(No Model.) 3 Sheets—Sheet 1.

S. LAMOUREUX.

BAKER'S OVEN.

No. 347,181. Patented Aug. 10, 1886.

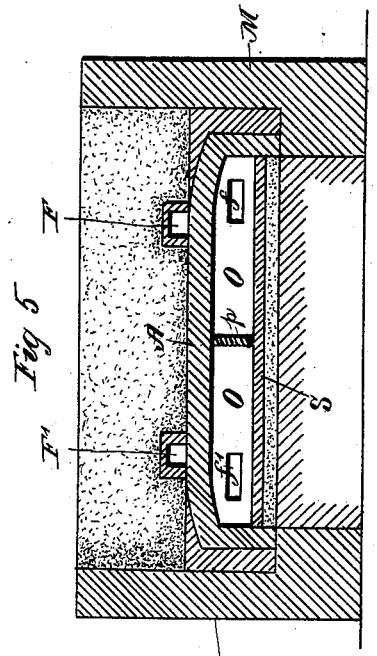


Fig. 5.

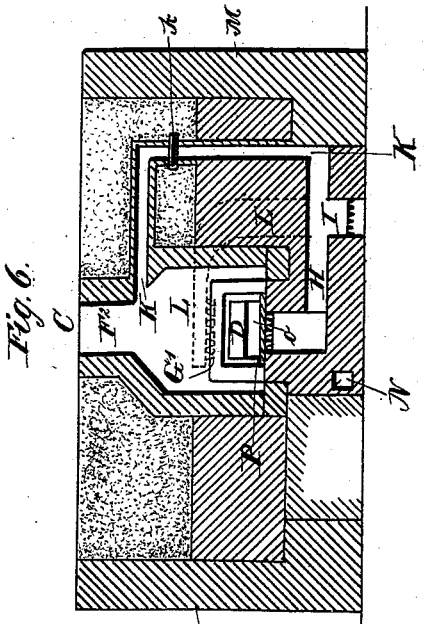


Fig. 6.

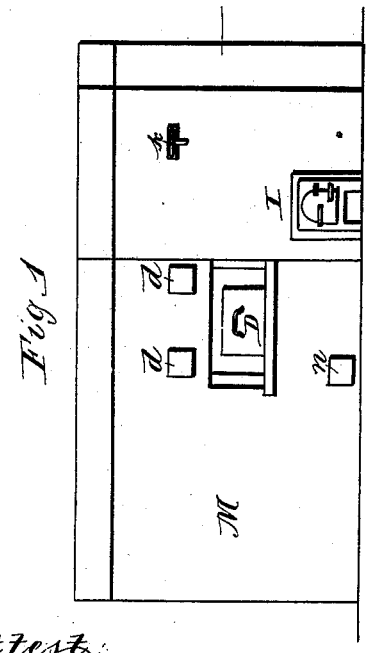


Fig. 1.

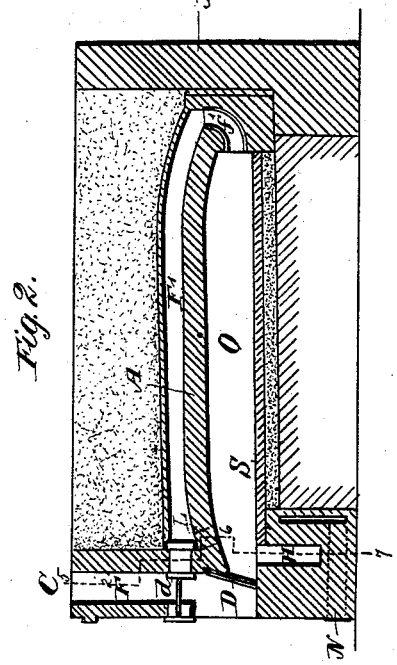


Fig. 2.

Attest:
W. D. Coulter
P. M. Knobloch

Inventor:
Sylvain Lamoureux.
per Henry Orth
his atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.)

3 Sheets—Sheet 2.

S. LAMOUREUX.

BAKER'S OVEN.

No. 347,181. Patented Aug. 10, 1886.

