

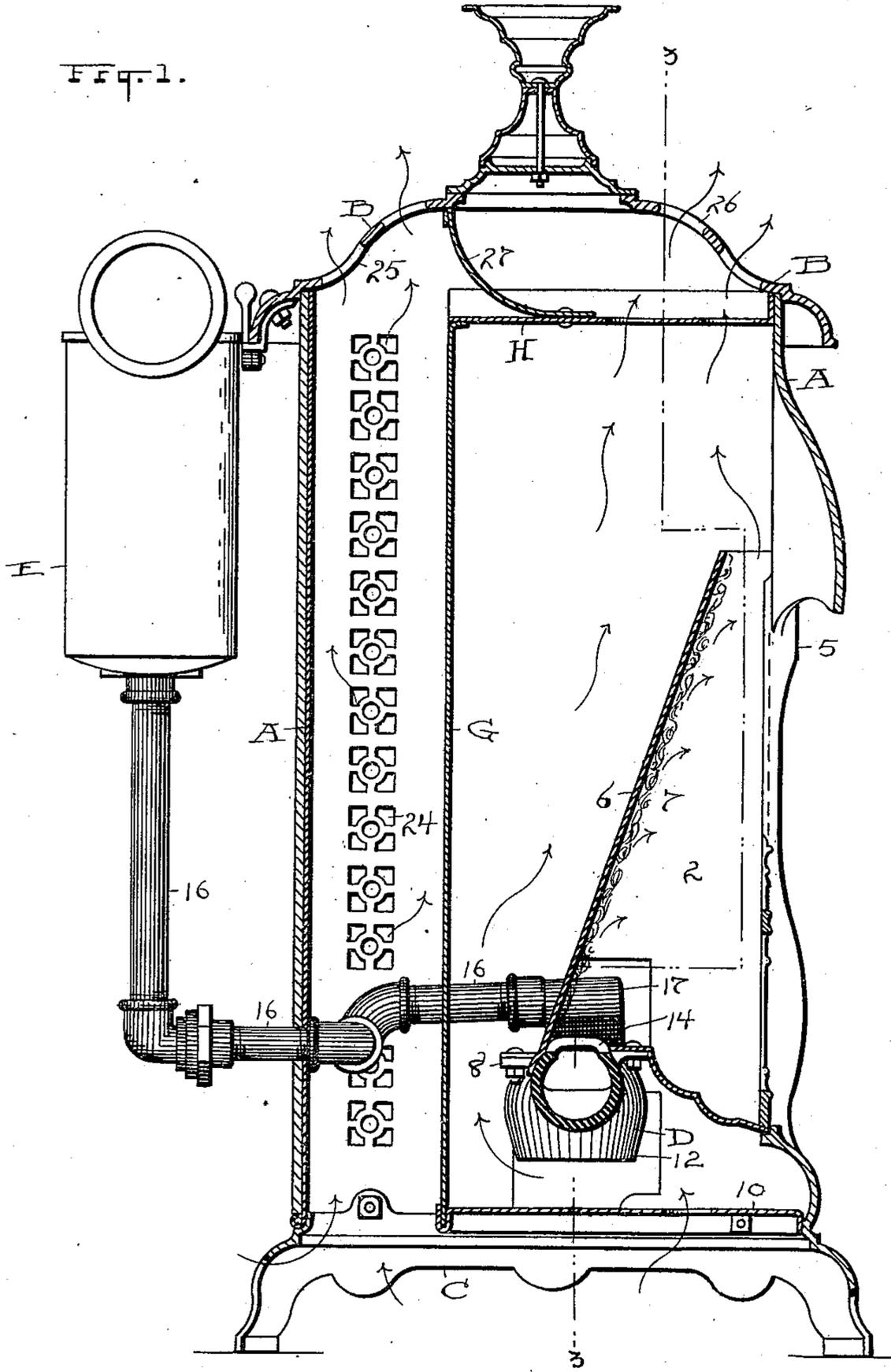
(No Model.)

3 Sheets—Sheet 1.

H. RUPPEL.  
HYDROCARBON HEATING STOVE.

No. 564,259.

Patented July 21, 1896.



ATTEST.

*R. B. Moser.*  
*H. E. Medra.*

INVENTOR.

*Henry Ruppel*

BY *H. T. Fisher* ATTY.

