

J. L. MOTT.  
Cooking Stove.

2 Sheets—Sheet 1.

No. 7,366.

Patented May 14, 1850.

Fig. 1.

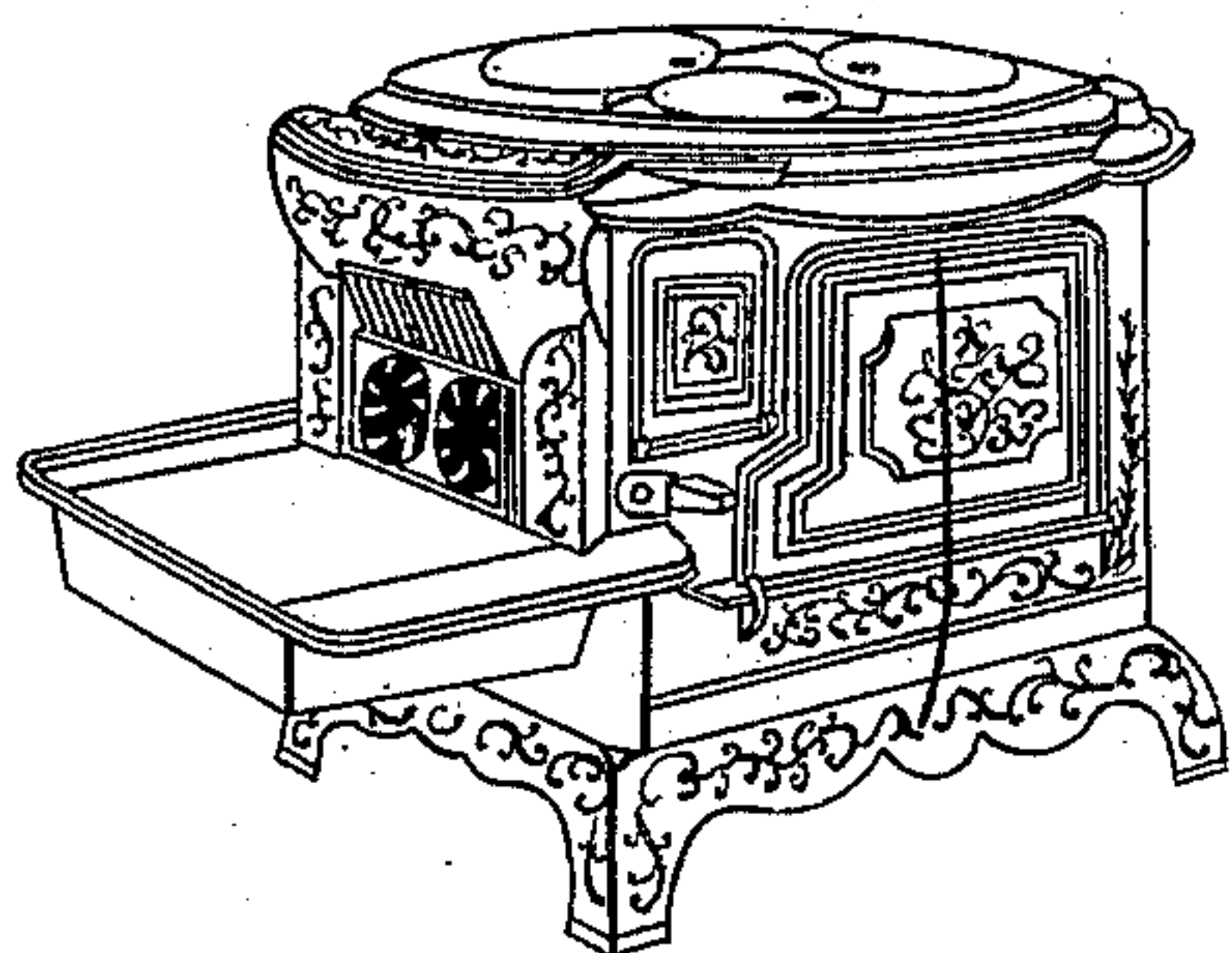


Fig. 2.

