

D. McKENZIE.  
Baker's Oven.

2 Sheets—Sheet 1.

No. 213,674.

Patented Mar. 25, 1879.

Fig. 1.

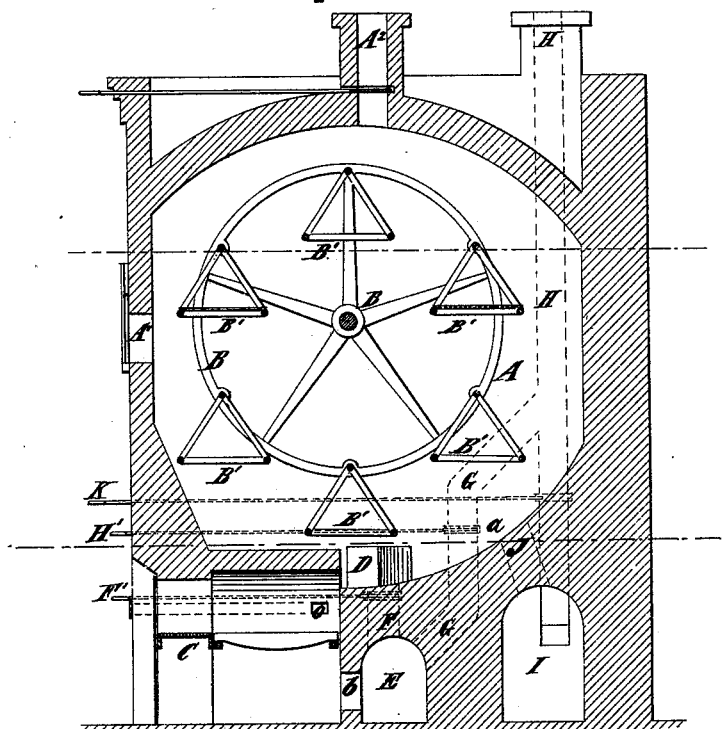
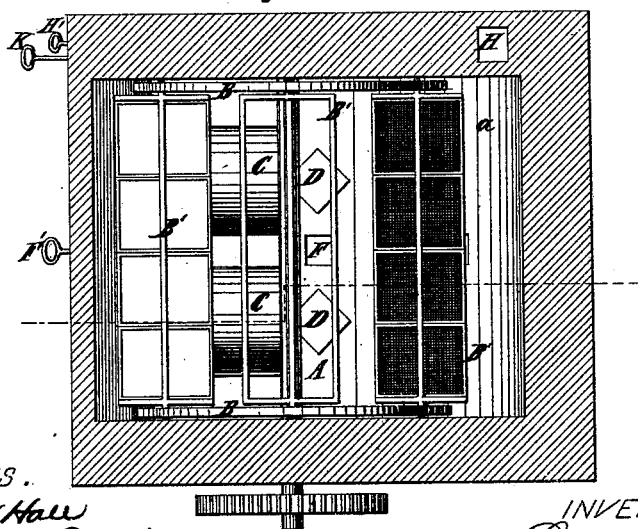


Fig. 2.



WITNESSES.  
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Duncan McKenzie  
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Edwin H. Brown

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Fig. 3.

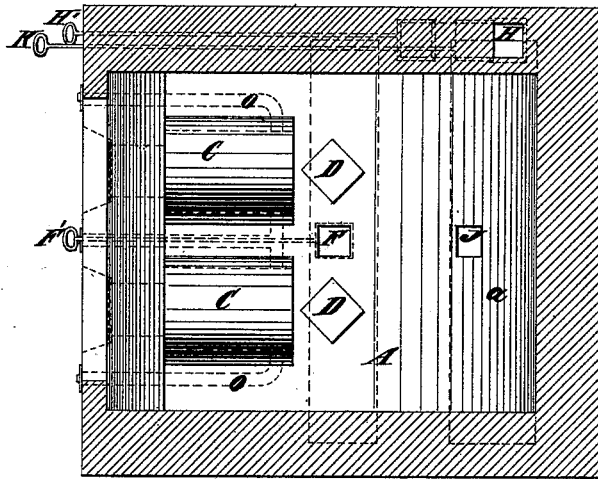


Fig. 4.

