No. 706,064. Patented Aug. 5, 1902.

W. R. JEAVONS.

HYDROCARBON BURNER.

(Application filed Feb. 24, 1902.)

(No Model.)

FIG. 1.

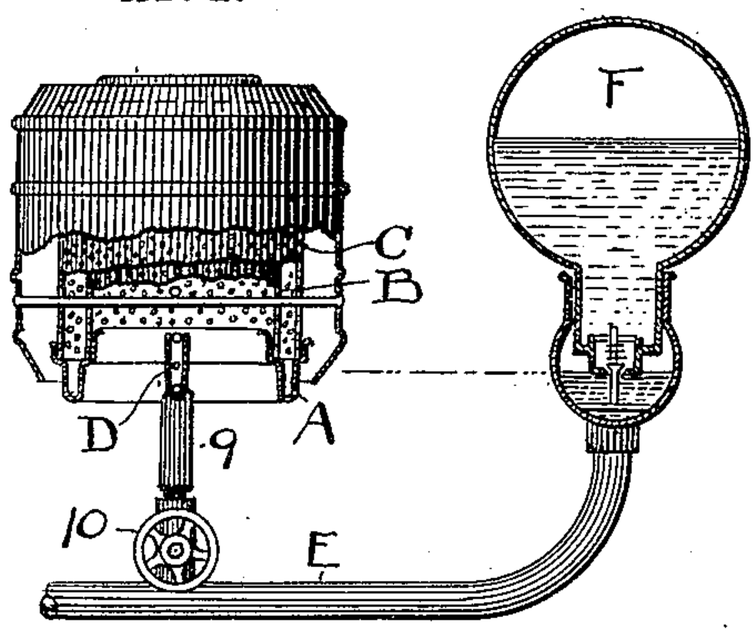

FIG. 2.

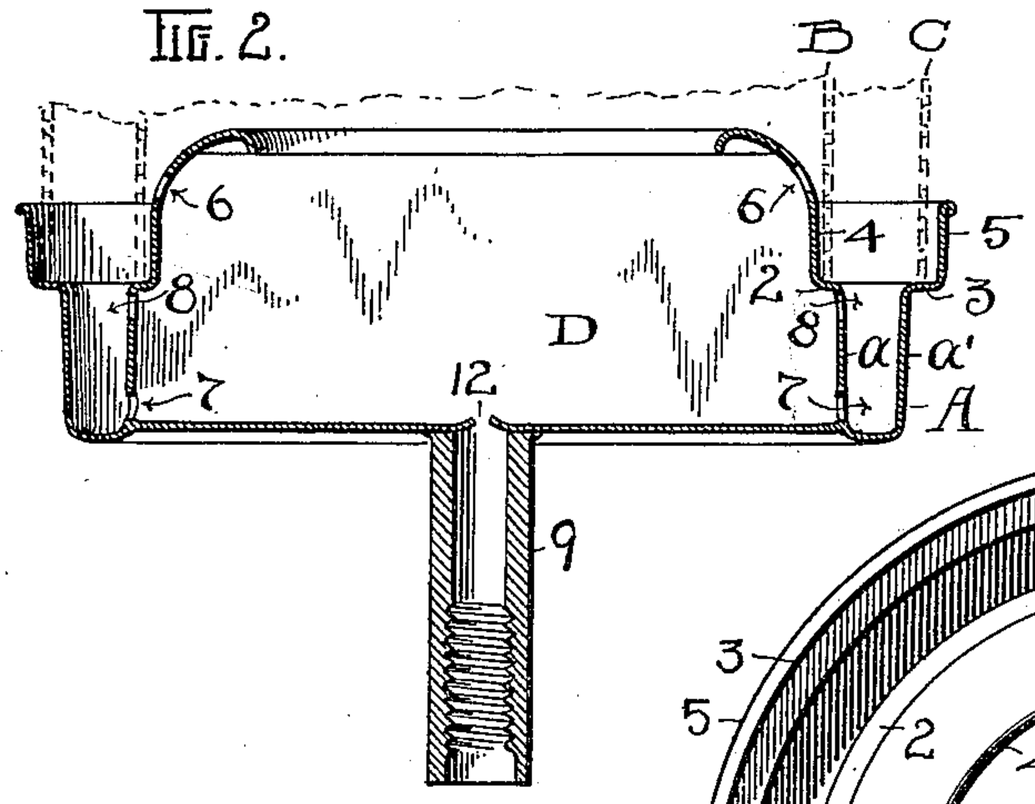

FIG. 3.

