(No Model.)

S. L. HALL.

DOOR FOR ADMITTING LIGHT TO OVENS.

No. 433,342. Patented July 29, 1890.

Fig. 1.

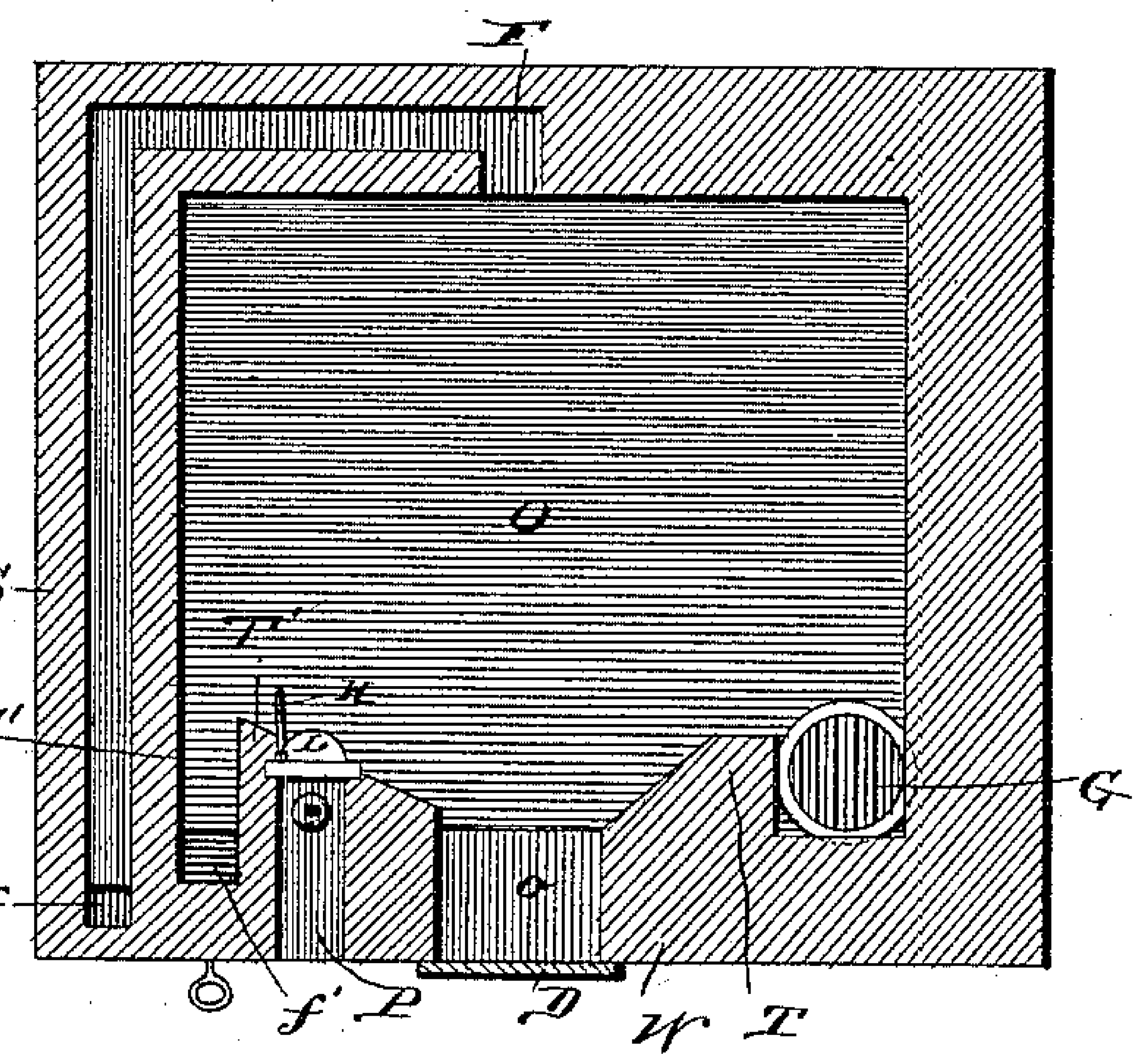


Fig. 2.

