

John Louis Kastendike's
Imp^d Cooking Stove.

74228

PATENTED

FEB 11 1868

Fig. 4.

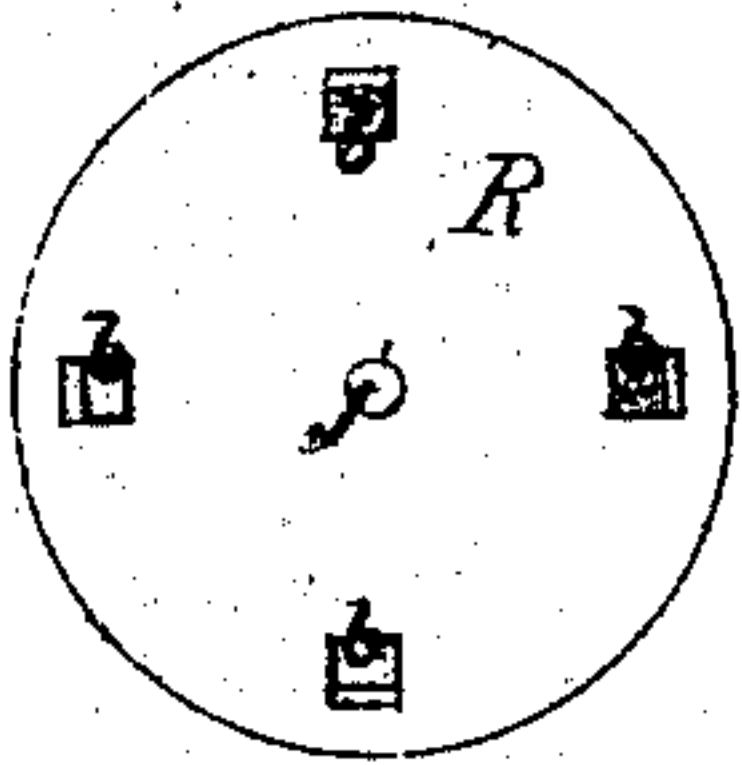


Fig. 5.

