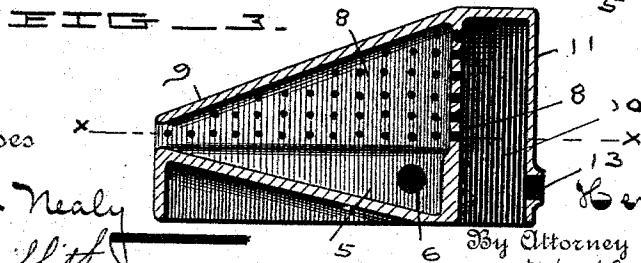
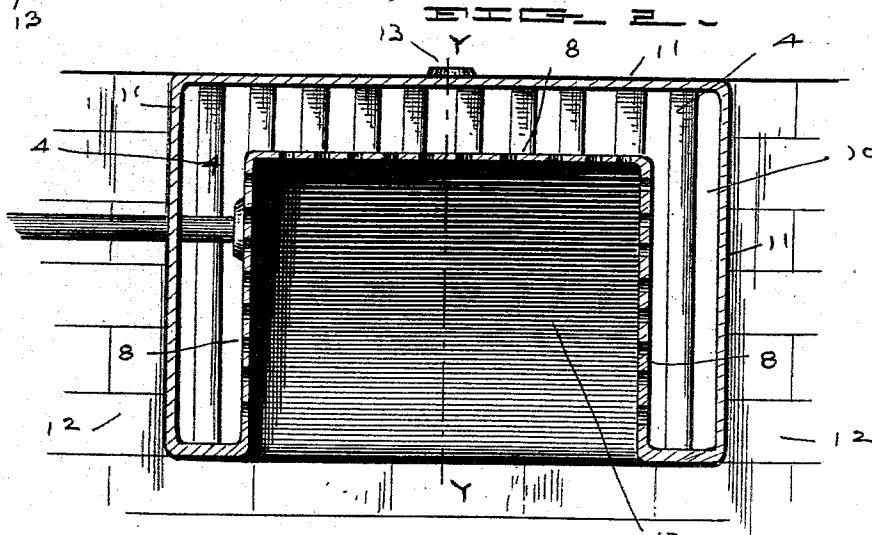
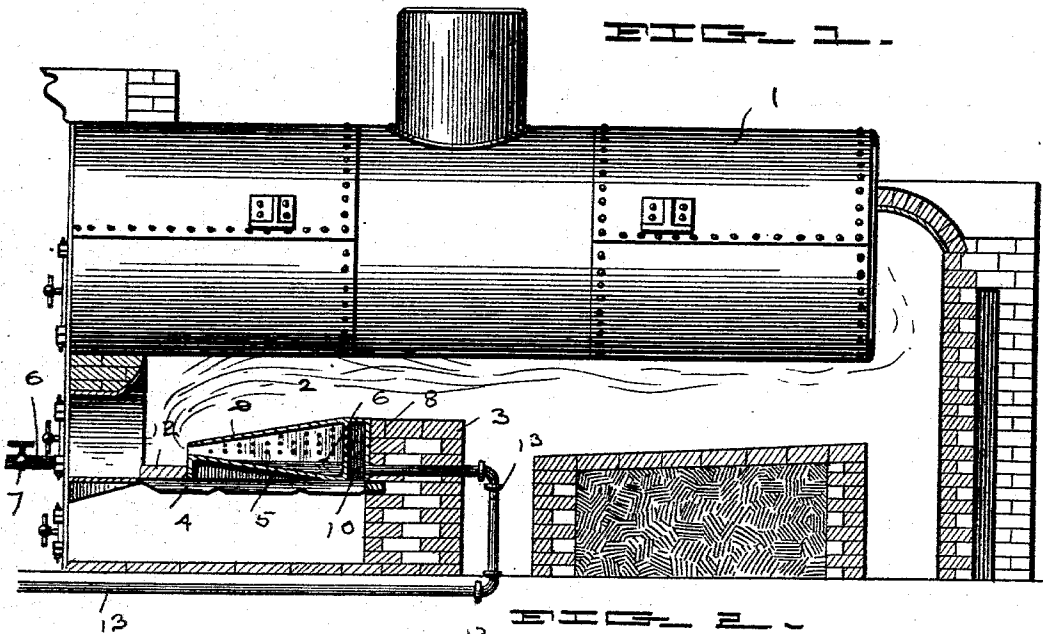


(No Model.)

H. STACEY.
OIL BURNER.

No. 494,992.

Patented Apr. 4, 1893.



Witnesses

H. D. Nealy
C. P. Griffith

Inventor

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UNITED STATES PATENT OFFICE.

HENRY STACEY, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO
MICHAEL H. CAIN, OF SAME PLACE.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 494,992, dated April 4, 1893.

Application filed July 7, 1892. Serial No. 439,298. (No model.)

To all whom it may concern:

Be it known that I, HENRY STACEY, of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful
5 Improvements in Oil-Burners; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

10 My invention relates to new and useful improvements in the construction of what are known as oil or hydro-carbon burners, and it relates more particularly to one that is adapted to burn the cruder grades of oil, and for
15 use in connection with boilers, kilns, puddling and other furnaces where a constant and intense heat is required.

