

(No Model.)

2 Sheets—Sheet 1.

F. HALBEISEN.
KILN.

No. 520,641.

Patented May 29, 1894.

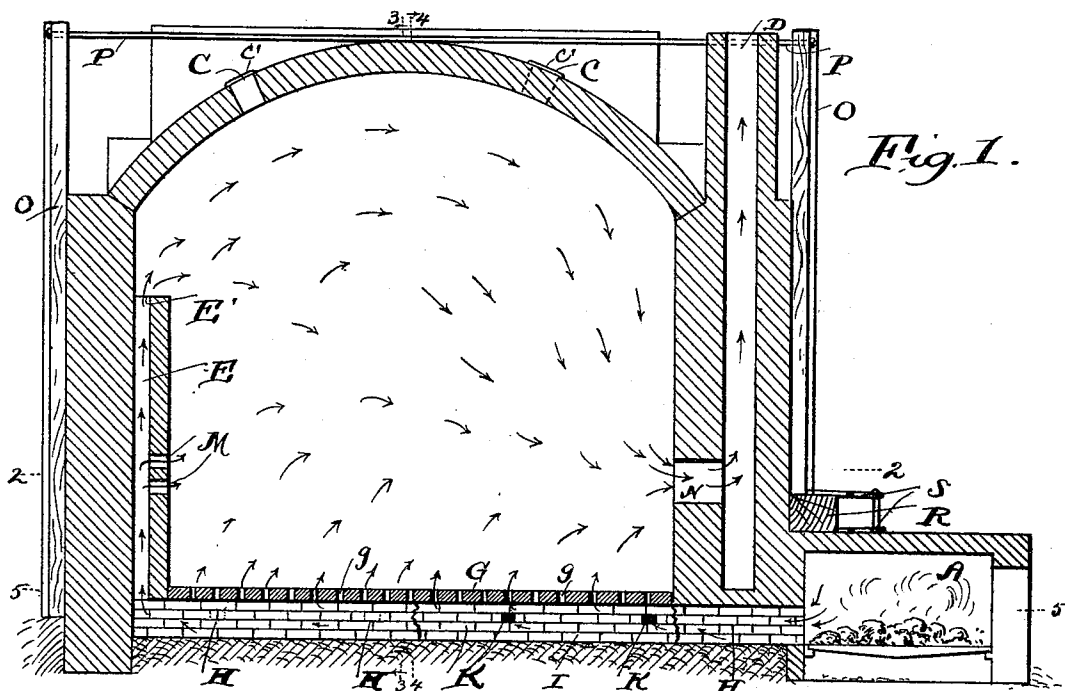
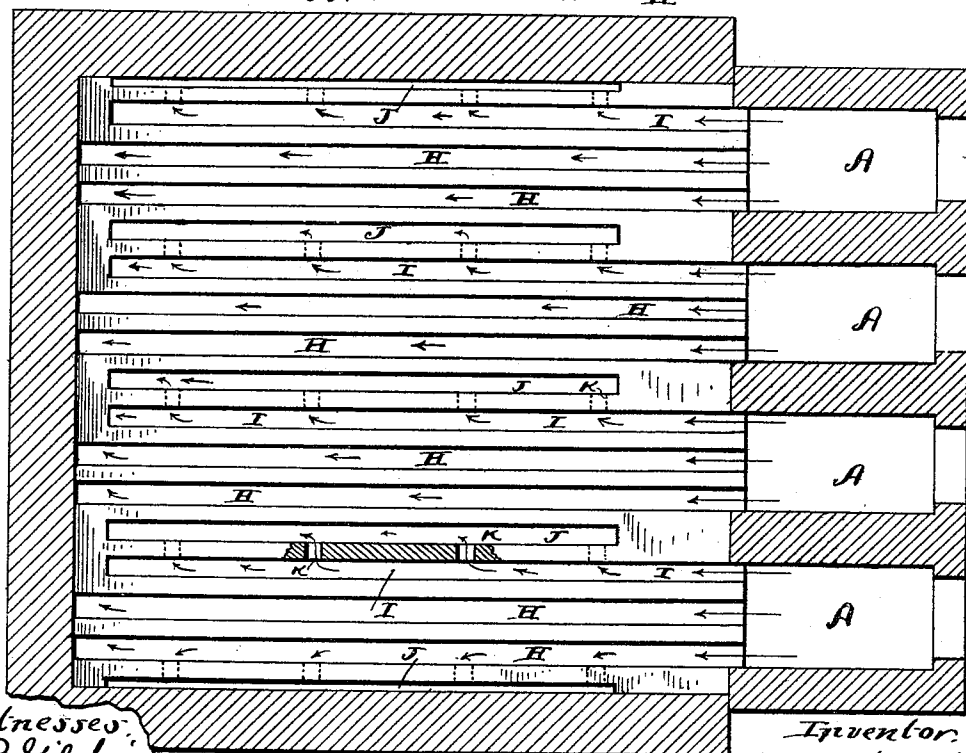


