No. 715,364. Patented Dec. 9, 1902.

B. F. FOWLER.

LAMP BURNER.

(Application filed Dec. 6, 1901.)

(No Model.)

Fig. 1.

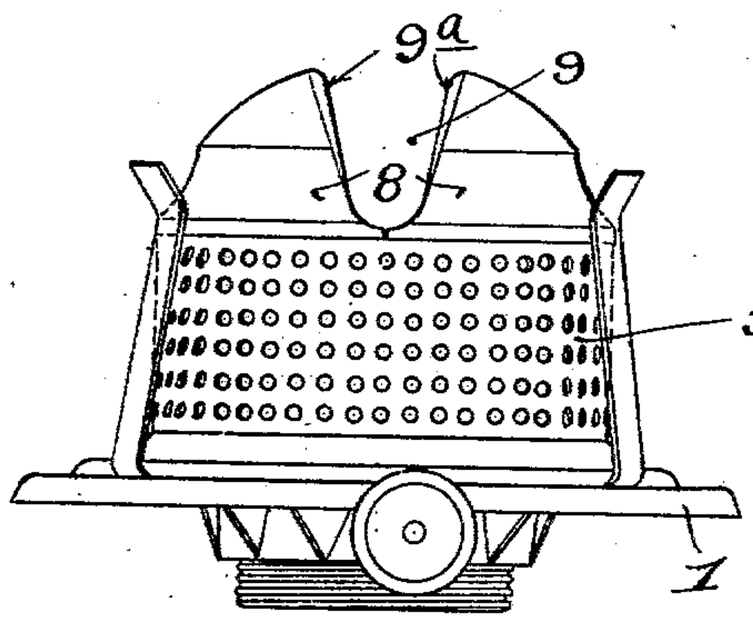


Fig. 2.

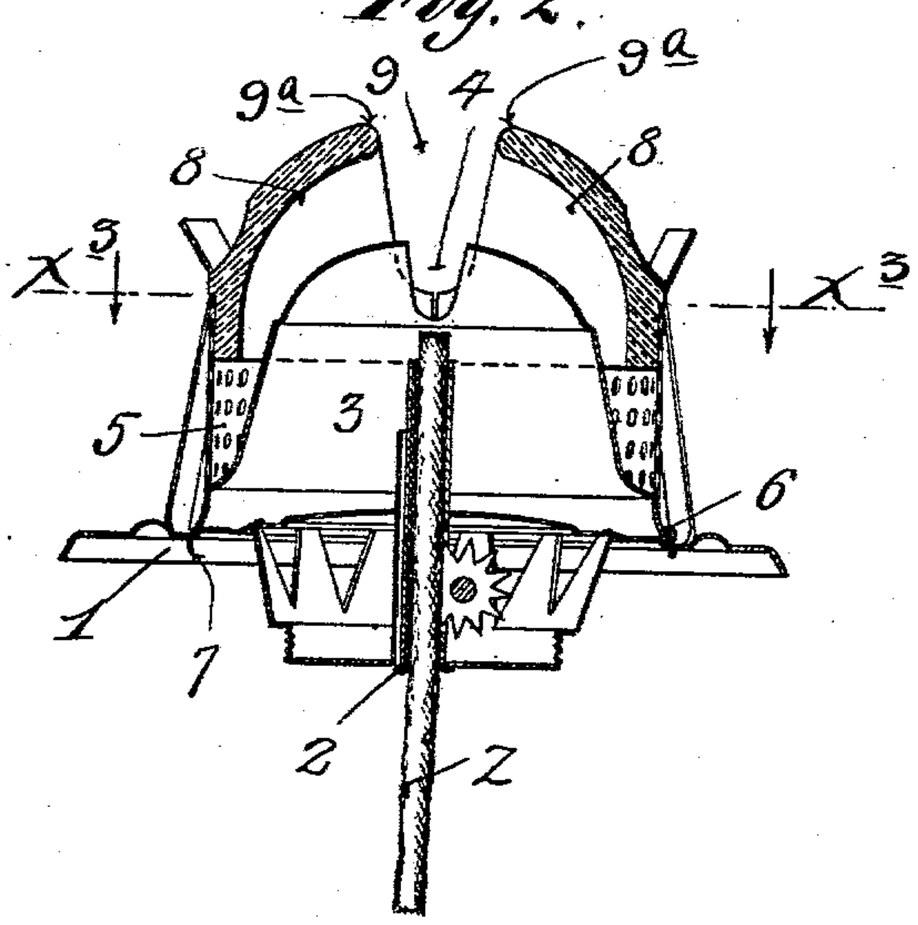


Fig. 3.