Fig. 3

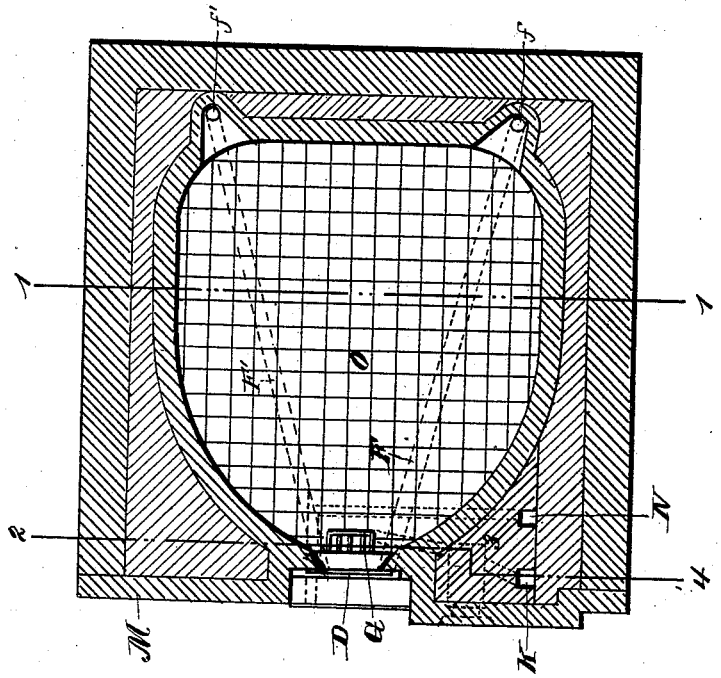
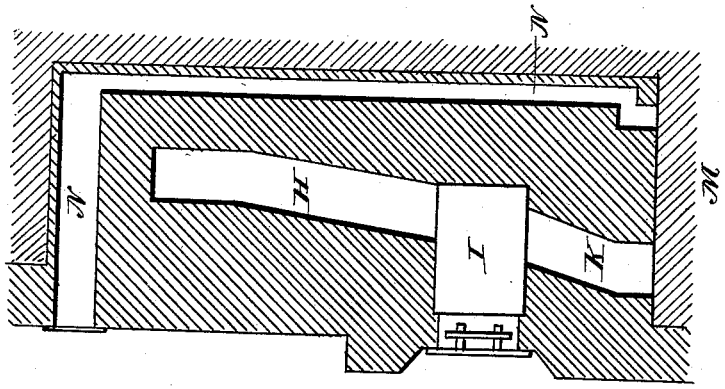


Fig. 4.



Attest:
W. E. Coulter
P. M. Knobloch

Inventor:
Sylvain Lamoureux,
per Henry Orth
his atty

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

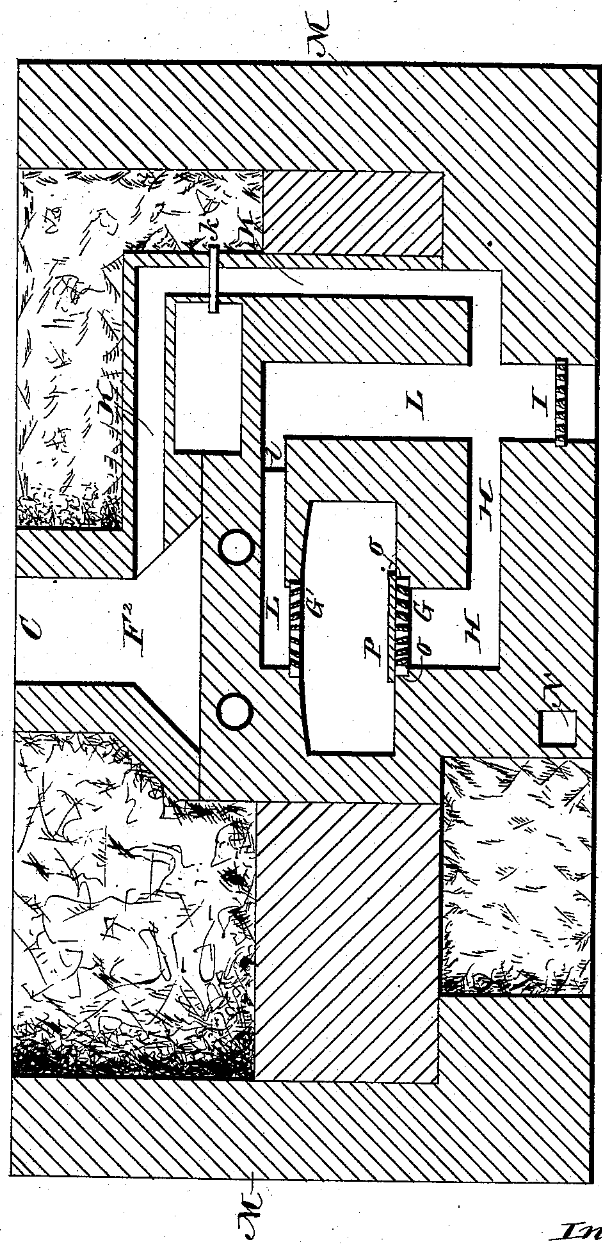
3 Sheets—Sheet 3.

S. LAMOUREUX.

BAKER'S OVEN.

