

No. 644,178.

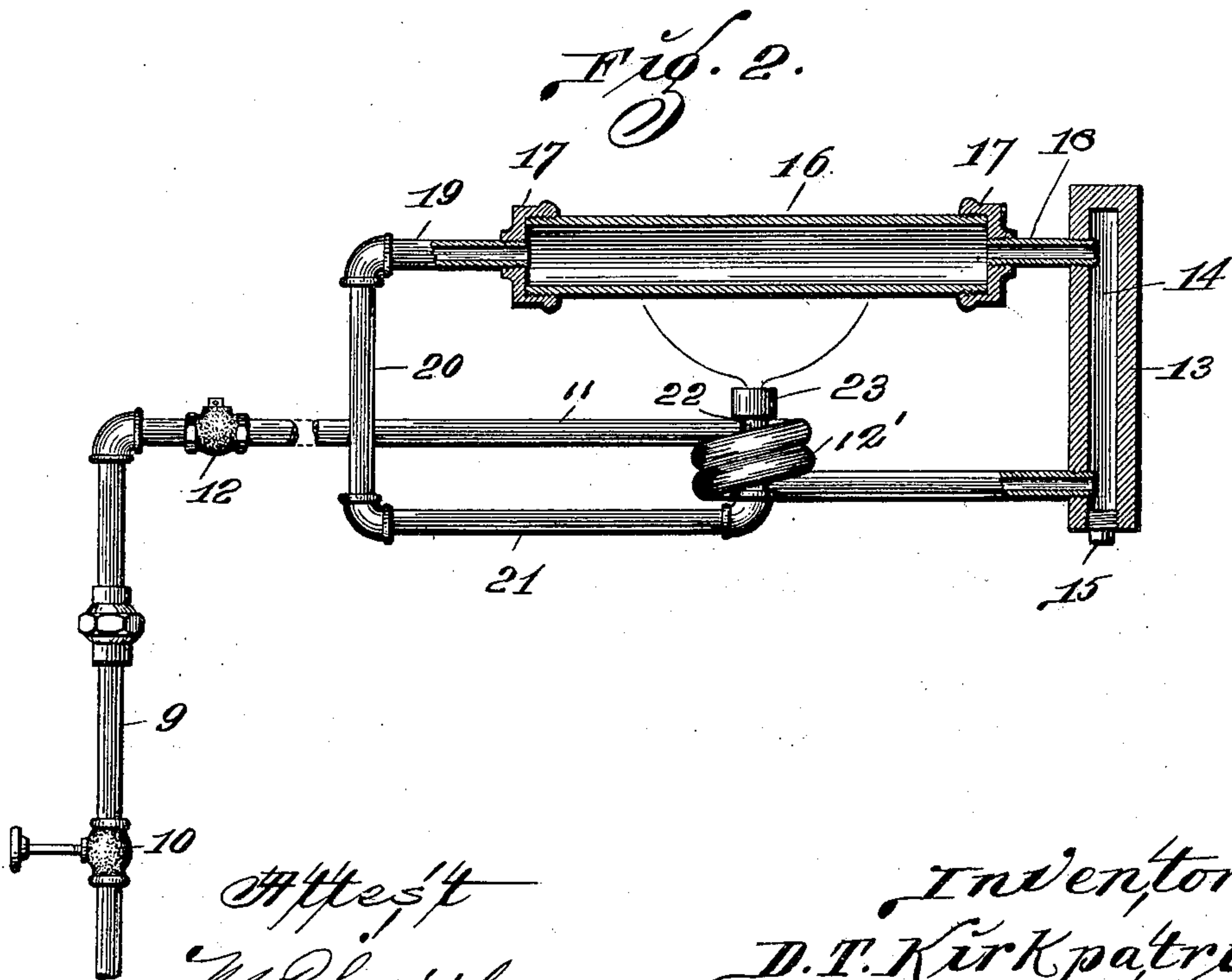
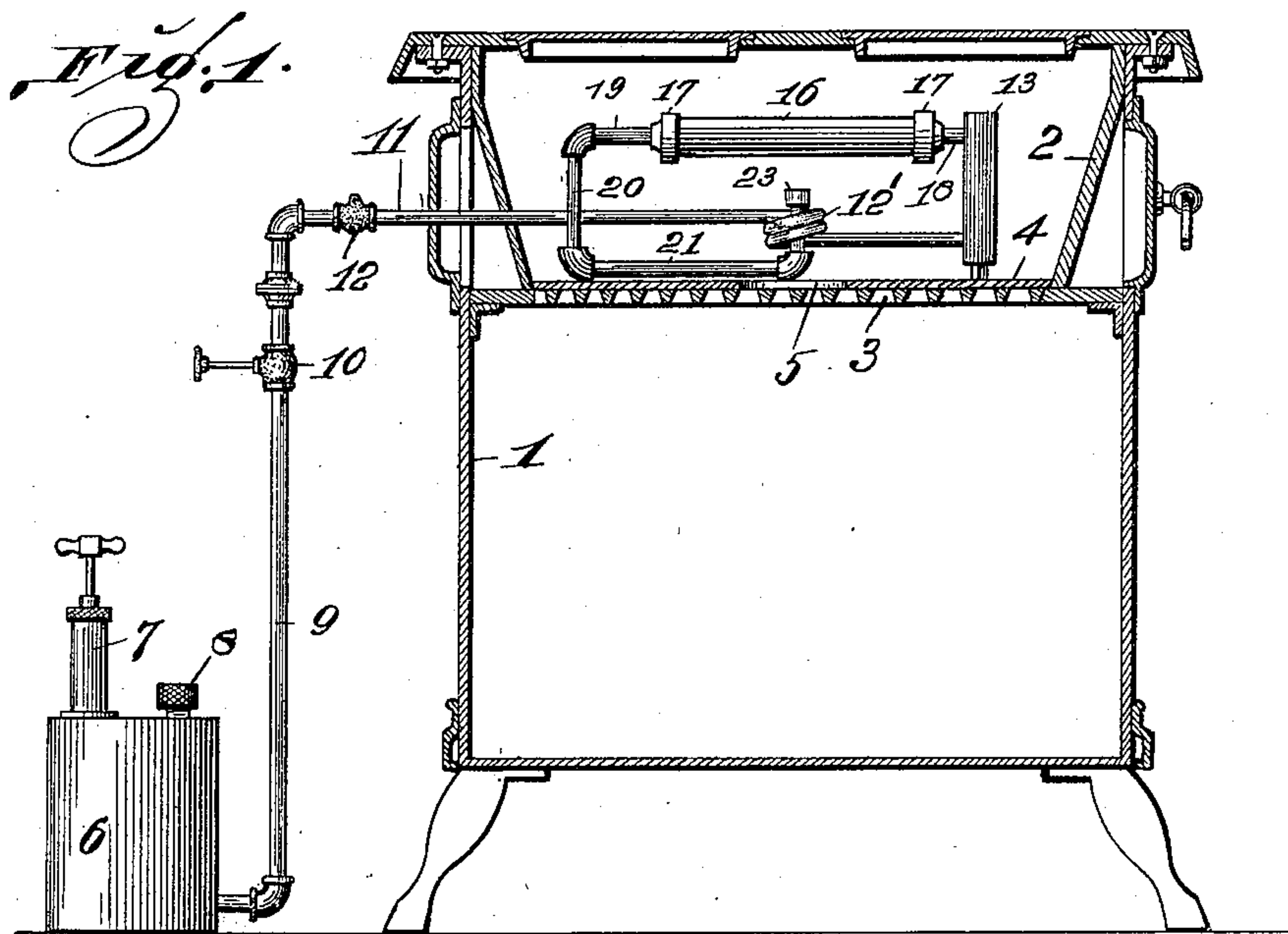
Patented Feb. 27, 1900.