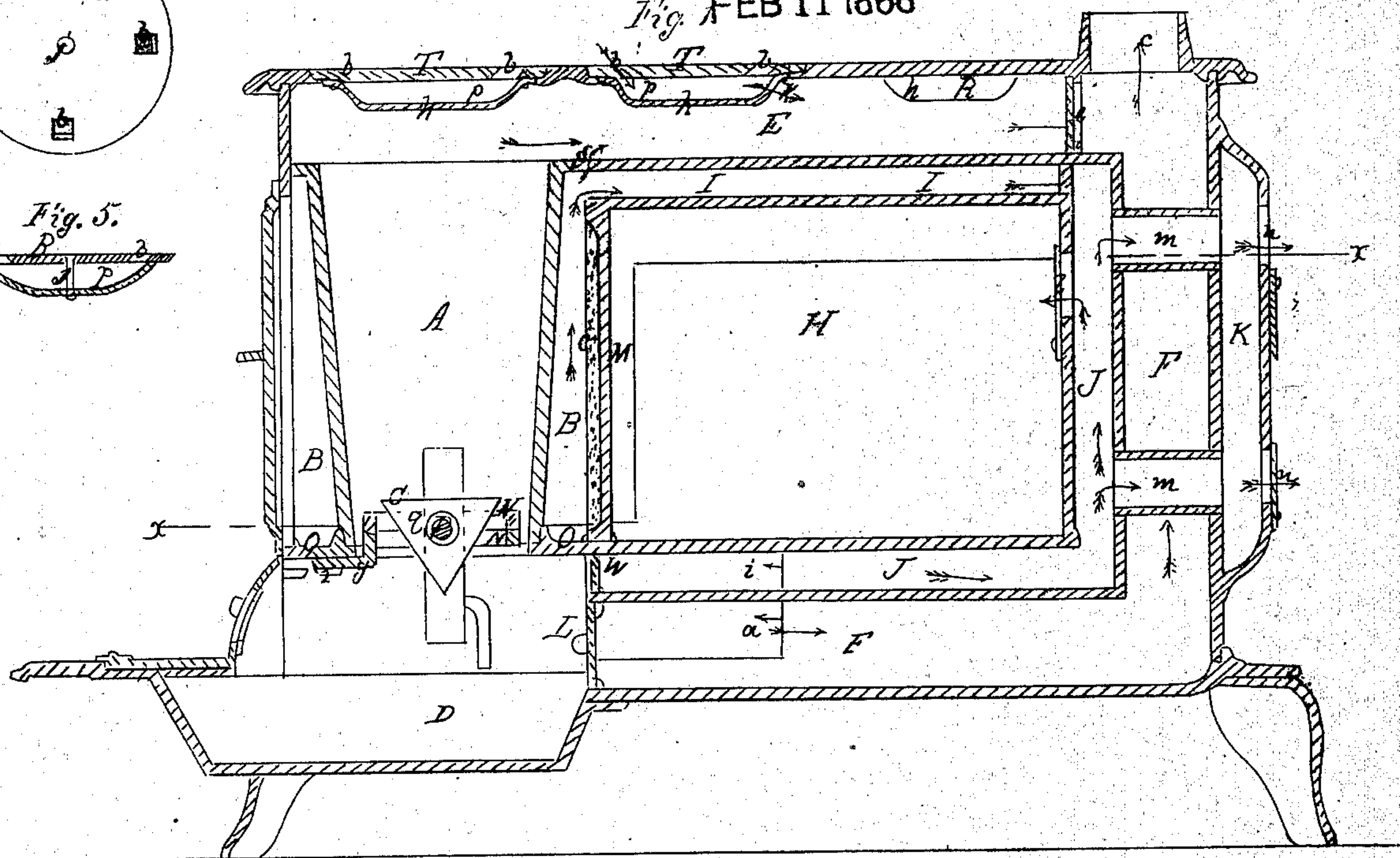
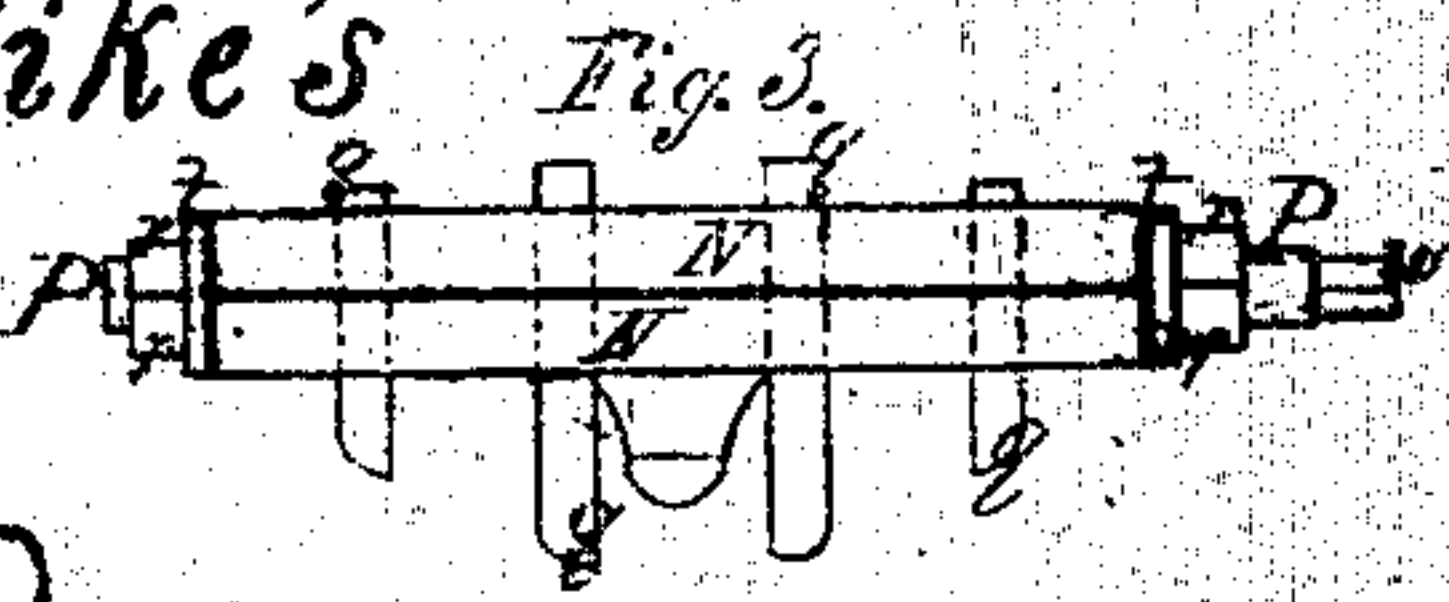