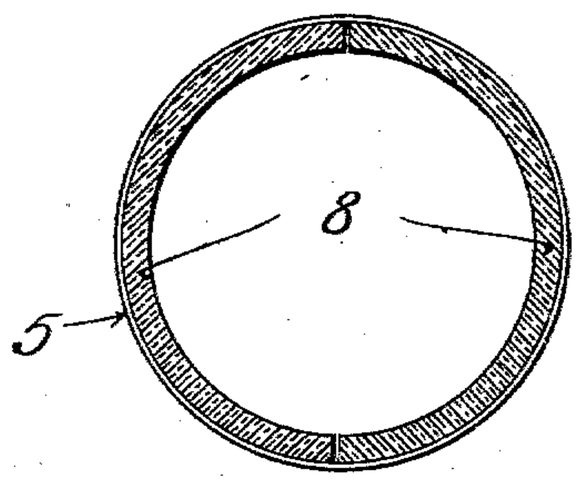


Fig. 4.

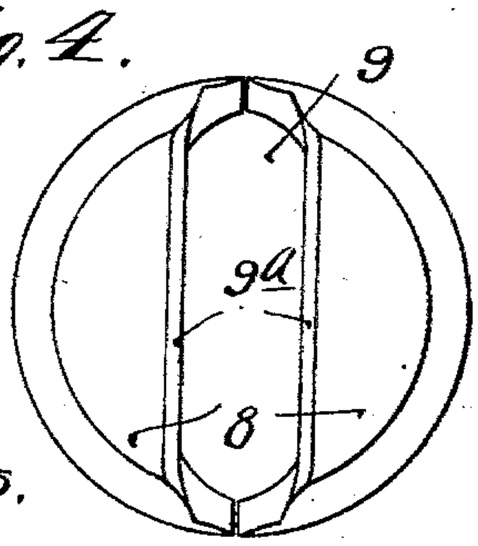
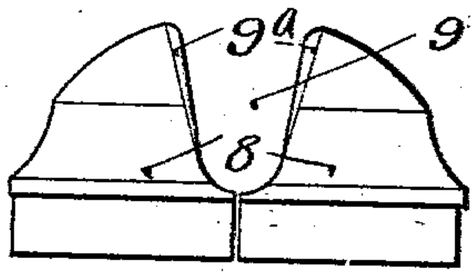


Fig. 5.



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UNITED STATES PATENT OFFICE.

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LAMP-BURNER.

SPECIFICATION forming part of Letters Patent No. 715,364, dated December 9, 1902.

Application filed December 6, 1901. Serial No. 84,874. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. FOWLER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Lamp-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.

My invention has for its object to provide certain improvements in lamp-burners, with a view of obtaining a more complete combustion of the flame and the correspondingly intensified light.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view in side elevation showing a burner embodying my invention. Fig. 2 is a vertical section taken centrally through the burner. Fig. 3 is a horizontal section on the line x^3 x^3 of Fig. 2 looking downward. Fig. 4 is a plan view of the deflecting dome or bell, and Fig. 5 is a side elevation of said dome or bell.

The numeral 1 indicates the base, the numeral 2 the wick tube or guide, and the numeral 3 the bell of an ordinary burner.

The character *z* indicates the wick.

The bell 3 is provided in its top, as is ordinary, with a transverse flame-passage 4. At its base the bell 3 is expanded and is soldered or otherwise secured to the lower extremity of a perforated outer shield or collar 5, which at its extreme lower edge is secured to the base 1, preferably by a hinge 6 and a spring-catch 7. This perforated ring or collar 5 constitutes one feature of my present invention.

