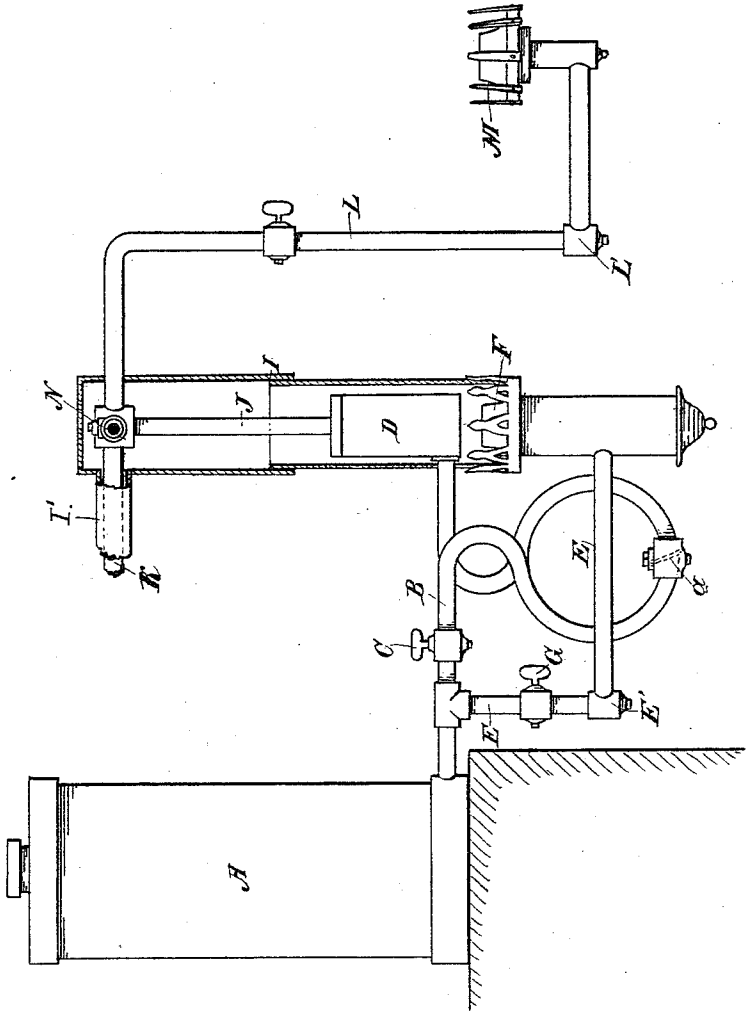
(No Model.)

M. NOBLE.

VAPOR FORMING ATTACHMENT FOR GRATES.

No. 458,328. Patented Aug. 25, 1891.



Witnesses,
P. Howse
H. C. Lee.

Inventor,
Moore Noble
By Dewey & Co.
Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MOORE NOBLE, OF SAN FRANCISCO, CALIFORNIA.

VAPOR-FORMING ATTACHMENT FOR GRATES.

SPECIFICATION forming part of Letters Patent No. 458,328, dated August 25, 1891.

Application filed October 16, 1890. Serial No. 368,356. (No model.)

To all whom it may concern:

Be it known that I, MOORE NOBLE, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Vapor-Forming Attachments for Grates; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device which I call a "vapor-forming attachment for grates."

It consists in certain details of construction, which will be more fully explained by reference to the accompanying drawing, in which the figure is a general view of my device.

The object of my invention is to provide a means for converting hydrocarbon or vapor-forming materials into vapor for use in grates and for similar purposes.

In carrying out my invention I employ a tank A of any suitable or desired form and size, and adapted to contain a quantity of the hydrocarbon or vapor-forming liquid.

B is a pipe with a controlling-cock C, and through this pipe the contents of tank A may be drawn and allowed to pass into a retort D.

In order to prevent any return of vapor through the pipe B after it commences forming in the retort, I have curved the pipe B downward in such a manner as to form a trap, which will always contain a considerable quantity of the liquid and will act as a seal to prevent the vapor returning from the retort, and in the bottom of this trap is a check-valve *a*.

E is a branch pipe connecting with the pipe B and leading thence to a burner, as shown at F. The pipe E is swiveled at its junction with the burner-arms at E′, so that the burner may be turned to stand beneath the retort D or be swung out of the way when desired.

G is a cock controlling the admission of the liquid into the pipe E and to the burner F.

The operation will then be as follows: The burner F, being supplied with inflammable liquid from the tank A by opening the cock G, is turned so as to stand beneath the retort D, and the heat is retained about the retort and a steady flame maintained by means of a surrounding chimney I, extending upward, as shown. This chimney is preferably made in two sections, the lower one of which is adapted to telescope within the other, and the upper section is connected with the escape-flue I, and this conveys away the products of combustion from the burners. The cock C being turned, the liquid will flow through the pipe B into the retort D, and by means of the heat of the lamp F will be vaporized, passing out through the pipe J, and thence through the branch K, to the grate or other point where the vapor is to be utilized. As soon as the vapor commences forming, a cock is opened in a branch pipe L and the vapor is supplied to a burner M, which is swiveled upon the lower end of the pipe L, as shown at L′, so that it may be turned around in the same manner as the burner F. The burner M being lighted, the burner F is turned about its swivel to one side and extinguished, and the burner M is turned so as to stand beneath the retort D, where it continues the operation of vaporizing the liquid which is supplied through the pipe B, the operation being continued as long as it is desired or as long as the supply of liquid is furnished to the retort. The vapor may be conducted from the retort to a grate, where it is delivered through a perforated pipe or pipes and distributed through a mass of broken material, above which it is ignited.

N is the coupling through which the pipe J from the retort connects with the main conductor and with the pipe L.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A vapor-forming attachment for grates, consisting of a retort, a tank containing a vapor-forming liquid, a pipe connecting said tank with the retort and having a trap or check to prevent the return of vapor through it, and a controlling-cock, a delivery-pipe leading from the retort to the grate, a branch pipe leading from the one which supplies the retort, and a lamp or burner having a swiveled connection with said supply-pipe, whereby it may be turned beneath the retort or moved away from it, substantially as herein described.

2. A vapor-forming attachment for grates, consisting of a retort within which the liquid may be vaporized, a tank containing a liquid, a pipe connecting said tank with a retort having a regulating-cock and a trap or seal to pre-

vent the return of vapor from the retort, a branch pipe leading therefrom with a regulating-cock, a swiveled connection with said pipe, and a lamp or burner supported from said swiveled connection so as to be turned beneath the retort or to one side thereof, in combination with a discharge-pipe leading from the retort and conveying the vapor away, a branch connected with said discharge-pipe, having a regulating-cock and a swiveled connection at its lower end, and a burner connected with and supported from said swivel so as to be turned beneath the retort in place of the swiveled lamp, substantially as herein described.

3. A vapor-forming attachment consisting of a retort with a supply-tank and intermediate check or trap, a lamp swiveled to a supply-pipe from the tank and having a controlling-cock, a burner swiveled to a pipe connected with the discharge from the retort, so as to be interchangeable with the lamp beneath the retort, and a coupling with which the pipe from the retort, the discharge-pipe, and the burner-pipe are connected, substantially as herein described.

In witness whereof I have hereunto set my hand.

MOORE NOBLE.

Witnesses:
S. H. NOURSE,
H. C. LEE.