

(No Model.)

C. TRENCH.  
OIL BURNER.

No. 418,427.

Patented Dec. 31, 1889.

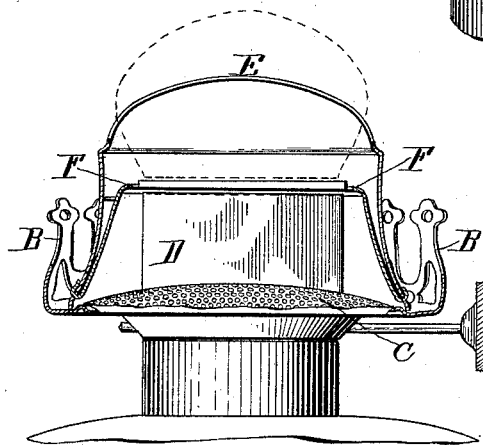
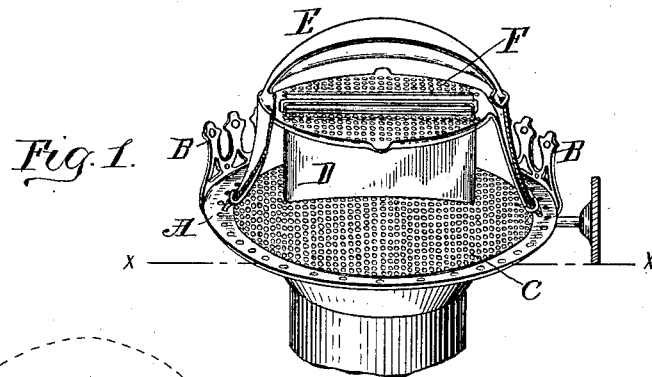


Fig. 2.

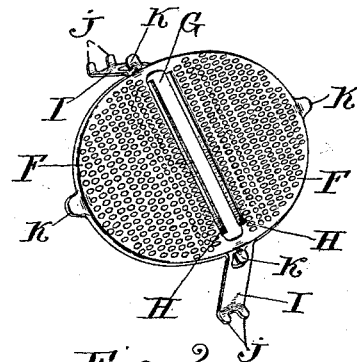


Fig. 3.

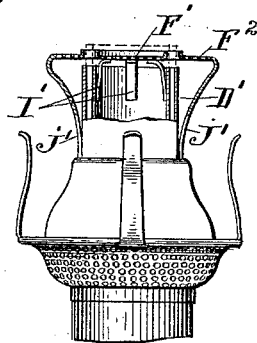


Fig. 4.

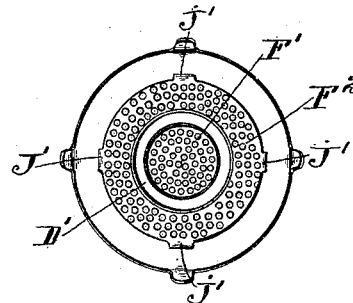


Fig. 5.

Witnesses

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# UNITED STATES PATENT OFFICE.

CHARLES TRENCH, OF BOSTON, MASSACHUSETTS.

## OIL-BURNER.

**SPECIFICATION** forming part of Letters Patent No. 418,427, dated December 31, 1889.

Application filed January 10, 1889. Serial No. 295,945. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES TRENCH, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Oil-Burners, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

My invention relates to oil-burners for illuminating and heating purposes in which wicks are employed; and it consists in a burner embodying the novel devices which will be hereinafter fully described, and pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a lamp-burner in which the usual flat wick is employed and embodying my invention, a portion of the cone or deflector being shown as broken away to disclose the interior parts. Fig. 2 is a vertical section as on line *x x*, Fig. 1. Fig. 3 is a perspective view of a perforated platform detached from the cone, and which is shown in its relation to the cone in Fig. 1. Fig. 4 is a sectional elevation of a center-draft burner in which a circular wick is employed, and embodying my invention in a modified form by which it is adapted to such round burner. Fig. 5 is a top view or plan of the same.

Referring now to Figs. 1, 2, and 3, A represents the base of a lamp-burner of common form and construction, having an ornamental rim B around the same, which serves to hold the glass chimney in place upon the base.

C is the usual foraminous bottom for the admission of air and through which the vertical wick-tube D projects to the required height.

E is the usual metallic cone or deflector which covers the foraminated base and incloses the wick-tube, having the customary flame-slot in its top.

F is a perforated metallic platform, formed, preferably, of thin brass and secured within the deflector at an elevation which, when the deflector is in position on the base, is a little above the top of the wick-tube, so as to leave a small portion of the wick exposed between the top of the tube and the bottom of the platform. This platform, which is the chief feature of my invention, has a wick slot or

passage G through it, which in form and dimensions conforms to the size and shape of the wick employed, fitting closely around the same, and is so arranged when in position above the wick-tube that the wick when turned up by the usual means will freely enter the passage G. The edges H H of the slot G are stiffened and their rectilinear form preserved by being slightly upturned, as clearly shown in Fig. 3. One mode of securing the platform F in position on the burner consists in forming upon or attaching to its edges a pair of arms I I, which at their lower ends are each bent and formed into clinching-points J J. Around the edges of the platform are also formed several horizontal projections K, which serve to center and steady the platform within and against the walls of the deflector, while intervals of considerable air-space are left between the edge of the platform and the surrounding wall. Said wall is punctured on opposite sides to receive the points J, which are clinched through the same at the properly-adjusted height, as shown in Figs. 1 and 2, so that when the deflector, which is detachable, as usual, is removed from the base the platform comes off with it.

