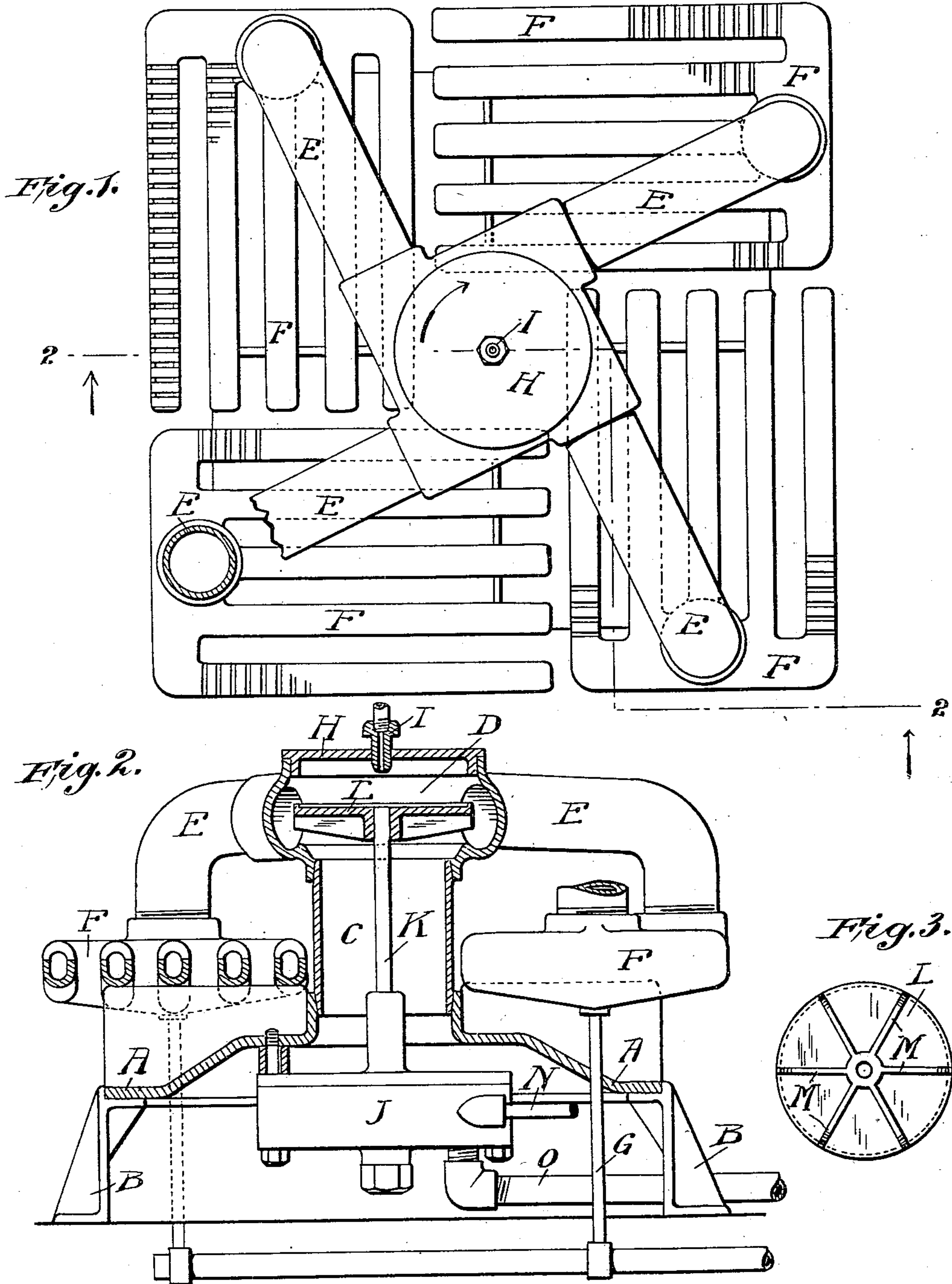


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W. E. GIBBS.
HYDROCARBON BURNER.
APPLICATION FILED JUNE 12, 1903.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 751,066, dated February 2, 1904.

