W. D. DAWSON.

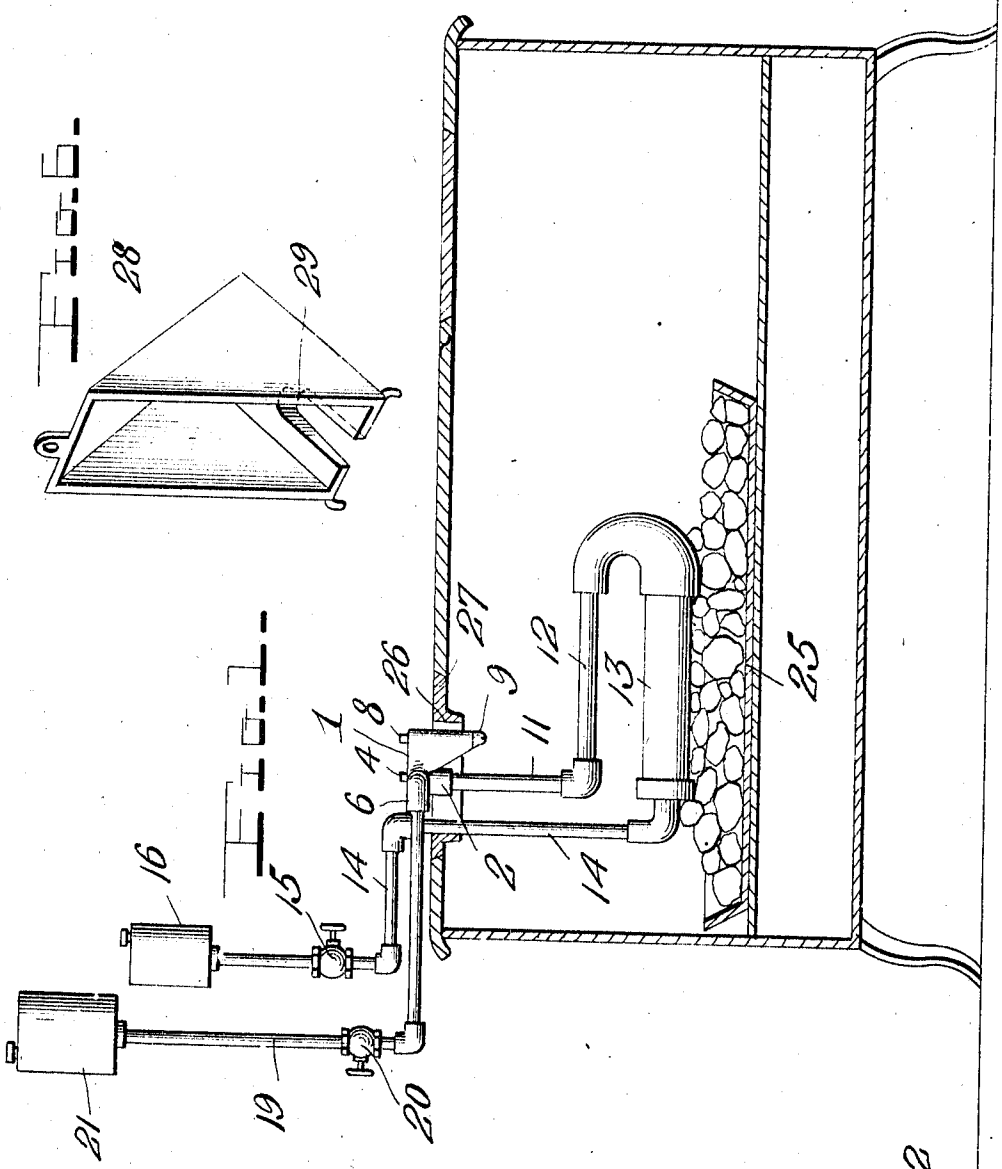
OIL BURNER.

APPLICATION FILED OCT. 25, 1909. RENEWED FEB. 20, 1911.

1,004,384.

Patented Sept. 26, 1911.

2 SHEETS—SHEET 1.



Witnesses

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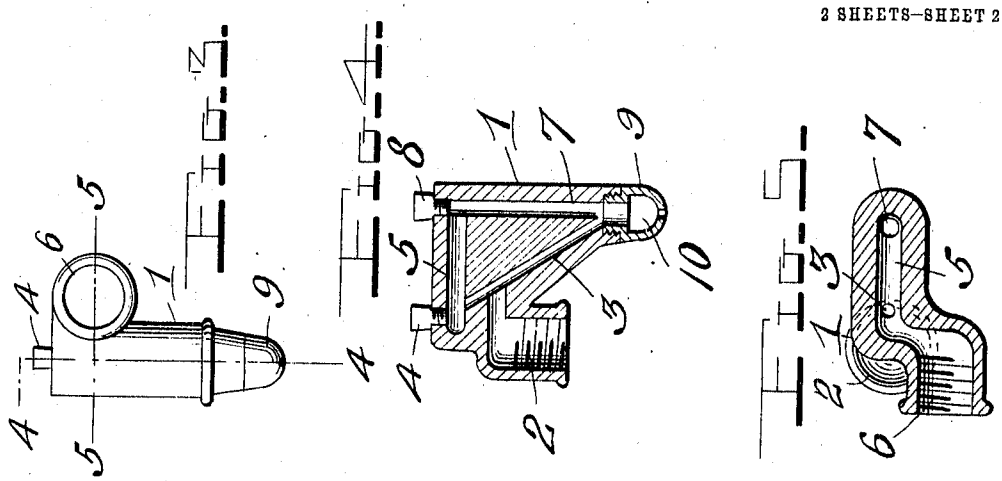

