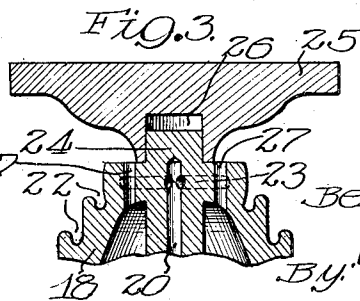
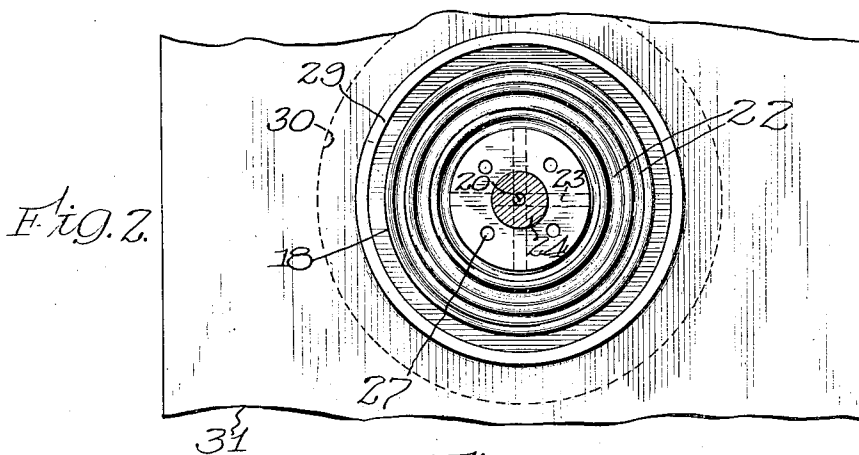
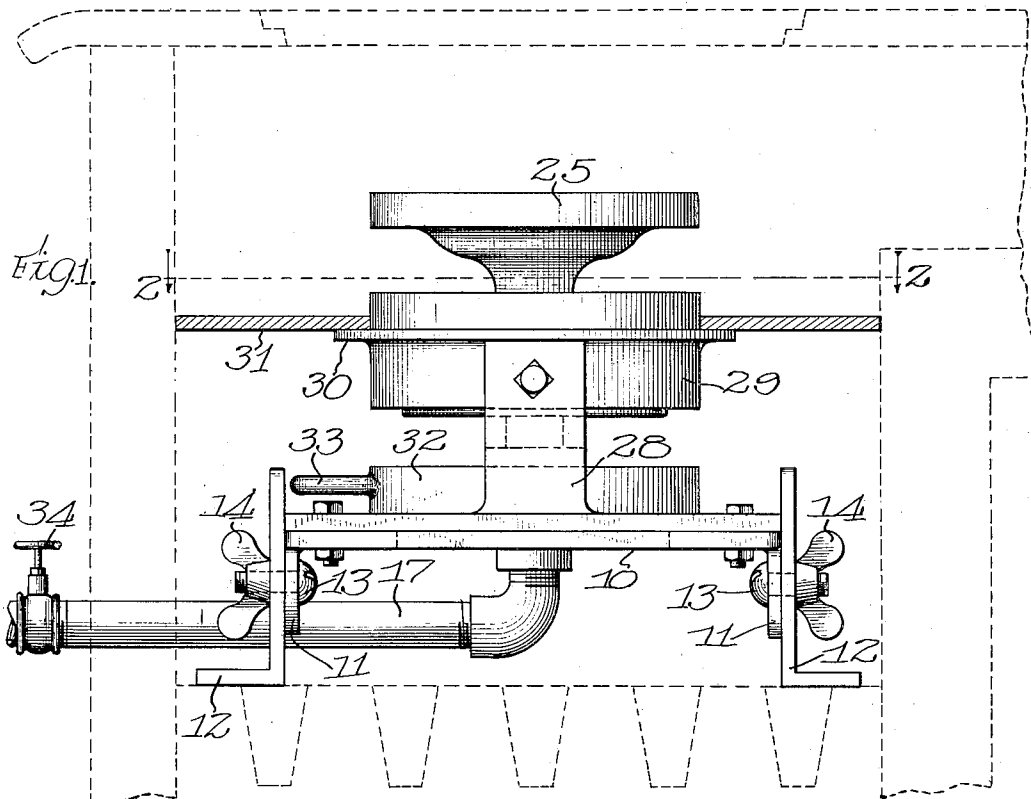


OIL BURNER.

Patented Jan. 14, 1913.