D. T. KIRKPATRICK.

VAPOR BURNER.

(Application filed May 31, 1898. Renewed July 28, 1899.)

(No Model.)



Attest
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UNITED STATES PATENT OFFICE.

DRURY T. KIRKPATRICK, OF MEMPHIS, TENNESSEE, ASSIGNOR OF FORTY-NINE ONE-HUNDREDTHS TO WILLIAM H. MURPHY, OF SAME PLACE.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 644,178, dated February 27, 1900.

Application filed May 31, 1898. Renewed July 28, 1899. Serial No. 725,371. (No model.)

To all whom it may concern:

Be it known that I, DRURY T. KIRKPATRICK, of the city of Memphis, Shelby county, State of Tennessee, have invented certain new and
5 useful Improvements in Vapor-Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to vapor-burners; and
10 it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

Figure 1 is a vertical sectional view taken through the fire-box of a stove provided with
15 my improved vapor-burner. Fig. 2 is an enlarged elevation of the burner, parts thereof being in section to more clearly illustrate the same.

Referring by numerals to the accompanying
20 ing drawings, 1 indicates the body of a stove, 2 the fire-box thereof, and 3 the grate.

Located upon the grate is a sheet-metal plate 4, provided in its center with an opening 5. This plate is not essential, though by its use the
25 efficiency of the burner is greatly increased.

Located upon the floor, or upon the wall, or at any point adjacent to the stove is an oil-tank 6, which is provided with an ordinary
30 air-pump 7, the same providing means whereby air under pressure may be forced into said tank 6, said tank 6 also being provided with an inlet-opening 8, the same being normally closed by a cap.