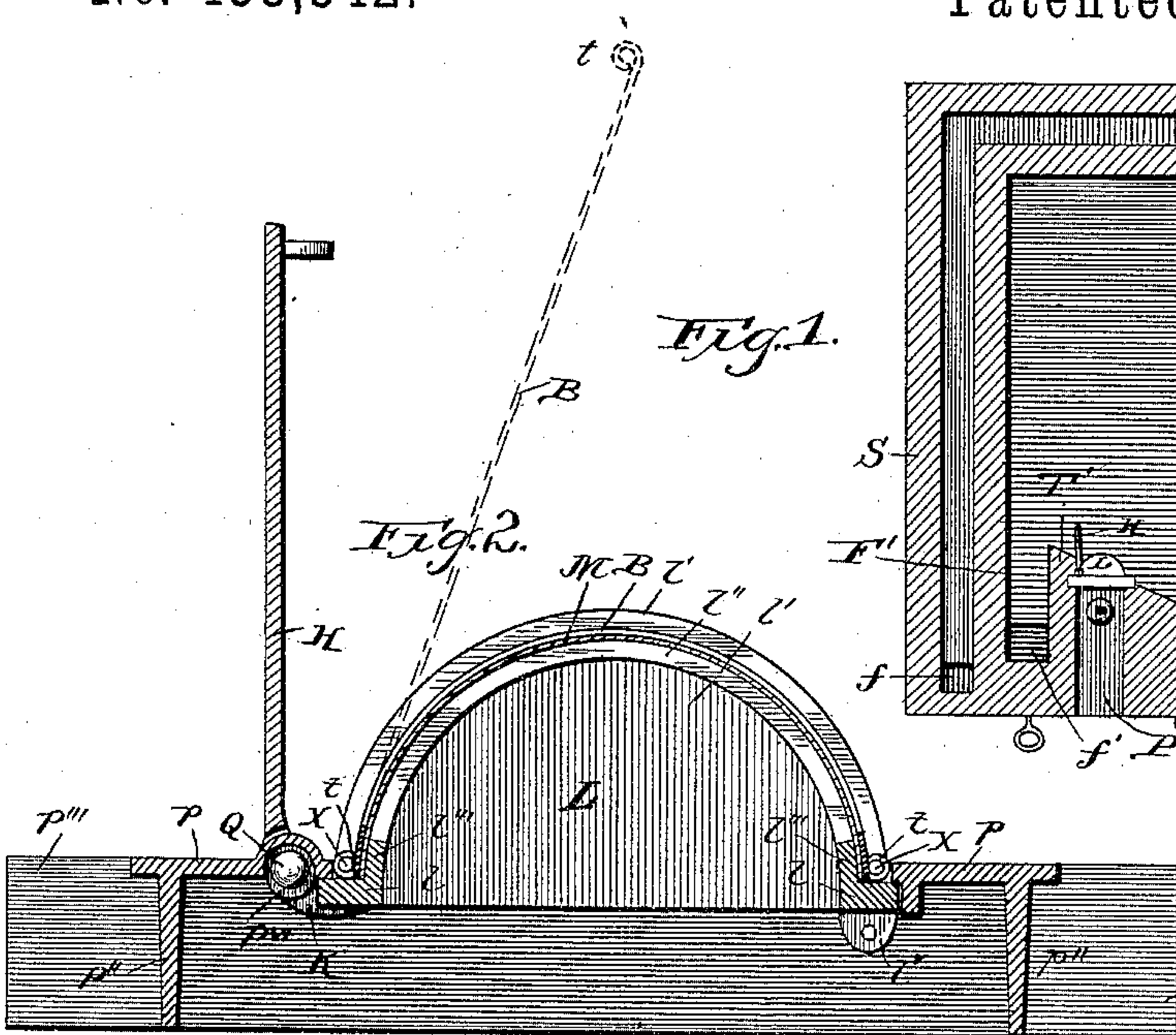


Fig. 3.

