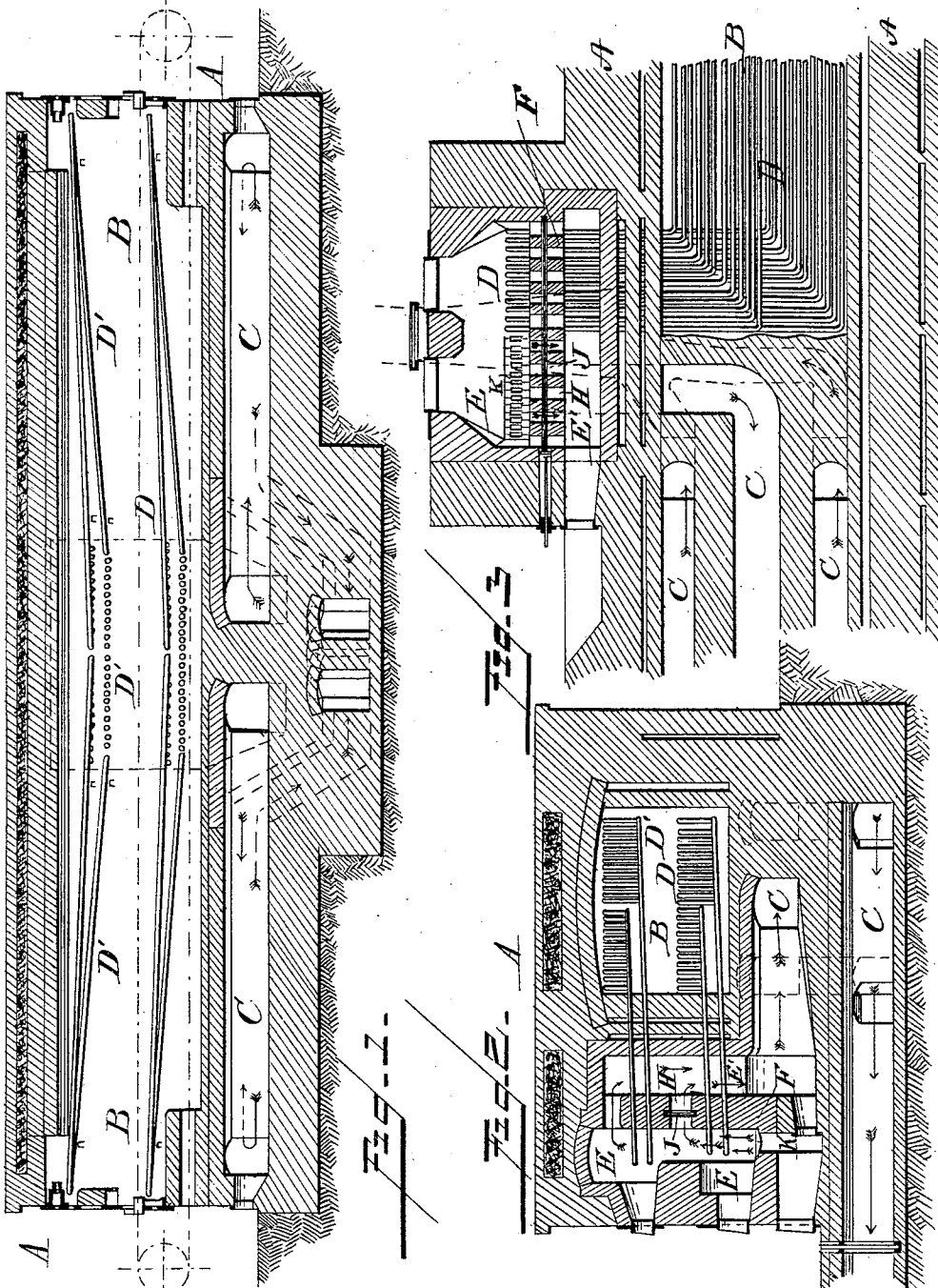


(No Model)

R. LEHMANN.
BAKER'S OVEN.

No. 582,752.

Patented May 18, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

RICHARD LEHMANN, OF DRESDEN, GERMANY.

BAKER'S OVEN.

SPECIFICATION forming part of Letters Patent No. 582,752, dated May 18, 1897.

Application filed October 28, 1895. Serial No. 567,195. (No model.) Patented in England July 17, 1895, No. 13,696.

To all whom it may concern:

Be it known that I, RICHARD LEHMANN, a subject of the King of Saxony, residing at Dresden, Kingdom of Saxony, German Empire, have invented certain new and useful Improvements in or Relating to Bakers' Ovens, (for which I have obtained Letters Patent of Great Britain, No. 13,696, dated July 17, 1895,) of which the following is a specification.

The present invention relates to an oven for baking biscuits and the like, wherein the heating is effected by means of water-pipes heated by an outside furnace placed at one side of it.