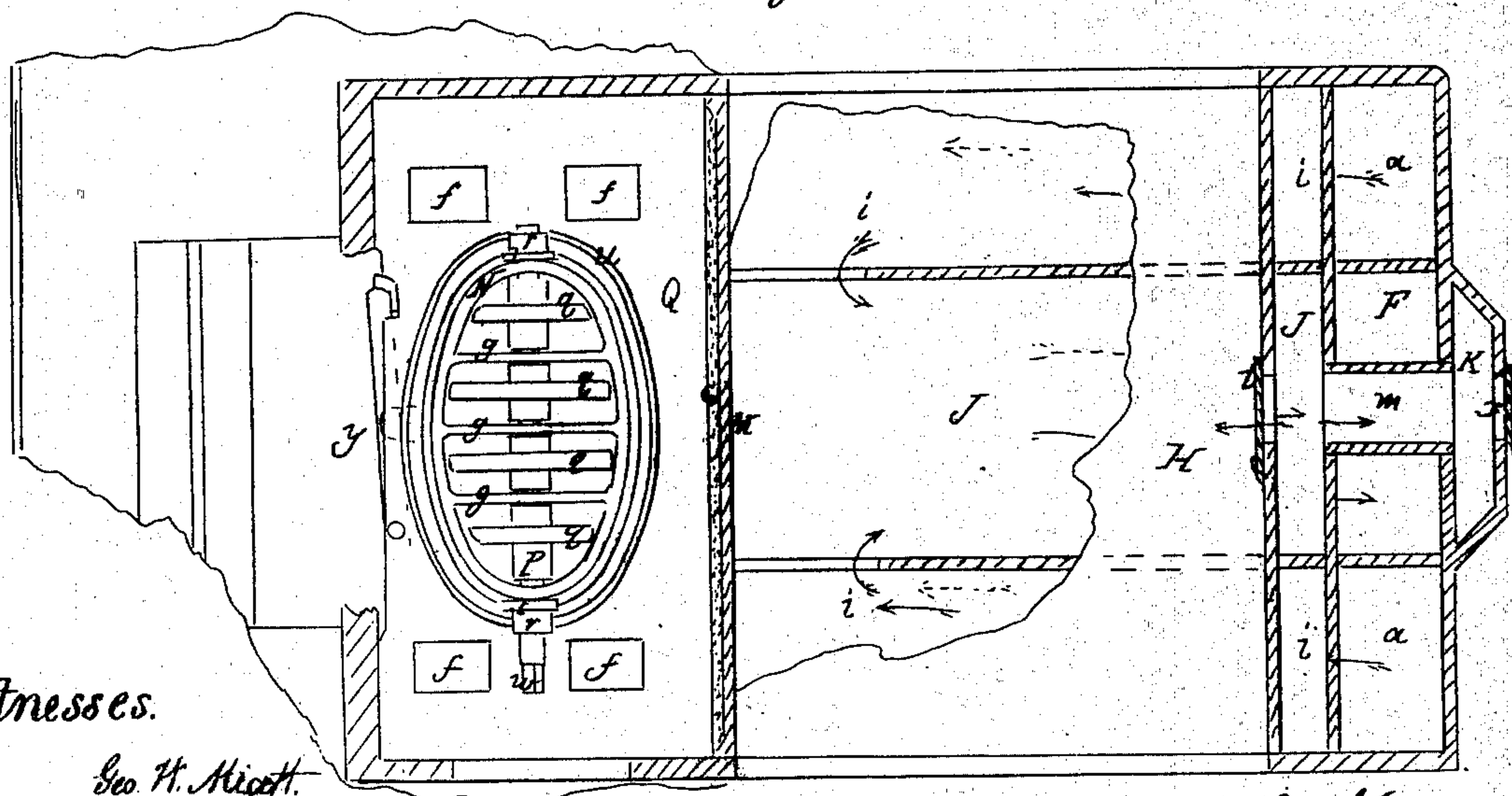


