2 Sheets—Sheet 1.

# M. E. A. W. EVARD.

## Cooking Stove.

No. 76,315. Patented April 7, 1868.

Fig. 1.

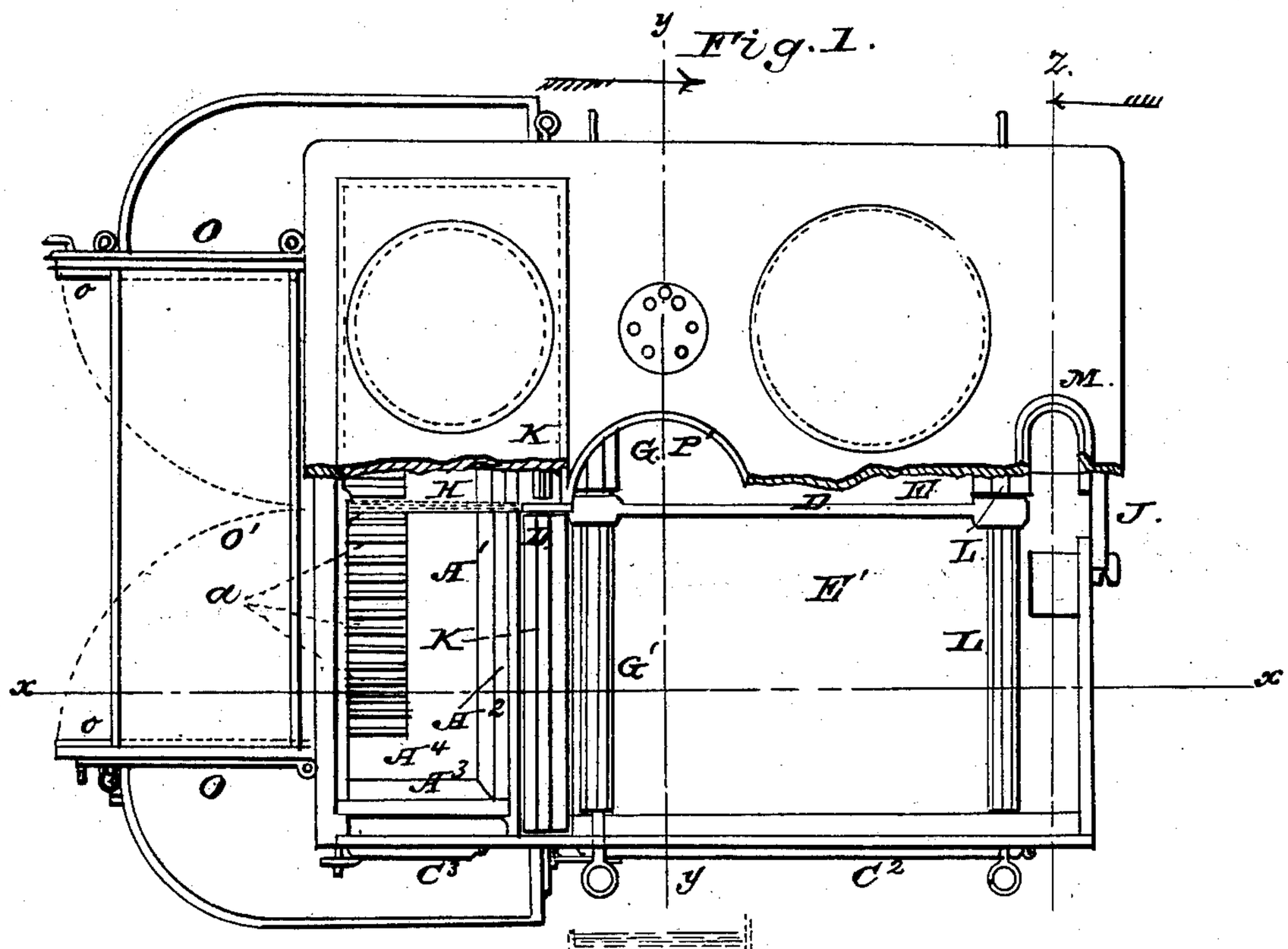
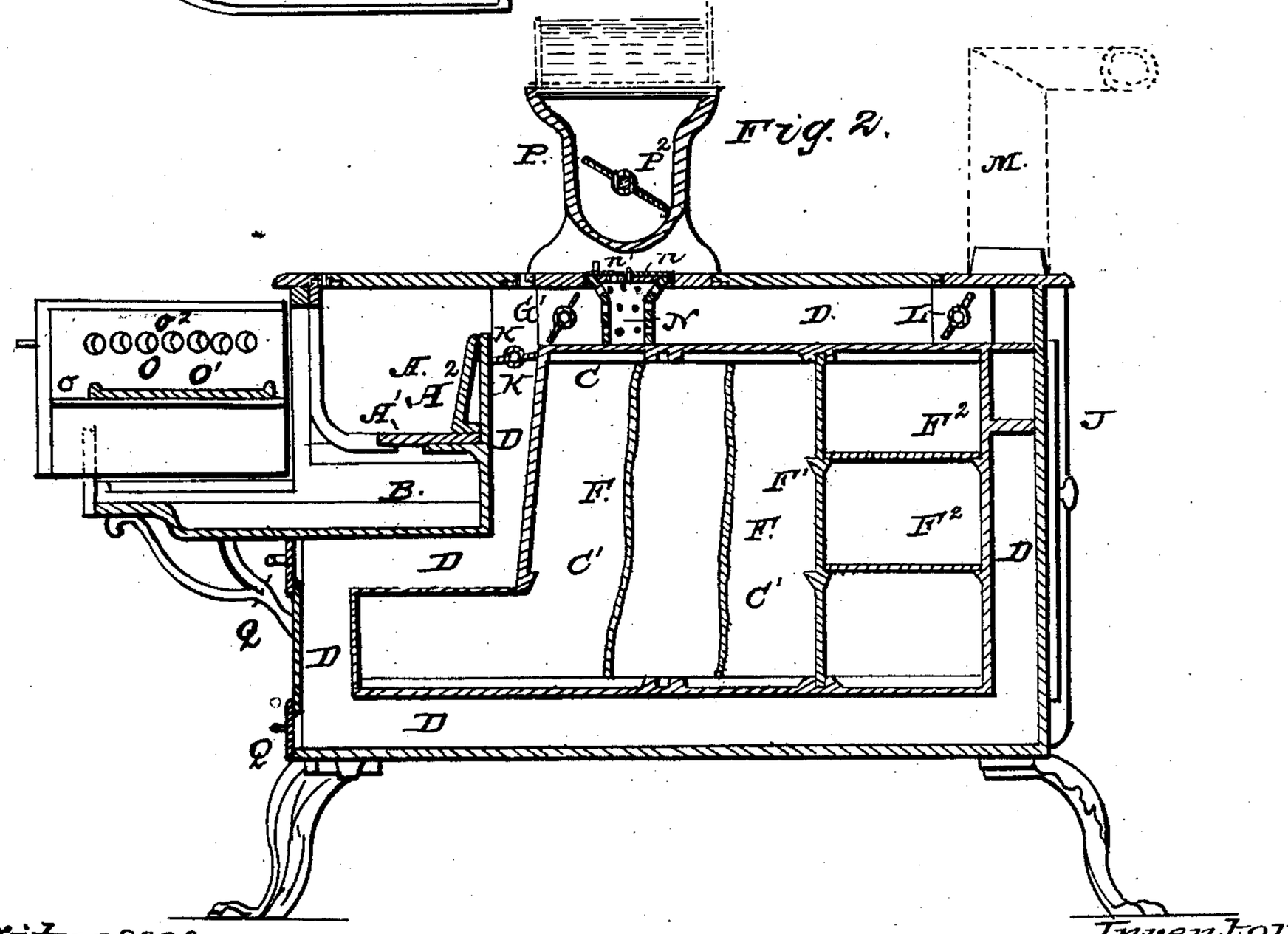



