

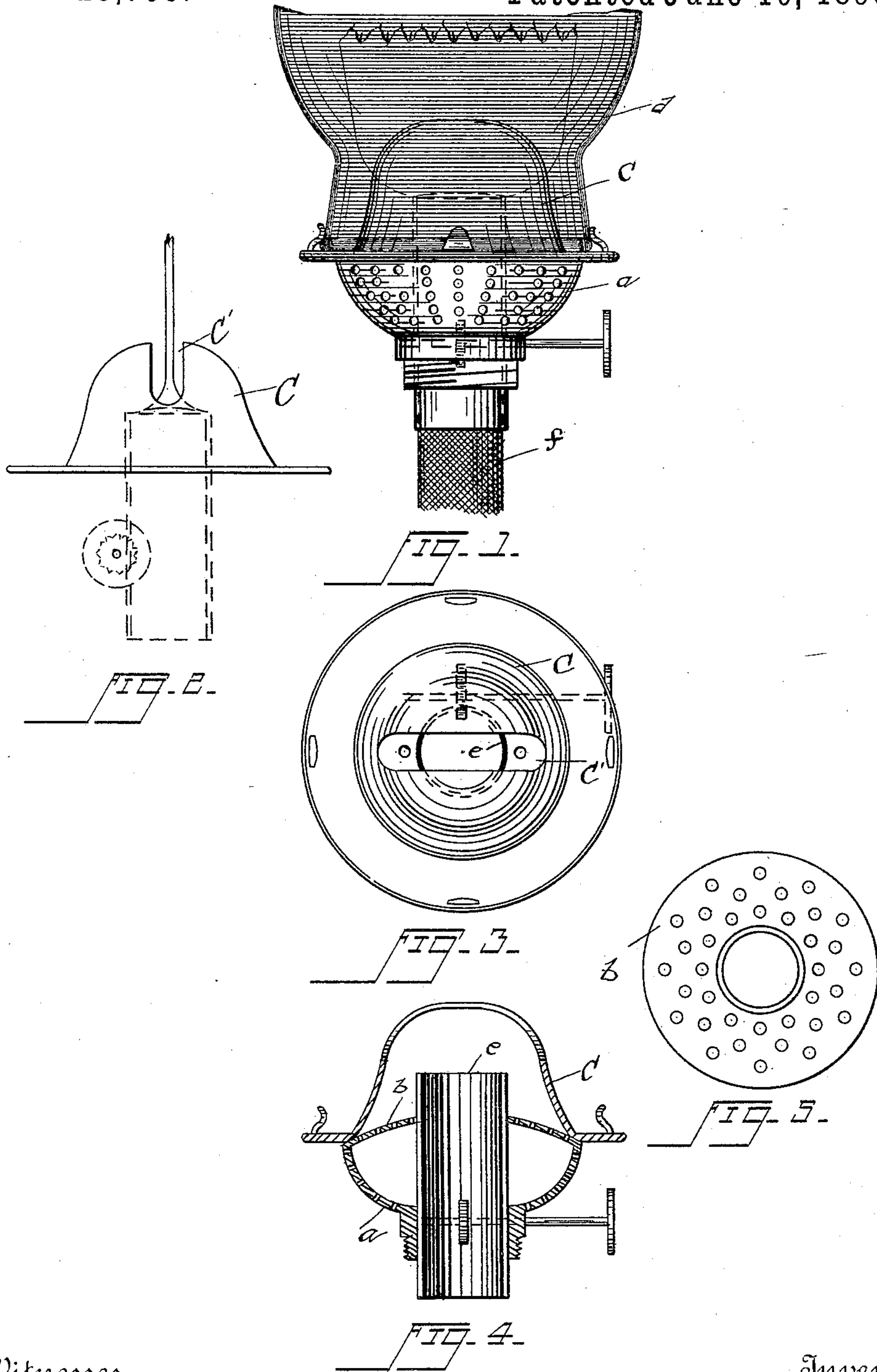
(No Model.)

2 Sheets—Sheet 1.

N. S. CLEMENT.
OIL BURNER.

No. 429,755.