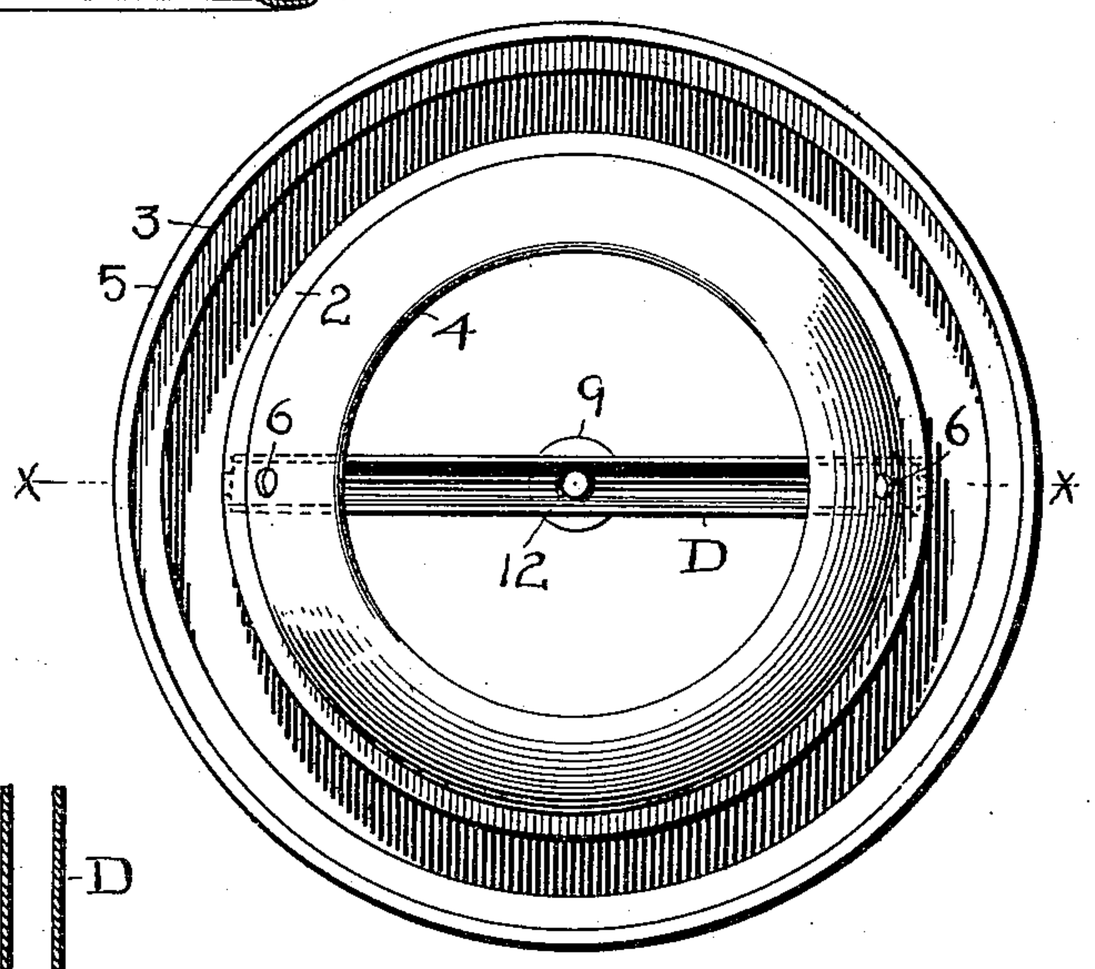

FIG. 4.

