F. DOW.

LAMP BURNER.

APPLICATION FILED JULY 28, 1909.

958,378. Patented May 17, 1910.

Fig. 1.

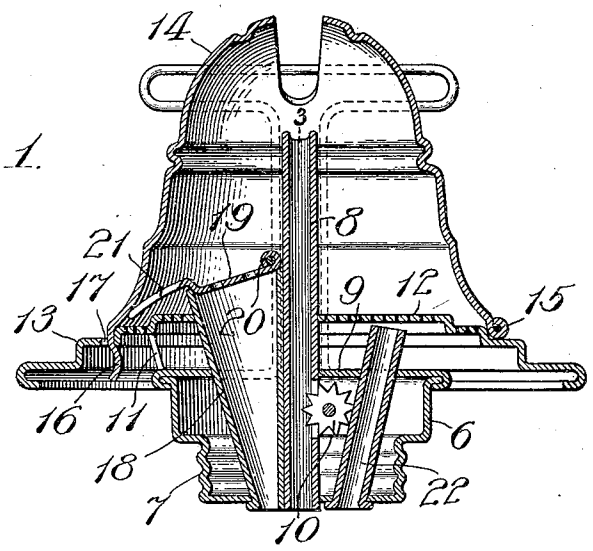


Fig. 2.

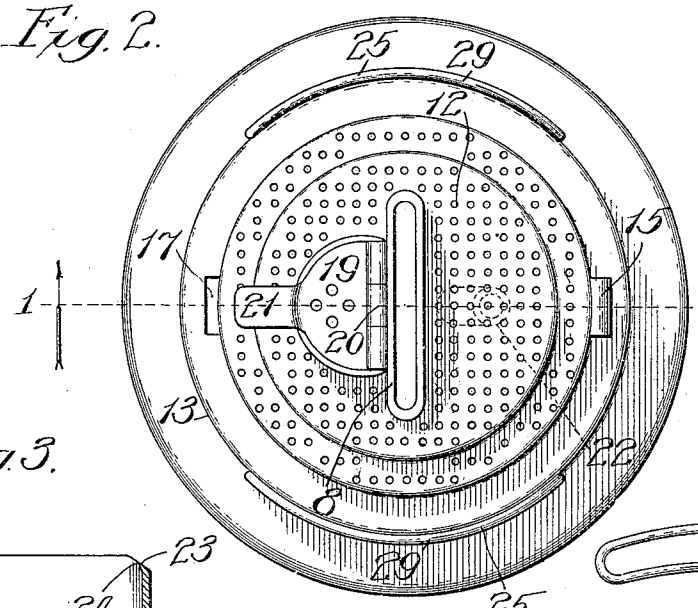


Fig. 3.

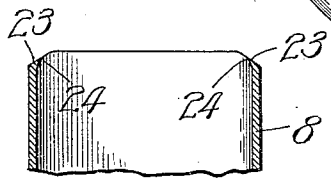
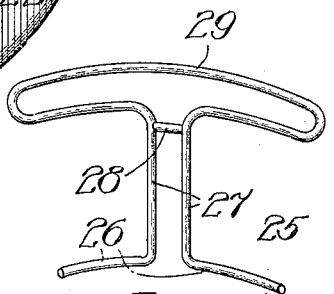


Fig. 4.



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UNITED STATES PATENT OFFICE.

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LAMP-BURNER.

958,378. Specification of Letters Patent. Patented May 17, 1910.

Application filed July 28, 1909. Serial No. 510,026.

To all whom it may concern:

Be it known that I, FLOYD DOW, a citizen of the United States, residing at Princeton, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Lamp-Burners, of which the following is a specification.

My invention relates to improvement in flat-wick lamp burners of the type wherein the wick-tube is surrounded by a perforated diaphragm through which air enters to support combustion, and wherein a preferably hinged cone is provided around the wick-tube over the said diaphragm.

My object is to provide certain improvements in the construction of burners of this class whereby the filling of the lamp with oil may be effected through the burner itself and without the necessity of its removal from the lamp, and whereby more perfect combustion and better illumination are obtained than have been possible hitherto in burners of this type.

In carrying out my invention, I provide in the burner itself a filling-opening, or passage, extending through the perforated diaphragm at one side of the wick-tube down through the base of the burner, the said opening being fitted, preferably, with a perforated cap which, in the preferred form, is hinged in place; and on the opposite side of the wick-tube I provide a similar passage, or opening, of smaller diameter than the filling-passage, to operate as a vent and to distribute the flow of the gases rising from the lamp-bowl in use to opposite sides of the wick. I also provide an improvement in the top of the wick-tube which tends to retard the opposite end-portions of the wick in rising, thereby causing the top of the wick to present an oval surface which produces and maintains an oval-shaped flame; and it is further my object to provide certain improvements in the gallery-portion of the burner, with a view to cheapening its construction and rendering it more convenient in use.

In the accompanying drawing—Figure 1 is a sectional view of a flat-wick burner constructed with my improvements, the section being taken on line 1 in Fig. 2; Fig. 2, a plan view of the burner with the cone removed; Fig. 3, a broken section taken on line 3 in Fig. 1, and showing the construction of the top of the wick-tube; and Fig. 4, a detailed, perspective view of one of the gallery-members.

The base-portion 6 of the burner has a threaded portion 7 to fit the collar in the lamp-bowl, in the usual way. Extending through the part 6 and secured thereto, at its lower end, is the wick-tube 8 which passes through the imperforate cap-portion 9 of the base. The part 6 forms a chamber containing the wick-raising wheel 10, as is common in burners of this class.