In the drawings, Figure 1 is a view partly in section and partly in elevation, showing
20 my burner in place beneath a horizontal boiler of the ordinary type. Fig. 2 is a horizontal section through the burner on the line $x-x$, Fig. 3, showing the grate bars upon which it rests, and the surrounding filling of brick.
25 Fig. 3 is a cross section through the burner on the line $y-y$, Fig. 2.

In detail, 1 represents a boiler of the horizontal type set in place within suitable walls, within which is formed the fire-box 2, 3 being
30 the bridge wall, and 4 the grate.

5 represents a burner, which, as shown in the drawings, has an oil chamber in its base formed with an angular bottom, and into this oil from the pipe 6 is adapted to flow, the pipe
35 being connected with an oil supply at any suitable point, and having a regulating valve 7 convenient to the boiler.

8 are the inner walls of the burner surrounding it on three sides, the front being
40 open, and a top or deflector 9 being formed above such burner walls, and sloping downward toward the front of the same, thus contracting the open front of the burner to a long narrow slot whereby a space is formed in the
45 upper part of the burner for the accumulation of vapor therein. The mouth can be adjusted to suit the flame or fire that may be desired. The walls 8 of the burner are perforated as shown, these perforations opening
50 into the air chamber 10 formed between the

inner walls 8 and the outer walls 11 of the burner, as shown in Fig. 2, the bottom of this air chamber being open to allow the current of air from beneath the grate upon which the burner rests to circulate freely through such
55 air chamber and through the perforated inner wall 8 directly into the burner, and there mixing with the vapor arising from the oil after it has become heated. The burner 8 is preferably set with its back against the bridge
60 wall of the fire box, and around the sides and the front of the same the grate is covered with brick or other fire-proof material, so that all the air which supplies the burner must come
65 up through the air chamber formed within the outer walls of the burner.

An artificial air draft is not at all necessary in my burner where it is possible for air to reach the burner otherwise, as in ordinary
grates, but where the structure is such that
70 it is impossible for air naturally to reach the burner, an artificial air draft may be obtained by means of pipe 13 which leads through the bridge wall into the back of the burner, as
75 shown in Fig. 1, thus supplying an air current from any suitable source. The point of entrance for the air draft and likewise for the oil supply pipe of the burner may be
changed, however, according to circumstances. It will thus be seen that my burner does not
80 require an artificial air draft as found in other hydro-carbon burners, this feature being rendered needless by the construction of my oil chamber whereby a space for the accumulation of vapor is provided in the upper part of
85 the oil chamber and above the oil.

In most cases my burner would be constructed of metal, but in puddling or similar furnaces where a very intense heat is required, it would be preferably formed of fire clay or
90 brick, but the form of the burner and the material used in its construction may be changed to suit the different uses to which it would be put, as in vertical boilers and similar furnaces my burner would be constructed with the
95 mouth above the burner, instead of in front, this being accomplished by curving or turning up the outer end of the deflector, and also the outer end of the bottom of the burner. In kilns and similar furnaces I preferably set 100

or form the burner on a solid base, and omit the outer walls 11, the walls of the kiln forming the outer side walls of the burner, and the air draft entering the burner from the rear 5 and through the rear perforated wall, the inner side walls being perforated or not as occasion demands.

What I claim as my invention, and desire to secure by Letters Patent, is the following:

10 1. In an oil burner, an oil chamber having perforated sides, except on one side which forms a narrow mouth, and the top so arranged that some of the vapor can accumulate in such oil chamber above the oil, substantially as shown and described.

15 2. An oil burner comprising an oil chamber having an inclined bottom, a closed top inclined toward the bottom, forming on one side a narrow mouth, the walls of such chamber 20 perforated, and a surrounding air chamber, substantially as described.

25 3. An oil burner comprising an oil chamber having some of its walls perforated, and a surrounding air chamber, with a closed top and open bottom, substantially as shown and described.

30 4. An oil burner provided with an oil chamber in its base having an inclined bottom, such chamber adapted to be connected with an oil supply, an inclined deflector or cover 35 above such burner forming a long narrow mouth in the front of the same through which the products of combustion pass, perforated walls on the other sides of such burner which

open into a surrounding air chamber, such 35 chamber having a closed top and an open bottom, such burner adapted to rest on a grate within the fire-box of a furnace, and supplied with a draft through such air chamber, substantially as shown and described.

40 5. An oil burner comprising an oil chamber having an inclined bottom, a closed top inclined toward the bottom, forming on one side a narrow mouth, the walls of such chamber perforated, and a surrounding air chamber 45 having a closed top and an open bottom, substantially as shown and described.

6. An oil burner connected with an oil supply, such burner consisting of an oil chamber surrounded on three sides by inclosing perforated walls, the fourth being narrow and open, and its top so arranged that some of the vapor will accumulate in such chamber above the oil, an air chamber formed about such oil 55 chamber, the top of such air chamber being closed and the bottom open, such burner adapted to rest on a grate within the fire box of the furnace, whereby the air from below such grate may pass up through the air chamber into the oil chamber, substantially as 60 shown and described.

In witness whereof I have hereunto set my hand this 9th day of June, 1892.

HENRY STACEY.

Witnesses:

H. D. NEALY,
E. B. GRIFFITH.