

I. L. OWENS.
HYDROCARBON BURNER.
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963,010.

Patented June 28, 1910.

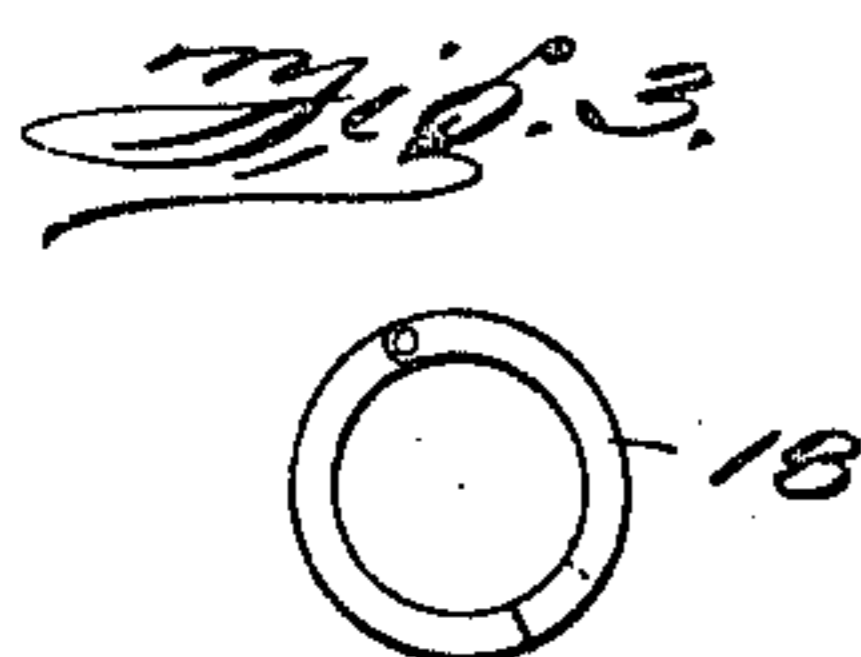
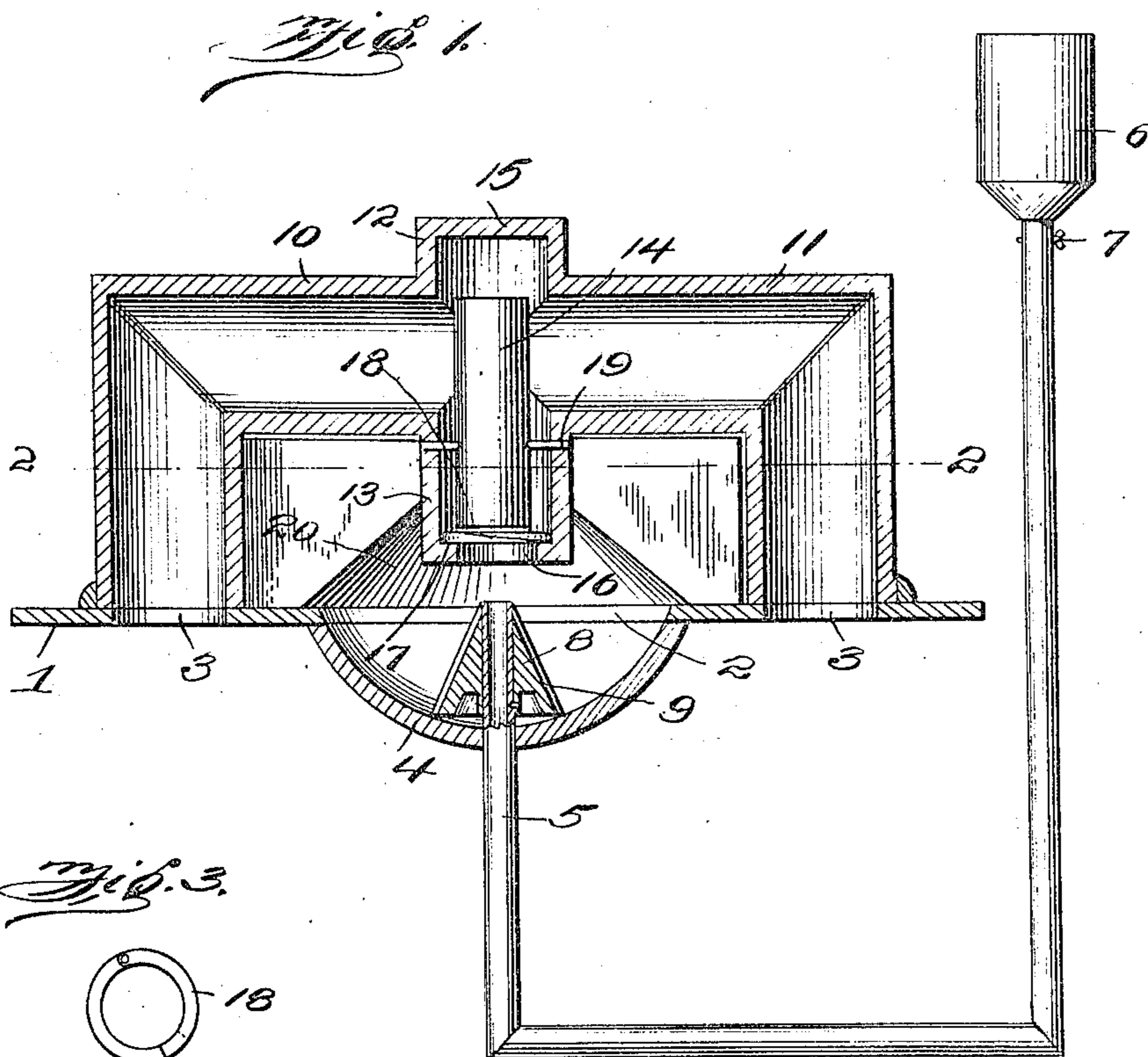
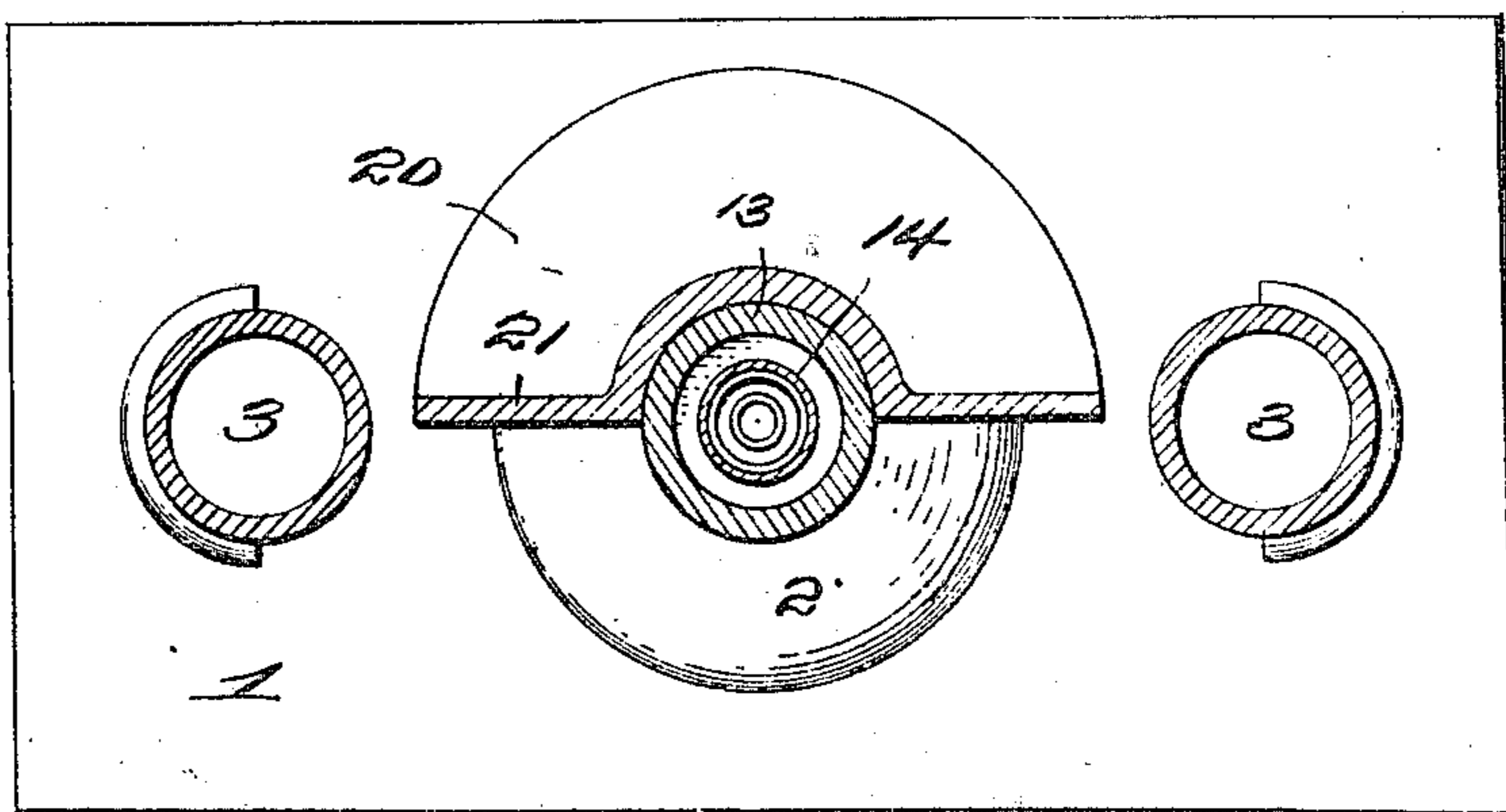


