

B. R. BRILES.
OIL BURNER.
APPLICATION FILED JAN. 29, 1912.

1,041,732.

Patented Oct. 22, 1912.

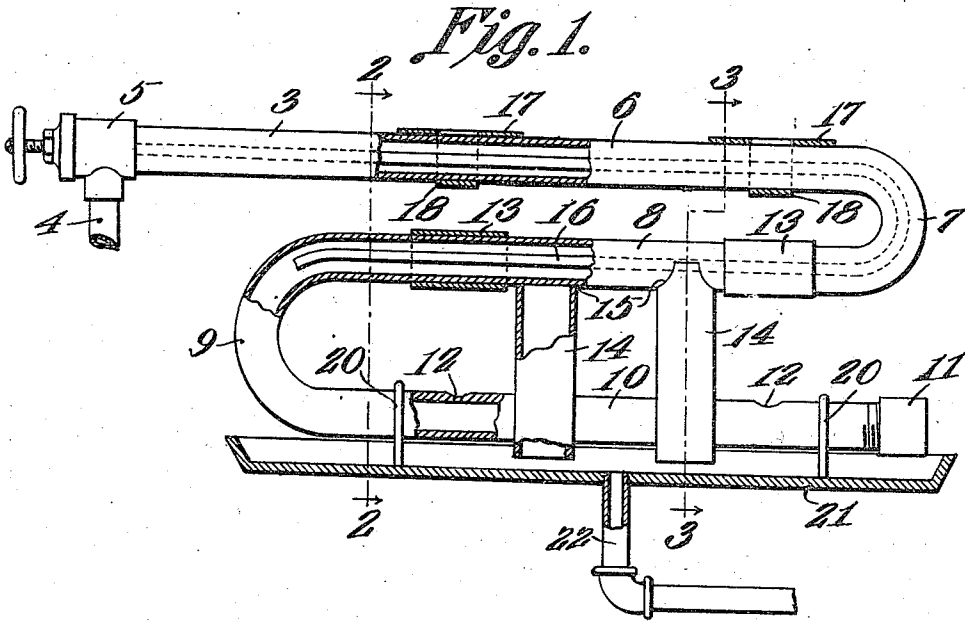


Fig. 2.

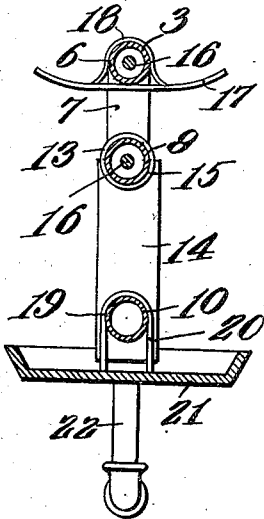
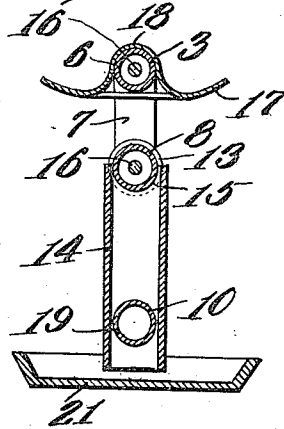


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

BENJAMIN R. BRILES, OF LE ROY, KANSAS.

OIL-BURNER.

1,041,732

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed January 29, 1912. Serial No. 674,096.

To all whom it may concern:

Be it known that I, BENJAMIN R. BRILES, a citizen of the United States, residing at Le Roy, in the county of Coffey and State of Kansas, have invented a new and useful Oil-Burner, of which the following is a specification.

This invention relates to burners for oil or other liquid fuel, and has for its object to provide an improved burner of this character for producing a maximum heating effect and which shall have a smokeless flame and novel means whereby the flame generates the liquid fuel into a vapor for combustion.

This invention also contemplates the provision of a burner of this character which is durable, simple and inexpensive in construction.

To the above and other ends, this invention is characterized by the novel construction and combination of parts elicited in the following description and pointed out in the appended claims, reference being had to the accompanying drawings, wherein the invention is illustrated in its preferred embodiment, and wherein:—

Figure 1 is an elevation of the burner, parts broken away. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1.

Referring specifically to the drawings, wherein similar reference characters indicate similar parts, the burner embodies primarily a sinuous pipe designated generally by the numeral 3, the said pipe being bent from a length of gas pipe or the like to form the respective vertically arranged parallel horizontal portions 6, 8 and 10. The upper portion 6 is connected to the intermediate portion 8 by the bend 7 and the said portion 6 is adapted to receive the liquid fuel, the portion 6 being connected to the valve 5, which valve in turn is connected to a supply pipe 4 leading to the supply tank (not shown). The intermediate portion 8 is connected to the lowermost portion 10 by the bend 9, and the lowermost portion 10 is provided with a pair of upper vapor outlets 12, facing the parallel portions 8 and 6. The lower end of the pipe 3 is closed by means of a cap 11 screw-threaded thereon. A drip pan 21 is suspended or hung from the burner by means of upstanding loops 20 secured to the drip pan and engaging the lowermost portion 10. A pair of down

