

No. 759,881.

PATENTED MAY 17, 1904.

J. L. HAGUE.  
HYDROCARBON BURNER.

APPLICATION FILED FEB. 11, 1904.

NO MODEL.

Fig. 1

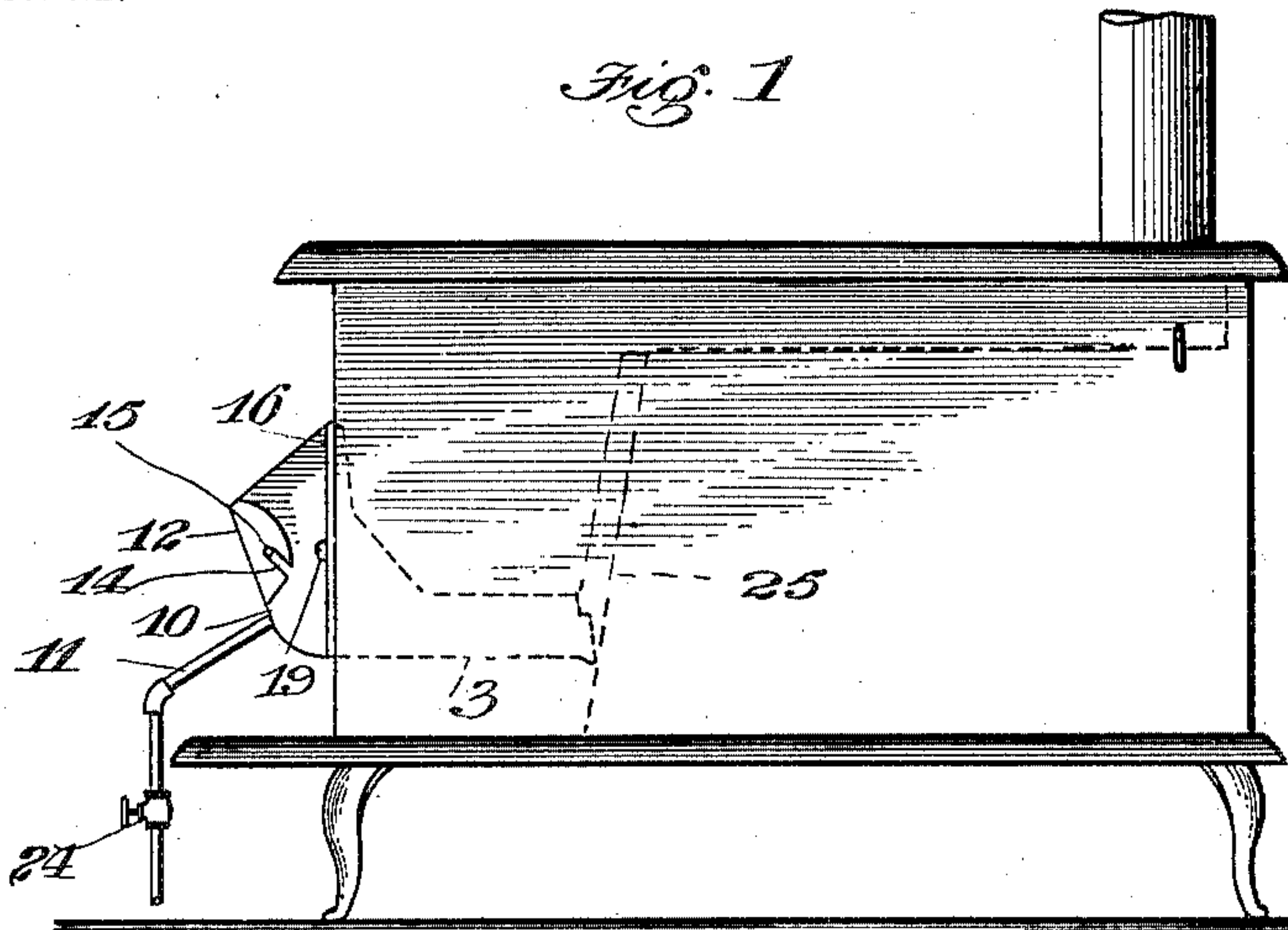


Fig. 2

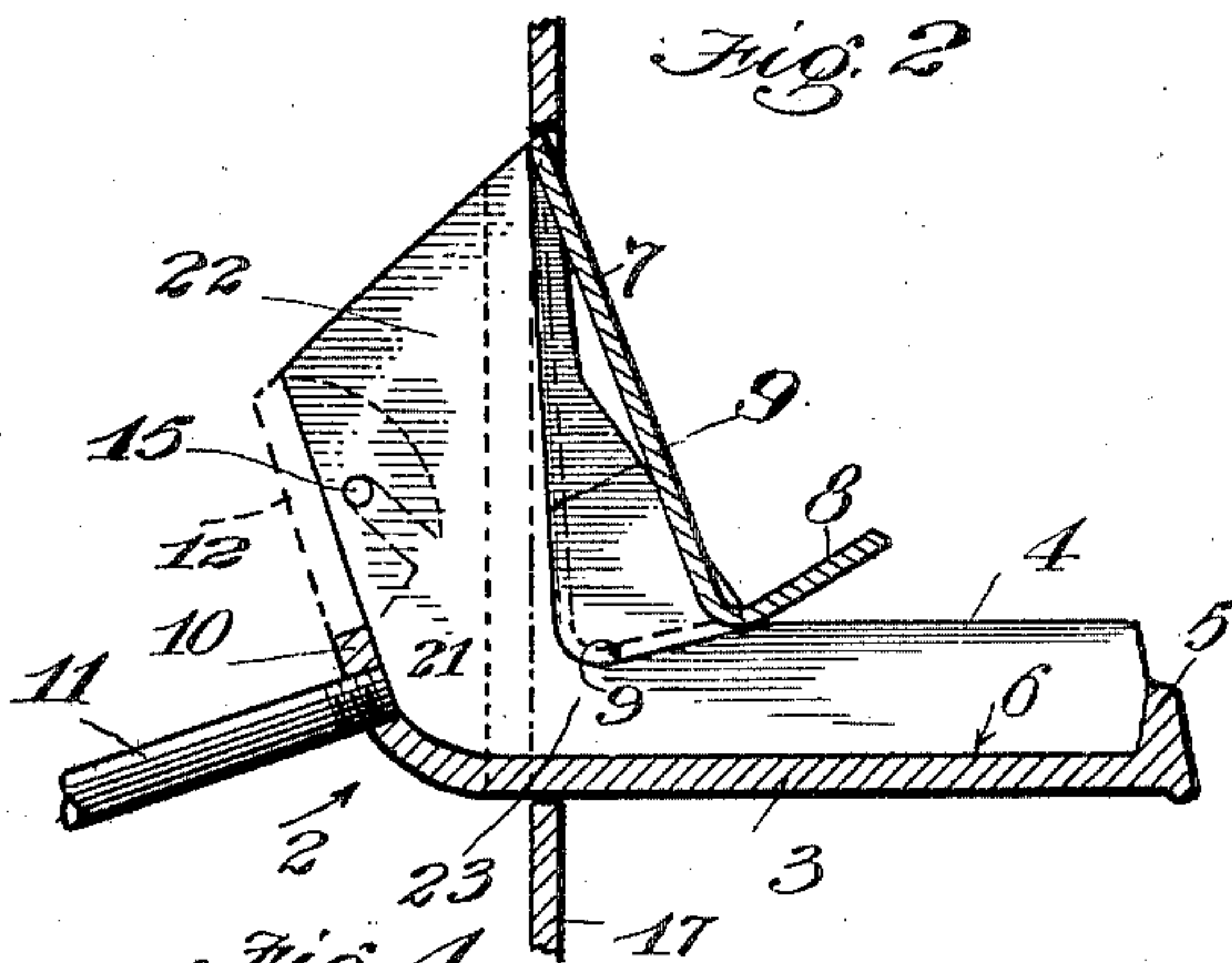