Patented June 10, 1890.



Witnesses
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Inventor
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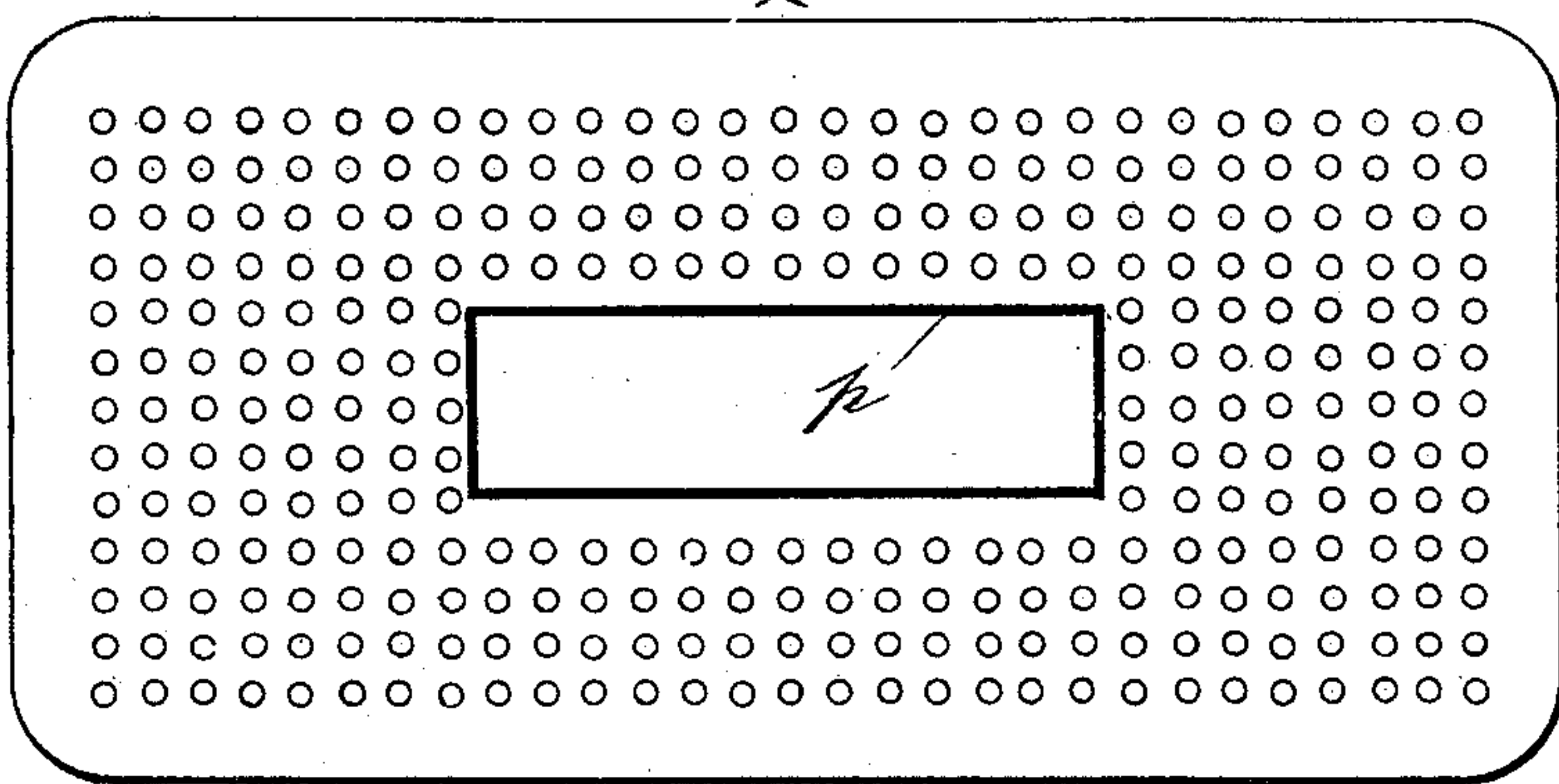
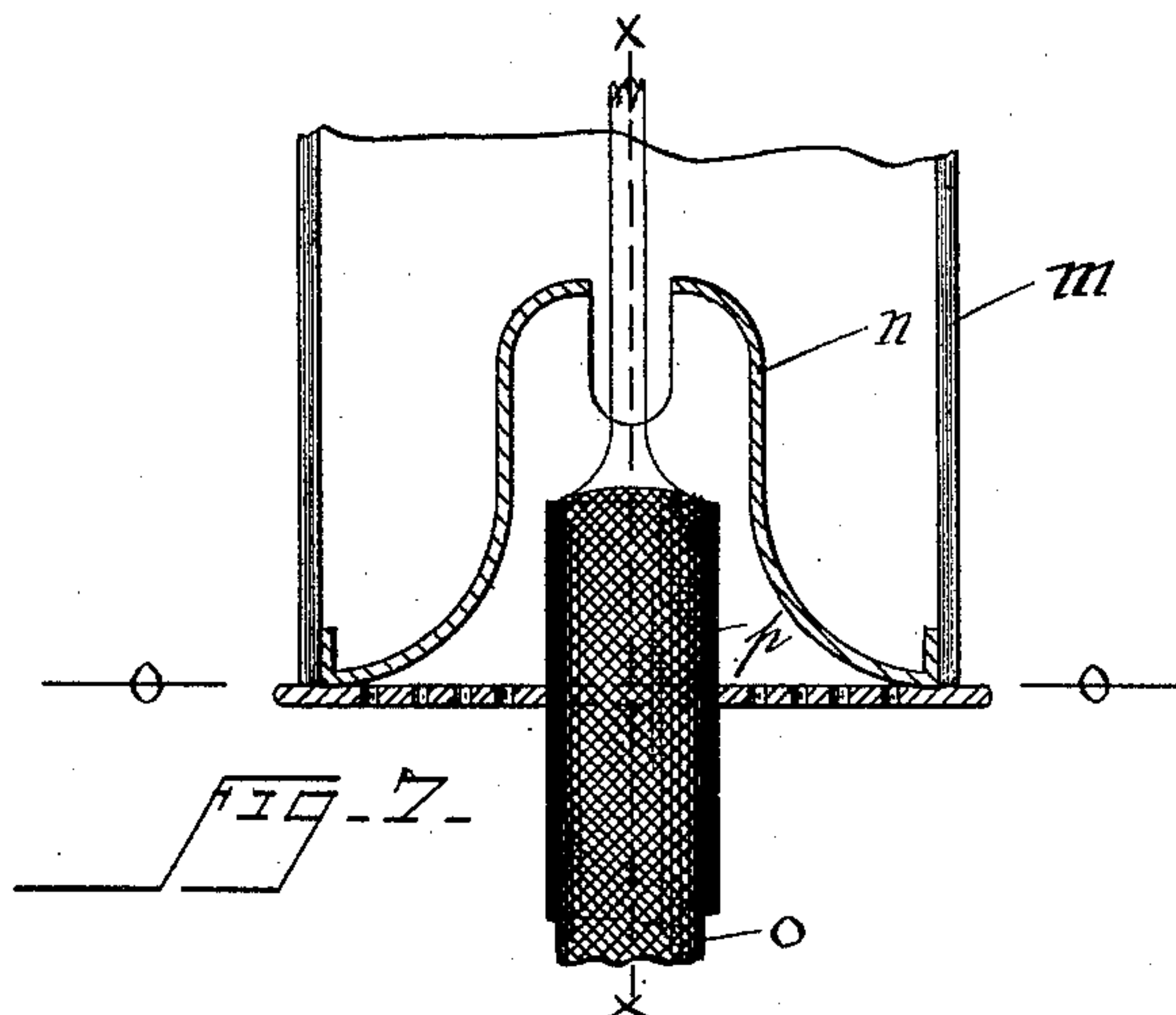
