

F. A. CURTIS.
OIL BURNER.
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999,301.

Patented Aug. 1, 1911.

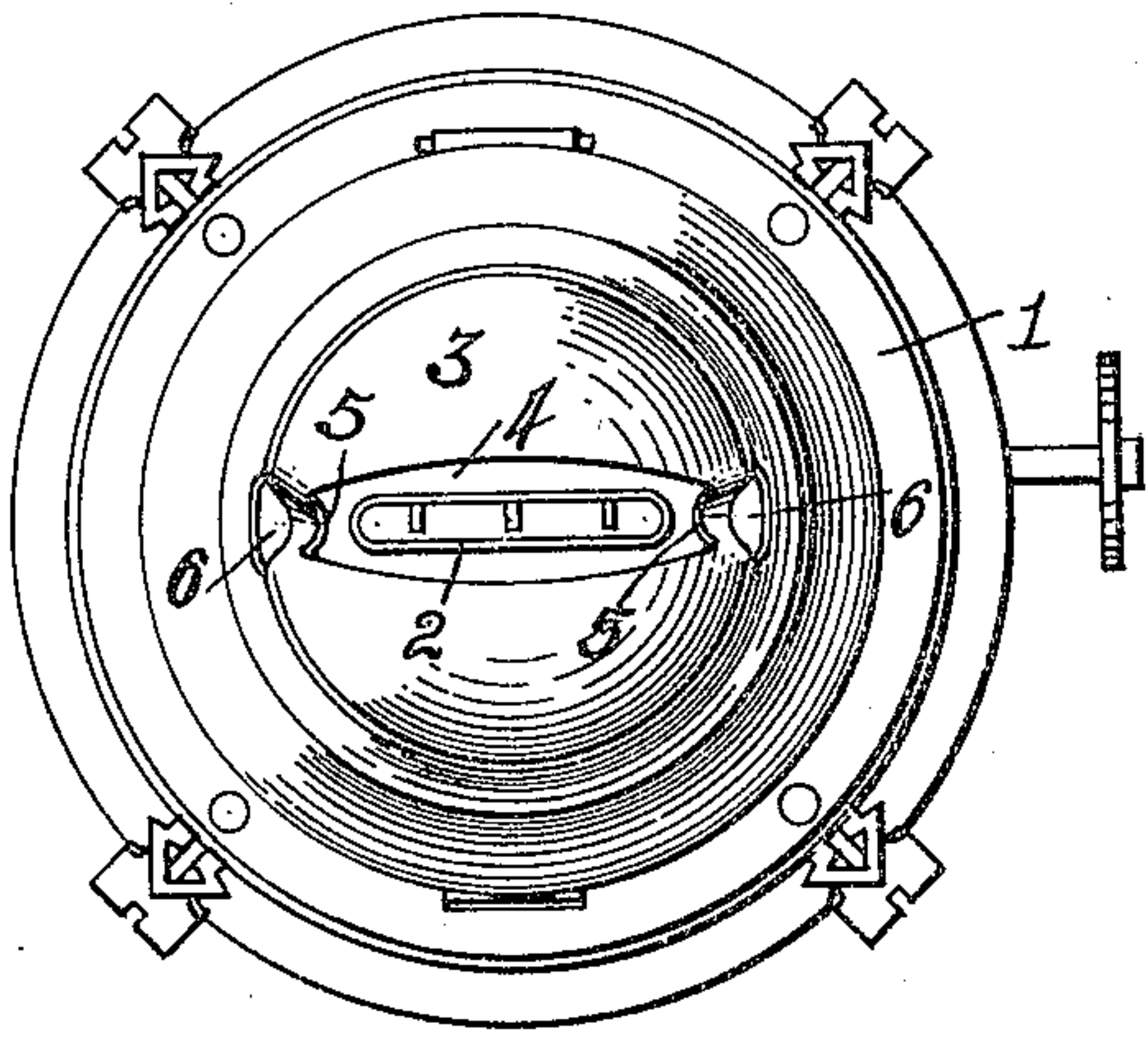


Fig. 1.