Fig. 1.



Witnessed
E. B. Gilchrist
Clerk

Fig. 5.

Inventor
Frank Halbeisen

By Seggett & Seggett
Attorneys.

F. HALBEISEN.
KILN.

No. 520,641.

Patented May 29, 1894.

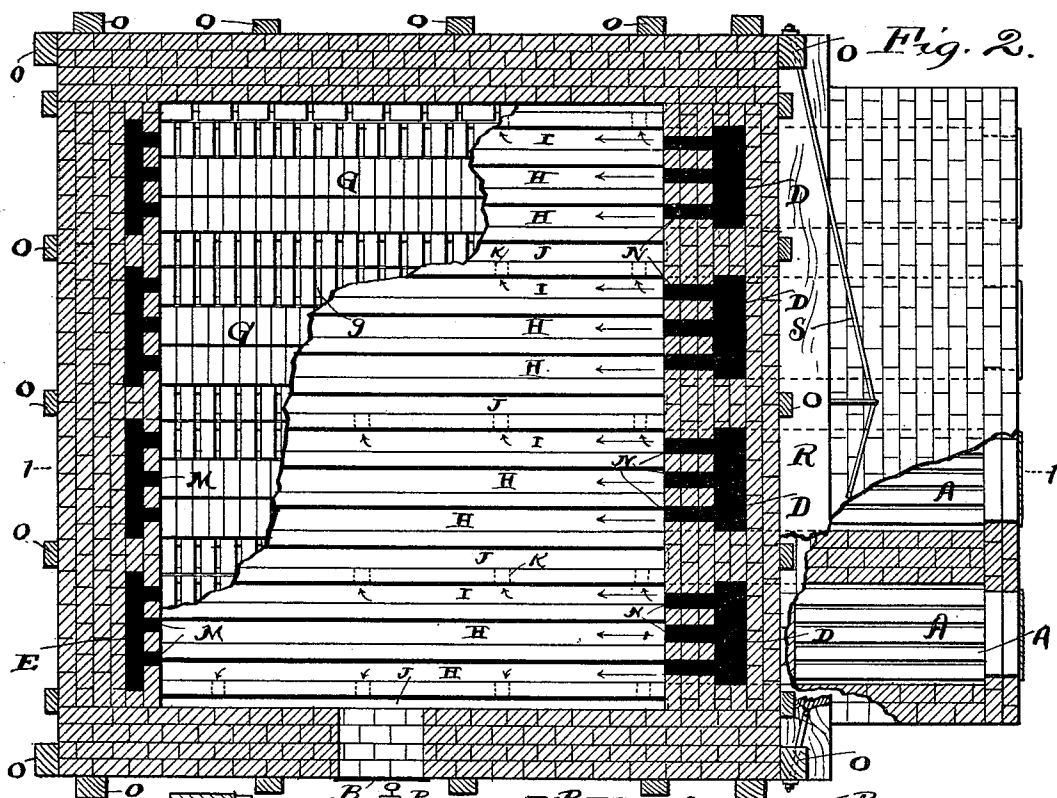


Fig. 3.