Fig. 2.

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2 Sheets—Sheet 2.

# M. E. A. W. EVARD.

## Cooking Stove.

No. 76,315. Patented April 7, 1868.

Fig. 4.

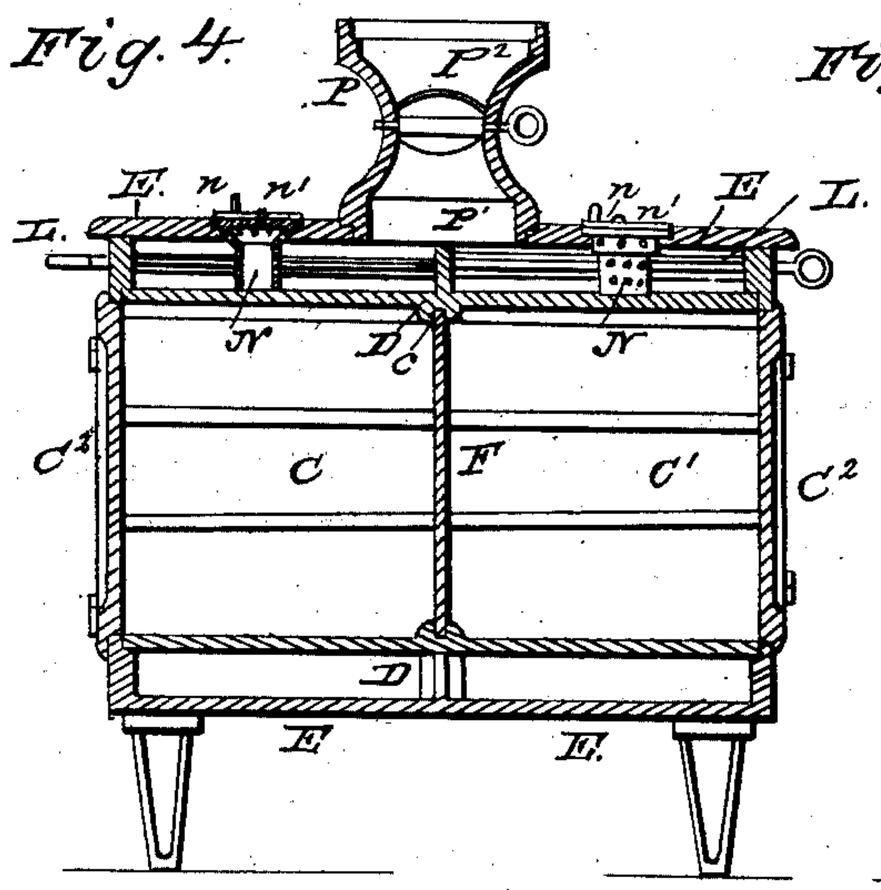



Fig. 5.