Detachably secured to the upper end of the perforated collar 5 is a deflecting-dome or secondary bell, which has very much the same form as the upper portion of the bell 3, but is of larger dimensions, so that a thin or attenuated air-space is left between the said two bells. Preferably the lower extremity of the dome or bell 8 telescopes into the upper end of the shield or collar 5. In line with the flame-passage 4 of the bell 3 the dome or bell 8 is provided with a flame-passage 9. The lips which are thus formed by the passage 9 are rounded at their edges, as shown at 9^a, so that no sharp edges are exposed to the action of the flame, and liability of breakage is thereby reduced. In the best form of the device the dome or bell 8 is made of glass and is formed of two sections, the division being made at the lower extremities of the flame-passage 9. This is very important for the reason that under the action of expansion and contraction a glass body of the form described would be very liable to break through the narrow portions at the lower extremities of the said passage 9.

The action of the burner, briefly summarized, is substantially as follows: Air enters through the perforated bottom of the base 1 in the ordinary way and supplies oxygen to the interior of the bell 3 sufficient to support in the ordinary manner the combustion of the oil or gas supplied by the wick or other device. This combustion, however, especially when forced by turning the wick high, would not be complete, and hence would produce a smoky flame. However, an additional supply of air entering through the perforated sides of the shield or collar 5 is deflected inward by the dome or secondary bell 8, and when it reaches the flame at the opening 9 affords an additional supply of oxygen thereto sufficient to render the combustion complete, and thus greatly to intensify the light which is produced. Thus it will be seen that not only is the combustion of a particular flame rendered more complete and intensified for that reason alone, but by the arrangement described a much larger flame, the combustion of which is also complete, is made possible. In other words, the light-producing capacity of a burner and a wick of a given size is greatly increased by the addition of my improved device.

As already indicated, the dome or secondary bell 8 might be formed in a single piece. It might also be formed of metal. Such modi-

fication, however, while within the scope of my invention, would be by no means the full equivalent of the construction described. A considerable portion of the flame will burn within the dome 8. A metal dome or secondary bell would of course cut off more or less of the light from the lower portion of the flame, while the glass dome will, as is obvious, pass the light from such confined lower portion of the flame. Hence the glass dome increases the efficiency of the burner over that of a metal dome of corresponding form.

The perforated collar or shield 5 performs two functions—to wit, it serves as a holder or support for the dome 8, and it serves to afford a secondary or additional supply of air to the burner from points entirely above the base of the primary bell 3. This secondary draft of cool air passes over the inner deflecting-surface of the glass dome 8, and consequently has a cooling effect thereon, in view of which the said dome will seldom if ever be broken by heat. This cooling action of the air on the dome and the rounding of the lips 9^a make it possible to bring the said lips close together or in close contact with the flame without danger of breakage.

It is important to note that the shield 5 is perforated at that portion which telescopes with and overlaps the depending annular neck of the dome 8. This exposes a very great portion of the outer surface of the telescoped section of the dome to the cooling action of the surrounding atmosphere and makes possible some circulation of air even between those portions of said dome which are covered by the perforated upper end of the said shield. In practice I have found this construction to be of great importance and to greatly reduce the liability of the lower portion of the dome being cracked by heat from the burner. Furthermore, it will be noted that the dome is supported from the shield by a projecting annular ledge on the former which rests upon the upper edge of the latter, thus leaving the extreme lower edge of the dome exposed to the direct action of the cool air, which is drawn in through the open perforations of the said shield.

The invention above described is capable of other modifications as to details of construction and arrangement of parts within the scope of my invention as herein claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a burner, the combination with a bell having a transverse flame-passage, of the shield or perforate annular holder 5 rigidly united to the base of the bell 3 and perforated from the base of said bell to its extreme upper edge, and a glass dome having a transverse flame-passage and a depending annular neck portion, which latter telescopes within the perforate upper portion of said holder and is surrounded by the perforations thereof, substantially as and for the purposes set forth.

2. In a burner, the combination with the bell 3 having transverse flame-passage 4, of the shield or perforate annular holder 5 united to the base of said bell 3 and perforated from said base to its extreme upper edge, and the glass dome 8 with transverse flame-passage, which dome is formed in two sections, joining at the extremities of said flame-passage, and at its lower portion is formed with an annular ledge or rib resting on the upper edge of said shield 5 and with a depending annular section telescoping into the perforate upper end of said shield, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN F. FOWLER.

Witnesses:

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