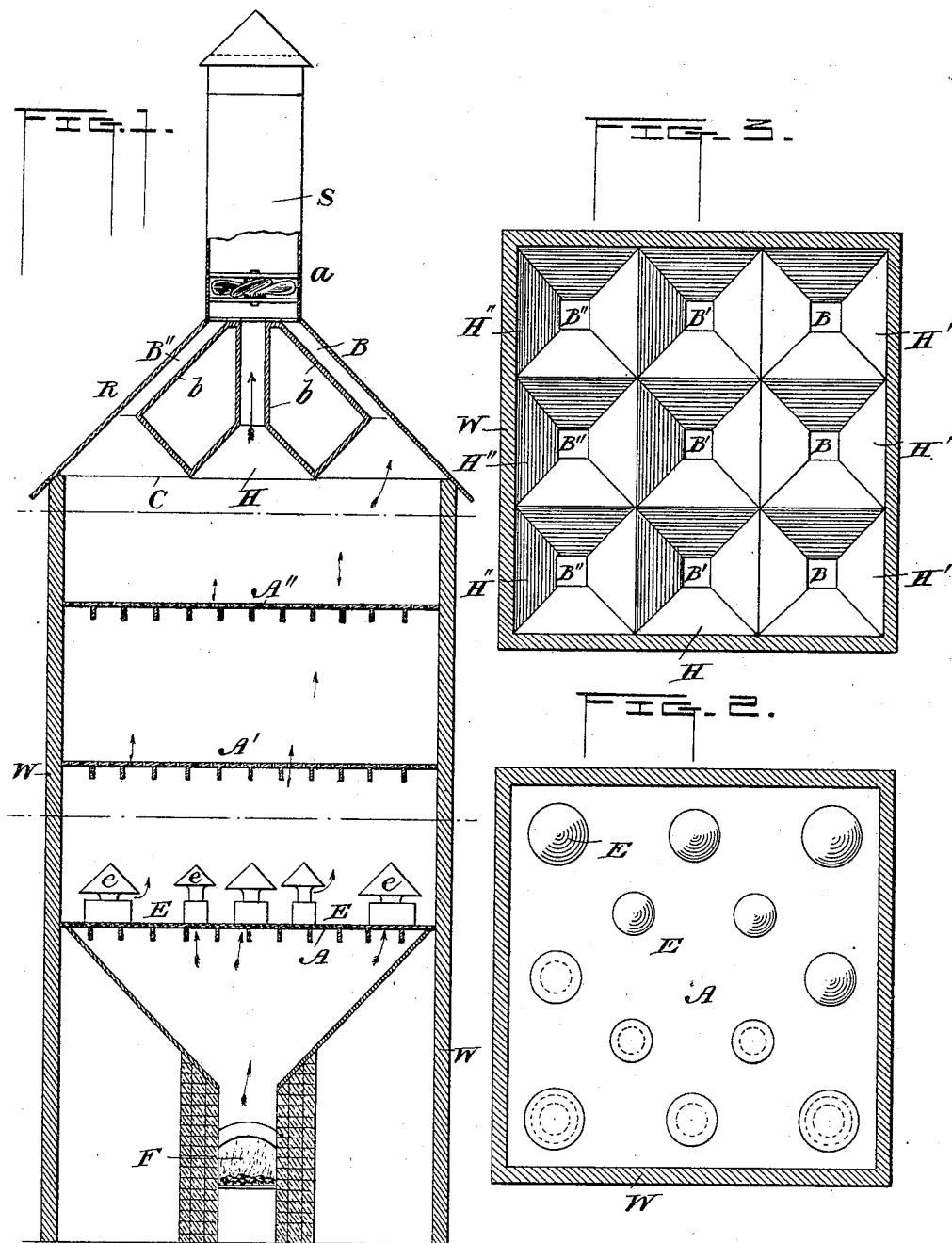


(No Model.)

C. G. BOSCH.
MALT DRYING KILN.

No. 481,687.

Patented Aug. 30, 1892.



Witnesses

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CARL G. BOSCH, OF DAVENPORT, IOWA.

MALT-DRYING KILN.

SPECIFICATION forming part of Letters Patent No. 481,687, dated August 30, 1892.

Application filed June 30, 1890. Serial No. 357,244. (No model.)

To all whom it may concern:

Be it known that I, CARL G. BOSCH, a citizen of the United States, residing at Davenport, in the county of Cook and State of Iowa, have invented a new and useful Improvement in Malt-Drying Kilns, of which the following is a specification.