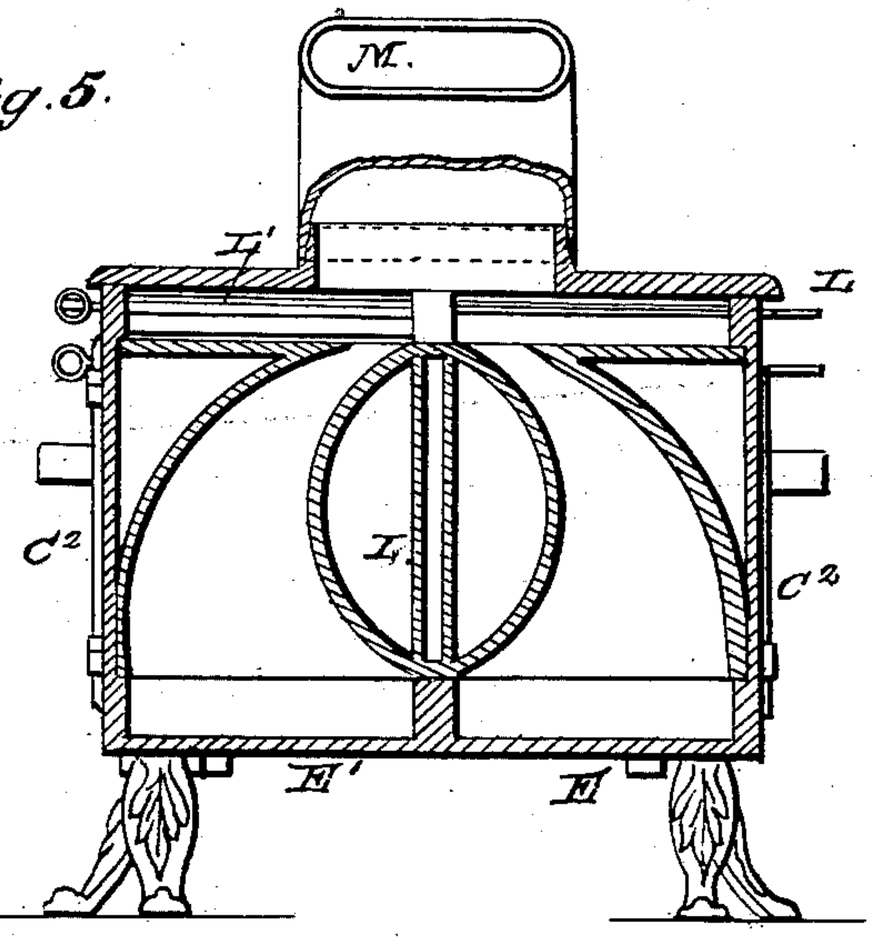
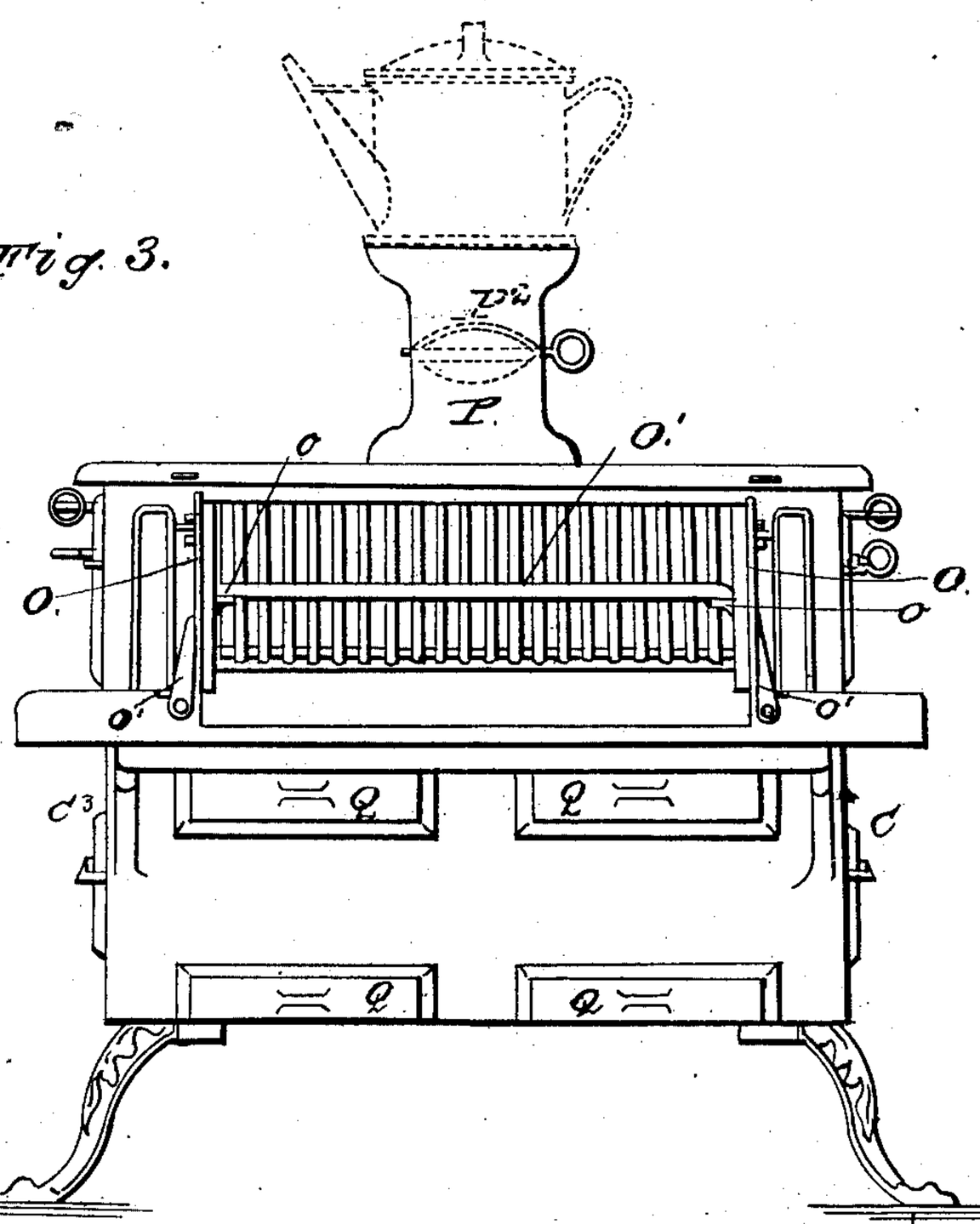



Fig. 3.

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# United States Patent Office.

MARY E. A. W. EVARD, OF LEESBURG, VIRGINIA.

*Letters Patent No.* 76,315. *dated April* 7, 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, MARY E. A. W. EVARD, of Leesburg, Loudon county, State of Virginia, have invented certain new and useful Improvements in Cooking-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings which form part of this specification.

