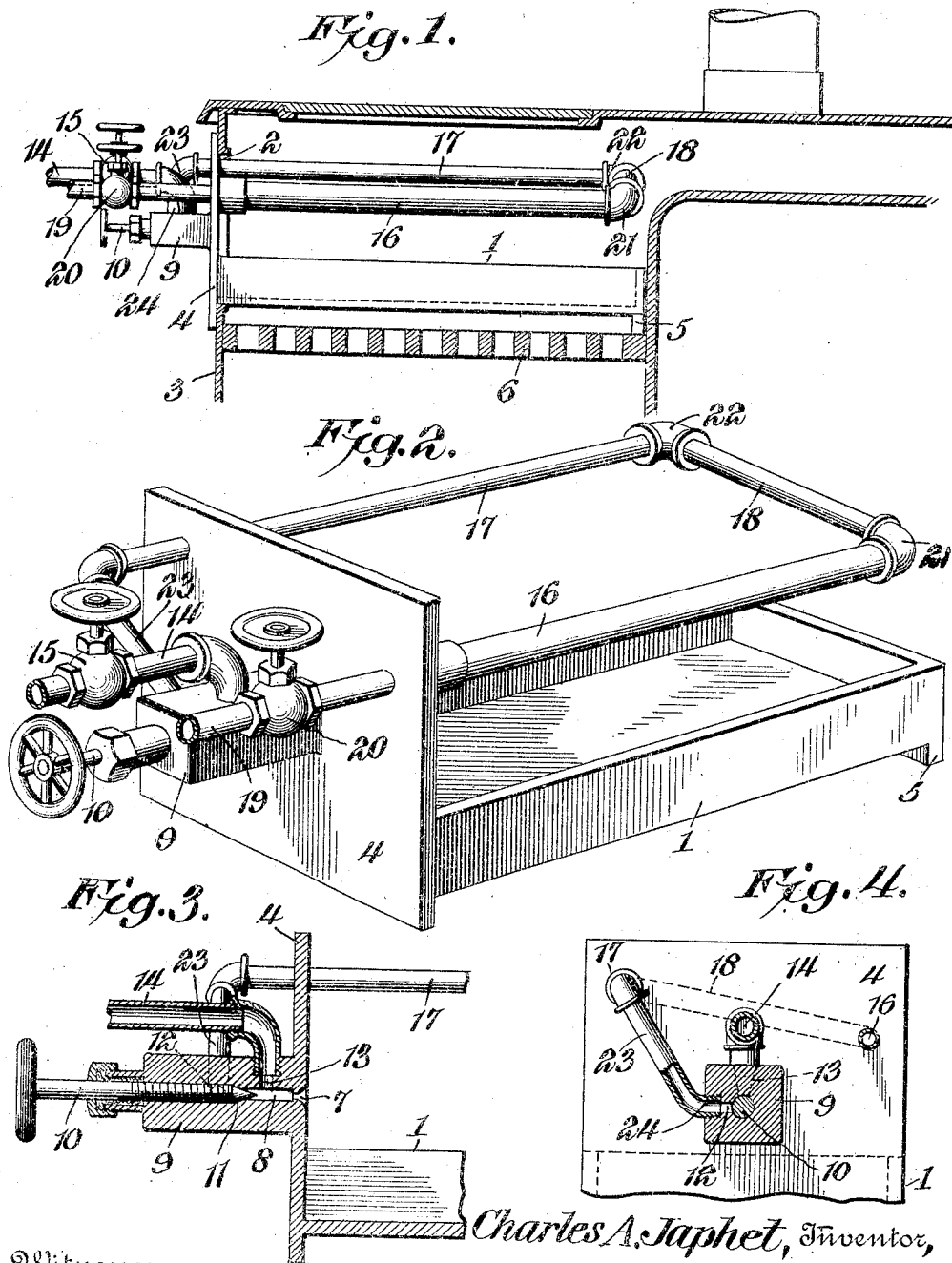


C. A. JAPHET.
CRUDE OIL BURNER.
APPLICATION FILED SEPT. 11, 1909.

957,063.

Patented May 3, 1910.



Witnesses
Howard D. Ott.
H. J. Riley

Charles A. Japhet, Inventor,

By

E. J. Siggers
Attorney

UNITED STATES PATENT OFFICE.

CHARLES A. JAPHET, OF MORAN, KANSAS.

CRUDE-OIL BURNER.

957,063.

Specification of Letters Patent.

Patented May 3, 1910.

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To all whom it may concern:

Be it known that I, CHARLES A. JAPHET, a citizen of the United States, residing at Moran, in the county of Allen and State of Kansas, have invented a new and useful Crude-Oil Burner, of which the following is a specification.

The invention relates to improvements in crude oil burners.

The object of the present invention is to improve the construction of crude oil burners, and to provide a simple and comparatively inexpensive burner of this character, designed for use in cooking stoves, heaters, furnaces, and the like where a hot steady fire is desired, and capable of successfully burning crude oil, and of generating steam therefor with perfect safety.