My invention consists in the improved form of malt-drying kiln hereinafter to be more fully described and claimed.

In the drawings, Figure 1 is a vertical section of the malt-drying kiln. Fig. 2 is a plan view of the floor located below malt-floor, and Fig. 3 is an under view of the ceiling.

In drying malt it is the custom to spread the same on one or more perforated floors and pass a current of air (frequently artificially dried and heated) through the same. Said current of air, entering at the bottom of the kiln, is drawn out at the top by suction or by virtue of the pressure with which it is forced in at the bottom. The difficulty encountered has been that but one outlet being provided for the air the greater portion thereof passed up through the center of the kiln and little or none near the edges, whereby the malt spread on the floor was unequally dried. To avoid this and to construct a kiln in which the charge, whether the substance be malt or anything else, spread upon the floors for drying shall be equally and evenly affected, I have designed the construction described and illustrated, in which—

W represents the walls of the kiln, in which are one or more perforated floors A A' A'', the lower floor A having large air-openings, while the perforations in A' and A'' are very small. The air underneath the first floor A is preferably introduced over a heating and drying furnace F and passes up through the floor A through the special openings E provided therefor. These openings are of varying area, those nearest the walls, and especially those nearest the corner of the kiln, being the largest, as shown in Fig. 2. These openings are protected by certain overhanging shields e e, which prevent the material from dropping down through the openings into the air-passage, and also tend somewhat to diffuse the currents of air.

The roof R of the kiln supports a stack S,

in which is preferably placed a suction-apparatus a, although in some cases the natural draft of the heated air up through the kiln will be sufficient. The said suction apparatus when used is adapted to draw air by means of a number of branch inlets B B' B'' through various points in the ceiling C. These openings in the ceiling, to which the branch inlets are connected, may be, of course, of any desired form; but I prefer to make them in the shape of bells or inverted hoppers H H' H'', as shown in Figs. 1 and 3. In this way every portion of the ceiling has either an air-opening or is inclined toward one of the air openings and outlets.

Suitable dampers b b may be arranged at any point in the branch pipes B B' B''.

The branch inlets or pipes may be used without a ceiling or the ceiling may be used without the inlet-pipes; but I prefer to use both.

The method of operation of my invention is the following: The air, being admitted beneath the lower floor A, will pass up through the special openings E provided therefor, and as said openings are largest toward the edges of the walls the greater quantity of air will be admitted there. The tendency of the current of air to concentrate at the central portion of the kiln will therefore be counteracted by this arrangement and by the equal draft extending straight up to the large number of openings in the ceiling. Thus the air passing through the said openings E in the floor A will be compelled to pass directly up near the walls of the kiln to the outlets H H' H'', and the malt distributed on the perforated floors in its path will be evenly dried in the manner desired. The function of the lower floor may be accomplished by increasing the number of openings in the same near the walls and corners of the same, instead of increasing their sizes, and in this application, wherein the size of the openings near the walls of the kiln is spoken of as being larger, it includes and means, also, increasing their number. The dampers in the inlet-pipes are also used to regulate the ascent of air through them, so that the ascending current may be equalized or made greatest near the walls.

Having therefore described my invention,

what I claim as new, and desire to protect by Letters Patent, is—

1. In a malt-drying kiln, the combination, with the walls of the drying-chamber, of a floor
5 immediately in the line of the air-supply connections, said floor being provided with openings uniformly increasing in size from the central portion of said floor in all directions toward said walls, a ceiling with openings ar-
10 ranged uniformly throughout its plane or surface, said openings having upwardly-extending walls diminishing in cross-section, a draft tower or exit for the air, and perforated floors or trays located intermediate of the said floor
15 and ceiling to carry and support the material to be dried, all substantially as described.

2. In a malt-drying kiln, the combination, with the walls of the drying-chamber, of a floor

immediately in the line of the air-supply connections, said floor being provided with tubu- 20
lar openings uniformly increasing in size from the central portion of said floor in all directions toward said walls, said tubular openings being provided with overhanging shields, a ceiling with openings arranged uniformly 25
throughout its plane or surface, said openings having upwardly-extending walls diminishing in cross-section, a draft tower or exit for the air, and perforated floors or trays located intermediate of the said floor and ceiling to 30
carry and support the material to be dried, all substantially as described.

CARL G. BOSCH.

In presence of—

FREDERICK SEARLE,
LUKE BROOKS.