

(No Model.)

3 Sheets—Sheet 1.

L. FRIDLUND.  
STOVE.

No. 551,952.

Patented Dec. 24, 1895.

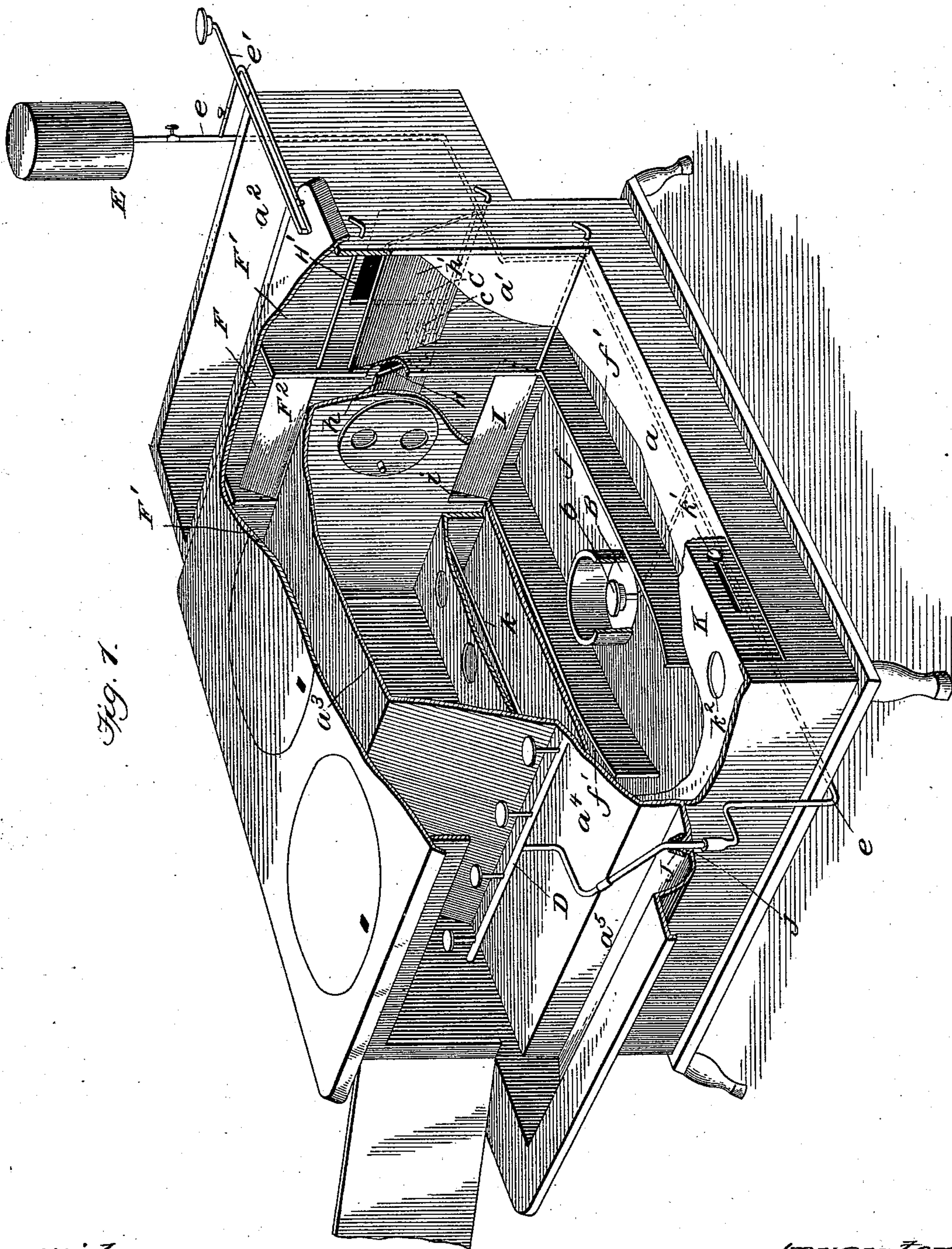


Fig. 1.