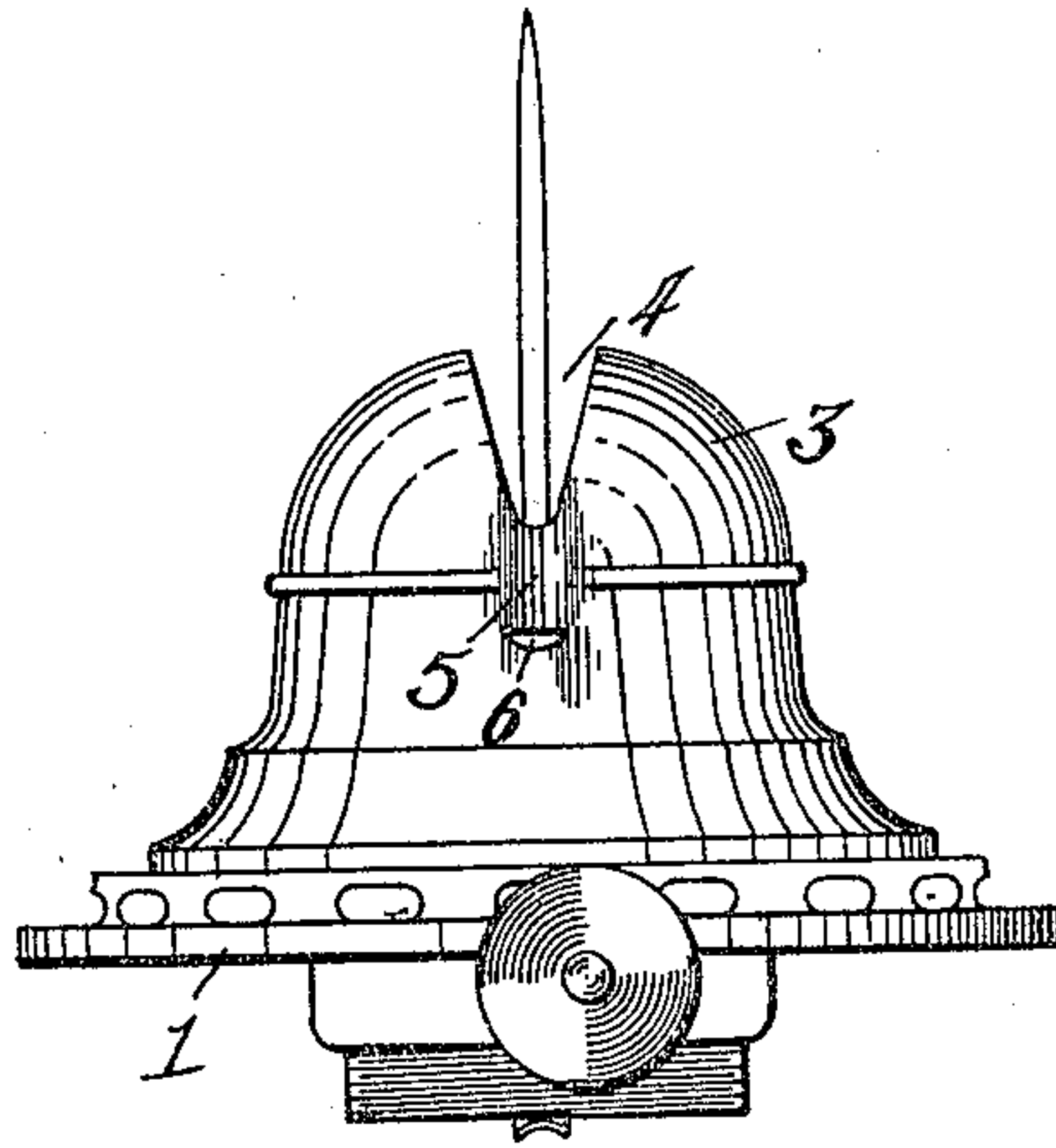


Fig. 2.

Fig. 3.