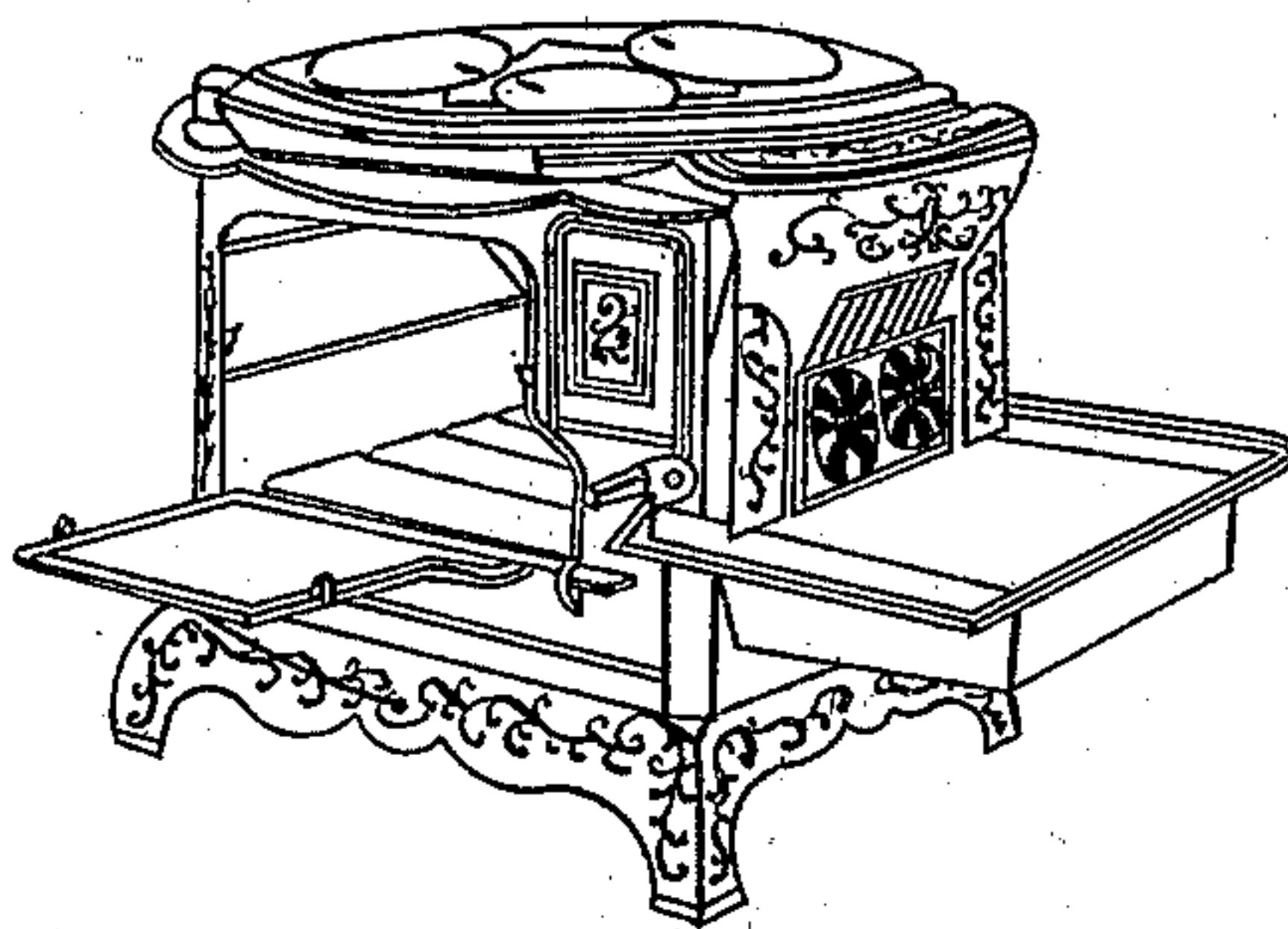


Fig. 6.