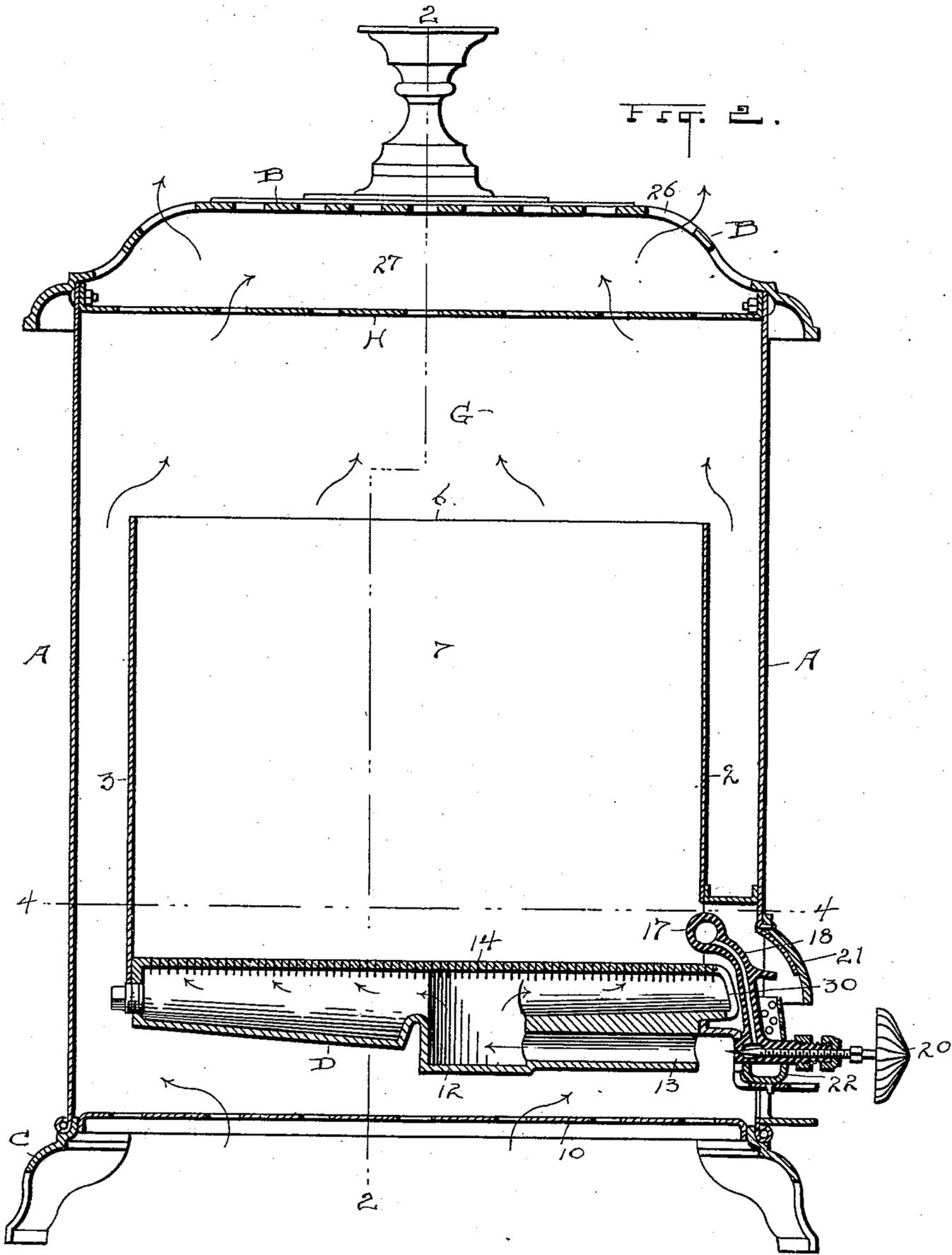
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