(No Model.)

G. F. COTTON.

BRICK KILN.

No. 287,633. Patented Oct. 30, 1883.

Fig. 1.

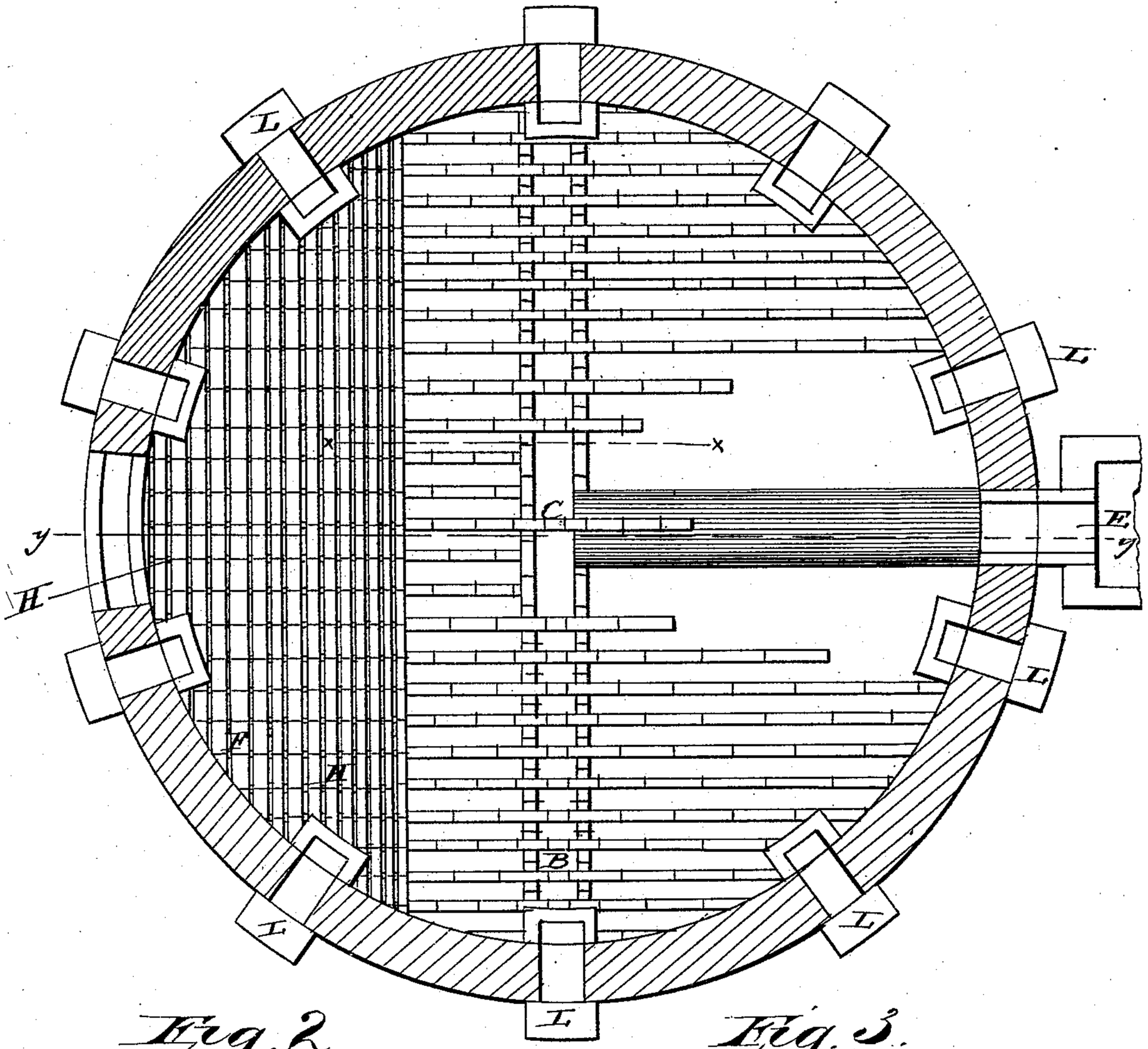

Fig. 2.

Fig. 3.

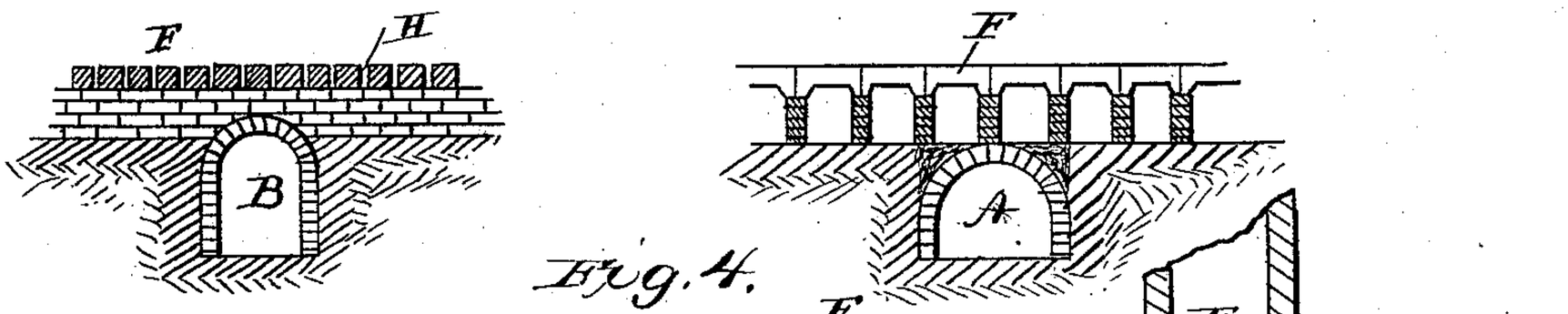

Fig. 4.