Application filed June 12, 1903. Serial No. 161,137. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. GIBBS, a citizen of the United States, residing at Fanwood, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

My invention relates to improvements in burners for the heavy oils and hydrocarbons.

The object of my invention is to burn oils in such a manner as to convert into useful work the maximum amount of heat units existing therein and to accomplish this end by means of simple and durable devices.

In the economical combustion of the heavy oils it is necessary to reduce them to a state of minute subdivision, or, in other words, to convert the oil into the form of a spray or vapor. It is further necessary to mix therein with the requisite volume of air for combustion at a temperature above that at which the oil-vapor condenses and to convey the heated mixture to ignition-orifices in the burner, where it is consumed.

The construction of my burner is shown by the accompanying drawings, in which—

Figure 1 shows a plan view of my burner, and Fig. 2 shows it partly in vertical section. Fig. 3 is a detail view of the fan.

As is shown by the drawings, my burner comprises an extended base A, resting on legs B. From the center of said base A rises a vertical tube C, terminating in a chamber D of the form shown. Said chamber D has leading tangentially from it a plurality of tubes or ducts E, which first incline slightly downward and later become vertical. These ducts E communicate with hollow chambers F, having multiple outlets in the form of slots or holes for the issuance of the flames and also have drainage-tubes G for the purpose of removing any excess of oil. The chamber D has, preferably, a closely-fitting removable cover H for the purpose of easily cleaning said chamber and ducts E. Through the cover H is led the oil-supply pipe I.

Below the tube C and within the base A is a steam-turbine of any approved construction. The turbine-case only is shown at J.

The shaft K of said turbine rises through tube C and terminates in the oil-spraying disk L, which has on its under side a number of radial ribs M, which act as a blower of air. The steam-inlet to the turbine J is shown at N and the exhaust at O.

The operation of my burner is as follows: Steam is turned on at the pipe N, which by means of the turbine J produces a rapid rotation of the combined spraying-disk and fan L M. A volatile fuel, such as gasoline or alcohol, is supplied to the revolving disk L by the pipe I, and a torch is applied to the outlets of the burner at F. The rotation of the ribs M causes air to be drawn up the central tube C and thrown out tangentially into the ducts E E. The fuel which falls on the disk L is also thrown out tangentially from its edge in the form fine spray, which is driven by the air-current along the ducts E E into the burners F F and is ignited by the torch. After a few minutes the burners F F and the ducts E E reach a temperature above the boiling-point of the heavy oils, any one of which may then be fed to the burner in lieu of the lighter hydrocarbon used to put it in operation. It will be seen that the air on its way to the fan M passes over the turbine-case and up the tube C, whereby it is warmed before meeting the oil-spray from the edge of disk L. It is further heated in passing through the ducts E E, so that it absorbs the oil-spray readily and carries it without condensation to the outlets F F.

In starting the burner some oil may condense therein before the various parts have reached their working temperature. The oil-drains G G from the lowest part of the burner remove this surplus.

The legs B by keeping the base A above the floor allow air to be drawn into the central tube C.

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

1. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes connecting said chamber with the outer portions

of said burner-tubes, a spraying and vapor-driving device in said chamber and means for supplying fuel and air to said chamber, substantially as set forth.

5 2. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes connecting said chamber with the outer portions of said burner-tubes, a spraying-disk and fan
10 in said chamber, means independent of the air-supply for driving said fan at high velocity, and means for supplying air and fuel to said chamber, substantially as set forth.

15 3. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes connecting said chamber with the outer portions of said burner-tubes, a spraying-disk and fan in said chamber, means independent of the air-
20 supply for driving said fan at high velocity, and means for supplying fuel above said disk and air below the same, substantially as set forth.

4. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes above
25 said burner-tubes and connecting said chamber with the outer portions of said burner-tubes, a spraying and vapor-driving device in said chamber and means for supplying fuel
30 and air to said chamber, substantially as set forth.

5. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes connecting said chamber with the outer portions
35 of said burner-tubes, a spraying-disk and fan in said chamber, in the plane of said pipes, means independent of the air-supply for driving said fan at high velocity, and means for
40 supplying air and fuel to said chamber, substantially as set forth.

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Witnesses:

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