sides above the deflector and serves both to flatten and broaden the flame and also to commingle therewith to effect a perfect combustion of all carbon matter rising with the flame. It is found with this arrangement that a very broad and white flame is provided, which has the maximum lighting efficiency for the size of wick and kind of oil used. The inwardly inclining of the side walls of the deflector or the lateral contracting of the opening therethrough from the bottom to the top thereof directs the air passing therethrough toward the wick and flame.

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.

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

1. The combination with a burner dome, of an inclosed deflector having its ends spaced from the dome walls and provided with perforated portions which coöperate with the dome to support the deflector and serve to partially deflect air from passing upwardly between the deflector ends and dome walls.

2. The combination with a burner dome, of a deflector disposed therein and having ledges projecting from the bases of its ends and coöperating with the dome to support the deflector and closing the upward passage between the deflector ends and dome walls, said ledges having openings therein to permit a restricted passage of air through such portions.

3. A deflector of the class described comprising opposing ends and sides and having ledges projecting laterally from its ends at the bases thereof to serve to deflect air and also as supports for the deflector, said ends and sides having their end edges integrally connected adjacent their bases.

4. A deflector of the class described comprising end and side walls and having its end walls provided at their upper ends with outwardly and upwardly flared central depressions and having ledges projecting from their bases and perforated to form restricted air passages.

5. A blank for deflectors having opposed inwardly projecting portions capable of being bent outwardly to form end walls, and opposed outwardly projecting portions capable of being bent inwardly to form side walls.

6. A blank for deflectors comprising inwardly projecting portions capable of being bent outwardly to form end walls, and opposing outwardly projecting portions capable of being bent inwardly to form side walls, said portions having means at their edges which are capable of coöperating to lock the end and side walls in bent position.

7. A blank for deflectors comprising opposing inwardly projecting portions capable of being bent outwardly to form end walls, opposing outwardly projecting portions at the sides of the inwardly projecting portions capable of being bent inwardly to form side walls, said portions having ears which are capable of coöperating to lock said portions in bent positions and parts projecting from the outer ends of the inwardly projecting portions which form supporting ledges for the deflector when formed.

8. A blank for deflectors comprising inwardly projecting portions having their sides tapered and their inner ends provided with central depressions, said portions being capable of being bent outwardly to form end walls of a deflector, opposing outwardly projecting portions at the sides of said inwardly projecting portions capable of being bent inwardly to form side walls of a deflector, portions projecting from the outer ends of the inwardly projecting portions to form supporting ledges, said supporting ledges having perforations therein.

9. A blank for deflectors comprising the inwardly projecting portions *b*, *b*, the opposed outwardly projecting portions *a*, *a*, and the opposed outwardly projecting portions *c*, *c*, the portions *b*, *b* and *a*, *a* having the tongues *g*, *g*, substantially as and for the purpose described.

10. A blank for deflectors comprising the inwardly projecting portions *b*, *b*, the opposed outwardly projecting portions *a*, *a*, said portions all having ears *g* projecting therefrom, and the portions *b*, *b* having the tapered portions *h* at their other ends, and the opposed outwardly projecting portions at the bases of the portions *b*, *b*, substantially as described.

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

FREDERIC A. CURTIS.

Witnesses:
C. W. OWEN,
E. E. THOMAS.