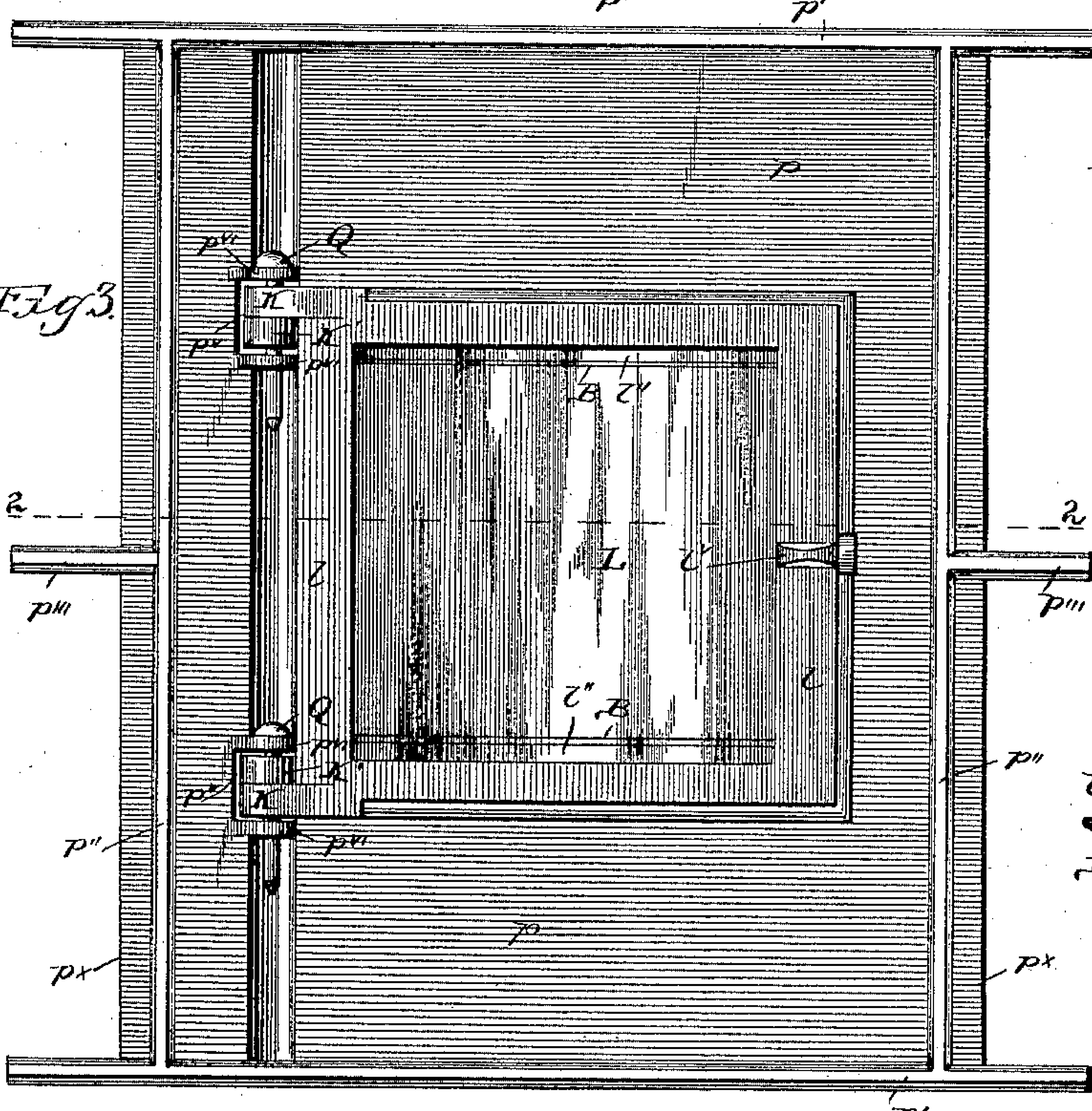


Fig. 5.

