No. 876,476.

S. MORRIS, DEC'D. PATENTED JAN. 14, 1908.

C. B. MORRIS, ADMINISTRATRIX.

HYDROCARBON BURNER.

APPLICATION FILED MAR. 11, 1907.

2 SHEETS—SHEET 1.

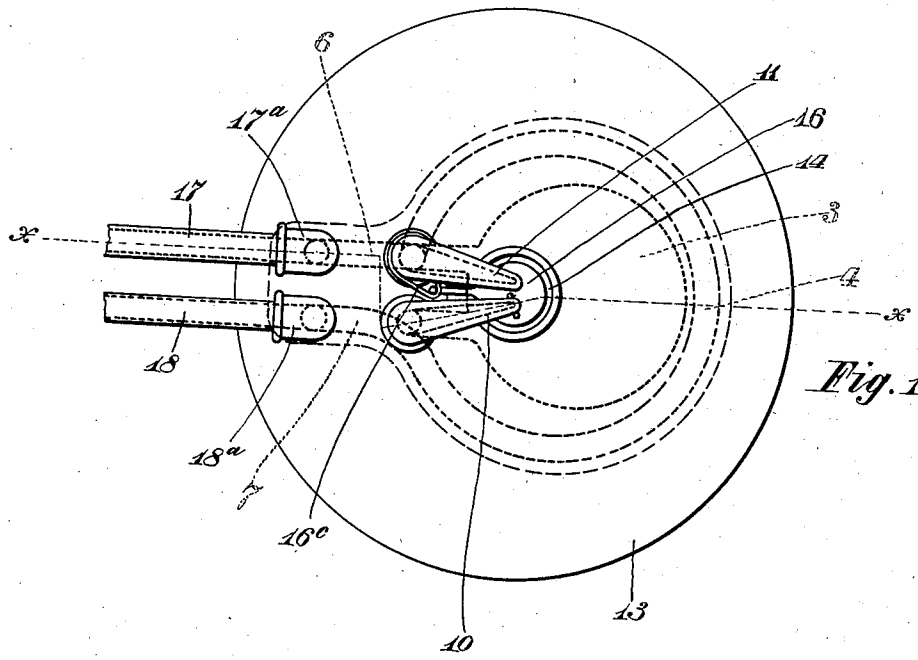

Fig. 1.

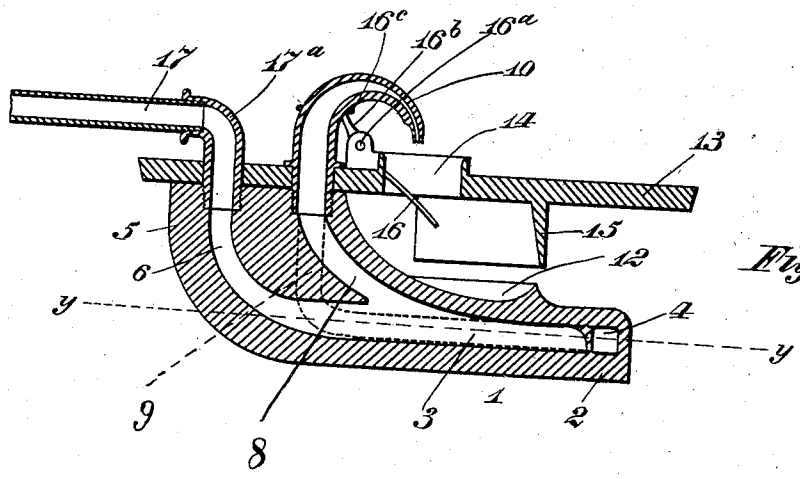

Fig. 2.

