

(No Model.)

H. STACEY.
COAL OIL BURNER.

No. 473,858.

Patented Apr. 26, 1892.

FIG. 1.

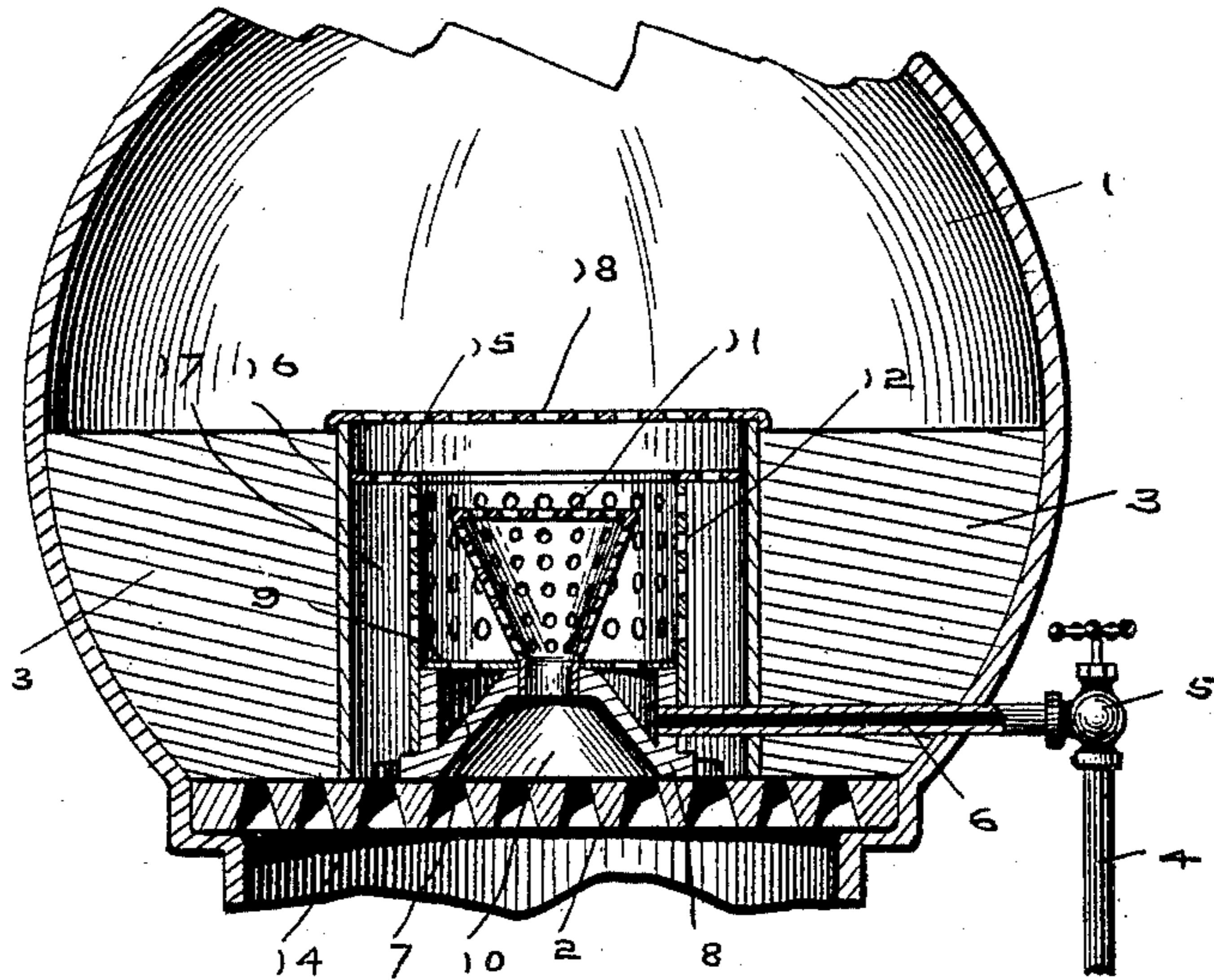


FIG. 2.