Fig. 4

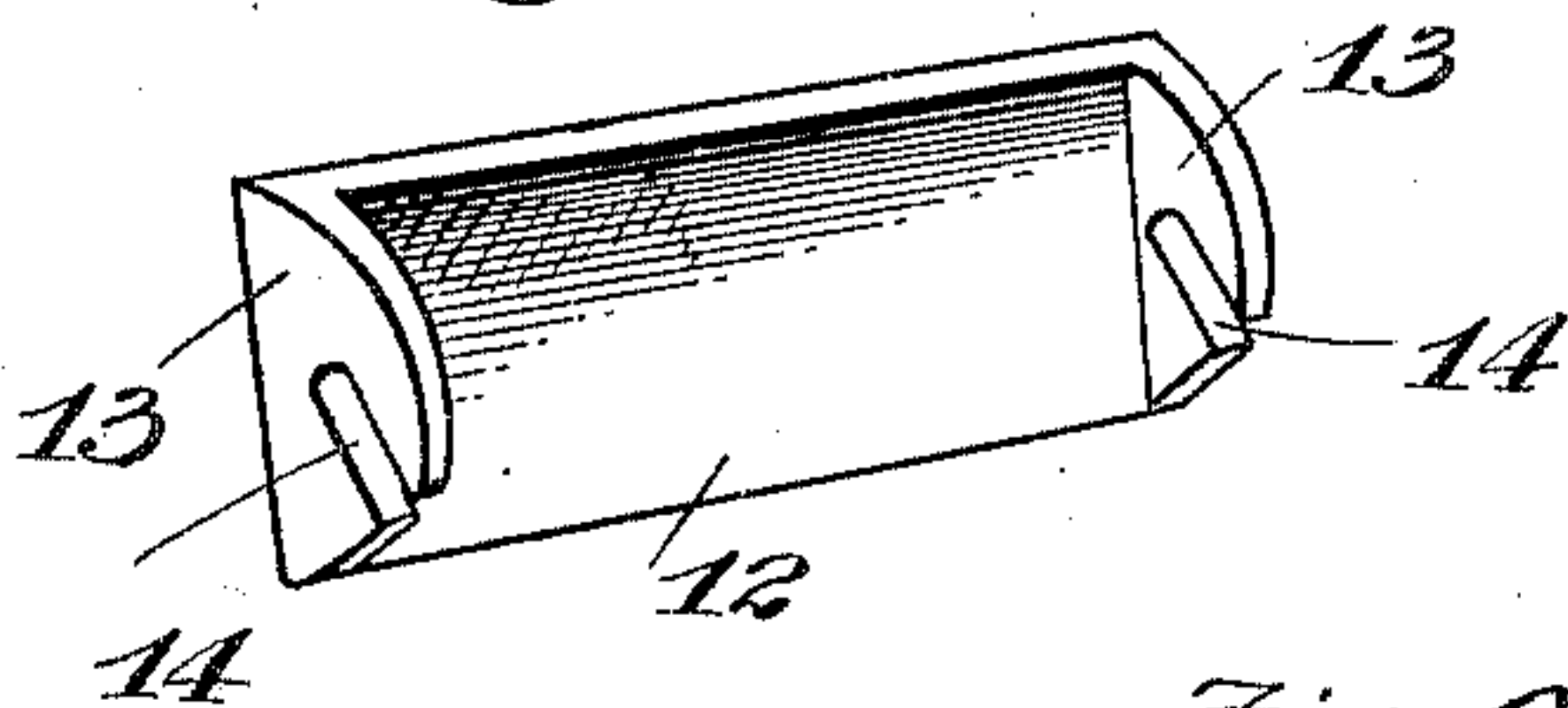


Fig. 5