Witnesses  
Edwin L. Bradford  
Ralph Wornell

Inventor  
Lewis Fridlund  
By  
Patrick O'Connell  
Attorney

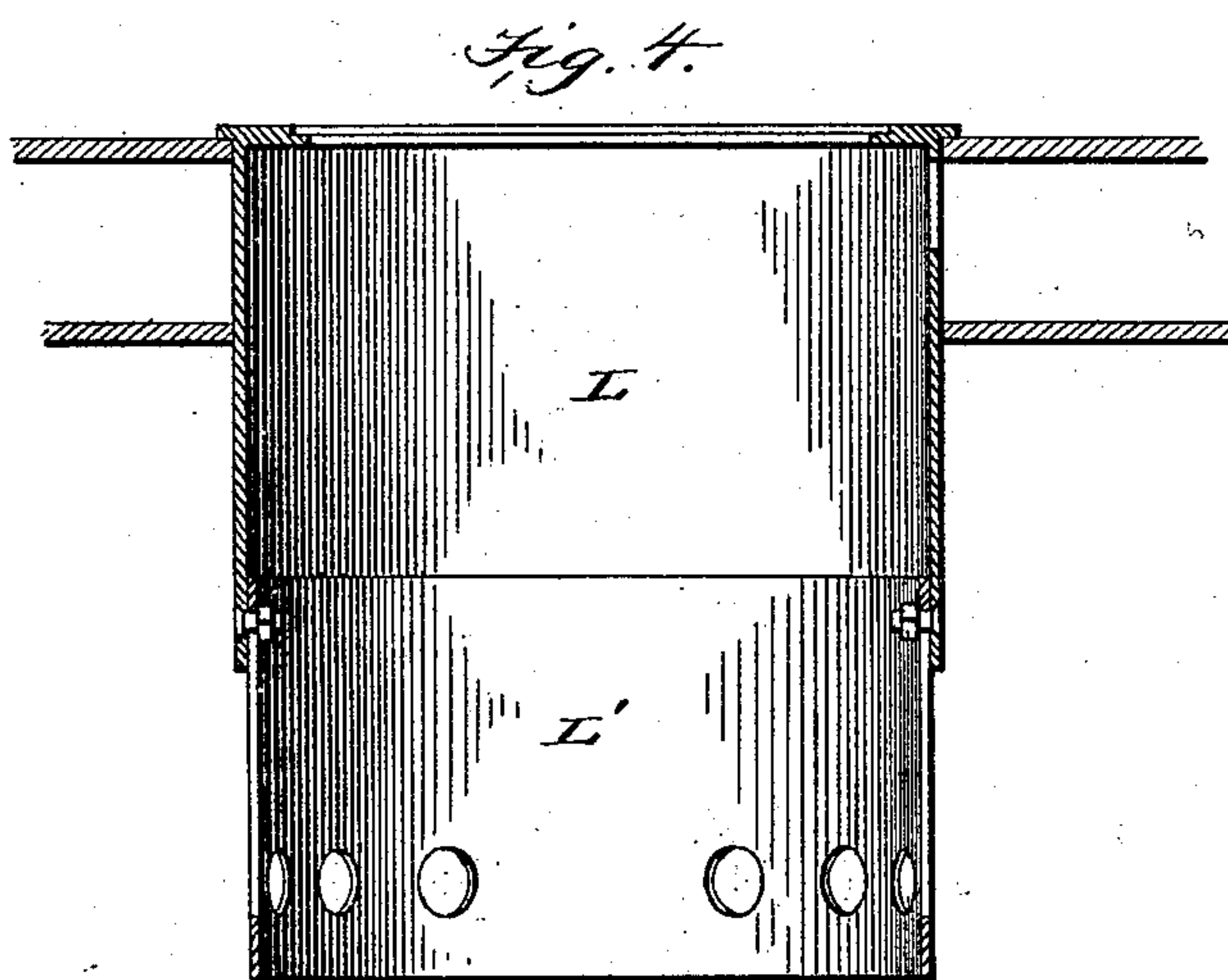
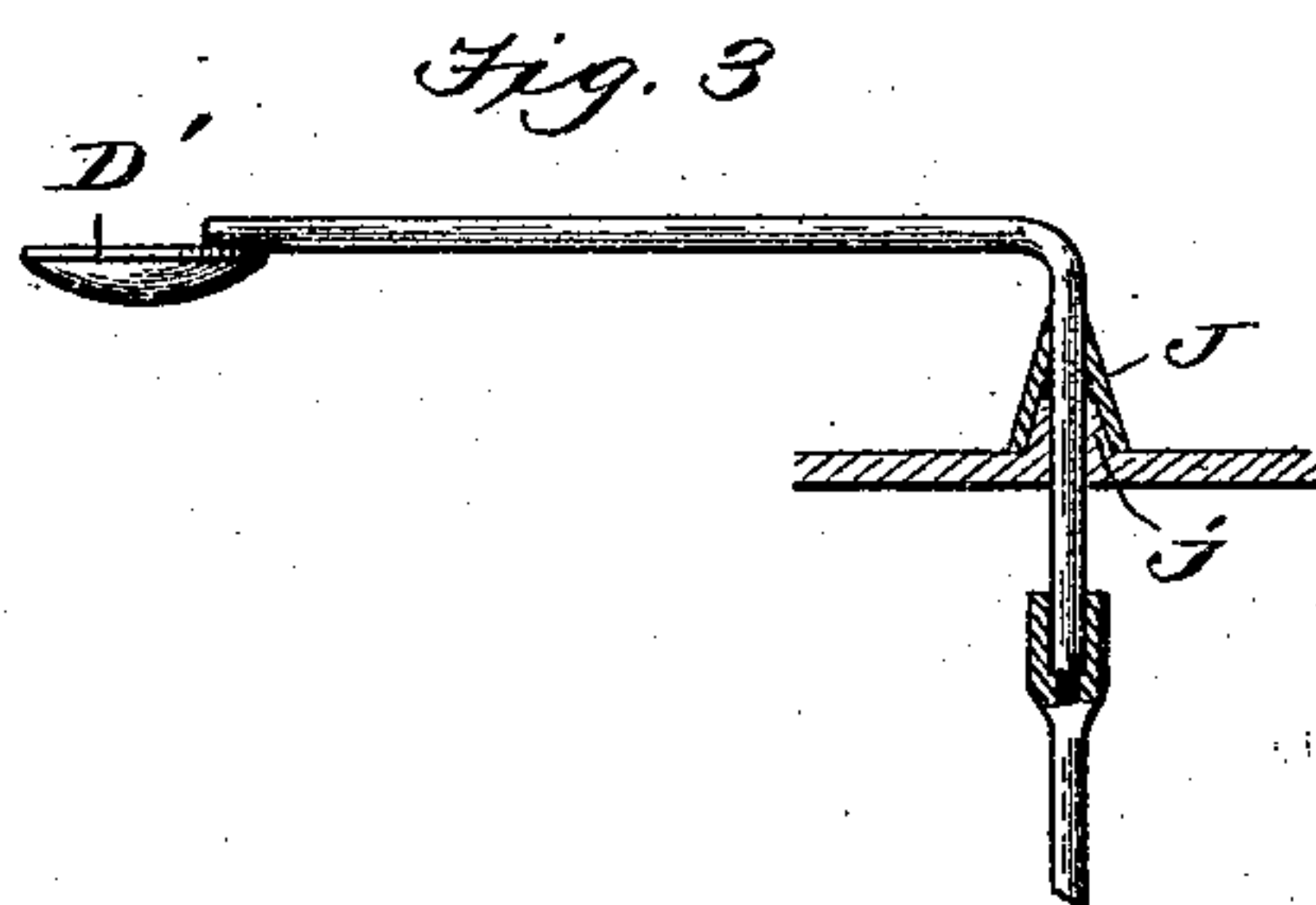
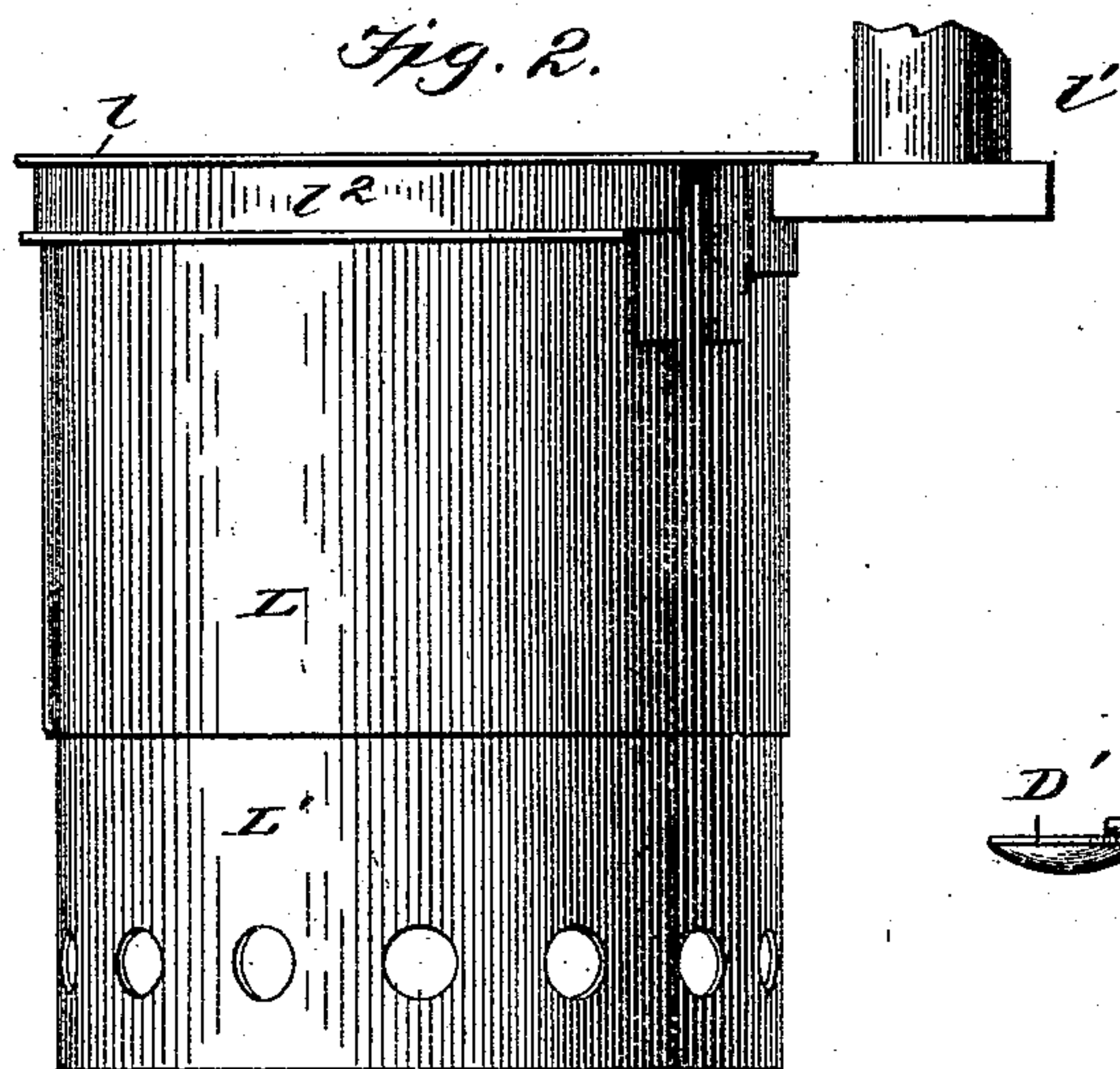
(No Model.)