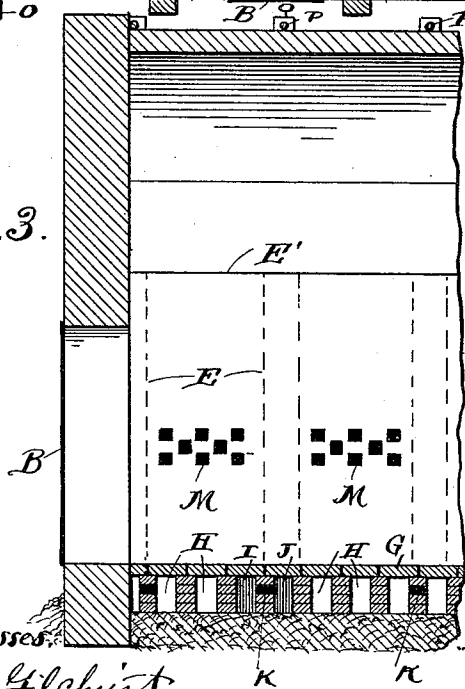
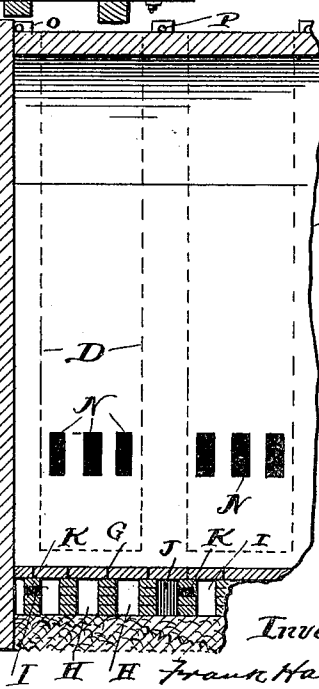


Fig. 4.



Witnesses:
E. B. Gilchrist
Corporation

Inventor:
Frank Halbeisen
By Seppelt & Seppelt
his Attorneys.

UNITED STATES PATENT OFFICE.

FRANK HALBEISEN, OF ERLIN, OHIO.

KILN.

SPECIFICATION forming part of Letters Patent No. 520,641, dated May 29, 1894.

Application filed October 3, 1893. Serial No. 487,094. (No model.)

To all whom it may concern:

Be it known that I, FRANK HALBEISEN, of Erlin, in the county of Sandusky and State of Ohio, have invented certain new and useful

Improvements in Kilns; 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 pertains to make and use the same.

My invention relates to improvements in kilns; and it consists in certain features of construction and combinations of parts hereinafter described and pointed out in the claims, the object being to construct a kiln whereby the heat from the kiln-fires or furnaces is quickly and evenly distributed throughout the kiln, requiring less time to burn, and burning more uniformly, the ware or objects placed in the kiln.

A preferable construction of kiln embodying my invention is shown in the accompanying drawings, wherein—

Figure 1 is a vertical section of the same and Fig. 2 is a top plan in horizontal section on line 2—2, Fig. 1, the section in Fig. 1 being taken on line 1—1, Fig. 2, and portions being broken away in Fig. 2 to more clearly show certain features in the construction. Figs. 3 and 4 are vertical sections on lines 3—3 and 4—4, respectively, Fig. 1, looking in the direction of the arrows, portions being broken away to reduce the size of the figures and more clearly show the construction. Fig. 5 is a top plan in horizontal section on line 5—5, Fig. 1, with portions broken away.

My improved kiln is preferably quadrangular in plan as shown in Figs. 2 and 5, with the fires or furnaces A located at one side but outside of the body of the kiln. The kiln at one of the sides adjacent to the side at which the fires or furnaces are located, is provided with a door, B, at which the ware or objects to be burned or having been burned are placed into or removed from the kiln as the case may be, and the top of the kiln is provided with man-holes C, the lids or covers for said holes being designated by *c'*.

The kiln illustrated is provided with four fires or furnaces, (see Fig. 5,) and I would here remark that the grate-surface of the furnaces should be as large as practicable.

D represents the chimneys of the kiln, the

same being provided in the wall of the kiln at the rear of the fires or furnaces, a chimney being shown provided at the rear of each furnace as shown in Fig. 2. At the inner side of the wall of the kiln, opposite the side at which the chimneys are located, are provided upright flues, E, that discharge at *E'* into the upper half or portion of the kiln, a flue E being provided preferably directly opposite each chimney as shown in Figs. 1 and 2.

G designates the floor of the kiln; and one or more flues H located below the floor, lead from each fire or furnace to and discharge into upright flue E located directly opposite the respective furnace. Also, a flue, I, arranged parallel with flues H, leads from each fire or furnace. Flues I extend almost the entire length of flues H as shown very clearly in Fig. 5, but do not discharge into upright flues E.