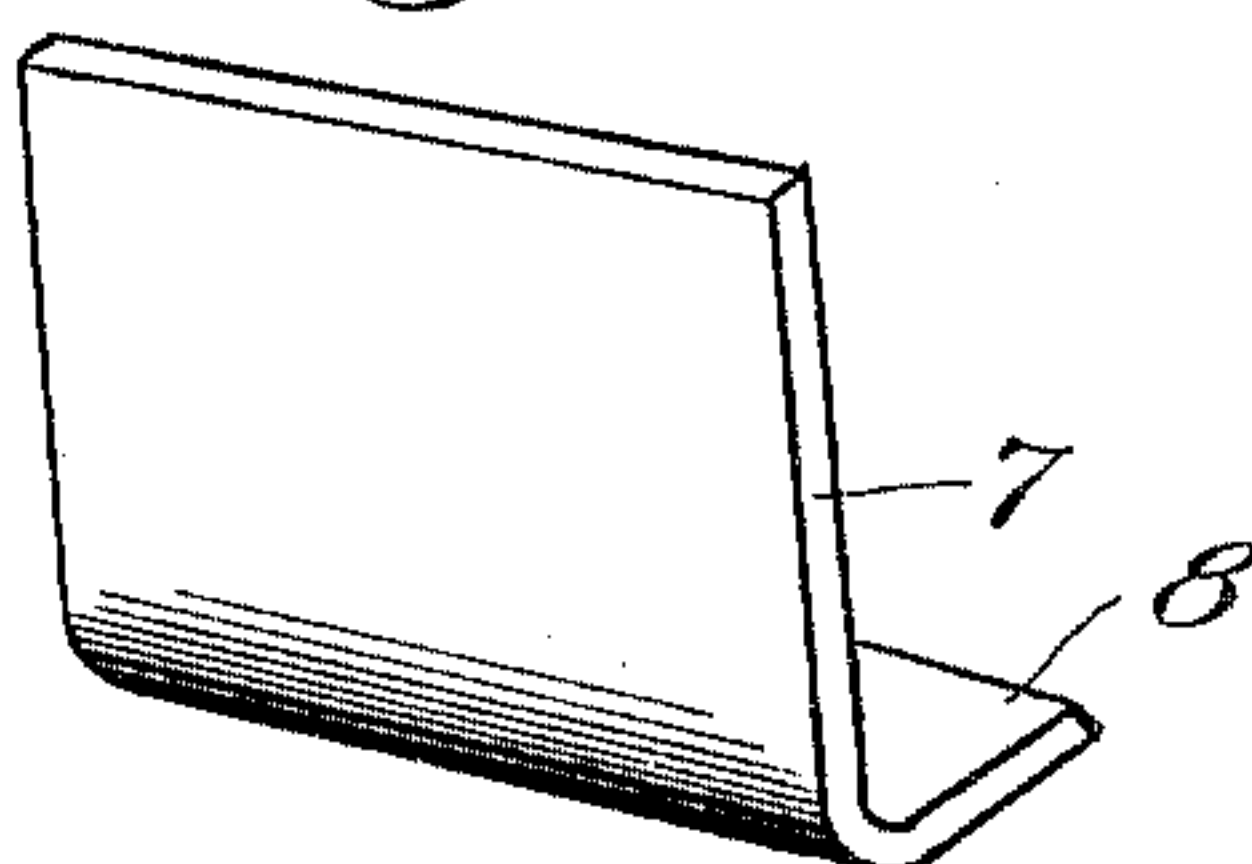
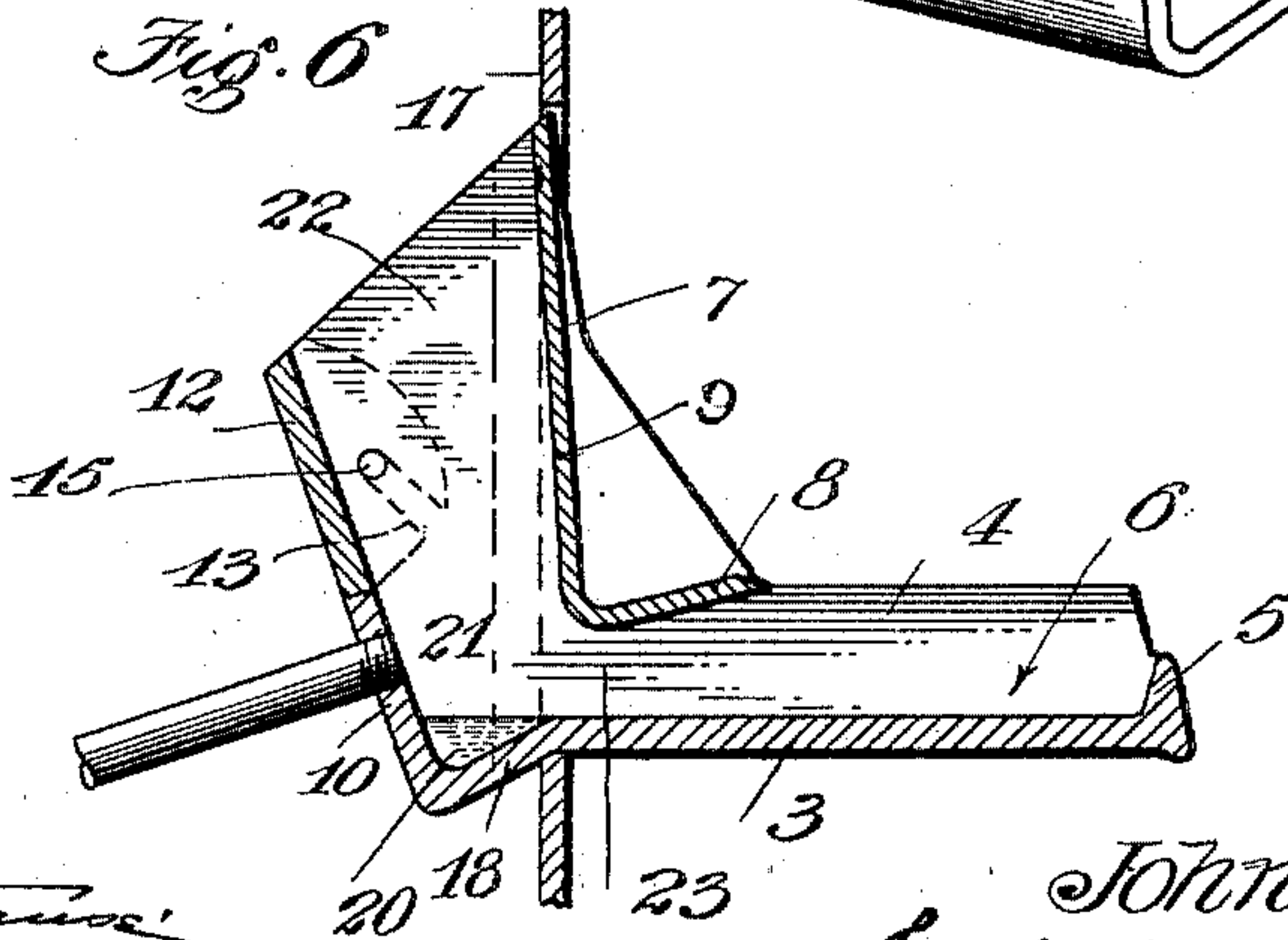


