

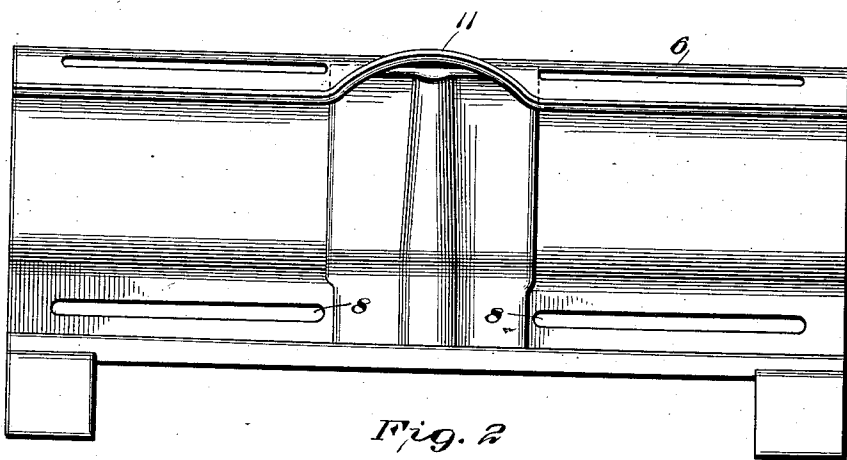
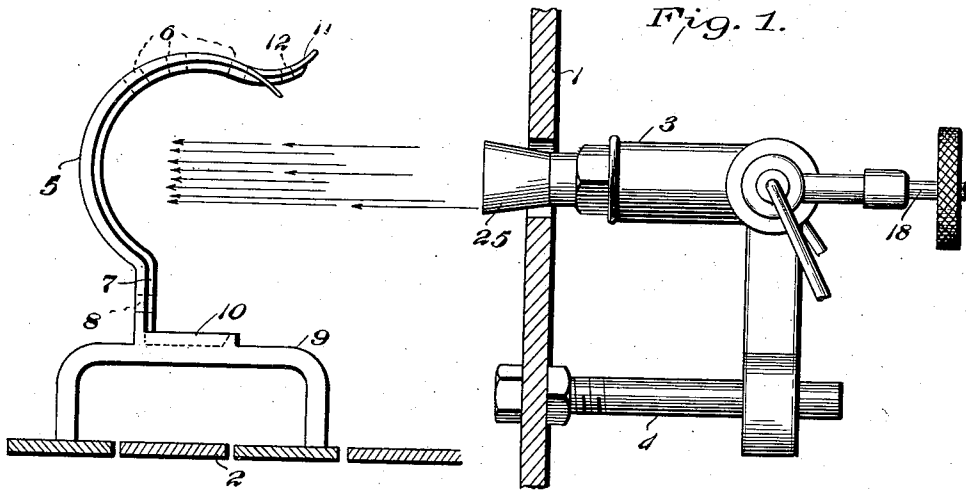
A. R. KUNKEL.
OIL BURNER.

APPLICATION FILED MAR. 16, 1911.

1,016,018.

Patented Jan. 30, 1912.

