

No. 646,386.

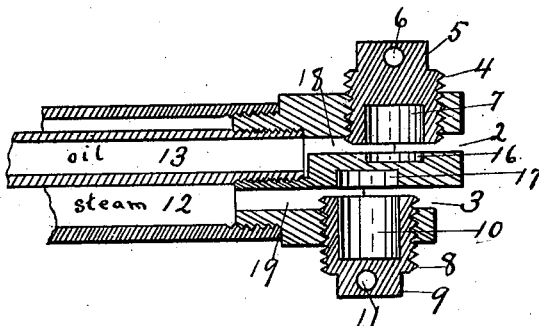
Patented Mar. 27, 1900.

M. O. GODDING.  
HYDROCARBON BURNER.

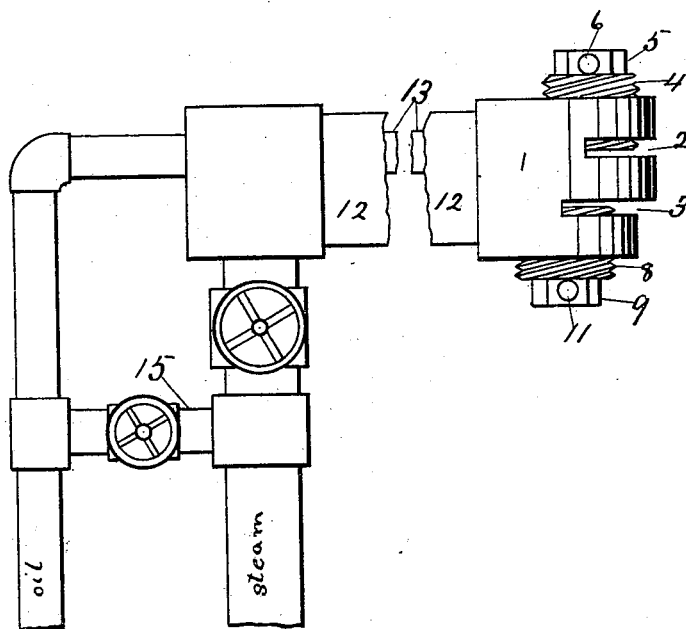
(Application filed Dec. 29, 1898.)

(No Model.)

*Fig. 2.*



*Fig. 1.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

MILON O. GODDING, OF LOS ANGELES, CALIFORNIA.

## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 646,386, dated March 27, 1900.

Application filed December 29, 1898. Serial No. 700,640. (No model.)

*To all whom it may concern:*

Be it known that I, MILON O. GODDING, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented a new and useful Hydrocarbon-Burner, of which the following is a specification.

My invention relates to improvements in hydrocarbon-burners in which crude petroleum is burned for fuel in the presence of steam or air; and the objects of my improvements are to provide a burner cheaply manufactured, of simple construction, that is easily adjusted when in use, and which can be used equally well whether a small or a large fire is required. I attain these objects by the mechanism described herein and illustrated in the accompanying drawings, forming a part hereof, in which—

Figure 1 is a side elevation of my burner, parts being broken away; and Fig. 2 is a longitudinal vertical section of the head of the burner with a portion of the connecting-pipes.

In the drawings, 1 is the head of the burner and has a semicircular face, the upper part of which projects beyond the lower. In the upper part of the face is the horizontal oil-discharge port 2, and in the lower part of the face is the horizontal steam-discharge port 3. The normal size of these ports is sufficient to supply oil and steam in such quantities as may be required to generate steam for the greatest demand that can be made on the boiler with which the burner is used. The oil-port 2 is regulated by the circular screw-threaded valve 4, having a hexagonal head 5, through which extend holes 6, and containing a circular expansion-chamber 7. (Shown in Fig. 2.) The oil-port 2 is connected to the oil-supply pipe 13 by a passage 18. The steam-port 3 is regulated by the circular screw-threaded valve 8, having a hexagonal head 9, through which extend holes 11, and containing a circular expansion-chamber 10. Upon the rear part of the head is screwed the steam-pipe 12, which is connected with the port 3 by passage 19, and within the steam-pipe the oil-pipe 13 is screwed into the head. A by-pass 15 is provided for cleaning out the oil-port with steam when desired. The circular recesses 16 and 17 are constructed in the head opposite the expansion-chambers 7 and 10, res-

spectively, in the oil and steam valves. The object of oil and steam expansion-chambers and the recesses opposite thereto is to provide means to equalize the force of the flow of the oil and steam and render it more uniform throughout the respective discharge-ports. The web between the oil and steam passages, which forms the upper lip of the steam-discharge port, projects beyond the steam-discharge port, thereby preventing the expansive force of the steam from giving an excessive upward force to the flame, thus giving a broad horizontal even flame under the boiler and not subjecting any part thereof to an undue amount of heat.

Having described my invention, what I claim is—

1. A hydrocarbon-burner composed of a burner-head having an oil-supply passage terminating in a semicircular horizontal discharge-port, a valve having an expansion-chamber therein arranged to regulate such discharge-port; said head also having a steam-supply passage terminating in a semicircular horizontal discharge-port in the rear of and below the oil-port, a valve having an expansion-chamber therein arranged to regulate such steam-port, an oil-pipe connected with the oil-passage and a steam-pipe connected with the steam-passage substantially as described herein.

2. In a hydrocarbon-burner comprising the head 1, semicircular on its face and having two horizontal slots 2 and 3 in its face forming discharge-ports for oil and steam respectively, the upper port 2 being in advance of and projecting over port 3, the said ports having connection with an oil and a steam conduit respectively and the adjustable screw-threaded valves 4 and 8 disposed above and below the oil and steam passages leading to ports 2 and 3 respectively having recesses 7 and 10 arranged to regulate the flow of oil and steam to the ports 2 and 3 respectively by screwing or unscrewing said valves.

3. The combination of the head 1, provided with slots 2 and 3 forming discharge-ports for oil and steam respectively, and the screw-threaded valves 4 and 8, with the chambers 7 and 10, the ports 2 and 3 having communication with oil and steam pipes 13 and 12 and said valves being disposed in threaded open-

ings in the head 1, above the oil-passage 18 and below the steam-passage 19 whereby the flow of oil and steam is regulated by turning said valves substantially as shown and described.  
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4. A hydrocarbon-burner having an oil-discharge port above and slightly in advance of the steam-port, and screw-threaded valves having chambers 7 and 10 adapted to regulate  
10 the flow of oil and steam to said ports; the chambers in said valves together with the

chambers leading to the oil and steam ports respectively forming expansion-chambers for the oil and steam before being projected through said ports.

In witness that I claim the foregoing I have hereunto subscribed my name, this 23d day of December, 1898, at Los Angeles, California  
MILON O. GODDING.

Witnesses:

G. E. HARPHAM,  
HENRY T. HAZARD.