Supported upon spacers, or legs, 11 rising from the base-portion 6 is a perforated diaphragm 12 integral with which is the annular imperforate flange 13 forming the gallery-base. The perforate diaphragm 12 fits closely around the wick-tube 8.

14 is the burner-cone hinged at 15 to one edge-portion of the diaphragm 12 and provided at its opposite end with a projecting tongue 16 adapted to pass through the slot 17 in the diaphragm 12, in a common manner, to hold the dome in closed position.

At the side of the wick-tube, opposite the point 15 at which the dome is hinged, is a tube 18 extending from a point above the diaphragm 12 to the lower side of the base 6. The tube flares from its lower end upward and is oblong in a direction parallel with the wide face of the wick-tube. The tube 18 operates as a funnel, having a relatively large upper end, or mouth-portion, through which oil may be poured in filling the bowl of the lamp. The upper end of the funnel, or tube, 18 is normally closed by a swinging cover 19 hinged at 20 and having a projecting tongue 21. The cover 19 is provided with a series of, say, three small perforations which may correspond in size with the perforations provided in the diaphragm 12; and the cover fits closely into the mouth of the tube, as shown. The tongue 21 projects into the path of the swinging cone 14 whereby, when the latter is swung to its closed position, as shown, it insures the closing of the cover 19. On the opposite side of the wick-tube 8, at the center thereof, is a vent-tube 22 extending, preferably, from just beneath the diaphragm 12 downward through the top 9 and lower end of the base 6. The opening through the tube 22 is preferably of an area approximately equal to that of all of the perforations through the cover 19 by means of which an equal feed of the gases from the

bowl of the lamp is carried to each side of the burner. This results in the rapid and complete consumption of the inflammable and explosive gases developed, and in a clear flame, and a powerful, white light, without smoke or disagreeable odor. The flame may be turned much higher than would be the case were the combustion of said gases less rapid and complete. A further advantage derived is the free circulation of air to the surface of the oil whereby the same is cooled, thus lessening danger of explosion. The free escape of the gases through the tubes to the flame leaves the wick clean instead of clogged and discolored as is the case where such gases pass slowly through and around the wick.

When it is desired to fill the lamp, the chimney is removed from the gallery, the cone 14 is swung backward upon its hinge 15, and the cover 19 of the funnel, or filling-tube, 18 is raised. A large opening is thereby presented for the insertion of the spout of an oil-can and the filling can be effected without danger of spilling the oil. Furthermore, as the burner does not have to be removed from the lamp for this purpose, wear upon the threads 7 is prevented, and the whole operation of filling is more cleanly. During the filling of the lamp-bowl the displaced air will vent through the tube 22, thus further avoiding danger of spattering or slopping over. When the wick is ignited a certain amount of heat is necessarily conducted to the under side of the burner and effects decomposition, to a more or less extent, of the hydro-carbon oil in the bowl. The fumes thus generated pass upward through the tubes 18, 22, at opposite sides of the wick-tube, and are directed by the cone 14 into the flame.

Experience with one of these burners lasting over an extended period has demonstrated the following points of advantage: During use the burner is practically odorless or, at the worst, gives off appreciably less odor than a burner of the same type under the same conditions and without my improvements. Furthermore, the flame above the cone 14 has greater illuminating power than a similar burner under the same conditions but unprovided with my improvements.

As illustrated in Fig. 3, the top of the wick-tube 8, at opposite ends, is slightly chamfered, as shown at 23, and formed with a slightly inward-projecting bur 24 of a length just sufficient to operate as a slight drag upon the wick, as the latter is raised, without interfering at all with the lowering of the wick. This has a tendency to cause the wick to drag at opposite edges and bulge at the center, to present a concave surface and shape the flame in a manner to present the largest and most uniform illuminating surface.

In lieu of the prongs, or standards, usually provided on burners of this class, I prefer to employ the chimney-holders 25 illustrated. Each holder is formed of one length of wire, bent as illustrated in Fig. 4, to present the feet 26 which are secured in the usual bead at the under side of the edge of the gallery, the resilient neck or standard-portions 27 which are held together by the tie 28, and the chimney-engaging head-portion 29. The chimney-holding members, constructed as described, operate to retain the chimney with great security, render it easy to insert the chimney in place, and are more durable than the prongs usually provided. Being of wire of no larger gage than necessary, they do not materially obscure the light at the lower part of the burner and are suitably ornamental.

What I claim as new and desire to secure by Letters Patent is—

1. In a flat-wick burner for lamps, the combination with the wick-tube, of a vent-tube located at one side of the wick-tube, and a filling tube located at the opposite side of the wick-tube and provided with a perforated cover, the interior cross-sectional area of the vent-tube approximating the combined area of the perforations in the filling tube cover, whereby a substantially equal feed of the gases from the bowl of the lamp is carried to each side of the burner, for the purpose set forth.

2. In a flat-wick burner for lamps, the combination with the hollow base forming a housing for the wick-lift, a wick-tube extending through said base, perforate diaphragm surrounding the wick-tube above the base, of a filling-tube extending through said diaphragm and base at one side of the wick-tube, an opening-and-closing cover for said filling-tube provided with perforations, and a vent-tube extending through said base at the opposite side of the wick-tube, the interior cross-sectional area of the vent-tube approximating the combined area of the perforations in the filling-tube cover.

FLOYD DOW.

In the presence of—
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R. A. RAYMOND.