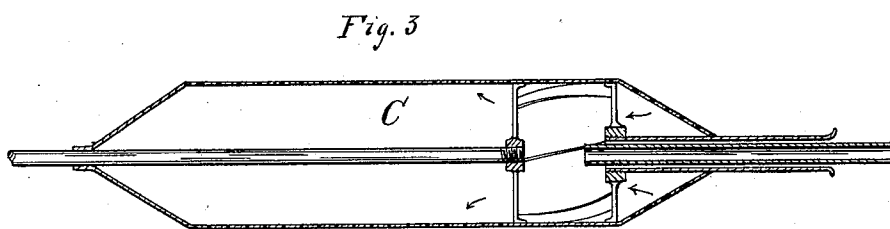
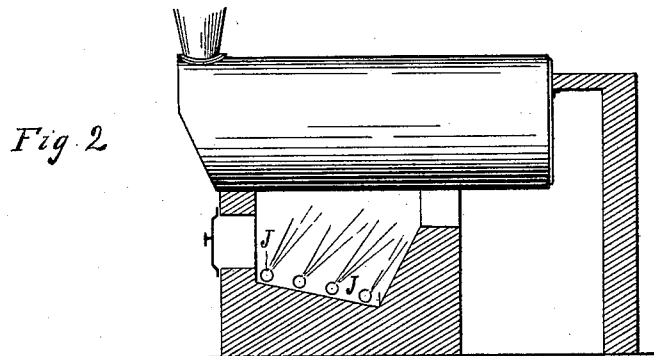
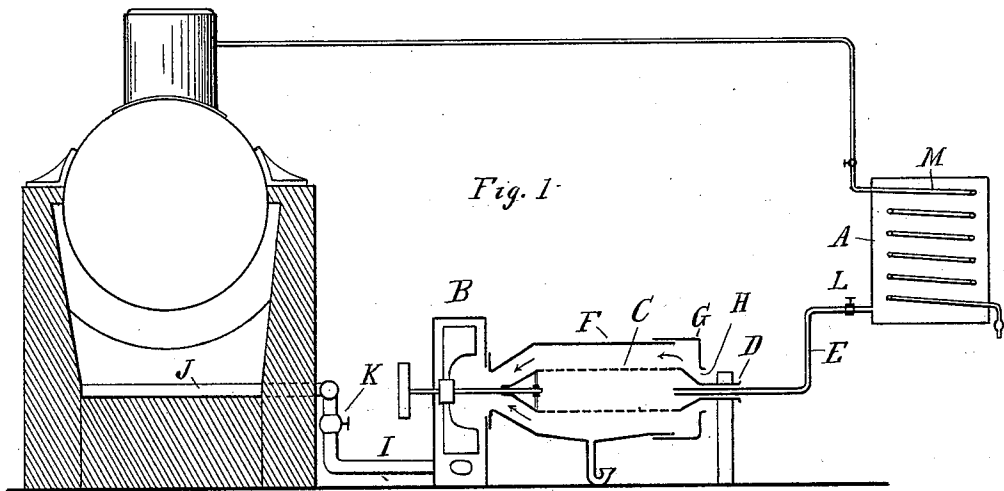


(No Model.)

G. S. PAINE.
OIL BURNER.

No. 404,428.

Patented June 4, 1889.



Witnesses:
P. M. Hulbert
John Schuman.

Inventor:
George S. Paine
By Thomas Sprague & Son
Attys.

UNITED STATES PATENT OFFICE.

GEORGE S. PAINE, OF WYANDOTTE, MICHIGAN.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 404,428, dated June 4, 1889.

Application filed May 19, 1888. Serial No. 274,392. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. PAINE, a citizen of the United States, residing at Wyandotte, 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.

10 This invention relates to new and useful improvements in oil-burners for burning crude petroleum; and the invention consists in the peculiar construction and operation of a device for spraying the oil and mixing it with an air-blast, all as more fully hereinafter described.

In the drawings which accompany this specification, Figure 1 is a diagram illustrating my invention. Fig. 2 is a cross-section of a boiler-furnace shown in Fig. 1.

A represents an oil-tank in which the crude petroleum is stored to supply the burner.

B is a revolving fan or blower.

25 C is a cylindrical spraying device provided with perforated walls secured to the shaft of the blower at one end.

D are hollow bearings secured to the opposite end of the drum C.

30 E is a supply-pipe from the tank entering into the perforated drum C.

G is an adjustable head on the casing F.

H is an annular orifice through which the air enters the suction-flue.

35 I is the discharge-pipe from the fan, and J are a series of perforated discharge-tubes located within the furnace and communicating with the pipe I.

K is a valve in the discharge-pipe I.

40 L is a valve in the supply-pipe E, and M is a steam-heater placed within the supply-tank A.

In practice, the parts being arranged and constructed substantially as shown and described, they are intended to operate as follows: The blower being set in motion and the valve L in the supply-pipe E opened to admit a supply of crude oil into the perforated drum C, the latter, in rapidly revolving with

the fan, will spray the oil through the perforations into the casing F, surrounding the same, and thereby throw it into the path of the blast, entering through the aperture H either from the outside or, preferably, from the furnace, where it has been previously raised to a high temperature. The spray, being carried by the blast in the fan, will become to a large degree vaporized and carried through the discharge-pipe I into the burners J, where it is consumed. The burners I preferably arrange transversely the furnace and upon an incline from front to rear, as shown, to create a solid bed of flame in the rearward direction toward the draft and exit of the furnace.

Suitable means are arranged to collect the portions of the oil not sprayed at the different points where it is liable to accumulate. Instead of applying steam heat in the tank, the means for heating may be confined to that portion of the oil discharged into the drum, which may be done in any suitable manner.

In Fig. 3 I show a modification of the perforated spraying-drum which it may be desirable to use with some kinds of oil, which is similar to that shown in Fig. 1, except that perforations are provided at the end to allow the passage of a volume of air into the spraying-drum to aid in more effectively mixing the air and oil. It is also preferably provided with a series of ribs, as shown, to distribute the oil.

What I claim as my invention is—

1. The combination, with an oil-burner and a casing, of a fan, a tank, the perforated spraying-drum located within said casing, the supply-pipe from the tank entering the spraying-drum, and the discharge-connections from the fan to the furnace, substantially as described.

2. The combination, with the casing, a fan, the spraying-drum located within said casing and having a hollow trunnion and secured upon the axis of the fan, the supply-pipe to said drum, the head, means for adjusting the same, the tank, the heating-coil for heating

the oil therein, and the discharge-pipes I J into the furnace, substantially as and for the purpose specified.

3. The combination, with an oil-burner, of
5 a fan, a casing, and an oil-spraying device located within said casing, means for revolving the fan and sprayer, and an oil-supply pipe for bringing oil into said spraying device, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 10th day of April, 1888.

GEORGE S. PAINE.

Witnesses:

P. M. HULBERT,
JOHN SCHUMAN.