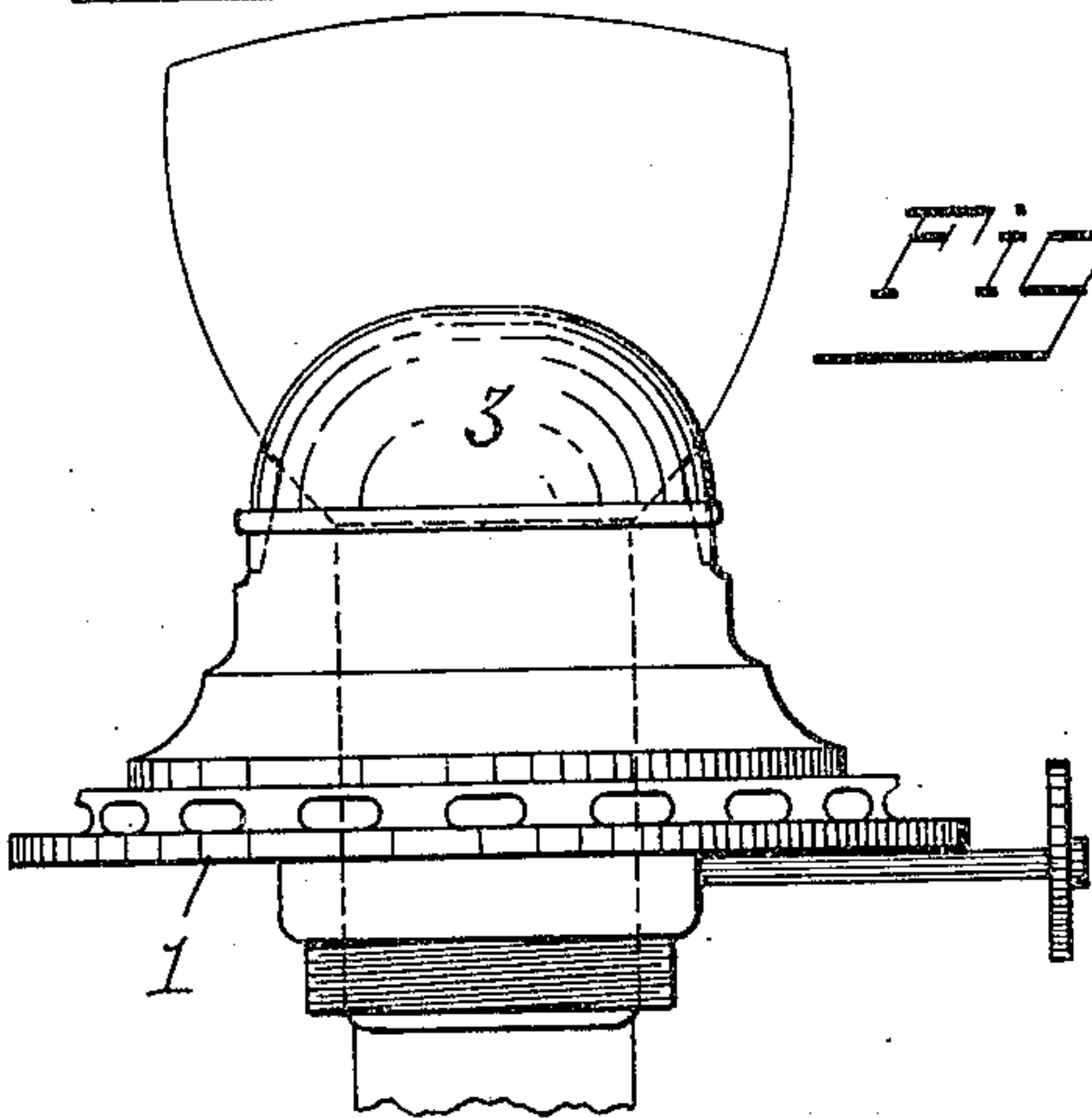


Fig. 4.