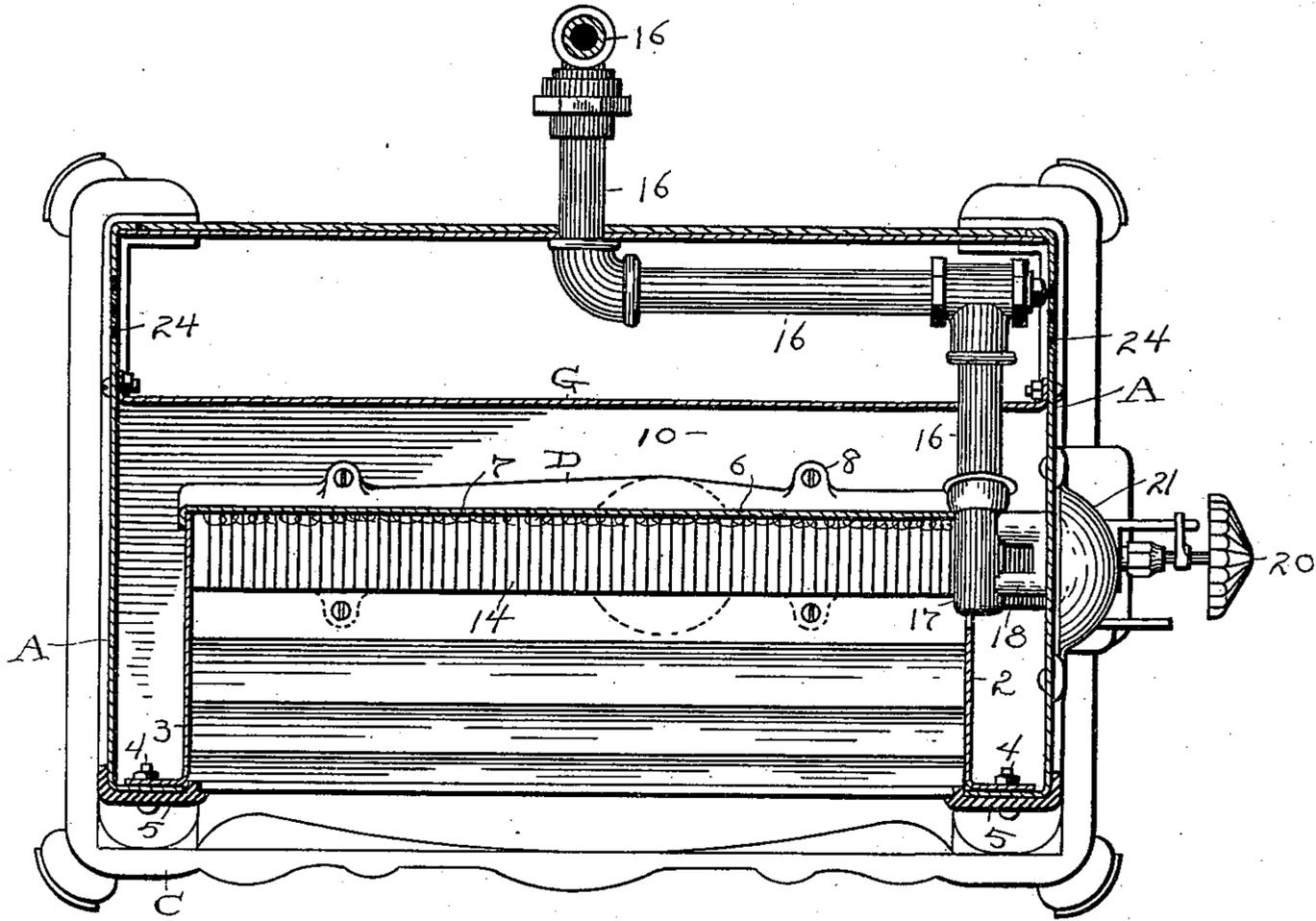


