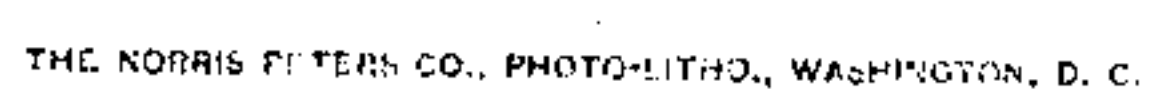


G. R. MOORE.
OIL BURNER.

Patented Nov. 10, 1891.



UNITED STATES PATENT OFFICE.

GEORGE R. MOORE, OF PHILADELPHIA, PENNSYLVANIA.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 462,770, dated November 10, 1891.

Application filed April 18, 1890. Serial No. 348,550. (No model.)

To all whom it may concern:

Be it known that I, GEORGE RODNEY MOORE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Oil-Burners, of which the following is a specification.

This present application for a patent on oil-burners became necessary by supplemental and progressive inventions on the same general subject of my patent, May 27, 1890, No. 428,759, for oil-burners, and the new items consist in part of the following: In that invention, to prevent the conduction of heat back to the oil-reservoir, I made a section of oil-pipe out of wood. Now I disconnect the oil-tank and allow the oil to drop through an air-space into a section of pipe so near the burner as to cause no trouble from heat-conduction whatever. In that invention I used deflecting-plates to mix the air with the burning vapor of the oil. In this I use perforated rings. In that invention I relied upon valves already invented for controlling the flow of oil. In this I have invented one exactly adapted to the special requirements of my oil-burners. In that invention I introduced the oil at the bottom of a flaring boiler or evaporator. In this I introduce the oil higher up in the side of the evaporating-boiler. In that I used no hood over the boiler. In this I do.

My present invention is shown in the accompanying drawings, in which—

Figure 1 is a vertical section of the burner and all the frame-work with which it is connected, including the oil-tank and pipe and special screw-valves. Fig. 2 is a cross-section or plan view taken on the line *x x* of Fig. 1. Fig. 3 is a front elevation with portions broken away. Fig. 4 is a front view of the oil-tank and valve with operating-lever and friction-plate. Fig. 5 is a top view of the same parts. Fig. 6 is a perspective of the hood used over the evaporating-boiler. Fig. 7 is a perspective of the frame-work used to hold in place the inside perforated ring. Fig. 8 is a vertical section of the burner and perforated rings free from any casing and finished with a lamp-chimney.

Similar letters refer to similar parts.

A is the casing, *a* door in the same, and *a'* an inwardly-extending arm from the same.

B B are the upright standards upon which all the other works above the base rest.

C is the burner or metal plate upon which the oil burns until it becomes sufficiently heated to cause the oil to evaporate in the evaporating-boiler; and *c* is a lighter, preferably of asbestos.

D is a narrow perforated metal ring placed around the outside of the burner. *d* is a manual door through the same, and *d'* performs the same office to the next inner perforated ring.

E is a perforated ring, and *e* a small opening through the lower part of the same.

F is a perforated ring.

G is an outlying flange around the top of the ring E.

H is a cover to the ring F.

I is a perforated ring rising a little above the burner around its inside edge.

J is a rod holding the parts together which are shown in its connection.

K is a hanger or frame-work in which the perforated ring I rests.

L is the hood over the evaporating-boiler or oil-pipe for supplying the burner.

L' is the evaporating-boiler, and *l* is a wire passing up through the hood to hold it in place.

M is a section of the oil-pipe of small caliber.

N is a section of the oil-pipe finished at the top by expanding it, so as to catch the oil readily from the pipe or valve as it may drop into it.

O is an oil-pipe.

P is the screw-valve casing, and *p* a nozzle from the same.

Q is the oil-tank with which the valve is connected.

R is an elastic operating friction-lever for the valve, &c.

r is the screw-valve.

S is a friction-plate adjusted to the elastic friction-lever R, so as to hold sufficiently by friction to prevent any self-changes of the valve.