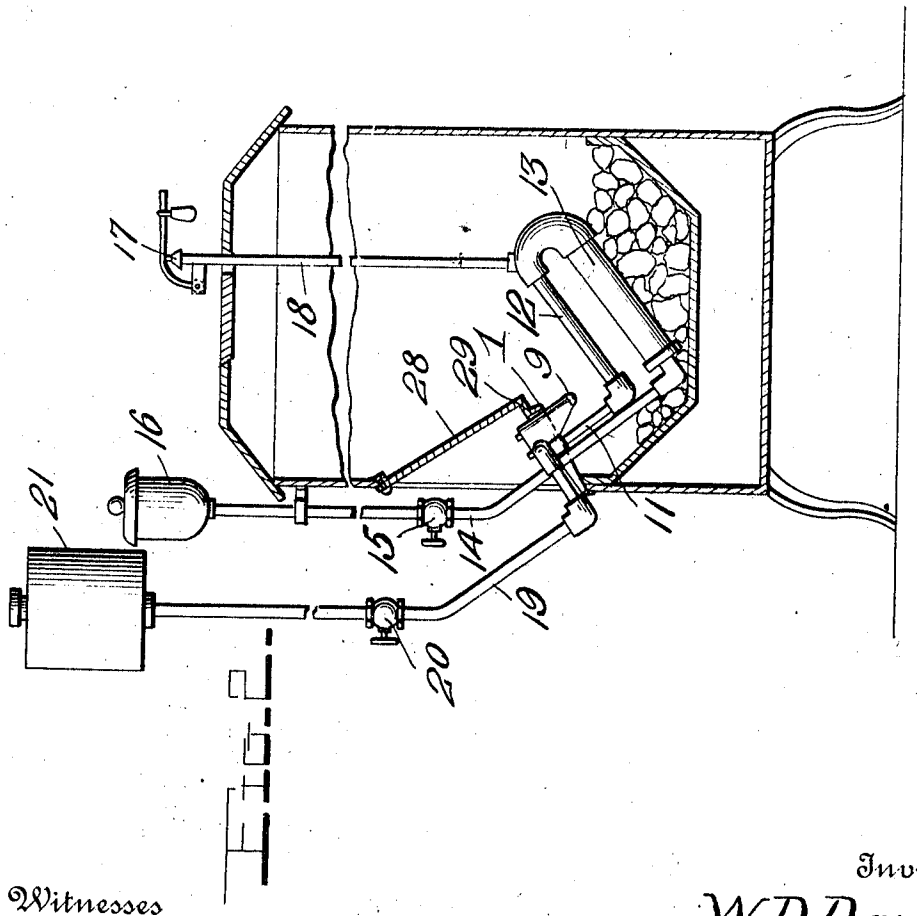

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UNITED STATES PATENT OFFICE.

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OIL-BURNER.

1,004,384. Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed October 25, 1909, Serial No. 524,425. Renewed February 20, 1911. Serial No. 609,788.

To all whom it may concern:

Be it known that I, WILLIAM D. DAWSON, a citizen of the United States, residing at Mangum, in the county of Greer and State of Oklahoma, have invented certain new and useful Improvements in Oil-Burners; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in oil burners.

One object of the invention is to provide an oil burner having an improved construction of vaporizing and discharging nozzle by means of which the fuel is mixed and injected into the fire box of a stove in proper condition for burning freely without smoke or soot.

Another object is to provide means for generating and supplying steam to the burner for the purpose of vaporizing the oil and forming the fuel.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings: Figure 1 is a vertical sectional view through the fire box of a cook stove illustrating the invention applied thereto and showing in full lines the arrangement of the oil tank when oil is fed by gravity and in dotted lines, the arrangement of the tank when the oil is fed by pressure. Fig. 2 is a similar view illustrating the application of the invention to a heating stove and showing in dotted lines the manner in which the tank may be arranged outside of the house and the oil fed either by gravity or by air pressure. Fig. 3 is an end view of the burner nozzle. Fig. 4 is a vertical section of the same on the line 4—4 of Fig. 3. Fig. 5 is a horizontal section on the line 5—5 of Fig. 3. Fig. 6 is a perspective view of the burner receiving attachment employed in the door opening of a heating stove.