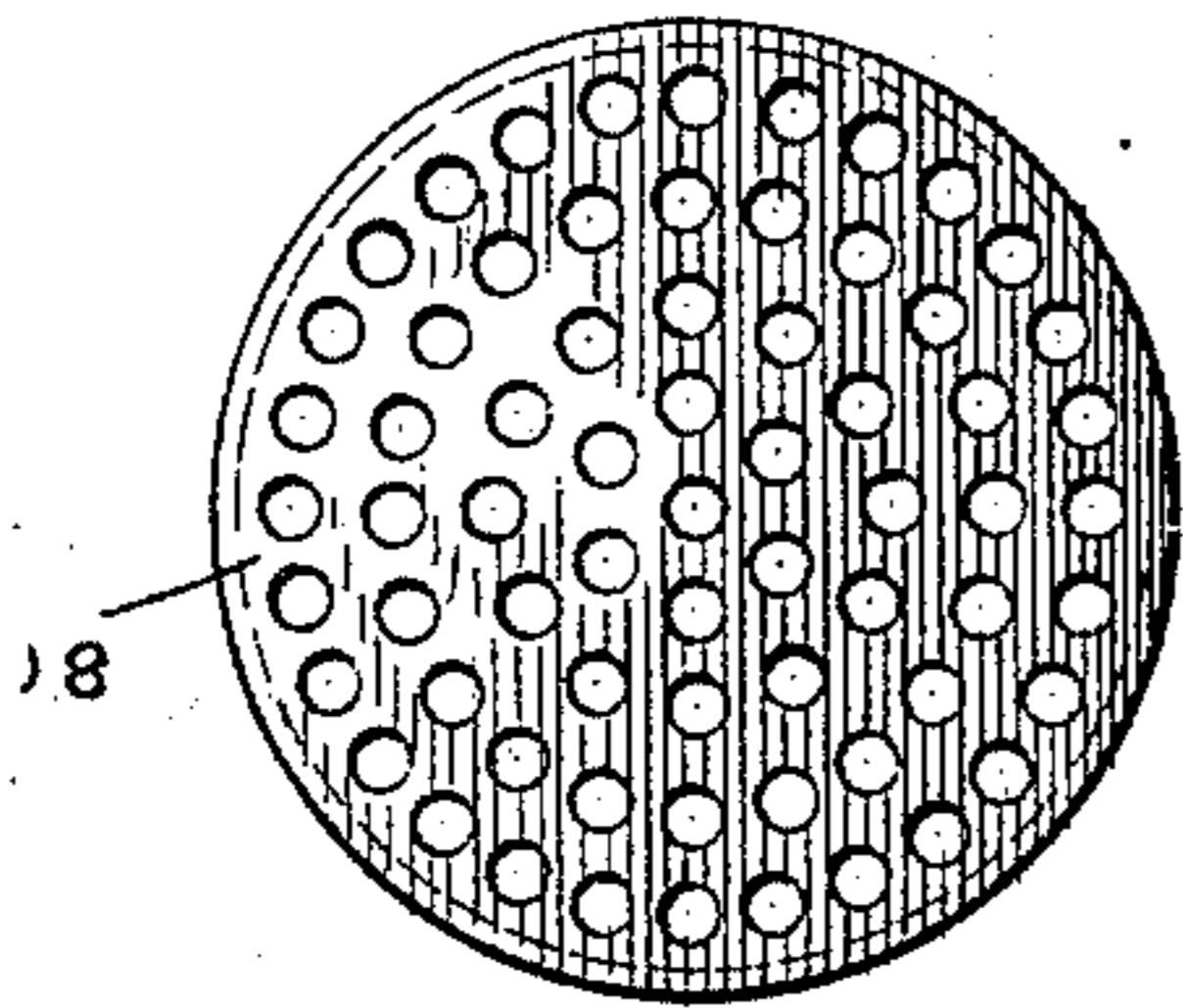


FIG. 3.

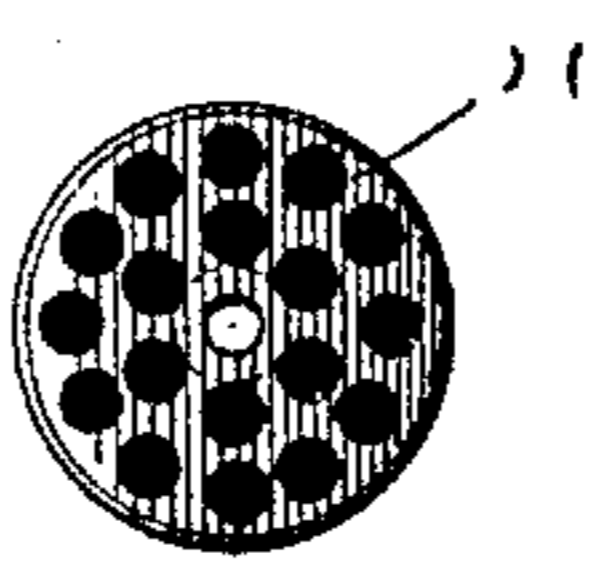


FIG. 4.