WITNESSES

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BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 287,633, dated October 20, 1883.

Application filed July 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. COTTON, a citizen of the United States, residing at Bushnell, in the county of McDonough and State of Illinois, have invented certain new and useful Improvements in Brick-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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a longitudinal section through my improved kiln, showing the floor thereof. Fig. 2 is a section taken in the vertical plane indicated by the dotted lines *x x* marked on Fig. 1. Fig. 3 is a section taken vertically and transversely through Fig. 1 in the plane indicated by the dotted lines thereon marked *y y*. Fig. 4 is a section on line *z z* of Fig. 1.

It is well known that in the manufacture of tiles, kilns as heretofore constructed have no provision for an equable distribution of the heat, for which reason many of the tiles are overburned and others are not burned enough.

My invention has for its object the construction of a kiln for burning or baking tiles, wherein the heat is equally distributed and the tiles are evenly burned, as will be fully understood from the following description, when taken in connection with the annexed drawings.

Prior to my invention kilns have been so constructed that the downward draft through the tiles and into the main flues beneath the floor of the kiln has not been evenly distributed, and over the main flue there was no downdraft. In this arrangement of the tiles in the kiln they were placed directly over the main flue, which leads to the stack or uptake. The result was that those tiles which were over the main flue were soft-burned. I will show by what follows that I have a floor for my kiln which is so constructed that practically every part of its surface affords a downward draft of heat from the furnaces. This I effect by depressing the main duct or flue from the center of the body of the kiln-wall to the chimney or uptake. This main duct is arched over. I construct small cross arches or ducts, so arranged that nearly the entire superficial area of the floor affords apertures for the descent of the products of combustion or downdraft into the archways.

E designates the chimney or uptake, and A is the main conduit or flue leading off from the center of the kiln to said chimney E.

C C designate cross-flues, which are not covered, but arched over, say, every four inches. These cross-flues are at right angles to the flue A. This flue A is arched, and is entirely covered, and its bottom or floor is level with the bottom of the flues C. The products of combustion pass from the flues C through the flue A, to and through the chimney E.

D D designate small flues or conduits, which are just beneath the floor.

The letters F indicate the bricks which form the floor, which bricks are set edgewise with ends abutting, having spaces between the rows at their sides. The products of combustion pass down through said interstices of the floor-bricks F and enter the conduits D, which may vary in size, and which are arranged at right angles with respect to the flues C and parallel with the main flue A, as clearly illustrated by Fig. 1. These conduits D are over the flues C and A. The products of combustion pass from the conduits D at the crossings thereof, with the conduits C down into the latter.

It will be observed that the bottom of the conduits D cross even with the top of the conduits C. From C the smoke and heat passes into conduit A at the center of the kiln, which conduit is crossed by the walls designated by J, that are arched as they extend over the conduit C, on which walls the flooring-brick are laid edgewise, the brick subtending from wall to wall.

It will be observed from the foregoing description that I compose a kiln-floor of conduits which are arranged radially with respect to the outer wall of the kiln, and which are broken up into sections, including the entire superficial area of the floor, with interstices leading downwardly into the said conduits, and with a common outlet or chimney that communicates with the diametrical conduits C C by means of a single arched flue, A.

The kiln-wall G is represented as circular, with furnaces or fire-boxes H, arranged equidistant around and outside of the same; but I may make my kiln-wall prismatic.

It will also be observed that the floor of my kiln is so constructed that there are numerous apertures leading down into arches which have a common outlet—to wit, the uptake or chimney and its radial conduit. By these means the heat is, as far as practicable, distributed evenly over the entire floor, and consequently over the tiles which are arranged upon said floor.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a tile-burning kiln, of a series of conduits arranged at right angles to a diametrical conduit, a diametrical conduit communicating with an uptake, the upper and lower series of conduits forming a floor having downward-draft interstices, and the surrounding furnaces L, all constructed and arranged to operate substantially as described.

2. In a tile-burning kiln, the combination of the outer wall, the furnaces applied thereto, the diametrical conduits C, arched as described, the conduits arranged at right angles thereto, the conduits arranged parallel thereto, the main outlet A, and the chimney communicating therewith, substantially as described.

3. The combination of a circular or prismatic kiln-wall provided with a series of furnaces, a kiln-floor, which is made up of bricks arranged to leave spaces between them for downward draft, the conduits below said bricks communicating with a centrally-arranged conduit, the branch conduit communicating with the latter and with a chimney, all constructed and adapted to operate substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE F. COTTON.

Witnesses:
E. E. CHESNEY,
E. M. CHESNEY.