Fig. 6



WITNESSES

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# UNITED STATES PATENT OFFICE.

JOHN LESLIE HAGUE, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO FRANK MONAGHAN, OF SANTA ANA, CALIFORNIA.

## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 759,881, dated May 17, 1904.

Application filed February 11, 1904. Serial No. 193,041. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN LESLIE HAGUE, a citizen of the United States, residing in the city of Los Angeles, county of Los Angeles, and State of California, have invented a new Improved Hydrocarbon-Burner, of which the following is a specification.

This invention relates to means for burning hydrocarbon oils as fuel in stoves, ranges, or furnaces, the burner being particularly adapted for use either in a cook-stove or range.

The object of the invention is to provide a hydrocarbon-burner of exceedingly simple, cheap, and durable construction which may be readily cleaned and in which all danger of clogging by the carbonization shall be avoided; further, to provide such a construction as to adapt the burner to be positioned in the draft-opening of a stove, range, or furnace and to utilize the air-draft of such stove, range, or furnace to furnish and admix with the vapor arising from the liquid hydrocarbon sufficient air for its complete combustion and to carry the combustion-flame over the rear or fire-wall of the fire-pot and through the flues of the stove or range in a manner similar to that in which the hot gases of combustion from coal or wood fuel pass around and through the flues of the stove, thereby applying the heat thoroughly to all parts of the stove and thoroughly heating the oven thereof for baking purposes.

Heretofore with hydrocarbon-vapor burners great difficulty has been experienced, owing to inability to secure the passage of sufficient heat through the flues of the stove to thoroughly and evenly heat all portions thereof, and particularly has great difficulty been experienced in securing the passage through flues and around the oven of sufficiently hot gases to thoroughly heat the oven.

A further object of the invention is to provide such a construction as to render all parts of the burner readily accessible from outside the stove, range, or furnace.

The invention consists in the constructions and combinations of parts hereinafter described, and particularly pointed out in the claims, and will be more readily understood

by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a stove equipped with one of my burners, that portion of the burner which extends within the stove being shown in dotted lines. Fig. 2 is a vertical sectional view of one of my hydrocarbon-burners, the same being shown in connection with a fragment of the front plate of a stove, range, or furnace, showing the manner of supporting the burner. Fig. 3 is a front elevation of one of my burners, the same being shown attached to the front plate of the stove, portions of the front plate being broken away. Fig. 4 is a perspective view of the detachable front wall for draft-flue. Fig. 5 is a perspective view of the movable plate which forms the inner wall of the draft-flue and vaporizing-chamber. Fig. 6 is a vertical sectional view showing a slightly-modified form of burner.

As shown in the drawings, the body portion 2 has a bottom 3 and side walls 4, formed integral. At the inner end of the body the walls 4 are reduced in height and are united with a low end wall or upwardly-extending flange 5, and the same together with the bottom 3 form an open-topped burning-pan 6, adapted to extend into the fire-chamber of a stove, range, or furnace.

At the outer end of the body the walls extend up vertically, forming an open-ended flue, the front edges of the walls being inclined so that the flue is tapered from its inlet to the point where it communicates into the burning-pan 6. The inner wall of this draft-flue is formed of a movable plate, wall, or member 7, which has an upwardly-curved portion or extension 8 extending at an acute angle upwardly and inwardly from the main portion of the plate 7 when the same is in operative position. The inner faces of the walls 4 are cored out or recessed to form bearings or seats 9 to support the plate 7 and allow it to be moved inwardly out of the way when it is desired to clean the burner.

The front wall of the draft-flue is formed by an extension of the bottom or floor 3, the outer end thereof being curved upwardly and



then inclined forwardly and upwardly, providing a low wall 10, the space between said wall and the lower portion of the inner face of the movable plate 7 constituting a vaporizing-chamber 21, into which the oil-pipe 11 communicates, said chamber extending outside of the fire-chamber of the stove or furnace.

A movable plate 12 completes the front wall of the draft-flue. This plate is provided with inwardly-projecting flanges 13, which have slots 14, adapting the flanges to slip over projections or lugs 15, extending outward from the side walls and adapted to hold the plate 12 in position. The lower edge of the plate 12 is adapted to rest on the top edge of the wall 10 and form a continuation of said wall, the front wall 10 12 diverging upwardly from rear wall 7, so that the open-topped draft-flue 22 between them tapers downwardly into the vaporizing-chamber 21.

The plate 7 separating the vaporizing-chamber from the burning-pan approaches at its lower end to the bottom of said pan, so as to form a contracted passage or throat 23 between the vaporizing-chamber and the burning pan or chamber. The floor or bottom 3 is preferably horizontal, or substantially so.

24 designates a valve controlling the oil-supply.

The body 2 is provided with lateral flanges 16, through which bolts 19 extend through the front plate 17 of the stove to hold the burners in fixed position.