Fig. 3.

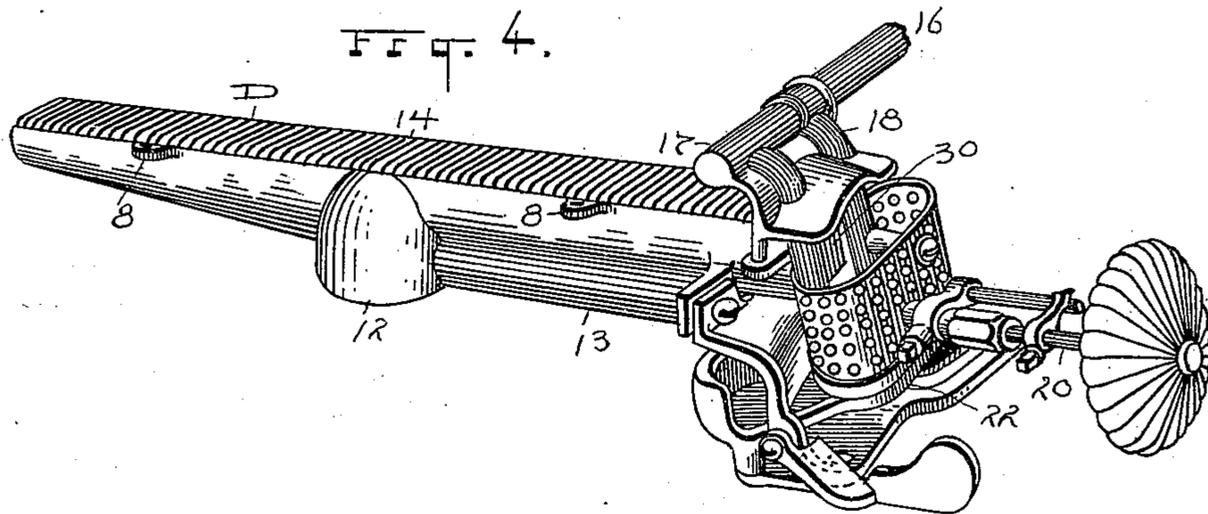


Fig. 4.

ATTEST.

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# UNITED STATES PATENT OFFICE.

HENRY RUPPEL, OF CLEVELAND, OHIO.

## HYDROCARBON HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 564,259, dated July 21, 1896.

Application filed September 20, 1895. Serial No. 563,104. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY RUPPEL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Hydrocarbon Heating-Stoves; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to hydrocarbon heating-stoves; and the invention consists in the construction of a stove and the burner therefor, and in the combination of parts substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical central sectional elevation of my improved heating-stove on a line running from front to rear and corresponding to line 2 2, Fig. 2. Fig. 2 is a vertical central sectional elevation on a line which intersects the burner longitudinally at its center and from side to side of the stove on a line corresponding to 3 3, Fig. 1. Fig. 3 is a horizontal sectional plan view taken on a line corresponding to 4 4, Fig. 2, and looking down upon the burner mechanism. Fig. 4 is a perspective view of the burner mechanism alone.

A represents the outside shell or casing of the body of the stove, B the top thereof, and C the bottom of the stove. The preferred shape or design of the stove as here shown is rectangular, although the shape or style of the stove may be considerably varied from this and not depart from the spirit of the invention. The purpose in view is to utilize gasolene or some other light and suitable hydrocarbon oil, which, when burned, will produce a blue flame and perfect combustion, resembling in all respects the usual and well-known gas-heaters in appearance and effect, and affording an equal or greater volume of heat than the ordinary gas-burner affords at materially less expense. Several peculiar features of construction are necessary to produce this result, as will now appear.

The burner D is arranged across the stove from side to side centrally near the bottom of the stove, and is of such length as to ex-

tend across the full distance from side wall to side wall 2 and 3 within the stove. These inner side walls are arranged to leave an air chamber or space between themselves and the outer walls or casing A of the stove, and are supported at their front edge by bolts 4, passing through the right-angled edges thereof and of the casing A and through the vertical panel 5 at the front of the stove. At their rear the said inner side walls 2 and 3 engage with the inclined burner-plate 6 of the burner-space, upon the surface of which is secured the asbestos covering 7, over which the flame from the burner B rolls and plays very similar to the flame in a common gas-burner of this character. At its bottom the said inclined burner-plate 6 is fixed to ears 8 on the burner D, and thus said parts are connected and supported and the burner D held in raised position above the floor or bottom 10 of the stove. This bottom is perforated for the free admission of air into the space beneath and about the burner D, there being thus afforded all the air that is necessary to support combustion and to allow a free circulation of the air upward between the inner and outer side walls of the stove. The arrows in Fig. 1 indicate the direction of circulation of fresh air through the stove, which does not pass into the burner.