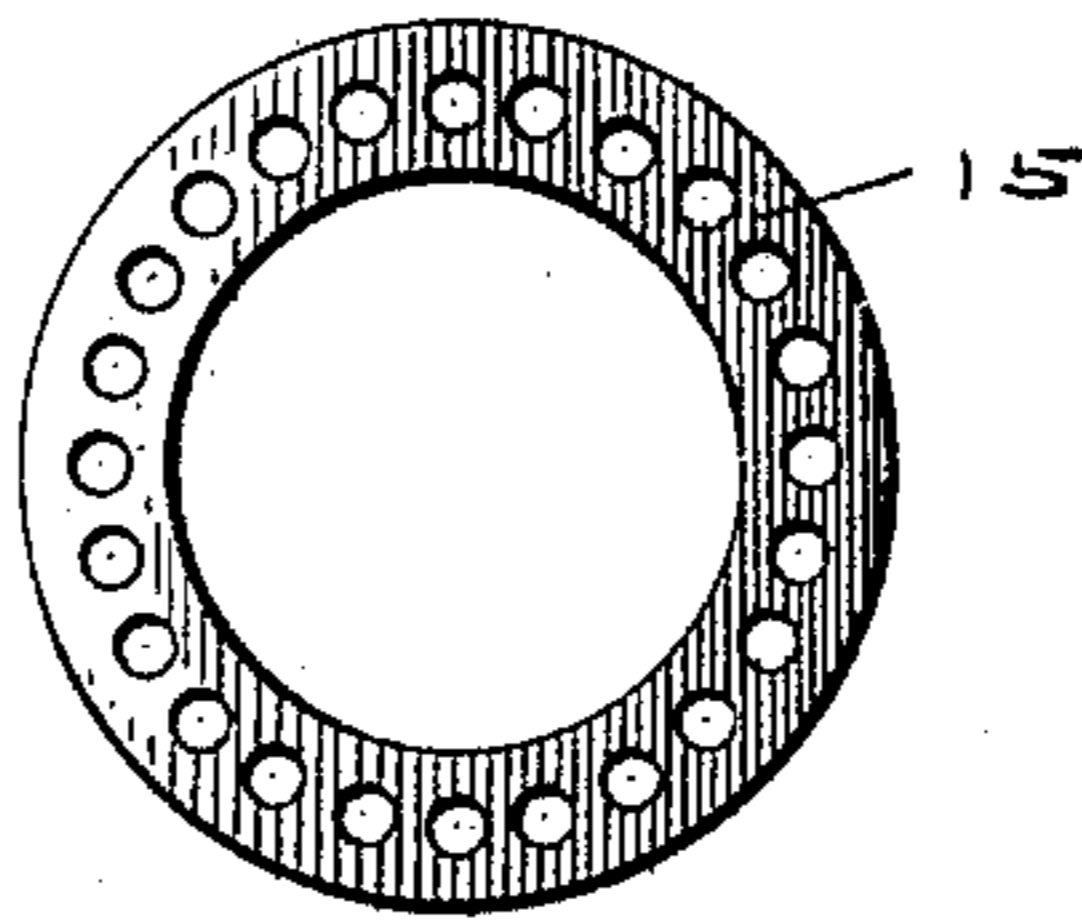