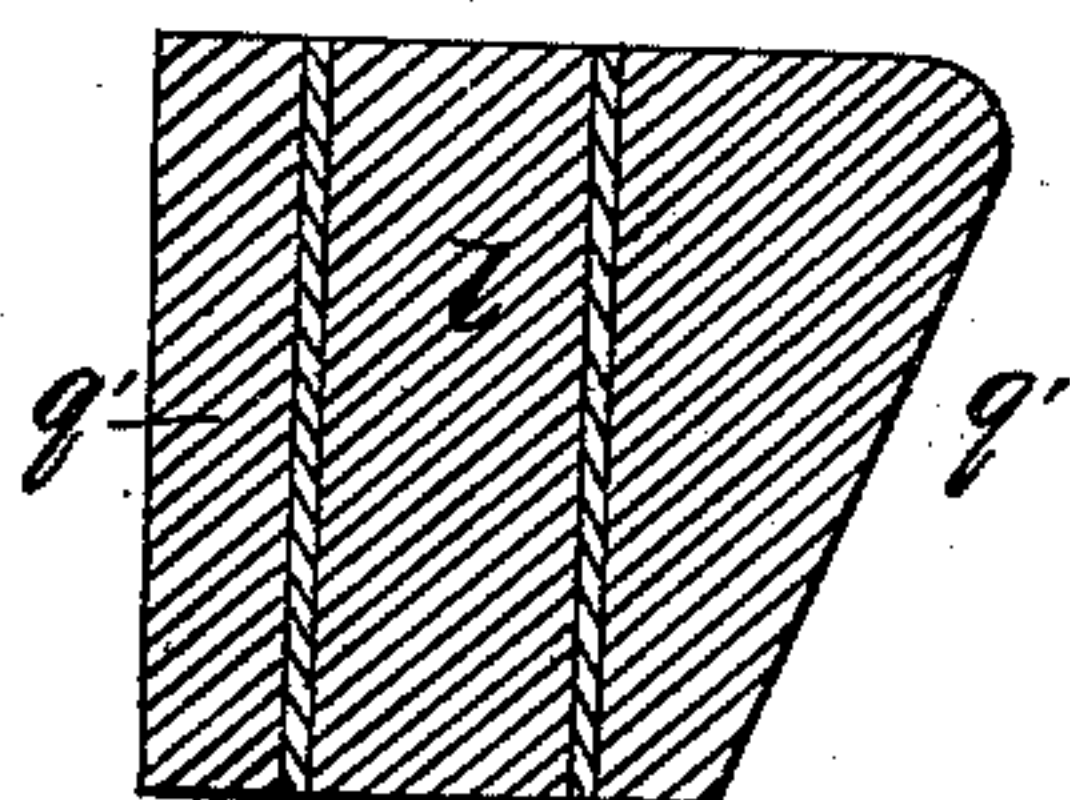
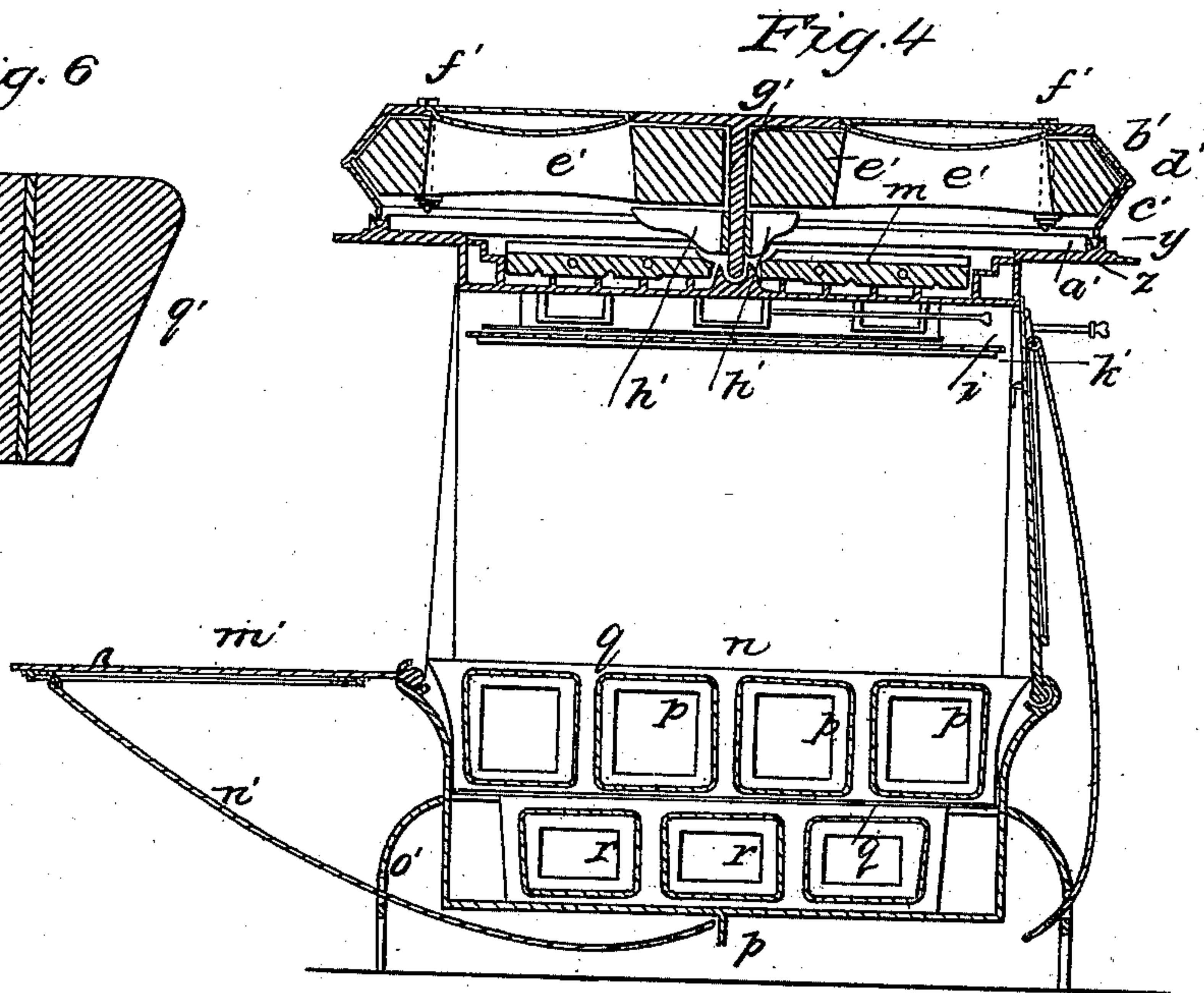