My invention relates, first, to the provision of movable partitions, by means of which the oven may at will be divided and subdivided, so as to embrace any desired number of separate apartments, the ridges and cleats cast on the plates for their support imparting the necessary strength and rigidity to said plates, and thus obviating the necessity of separate strengthening-ribs on the flue-surfaces. It also relates to the employment of novel devices for distributing fresh air in the flues of the stove, to effect the consumption of the gaseous products evolved from the fuel. It also relates to a method of constructing the fire-box, whereby the upper portion of the fuel is kept in an active state of combustion, while the lower portion is burned with comparative slowness. It also relates to the provision of a movable shelf, to be supported on the front doors of the stove when opened, and to contain smoothing-irons, or whatever it may be desirable to keep warm by proximity with the fire. It also relates to the employment of a supplemental heater, having a heat-regulating damper, and mounted, when desired, upon one of the boiling-holes in the top plate, and serving to support kettles, boilers, coffee-pots, &c., whose contents are thus maintained at any desired temperature.

Figure 1 is a plan of a cooking-stove illustrating my invention.

Figure 2 is a vertical longitudinal section of the same on the line *x x*.

Figure 3 is a front end elevation of the same.

Figure 4 is a vertical transverse section on the line *y y*, fig. 1, and

Figure 5 is a vertical transverse section of the same on the line *z z*.

In the drawings, A is the fire-box, and B the ash-pit of the stove, both of which project backward into a niche in the front part of the oven, C $C^1$, as shown in fig. 2. The oven is surmounted by continuous flues, which are separate throughout their length and height by the continuous central partition D D, shown in figs. 1, 2, and 4. This partition D serves to form two independent flues, E E′, extending each continuously around the oven longitudinally. The oven is in like manner divided longitudinally by the central partition, F, into the compartments C $C^1$, respectively, and in fig. 2 the partition F is represented as broken away to expose the compartment C, the apartment $C^1$ being nearest the spectator. The flue E belongs to and conveys the heat around the compartment C, while the flue E′ pertains likewise to the apartment $C^1$.

By means of the dampers G G′ the heat may be confined to either compartment of the oven, as divided by the partitions D F in the manner above described, and by means of the partition H the fuel and fire may be confined in one side of the fire-box to correspond with the compartment of the oven which may be in use. The partition F is fitted to slide in the grooves in the ridges *c c*, cast on the top and bottom plates of the oven, and is by said ridges held in position when in use. The oven may be subdivided by means of the vertical and horizontal partitions $F^1$ $F^2$, supported respectively by grooved ridges, *f*, and ledges, $f^1$ $f^2$, as represented in fig. 2. In this way the entire oven may be converted into small apartments, wherein articles may be cooked separately without being affected by the flavor of other substances. These several compartments also enable different articles to be subjected to a degree of heat best adapted to the occasion, as they are respectively heated to an extent depending upon their location relatively to the fire and flues. The partitions $F^1$ $F^1$ are inserted and withdrawn through the main doors $C^2$ $C^2$ of the oven, and the partition F through an oblong opening, I, at the rear of the stove.

A slide, J, is employed to close the opening I when the partition F is not in use, in which case the dampers G G′ may be opened, so as to give the heat access to both the flues E E′. The partition H is of course then removed, and the fuel disposed throughout the fire-box, as usual. The dampers K K′ serve to confine the heat to the top of the oven when desired. The dampers L L′ serve to cause the heat, after traversing the top of the

oven, to return to the front, and traverse the front, bottom, and rear portion of the flue before escaping at the discharge-pipe M.

N N are foraminated air-distributers, the same being simply metallic cylinders situated in the upper part of the flues E E′, on opposite sides of the partition D, and in equal proximity to the fire-box A. These cylindrical distributers are provided at the top with flaring mouths, which are seated in the top plate of the stove, so as to suitably secure the distributers in position. The tops of the distributers are provided with stationary circular plates or covers, *n*, which have perforations, adapted to register with corresponding perforations in the movable disks *n′*, which rest upon the covers *n*. By turning the disks *n′* into one position, air from outside the stove will be admitted to the stove-flues through the cylinders N, and by turning said disks into their other position the air will be excluded. If desired, the air may by this means be admitted to one of the upper flues and excluded from the other. The object in admitting atmospheric air to the flues is to bring oxygen into contact with the heated gases evolved from the fuel, and cause them to be more completely burned.

