

J. W. ELDER.
 BLACK OIL BURNER.
 APPLICATION FILED JULY 30, 1910.

987,617.

Patented Mar. 21, 1911.

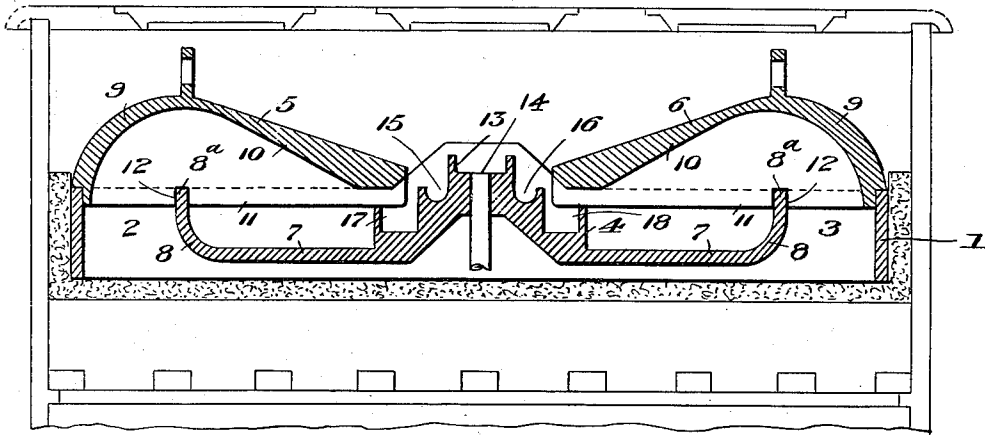


Fig. 1.

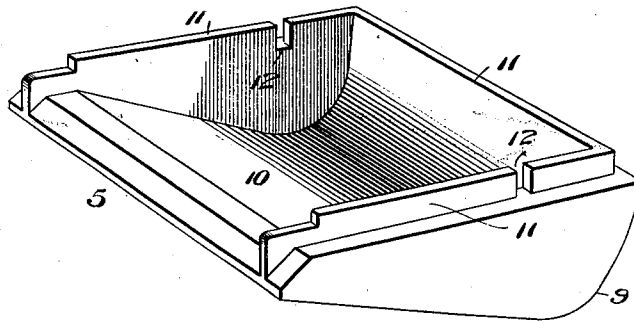


Fig. 3.

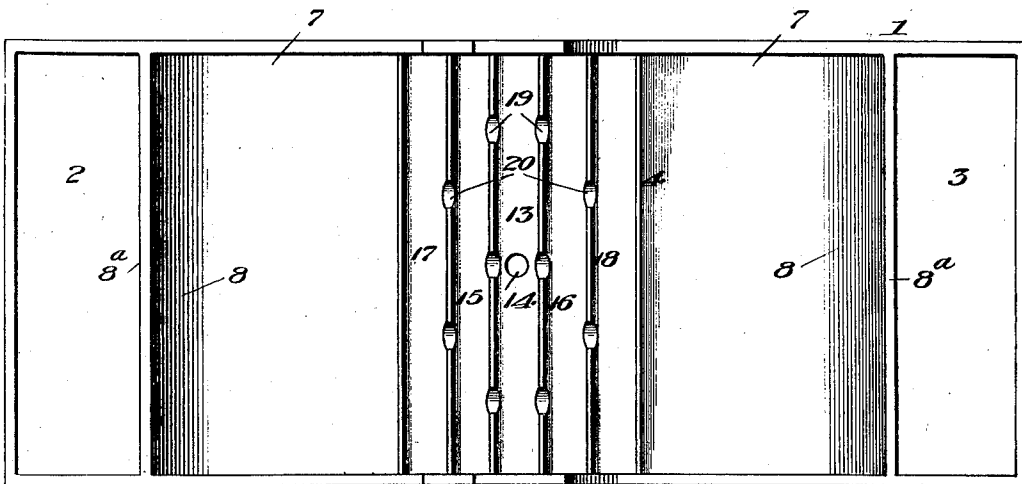


Fig. 2.

Witnesses
[Signature]
[Signature]

Inventor
 James W. Elder
 By *[Signature]*
 Harry H. Opp
 Attorney

UNITED STATES PATENT OFFICE.

JAMES WARREN ELDER, OF VISALIA, CALIFORNIA.

BLACK-OIL BURNER.

987,617.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed July 30, 1910. Serial No. 574,711.

To all whom it may concern:

Be it known that I, JAMES WARREN ELDER, a citizen of the United States, residing at Visalia, county of Tulare, and State of California, have invented certain new and useful Improvements in Black-Oil Burners, of which the following is a specification.

My invention relates to black oil burners of the tray type.