2 SHEETS—SHEET 1.



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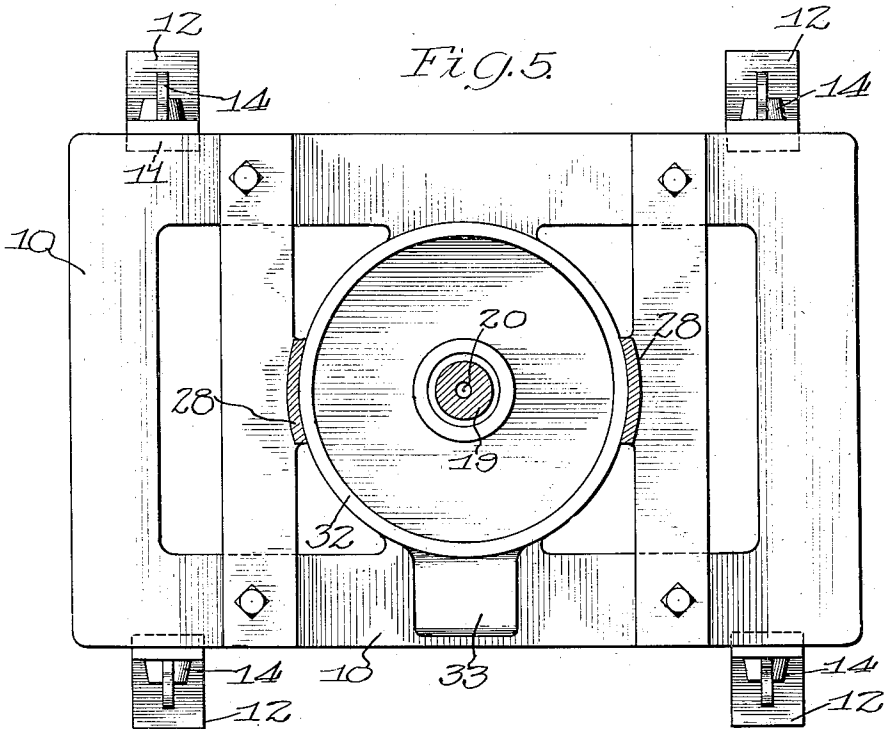
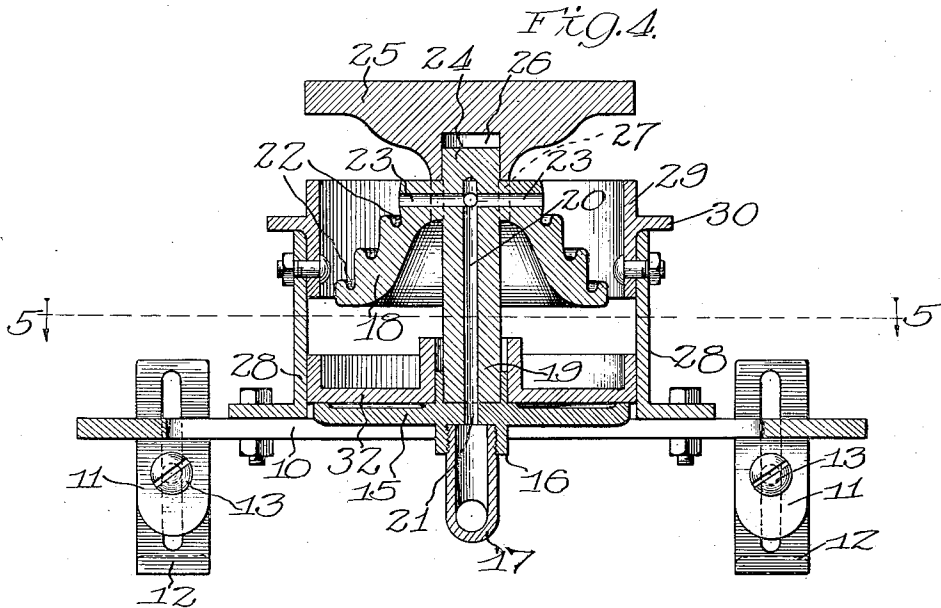
OIL BURNER.

APPLICATION FILED SEPT. 28, 1911.

Patented Jan. 14, 1913.

2 SHEETS—SHEET 2.

1,050,170.



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UNITED STATES PATENT OFFICE.

BERT F. RAWLINGS, OF FRANKLIN, ILLINOIS.

OIL-BURNER.

1,050,170.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed September 28, 1911. Serial No. 651,675.

To all whom it may concern:

Be it known that I, BERT F. RAWLINGS, a citizen of the United States, residing at Franklin, in the county of Morgan and State of Illinois, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification.

This invention relates to a burner designed for burning crude or refined oils, and the principal object of the invention is to provide a burner of this class which is simple, durable and cheap in construction, and which is effective and efficient in operation.