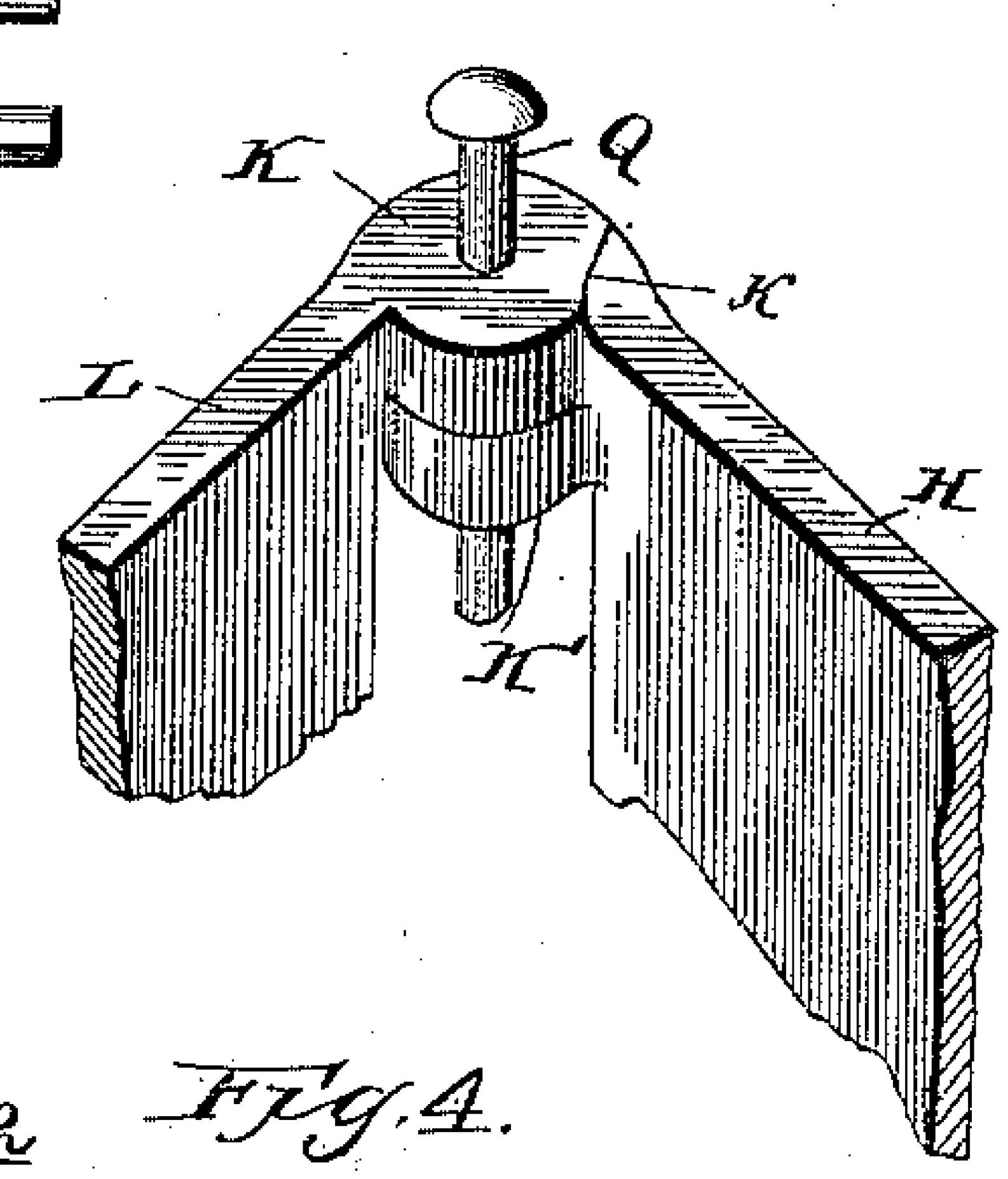
