

(No Model.)

J. DUBELMAN.
OIL BURNER.

No. 528,292.

Patented Oct. 30, 1894.

Fig. 1.

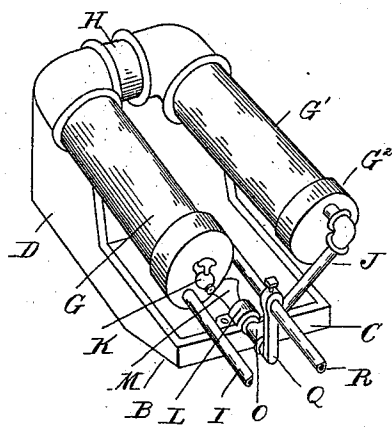


Fig. 5.

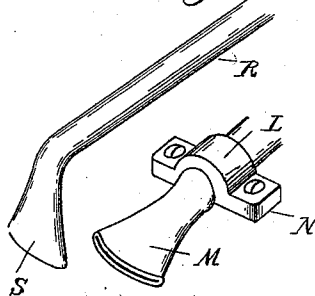


Fig. 2.

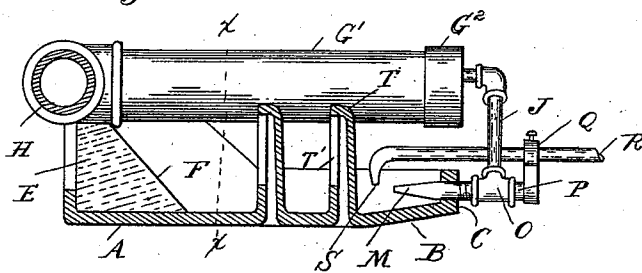


Fig. 4.

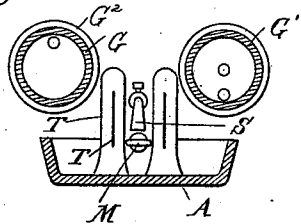
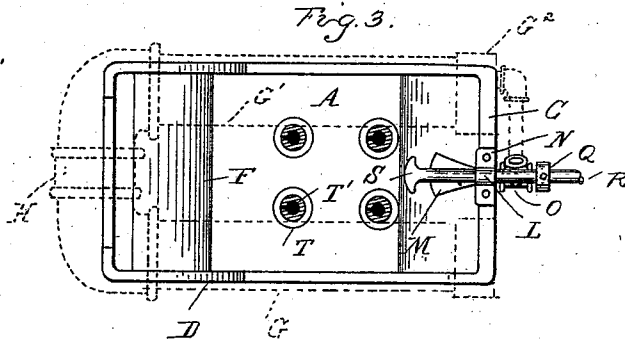


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN DUBELMAN, OF DETROIT, MICHIGAN, ASSIGNOR OF TWO-THIRDS TO
WILLIAM H. ASHWELL AND CHARLES R. ROBERTSON, OF SAME PLACE.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 528,292, dated October 30, 1894.

Application filed January 30, 1894. Serial No. 498,447. (No model.)

To all whom it may concern:

Be it known that I, JOHN DUBELMAN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the peculiar construction of a burner designed for burning petroleum or other similar oils in combination with steam and air feeding devices; further in the peculiar construction of the burner pan, the steam generating chamber, the oil and air supply devices therefor, and further in the peculiar construction, arrangement and combination of the various parts.

In the drawings, Figure 1 is a perspective view of my improved burner. Fig. 2 is a vertical, central, longitudinal section thereof. Fig. 3 is a plan view of the pan showing the air feeding standards in section. Fig. 4 is a cross section on line *x x* Fig. 2. Fig. 5 is an enlarged perspective view showing the steam and oil feed pipes.

The burner pan comprises the bottom plate A, having the inclined section B, front flange C, and side walls D which are cut away about half their length to a height corresponding substantially to the height of the front flange, and the rear wall E formed of fire brick and having the inclined forward face F. This burner pan I preferably form of a single piece of cast metal.

The steam generator rests upon the top of the pan being supported upon the side and end walls, as plainly shown in the drawings, and which consists of two parallel sections G G' of pipe, provided with suitable heads G² connected at the rear end by a suitable connecting nipple H, the whole forming substantially a U shaped tube or pipe of considerable diameter, say about two or three inches, having a water inlet pipe I at the bottom of one end and a steam inlet pipe J at the top of the other end, these pipes entering through the caps G².

About the middle of one or both of the caps

I arrange a drip cock K to enable me in case too much water is fed in the generator to assist in more readily making steam.

The front flange of the burner pan is provided with the curved bearing L in which is supported the fan shaped nozzle M, being secured in position by means of the strap N.

O is a T secured to the outer end of this nozzle, the side opening therein receiving the end of the steam supply pipe J, while the outer lateral opening receives a plug P, having a bracket Q secured thereon, provided at its upper end with a bearing in which is secured the oil pipe R. This oil supply pipe at its outer end is provided with a downwardly extending fan shaped nozzle S arranged in front of and slightly above the discharge aperture of the steam nozzle. On both sides of the line of discharge of the steam nozzle is a series of vertical, tubular air supply standards T preferably formed integral with the bottom plate of the burner and having the slots or openings T' on their forward faces only.

Suitable valves are supplied, not shown, for controlling the supply of oil and water to the device in any requisite quantities.

The parts being thus constructed, their operation is as follows: To start it the oil is allowed to drip into the pan, falling upon the inclined portion B of the bottom plate, from which it will fall quickly onto the bottom plate A and be ignited and flames will generate steam in the steam generator. As soon as steam is generated the steam discharging from the nozzle M will catch the oil dripping from the oil nozzle S, spraying it and commingling with the steam in the burner pan, directing it against the fire brick back E in the pan which will deflect the flame upward around the generator tubes and into the furnace to be heated. Air will be supplied through the sides and through the slots T' of the standards T, which will assist in distributing the combustion through the entire length of the pan. By arranging the slots T' on the rear face of the standards there is little liability of their filling up in use and at the same time the jet action of the steam be-

side the standards will act to draw a large volume of air through these standards and into the burner to aid combustion.

It will be noticed that I make the forward
5 end of the nozzle M in the shape of a segment of a circle, so as to throw out a vertical fan tail spray, and I correspondingly curve the oil nozzle S so that the oil will be evenly distributed in the combined stream at all points
10 through the burner pan.

What I claim as my invention is—

1. In an oil burner, the combination with a steam generator, a pan, an oil supply pipe, a steam supply pipe arranged in a horizontal
15 plane with the pan, tubular standards on the pan having open lower ends and arranged in

the path of the steam jet and having openings in their rear sides, substantially as described.

2. In an oil burner, the combination of the burner pan, a steam generator supported on
the pan, the jets for supplying the fluid and vapor thereto, the tubular standards T having the slots T' on the side farthest from the jets, and the back plate E of the burner pan
of fire brick having the inclined face F, sub- 25
stantially as described.

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

JOHN DUBELMAN.

Witnesses:

M. B. O'DOHERTY,
O. F. BARTHEL.