

(No Model.)

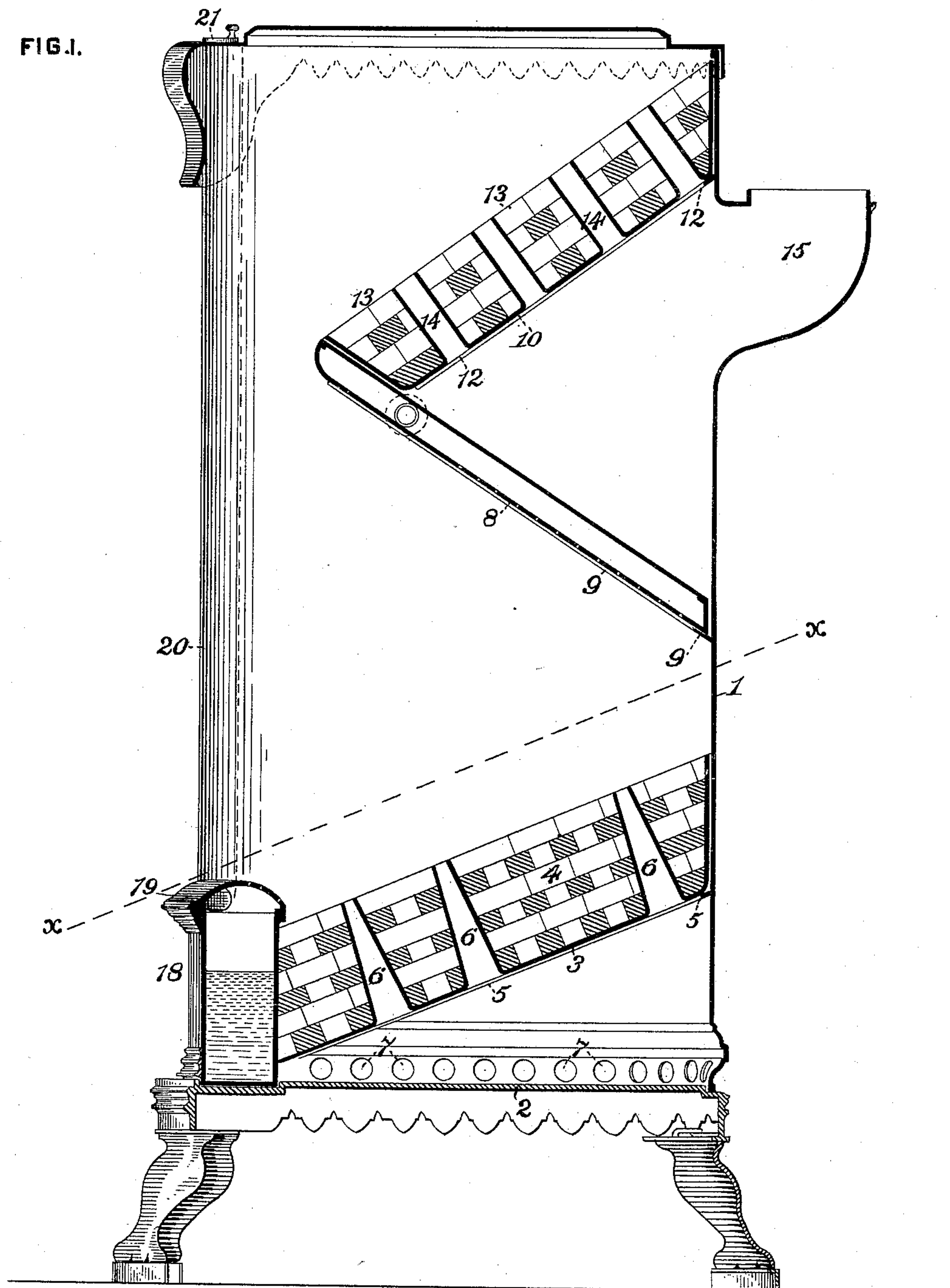
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W. SWINDELL.  
GAS STOVE.

No. 409,763.

Patented Aug. 27, 1889.

FIG. 1.



WITNESSES:

*R. A. Whittlesey*  
*F. E. Gaither.*

INVENTOR,

*William Swindell*

*by Darwin S. Wolcott*

Att'y.

(No Model.)

2 Sheets—Sheet 2.

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GAS STOVE.

No. 409,763.