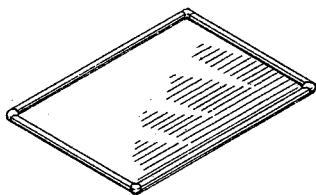
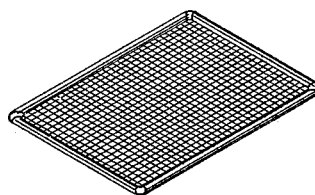


Fig. 5.



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# UNITED STATES PATENT OFFICE.

DUNCAN McKENZIE, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN BAKERS' OVENS.

Specification forming part of Letters Patent No. **213,674**, dated March 25, 1879; application filed July 2, 1878.

### *To all whom it may concern:*

Be it known that I, DUNCAN McKENZIE, of Brooklyn, in Kings county, and State of New York, have invented certain new and useful Improvements in Bakers' Ovens, of which the following is a specification:

One improvement consists in the combination, with a baking-chamber, of a fire-place opening horizontally, or nearly horizontally, at one end into the same, and a slanting portion, against which the products of combustion issuing from said fire-place impinge, whereby they are deflected upward and a reverberatory action given to them.

Another improvement consists in the combination, with a baking-chamber, of a fire-place opening horizontally, or nearly horizontally, at one end into the same, the said baking-chamber having a slanting portion, against which the products of combustion issuing from said fire-place impinge, whereby they are deflected upward, and a deflector or spreader arranged at the opening of said fire-place, whereby they are deflected laterally.

Another improvement consists in the combination, with such a baking-chamber and fire-place, of a rotary reel comprising gravitating open skeleton frames formed of rods joined together to form rectangular bottoms or horizontal portions and triangular open suspending end pieces, whereby the products of combustion may have free access to the articles to be baked, both through the open bottoms and the skeleton end pieces.

Other improvements consist in combinations of various flues and dampers with the baking-chamber and fire-place opening horizontally, or nearly horizontally, whereby a very perfect control of the fire for all kinds of baking is afforded.

In the accompanying drawings, Figure 1 is a vertical section of an oven embodying my improvements, taken transversely to the reel. Fig. 2 is a horizontal section thereof, taken just below the roof of the baking-chamber. Fig. 3 is a horizontal section thereof, taken just above the floor of the baking-chamber. Fig. 4 is a perspective view of a solid or imperforate pan; and Fig. 5 is a perspective view of a reticulated pan.

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

A designates the baking-chamber. It is shown as vertically of approximately circular form internally, having a portion, *a*, of its bottom inclined and rounded or curved upward, for a purpose presently to be described, and having two flat sides. It is provided at one side with an opening, *A*<sup>1</sup>, fitted with a door, through which articles may be inserted into and removed from it, and it is furnished at the top with a chimney, *A*<sup>2</sup>. B designates a rotary reel, which is arranged horizontally in the baking-chamber, and is shown as consisting of circular end frames and connecting-rails or stretchers. B' designates a series of gravitating skeleton frames formed of rods or metal bent into rectangular form, having no bottom inside or within them. They are provided with triangular open hangers, which are pivoted to the cross-rails or stretchers of the reel. The object of using these frames instead of the solid-bottomed shelves ordinarily employed is to provide for exposing the pans containing articles to be baked directly to the action of the products of combustion or heat radiated from the furnace, and to admit of using solid imperforate pans like that shown in Fig. 4 when it is desirable to bake by radiation or reticulated or foraminated pans, like that shown in Fig. 5, through which the products of combustion may freely pass into contact with the article to be baked when it is desirable to bake by direct contact of the products.