Fig. 4.

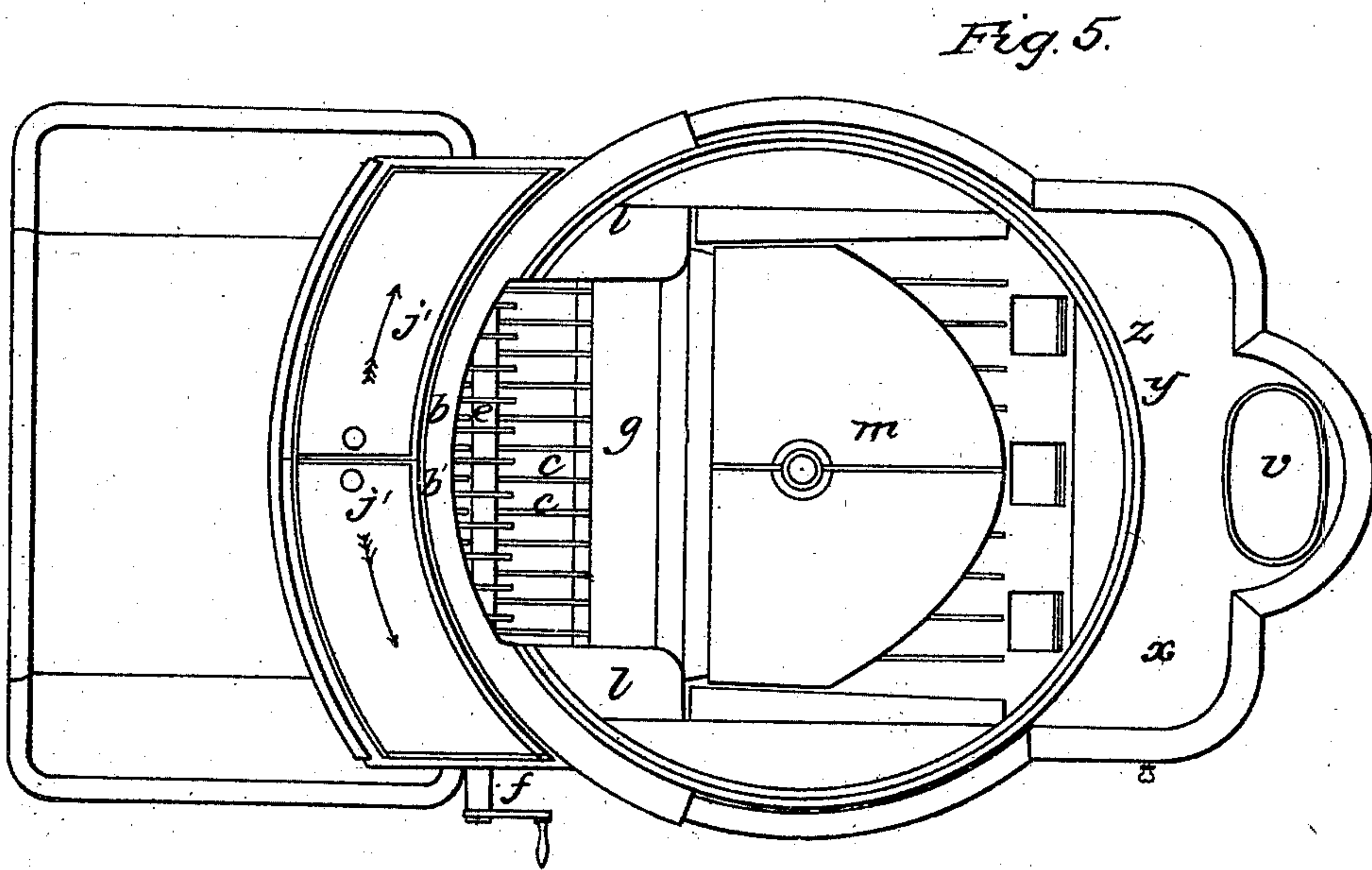