When my invention is embodied in a circular or "center-draft" burner, as shown in Figs. 4 and 5, the platform is composed of two parts, a perforated ring F<sup>2</sup>, surrounding the circular wick at a slight elevation above the outer wall of the wick-tube, and a perforated central disk F' at the same elevation within the circle of the wick. The disk F' may be supported at the proper elevation above tube D' by light spring-arms I', bearing against the interior wall of the wick-tube or circular wick-passage, as shown in Fig. 4, while ring F<sup>2</sup> may be supported by elastic arms J' J', bearing against the outer wall of the circular wick tube or passage D' and resting upon a shoulder or stop attached to or formed upon the burner around the tube, the circular space between the two parts F' and F<sup>2</sup> forming a wick-passage concentric with the circular tube. This thin perforated platform F, elevated above the top of the wick-tube and arranged to intervene between the tube and the flame of the ignited wick, and to

serve as the seat of said flame, constitutes, as before stated, the principal feature of my invention, and accomplishes in a new, simple, and comparatively inexpensive manner several important purposes. It serves as a lateral support to the top of the wick without bringing into contact therewith such an extent of heated metallic surface as to cause unsteady combustion and a flaming up and smoking of the burner, such as often occurs when the combustion takes place in the usual manner on the top of a wick-tube, the body of which soon becomes intensely heated thereby. It serves, also, instead of the top of the wick-tube, as the seat of the flame when the wick is ignited, and acts as an insulator in cutting off the flame from the exposed wick beneath the platform, and in preventing the heat of combustion from descending by conduction to the wick-tube, and through it to the oil-fount. It also serves as a very effective air-distributor in dividing the strong current of cool air which passes through its numerous perforations into many streams, thus facilitating the commingling of the same with the vapors and gases evolved from the burning above the platform, together with all emanations of combustible vapor and offensive odor from the exposed wick beneath, so that the same are immediately consumed and destroyed in the intense flaming heat thereby promoted on the top of the platform. Thus it aids in producing most perfect combustion and brilliant illumination with exemption from offensive odors and danger from explosions caused by downward heat upon the oil-fount.

I am aware of Letters Patent of the United States No. 76,653, describing a burner in which the combustion takes place on the top of a "short tube" fastened to the top of a "jacket" and having side "passages" for purposes therein stated, which, together with the short tube that they surround, are arranged to extend a considerable distance above and to be supported by a perforated disk, and which tube and passages are intensely heated by the combustion which takes place on the top of the tube.

I am also aware of Letters Patent No. 82,495, in which a burner is described wherein the wick is raised high above the wick-tube proper, and is supported at its top by "a combined air-flue and wick-holder," leaving a portion of the wick exposed between such holder and a short wick-tube extending up from the base to the current of air in said flue. The top of the "wick" is supported and inclosed by the head of the "flue," which is practically an elevated short tube, upon the top of which combustion takes place, and upon and above which the usual deflector is mounted.

My invention is essentially different from those described in the patents above referred to, and I make no claim to anything shown

or described therein. They aim to accomplish certain objects by different means. I accomplish the same objects and secure other desirable results by new devices, more simple and effective and less expensive. A shorter wick between the source of oil-supply and the point of combustion may be used with my invention, and the illuminating-flame is much steadier than in burners which admit combustible gases and vapors formed below to pass up to the flame through heated side flues, in which they will burn in a fitful intermissive manner, thereby agitating the illuminating-flame unpleasantly and rendering the safety of the lamp problematical. By providing for the passage of the cool air through a perforated platform in such numerous streams, delivered right under the dome of the deflector and immediately around the base of the flame, I furnish the best conditions for perfect combustion and the highest illuminating power, while the thin platform is kept at a comparatively low temperature, so that its slight contact with the wick does not heat it, and thereby make the combustion unsteady and variable. Thus a serious fault with oil-burners is overcome. In burners for heating purposes, especially, is this a very important result, as the burner thus improved consumes the oil steadily and obviates the necessity of such close confining care and watchfulness as is usually required, making it safe to light and leave the burner without danger of its unduly heating the wick, and thereby causing it to burn excessively and smoke. At the same time the heat of combustion, being insulated by the platform F and prevented from being conducted down the wick-tube into the oil-fount and otherwise largely diverted from its useful purpose, is concentrated up under the vessel to be heated with unusual intensity and effectiveness.

I claim—

1. The combination, with a wick-tube D and means for raising and lowering the wick therein, of a perforated platform F, supported in a horizontal plane above and parallel with the top of the wick-tube and having a wick-slot G, which conforms in size and shape to the passage in the wick-tube and fits closely around the wick, arranged to receive and support the wick laterally at such distance above the top of the wick-tube and in such manner that the flame is thereby terminated at and caused to impinge upon the top of the platform, whereby both the wick and tube are prevented from becoming unduly heated, substantially as and for the purposes specified.

2. The combination of wick-tube D and means for raising and lowering the wick therein with a deflector E, having a perforated platform F attached thereto and constructed and arranged therein, so that when the deflector is serving its usual purpose upon the base of the burner it will also support a platform F above the wick-tube and in posi-

tion to serve as the seat of the flame of the ignited wick, as and for the purposes specified.

3. The combination of the perforated platform F, having a wick-passage G, formed with upturned edges H, and arms I, having thereon clinching-points J, with a cone or deflector E, the platform being so connected therewith that the two may be removed from and re-  
10 placed upon the base of the burner as one

piece, and so relatively arranged that when in place upon the base platform F will be supported above the top of the wick-tube, with its slot G vertically coincident therewith, all substantially as and for the pur-  
15 poses specified.

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