

UNITED STATES PATENT OFFICE.

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CRUDE-OIL BURNER.

974,795.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LEE O. HUDSON, citizen of the United States, residing at Altus, in the county of Jackson and State of Oklahoma, have invented certain new and useful Improvements in Crude-Oil Burners, of which the following is a specification.

My invention relates to burners for oil stoves, and particularly to that character of burner which is adapted to be applied within an ordinary stove and rest upon the grate thereof.

The object of my invention is to provide an extremely simple form of crude oil burner, cheaply constructed and capable of being very easily inserted or removed from an ordinary stove, and being provided with means whereby the oil vapor may be mixed with water vapor in order to gain a more perfect combustion of the fuel.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a side elevation of a stove partly broken away to show the position of my improved burner therein; Fig. 2 is a perspective view of my improved burner; and, Figs. 3 and 4 are sectional views, enlarged, of the regulating valve for the oil supply pipe.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to these drawings, A designates a stove of any suitable character, and B the ash pit thereof, C indicating the draft opening.

My device comprises a pan 2 having upwardly and outwardly deflected sides 3, one of said sides being continued above the upper edge of the pan and curved outwardly so as to form a shield 4 to aid the more perfect combustion of the fuel. In the bottom of the pan is a cold air opening 5 surrounded by upwardly and inwardly inclined walls 6. The bottom of the pan rests upon the grate surface of the stove, and hence the air entering by the draft opening C, will pass up through the opening 5. Supported over the opening 5 by the strips 7^a and spaced

therefrom is the conical deflector 7. Supported by a brace 8 extending from the end wall of the pan is the hot air pipe 9, this being downwardly turned at its inner extremity, as at 10, and opening above the conical deflector 7. The extremity of the pipe 9 is formed with perforations 11 for the entrance of air. Passing longitudinally through the pipe 9 and ending at the center of the downwardly turned portion 10 is the fuel pipe 12 which is connected to any suitable source of fuel supply (not shown) and is controlled by a valve to be later described.

Entering the outer end of the air pipe 9 is the small water pipe 13 whereby a small quantity of water may be led into the pipe 9, which water becomes vaporized and intimately mixed with the vapor of the oil at the point 14. The fuel mixture of oil, air and water vapor issuing from the downwardly turned end 10 of the pipe 9 is ignited at this point and the flame is deflected outward and upward by the deflector 7, the flame being forced upward by the cold air draft from the bottom of the pan through the opening 5. This cold air draft is regulated, as before stated, by the damper in front of the stove.

The pan 2 is preferably cast, as is also the hot air pipe 9, the rest of the apparatus, however, may be formed of common gas pipes, except the valve which controls the passage of fuel and which will be now described. This valve is designed to do away with leaky globe valves, such as are ordinarily used, and is adapted to be so regulated as to admit the proper amount of oil to the burner and avoid the too quick opening of the pipe, which is an objection incident to the use of globe valves for this purpose. The union 15^a is formed with the oppositely projecting cylindrical cases 15 which intersect the passage 12. Mounted within these cylindrical casings 15 is the longitudinally shiftable spindle 16 which has a bore 17 extending transversely through it and adapted to be brought into alinement with the passage 12. The lower end of the spindle 16 is surrounded by a coil spring 18 which bears against a shoulder 19 formed on the lower end of the spindle. Thus the spring acts to draw the spindle downward into such position that the bore 17 is closed and is not in alinement with the passage through the tube 12. The upper end of the

spindle has pivotal engagement with a bifurcated lever or handle 20. When this lever is turned to a position of parallelism with the pipe 12, the spring 18 will draw upon the spindle, and the valve will be closed. When, however, the lever is elevated to a position in line with the spindle 16, the spindle is raised so that the bore is in partial alinement with the passage through the pipe 12, and oil may pass. By lifting directly up on the lever so as to draw the valve spindle up as far as it will go, the valve may be opened to its fullest extent to allow any sediment to pass through, and then when the lever is released, the spring will draw the spindle down to its ordinarily open position as shown in Fig. 4, whereby the proper amount of oil is allowed to feed past the valve and to the burner.

It will be seen that my device is extremely simple, that it may be applied to any ordinary type of stove, that it is adapted to burn a mixture of vaporized water, crude oil and air, that the air is heated prior to its mixture with the atomized oil and water so as to aid combustion, and that the flame is forced upward by means of cold air which further aids the combustion of the oil.

Having thus described the invention, what I claim is:—

1. A crude oil burner, comprising a pan having a cold air inlet in its bottom having an upwardly extending conical wall, a conical deflector carried upon the upper end of the conical wall but spaced therefrom, a fuel pipe extending to a point immediately over the deflector, a warm air pipe surrounding the fuel pipe and opening at a point immediately over the deflector, and means whereby water may be supplied to the warm air pipe.

2. A crude oil burner comprising a pan having a cold air opening at its bottom, said opening being provided with upwardly and inwardly projecting walls, a fuel pipe extending to a point over said opening, an air pipe surrounding the fuel pipe and spaced therefrom and having a downwardly turned end, a conical deflector carried on the end of

said air pipe but in spaced relation thereto, and a water pipe relatively small in size and entering said air pipe.

3. A crude oil burner including a pan having a central cold air inlet opening with upwardly projecting walls, a conical deflector mounted above the inlet opening and spaced therefrom, a fuel pipe extending to a point over the deflector, means for regulating the passage of fuel through the fuel pipe, a hot air pipe supported on the pan, having a perforated wall at its outer end, the inner end of the pipe being open and downwardly turned toward said deflector, and a water pipe of relatively small area, entering said hot air pipe near the outer end thereof.

4. A crude oil burner comprising a pan having upwardly extending sides, one of said sides being extended beyond the other side and curved outward, said pan being formed with an air opening in its bottom, said opening having upwardly and inwardly extending walls, a conical deflector supported above said walls and spaced therefrom, a fuel supply pipe extending to a point above the deflector, a hot air supply pipe inclosing the fuel pipe and spaced therefrom, the inner end of said hot air pipe being downwardly extended toward the deflector, and a water supply pipe entering the outer end of the hot air pipe.

5. A crude oil burner, including a burning pan having a cold air passage in its bottom, a conical deflector mounted above the passage and deflecting the air passing through the same, an oil inlet pipe opening above the top of the deflector, an air inlet pipe also opening above the deflector, said air inlet pipe extending above the burning trough in position to be heated by the ignited oil, and means for admitting water to the air inlet pipe.

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

LEE O. HUDSON. [L. s.]

Witnesses:

LEE KIEFER,

W. J. BANNING.