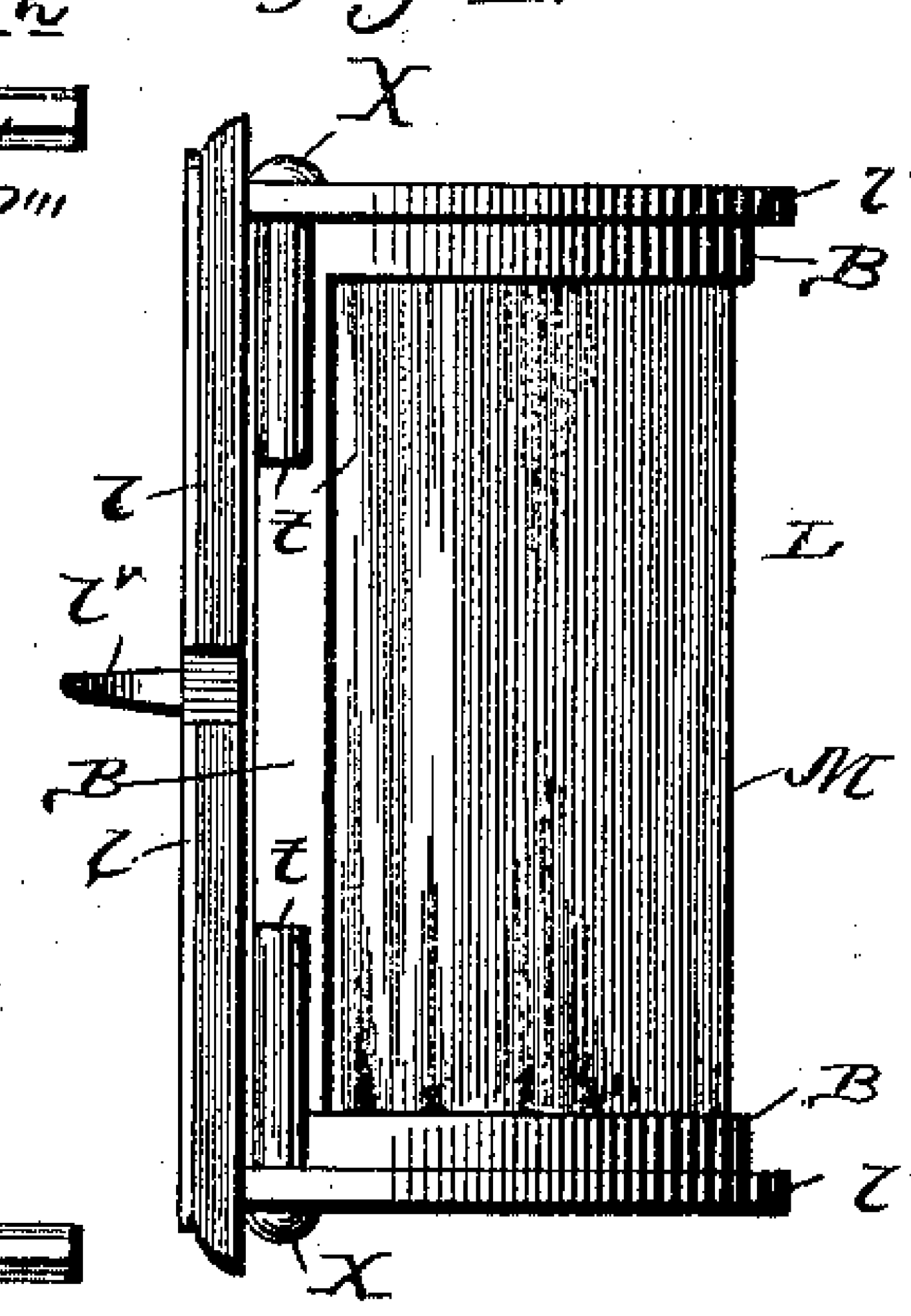