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FIG. 2

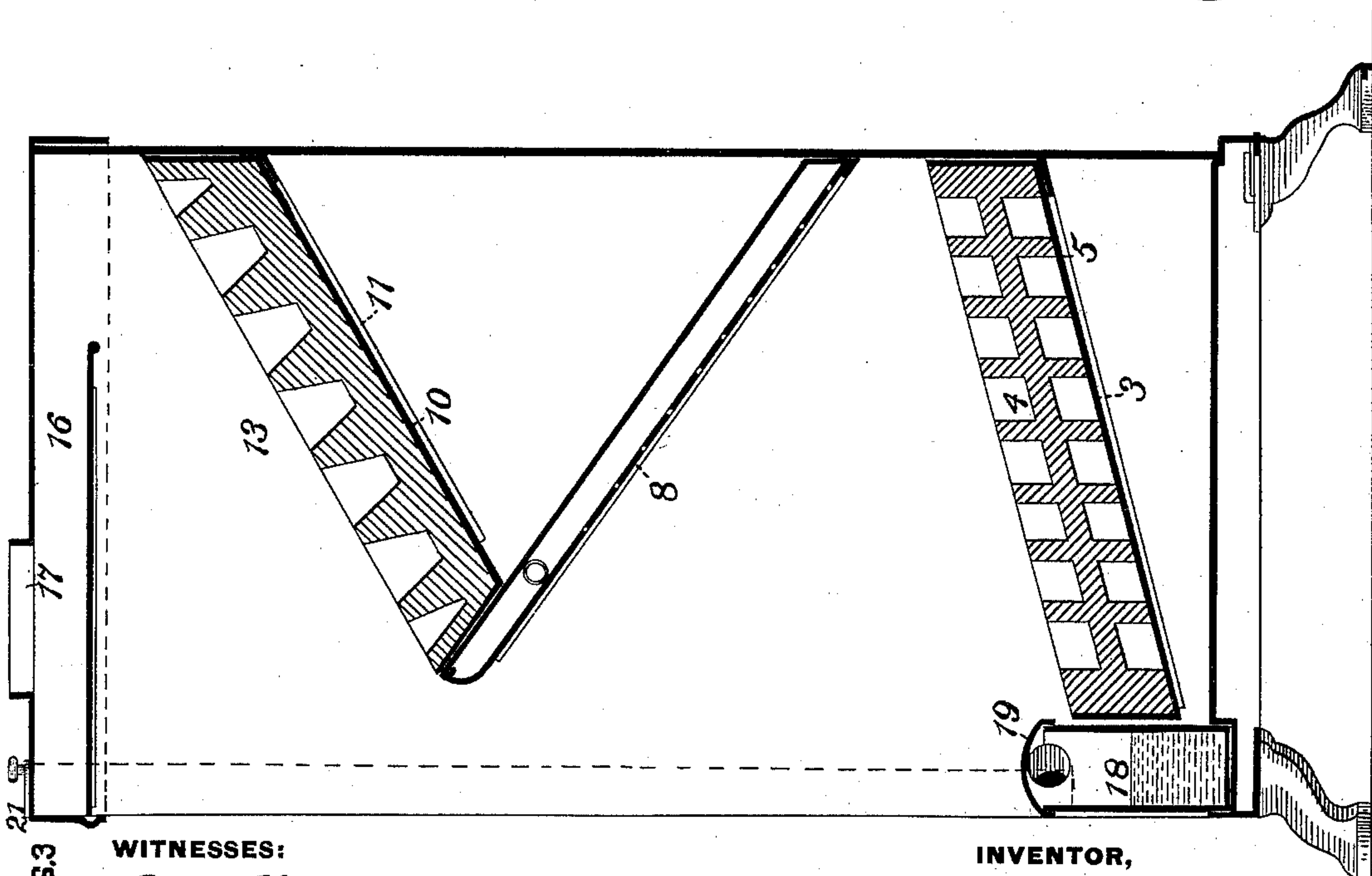
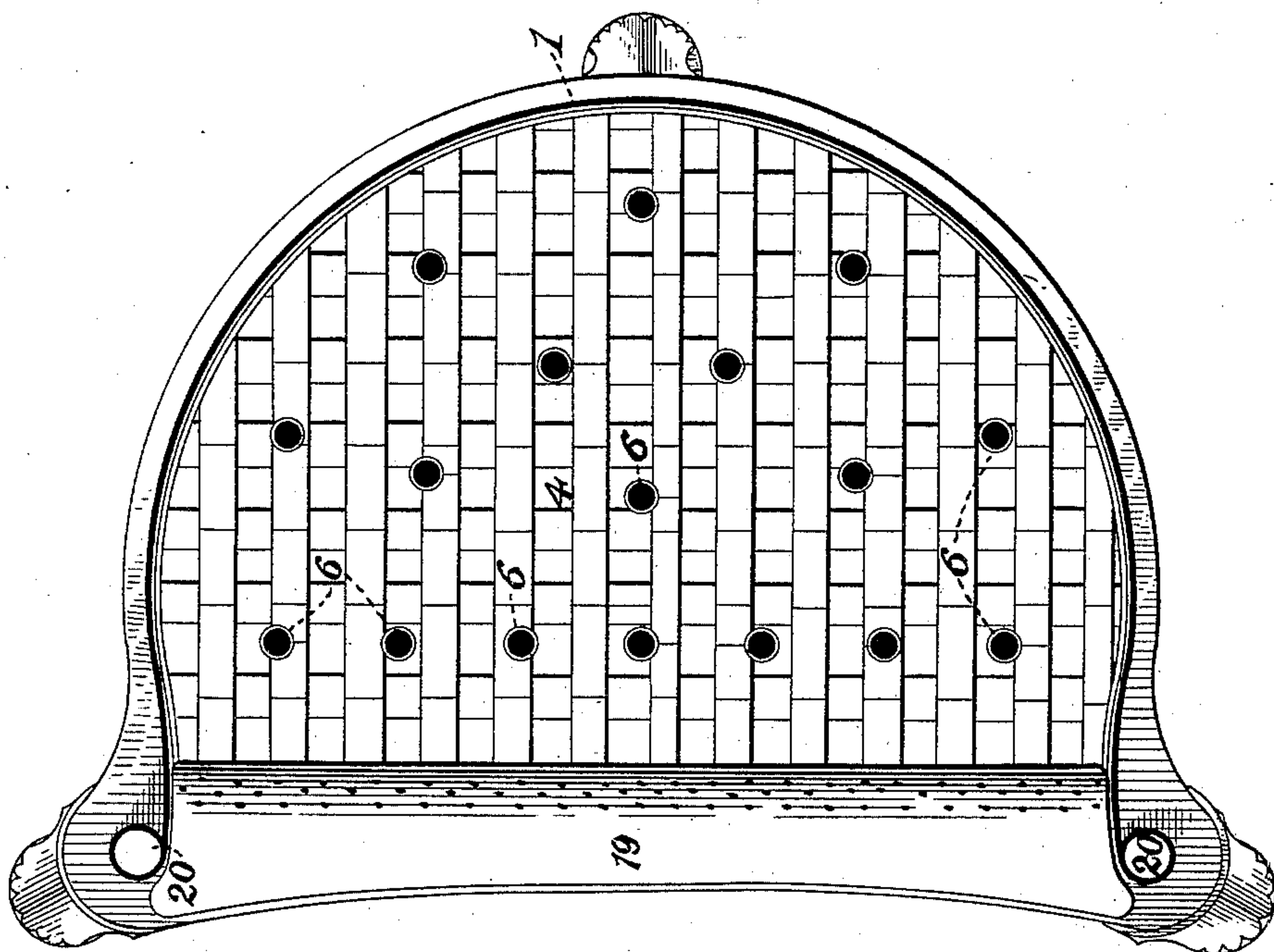