Fig. 2.



Witnesses.

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JOHN LOUIS KASTENDIKE, OF ALBANY, NEW YORK.

Letters Patent No. 74,228, dated February 11, 1868.

IMPROVEMENT IN COOKING-STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. LOUIS KASTENDIKE, of the city and county of Albany, and State of New York, have invented certain new and useful Improvements in Cooking-Stoves; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a central longitudinal vertical section of my improved stove.

Figure 2 is a horizontal section in plane of line *x x*, fig. 1.

Figure 3 is a side elevation of the fire-grate detached.

Figures 4 and 5, a plan and a sectional view of one of the covers detached.

Like letters of reference designate corresponding parts in all the figures.

My invention consists of a hot-air chamber surrounding the fire-pot, with hot-air flues leading therefrom, provided with suitable valves for directing and regulating the escape of the hot air, in connection with the smoke-flues which surround the air-flues; also in the construction and arrangement of a revolving fire-grate, and in the manner of constructing the covers and centre-pieces, all substantially as hereinafter set forth.

In the drawings, A represents the fire-pot, surrounded by a hot-air chamber, B; C, the revolving fire-grate, and D the ash-pit beneath. E is the main smoke-flue at the top of the stove, which divides at the rear into two corner flues, *a a*, through which the products of combustion pass to the bottom of the stove and under the oven, where they unite in a central return-flue, F, from which they escape into the smoke-pipe at the opening *c*, at the top of the stove, in the ordinary manner, as shown by red arrows. When not required for heating the oven or warming the room, the products of combustion may be permitted to pass from the main flue E through an aperture, *e*, controlled by a damper, directly into the smoke-pipe, fig. 1. The hot-air chamber B is supplied with air through openings *f f*, in the bottom of the stove on each side of the ash-pit. As the air becomes heated it rises over the top of the oven H, and thence, in a course corresponding with that of the smoke, flows through a flue, I, to the back of the oven, where it divides and passes through side flues *i i*, down and under the oven, and thence into a central return-flue, J, which re-conducts it to the back and top of the oven, as shown by black arrows, where it is allowed to escape through a valve, *l*, into the oven, or through a horizontal flue or flues, *m m*, into a vertical flue, K, whence it may be let into a warming-oven, through suitable valves, *n n*, or into both ovens, as required. If preferred the hot air may be let into the oven, through a suitable valve, at the bottom, and allowed to escape through valve *l* into the flue again. A portion of the hot air is permitted to escape through small openings, *s s*, fig. 1, into the smoke-flue E, to aid in the combustion of the gases generated in the fire-pot, which might otherwise pass away unconsumed. L is a plate or door closing the front end of the return-smoke flue F, through which access is had to the latter to clear it of the cinders that collect therein, which are readily raked into the ash-pit. W is a dust-damper, which, being opened while the grate is rotated, allows the dust to escape into the flues with other products of combustion, instead of into the apartment. The partition M, between the oven and hot-air chamber, I prefer to plaster with any suitable non-conducting material, *o*, to prevent the excessive heating of the front end of the oven.