Fig. 4.



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UNITED STATES PATENT OFFICE.

SAMUEL L. HALL, OF CHICAGO, ILLINOIS.

DOOR FOR ADMITTING LIGHT TO OVENS.

SPECIFICATION forming part of Letters Patent No. 433,342, dated July 29, 1890.

Application filed March 12, 1890. Serial No. 343,585. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. HALL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Doors for Admitting Light to Ovens, of which the following is a specification.

The invention consists in certain features of novelty that are particularly pointed out in the claims hereinafter, a door embodying said invention being first fully described with reference to the accompanying drawings, which form a part of this specification, and of which—

Figure 1 is a horizontal section of an oven, showing the relative positions of the various features thereof, including the improved door. Fig. 2 is a horizontal section of the improved door and its frame on the line 2 2, Fig. 3. Fig. 3 is an elevation of the improved door and its frame viewed from the outside. Fig. 4 is a side elevation of the light-door proper. Fig. 5 is a perspective view of one of the knuckles of each door and the pintle passing through them, a fragment of each door being also shown.

The object of the present invention is to provide a door having a transparent pane, through which light may be projected into the oven and the goods watched during the process of baking, and a second door adapted to protect the transparent pane from smoke, &c., while the oven is being fired.

In the drawings, O represents the oven-chamber, in one of the front corners of which the fire-grate G is situated behind a thirteen-inch tongue T, projecting into the oven from the front wall W. This wall is usually about seventy-two inches thick, and through it is formed the opening *o*, through which the goods are placed in and removed from the oven, said opening being provided with a suitable door D.

F is a flue communicating with the back of the oven and with an uptake *f*, and F′ a flue communicating with the front of the oven and with an up-take *f′*, said flue F′ extending between the side wall S and a second thirteen-inch tongue T′, projecting into the oven from the front wall, the tongues T and T′ being on opposite sides of opening *o*. Between this flue F′ and the opening *o* an opening or port P is formed through the wall W and tongue T′, and at the inner end of said opening the improved door is situated, its frame being set during the construction of the oven.

The frame consists of a single casting comprising a flat plate *p*, having an opening or doorway formed therethrough, horizontal flanges *p′*, projecting outward from the top and bottom margins of said plate, vertical flanges *p″*, projecting outward from the outer face of said plate near its side margins, and horizontal flanges *p‴*, projecting from the outside of flanges *p″* midway between the flanges *p′*. When the tongue T′ has reached a height one course above the floor of the oven, the frame is set upon it with the flanges presented outward. The bricks of the next course are laid upon the projecting ends of the bottom flange *p′* and with their ends against the side flanges *p″* and behind the projecting margins *p*× of the plate *p*. The bricks of the next course are similarly laid, the two courses filling the space between the projecting ends of the bottom flange *p′* and the flanges *p‴*. The bricks of the third course are similarly laid, the flanges *p‴* coming between the second and third courses, and so on, the fifth course being laid on top of the top flange *p′*.

L is the light-door, which consists of a rectangular frame *l*, from one face of which project parallel to each other two plates *l′*, preferably of curved shape. From each of these plates, near its margin, projects perpendicularly a flange *l″*, said flanges being united at their extremities by corresponding flanges *l‴*, projecting from the face of the frame *l*.

M represents a transparent pane, (preferably of mica,) and B a binding-frame for holding the pane in place. This frame is formed by making an opening of the required size in a rectangular sheet of Russia iron of the required external dimensions. The one shown in the drawings is made from a sheet of a width nearly equal to the distance between the plates *l′* and of sufficient length to extend around the outer periphery of flanges *l″*. The interior of this plate is cut away so as

to leave a strip only about three-sixteenths of an inch wide on each of the four sides. Two short tongues project from the ends of the blank, one at each side, and these are bent into tubes *t*, into which project pins X, which pass through perforations formed through the margins of plates *l'* within the angles formed by the frame *l* and flanges *l'''*. To insert the pane, the pins X are removed at one end of the frame B, and the latter will spring or may be bent out to the position shown by dotted lines in Fig. 2. The sheet of mica is then bent around to outer periphery of flanges *l''* and the frame B bent over it and again secured, as described.

The door thus formed closes against the outside of plate *p*, and when closed its curved part projects through the opening or doorway of said plate and into the oven, as shown in Figs. 1, 2, and 3, a perforated lug l^{v} being cast on its outside to enable its being opened and closed with a long-handled hook. To hinge the door thus constructed, perforated lugs or knuckles K project from one of its sides. The plate *p* is provided with openings p^{v} for the reception of these knuckles, and perforated ears p^{vi}, between which said knuckles project, a pintle or pintles Q being passed through the eyes of said ears and knuckles in the customary manner.

H is a solid iron door having upon one of its sides perforated lugs or knuckles K', which project into openings p^{v} and between the ears p^{vi}, and through which pass also the pintles Q. As shown in Fig. 5, the knuckle K of the door L is non-circular, having on one side a flat surface, and the edge of the door H has a corresponding flat surface, which surfaces, when the doors are properly mounted, abut against each other, as shown at *k*, and thereby prevent either of the doors from swinging independent of the other. All the knuckles K and K' and both the doors have these square shoulders *k*, although the drawings do not show them all. This is one way of connecting the two doors so that they shall swing together and cannot swing independently; but I desire to have it understood that in its broadest sense my invention is not limited to the particular arrangement here shown. They may be connected in an almost infinite variety of ways that will suggest themselves to those skilled in the art; or the metal portions of both may be cast integrally. The two doors thus connected together close against opposite faces of the plate *p*, and it will be understood that when one is closed the other is open.