In a plane located between adjacent fires or furnaces, and arranged parallel with the adjacent flue I, is located another flue J, that is in open relation with said flue I by means of ducts or passage-ways K provided at suitable intervals lengthwise of said flues, and flues I and J discharge into the lower portion of the kiln through ducts or perforations, *g* in the floor or kiln, ducts or perforations *g* being provided at suitable intervals lengthwise of the flues. (See Figs. 1 and 2.)

Lateral ducts or passage-ways M establish open relation between upright flues E and the lower half or portion of the interior of the kiln, said ducts or passage-ways being preferably located so as to discharge into the kiln about one-third of the height of the chamber of the kiln above the floor of the kiln.

N designates the ducts or openings that lead from the interior of the kiln into chimneys D, said ducts or openings being located preferably in about the same plane with ducts or passage-ways M, as shown in Fig. 1.

By the construction hereinbefore described, and as indicated by the arrows in Fig. 1, it will be observed that the products of combustion from the fires or furnaces pass into flues H below the chimneys, a portion of the products passing into upright flues E, and the remainder through flues and ducts I J K *g* into the lower portion of the kiln; a portion of the products of combustion passing into

upright flues E is conducted into the upper portion of the kiln while the remainder enters the kiln nearer the floor, through lateral ducts or passage-ways M.

5 The heat from the products of combustion is economically utilized to the best advantage, and rapidly and evenly distributed into all parts of the kiln. Hence, the ware or objects placed in the kiln, for burning, are quickly
10 and uniformly burned. It will also be observed that the products of combustion from the fires or furnaces, in passing into the kiln, strike the feet of the chimneys as hereinbefore described, the result being an immediate
15 warming of the chimneys and thereby creating the draft desired.

A feature of my invention of no inconsiderable importance consists in discharging heat directly into the lower and upper portions of the kiln as hereinbefore described, whereby the heat discharged into the upper
20 portion of the kiln is at once attracted, or caused to turn downwardly, by the heat discharged into the lower portion of the kiln, resulting in a large and equal distribution of
25 the heat above the ware or objects being burned, vastly economizing in fuel and time required for burning, for it is obvious that the more heat distributed about the ware or
30 objects being burned the less fuel and time is required to do the burning.

The kiln, in the main, is, of course, built of brick, and the walls thereof suitably bound together, preferably as shown in Fig. 2, where-
35 in upright timbers or beams, O, engage each wall of the kiln on the outside, the timbers on opposite sides being tied together by means of rods, P, (see Fig. 1.)

The upright timbers or beams at the side of
40 the kiln, at which the furnaces are located, rest upon a cross-beam or timber R (see Figs. 1 and 2) that is supported in any suitable manner over the rear portion of the furnaces and is suitably trussed, as at S.

45 What I claim is—

1. A kiln having its fires or furnaces located

at one side, chimneys provided in the wall adjacent to the furnaces, ducts or openings leading from the lower half of the interior of the kiln to said chimneys, upright flues located
50 at the side of the kiln opposite to the side having the chimneys, said upright flues discharging into the upper half of the kiln, ducts or flues H leading, from the furnaces, to and discharging into the lower end of said upright
55 flue or flues, other flues I arranged parallel or approximately parallel with flues H, said flues I leading from the furnaces and extending almost the entire length of flues H, and passage-ways at suitable intervals along flues I
60 for establishing open communication between said flues and the interior of the kiln, substantially as and for the purpose set forth.

2. A kiln having its fires or furnaces located at one side, chimneys D adjacent the furnaces,
65 ducts or openings N establishing open relation between the lower half of the interior of the kiln and said chimneys, upright flues N located at the side of the kiln opposite to the side having the chimneys, said upright flues
70 discharging into the upper half of the kiln, ducts or passage-ways M establishing open relation between said upright flues and the lower half of the interior of the kiln, flues
75 H, I and J arranged parallel with each other below the floor of the kiln, or approximately so, flues H and I leading from the furnaces, and flues H discharging into the aforesaid upright flues, ducts or passage-ways establishing
80 open relation, at suitable intervals, between flues I and J and passage-ways establishing open communication, at suitable intervals, between flues J and the interior of the kiln, substantially as and for the purpose
85 set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 12th day of July, 1893.

FRANK HALBEISEN.

Witnesses:

LESTER WILSON,
V. D. BUTMAN.