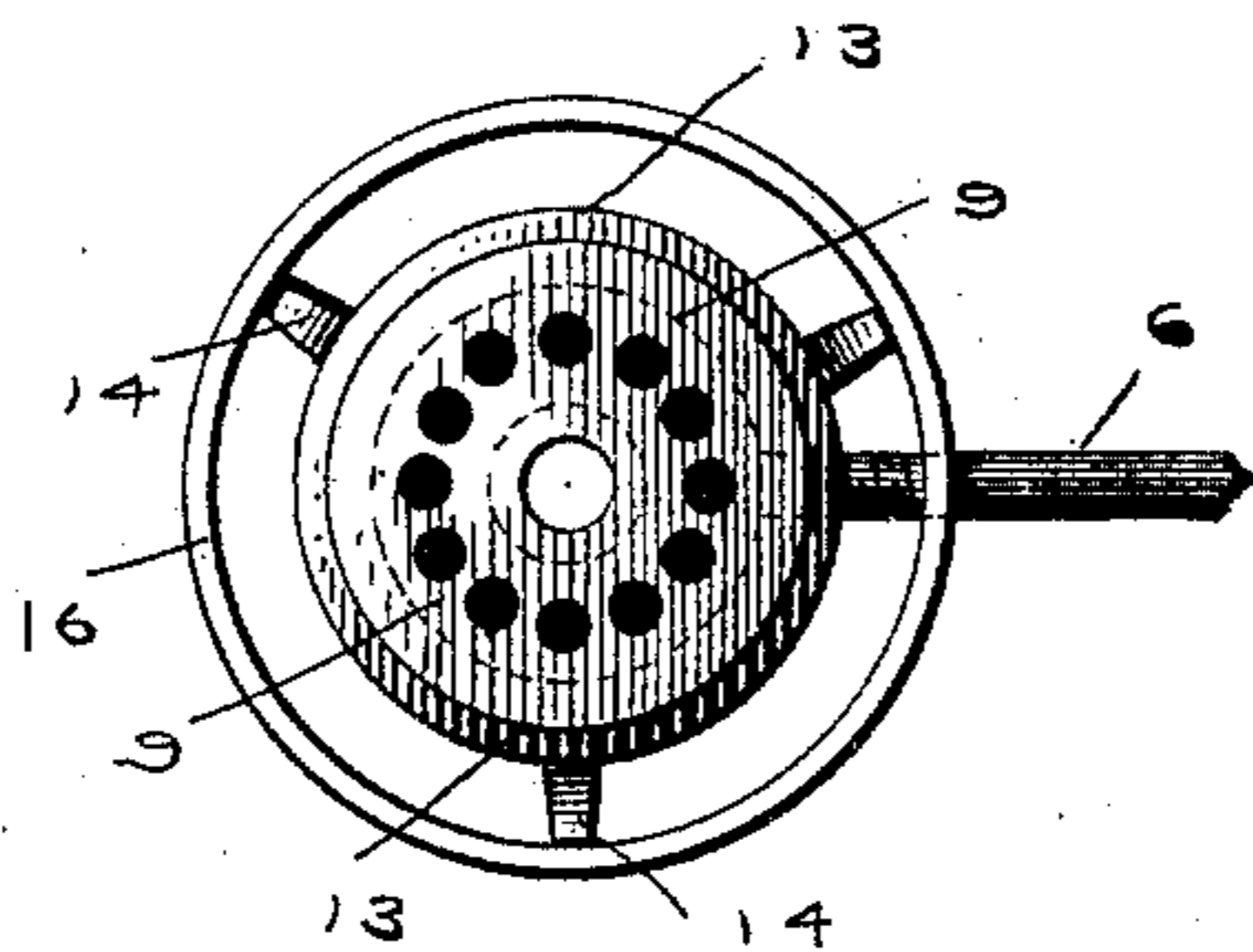