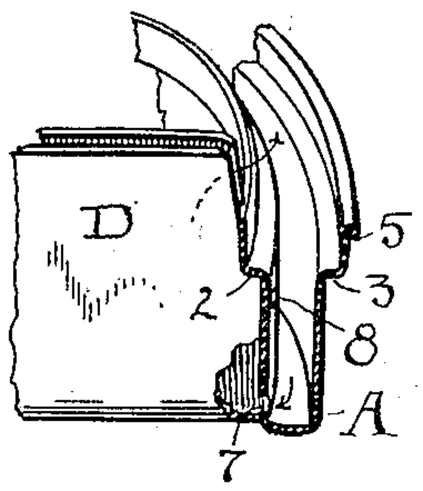

FIG. 5.

ATTEST

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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 706,064, dated August 5, 1902.

Application filed February 24, 1902. Serial No. 95,149. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. JEAVONS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Hydrocarbon-Burners; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in hydrocarbon-burners; and the invention consists in the construction, combination, and arrangement of the parts substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plain elevation of the burner, partly sectioned in its lower portion, and a sectional elevation of the oil-supply tank connected therewith. Fig. 2 is an enlarged central sectional elevation of the oil and vapor trough on line $x\,x$, Fig. 3. Fig. 3 is a plan view of the trough. Fig. 4 is a perspective view of a section of the trough modified in certain details of construction as compared with Figs. 2 and 3, as hereinafter fully described. Fig. 5 is a cross-section of the oil and vapor channel for the trough.

In this class of burners using an oil and vapor trough the oil is usually fed to the trough through a pipe or tube affixed to its bottom. This pipe is constructed in the form of a T, with the depending stem of the T connecting with the oil-supply. It has been found that with this form of oil-supply pipe it is only a question of time when the pipe which supplies the oil to the bowl becomes clogged with deposits from the oil, and from the character or construction of the device it is impossible to remove such deposits, so that sooner or later the burner will be put out of service by reason of the inherent defects of such a construction. Furthermore, in the use of this device water will sometimes boil over and find its way into the feed-pipe, and inasmuch as this water cannot be removed except by taking the bowl off from its connection and drying it out by heat it makes such method of supplying oil very unsatisfactory. Again, in some uses the burner becomes very hot, so that in such cases particularly vapor is generated in this supply-pipe, and this vapor being confined forces its way through the oil, causing the burner to give a very unsteady flame. Now I entirely overcome these defects in construction and operation by providing an open conduit for supplying the oil and vapor trough. This conduit is open at its top, giving access to its entire interior for cleaning. Vapors generating therein cannot act to render the oil-feed unsteady, and small quantities of water that might find lodgment therein will readily evaporate without interfering with the work of the burner.

Referring to the drawings, the trough A is circular or ring-shaped, preferably, although not limited to this shape, and has seats 2 and 3 on its walls a and a', respectively, for the usual perforated burner-tubes B and C. Wall a' terminates in what may be called a "flange" 5, projecting upward about the base of the outer tube C, and wall a runs into a substantially dome-shaped extension 4, rising above flange 5 in this instance and curved inward to its edge. This dome, as described, forms an effective guide for seating one tube and, in fact, for seating both tubes when such tubes are fastened together, as is usual in most cases. In some cases, however, the dome-shaped flange herein described is not used, and a trough having simply short flanges about the tubes B and C is used.