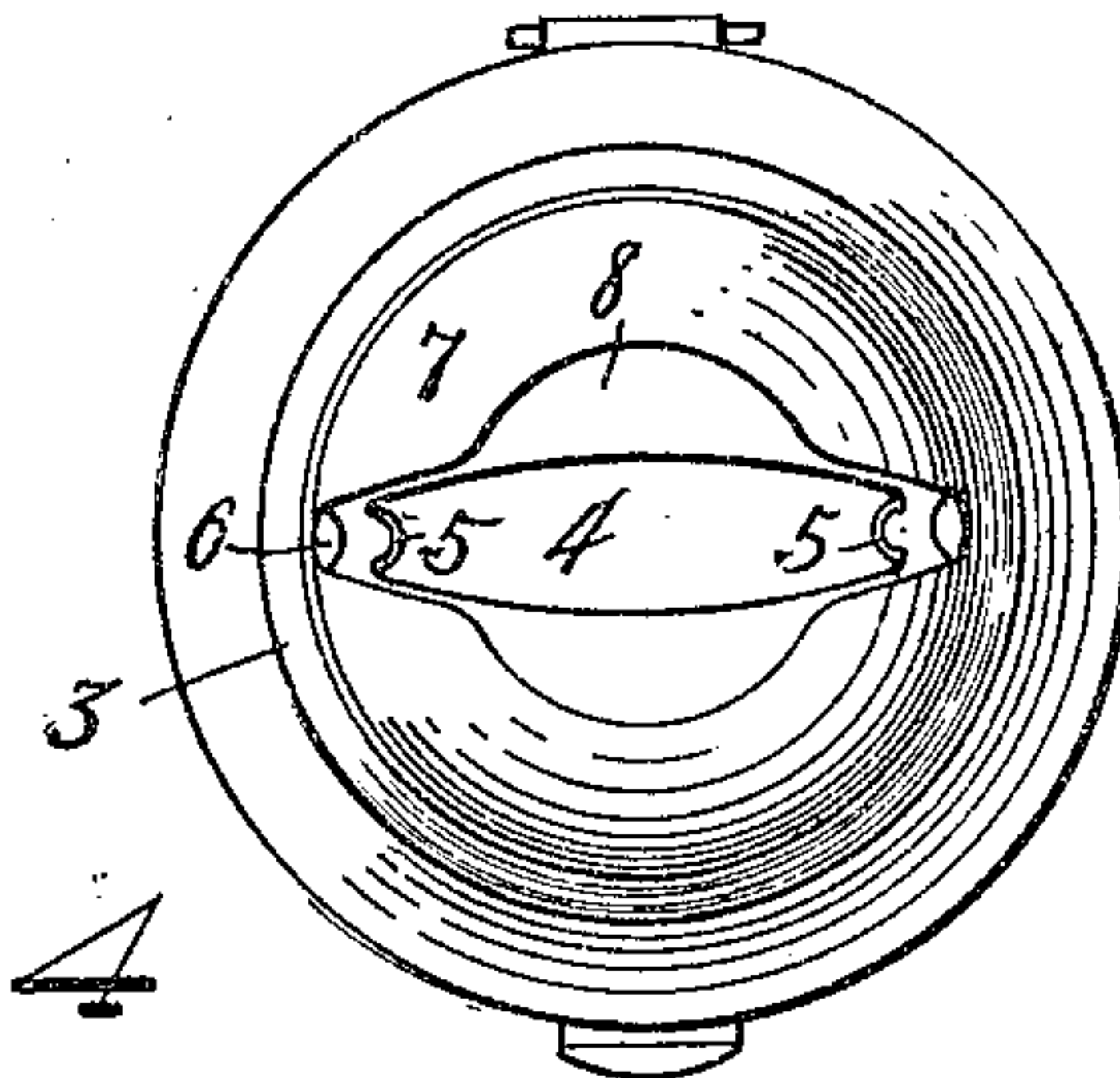