Fig. 2.



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UNITED STATES PATENT OFFICE.

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HYDROCARBON-BURNER.

963,010.

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To all whom it may concern:

Be it known that I, IRA L. OWENS, a citizen of the United States, residing at Effingham, in the county of Atchison and State of Kansas, have invented new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

This invention relates to hydrocarbon burners, the object of the invention being to provide a simple and effective burner of the class described which is particularly adapted for use in connection with heavy oils such as crude petroleum and the products thereof as well as any liquid fuel.

One of the main objects of the present invention is to provide a construction and organization of parts which will effectually gasify the oil and mix it with the proper quantity of air and cause it to burn effectually, the prime object of the invention being to thoroughly heat the air before it combines with the oil so as to obtain instant combustion at the point of exit of the oil or other liquid fuel.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts as herein fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a vertical sectional view of a hydrocarbon burner embodying the present invention. Fig. 2 is a horizontal section through the same on the line 2—2 of Fig. 1. Fig. 3 is a plan view of the damper.

The burner contemplated in this invention comprises essentially a base 1 preferably in the form of a flat plate provided with a central opening 2 of considerable size, and smaller openings 3 arranged on opposite sides of the central opening 2.

The central opening 2 is closed at the lower side of the plate by means of a substantially hemispherical pan or cup 4 which is pierced centrally by a fuel pipe 5 leading off to a supply tank 6 in which the liquid fuel is contained, 7 designating a cut-off controlling the flow of liquid to the burner. The tube or pipe 5 extends above the bottom of the pan 4 and has mounted thereon a spreader cone 8 of truncated form and provided around its periphery with capillary grooves or small ducts 9 down which the liquid fuel is primarily conducted before the burner becomes sufficiently heated to cause

the fuel to gasify immediately upon its escape from the discharge end of the pipe 5.