Referring more particularly to the drawings, 1, denotes the burner nozzle which consists of a substantially triangular block or casting having formed on one edge an interiorly threaded socket 2, which communicates with an obliquely disposed steam passage 3, formed in the adjacent portion of the nozzle and extending through from the upper to the lower end of the same. The upper open end of the passage 3, is threaded to receive a closing plug 4, which is adapted to be removed to permit the passage 3, to be readily cleaned out when necessary. On one side of the nozzle at its upper end is formed an offset or projecting portion in which is arranged a horizontal oil passage 5, which communicates at one end with a threaded nipple 6, formed at the end of the offset or projecting portion. At its opposite end the passage 5, communicates with a vertically disposed passage 7, formed in the nozzle at the opposite side of the same from the steam passage 3. The passages 3 and 7 come together at the lower end of the nozzle as shown. The upper end of the vertical portion 7, of the oil passage extends through the top of the nozzle and is threaded to receive a closing plug 8, which is adapted to be removed to permit the passage 7, to be readily cleaned.

Adapted to be screwed on to the lower end of the nozzle and over the meeting ends of the passages 3 and 7, is a spray tip 9, in which is formed a mixing chamber 10, wherein the oil and steam are thoroughly mixed before being discharged through the opening in the tip.

With the socket 2, of the passage 3, is adapted to be connected a steam supply pipe 11, which is connected to a super-heating steam pipe 12, which, in turn, is connected to a boiler 13, adapted to be arranged in the fire box of a stove. The boiler 13, is connected to a water supply pipe 14, having arranged therein a valve 15. The water supply pipe may be connected with a water system or with a water supply tank 16, as shown in the drawings. When the water supply pipe is connected with a water system, I preferably provide the boiler with a safety valve 17, which is shown in Fig. 2, of the drawings, and is connected to the boiler by a steam pipe 18.

To the socket 6, of the oil passage 5, is connected an oil supply pipe 19, having arranged therein a valve 20. The pipe 19, may be connected with an oil tank 21, arranged at a suitable elevation above the nozzle either within the house, as shown in full lines in Fig. 2, of the drawings, or outside

of the house as shown in dotted lines in Fig. 2, of the drawings, whereby the oil is fed by gravity to the nozzle. If desired, the oil may be fed to the nozzle under pressure and when thus supplied, the pipe 19, is connected to the pressure tank 22, as shown in dotted lines in Figs. 1 and 2, of the drawings, and which may be arranged within or outside of the house at any desired location. The pressure tank 22, is provided with a suitable filling opening closed by a cap 23, and is also provided with a nipple 24, for the attachment of an air pump whereby air is forced into the tank to cause the discharge of the oil therefrom.

When the burner is applied to a cook stove, the boiler 13, is adapted to rest on the stove grate or on broken brick or stone arranged in the fire box on a suitable tray or receptacle 25. The nozzle is engaged with and projects through an aperture 26, formed in one of the griddles or lids 27, of the stove; the water supply and steam conducting pipes to and from the boiler also passing through the aperture in the griddle or lid.

When the burner is applied to a heating stove, a right angularly formed box or casting 28, is provided, said box being adapted to be set into the door opening of the stove and to be detachably secured in any suitable manner. In the bottom plate of the box 28, is formed an opening 29, through which the nozzle and the water and steam conducting pipes pass. The boiler in this instance, is arranged on a tray of broken stone or the like set on to the grate of the stove as shown.

When using the burner, a small quantity of oil is permitted to discharge from the nozzle and on to the tray of broken stone arranged on the grate of the stoves and said oil is ignited. The flame of the burning oil in the tray of stone primarily heats the water in the boiler and generates sufficient steam to mix with the oil in the mixing chamber and to spray the same therefrom in the form of fuel which is ignited at the burner tip and blazes down on to the boiler. When the boiler is connected with a water supply tank, the feed of the water to the boiler will be regulated by the amount of back pressure of the steam in the boiler, thus automatically controlling the steam supply and consequently the flame of the burner.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the appended claims.

Having thus described my invention, what I claim is:

In a burner for stoves, a nozzle provided with a pair of longitudinal steam and oil passages extending through the top of the nozzle and converging together at their lower ends, said nozzle also having a pair of hollow interiorly threaded offset portions communicating, respectively, with the steam and oil passages of the nozzle, removable plugs screwing in the upper ends of said passages, a mixing and spraying tip screwing on the lower end of the nozzle and communicating with said oil and steam passages, a boiler adapted to be arranged in the fire box of the stove, a steam pipe between the boiler and the offset portion of the nozzle communicating with the steam passage of the nozzle, an oil supply pipe communicating with the other offset portion of the nozzle, a source of water and a supply pipe between said source and the boiler.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM D. DAWSON.

Witnesses:
L. A. McCollister,
J. O. McCollister.