Witnesses
Benj. Finckel
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Inventor
Samuel Morris
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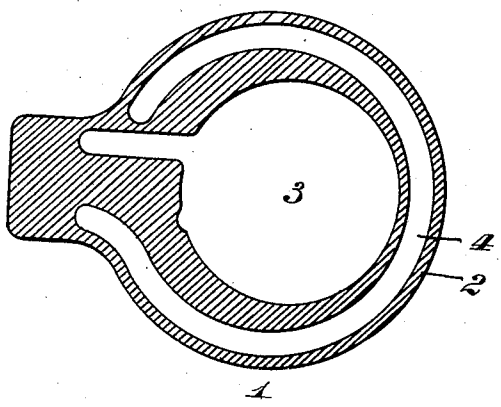

Fig. 3.

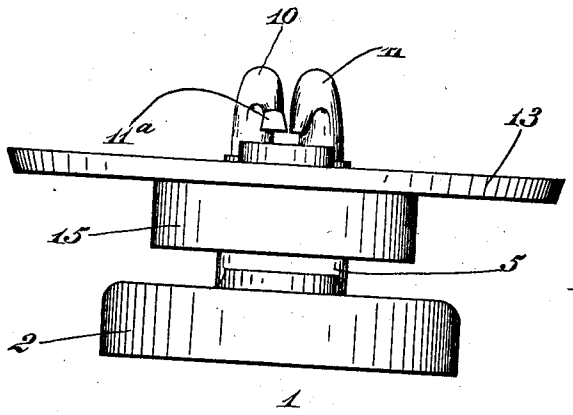

Fig. 4.

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UNITED STATES PATENT OFFICE.

SAMUEL MORRIS, OF NEWARK, OHIO; CLARA B. MORRIS ADMINISTRATRIX OF SAID SAMUEL MORRIS, DECEASED.

HYDROCARBON-BURNER.

No. 876,476. Specification of Letters Patent. Patented Jan. 14, 1908.

Application filed March 11, 1907. Serial No. 361,641

To all whom it may concern:

Be it known that I, SAMUEL MORRIS, a citizen of the United States, residing at Newark, in the county of Licking and State of Ohio, have invented a certain new and useful Improvement in Hydrocarbon-Burners, of which the following is a specification.

The main object of this invention is to provide an effective burner of simple construction in which the hydrocarbon is quickly and thoroughly vaporized, and a further object is to provide means in connection with the burner for generating steam and mixing the same with the vaporized hydrocarbon to intensify the combustibleness of said vapor.

One embodiment of the invention is illustrated in the accompanying drawings, but the invention is not limited to the precise details of construction shown.

In said drawings—Figure 1 is a top plan view; Fig. 2 is a vertical section on the line *x*—*x* Fig. 1; Fig. 3 is a horizontal section on the line *y*—*y* Fig. 2; Fig. 4 is a view in front elevation.

In the several views 1 designates the base portion of the retort comprising preferably an integral circular casting 2 having formed therein an oil vaporizing chamber 3 and an annular steam-generating chamber 4 separate from and extending around said chamber 3. The casting 2 is provided at one side with an upwardly projecting boss or column 5 containing an oil duct 6 leading into the oil vaporizing chamber 3, and a water duct 7 for the admission of water to the steam-generating chamber 4. The boss 5 also contains a vaporized oil outlet 8 from the oil chamber 3 and a steam outlet 9 from the steam-generating chamber 4. The outlet 8 for the vaporized oil is provided with a curved nozzle 10 having its discharge end directed downwardly, and the steam outlet 9 is provided with a similar nozzle 11.

The discharge end of the oil vapor nozzle may be flattened, as shown at 11^a, to spread the vaporized oil, and the discharge ends of both nozzles are arranged closely together to more effectively mix the vaporized oil and steam as they are discharged. The top of the circular casting 2 is formed with a shallow recess 12 which is wholly concaved in cross section, and the discharge nozzles 10 and 11 are so located with reference to the concaved surface as to discharge the vapors at one side thereof.

