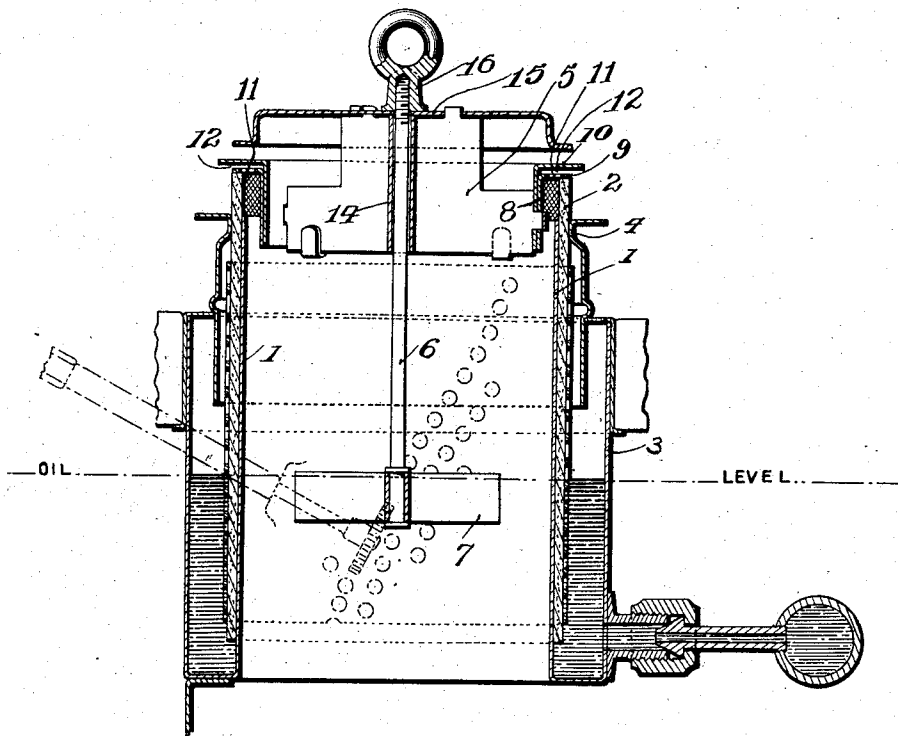


A. J. BLACKFORD.
OIL BURNER.
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1,047,884.

Patented Dec. 17, 1912.



Witnesses
for Invention
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UNITED STATES PATENT OFFICE.

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OIL-BURNER.

1,047,884.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Original application filed June 3, 1907, Serial No. 377,057. Divided and this application filed April 13, 1908. Serial No. 426,831.

To all whom it may concern:

Be it known that I, ATWELL J. BLACKFORD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in oil burners, and is a division of my application filed June 3rd 1907, Serial No. 377,057, and the present invention pertains to an improved flame and air deflector so constructed that the radiant heat from the flame is intercepted and prevented from impinging on the metal parts, engaging with and adjacent to the inner edge of the wick, thus contributing to a lower temperature in these parts, while at the same time the inner edge of the wick is ventilated so that any vapor generated at this point is carried to the flame, through a passage so arranged that flame cannot travel or persist therein. These combined features insure a persistent lowering of the temperature about the inner edge of the wick.

This invention is applied to the wick-type of burner in which the vapor is generated or evolved from the outer surface of the wick. In this wick-type of burners the vaporizing point is the upper end or exposed portion of the wick, and the amount of vaporization that occurs is dependent upon the amount of heat to which the exposed portion of the wick is subjected. This heat is furnished by the flame burning adjacent to the exposed portion of the wick and the volume of vapor generated is dependent upon the amount of heat communicated to the wick by contact with the metal part closely adjacent as well as by radiation from the flame adjacent the exposed portion of the wick. In this type of burner a large volume of vapor is necessary to support the required volume of flame, and it is also necessary to have a comparatively large wick exposure in order to enable the wick to be lighted in the domestic use thereof. In a burner of this character a wick having a small exposure cannot be lighted because of the proximity of the metal outer wick tube and the metal flange above, which have such a cool-

ing effect on the match flame as to make it commercially impractical to ignite the wick.