FIG. 3

WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM SWINDELL, OF ALLEGHENY, PENNSYLVANIA.

## GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 409,763, dated August 27, 1889.

Application filed March 19, 1888. Serial No. 267,691. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM SWINDELL, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Gas-Stoves, of which improvements the following is a specification.

The invention described herein relates to certain improvements in heating-stoves or fire-places wherein a gaseous fuel is employed; and the invention has for its object such a relative arrangement of burner and heat absorbing and radiating surfaces that a large proportion of the heat from the flame and products which are caused to flow in contact with or in close proximity to such heat absorbing and radiating surfaces is abstracted by such surfaces and subsequently given off; and to this end the invention consists in the construction and combination of devices or elements, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of a stove embodying my invention. Fig. 2 is a sectional plan view, the plane of section being on the line  $x x$ , Fig. 1; and Fig. 3 is a view similar to Fig. 1 of a modified construction.

For convenience I have shown my invention embodied in an open-front stove, the shell 1 thereof being formed of cast or sheet iron. At a suitable height above the bottom 2 of the stove is arranged a frame 3, inclining downwardly from the back to the front, as shown in Figs. 1 and 3. This frame 3 is designed to support a heat-absorbing material, as fire-brick, pieces of iron or other suitable material 4, the former, arranged as checker-work, being shown in Fig. 1, and a tile provided with recesses or grooves for increasing the exposed surface being shown in Fig. 3. When tiles are employed, as in Fig. 3, the supporting-frame 3 may be dispensed with and the tile supported at its ends and back by a flange 5, which also serves as a support for the frame when used.