The present invention has for its object the provision of a black oil burner having a duplex tray of novel form provided with removable covers arranged in a novel manner and adapted to direct the air to the oil distributor, the latter being of novel construction, and all of said parts being so arranged that currents of heated air meet at the oil distributor and there blend and mix with the gases from the burning oil, effecting a very nearly perfect combustion with minimum resultant residue.

The invention is specially designed for use in domestic stoves and ranges, although it is well adapted for other purposes. When applied to a stove or range, the tray is sealed in the fire-box by the use of fire-clay so that the air passing upwardly in the fire-box of the range can only pass out through the tray and under the covers, as will appear more fully hereinafter.

In the accompanying drawings:—Figure 1 is a longitudinal section of the burner in position in a stove; Fig. 2, a plan view of the burner, with the covers removed; and Fig. 3, an inverted perspective of one of the covers.

The tray 1 has the air inlets 2 and 3 at its opposite ends and at its central part is provided with the oil distributor 4. The removable covers are shown at 5 and 6. The ends of the tray and the covers are duplicates. The vaporizing pans 7 are provided with curved walls 8 adjacent the air inlets and the covers are curved at 9 where the air is received from the air inlets, and thence extend downwardly at an angle, as shown at 10. Thus, the air which passes up through the inlets 2 and 3 impinges on the tops of the covers and is deflected downwardly toward the pans 7, the curved walls 8 assisting in imparting a suitable circulation. The downward inclination of the parts 10 directs air to the gases from the burning oil. The pans 7 and covers 9 form, therefore, retorts which cause a thorough vaporization of the oil and as the flow is

very nearly equal from both ends of the tray, the resultant flame at the burner and distributor is clear and intense and the residue accumulating on the covers, pans and burner is very small owing to the nearly perfect combustion.

To enable the covers to be readily positioned and to maintain their place on the tray, they are provided with a depending flange 11 with notches 12, the former fitting against the inner walls of the tray and the latter receiving the cross-piece 8 of the pan. There is no flange on the cover where it is disposed adjacent the burner and distributor and hence no obstruction is offered at these points.

The burner and oil distributor consists of a raised trough 13 having an inlet 14 to which the oil flows through any suitable pipe, troughs 15 and 16 flanking the trough 13, and additional troughs 17 and 18 flanking the troughs 15 and 16. The walls of the trough 13 are notched at 19 to allow the oil to flow into the troughs 15 and 16 and the walls of the troughs 15 and 16 are notched at 20, in offset relation to the aforesaid notches, so that the oil will first flow into said troughs before flowing into the troughs 17 and 18, thus most effectively distributing the oil so that it will the more readily vaporize and mix with the air under the covers.

When the burner is placed in a stove or range, as shown in Fig. 1, the tray 1 is located in the fire-box in suitable position and sealed around its margin by fire-clay so that the air will be compelled to pass upwardly through the inlets 2 and 3. At suitable intervals the covers may be removed to take out any residue resulting from combustion.

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

1. In a duplex oil burner, the combination of a tray having air inlets, vaporizing pans, an oil distributor located intermediate said pans, and covers for said pans which receive the air from the inlets and direct it toward the oil distributor and over the pans and prevent it from taking any other course.

2. In a duplex oil burner, the combination of a tray having air inlets, vaporizing pans, an oil distributor located intermediate said pans, and movable covers positioned over said air inlets and over said pans, said covers

being disposed on opposite sides of the oil distributor and adapted to direct the air toward said distributor and over the pans and prevent it from taking any other course.

5 3. The combination with a range or stove fire-box, of a duplex oil burner embodying a tray located in said fire-box and sealed to the walls thereof so that the air is made to pass upwardly through the tray, said tray
10 having air inlets, vaporizing pans, an oil distributor located between said vaporizing pans, and hoods or deflectors disposed over said inlets and pans, said hoods being adapted to direct the air toward said distributor and
15 over the pans and prevent it from taking any other course.

4. In a duplex oil burner, the combination of a tray, vaporizing pans carried thereby,
20 an oil distributor composed of troughs disposed in stepped arrangement adapted to direct the flow toward both of the pans, air

inlets and deflectors over the pans which direct all of the air from the inlets to the pans and distributor and prevent the air from taking any other course. 25

5. In a duplex oil burner, the combination of a tray, vaporizing pans carried thereby, an oil distributor composed of troughs disposed in stepped arrangement adapted to direct the flow toward both of the pans, said
30 tray having air inlets, and movable deflectors disposed over the respective air inlets and over the respective pans which direct all of the air from the inlets to the pans and distributor and prevent it from taking any
35 other course.

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

JAMES WARREN ELDER.

Witnesses:

J. M. GILSTROP,

D. L. BARNHART.