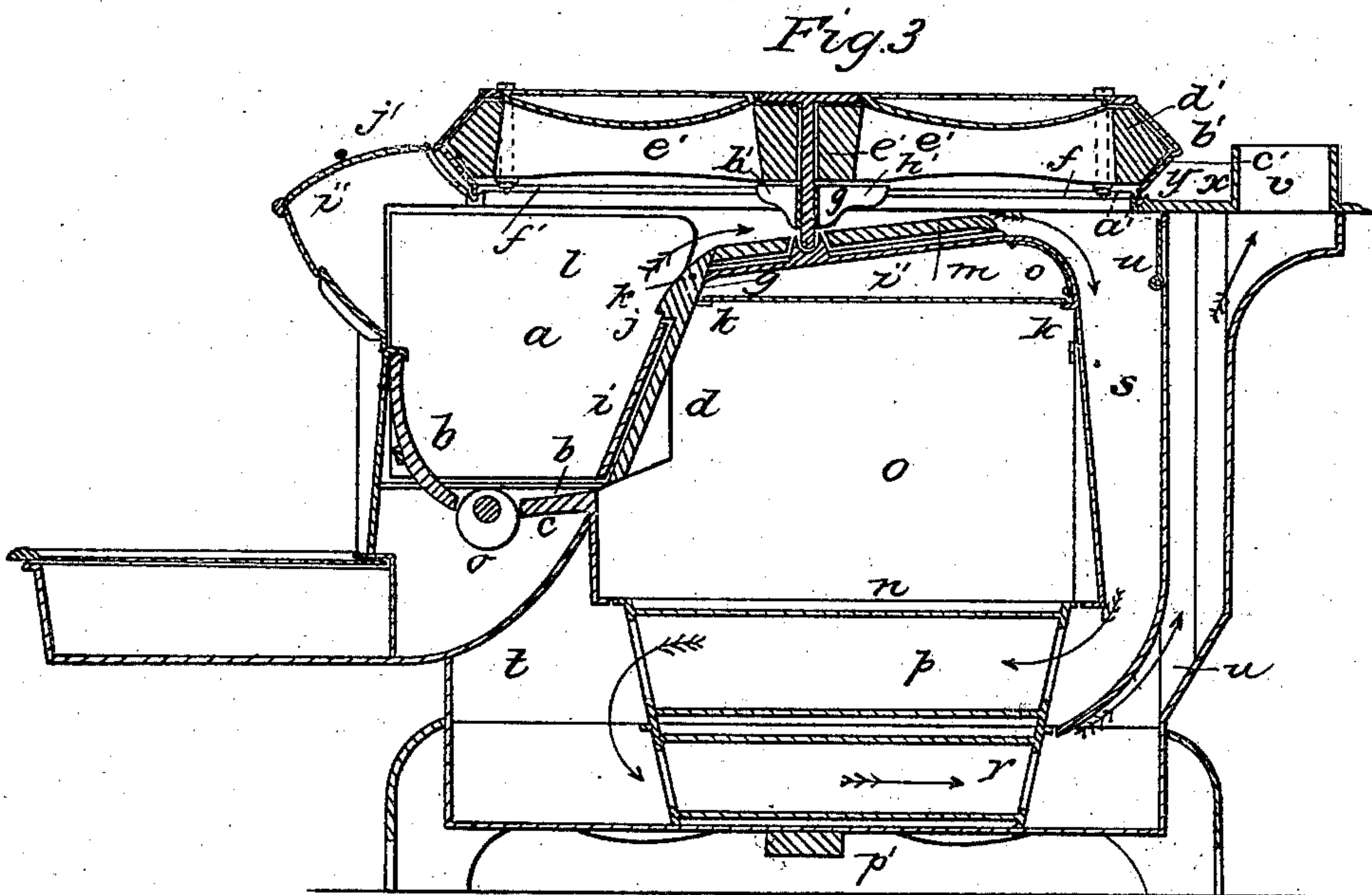