C designates fire-places, of which there may be any suitable number, opening horizontally, or nearly so, at one end only, into the baking-chamber A, as shown at Fig. 1, and provided with flues *c*, leading to their portions above the grates, and controlled by dampers. The products of combustion issuing from the fire-places dart out horizontally, and meeting with the inclined and rounded bottom *a* of the baking-chamber and gradually rising are deflected or turned back with a reverberatory action, and hence are rendered very effective, acting on all sides of the articles carried by the reel, and baking them uniformly and economically.

D designates spreaders or deflectors, which

may be arranged opposite the opening of the fire-places to spread or deflect the products of combustion laterally, so that they will circulate more extensively throughout the entire width of the baking-chamber. As shown, they consist of cubical piers of masonry arranged with their corners opposite the centers of the openings of the fire-places.

E designates a chamber, shown as extending near to and past the rear ends of the fire-places, and communicating with them through openings b. F designates a flue extending from the baking-chamber to this chamber E, and controlled by a damper, F'. G designates a branch flue leading from the chamber E to a chimney, H, under control of a damper, H'.

If desirable, the heavy gaseous products of combustion and vapors emanating from the contents of the pans may, by opening the damper F' and closing the damper H', be caused to descend into the chamber E and into the ash-pits, and thence to ascend through the fire-places, so as to stimulate the draft therein.

If it be desirable to heat by radiation only, the damper F' will be closed, the damper H' opened, and the opening A' or the flues o, or both, uncovered, whereupon a downward draft will be produced through the fires into the chamber E, through the branch flue G and into the chimney H. By opening both of the dampers F' and H' a draft through the chimney H may be effected.

I designates another chamber, arranged parallel with the chamber E, communicating by a flue, J, with the baking-chamber and with the chimney H, under control of a damper, K. By opening the damper K a draft through the chimney H may be established.

It is obvious that the skeleton frames having the triangular open pieces permit the products of combustion to have free access to all the articles placed thereon to be baked, and hence that the said articles will be very uniformly baked.

It will be seen that by my invention a very economical and effective baker's oven is produced, owing to the reverberatory action of the products of combustion therein, that a perfect control of such an oven is afforded, owing to the system, and that moreover permits of the baking by direct contact of the products of combustion, or by radiation, because of the provision for using imperforate or foraminated pans.

I am aware that a horizontally-circular baking-chamber has been used in combination with a fire-place opening almost horizontally thereinto; but as no reverberatory action of the products of combustion was attained as

results from the use of my above-described improvements, I make no claim to them as my invention.

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

1. The combination, with a baking-chamber, of a fire-place opening horizontally, or nearly horizontally, at one end into the same, and a slanting portion, against which the products of combustion issuing from said fire-place impinge, whereby they are deflected upward and a reverberatory action given to them, substantially as specified.

2. The combination, with a baking-chamber, of a fire-place opening horizontally, or nearly horizontally, at one end into the same, the said baking-chamber having a slanting portion, against which the products of combustion issuing from said fire-place impinge, whereby they are deflected upward, and a deflector or spreader arranged at the opening of said fire-place, whereby they are deflected laterally, substantially as specified.

3. The combination, with a baking-chamber and a fire-place opening horizontally, or nearly horizontally, at one end into the same, the said baking-chamber having a slanting portion, against which the products of combustion issuing from said fire-place impinge, whereby they are deflected upward, of a rotary reel comprising gravitating open skeleton frames formed of rods joined together to form rectangular bottoms or horizontal portions, and triangular open suspending end pieces, the whole being combined and organized substantially as specified, whereby a reverberatory action of the products of combustion is created and the articles to be baked exposed on all sides thereto, owing to the open character of the frames, are carried round the baking-chamber, and a uniform baking of the articles by direct contact of the products of combustion is attained.

4. The combination, with an approximately-circular baking-chamber, A, opening A', fire-place C, opening horizontally at one end only into said baking-chamber, reel B, and skeleton gravitating open frames B', of flues communicating under control of dampers, one from under the grate of the fire-place to the flue H, and another from the baking-chamber to the said flue H, whereby provision is afforded for effectually baking by radiation or direct contact, substantially as specified.

DUNCAN MCKENZIE.

Witnesses:

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