Arranged above the pan 4 and spreader cone 8 is what is termed an outer drum 12, 13 which is supported by oppositely extending air flues 10 and 11, the latter being preferably of elbow form as shown and having their receiving ends resting on the base plate 1 so as to cover the openings 3 therein. The centrally located outer drum comprises an upstanding portion 12 which extends above the air flues 10 and 11 and a pendent or downwardly extending portion 13 which projects below the horizontal portions of the air flues, the receiving end portions of the air flues being arranged laterally on opposite sides of the outer drum 12, 13. Within the outer drum above described is an inner drum 14 consisting of a section of pipe of suitable size open at both ends and disposed vertically within the outer drum, the outer drum being closed by a top wall 15 and being provided in its lower end with an air discharge opening 16 which is sufficiently smaller than the ordinary diameter of the outer drum to provide an annular flange 17 upon which rests a damper 18 illustrated in detail in Fig. 3 wherein it is seen to be of circular form and made in two sections pivotally connected at one side and provided with meeting extremities at a diametrically opposite point, which extremities overlap thereby enabling the damper to be increased or diminished in size for correspondingly increasing or reducing the opening at the lower extremity of the inner drum 14, said damper being interposed between the flange 17 and the bottom edge of the inner drum, as clearly shown in Fig. 1. The inner drum is supported within the outer drum by means of a pin, rod or bolt 19 which is inserted through registering holes in the outer and inner drums. In order to deflect the heat and products of combustion off to one side of the burner rather than the other, I provide a guard or deflector comprising a truncated cone shaped body 20 adapted to rest at its larger diameter on the base plate 1 and provided with upstanding diametrically opposite fender flanges 21 of suitable size to fill in the space between the outer drum and air flue whereby said guard or deflector may be properly or accurately positioned with respect to the burner.

The air drawn inward through the lateral flue openings 3 is carried into the outer drum

and is forced to pass from thence through the inner drum 14 from top to bottom escaping in a highly heated condition through the discharge orifice 16 where it meets the upwardly moving liquid fuel, instantly converting the latter into gas or vapor at which point such vapor is ignited, causing a spreading flame which acts upon the elbows of the flues and rapidly heats the air drawn through said flue.

In primarily starting the burner, a suitable amount of liquid fuel may be allowed to flow into the cup or pan 4 which then acts as a starting cup, the fuel being ignited and allowed to burn therein until the air inlet flue becomes heated sufficiently to vaporize the oil. The oil may then be allowed to feed through the inlet pipe 5 in the desired quantity under control of the cut off 7.

I claim:—

1. In a hydrocarbon burner, an apertured base, a cup-shaped pan under the base, a burner nozzle in said pan, an air flue embodying oppositely arranged elbows, a drum connecting said elbows and having an open bottom located above the burner and pan, and an oil supply pipe leading through the pan to the burner.

2. A hydrocarbon burner comprising an apertured base, a cup-shaped pan extending downward below the plane of the base and communicating with one of the openings therein, a fuel pipe leading into said pan, lateral air flues communicating with other openings in the base plate and leading to a point above the same, an outer drum supported by and connecting said air flues and

provided at its lower end with a discharge orifice located above the discharge end of the oil pipe, and an inner drum within the outer drum open at both ends.

3. A hydrocarbon burner comprising a base, a centrally arranged pan disposed below the plane of the base and open at the top, a fuel pipe leading upward through the bottom of said pan, lateral air flues opening at their respective ends through the base, an outer drum supported by said air flues above the discharge end of the fuel pipe and provided at its lower end with an outlet orifice, an inner drum arranged therein and open at top and bottom, and a damper at the discharge ends of said drums for regulating the size of the discharge opening.

4. A hydrocarbon burner comprising a base provided with a centrally disposed pan, a fuel pipe leading upward through the bottom of said pan, lateral air flues communicating with openings in the base at opposite sides of said pan, a centrally arranged outer drum connecting said air flues and closed at the top and provided with a discharge orifice at the bottom over said fuel pipe, an inner drum arranged in the outer drum and open at top and bottom, and a detachable guard or deflector having a segmental cone-shaped lower portion and upstanding fender flanges, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

IRA L. OWENS.

Witnesses:

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