By thus effecting the combustion of the gases which pass from the fire, I am enabled to effectually consume the same, and thereby add materially to the heat heretofore obtained from a given amount of fuel in cooking-stoves. The disks *n′*, or suitable substitutes therefor, may also be made to regulate or vary the quantity of air admitted.

The construction of the fire-box A is clearly shown in figs. 1 and 2. The lower horizontal grate-bars *a* do not, as usual, extend to the back of the fire-box, but terminate considerably in advance of the back. That part of the bottom of the fire-box behind the line, whereon the lower grate-bars terminate, is occupied by the horizontal plate $A^1$, the back and end plates of the fire-box being protected by the replaceable plates $A^2$ and $A^3$ $A^3$, respectively. In like manner the series of grate-bars does not extend to the ends of the fire-box, and the spaces between the respective ends of the fire-box and the adjacent termini of the series of grate-bar are occupied by the plates $A^4$. A considerable portion of the fuel rests upon the plates $A^1$ $A^4$, and as there is no provision for the draught directly upward through this fuel, the draught entering at the forward part of the fire-box is compelled to pass in an obliquely-upward direction toward the upper flues E E′. This obliquely-upward draught subjects the upper portion of the fuel to the most active combustion, the lower portion being exposed to a slower but not less effective combustion. This means for burning the fuel at top serves also as a protection to the ends and back of the fire-box, by reason of the fact that these parts are not subjected to intense heat, and the use of fire-bricks is rendered unnecessary; yet they may be employed if preferred.

O O are the hinged doors, which close the front of the fire-box. These doors, when opened, may be held in parallel planes, as shown in figs. 1 and 3, by means of the latches $o^1$ $o^1$, to adapt said doors to support a movable shelf, O′, for which purpose the doors O O are provided on their inner surfaces with ledges, flanges, grooves, or brackets at *o*. The shelf O′ serves to support within warming distance of the fire such things as it may be desirable to preserve in a heated condition without placing them upon the stove, as smoothing-irons, victuals, &c. The draught-registers at $o^2$, in the front doors O, are located near the top of said doors, to correspond with the location of the principal bulk of the incandescent fuel in the upper part of the fire-box, as before explained.

P is a tubular supplemental heater, having its lower end fitted to the central boiling or pot-hole, $P^1$. The heater P may be cast in either of the forms shown in the drawing, or in any other suitable form. It is only necessary to state that it is a tube or hollow cylinder, open at both ends, and adapted to receive heat from one or both of the upper flues E E′. It is provided with a damper, $P^2$. When mounted upon the stove, so as to cover the hole $P^1$, as shown, the heater P is used to support a coffee-pot or other vessel, containing whatever is to be kept warm. The heat, having access through P to the vessel supported thereon, may be regulated as desired by means of the damper $P^2$.

Doors Q Q, in the front of the stove below the hearth, afford access to the lower flues of the stove to enable the same to be cleaned out and admit cool air when needful. The small doors $C^3$ afford access to the oven when desired, without opening the main doors $C^2$. The ends of the fire-box are also provided with doors, $C^5$, through which wood, when used as fuel, may be supplied. When wood is used as fuel, the internal end-plates of the fire-box are of course removed from the stove.

The oven may be made so as to constitute a shell, independent of and movable into and out of the main external shell of the stove. The ridges or ledges for the support of the partitions within the oven serve to strengthen the plates thereof, and said ridges obviate the casting of strengthening-ribs on the outer surfaces of the oven-plates, and hence the flue-surfaces are left smooth, so that they may be readily cleaned.

Having described my invention, the following is what I claim as new, and desire to secure by Letters Patent:

1. I claim the plate $A^1$, employed in conjunction with the grate-bars *a* to form the bottom of the fire-box, substantially as and for the purpose set forth.

2. I claim the movable shelf O′, adapted to be supported upon the front doors O, substantially as and for the purpose set forth.

3. I claim the removable supplemental heater P, provided with a damper, $P^2$, and employed in the manner and for the purpose set forth.

4. The foraminated air-distributers N, when provided with registers *n n′*, and constructed and arranged substantially as and for the purpose described.

5. The grooved ridges *e* and *f*, cast on the top and bottom plates of the oven, serving to impart strength and rigidity to said plates, (without obstructing the flues,) and also to guide and support removable partitions

F F¹ for dividing the oven into a plurality of compartments, substantially as described, in combination with the opening L in the rear of the oven.

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R. I. C. THOMPSON.