For supplying oil to the trough, as described, I apply the open trough-shaped conduit or channel D, preferably formed by bending a suitable sheet of metal back upon itself to a substantially U or V shape, and adapted to make a close connection at its ends with or against the inside wall a of the oil and vapor trough, and it is soldered or brazed in this position. I prefer to have the bottom of the conduit on a level with the bottom of the trough, though it will work about as well somewhat higher or lower, and which is an approximate position. The sides of the conduit, however, rise to a higher plane above the flanges 2 and 3 of the oil and vapor trough, so that with a high level of oil there is no chance of the oil overflowing from the conduit. Holes 7 are formed for the passage of oil from the conduit to the trough, while the openings 8 just below the flange permit such

vapor as may be generated in the conduit to escape into the upper part of the trough. If in the operation of the burner the oil should rise so high as to cover the holes 8, the vapor will flow through the opening 6 at the upper part of the conduit in Fig. 2 and in the structure shown in Fig. 4 would flow through the open top ends of the conduit. In the ordinary operation of the burner only a small quantity of oil is admitted into the conduit, not enough to entirely close the hole 7, and in such case the vapor generated in the conduit may escape into the trough with the oil through the opening 7. With the oil high enough to cover this opening 7 vapor may escape through the openings 8; but in case of stoppage of these holes by clogging deposits or by an unduly high level of oil the vapor will escape from the upper openings 6, which are in close proximity to the inner tube, so that any vapor emerging therefrom will find its way through the openings in the perforated tubes into the burner. It will be understood in this connection that the vapor of hydrocarbon oil being heavier than air will not escape through the top of the conduit, but, like water, will run out of the lowest opening, and from the arrangement described it will be seen that under any and all conditions that might arise in the operation of these burners no vapor will escape from the open top of the conduit over its walls, and neither will the vapor therein become ignited.

A tubular sleeve 9 is connected centrally with the conduit or channel D, and this sleeve in turn connects with the supply-pipe E, which connects with the oil-tank F. This tank F is constructed and arranged after the manner of student-lamp tanks for maintaining a constant level of oil, so that with the parts properly constructed the oil will not rise beyond a certain point in the conduit B, and possible overflow is prevented. By a valve 10 the amount of oil admitted to the burner may be regulated. At the point where the oil enters the conduit I prefer to raise the bottom of the conduit a trifle above the general level, so that particles of dirt may not easily sift through the opening 12.

With the conduit applied to the form of oil and vapor bowl as shown in Fig. 4 any vapor generating in the conduit may escape through the open ends of the conduit, which project a little above the flanges on the bowl.

What I claim is—

1. A vaporizing-trough, and a conduit for supplying oil thereto internally exposed at its top and open to the lower portion of the trough and provided with a vapor-outlet at its upper portion, substantially as described.

2. A vaporizing-trough having seats for a combustion-chamber, an oil-supplying conduit fixed to the said trough and open at its top, and having an extension projecting above said seats and provided with an opening for the overflow of vapor above the plane of said seats, substantially as described.

3. The vaporizing-trough having seats for a combustion-chamber, an oil-supplying conduit affixed to the said trough and extending to a plane above said seats and open at its top and in open relation to the trough below said seats, and having a vapor-overflow opening above said seats, substantially as described.

4. A vaporizing-trough having seats for burner-tubes on its walls, and a double-walled conduit to supply oil to said trough having its interior exposed from the top and provided with a stem to connect with an oil-supply pipe, and having a vapor-overflow opening at its top portion above the seats for the burner-tubes, substantially as described.

5. The oil and vapor trough and a substantially U-shaped oil-supply conduit affixed thereto at its ends and having outlets at its bottom and near its top, and the opening for supplying oil to said conduit arranged on a plane slightly above the bottom of the conduit, substantially as described.

6. An oil and vapor trough and an oil-supply tank having means for maintaining a constant oil-level therein, a conduit open along its top extending from side to side of the trough and attached at its ends to the inner wall thereof, and provided with an oil-passage from its lower portion to the lower portion of the trough, and the said conduit having an opening above the said oil-level and on a lower plane than its top edges for the escape of vapor, substantially as described.

Witness my hand to the foregoing specification this 8th day of February, 1902.

WILLIAM R. JEAVONS.

Witnesses:
R. B. MOSER,
T. M. MADDEN.