3 Sheets—Sheet 2.

L. FRIDLUND.  
STOVE.

No. 551,952.

Patented Dec. 24, 1895.



Witnesses

Edwin L. Bradford

Ralph Womule

Inventor

Lewis Fridlund

Patrick O'Connell

Attorney



(No Model.)

3 Sheets—Sheet 3.

L. FRIDLUND.  
STOVE.

No. 551,952.

Patented Dec. 24, 1895.

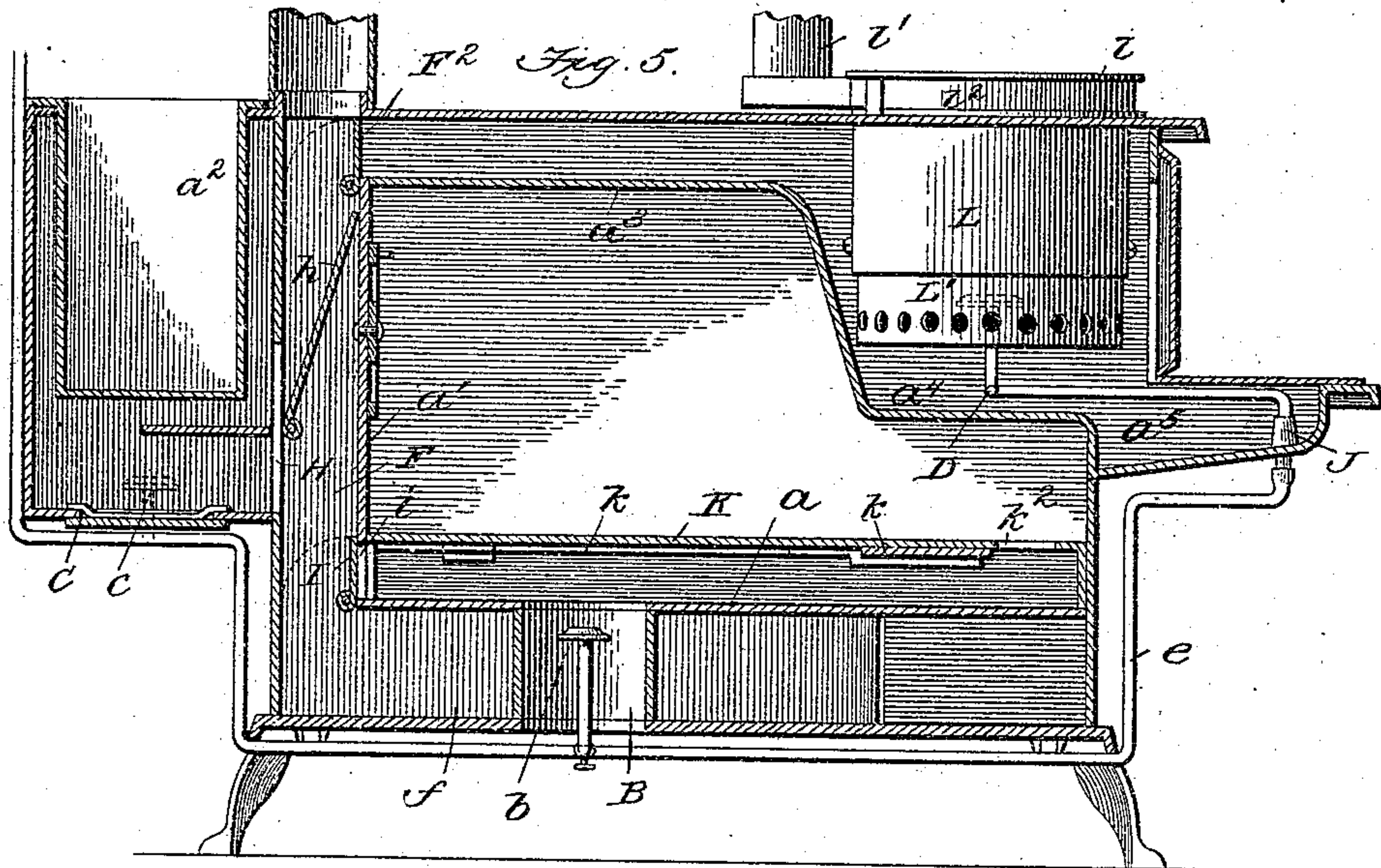


Fig. 6.