Leading from the lower end of the tank 6
35 is an oil-conveying pipe 9, in which is located an ordinary cut-off valve 10, the end of said pipe 9 being connected by an elbow to a horizontally-arranged length of pipe 11, in which is located a check-valve 12, said pipe 11 extending horizontally into the fire-box 2 of the
40 stove, and in the length of said pipe 11 is formed a coil 12', which when the burner is properly positioned occupies a central location within said fire-box. The free end of this
45 pipe 11 is tapped into the lower end of a vertically-arranged gas-conveying cylinder 13, in which is formed a vertical bore 14, closed at its lower end by a plug 15.

The vapor-superheating chamber is constructed of an enlarged horizontally-arranged
50 tube 16, having both ends closed by screw-

caps 17, said tube being arranged above and parallel with the tube 11, and a short tube 18 connects the chamber at one end with the bore 14, within the cylinder 13, while leading
55 from the opposite end of said chamber is a tube 19, the same being connected by an ordinary elbow to a short vertical tube 20, the lower end of which is connected by an elbow to a horizontally-arranged tube 21, that extends
60 beneath the tube 11 to a point immediately beneath the coil 12' therein, and said tube 21 is there connected by an ordinary elbow to a short vertical tube 22, that extends upwardly
65 through the coil 12' and is provided with a burner-cap 23, in the top of which is located a suitable aperture.

By referring further to the drawings it will be seen that the cap 23, or the upper end of the burner, extends above the coil 12' and
70 that the latter operates to hold the vertical tube 22 of said burner in a true vertical position, whereby the flame will only come in contact with the horizontal tube 16, forming the superheating-chamber, the latter further operating to spread and divide the flame on
75 either side of the same.

When the various parts of my improved burner have been assembled and are in proper position relative to a stove and it is desired
80 to operate said burner to heat the stove, the pressure is pumped up within the tank 6 by means of the air-pump 7, and when this operation is completed and the cut-off valve 10 is opened oil will be forced upwardly through
85 the tube 9, through the check-valve 12, through the tube 11, upwardly through the body of the cylinder 13, through the tubes 18, 16, 19, 20, and 21, and as the oil appears through the aperture in the burner-cap 13 said oil is ignited, or, if desired, a small section of asbestos paper may be located upon the plate 4,
90 immediately beneath the burner-cap 23 and short section of pipe 22, and after the oil drops downwardly onto said asbestos paper and saturates the same it may be ignited, and in
95 this manner the burner-cap 23 and coil 12' will become heated, and as the oil continues to flow through the tubes 19 and 11 it will pass into the heated coil 12' and be thereby formed
100 into a vapor, which vapor will pass onwardly through the pipe 11 to the cylinder 13, from

thence through the tube 18 and into the tube 16, forming the vapor-superheating chamber, and here said vapor will be superheated, and as it does so it will expand and pass onwardly through the tubes 19, 20, 21, and 22 and discharge through the burner-cap 23, where it is ignited. The flame thus produced strikes against the tube 16, forming the vapor-superheating chamber, and very thoroughly heats the same to superheat the vapor formed in the coil 12', and at the same time all of the pyrites and paraffin-wax that may be in the oil are thoroughly consumed, and consequently there will be nothing discharged through the aperture in the burner-cap which will tend to clog the same.

The check-valve 12 allows the oil to pass freely through the tube 11 toward the coil 12' and effectually prevents any oil or vapor from passing backwardly through the said tube 11.

By providing a pressure within the tank 6 the oil is forced into the vapor-forming coil continuously and evenly, and therefore the burner will produce a flame that will create an even temperature within the stove and all parts thereof.

A burner so constructed is simple, strong, and durable, readily applied to any heating or cooking stove, occupies very little space

within and adjacent a stove, is very economical in the consumption of oil, is very safe, and comes within the provisions and regulations made by insurance companies, and by superheating the vapor a much greater heat is produced and there is no danger of the aperture in the burner ever becoming clogged.

I claim—

A vapor-burner comprising an enlarged horizontally-arranged superheating-chamber, an oil-supply pipe in connection with one end of the same, a coil formed in said pipe, a burner passing through the coil and extending above the same, suitable pipe connections leading from the opposite end of the superheating-chamber to the burner, whereby the latter is held in a vertical position to cause the flame issuing from the upper end of the same to come in contact with the superheating-chamber located above the burner, and a check-valve located in the oil-supply pipe, substantially as and for the purpose described.

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

DRURY T. KIRKPATRICK.

Witnesses:

JNO. J. FREEMAN,
H. C. SHELTON.