For the attainment of these ends, and the accomplishment of other new and useful objects as will appear, my invention consists in the features of novelty in the construction, combination and arrangement of the several parts, particularly shown in the accompanying drawings and described in the specification but more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of a burner constructed in accordance with the principles of my invention and applied to the fire-box of a stove represented in dotted outline; Fig. 2 is a view partly cut away taken on the line 2—2 of Fig. 1; Fig. 3 is a detailed view in cross section of the spreader and the vaporizer; Fig. 4 is a sectional view of the burner shown in Fig. 1; Fig. 5 is a sectional plan view on the line 5—5 of Fig. 4.

It has been found in burners of this class that the underside of the spreader soon accumulates a coating of soot, and that there is not complete combustion of the fuel burned. Another difficulty is in positioning the burner in a place where the support is apt to be uneven, such for example as the grate in the fire-box of a stove, and in this position it is desirable that the burner be held laterally in place in the said fire-box. The applicant's burner is designed to overcome these difficulties and to present a simple, effective and efficient burner.

Referring now more particularly to the drawings, the base plate 10 is provided with depending lugs 11, and is adapted to be supported by means of adjustable legs 12. These legs may be adjusted in any desired or suitable manner, such, for example, as by means of the threaded screws 13 extending through slots in the legs 12, and the

thumb screws 14 threaded upon the screws 13 to bind the legs in position.

Supported by the base plate 10 is a supporting member 15, having a downwardly extending threaded portion 16 into which a supply pipe 17 is threaded. Extending upwardly and supported by the member 15 is a vaporizer 18 which is provided with a passage 20 communicating with the supply tube 17 through an opening 21 in the supporting member 15.

The vaporizer 18 is formed with a substantially frusto-conically shaped hood, the outer surface of which is provided with annular grooves 22 and at the top with a number of passages 23, opening laterally from the central passage 20. At the top, the vaporizer is formed with a projection 24, and on this projection a spreader 25 is adapted to be positioned by means of the opening 26. The vaporizer is preferably formed with a comparatively thin outer shell and adjacent the top extending through the shell between the laterally opening passages 23 are the apertures 27. These apertures 27 are adapted to form substantially vertical passage ways to direct a fluid as air from beneath the vaporizer to the outside thereof, and against the spreader 25 to assist the combustion of the gases arising from the vaporizer.

The spreader 25 is formed with lower outside edges disposed within the apertures 27 which extend through the top of the vaporizer, and the lower surface of the spreader is curved upwardly and outwardly from the said lower edges to direct air from the apertures 27 in the same direction. The diameter of the spreader 25 is preferably greater than the diameter of the vaporizer so that the flames arising from the lowest groove of the vaporizer will contact with the lower surface of the spreader.

Surrounding the vaporizer and supported by the base plate 10 by means of the standards 28 is a draft ring 29 provided on the outside with a flange 30. This flange 30 is adapted to provide a support for a sealing plate 31 which has an opening adapting it to fit over the draft ring and which is effective to position the burner laterally in a fire-box of a stove, and by engaging the edges thereof, to seal the fire-box.

Disposed upon the supporting member 15 and under the vaporizer 18, is an annular

starting pan 32 provided with a handle 33, the inner edge of the starting pan being preferably higher than the outer edge to prevent oil overflowing on the inside.

5 In starting the burner, the oil is admitted through the pipe 17 by means of a valve 34 and passes up through the passage 20 and out through the lateral opening passages 23 until the grooves 22 are filled and the oil
10 trickles down into the starting pan 32. The oil is ignited in the starting pan and the flames therefrom pass upwardly until the vaporizer 18 and the spreader become heated enough to vaporize the oil without the as-
15 sistence of the starting pan. The oil continues to issue from the lateral openings into the grooves 22 and to be converted into gas and burned. As the burning continues, it will be evident by reference to the drawings,
20 that unless air is admitted to the inside of the flame, the innermost flames will be without sufficient air to effect the complete combustion of the gaseous products, and the more oil that is burned the greater will be
25 the need of more air. Unless the air is supplied, the gas is imperfectly burned, resulting in soot which adheres to the bottom of the spreader and which is cast out in the air. This not only lowers the efficiency of the
30 spreader as a heat conducting agent, but it also prevents the complete combustion of the gas thereby resulting in a further loss of heat. By providing the openings 27 adjacent the top of the vaporizer, the innermost
35 flames are abundantly supplied with air which is drawn up by the flame itself in accordance with the amount necessary to produce complete combustion, with the result that the gases arising from the oil are com-
40 pletely burned and there is very little soot formed. It will be noted that the form of the underside of the spreader is such that the air coming up through the openings 27, will be directed upwardly and outwardly
45 into the flame at the exact point desired, and it will also be noted that the spreader extends beyond the vaporizer in all directions so that the flames arising from the vaporizer will all strike the spreader, and the
50 maximum heating effect will be obtained. It will also be noted that the spreader is preferably of substantially the same size as the draft ring 29 so that the sealing plate 31 may be inserted over the spreader when it
55 is in position. The spreader is readily removable so that the vaporizer may be easily cleaned.