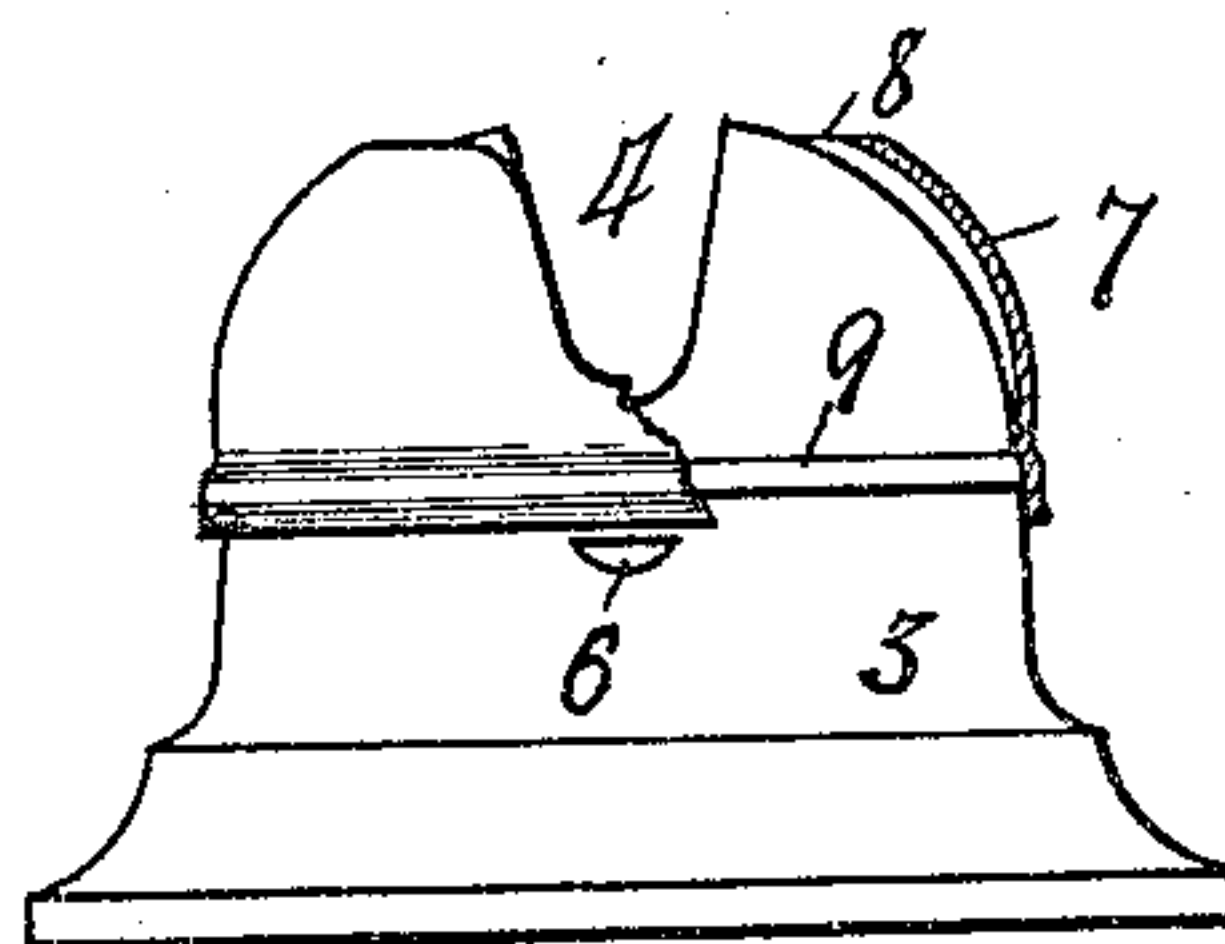