draft tubes 14 extend from the intermediate portion 8 of the pipe 3 to the lowermost portion 10 and are arranged adjacent, or to one side of the respective vapor outlets 12 and intermediate the said outlets. These down draft tubes 14 are provided with seats or notches 15 in their upper ends, the intermediate portion 8 resting or seating in the said notches or seats, and at their lower ends the tubes 14 are provided with transverse openings 19 through which the portion 10 of the pipe 3 passes. The tubes 14 have an internal diameter larger than the external diameter of the pipe 3, thus permitting or providing for a passage through the tubes 14 from the intermediate portion 8 to the lower ends of the tubes 14 below the portion 10. The lower ends of the tubes 14 are arranged slightly above the drip pan 21. A rod 16 passes through the upper portions 6 and 8 of the pipe 3 and through the bend 7 connecting the said portions, this rod being preferably inserted into the pipe before the same is bent and being bent with the pipe. Upon the intermediate portion 8 of the pipe 3 are arranged a pair of sleeves 13, which sleeves are in alinement with or are arranged over the vapor outlets 12 to provide protectors for the intermediate portion 8 of the pipe 3. A pair of flame spreaders or deflectors 17 are mounted upon the uppermost portion 6 of the pipe 3 and are arranged in alinement with or over the vapor outlets 12. These spreaders or deflectors 17 each comprise a convex plate of sheet metal having a strap 18 struck up from the intermediate portion of the concaved side thereof. The portion 6 of the pipe 3 passes through the strap 18 of the spreaders or deflectors 17, thereby permitting the spreaders or deflectors to be rotated about the axis of the portion 6 and permitting the said spreaders or deflectors to be slid longitudinally upon the portion 6.

In application, the upper portions 6 and 8 of the pipe 3 form vapor-generating chambers receiving the liquid fuel and the said portions lie in the path of the flames issuing from the vapor outlets 12 whereby the liquid fuel is successively raised in temperature as it passes through the pipe, the fuel becoming first heated in the portion 6 and then passing into the portion 8 to be superheated. From the portion 8, the vaporized fuel passes into the lowermost portion 10 of the pipe 3, which portion 10 forms a

vapor chamber, and the vaporized fuel then issues through the vapor outlets 12 and upon being ignited serves to provide the flames. The rod 16 passing through the vapor-generating chamber reduces the area of the said chamber and the said rod 16 in also becoming heated increases the generating power for vaporizing the liquid fuel. The flames issuing from the outlets 12 create an upward current of air around the lowermost portion 10 of the pipe 3, or create an upward suction, which suction extends to the lower ends of the tubes 14 thereby causing a downward draft in the tubes 14 to draw the upper heated air and gases downwardly through the tubes 14 to assist in the generation of the vapor. These tubes 14 being arranged intermediate the vapor outlets 12 will serve to separate the two flames and prevent one flame from materially affecting the action of the other flame. The drip pan 21 serves to catch any escaping or overflowing oil, and may be used for starting the burners by allowing a small quantity of oil to drip into same and then igniting the oil to heat the burner, which will provide for an initial generation of the vapor. Upon the burner being brought into operation, the flames striking the portions 6 and 8 of the pipe 3 will heat the said portions to generate the liquid fuel into a vapor. The portion 8 of the pipe 3 has been provided with the protectors 13 for preventing the direct contact of the flames with the said portion, thereby prolonging the life of the said burner, and the spreaders or deflectors 17 may be suitably adjusted to properly spread or deflect the flame to one side or the other.

This burner is durable, simple and inexpensive in construction and produces a maximum heating effect with a minimum amount of fuel. This burner may be also used for other liquid fuel than oil and the flames provided by the burner give an intense heat. This device is also susceptible of alteration and deviations in its details within the scope of the appended claims without departing from the spirit of the invention.

An escape pipe 22 is also connected to the drip pan 21, which is for the purpose of carrying off any overflow of the fuel thereby preventing the drip pan becoming full of fuel and thus dispensing with the liability

of an explosion. This escape pipe, however, permits sufficient fuel to remain in the drip pan to give the initial heat to the generating chamber to vaporize the fuel in starting the burner.

Having described the invention, what is claimed as new is:

1. A liquid fuel burner embodying a pipe bent to form a plurality of vertically arranged parallel horizontal portions, the lowermost portion forming a vapor chamber and having an upper vapor outlet therein, and the upper portions forming vapor generating chambers receiving the fuel, and a down draft tube extending from an intermediate portion of the pipe below the lowermost portion, the lowermost portion passing through the down draft tube with the vapor outlet disposed at one side of the down draft tube.

2. A liquid fuel burner embodying a pipe bent to form a plurality of vertically arranged parallel horizontal portions, the lowermost portion forming a vapor chamber and having upper vapor outlets therein, and the upper portions forming vapor generating chambers receiving the fuel, and down draft tubes extending from an intermediate portion of the pipe to the lowermost portion adjacent the respective vapor outlets and intermediate the said outlets.

3. A liquid fuel burner embodying a pipe bent to form a plurality of vertically arranged parallel horizontal portions, the lowermost portion forming a vapor chamber and having upper vapor outlets therein, and the upper portions forming vapor generating chambers receiving the fuel, and down draft tubes of an internal diameter larger than the external diameter of the said pipe and having seats in their upper ends receiving an intermediate portion of the said pipe, the lowermost portion passing through the down draft tubes, the down draft tubes being arranged adjacent the respective vapor outlets and intermediate the said outlets.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

BENJAMIN R. BRILES

Witnesses:

EDWARD KENNEY

HARRY ROSS.