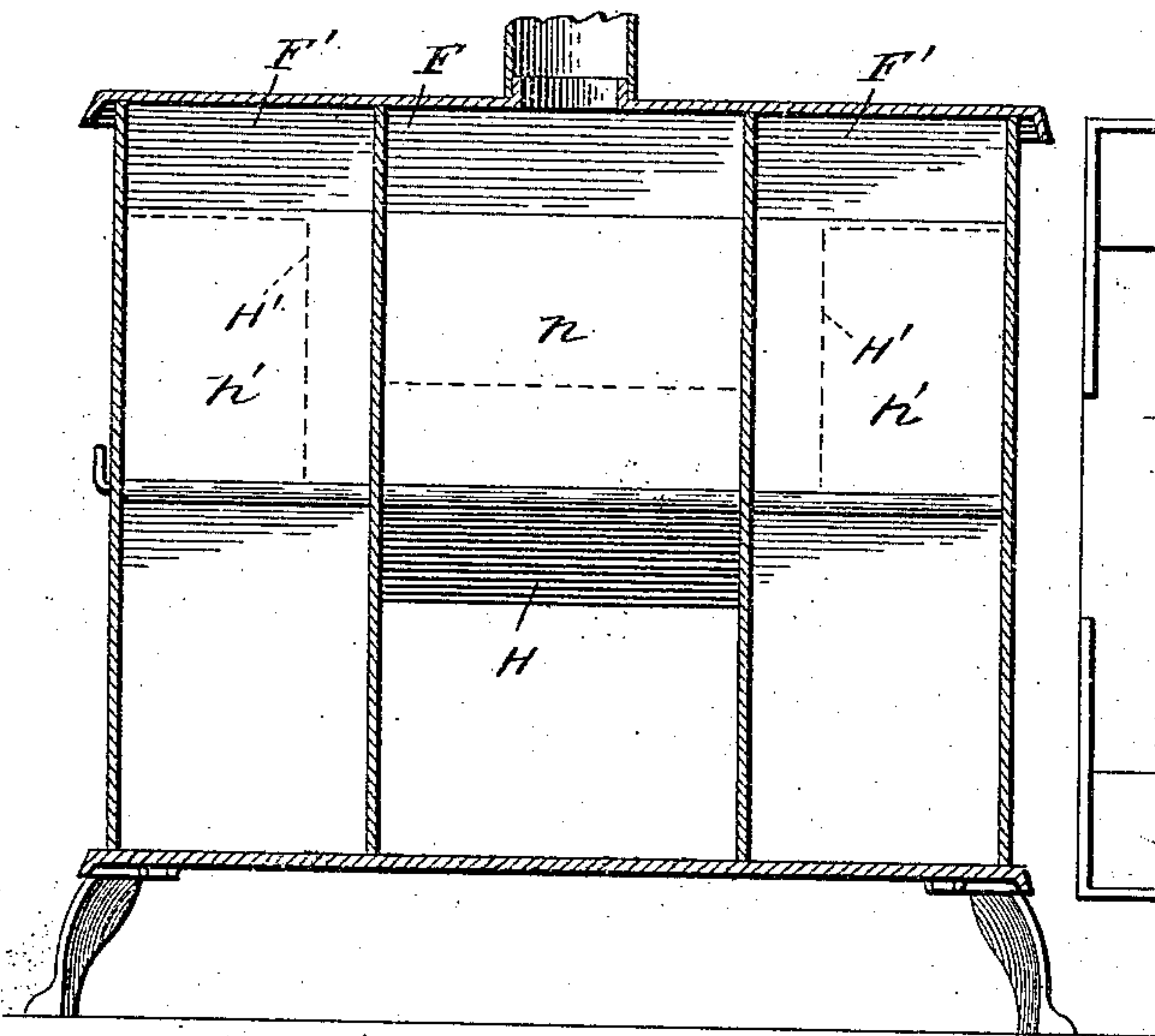