This invention is illustrated in the two accompanying sheets of drawings, wherein—

Figure 1 is a longitudinal vertical section of the baking oven and flues. Fig. 2 is a cross-section, and Fig. 3 is a plan, of the same.

Like letters indicate like parts throughout.

The oven A is accessible from both ends and provided on both sides with openings communicating with the vaulted baking-chamber B. In addition, a number of channels or passages C are arranged in the longitudinal and transverse directions of the oven, serving to conduct the heated gases and combustion products developed by the furnace.

In the baking space or chamber B there are a number of pipes D D', arranged in two rows, one above the other. These pipes, each of which can be separately cut off or closed, or which may also all be in communication with each other, are bent at right angles in the direction of the side of the baking-chamber and prolonged thence through the intervening walls and passages into the furnace, which is constructed on either of the longitudinal sides of the oven.

The two series of pipes D D and D' D' have their ends supported by the cross-wall F, which traverses the furnace E throughout its entire width, dividing it into two portions E and E' in such manner that the pipe ends project from the partition-wall F into the front part of the furnace or fire-space E.

The partition-wall F is pierced by passages G in its upper part above the pipes, and also between the pipes centrally, by passages H, which latter may all be closed by disks J,

operated from outside at one or other side, Fig. 3.

The heated gases and combustion products from the furnace-fire, maintained on the fire-grate K, ascend in the direction shown by the arrows, play upon the exposed projecting ends of the pipes D D', and are then drawn through the upper open passages G of the partition-wall F into the back division E' of the furnace E—assuming, that is, of course, that the central channels or flues H are closed by the disks J—and while descending therein play upon the pipes D D' in the opposite direction. Thence they pass away by the flues or passages C toward the chimney. If, on the other hand, however, the central passages H in the partition-wall F are opened by drawing back the rod and disks J, Fig. 3, the major part of the hot gases and combustion products will naturally take the short cut thus opened to them from the portion E of the fire-space to the portion E', and consequently play upon and around the lower layer of pipes D D. This arrangement enables me either to generate and maintain a uniform top and bottom temperature in the oven by compelling the heated gases and combustion products to traverse the upper part of the furnace and the top passages or flues G, (the central flues H being closed,) so as to play on and heat uniformly both the upper and lower series of pipes, or to establish a maximum temperature at the bottom, with a minimum temperature at the top, of the oven by opening the central passages or flues H, so that the bulk of the heated gases and combustion products passes by this short cut, and consequently heats the lower series of pipes D the most, while the upper series of pipes D' is less heated by the much smaller portion of the heated gases and combustion products, which still makes the entire circuit and plays upon the upper series of pipes D'.

The articles to be baked are introduced into the oven from either end and removed from the other end, and for this purpose a continuously-moving surface, on which the articles to be baked are suitably disposed, is arranged to traverse the length of the oven, while a number of endless chains (in this case four, as shown) run over disks or rollers, rotating outside each end of the oven, and being ac-

tuated in a suitable manner by any kind of driving mechanism. The baking-tins, containing the articles to be baked on them, are placed on these chains and pass slowly through the oven, to be taken out when the baking is complete at the other end. These endless chains are so arranged as to run above and below the lower series of heating-tubes D, which radiate their heat into the lower part of the oven, while the upper series of tubes D' give out theirs into the upper part of the oven.

It will be easily understood, as being an integral element of the invention above described, that in place of and in substitution for the said endless chains any other suitable mechanism can be employed to effect the slow progress through the oven of the articles to be baked—*e. g.*, a fixed table, along which the baking-tins, carrying the articles to be baked, are pushed. Neither is it necessary or essential that the articles to be baked should be fed in at one end of the oven and removed from the other end, but both the charging and discharging of the oven may be carried on simultaneously at each end.

I claim—

1. A baking-oven having a baking-chamber, a furnace, and a partition-wall forming an intermediate chamber between the furnace and baking-chamber, said wall being provided with openings at the top to provide communi-

cation between the furnace and said intermediate chamber, and also with other openings somewhat below the first openings, to provide similar communication, and regulating valves or dampers for the lower openings in combination with pipes arranged in the baking-chamber in different series one above the other, one end of each series being extended across the intermediate chamber and through the partition-wall into the furnace, the end of the upper series of pipes being between the top and lower openings of the said wall, and the end of the lower series being below said lower openings, for the purpose specified.

2. A baking-oven having a baking-chamber extending longitudinally thereof and accessible at both ends and a furnace arranged on one of the longitudinal sides of the oven and a partition-wall, in combination with pipes arranged with one end in the furnace and extending through the partition-wall and being bent at an angle and extending longitudinally of and within the baking-chamber, said pipes being divided into series one above the other, as specified.

In witness that I claim the foregoing as my invention I have hereunto set my hand in the presence of two witnesses.

RICHARD LEHMANN.

Witnesses:

RUD. SCHMIDT,
HERNANDO DE SOTO.