In Fig. 6 I have shown a slightly-modified form, extending the wall 10 in a straight line below the plane of the floor 3 and connecting with the floor proper by an inclined portion 18, thereby forming a shallow trough or receptacle 20 in the vaporizing-chamber adapted to retain a small body of oil. The heat of this oil more readily raises the temperature of the cold oil inflowing from the pipe 11 and with some grades of oil insures more ready evaporation thereof.

The invention is particularly intended for use in burning low-grade distillate and when so used is operated as follows: The rear plate 7 of the draft-flue 22 is assumed to be in a forward position, resting in its seat in the side walls. The removable front plate 12 is lifted off, giving convenient access to the vaporizing-chamber. A small quantity of oil is now allowed to flow through the supply-pipe 11 into the vaporizing-chamber and is ignited. The oil will spread on the substantially horizontal floor 3 in both chamber 21 and in the burning-pan and will burn in said chamber and also more or less in the pan 6, with the result that the burner and also the interior of the stove will become sufficiently heated to start a draft through the vaporizing-chamber and the contracted passage or throat 23 and over the burning-pan, and thus through the fire-pot and the usual flues of the stove. This draft may be sufficient to draw in all

the flame arising in the vapor-chamber and deflect it into the fire-pot of the stove; but if not the person starting the fire can by blowing lightly into the vaporizing-chamber cause the flame to be so deflected, and it will then continue to burn in this manner, the flame passing from the vaporizing-chamber under the extension 8 of the plate 7 and into or over the burning-pan. Front plate 12 is now placed in position, closing the front of draft-flue 22, with the result that a strong draft or current of air is, owing to the convergence of the walls of said flue, concentrated on the oil in the vaporizing-chamber, and a more thorough evaporation and mixture thereof takes place. The oil may now be turned on in quantity to suit the requirements of the stove, and as the draft increases it will be found that the combustion takes place substantially in the burning-pan and that only vaporizing and mixture takes place in the chamber 22. It is possible with this construction of burner to heat the stove-oven quickly and thoroughly, as the draft is concentrated on the oil and the resulting substantially perfect mixture is carried forward into the fire-pot and against the fire-wall or fireback, (indicated in Fig. 1 in dotted lines,) where it is burned, so that when the draft is checked by causing the products of combustion to pass around the oven in the usual manner it will still be sufficient to insure perfect combustion and supply the requisite amount of heat to properly heat the oven.

Ash and residue will gradually accumulate in the burning-pan 6, and from time to time the rear plate 7 will be pushed back into the position shown in Fig. 2, the front plate 12 having been removed, and the burning-pan may then be cleaned by the use of the usual scraper or similar tool. The plate 7 is then pulled forward into normal position, putting the apparatus in condition for use.

What I claim is—

1. A hydrocarbon-burner comprising a body having a burning-pan and a draft-flue communicating therewith, and having the upper part of its outer wall removable, and a wall between said flue and pan, movably mounted in said body to give access to said pan.

2. A hydrocarbon-burner comprising a body having an open burning-pan, a vaporizing-chamber portion, the side walls of said portion extended upwardly, said vaporizing-chamber portion provided with a low front wall, a removable plate forming an extension of said low wall, and a movable rear wall forming therewith a draft-flue downward through said vaporizing-chamber portion and into said burning-pan.

3. A hydrocarbon-burner comprising a body having an open burning-pan, a vaporizing-chamber portion, the side walls of said portion extending upwardly and provided with projections, said vaporizing-chamber portion



provided with a low front wall, a movable plate forming an extension of said low wall and having flanges with slots adapted to slip over the aforesaid projections to hold the removable plate in place.

4. A hydrocarbon-burner for stoves, furnaces and the like, comprising a body having a substantially horizontal floor adapted to extend into such stove or furnace, an open-topped burning-pan formed at the inner end and a vaporizing-chamber and a draft-flue formed in the outer end thereof, said flue communi-

cating through said chamber into said pan, and means for supplying oil to said chamber.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses; at Santa Ana, in the county of Orange and State of California, this 4th day of February, 1904.

JOHN LESLIE HAGUE.

Witnesses:

J. A. WILLSON,  
J. W. BISHOP.