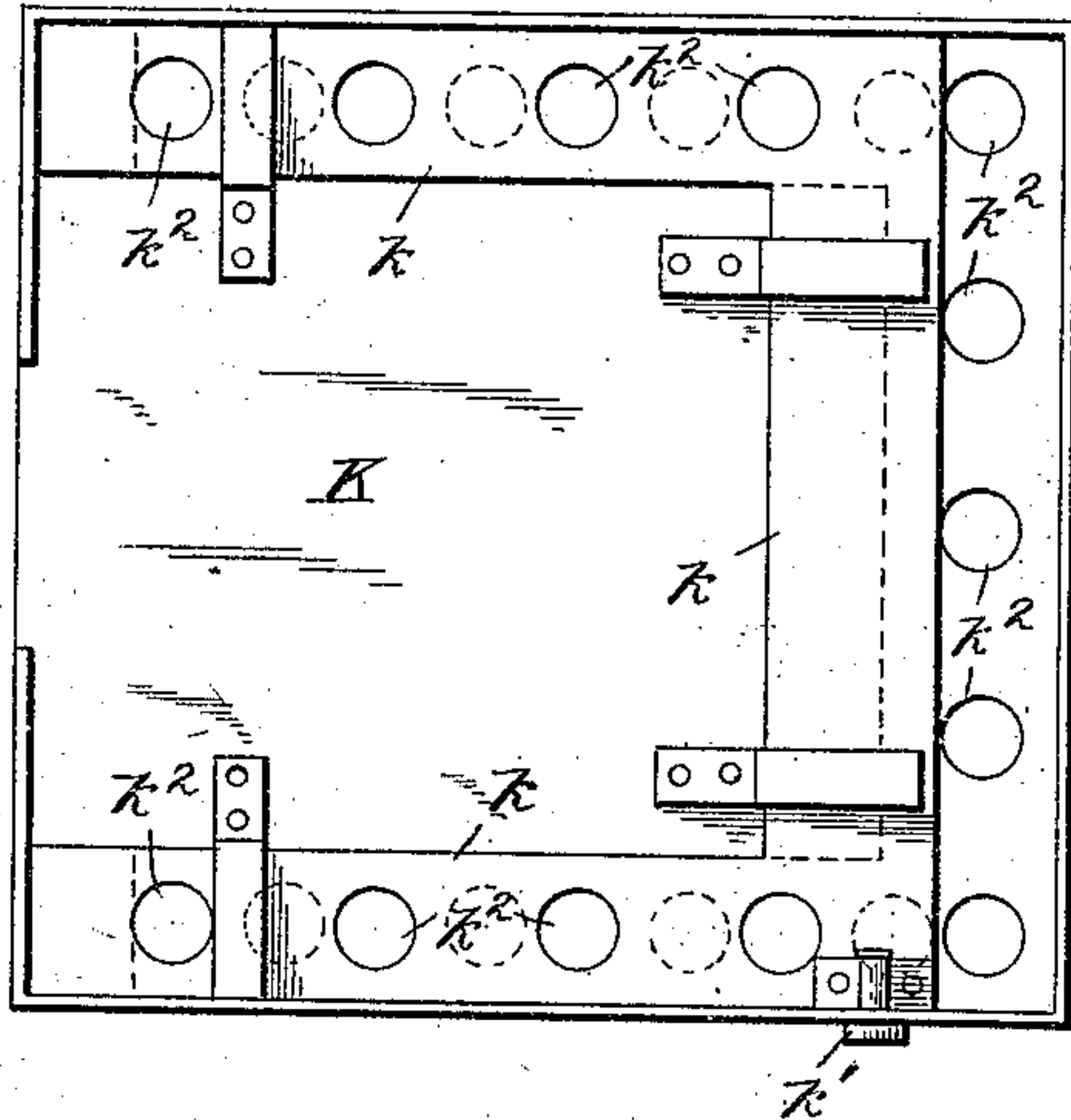