Another object of the invention is to provide a crude oil burner of this character, which will not be liable to become clogged and from which any accumulation may be readily blown by steam.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claim hereunto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claim, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:—Figure 1 is a vertical sectional view of a portion of a stove provided with a crude oil burner, constructed in accordance with this invention. Fig. 2 is a perspective view of the crude oil burner. Fig. 3 is an enlarged detail sectional view, taken longitudinally of the mixer. Fig. 4 is a detail view, taken transversely of the mixer.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

The crude oil burner comprises in its construction a shallow pan 1, designed to extend through an opening 2, preferably the door opening of a stove 3, and provided at one end with an enlarged vertical wall or plate 4, arranged to cover or close the door opening 2 of the stove, as clearly illustrated in Fig. 1 of the drawing. The shallow pan and the end wall or plate 4 preferably consist of a single casting, and the pan, which

extends along the fire box, is provided at its inner end with a depending flange 5 forming a supporting leg and adapted to rest upon the grate 6 of the stove or other suitable support. The vertical end plate or wall 4, which extends downward to the plane of the lower edge of the flange or leg 5, is provided with a central discharge opening 7, flared at the inner face of the said plate or wall, as clearly illustrated in Fig. 3 of the drawing, and arranged in alignment with a bore 8 of a mixer 9, extending outwardly from the outer face of the wall or plate 4, preferably at the center thereof and formed integral with the same. The outer portion of the mixer 9 is counter-bored to receive a needle valve 10 and to provide a valve seat 11 with which the needle valve coöperates to control the admission of steam and the subsequent discharge of vapor into the stove.

The mixer is provided at one side at a point slightly in rear of the valve seat with a steam inlet opening 12, and it has an oil inlet opening 13, located adjacent to the inner end of the mixer and extending downwardly from the top of the same to the inner bore or portion 8 of the longitudinal passage of the mixer. A fuel supply pipe 14 for conveying the crude oil, or other liquid hydro-carbon to the burner, is connected with the mixer at the opening or passage 13, and it is provided with a suitable hand valve 15 for controlling the flow of fuel through the supply pipe 14. The fuel supply pipe may be connected with an elevated oil tank, or any other suitable source of supply.

The oil dropping into the mixer from the top thereof is blown through the discharge opening 7 of the plate or wall into the stove in a fine vapor, commingling thoroughly with the steam and producing a gas or vapor, which is adapted to burn over the shallow pan in a manner similar to ordinary illuminating gas, and it produces a hot flame, which may be easily controlled by varying the admission of oil and steam. As the burner is located close to the top of the stove the full heat is utilized. The pan is adapted to collect any residue and there is no liability of the oil getting either to the bottom of the stove or outside of the same.

The burner is equipped with a steam generator consisting of an inlet pipe 16, an outlet pipe 17 and an inclined transverse connecting pipe 18, the outlet pipe being arranged at a higher elevation than the inlet

pipe 16. The inlet pipe 16 is connected with a suitable water supply pipe 19, which may be connected with an elevated tank or with the city water supply, or any other suitable source of supply. The flow of water into the steam generator is controlled by the valve 20, which may be of any preferred construction. The inlet pipe 16, which extends along one side of the burner, is of greater diameter than the outlet pipe 17, which extends along the opposite side of the burner preferably in parallelism with the inlet pipe 16, and the inclined connecting portion 18 is of less diameter than the inlet side 16 and of greater diameter than the outlet side 17. The pipes composing the steam generator are supported by the front plate or wall and are connected by reducing couplings 21 and 22. The water supply pipe pierces the plate or wall at one side of the burner, and the steam outlet pipe pierces the plate or wall at the opposite side, and is provided exteriorly of the said plate or wall with an inclined branch or portion 23, extending downwardly and inwardly to the mixer and having its lower terminal 24 communicating with the interior of the said mixer through the steam inlet opening 12, as clearly illustrated in Fig. 4 of the drawing.

In starting the burner a quantity of oil is run into the pan and a small bit of oil-soaked waste is placed in the pan under the side pipe 16, and a light applied to the said waste, which is allowed to burn until the pipe of the steam generator becomes hot. Water is then admitted into the steam generator and is converted into steam by the same, and blows out through the mixer, the discharge being controlled by the needle valve. Oil is also admitted to the mixer and is blown by the steam into the stove and burns over the shallow pan. As the oil drops into the mixer close to the discharge aperture and the steam enters immediately in rear of the oil, the latter is blown through the discharge opening without clogging the

same, and crude oil may in this manner be burned with very little smoke.

Should there be any accumulation in the mixer, it may be blown out by the steam, and should it become necessary after continued use to remove any scale or other accumulation, the needle valve may be detached, which will permit a wire or instrument to be inserted in the longitudinal passage of the mixer. As the passage is straight there is no difficulty in cleaning the burner.

The burner is perfectly safe and there is no danger of any explosion through the generation of steam, as one end of the generator is always open, such opening being controlled by the needle valve.

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

In combination with a stove having a grate and provided with an opening, an oil burner attachment comprising a shallow rectangular pan extending into the stove through the opening in the same and provided at its front end with an enlarged front wall extending beyond the bottom and side walls of the pan and forming a closure flange and completely closing the opening of the stove to confine the flame entirely within the same, said pan being also provided at its inner end with a depending leg arranged to rest upon the grate of the stove for supporting the pan in a horizontal position, a burner supported by the enlarged front wall, and piping constituting a steam generator and arranged above the plane of the pan and extending around the same and being substantially co-extensive with the area thereof.

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

CHARLES A. JAPHET.

Witnesses:

M. A. YOUNG,
W. F. YOUNG.