2 SHEETS—SHEET 1.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 3.

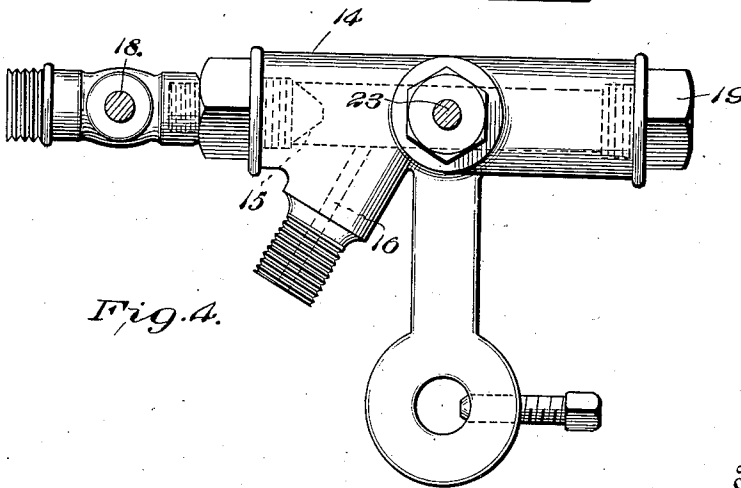
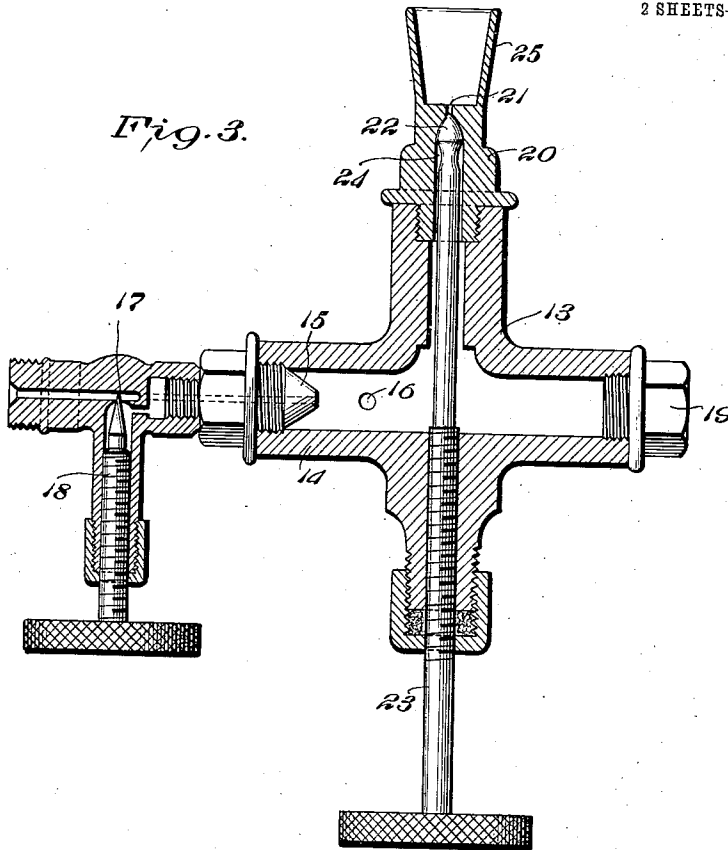


Fig. 4.

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UNITED STATES PATENT OFFICE.

ALBERT R. KUNKEL, OF PALESTINE, TEXAS.

OIL-BURNER.

1,016,018.

Specification of Letters Patent.

Patented Jan. 30, 1912.

Application filed March 16, 1911. Serial No. 614,881.

To all whom it may concern:

Be it known that I, ALBERT R. KUNKEL, a citizen of the United States, residing at Palestine, county of Anderson, State of Texas, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification.

This invention relates to means for burning oils of various kinds and is an improvement on the apparatus covered by my Patent No. 976,268 granted November 22, 1910.

It has been my object to produce a device which will thoroughly and completely mix the oil and air and so distribute it as to secure an effective and even combustion of the mixture, and it has also been my object to make the structure of the apparatus simple and in convenient form.

The novel features of the invention will be apparent from the following description taken in connection with the accompanying drawing.

In the drawing: Figure 1 is a vertical section showing my invention, and a portion of the chamber in which it is used; Fig. 2 is a front view of my splash-plate; Fig. 3 is a horizontal section through the burner proper; and Fig. 4 is an end view of the burner.

In the drawings 1 represents the door of the combustion chamber of a furnace or stove, and 2 represents the grate bars or other support for my splash-plate. A burner 3 is supported from a bracket 4 carried by the door and it has a nozzle discharging into the combustion chamber through an opening in the door, the nozzle preferably projecting within the chamber. It will be understood, however, that the burner may be supported in any suitable way. In front of the burner and in line therewith I place the splash-plate 5 which is concave in cross section and which is elongated as shown in Fig. 2. The splash-plate is preferably curved on substantially the arc of a circle and extends for about half of a circumference, being placed in the combustion chamber with its edges at an angle to the vertical of about 30° so that its upper portion overhangs the lower portion. The nozzle discharges into the concave portion, and thus the flame from the burner is spread not only longitudinally of the plate, but travels upward and to some extent downward. The upper portion of the plate is provided with a series of longitudinal slots