No. 347,181. Patented Aug. 10, 1886.

Fig. 7.



Attest:
W. E. Boulter
E. M. Fallahan

Inventor:
Sylvain Lamoureux,
per Henry Orth
his atty

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

SYLVAIN LAMOUREUX, OF PARIS, FRANCE.

BAKER'S OVEN.

SPECIFICATION forming part of Letters Patent No. 347,181, dated August 10, 1886.

Application filed May 8, 1885. Serial No. 164,815. (No model.) Patented in France October 14, 1884, No. 164,777.

To all whom it may concern:

Be it known that I, SYLVAIN LAMOUREUX, a citizen of the French Republic, residing at Paris, in said Republic, have invented certain new and useful Improvements in Bakers' Ovens, (and for which I have received French Letters Patent dated October 14, 1884, No. 164,777;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in bakers' ovens, and has for its object to provide means whereby the oven may be heated either by wood in the ordinary manner or by means of coal, coke, or other analogous carbonaceous material.

The invention consists, essentially, in the combination, with a baker's oven, of means whereby the said oven may be heated, either by means of wood in the usual manner or by means of coal, coke, or other carbonaceous material, and more especially, first, in the arrangement of heating-flues and their combination with a furnace, the oven, and the chimney, whereby the oven may be heated by the heat derived from an incandescent carbonaceous material and admitted to the oven either at the sole or at the arch thereof; second, in the combination of means whereby the heat and products of combustion of the carbonaceous material may be conducted through the oven from below or from above, or directly to the chimney, or in part through the oven and thence to the chimney, and in part directly from the furnace to the chimney; third, in the combination of an air or ventilating flue or flues with the furnace, to practically isolate the latter from the body of the masonry and form a cooling-chamber to preserve the masonry of the furnace.

In the accompanying drawings, Figure 1 shows in elevation an ordinary baker's oven with my improvements applied. Fig. 2 is a longitudinal vertical section thereof. Fig. 3 is a horizontal transverse section of the oven, taken on a line above the sole of the oven and showing the mouth of the heating-flue for heating the oven from below. Fig. 4 is a horizontal transverse section showing the heating-flue, the draft-flue to the chimney, and the air-flue. Fig. 5 is a vertical section of the oven, taken on the line 1 1 of Fig. 3. Fig. 6 is a like view taken on line 2 3 4 of Fig. 3, showing the arrangement of heating-flue for heating the oven from below, and in dotted lines the flue for heating the same from above, said figure also showing the grate and draft-flue and the connection of the latter with the chimney; and Fig. 7 is a section on line 5 6 7 of Fig 2.

In the above drawings, M indicates the masonry; O, the oven; S, the sole, and A the arch thereof, and D the door that closes the mouth of the oven. The oven is connected by flues F F′ with the chimney C, said flue being provided with dampers *d d*, Fig. 2.

It will be observed that the arrangement of the parts so far described are those of an ordinary bake-oven adapted to be heated by means of wood thrown into it, the products of combustion passing from the rear end thereof, through flues *f f′* and the return-flues F F′, to the draft-flue F^2 above the oven-door that communicates with the chimney C.

To adapt the oven to be heated with coal or other carbonaceous material, either from top or below, according to my invention, I have made the following provisions: Immediately behind the oven-door is an opening, *o*, formed in the sole S of the oven, provided with a grate, G, the bars of which I preferably make conical in cross-section, either from top downward or inversely, or give them any other form, by means of which the heat entering the oven is divided and deflected at an angle to its natural vertical line of flow, as more plainly shown in Fig. 7. The opening *o* is the terminal of a heating-flue, H, that communicates with the furnace I on the right and below the oven-door, from which furnace the heat and products of combustion pass through flue H and grate G to the oven O, thence by flues *f* and *f′* and return-flues F and F′, respectively, to draft-flue F^2 and chimney C. A draft-flue, K, Figs. 4 and 6, connects the furnace I di-

rectly with the chimney C, and said flue has a damper, *k*, to cut off said connection when desired. A plate, P, of metal or refractory material, is placed over the opening *o* after the oven is heated, to cut the latter off from the source of heat, and direct communication between the said furnace and the draft-flue F^2 and chimney C may then be established by opening the damper *k*, and allowing the heat and products of combustion to pass directly from the furnace through flue K to the draft-flue F^2 and chimney C. As more plainly shown in Fig. 7, a second heating-flue, L, provided with a damper, *l*, rises directly from the furnace I and terminates in the arch A of the oven at its point of junction with the front wall or slightly in rear of said point, as shown in dotted lines in Fig. 2 and in full lines in Fig. 7. The terminal of said flue is provided, like that *o* of flue H, with a deflecting-grate, G′, to deflect the heat laterally and downwardly into the oven.