The burner D is shown as having a central chamber or well 12 midway of its length, with an inlet-passage 13 from the front end thereof and through which the hydrocarbon vapor and the air to support combustion are admitted together into said chamber. The passage 13 and the chamber 12 serve to commingle the air and vapor, and chamber 12 especially to distribute the vapor equally to the respective ends of the burner. Obviously there should be an equal pressure of vapor present at all points if a uniform flame is expected, and such equal pressure and uniformity of flame are obtained by my present construction. The burner D is shown, preferably, as substantially tubular inside and out, and is provided with a flat top 14 from end to end, which has transverse saw-cuts or equivalent openings at frequent and uniform intervals entirely across the surface of the burner. The vapor issues through these transverse slits or openings, and ignition oc-

curs immediately above them and the flame travels up over the asbestos surface 7 above. This asbestos surface is preferably inclined forward over the said burner, so that the flame will strike it near the bottom thereof and serve as a means of detaining any unconsumed gases until they are caught up and consumed by the flame from below. There does not, therefore, remain any deposit whatever of carbon upon the asbestos, but it is kept perfectly clean and everything combustible is burned up, and thus disagreeable odors in the room are absolutely avoided.

E represents the oil-tank, which is supported not only at the rear of the burner, but on a plane beneath the top of the burner, and therefore largely out of view and unobjectionable in appearance. However, the elevation is sufficient to obtain all the pressure that is required, the construction of the burner being such that very little pressure from the tank is needed. The oil passes from said tank through the line of connected pipe-sections 16 to the vaporizing portion 17 of the burner, and the vapor issues through the jet-orifice controlled by needle-valve 20 into the commingling-passage 13. The extremity of pipe 16 (indicated by 17) is exposed to the flame beneath, as this portion of the pipe is supported directly over the front end of the burner D. The heating at this point and along the ducts 18 is sufficient to vaporize all the oil when the burner has been once initially heated, and thereafter the needle-valve 20 controls the flow of vapor to the burner. The initial lighting and heating mechanism shown constitutes a part of another application and is no part of the present invention. The hood 21 serves to direct the initial heat inward over the ducts 18 and against pipe 16 17, but as seen the initial lighting and heating pan 22 is in position to heat the entire generating portion of the burner above the needle-valve orifice.

Referring now more particularly to the construction of the stove proper in connection with the oil-tank, it will be seen by Fig. 1 that there is a "false back" G, so called, extending from the bottom plate C upward to the inner top plate H, and that a cold-air chamber is thus formed between the said inner back wall G and the outer wall A. There are also a series of air-inlets 24 along each side of the stove, so as to promote coolness of the air in this space or chamber between said walls, and the said chamber is open its full size at the bottom and has outlet through free openings 25 in the top B of the stove. This effectually protects the oil-tank, which is behind and apart from the rear wall of the stove, from any heat within the stove. The heat gener-

ated in the stove passes out through inner cross-plate H and the openings 26 in the front top B, and the said plate H forms a support for the curved division-plate 27 in the top of the stove, and which cuts off the heat from escaping at the rear of the top.

It will be noticed that the front end of the burner, over which pipe 17 extends, has also vertical slits or openings 30 at right angles to the slits across its top, and vapor escaping through these openings is ignited from the initial starter or burner and from these the flame runs over the entire length of the burner. The flame once established through openings 30 continues there and helps to keep the generator and the supply-pipe heated to a generating condition.

What I claim is—

1. A burner having a perforated top, a vapor-retort, a feed-pipe lying below and substantially parallel with said top, and leading from the retort, a well extending somewhat below the body of the burner, and communicating with the feed-pipe, the side of the well opposite the discharge end of the feed-pipe being substantially vertical and constituting a deflector for the vapor, substantially as described.

2. A burner having a perforated top, a vapor-retort, a feed-pipe lying below and substantially parallel with said top, and leading from the retort, a well extending somewhat below the body of the burner and communicating with the feed-pipe, the side of the well opposite the discharge end of the feed-pipe being substantially vertical and constituting a deflector for the vapor, and a burner-plate 6.

3. The combination with a stove-casing having therein a burner-plate 6, a burner situated at the base of said plate and secured thereto, and a hearth-plate also secured to said burner and resting at its front edge upon the base of the casing, substantially as described.

4. The combination of a casing having a vertical partition therein which divides the same into two chambers a burner in one of the chambers, an inclined burner-plate situated contiguous to said burner, a base for the casing, a horizontal plate supported by the base and supporting the partition and a hearth-plate also resting upon the casing above the horizontal plate, and secured to the burner substantially as shown and described.

Witness my hand to the foregoing specification on this 27th day of August, 1895.

HENRY RUPPEL.

Witnesses:

H. T. FISHER,  
R. B. MOSER.