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# UNITED STATES PATENT OFFICE.

JORDAN L. MOTT, OF NEW YORK, N. Y.

## COOKING-STOVE.

Specification of Letters Patent No. 7,366, dated May 14, 1850.

*To all whom it may concern:*

Be it known that I, JORDAN L. MOTT, of the city, county, and State of New York, have invented certain new and useful Improvements in Cooking-Stoves, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective representation of the outside of the stove, Fig. 2 a like representation of the said stove with one of the oven doors open, Fig. 3 a longitudinal vertical section, Fig. 4 a cross vertical section taken through the middle of the oven, Fig. 5 a plan with the rotary top removed, and Fig. 6 sections of the fire brick linings. Figs. 3, 4, 5 and 6, are drawn to a larger scale.

The same letters indicate like parts in all the figures.

My improvements are herein described and represented as applied to a rotary-top stove, but some of them are applicable to other kinds of cooking stoves.

The first part of my invention relates to the mode of making the cover of the feeder which supplies the coal to the fire chamber and which projects forward of the front plate, that it may answer the two-fold purpose of supply-door and damper, and when applied to parlor stoves, admit of opening the front, as it is frequently necessary to admit a draft to the upper part of the feeder; and this part of my invention consists in making this door in two parts adapted to slide to and from each other in grooves made in or near the upper edge of the extended front constituting the feeder.

The second part of my invention relates to a method of forming the bottom grate or a part thereof, by casting on to either the fire plate, front oven plate or ash plate projecting bars of the requisite size and at the proper distances apart to constitute a grate, whereby these not only become better conductors of heat, but also much expense is saved in the cost of the bottom grate.

The third part of my invention relates to the making of fire brick for the lining of stoves by giving them more strength to resist breaking, and when cracked or split to prevent them from separating, and this con-

sists in combining them with iron rods or wires, by either molding and baking them on metal rods or wires, or wire cloth, or molding them with holes for the insertion of metal rods or wires.