As has been before stated, the object of the transparent pane M is to enable light to be projected into the oven and to enable the goods to be watched during the process of baking without opening the oven-door. To this end, while baking, the mica door is closed, as shown in the drawings, and the iron door extends into the oven. A lamp or gas-jet situated in passage P and provided with a suitable reflector projects light through pane M into the oven, and at the same time enables the operator to see through said pane. In setting the frame it is so placed that the iron door H shall be next the adjacent wall; otherwise it would cut off a large portion of the oven from light and view. To protect the pane M from smoke, &c., while firing, a hook is engaged in perforated lug l^{v} and the light-door L swung back into the passage P, closing the iron door H against the inside of the plate *p*.

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

1. The combination, with an oven having a sight-opening, of a solid door and a sight-door having a transparent pane, said doors being connected together at an angle with respect to each other and hinged at their point of connection, said hinge being located to one side of said sight-opening, substantially as set forth.

2. The combination, with an oven and a suitable frame having a sight-opening, of a hinged door adapted to close said opening from without and having a transparent pane, a hinged solid door adapted to close said opening from within, and connections between said doors, so that as one opens the other closes said opening, the hinge of the solid door being located to one side of said opening, substantially as set forth.

3. The combination, with an oven and a suitable frame having a sight-opening, of a solid door and a door having a transparent pane, situated on the inside and the outside of said frame, respectively, and both adapted to close said opening, said doors being connected together at an angle and hinged at their point of connection, said hinge being located to one side of said sight-opening, substantially as set forth.

4. The combination, with an oven having a sight-opening, of a door having a transparent pane, and a solid door connected thereto, so as to move therewith, said doors being hinged at their sides and to one side of the sight-opening, substantially as set forth.

5. The combination, with an oven having a sight-opening, of a door opening outward and having a transparent pane, and an iron door opening inward, said doors being hinged to one side of the sight-opening and connected so that as one opens the other closes, substantially as set forth.

6. The combination, with an oven having a sight-opening, of a hinged door opening outward and having a curved transparent pane with the convex side thereof presented inward, and a solid door opening inward, said doors being hinged at their edges and connected so as to move together, substantially as set forth.

7. The combination, with the oven and the frame *p*, of the door L, having a transparent

pane, hinged at its side so as to open outward, and the solid door H, hinged at its side so as to open inward, substantially as set forth.

8. The combination, with the oven and the frame *p*, having the sight-opening, of the door L, situated on the outside of said frame and having a transparent pane, and the solid door H, situated on the inside of said frame, said doors being hinged at their sides and both adapted to close said opening, substantially as set forth.

9. The combination, with an oven having a sight-opening, of the doors H and L, connected at an angle to each other, the door L having a curved transparent pane, with its convex side presented toward the door H, said doors being hinged at their point of connection and to one side of the sight-opening, substantially as set forth.

10. The combination, with an oven having a sight-opening, of the doors H and L, having perforated knuckles K′ K, respectively, and shoulders *k*, and a pintle passing through said perforations, said door L having a transparent pane, substantially as set forth.

11. The combination, with an oven and the frame having a sight-opening, and perforated lugs at the side of said opening, of the solid door H, the sight-door L, having the transparent pane, said doors having perforated knuckles K′ and K, respectively, and the pintle passing through said lugs and knuckles, substantially as set forth.

12. The combination, with the oven, of the frame *l*, the plates *l′*, the curved flanges *l″*, the pane M, and the binding-frame B, substantially as set forth.

13. The combination, with the oven, of the frame *l*, the flanges *l‴*, the plates *l′*, the curved flanges *l″*, the transparent pane M, and the binding-frame B, substantially as set forth.

14. The combination, with the oven, of the frame *l*, the plates *l′*, the curved flanges *l″*, the transparent pane M, the binding-frame B, having tubes *t*, and the pins X, substantially as set forth.

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