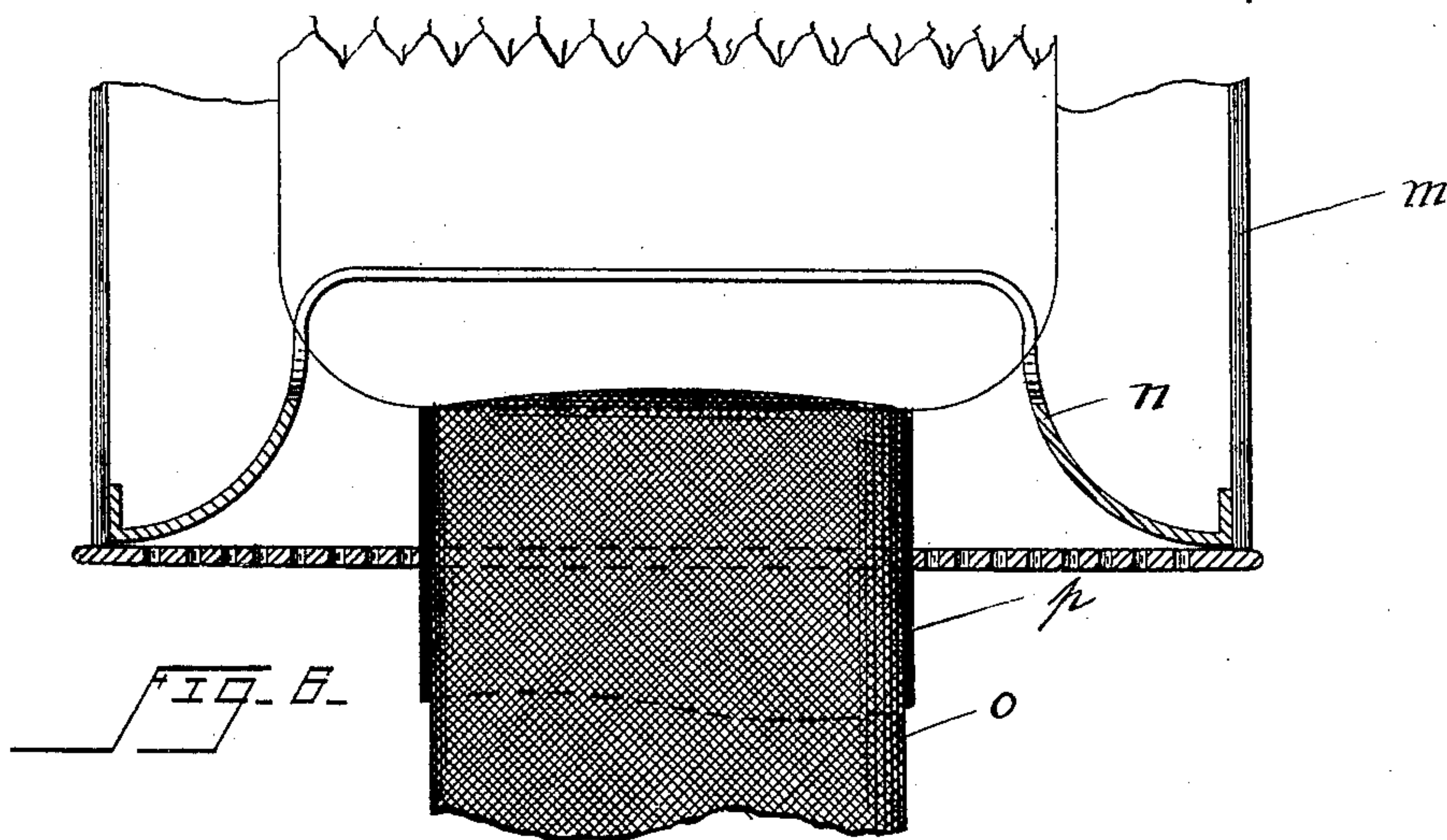
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2 Sheets—Sheet 2.