The fourth part of my invention relates to the increasing of the heat at the bottom of the oven, and consists in effecting this by means of two series of flue tubes at the bottom of the oven, one series above the other, and with sufficient space between the several tubes for the circulation and passage of the heat into the oven, the said series of tubes being so connected with each other and with the flues that the gaseous products of the combustion shall pass, either through both at the same time, or first through one series and return through the other. And the last part of my invention relates to the support of the oven or other doors of stoves, and consists in combining with the door to be supported a brace rod jointed to the outside of the door and passing through a hole or loop in some part of the stove below, so that when the door is let down, the said rod shall act as a brace and support, and when the door is closed the said rod shall be close thereto.

In the accompanying drawings (a) represents the fire chamber with the front vertical grate (b) made separate, and with the bottom grate (c) consisting of projections cast on the lower edge of the plate (d) which constitutes the fire back and part of the front of the oven. But the same thing can be effected by casting or otherwise forming these projections on the ash plate. These projections constituting the bottom grate do not in the present instance extend to the front grate, and the space left between the ends thereof and the front grate is occupied by a horizontal shaft (e) with eccentric plates projecting therefrom at such distance apart as to play between the lower end of the front grate bars and the bottom grate bars for cleaning out the ashes, cinder, clinkers, etc., by the rotation of the said shaft one end of which passes through the side of the stove to receive a handle or winch (f) for this purpose.

The fire back (d) above the bottom grate recedes and then runs back at an inclination, as shown in the drawings, and forms part of the front of the oven. The front part of this plate is lined with a plate of fire brick or other refractory earthy sub-



stance (*g*) which lies against the said plate (*d*), the back part of the lower edge of the said lining resting on the horizontal, or nearly horizontal part of the iron plate so as to leave a space (*h*) between the two for the passage of a portion of the air which enters between the bottom grates. The air which enters this space, and which has not entered into combustion, passes up through a series of holes (*i*) made in this lining and which open through the front at (*j*) above the fuel for the combustion of the combustible gases evolved, the said lining being provided with a projecting flanch (*k*) just above the holes to prevent the air from passing directly up into the flue. The sides of the fire-chamber are lined with fire bricks or other refractory substance (*l*) in any desired manner, and the oven top is also and in like manner lined as shown at (*m*) to prevent the oven top from burning out or the top of the oven from being over heated.

The bottom (*n*) of the oven (*o*) is formed of a series of tubes (*p*) secured at each end to collar plates (*q*, *q*) for the convenience of removing them. These tubes are made with the upper surface flat to constitute the bottom of the oven and a space is left between them for the passage of heated air from below. Below this series of tubes there is another and similar series (*r*) arranged and connected in the same manner, but so arranged relatively to the upper series as to break joints, that is, the tubes of the lower series be under the spaces between the tubes of the upper series, that heat may radiate from them directly into the oven. The spaces between all the tubes should be sufficient for the free circulation into the oven of the heat radiated from the entire surface of all the tubes. The products of combustion pass from the fire-chamber directly over the oven, down a diving flue (*s*) back of the oven, through the upper series of flue tubes at the bottom of the oven into a chamber (*t*) in front and below the grate, thence back through the lower series of tubes to a vertical flue (*u*) back of the diving flue and leading to the exit pipe (*v*). In this way the whole of the products of combustion pass twice under the entire width of the bottom of the stove except the spaces between the tubes. And in addition to this, the bottom of the oven is further heated by the air in the oven which circulates around the entire surface of all the tubes in the two series.