FIG. 5.



Witnesses

H. D. Neely.
C. B. Griffith.

Inventor

Berry Stacey,

By his Attorney

C. B. Jacobs.

UNITED STATES PATENT OFFICE.

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

COAL-OIL BURNER.

SPECIFICATION forming part of Letters Patent No. 473,858, dated April 26, 1892.

Application filed November 23, 1891. Serial No. 412,758. (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 Coal-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 numerals refer to like parts.

10 My invention relates to improvements in the construction of heating-burners intended to be used with the various grades of hydrocarbon oils and will be understood from the following description.

15 In the drawings, Figure 1 is a central vertical section through the fire-pot of the stove and burner, showing the relative arrangement and position of the parts when in use. Fig. 2 is a top view of the perforated plate
20 that covers the outer shell of the burner. Fig. 3 is a similar view of the perforated ring which rests upon the inner shell of the burner. Fig. 4 is a top view of the flame-spreading cone. Fig. 5 is a top view of the lower per-
25 forated plate and the burner set in place in the shell.

In detail, 1 is the fire-pot of the stove, 2 the grate, and 3 is a non-combustible filling, preferably fire-clay, which is put into the fire-pot
30 of the stove around the burner-shell in a semi-plastic state, and when hardened by the heat of the stove prevents any lateral draft.

4 is the supply-pipe from the oil-tank, having a regulating-valve 5, 6 being the inlet to
35 the fuel-chamber 7 of the burner.

The burner itself is composed of a circular base 8, within whose walls is formed the triangular oil-chamber 7, this being covered by a perforated cap 9.

40 The bottom of the burner is cored out at 10, and through the top of this is formed a central opening, which forms a seat for the inverted cone 11, perforated on its top and sides and whose neck fits loosely in the cen-
45 tral opening in the burner.

12 is an inner cylindrical shell, its sides perforated, its lower end resting upon a step 13, formed on the base of the burner, this step being provided, also, with three or more
50 projections or distance-lugs 14 for centering the burner within the outer shell.

15 is a perforated ring, which rests upon the walls of the cylinder 12 and extends laterally on each side to the walls of the outer shell 16, thus forming between the inner and
55 outer shell an air-chamber 17, the outer shell being covered by a perforated plate or cap 18, the whole burner and its inclosing shell resting directly upon the grate, as shown in Fig. 1. 60

The operation of my device is as follows: When the valve is opened, oil is admitted through the inlet 6 to the oil-chamber 7, and when this has been filled a fire is kindled in the opening 10 just above the grate, and as
65 soon as the chamber 7 is thoroughly heated the oil begins to vaporize and will take fire from the flame below, the vapor escaping through the openings in the plate 9, and the flame will fill the space about and be thrown
70 outward by the cone, and rising above will pass through the ring 15 and upward through the perforations in the top plate 18 and into the chamber above. Air is supplied through the openings in the grate, entering the air-
75 chamber 17 and passing through its perforated walls into the space about the cone, which takes air through its neck from below. The air and vapor will unite in the space
80 about the cone and also in the open space above the perforated ring 15, the parts thus forming practically a mixer and supplying sufficient oxygen to the flame, increasing the combustion and the heat, and as fast as the
85 oil is vaporized it is supplied from the tank and will continue to burn until the supply is exhausted. This burner is well adapted for burning the crude grades of petroleum, these
90 vaporizing under heat somewhat more quickly than the refined oils, inasmuch as the first contain naphtha and gasoline, which are ordinarily taken out by distillation.

The oil-chamber 7 will never overflow, because the amount of oil supplied through the valve is graduated, so that it will equal the
95 amount vaporized and consumed during the operation of the device.

The oil-chamber in the burner may be made of any shape, and it will operate; but I preferably make it triangular in shape, be-
100 cause when less oil is supplied to the burner there will be less evaporating-surface upon

the top, and inasmuch as the evaporation depends upon the area of the surface by the use of a chamber of this shape the fire can be regulated so as to burn as little or as much as
5 may be desired.

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

1. An oil-burner comprising a base having an oil-chamber within, a perforated cap, a central draft-opening, a hollow perforated deflecting-cone seated in such opening and extending above the burner, a perforated shell inclosing such burner and cone, and an air-chamber formed around such perforated shell and
15 between it and the wall of an outer inclosing shell having a perforated top, in combination with a supply-pipe tapping the oil-chamber and connected with a suitable tank, and a regulating-valve between the tank and
20 burner, substantially as shown and described.

2. An oil-burner comprising a base adapted to rest upon a fire-grate and cored out below,

a triangular oil-chamber in the base covered by a perforated cap, a central opening through the burner, a hollow perforated deflecting-
25 cone having a neck loosely seated in such central opening, a perforated shell surrounding the cone, an outer shell of greater diameter surrounding the perforated shell, whereby an air-chamber is formed between the outer
30 and inner shells, a perforated ring covering the air-chamber, and a perforated cap covering the outer shell, in combination with a supply-pipe tapping the oil-chamber, its other end connected to the oil-tank, and a regulating-valve between the tank and burner, sub-
35 stantially as shown and described.

In witness whereof I have hereunto set my hand this 19th day of November, 1891.

HENRY STACEY.

Witnesses:

C. P. JACOBS,
H. D. NEALY.