6 which permit the escape of the flame from within the concave portion and properly distribute it, these slots being symmetrically arranged so as to evenly distribute the flame. The portion of the splash-plate directly in line with the burner is made solid without openings. A vertical supporting extension 7 carries the splash-plate from its lower edge, and this extension is provided with the longitudinal slots 8 on each side of the central line of the burner discharge. A supporting base 9 carries the extension 7 and rests upon the grate bars or other support, and it will be observed that this base has a flat horizontal upper portion on which is formed the splash-pan or receptacle 10 immediately in front of the extension 7, the purpose of this pan being to catch any oil which may strike the plate and drip down. The oil so caught will be vaporized and burned through the heat of the flame. The upper edge of the splash-plate immediately above the line of discharge of the burner has a reversely curved upwardly extending guard flange 11 concave in longitudinal section as shown in Figs. 1 and 2 which serves to properly guide the jet of flame. This flange has the longitudinal slot 12 for the passage of flame.

The burner proper embodies a casing 13 preferably cast in one piece and having the four radiating passage-ways as shown. The tubular part 14 containing one of these passage-ways has screwed into its end the nozzle 15 for projecting a jet of air into the passage-ways which constitute a mixing chamber. An oil inlet 16 is in advance of the air inlet nozzle, whereby the oil will be taken up by the jet of air and thoroughly mixed. A valve casing 17 is secured to the air nozzle and is provided with the control valve 18. The end of the mixing chamber opposite to the air inlet nozzle is closed by a screw plug 19, but it is clear that this plug may be removed so as to give access to the interior of the chamber. The nozzle 20 of the burner is screwed into the casing 13, and it is provided with a small outlet 21 having a valve seat immediately back of it. A tapering valve 22 fits against this seat and has a stem 23 extending out through the opposite side of the casing so that it may be controlled by hand. Immediately back of the valve the stem is cut away at 24 so as to leave a surrounding groove or chamber, and I have found that this arrangement gives a

better and more effective mixture of the air and oil as it is discharged from the nozzle. The tapering valve fitting into the tapering valve seat will automatically maintain the fluid-tight connection since the valve will grind against the valve seat making a close fit. Surrounding the small outlet 21 and extending forwardly therefrom there is a flaring mixing chamber 25 which serves to more effectively mix the air and oil and which will prevent any unvaporized oil from dropping down from the nozzle. The oil will be taken up in this extension and carried forward by the blast.

It will be observed that my burner includes a means for thoroughly mixing the oil and air and for discharging the mixture into the combustion chamber, and that my splash-plate used in front of the burner properly distributes the mixture and causes complete combustion owing to the fact that the plate becomes heated and prevents the escape of any of the oil discharged by the burner. The structure of the splash-plate furthermore properly distributes the flame laterally as well as vertically within the combustion chamber so as to get a uniform effect in various parts of the furnace.

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

1. In a device of the class described the combination with a burner, of an elongated splash-plate semi-circular in cross section facing said burner with its upper portion overhanging the lower portion, and the upper portion being provided with symmetrically arranged flame openings.

2. In a device of the class described the combination with a burner, of an elongated splash-plate semi-circular in cross section facing said burner with its upper portion overhanging the lower portion, the upper portion being provided with symmetrically arranged flame openings, and a vertical supporting extension from the lower portion provided with flame openings.

3. In a device of the class described the combination with a burner, of an elongated splash-plate semi-circular in cross section facing said burner with its upper portion overhanging the lower portion the upper portion being provided with symmetrically arranged flame openings, a vertical supporting extension from the lower portion provided with flame openings, and a base carrying said extension and provided with an open topped oil receptacle along said extension.

4. In a device of the class described the combination with a burner, of an elongated splash-plate semi-circular in cross section facing said burner with its upper portion overhanging the lower portion, the upper portion being provided with symmetrically arranged flame openings, and a reversely curved upwardly extending guard flange concave in longitudinal section centrally above the line of discharge of said burner and having a flame opening therein.

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

ALBERT R. KUNKEL.

Witnesses:

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