T is the base-plate of the frame-work.

The operation of this oil-burner may be

seen readily in the following manner: Let the screw-valve *r* be opened a little by turning the friction-lever *R* to the left until the oil is seen dropping from the nozzle *p* and also at the lower end of the oil-pipe *O* into pipe *N*, and very soon the oil will appear on the burner, and the asbestos lighter *c* will become ignitable, when it may be touched with a lighted match in either of two ways, from the top between the rings *E* and *F* or at the bottom by the doors *a* and *d* and *d'*. This last is preferable and the easiest way. Only the door *a* needs to be latched in closing, as the arm *a'* shuts and holds doors *a* and *d* in place. The ignited asbestos lighter soon inflames all the oil on the face of the burner, which by its upturned edges is practically a very shallow trough in annular form and capable of holding sufficient oil to start the process of conversion by its own heat communicated to the evaporating-boiler *L'*, which, being heated sufficiently, the invisible vapor of oil keeps up the process of combustion, and a blue flame will be seen around the entire circle of the burner between the perforated rings *E* and *F* and scarcely any luminous flame until sufficient oil is turned on to raise the flame above the top of these rings. Hence in Fig. 8 is shown ring *E* lower than ring *F*, and a lamp-chimney is used, with a luminous flame as the result. As soon as the burner becomes heated the flame rises or falls in exact proportion to the oil turned on.

By means of the improved screw-valve *r*, provided with the friction-lever *R*, impinging by spring-tension upon the plate *S*, I obtain great precision and reliability in the feeding of the oil to the burner, while protecting the tank of oil from the heat of the burner and exposing the delivery of oil from the valve to the eye of the operator, whose touch upon the lever *R* and its counterpart affords him accurate guidance in the changes he may desire and security for the valve to stay where he sets it.

By disconnecting the oil-pipe not very far from the burner I avoid the need of any non-conducting material in the structure of any part of the oil-pipe. By the hood *L* over the boiler *L'* the vapor of the oil is projected from the boiler in horizontal directions to a slight extent, and the boiler becomes less heated. By the introduction of the oil into the side of the boiler instead of at the bottom the action is more uniform by reason of a weaker suc-

tion upon the oil-pipe by unsteady evaporations in it.

Although the annular form is the most compact of any form I know of for this burner, I have made some in straight lines with raised perforated sides, and they may be made on any line, circle, or angle that may be desired.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the burner *C*, consisting of a narrow metal plate or trough provided with the evaporating device *L* and *L'* and surmounted with the perforated rings *E* and *F*, and the oil-conveying pipe leading to said burner, substantially as and for the purpose herein set forth.

2. The combination of the burner *C* with evaporating device *L* and *L'* and surmounted with the perforated rings *E* and *F*, and having around its inside edge the perforated ring *I*, and the oil-conveying pipe leading to said burner, substantially as and for the purpose herein shown.

3. The combination of the burner *C* with evaporating device *L* and *L'* and surmounted with the perforated rings *E* and *F*, and having around its outside edge the perforated ring *D*, of less height than the rings *E* and *F*, and the oil-conveying pipe leading to said burner, substantially as and for the purpose herein set forth.

4. The combination of the burner *C*, provided with the evaporating device *L* and *L'* and surmounted with the perforated rings *E* and *F*, the fibrous lighter *c*, and an oil-conveying pipe to said burner, substantially as and for the purpose herein set forth.

5. The combination of the burner *C*, surmounted with the perforated ring *F*, with cover *H* and ring *E*, provided with the outlying flange *G*, and an oil-conveying pipe to said burner, substantially as and for the purpose herein shown.

6. The valve device herein shown for controlling and exposing to view the flow of oil from the tank to the pipe *O*, and consisting of the valve-casing *P*, the open nozzle *p*, the screw-valve *r*, and elastic lever *R*, adjusted to the friction-plate *S*, substantially as and for the purpose herein set forth.

GEO. R. MOORE.

Witnesses:

JAMES F. HAGEN,

WILLIAM J. WATSON.