Fig. 7.



Witnesses:

Edwin L. Bradford  
Ralph Wormelle

Inventor  
Lewis Fridlund  
per  
Patrick O'Farrell  
Attorney



# UNITED STATES PATENT OFFICE.

LEWIS FRIDLUND, OF WILLMAR, MINNESOTA.

## STOVE.

SPECIFICATION forming part of Letters Patent No. 551,952, dated December 24, 1895.

Application filed April 9, 1894. Serial No. 506,925. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS FRIDLUND, a citizen of the United States of America, residing at Willmar, in the county of Kandiyohi and State of Minnesota, have invented certain new and useful Improvements in Stoves, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to stoves and attachments thereto, whereby a gasoline and wood burning stove are combined in one structure, and whereby the use of kindling in starting the fire is obviated.

15 The principal feature of the improvement is a direct connection of the gasoline-burner with the smoke-pipe or chimney, whereby all smell and noxious gases are carried off without polluting the air of the room in which the burner or stove is located. This connection  
20 between the burner and the smoke-outlet is provided irrespective of the location or application of the said burner.

The improvement will be set forth herein-  
25 after, and more particularly pointed out in the claims and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a combined wood and gasoline stove embodying the in-  
30 vention, parts being broken away to show the interior arrangement of the dampers and the relative disposition of the burners. Fig. 2 is a detail view of the hood for collecting the gases. Fig. 3 is a detail view of the connection between the lower wall of the ash-pit of the stove and the oil-pipe, showing the means  
35 for preventing the ashes falling through. Fig. 4 is a modified form of stove-top, showing a space for the escape of gases. Fig. 5 is a vertical central section of the stove shown in Fig. 1, having the gas-collecting hood in position and connected with the chimney. Fig. 6 is a detail view showing the hollow rear wall and the various heat and draft controlling dampers operating in connection therewith. Fig.  
40 7 is a detail view of the false bottom of the oven, showing the damper-controlled openings in its edges.

The stove A is of the usual type for burn-  
50 ing wood and coal, having a hollow base  $a$  and a rear wall  $a'$ , a water-reservoir  $a^2$ , an oven  $a^3$ , a fire-pot  $a^4$ , and a projecting ash-pit  $a^5$ .

An opening B is provided in the bottom of the oven and is lined by a tubular section which joins the top and the bottom plates. A gaso- 55 line-burner  $b$  is provided for the opening B. An opening C is provided in the bottom of the shell which surrounds and supports the reservoir  $a^2$  and receives a burner  $c$ . A burner D, removably inserted in the fire-pot, supplies 60 the heat necessary for cooking and other purposes. A tank E, located at the rear of the stove, supplies the hydrocarbon to the burners  $b$ ,  $c$ , and D through the pipes  $e$ , which have suitably-disposed valves to control the flow of 65 the oil. A branch pipe  $e'$  is adapted to swing horizontally over the stove and is provided with a burner, which when not required is swung back out of the way.