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OIL BURNER.

No. 429,755.

Patented June 10, 1890.



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UNITED STATES PATENT OFFICE.

NATHAN S. CLEMENT, OF FLORENCE, MASSACHUSETTS.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 429,755, dated June 10, 1890.

Application filed June 21, 1889. Serial No. 315,131. (No model.)

To all whom it may concern:

Be it known that I, NATHAN S. CLEMENT, of Florence, in the county of Hampshire and State of Massachusetts, have invented a new and useful Improvement in Oil-Burners, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to burners for burning kerosene in lamps for illuminating purposes and in oil-stoves for cooking and other purposes, and particularly to that class of such burners in which a thin flame of either flat or "bat's-wing" or annular form is produced, and in which a chimney is employed, either of glass, as in the illuminating-lamp, or of metal, as in the lamp-stove.

The object of my invention is to provide an oil-burner in which is employed, in connection with the usual slotted cone or deflector and perforated air-distributing plate, a wick which need project but very slightly, if at all, above the top of the wick-tube to give a flame of the usual size, thereby causing the flame to pass over the top surface merely of the wick and almost entirely preventing charring of the wick, which will therefore require no trimming, whereby its effective life is greatly prolonged and a constantly-even flame and proper combustion are assured, and which will continue to burn with the same intensity until all of the oil has been exhausted from the lamp-reservoir.

To these ends my invention consists in the constructions and combinations of parts, as hereinafter indicated in the claims.

Referring to the drawings, in which like letters designate like parts in the several figures, Figure 1 is a side elevation of a burner embodying my invention. Fig. 2 is a similar view of the cone or deflector, illustrating the manner in which the flame issues from the slot therein. Fig. 3 is a plan view of the burner. Fig. 4 is a central vertical section thereof. Fig. 5 is a plan view of the air-distributing plate. Fig. 6 is a longitudinal central section of an oil-stove burner embodying my invention. Fig. 7 is a cross-section, and Fig. 8 a plan view, thereof.

Referring to Figs. 1 to 5, inclusive, the let-

ter *a* designates the base, *b* the air-distributing plate, *c* the cone or deflector having slot *c'* therein, and *d* a portion of the chimney, of a common form of kerosene-lamp burner. As hereinbefore stated, these burners have heretofore been provided with a wick and wick-tube therefor the cross-sectional area of which is less than the width of the slot *c'* of the cone *c*. In the practice of my invention I provide said burner with a wick and wick-tube whose area in cross-section is greater than the width of said slot, and, as herein shown, the wick-tube *e* is made round in cross-section to receive a round wick *f*. As will be observed by reference to Figs. 2 and 3, the diameter of said tube and wick is substantially twice the width of the slot *c'* in cone *c*, and a wick is thus provided whose capacity for capillary attraction is many times greater than would be possessed by a flat wick capable of use in the burner shown. By reason of such increased capacity for supplying oil to the flame the wick herein shown will furnish a flame with its top surface substantially flush with the top of the wick-tube, equal to that furnished by a flat wick of corresponding size when the latter is elevated to a distance of one-fourth of an inch above the top of its wick-tube. Instead, therefore, of the flame being fed from the vertical sides of the wick, above the tube, as would be the case with the flat wick, the flame is fed entirely from the top of the wick, the flame passing from the circular edge of the wick toward the center thereof and thence upwardly through the slot *c'* in cone *c*, as indicated in Fig. 2. There being an ample supply of oil at the top of the wick, owing to its increased cross-sectional area and correspondingly increased capillary attraction, the top of the wick does not become charred, and hence does not require to be trimmed. An occasional rubbing of the flat top surface of the wick with a cloth is all that is necessary to keep it in perfect condition for burning, and by taking care to rub said surface from the edge of the wick toward the center thereof, said edge will be kept perfectly even and smooth. The well-known difficulty of trimming a wick in such manner as to secure a

flame of the proper form to obtain a perfect combustion is thus entirely obviated, and the life of the wick is very materially prolonged.

5 The slot c' in cone c performs the same function in connection with the wick made according to my invention that it has heretofore performed with the flat wick in spreading the flame, and the form of chimney heretofore used can be employed.

10 By reason of the increased capacity for capillary attraction of the wick herein shown, the flame will be maintained at its normal size until all of the oil in the lamp-reservoir is exhausted, instead of decreasing in size after substantially one-half of the oil is exhausted, as is the case with the flat or annular wicks heretofore employed.