When it is desired to heat the oven from above or through the arch, the terminal *o* of flue H is closed by a plate, P, of sheet metal, or a tile of some refractory material, that is placed over the deflecting-grate G, so that the products of combustion and the heat will pass from the furnace through flue L, the damper of which has previously been opened, thence to the mouth of the oven through grate G′, and through the oven and the flues *f f′* to the return-flues F F′, and thence to draft-flue F^2 and the chimney C. Whether the oven is heated by allowing the heat and products of combustion to enter the said oven through the sole or the arch, the damper *k* in flue K is closed, said damper being opened only when the fire is started.

N is an air-duct opening at its initial point into the atmosphere through a door, *n*, Fig. 1, and at its terminal into the draft-flue F^2 and chimney C it nearly surrounds the furnace, and serves to keep the brick-work cool and preserve it from destruction.

When it is desired to heat the oven by means of wood, the dampers *k l* are closed, as well as the terminal *o* of the flue H, by means of the plate or damper P, as above set forth, and the wood is thrown into the oven and ignited, as usual, the products of combustion passing through the flues *f f′* at the rear of the oven and return-flues F F′ into draft-flue F^2 and chimney C.

The operation of the oven is as follows: When it is desired to heat the oven by means of wood in the usual manner, the dampers *d d* are opened, and the opening *o* in the sole of the furnace, together with the dampers *k* and *l* of flues K and L, respectively, are closed, and the wood thrown into the oven is ignited, the products of combustion passing through *f f′* and F F′ to flue F^2 and chimney C, in the usual manner. When it is desired to heat the oven by means of coal, coke, or other carbonaceous material from above—that is to say, by admitting the heat at the arch of the oven—the dampers *d d*, and opening *o*, as well as the damper in flue L, are closed, and the damper *k* of draft-flue K is opened and remains open until the fuel on grate I is in an incandescent condition. The damper *k* of flue K is now closed and the damper of the heating-flue L opened, admitting the heat from the furnace I to the oven at the arch. If it is desired to heat the oven from below, the flue L is closed and the opening *o* uncovered, the heat from the furnace I being now admitted to the oven at the sole through the heating-flue H.

The oven may be divided into two or more chambers by means of removable partitions *p*, Fig. 5, each chamber being in communication with a return-flue, F or F′, by means of a flue, *f* or *f′*, and by adjusting the covering-plate P, that covers the opening *o*, or the damper in the flue L, one of the said chambers may be heated to a higher degree than the other, and under ordinary circumstances the said partition also serves to more equally distribute the heat.

It will be observed that by means of the described arrangement of furnace draft and heating flues the products of combustion, when the oven is heated by means of coal or other similar carbonaceous material, do not pass through the oven to the chimney; consequently the carbonic-acid gases and other products of combustion have no unpleasant or deleterious effect upon the material baked.

Having now described my invention, what I claim is—

1. In a baker's oven, the combination, with the oven and a draft flue or chimney connected thereto, of a furnace, independent flues leading from the furnace to the oven through the sole and arch thereof, and suitable dampers for said flues, whereby the heat and products of combustion from the furnace may be admitted into the oven, either from above or below, before they escape into the draft-flue, substantially as and for the purpose specified.

2. In a baker's oven, the combination, with the oven and a draft-flue connected therewith, of a furnace, a flue provided with a damper leading from the furnace directly into the draft-flue, and independent flues provided with dampers leading from said furnace into the oven through the sole and arch thereof, whereby the heat and products of combustion may be conducted to the oven, either through the sole or the arch, before they reach the draft-flue, or directly to the draft-flue without passing through the oven, substantially as and for the purpose specified.

3. In a baker's oven, the combination, with the oven, a chimney, and one or more draft-flues provided with dampers leading from the rear end of the oven into said chimney, of a furnace and two independent flues provided with dampers leading from the furnace into the oven at the front end thereof through the sole and arch, whereby the products of combustion and the heat from the furnace may be admitted into the oven, either from below or from above, and caused to traverse the full

length of said oven before they reach the chimney, substantially as and for the purpose specified.

4. In a baker's oven, the combination, with the oven, a chimney located at the front end thereof, and flues provided with dampers extending from the rear end of the oven over the arch thereof and opening into the chimney, of a furnace and two independent flues provided with dampers and leading from the furnace into the front end of the oven through the sole and arch, respectively, whereby the heat and products of combustion may be admitted into said oven from below or from above and caused to traverse the full length of said oven in one direction and above the arch of the oven in a reverse direction to the chimney, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of March, 1885.

SYLVAIN LAMOUREUX.

Witnesses:
ROBT. M. HOOPER,
LÉON SCHMITTBUHL.