In the exemplification of the invention illustrated by Fig. 1, it will be noted that
60 the burner may be placed and easily leveled in the fire-box of a stove, even though the grates are uneven and of different heights. The adjustment of the base plate is also important in positioning the sealing plate 31
65 for it may be necessary to vary the height of

the burner in order that the sealing plate will more nearly fill the fire-box aperture.

While I have thus described the preferred construction of my oil burner, it is evident that those skilled in the art to which this appertains may make various changes with-
70 out departing from the spirit and scope of the invention.

What I claim is:

1. An oil burner having a vaporizer provided with a central fuel supply passage having laterally extending passages radiat-
75 ing therefrom wholly within the material of the vaporizer, and other passages extending vertically through the top, and a spreader positioned over the vaporizer, the
80 said vertically extending passages being disposed to direct a fluid for supplying combustion adjacent the bottom of the spreader.

2. In an oil burner, the combination of a vaporizer having a top projection, a central supply passage with lateral openings there-
85 from, and apertures disposed between the lateral openings extending through the vaporizer substantially at right angles to the laterally extending openings, and a spreader mounted upon said projection with edges
90 extending down over it inside of the said apertures, the under surface of the spreader being rounded outwardly and upwardly from the lower portion to direct a fluid from
95 the said apertures in the same direction.

3. In an oil burner, the combination of a vaporizer substantially frusto-conical in shape with outer annular grooves, a central
100 fuel supply passage having openings adjacent the top to discharge fluid to be burned into the grooves, and openings extending through the vaporizer adjacent the top and between the other openings substantially in
105 the same direction as the central passage, and a spreader positioned on the vaporizer with its lower inside edges within the second named openings, the spreader being of a
110 greater diameter than the vaporizer and with its lower surface rounded outwardly and upwardly to direct air from the top openings into the flame arising from oil
burning in the said annular grooves.

4. In an oil burner, the combination with
115 a supporting base, of a vaporizer supported thereby, a spreader disposed above the vaporizer and of larger diameter than it, a draft ring supported by the base, disposed about the vaporizer, and having an outer
120 flange, and a sealing plate having an opening to permit it to be placed upon said flange substantially to fill a fire-box.

5. The combination with a fire box, of a burner comprising a base plate having
125 means for adjusting the height thereof in the fire-box, a vaporizer supported by the base plate, a draft ring disposed about the vaporizer, and means to close the fire-box about the burner, said means being support-
130

ed by the draft ring and movable with the base with respect to the fire-box and effective to position the burner with respect to the sides of the fire-box.

5 6. In an oil burner, the combination with a base plate, of a support, means for adjusting the vertical height of the base plate from the support, a vaporizer supported by the base plate having a central fuel supply
10 opening, means extending below the base plate for affording connection with a source of fuel supply, a draft ring having an outer flange and surrounding the vaporizer, a
15 spreader disposed above the vaporizer and the draft ring less in diameter than the said flange, and a sealing plate having an opening which adapts it to be positioned from the said flange over the spreader, the said
20 plate being positioned in a fire-box by adjusting the height of the burner.

7. The combination of a fire box and a burner, said burner comprising laterally extending means, for closing the fire box in which the burner is placed, around the
25 burner, a base for supporting the said means, and separately adjustable legs to

vary the height of the burner and the said means in the fire box.

8. In an oil burner of the class described, a vaporizer comprising an outwardly flared
30 petticoat depending from and formed integral with a central upright member and provided with a central opening in the upright member closed at the top and having
35 connected transverse laterally extending passages radiating from the central opening adjacent the top of the vaporizer, and openings between the said passages extending
40 through the shell of the petticoat whereby air is supplied from beneath the vaporizer to the upper side in proximity to the
burning fluid, and means to supply fluid to the vaporizer.

In testimony whereof I have signed my name to this specification, in the presence of
45 the subscribing witnesses, on this 23rd day of September A. D. 1911.

BERT F. RAWLINGS.

Witnesses:

ALBERT W. COX,
J. WEST ELLIOTT,
J. ALLERTON PALMER.