The rear hollow wall  $a'$  has two partitions 70 to form middle and side flues F F', respectively. The hollow base  $a$  has similar partitions, which form corresponding flues  $f$   $f'$ , which communicate at their front ends. A damper F<sup>2</sup> is adapted to close the upper end 75 of the flue F and cause the heated air to pass down through the side flues F'  $f'$  and back through the middle flues  $f$  F before escaping through the smoke-pipe G. When the damper F<sup>2</sup> is down the gases have a direct pas- 80 sage to the smoke-pipe. Openings H' lead from the side flues F' into the shell of the reservoir  $a^2$ , and a corresponding opening H affords communication between the said shell and the middle flue F. Dampers  $h$   $h'$  mount- 85 ed on and operated by a single rod open and close the said openings H H' to deflect the heat into the reservoir when it is required to heat the water from the heat generated in the fire-pot without using the burner  $c$ . An open- 90 ing  $i$  controlled by dampers I permits the heat from the oven, when using the burner  $b$ , to pass into the water-reservoir shell and heat the water. This damper is only brought into play when it is required for any reason to 95 heat the water in the reservoir  $a^2$  from the burner  $b$ . At all other times this damper I is closed.

The opening in the bottom of the ash-pit, through which the oil-pipe passes, is sur- 100 rounded by an annular flange  $j$ . A corresponding flange J on the oil-pipe fits over the flange  $j$  and prevents the escape of ashes through the said opening.



When it is required to use the stove for wood or coal the burner D is detached from the pipe and removed from the fire-pot; and to obviate the use of kindling in starting the fire a cup D' is provided and attached to the pipe in such a manner as to swing beneath the grate for use, the oil being permitted to flow slowly into the said cup and ignited. After the fire is started the flow of oil is shut off and the cup swung out of the way.

A false bottom K having flanged edges is placed in the oven and has a series of openings along the front and side edges through which the heat from the burner *b* escapes into the oven. A damper K operated by a button *k'* from the side is provided to control the openings *k*<sup>2</sup> in the false bottom. This false bottom is used only in connection with the burner *b* and is removed when the stove is heated by wood or coal. The rear flange is cut away opposite the opening *i* to permit the heat to pass into the water-reservoir shell.

The hood L for collecting the gases and odors is cylindrical and provided at the top with an outer flange *l* which supports the device in a stove-hole. An escape-pipe *l'* is attached to one side to carry off the odors and gases. This pipe *l'* is reversible and removable, being reversed if the smoke-pipe is below the top of the stove and removed if the device is set in the stove-hole, so that the flange *l* rests on the top of the stove. A detachable band *l*<sup>2</sup> having an outer flange at its lower edge is provided to support the hood in the stove-hole when the smoke-pipe has connection with the escape-pipe *l'*. The hood is provided with a telescoping-section L' which is provided at its lower edge with a series of openings. This section is connected by bolts with the hood, the bolts passing through vertical slots in the said section. Should the burner be at a distance from the stove-top greater than the length of the hood the section L' can be drawn down sufficiently to lengthen the hood and encompass the burner. Moreover by this arrangement the hood can be lengthened or shortened as required to adapt it to different makes and sizes of stoves. The top of the hood is provided with rings and a cover to adapt it to different sizes of cooking utensils. This hood not only collects the gases but also concentrates the heat.

In Fig. 4 is shown a hollow stove-top, the

space between the two plates being connected with the smoke-pipe or chimney to carry off the gases.

When using the stove for wood or coal the burner in the fire-pot is removed and the openings B and C are closed by suitable caps, as it is not necessary to remove the burners *b* and *c*. The false bottom K is also removed. The heat currents are controlled by the dampers, the same as for the burners.

It is to be noted that the rear wall of the oven has a ventilator M which is opened when starting the burner *b* to permit the escape of smoke and gases and which is closed after the burner is started.

No particular style of burner is shown and described, as any of the burners on the market are adapted for the purpose.

The space between the rear wall of the oven and the opposing wall of the stove proper is designated herein and referred to in the claims as the "rear hollow wall" *a'*, and the space between the oven bottom and the lower plate is similarly designated as the "hollow base" *a*<sup>2</sup>. By referring to these parts in the manner set forth simplicity and conciseness of statement are attained.

I claim—

1. In a cooking stove of ordinary construction provided with the usual fire-pot and oven, having registering opening in the oven and stove bottom, a tubular section extending across the space between the said bottom and connected at its ends with the edges of the said openings, and a hydrocarbon burner located in the said tubular section to heat the oven in conjunction with or independently of the ordinary means, substantially as described.

2. An ordinary cook stove having a fire pot and oven, a burner located in the lower part of the oven, a false bottom placed in the oven over the burner and having openings near its edges, and a damper composed of strips placed opposite the edges having the openings, said strips being connected to operate in unison, substantially as described.

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

LEWIS FRIDLUND.

Witnesses:

OLOF OLSON,  
CHARLES E. LARSON.