13 designates a cover plate or stove lid from which the part 5 is suspended, said cover plate and the upper surface of the base portion 2 forming a partially inclosed space into which the vaporized fluids are discharged from the nozzles 10 and 11 and in which the combustion takes place. In the instance shown the cover plate has the form of a stove lid, adapting the device for use with an ordinary cook stove. The plate 13 is provided with a central opening 14 directly beneath the discharge nozzles 10 and 11.

15 designates a curved flange or baffle plate formed on the under side of the cover plate 13 and extending in proximity to the concaved surface forming the recess 12 at the side thereof opposite the point of discharge thereinto of the nozzles 10 and 11. The baffle-plate 15 thus projects the burning vapors against the walls of the oil chamber 3 and steam-generating chamber 4 and also against the boss 5 containing the inlets and outlets of said chambers.

16 designates a small baffle plate pivoted to the top plate at 16^a and projecting into and partially across the opening 14. The plate 16 is provided with a projection 16^b beyond the pivot 16^a to releasably engage a catch 16^c to hold the plate in elevated position.

Oil is supplied to the duct 6 through a pipe 17 having an elbow 17^a, which latter passes through the top plate 13 and is threaded to the boss 5. Water is supplied to the duct 7 by means of a pipe 18 provided with an elbow 18^a, which also passes through the top plate 13 and is threaded to the boss 5.

The burner may be constructed without the addition of the means for supplying steam and it is manifest that the invention is not limited in its application to a cook stove only but that it may be so modified as to adapt it to other stoves or furnaces.

In use the small baffle plate 16 is released and permitted to drop out of the way, and a small quantity of oil is supplied to the cavity 12 and ignited. The parts are thus initially heated, so that when oil and water are admitted to the retort the necessary vaporization will take place. The small baffle plate having been restored to its position across the opening in the cover plate, the vaporized oil and steam are then discharged into the combustion chamber and thoroughly mixed and burned. The small baf-

fle plate 16 serves to spread the vapors, and the baffle plate 15 confines the burning vapors and projects the same against the walls of the oil and steam chambers and their inlets and outlets. The parts are thus intensely heated and thorough vaporization takes place in the chambers before the fluid is discharged into the combustion chamber. The baffle plate also retards the draft towards the chimney and causes a thorough dissemination of the heat through the stove, thereby avoiding much waste of fuel. It will also be observed that the concaved surface forming the recess 12 coöperates with the baffle-plate 15 and the under surface of the cover-plate 13 to set up circuitous currents of the vapors between said parts and cause the thorough commingling thereof with air.

What I claim and desire to secure by Letters Patent is:

1. In a vapor burner, the combination of an integral casting comprising a base portion provided in its upper surface with a recess wholly concaved in cross section, an oil-vaporizing chamber within the base portion and an upwardly-projecting portion or column at one side of the base portion and containing both a fluid passage-way to the chamber and a return passage-way from the same, a cover-plate supporting said casting and having an opening over said recess, a flange 15 on the cover-plate at the edge of said recess opposite said column to coöperate with said concaved surface and cover-plate for creating commingling currents of vapors and to deflect the burning vapor towards the walls of said chamber and passage-ways, and a nozzle connected with said return passage-way and having its discharge end in line with said opening in the cover-plate and at the side of said recess opposite said flange.

2. In a vapor burner, the combination of an integral casting comprising a base portion provided in its upper surface with a recess wholly concaved in cross section, an oil-vaporizing chamber and a steam-generating chamber within the base portion, and an upwardly-projecting portion or column at one side of the base portion and containing independent fluid passage-ways to and return passage-ways from said chambers, a cover-plate supporting said casting and having an opening over said recess, a flange 15 on the cover-plate at the edge of said recess opposite said column to coöperate with the concaved surface and the cover-plate for creating commingling currents of vapors and to deflect the burning vapor towards the walls of said chambers and passage-ways, and nozzles connected with said return passages and having their discharge ends in line with said openings in the cover-plate and at the side of said recess opposite said flange.

SAMUEL MORRIS.

Witnesses:
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JOHN DAVID JONES.