The advantages of the first feature of my invention are as follows: The hot-air flues, by surrounding the oven, and intervening between it and the smoke-flues, serve as a space in which the heat from the smoke-flues is distributed and equalized, producing a more uniform temperature in the oven than can be attained by any other method with which I am acquainted. The hot air itself also assists in heating the oven, and by letting a portion through the valve *l* into the oven, a most perfect ventilation thereof is obtained. It also enables the requisite temperature of the warming-oven to be readily maintained, by allowing it to escape therein through the valves *n n*.

The grate C is constructed in the following manner: N N is an oval frame of the form of the base of the fire-pot, provided with a number of cross-bars, *g g*, at a distance apart equal to about twice that between the bars of an ordinary grate. This frame is cast in halves, cut by a horizontal plane, between which is arranged an axis, P, in line of the major diameter, consisting of a number of triangular plates, *q*, arranged vertically, as shown, one in each of the spaces between the cross-bars *g g*, and connected together at their centre, as represented in fig. 2. The end of each half of the frame N is cast with an extension, *r*, forming boxes for the ends

of the axis P. The halves of the frame are secured together by rings or washers, *t t*, which slip on over the boxes *r*, as shown in fig. 3. The grate is supported by the boxes *r*, resting in suitable recesses formed in the ledge *u* of the plate Q, which supports the fire-pot. One end, *w*, of the axis P, extends beyond the bearings *r*, and is fashioned to fit in the socket of any suitably-formed handle, by which the former is revolved, in raking down the fire, access being had thereto through a door made for the purpose. From the front side of the lower portion of the frame N extends outward, under the plate Q, an arm, *y*, which is locked up in place by a pivoted lever, *z*, as represented, by which the frame N is retained in its proper horizontal position.

The grate is dumped by swinging out the latch *z*, which, releasing the arm *y*, allows the frame to assume a vertical position, as shown in red lines, fig. 1. By rotating the axis P the triangular plates *q* rake down the cinders with great facility.

Another advantage of this construction is, that these plates being formed with three edges, either of which may be arranged uppermost, make the grate correspondingly durable. I do not, however, claim the grate formed of alternate rotating and raking-bars as my invention, nor the dumping-grate alone, but the two combined, with the triangular plates as described.

Another feature of my invention is the construction of the covers R and centre-pieces T, which I make of two thicknesses of metal. To the under side of each cover and centre-piece I attach a convex portion, *h*, of the size of the exposed under surface of each, so as to leave a space, *p*, between the two. This under portion may be secured to the covers by a single rivet, *j*, fig. 5, at the centre, and to the centre-pieces by one or more rivets at the edge or centre, as preferred. The centre plate *h*, attached to the centre-pieces, especially the back one, I provide with a hole, *k*, for the admission of air, as shown by the arrows, fig. 1, which serves to increase the draught by rendering the combustion of the gases more perfect. This feature of my invention enables the top plate of the covers and centre-pieces to be more readily cast, requiring only simple holes, *b b*, for the insertion of the handle, instead of the peculiarly-formed recesses that the ordinary modes of construction render necessary. The non-conducting spaces *p*, to and from which the air has free access through these holes *b*, prevent the upper plate of the covers and centre-pieces from becoming intensely heated, and consequently the injury and loss resulting from these parts warping and cracking from unequal expansion and contraction is avoided. The auxiliary plates *h* are not injuriously affected by these causes, as their convex form permits the necessary yielding without cracking.

It is well known that the most perfect combustion of the hydrocarbon gases generated from burning fuel is attained by supplying the flame at different distances with a requisite amount of air. This result I accomplish by means of the perforations *s* and the aperture *k*, in the convex plate of the back centre-piece, as before described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the hot-air chamber B, hot-air flues I *i i* J *m*, and valves *l n*, with the smoke-flues, substantially as set forth.

2. I also claim the axis P, provided with the triangular plates or "rakers" *q q*, in combination with the divided frame N N, arm *y*, and lever *z*, arranged and operating substantially in the manner and for the purpose specified.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN LOUIS KASTENDIKE.

Witnesses:

JOHN A. GOEWEY,
W. C. HOTALING.