For the purpose of kindling the fire or when it is not desired to heat the oven, there is a damper (*w*) near the exit pipe, which, when open, permits the draft to pass directly out from the top flue to the exit pipe. The top-plate (*x*) of the stove is made with a large circular aperture in the manner of all rotary top stoves, and around this aperture the plate is formed with a circular

flanch (*y*) having a groove (*z*) in its upper surface containing sand in which works the flanch (*a'*) of the rotary top (*b'*) which is provided with boiler holes in the usual manner. By means of the sand the joint of the rotary top with the stove will always be tight, and in this way the top can be made to work so freely as not to bind when either of the plates are warped by heat. The rotary top (*b'*) is formed with a bevel flanch (*d'*) all around to which is fitted a ring (*c'*) of corresponding but reversed form, at the lower edge of which is formed the flanch or fillet (*a'*). The under side of the top is lined with fire brick or other refractory earthy substance (*e'*) fitted to the recess formed by the bevel flanch (*d'*) and the ring (*c'*) and the whole is then firmly bound together by screw bolts (*f'*) which pass through the plate, the lining, and ears formed or cast on the inner periphery of the ring. The lining is further secured to the plate by the central pivot (*g'*) of the rotary top, which is formed with wings (*h'*), so that when its upper end is secured to the rotary top plate its wings embrace and clamp the middle of the lining. This lining may be made in a single piece or in segments as shown in the drawings, and must be formed with holes corresponding with the boiler holes in the top.

In front the fire-chamber is formed with a feeder (*i'*) at top for supplying coal to the fire as the combustion progresses, as heretofore secured to me by Letters Patent, except that the cover instead of being a hinged door, is formed with two sliding doors (*j'*, *j'*) which are fitted to slide in grooves in the edges of the plates which form the feeder. These two doors are in the form of segments of circles concentric with the rotary top and by this means they answer the additional purpose of dampers to admit air to the top of the fire chamber when it becomes necessary to check the heat, under the boilers or oven.

The front and back plates of the oven are each provided with a flanch (*k'*, *k'*) near the top-plate of the oven to receive a guard plate (*l'*) which may be put in and taken out at pleasure to regulate the heat radiated into the oven through the top, as it is important to have a greater proportionate heat at top for some kinds of baking than for others.

For the purpose of supporting the oven doors (*m'*) a rod (*n'*) is jointed to the outside of each of them and near the upper edge thereof, which rod passes through a hole (*o'*) near the lower edge of the side plate of the stove and below the bottom plate. The lower end of this rod is curved as shown in the drawing that the door may be closed, and the rod lie close against the door to be out of the way, and, when the



door is opened and let down, that the bent end of the said rod may come against the bottom plate of the stove and against a flanch ( $p'$ ) projecting therefrom to act as a  
 5 brace to support the door. This method of bracing or supporting the oven doors, it will be obvious, can be applied to all the doors of this or any other kind of stove.

To prevent the fire brick lining of the  
 10 stove from breaking by the action of heat, and when cracked to prevent the parts from separating they are molded and baked on metal rods or wires ( $q'$ ). But as the equivalent of this, they may be molded with wire  
 15 cloth inside, or they may be molded and baked with holes into which metal rods or wires are to be inserted afterward.

It will be obvious from the foregoing that some of my improvements herein above  
 20 specified are applicable to stoves other than rotary top stoves, and also to heating stoves, and that some of them can be used to advantage without the others. I do not therefore limit myself to the employment of them  
 25 in connection or combination, nor to any particular kind of stove.

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

1. I claim making the cover of the feeder  
 30 projecting in front with curved sliding doors, substantially as described.

2. I claim forming the bottom grate by casting projections from the edge of the fire back, or the equivalent thereof, substantially  
 35 as described.

3. I claim giving the required strength to the fire brick lining of stoves to prevent them from breaking or separating when cracked by the heat, by the insertion into  
 40 them of metal rods, wires, or wire cloth, substantially as described.

4. I claim the combination of the two series of flue tubes arranged one above the other and with a space between them all for  
 45 the circulation and radiation of heat, for the purpose of giving a greater heat at the bottom of the oven, substantially as described; and this I also claim in combination with the above arrangement of flues,  
 50 as described.

5. I claim the method of supporting and bracing the door or doors by means of the  
 55 bracing rod hinged to the door and passing through a hole below (or the equivalent thereof) and bearing against the bottom of the stove, or a stop, or the equivalent thereof, substantially as described.

JORDAN L. MOTT.

Witnesses:

CHAS. M. KELLER,  
 CHAS. BROWER.