If desired, openings 6 may be formed through the absorbing material and frame, as shown in Fig. 1, to permit of the passage of heat down into the space between the

frame and bottom 2 of the stove, whence the heat escapes by openings 7 formed through the shell.

Above the frame 3, I arrange the burner 8 at an upward inclination from the back of the stove, as shown. This burner, having its lower side perforated, extends entirely across the stove and from the rear wall nearly to the front, and is supported in place by flanges or other suitable projections 9 on the ends and back wall of the shell. In lieu of the box or case like burner shown, other suitable forms—as, for example, such as are described and shown in Letters Patent No. 366,701, granted to me July 19, 1887—may be used, it being only essential that the flame should be projected downwardly, and that the products of combustion should flow forward and up over the front edge of the burner.

Above the burner 8, I arrange a second heat-absorbing body 13, consisting of a frame 10, inclining downwardly from the back toward the front of the stove, as shown, and a mass of fire-brick or pieces of iron carried or supported by said frame. This frame is supported at its ends and rear edges by flanges or projections 12 on the shell and at its front side by the burner 8. The heat-absorbing material may be arranged in the form of checker-work, as shown in Fig. 1; or a recessed or grooved tile or plate, as shown in Fig. 3, may be employed.

Provision is made for the escape of the products of combustion by forming openings 14 through the heat-absorbing plate or body 13 into the space between the plate 13 and the burner 8 and thence through the flue 15; or, in lieu of such construction, a flue 16 may be formed at the top of the stove, communicating at its rear end with the interior of the shell through an opening whose size can be regulated by a sliding plate 11, as shown in Fig. 3, and provided at its front end with an exit 17.

It will be observed that in both forms of stove the flame is first caused to impinge upon the lower heat-absorbing plate and then pass up over the front edge of the burner and finally along the upper heat-absorbing plate to the escape-flue. As is customary in using gaseous fuel, air is mingled therewith prior to its entrance into the burner, and hence both



the gas and air are highly heated prior to combustion in both forms of stove, but more especially so in the construction shown in Fig. 1, as both sides of the burner are exposed to the heated products of combustion.

Along the front of the stove I provide a tank-like fender 18 for the reception of water, said fender being provided with a perforated and removable cover 19, so as to permit of the escape of vapor and the filling of the tank. Additional outlets for the escape of vapor are formed by the tubular pillars 20, located at the sides of the stove and connecting at their lower ends with the tank. The upper ends of these pillars are provided with movable lids 21.

The heat-absorbing plates and burner collectively or individually may be applied to an open fire-place or other form of heating device. It is not essential to the invention herein that the burner and heat-absorbing plates or bodies should be inclined or relatively arranged as herein shown, as I consider any other arrangement of said parts wherein a large proportion of the heat may be absorbed from the flame or products of combustion as within the scope of my invention.

I claim herein as my invention—

1. The combination of a hollow plate burner provided with perforations on its under side and so arranged within a stove or fire-place that the products of combustion will be caused to pass over the front edge of the burner, and a heat absorbing and radiating plate or body arranged below the burner, substantially as set forth.

2. The combination of a hollow plate burner inclined upwardly from the back of a stove or fire-place toward the front thereof, and provided with perforations for the escape of gas in its under side, and a heat absorbing and radiating plate or body located below the

burner and inclined downwardly from the back of the stove or fire-place toward the front thereof, substantially as set forth.

3. The combination of a hollow plate burner provided with perforations in its under side, a heat absorbing and radiating plate or body located below the burner, and a second heat absorbing and radiating plate or body arranged above the burner and in such relation to the escape-flue that products of combustion are caused to traverse said plate or body, substantially as set forth.

4. The combination of a hollow plate burner provided with perforations on its under side, a heat absorbing and radiating plate or body located below the burner and a second heat-absorbing plate or body provided with openings therethrough and arranged above the burner in such relation to the escape-flue that the products of combustion are caused to pass through said openings, substantially as set forth.

5. The combination of a hollow plate burner inclined upwardly from the back toward the front of the stove or fire-place and provided with perforations on its under side, a heat absorbing and radiating plate or body located below the burner and inclined downwardly from the back toward the front of the stove or fire-place, and a second heat absorbing and radiating body provided with openings therethrough, said plate resting upon the front edge of the burner and inclining upwardly to the back of the stove, thereby forming a chamber having an exit-flue for the escape of the products of combustion, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM SWINDELL.

Witnesses:

DARWIN S. WOLCOTT,  
R. H. WHITTLESEY.