Fig. 5.



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.

OIL-BURNER.

999,301.

Specification of Letters Patent.

Patented Aug. 1, 1911.

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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.

Numerous attachments have been provided for use in connection with burners of this class for enlarging and whitening the flame, but in most, if not every case, such attachments have comprised deflectors, in one form or other, which are placed within the burner hood or dome. While these attachments enhance the light giving qualities of the flame, they have been found to be objectionable by reason of the additional heat generated thereby at the base of the burner, and the consequent danger of explosion due to the generation of a gas within the font.

The object of my invention has been to provide a burner of the character described, which will obviate the objections incident to the forms of burners above referred to and at the same time give a flame of maximum size and light giving qualities, thus enhancing the practicability and commercial value of this class of burners.

A further object of my invention is the provision of a burner of this class, which is composed of a minimum number of parts, and is strong, durable and economical in its construction.

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 top plan view of a burner embodying my invention. Figs. 2 and 3 are different side elevations thereof. Fig. 4 is a top plan view of the burner dome with a heat retaining hood mounted thereon, and

Fig. 5 is a side elevation thereof with a portion of the heat retaining hood broken away.

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 to permit the air which rises within the dome to pass through the opening at the sides of a flame, as is well understood in the art. The opposite sides of the dome 3 at the ends of the slot 4 therein are inwardly depressed as at 5 for a distance downwardly from the ends of such slot, and such depressed portions preferably terminate at their lower ends in openings 6 through the dome sides. It is found that the inward depressions 5 act on the air which rushes outwardly from within the dome 3 at the ends of the slot 4 to deflect it from striking the ends of the flame but causes it to impinge against the opposite side edges thereof to flatter and broaden the same.

In the use of this class of burners, it has been found that the smoking of chimneys is occasioned by imperfect combustion at the ends of the flame, and that wherever smoking occurs the corners of the flame run up beyond the center. By the use of the depressions or air deflectors 5 in the dome at the ends of the flame opening the rush of air at such ends is restricted to a certain extent and directed against the opposite side edges of the flame, thus permitting the flame to spread out to its maximum width and eliminate the running up of the ends of the flame.

While the provision alone of the depressions or deflector portions 5, very materially improves upon the quality of a flame, it is preferable to provide the openings 6 at the lower ends thereof to permit a portion of the air which would otherwise rush outwardly from the dome at the ends of the slot 4 to escape to the atmosphere through such openings.

In Figs. 4 and 5, the dome 3 which is the same as shown in the other figures, is provided at its upper portion with an incasing hood 7 having an opening 8 in register with

and larger than the opening 4 of the dome. This hood is preferably outwardly beaded at its lower edge to adapt it to spring over and coöperate with the usual annular bead
 5 9 on the dome to retain the hood thereto, and the purpose of this hood is to reinforce the upper portion of the dome 3 to more effectually retain heat therein so that the air which rises within the dome is heated to
 10 a higher temperature before escaping through the flame opening, whereby to more effectually support combustion.

From an inspection of the flame which is given out by the use of my burner, it ap-
 15 pears that the air which would otherwise rise and escape from the dome opening directly at the ends of the flame is laterally deflected from such ends and directed upwardly at the side edges of the flame by the
 20 crevices which are formed within the dome at the sides of the depressed portions 5, and this deflecting of the air is augmented by the provision of the openings 6 which per-
 25 mit the escape of a portion of the air from within the dome to the atmosphere without striking the ends of the flame at the bases thereof. The discharging of the heated air in this manner from the dome so that it strikes the flame after it has reached beyond
 30 the sides of the dome seems to serve to more effectually round the corner of the flame and to effect a more perfect combustion of the carbonaceous particles rising with the flame.

I wish it understood that my invention 35 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 40 Letters Patent, is,—

1. A burner of the class described having its dome provided with a flame opening, the dome being formed on opposite sides there-
 45 of with elongated vertically extending internal ridges which terminate at their upper ends adjacent the ends of the flame opening in vertical register therewith and coöperate with the dome wall to form ver-
 50 tically disposed channels at their sides for the purpose described.

2. A burner of the class described, hav-
 55 ing its dome provided with a flame opening, the walls of the dome at the ends of such opening being inwardly depressed to form vertical deflector ribs which extend
 60 downwardly a distance from the flame opening and terminate at their lower ends in openings provided through the dome wall for the escape of air.

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

FREDERIC A. CURTIS.

Witnesses:

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 M. G. GASKELL.