15 I have shown as the means for raising and lowering the wick within the wick-tube the usual toothed wheel g and shaft h for turning the same, but it will be obvious that other forms of devices for this purpose can be employed, if desired.

20 In Figs. 6, 7, and 8 I have illustrated the application of my invention to an oil-stove burner, in which m designates the body of the stove, n the cone or deflector, o the wick, and p the wick-tube. The wick in this case instead of being round is made oblong, but its cross-sectional area is sufficiently greater than the width of the slot in cone n to secure the same results, as above described with reference to the round wick. By reference to Fig. 7 it will be observed that the top of the wick is substantially flush with the top of the wick-tube, and that the flame passes over the top of the wick merely to and through the slot in the cone, whereby the wick is prevented from charring and the necessity for trimming the same is avoided.

40 While I have shown in connection with the lamp-burner, in Figs. 1 to 5, inclusive, a wick which is round in cross-section, I do not wish to be understood as limiting myself to such form, as it is obvious that a wick, oval or otherwise shaped in cross-section, so long as it retained the same relative cross-sectional area, would accomplish the same function as the round wick shown. Nor do I wish to limit myself to the exact shape of the cone or other parts of the burner herein shown, as modifications therein can be made without departing from the spirit of my invention, the essential feature of which is a burner employing in connection with a slotted cone and a perforated air-distributing plate a wick of greater cross-sectional area than the width of the slot in said cone.

60 I am aware that lamp-burners having a wick-tube, the cross-sectional area of which is greater than the width of the slot in the cone or deflector, have been heretofore devised; but in all such cases the wick-tube has been occupied by two wicks, or an annular wick and an intermediate air chamber or

tube, so that the wick-containing area of said tube in cross-section has been the same as those hereinbefore referred to—viz., less than the width of the slot in the deflector. My invention differs from such previous constructions in that I provide a wick-tube whose wick-containing area in cross-section is greater than the width of the slot in the deflector, which area is entirely occupied by the wick itself, and it is because of this difference in construction that I am enabled to dispense with an intermediate air-passage and still secure a good result. In this connection I wish it to be understood that while I have illustrated in the drawings a wick whose cross-sectional area is substantially twice the width of the slot in the deflector, such relative proportions are not essential, as my invention comprises a wick whose cross-sectional area exceeds in any degree the width of said slot.

I am also aware that burners having no chimney and no perforated air-distributing plate have used a wick of slightly greater cross-sectional area than the width of the slot in the deflector; but such burners are entirely different in construction and operation from mine, inasmuch as there being no chimney and air-distributing plate to create the necessary draft, the wicks therein used cannot be made to burn entirely from the top thereof to prevent charring and obviate the necessity of trimming the same, as is the case with that devised by me. In other words, such wicks will give a flame of any size only when elevated considerably above the top of the wick-tube, and, consequently, the flame is fed from the vertical sides of the wick in the same manner as in the burners hereinbefore referred to.

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

1. The oil-burner herein described, having means for attaching a chimney thereto and comprising a base, a perforated air-distributing plate, a slotted cone or deflector, and a wick-tube whose wick-containing area in cross-section is greater than the width of the slot in said cone or deflector, and which area is entirely occupied by the wick, substantially as and for the purpose set forth.

2. The oil-burner herein described comprising a base, a perforated air-distributing plate, a slotted cone or deflector, a chimney, and a wick-tube which is substantially round in cross-section and whose cross-sectional area is greater than the width of the slot in said cone or deflector, said wick-tube containing a wick of corresponding shape and size which entirely fills said tube, whereby said wick will present at the top thereof a flattened surface of considerable area and will feed the flame entirely at said top surface, in combination with means for raising and lowering said wick within said tube, substantially as set forth.

3. In an oil-burner for lamps, the combination, with the base, air-distributing plate, slotted cone or deflector, and chimney thereof, of a round wick-tube whose diameter is
5 substantially twice the width of the slot in said cone or deflector, a round wick closely fitting said tube, and means for raising and

lowering said wick within said tube, arranged and operating substantially in the manner set forth.

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Witnesses:

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J. E. CHAPMAN.