DUNHAM & GREEN.

Baker's Oven.

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OVEN.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, JOHN S. DUNHAM and JAMES GREEN, of the city of St. Louis, in the county of St. Louis, and State of Missouri, have made certain new and useful Improvements in Baking-Ovens; and we do hereby declare the following to be a full and true description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to such a construction of the oven that the baking may be continued therein without interruption during the time of recharging the fires; the arrangement of heat-passages and flues being such that the hot gases arising from the combustion may be passed into the baking-chamber when clear of smoke, or may be excluded therefrom when not clear; said chamber being always heated from the flues and passages about and surrounding the same, as well as by the introduction of heated air or gases into the same when deemed proper.

This invention further relates to the arrangement of air-ducts to supply air not unduly parched or dried by combustion, within the baking-chamber, as may be necessary in baking.

To enable those herein skilled to make and use our said invention, we will now more fully describe the same, referring herein to the accompanying

Figure 1 as a front view; to

Figure 2 as a transverse section at line $x\ y$ of the plan, as shown in

Figure 3, which is a sectional view at line $x^1\ y^1$ of fig. 2; and to

Figure 4 as a section at line $x^2\ y^2$ of plan, fig. 2.

We form enclosing-walls A, for our said oven, of proper material, usually fire-brick, and generally in the arrangement shown in the several figures.

At the front, we locate the fire-places B, the grates being usually set back from the face of the oven.

The fire-places are arranged with proper doors and ash-pits, in the usual manner.

From the fire-places B the hot air passes back in the passage C to the rear end of the oven, to rise by the flues D.

The floor E is immediately over the passage C, resting, by suitable (fire-clay) blocks *e*, upon the base wall A', and above the floor E is the second floor F, forming the bottom or floor of the baking-chamber, and resting by blocks *f* on the floor E.

The floors E and F are usually made of fire-clay, flanged tiles, or similar plates, and between them form the passage E', in which the heated air or gases pass forward, thus acting to heat the oven-chamber which is directly above, and distribute over the entire width of the oven-base.

At the front wall of the oven are the rising flues G, which carry the heat up to the passage H. This is formed between the top or crown of the oven I and the second top or cover K, and extends to the rear end of the oven, connecting them with the chimney L.

The hot gases thus have been passed forward under the entire base of the oven, by the passage E', up the front, and then back over the entire crown, by the passage H.

The flues D connect, by their continuations D', with the chimney L. Thus, if desired, a body of hot air may be made to encase the back of the oven, and complete the heating-surface which thus envelops the chamber M on all four sides.

Connecting with the passage E, we arrange on the other sides of the oven the flues N, which lead to the interior of the oven-chamber M. These flues have dampers *n*, operated by a lever from without, to regulate or check the incoming flow of heated gases. If the dampers *n* are closed, then these flues are reservoirs of hot air, completing with the flues and passages above described, the hot-air encasement of the oven-chamber.

The oven-chamber has doors *m*, and above these are the flues M', leading to the passage H, dampers *m'* regulate the passage of heated air in said flues.

In case of undue heat in the oven, the flues M' will act to relieve the same.

The entrance from the flues D to the passage E' is controlled by a damper, *d*, and the entrance to the flue D' is controlled by a damper, *d'*. If the flue-passage to E' is closed, the damper *d'* being opened, the hot air goes directly to the chimney, avoiding the oven proper. Similarly there are dampers *g* in the rising flues G.

By all said dampers the temperature at different parts of the oven may be regulated as required; and when the baking-chamber has attained its heat, by judicious regulation of said dampers, a casing of hot air may be maintained about said chamber to preserve the oven-heat at an economical expenditure of fuel.

If fresh fuel is added, causing smoke, the operator closes the dampers *n*, to cut off the entrance of the gases to the inner oven, the baking being continued as ordinarily.

To produce a thorough baking, it is frequently necessary to avoid undue desiccation of the rarefied oven-atmosphere, by introducing moisture. For the achievement of the same effect, we introduce air to the oven-chamber as follows: Between the fire-places we arrange air-ducts O, controlled by proper slides or valves, in passing air over the top of the fire-place, and then back to the flues D and passage E', to enter the oven by the side flues N.

This introduction of air also reduces any undue heat in the passage E′. Similarly at the rear of the oven there are air-passages O′.

The combustion of the fuel will be aided by air-ducts *b*, arranged as indicated in fig. 4.

A damper, *l*, regulates the passage of hot air to the chimney or confines the heat to the crown of the oven.

Having thus fully described our said invention,

What we claim, is—

1. The arrangement of the passages C and D′, extending under the full width of the oven-floors, with flues G or D′, and the passage H, extending over the full width of the oven crown, for distributing and equalizing the heat about the oven, substantially as set forth.

2. The side flues N, with dampers *n*, to carry heated air into the baking-chamber, in combination with the flues M′ and dampers *m′*, to carry off the heated air, when necessary, substantially as set forth.

3. The air-ducts O, controlled by proper slides, combined with the passage C, flues D, and passage E′, and side flues N, to carry air into the baking-chamber, substantially as set forth.

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