The object of the present invention is to provide the wick engaging metals and inner portion of the wick with a measure of protection against the radiant heat from the body of the flame, and also prevent the flame from burning in proximity to these parts.

The accompanying drawing is a vertical central sectional view of my improved combined deflector, radiant heat interceptor and temperature controller.

Referring now to the drawings, 1 is the inner wick tube, 2 the wick and 3 the outer wick tube, which has its upper end deflected inward against the wick as shown at 4.

My improved deflector, heat interceptor and temperature controller 5, is vertically movable upon a rod 6, and the lower end of this rod is firmly connected with the inner wick tube 1, by means of a suitable bracket or spider 7. This improved deflector is provided with a flange or sleeve which projects upward beyond the inner wick tube, and is provided with a peripherally projecting wick engaging flange 9, which rests upon the upper end of the wick as shown. The engagement of the flange 9 with the wick causes the deflector to be raised and lowered with the wick as it is adjusted.

The present improvement is the combining with the wick, its wick tube and the said flange 9, of a peripheral outwardly projecting flange 10 carried by the deflector, and which as shown in the drawing is so near to the flange 9 as to form with it an air passage so narrow that flame cannot persist in it. The flange 10 should be disposed in a substantially horizontal position, so that not only will it form a flame excluding passage, but will be an intercepting plate or shield, to prevent the radiant heat of the flame from impinging on the inner portion of wick flange 9.

The wick flange 9 is provided with a plurality of air passages 11, through which air passes from the interior of the burner and flows outward between the flanges 9 and 10. From this arrangement and construction it will be observed that the projecting flange 10 is so near the flange 9 that it not only intercepts the radiant heat from the lower

portion of the flame and constitutes a flame excluding air-passage and thereby controls the temperature of the wick and its engaging metals, but also provides a current of cool air coming from the interior of the burner, and this protecting flange 10 directs this current of air so that it passes directly over the wick-flange 9 and as a consequence keeps the engaging portion of the wick cooler than would be the case if the air currents were not so directed by this adjacent protecting flange 10. It will be apparent that the construction of the air distributor may be changed somewhat from that shown, but in any case the wick flange and the protecting flange should be so arranged as to leave an air-passage 12, as this arrangement not only lessens the heat which may be imparted to the wick from the lower flange, by the action of the protecting flange in intercepting and shielding the lower flange and top of the wick from the heat radiated from the body of the flame, but the protecting flange also provides that the wick flange and passage-way through which air from the interior of the burner may flow to positively maintain the lower flange and the exposed portion of the wick at a lower temperature. It has been found in practice that, by making the upper flange wider or narrower, it exhibits a greater or less shielding influence on the lower flange, so that with a given wick exposure and a certain grade of oil, the vaporization from the exposed wick will be greater with a narrower flange and less with a wider flange, whereby it is possible, by making a protecting flange so positioned in respect to the wick flange and the wick exposure and of proper width, to provide a large wick exposure, but still with the use of light oils, having a maximum flame that is safely below the smoking point.

The rod 6 passes loosely through a tube 14,

depending from the top 15 of the deflector, and a detachable stop 16 carried by the upper end of the rod 6, serves to limit the upward movement of the deflector, and thereby the upward movement of the wick.

I am aware that deflectors have heretofore been provided with a plurality of peripherally projecting flanges, the lower one of which rests upon the upper end of the wick. In this last mentioned instance, however, the flange above the wick engaging flange has been so far removed from the upper end of the wick and the wick flange, that it does not act as a radiant heat interceptor for the lower portion of the flame; does not form a flame excluding air-passage and will not protect the wick flange, the exposed portion of the wick and the metals engaging the wick, from becoming so heated as to produce an excess amount of vapor and consequent smoky flame.

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

In a wick burner, the combination with a vapor generating exposed portion of the wick, of an air deflector comprising a sleeve extending above the upper end of the wick, a flange secured to said sleeve and extending over the top of the wick and forming a stop for the wick, and a radiant heat intercepting flange secured to the sleeve above and in such position to the first mentioned flange as to shield it from the radiant heat of the lower part of the flame and thereby producing a blue flame, substantially as specified.

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

ATWELL J. BLACKFORD.

Witnesses:

ROBERT J. CAMPBELL,
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