No. 843,452. PATENTED FEB. 5, 1907.

D. P. GUISE.

BRICK KILN.

APPLICATION FILED FEB. 14, 1906.

Fig. 1.

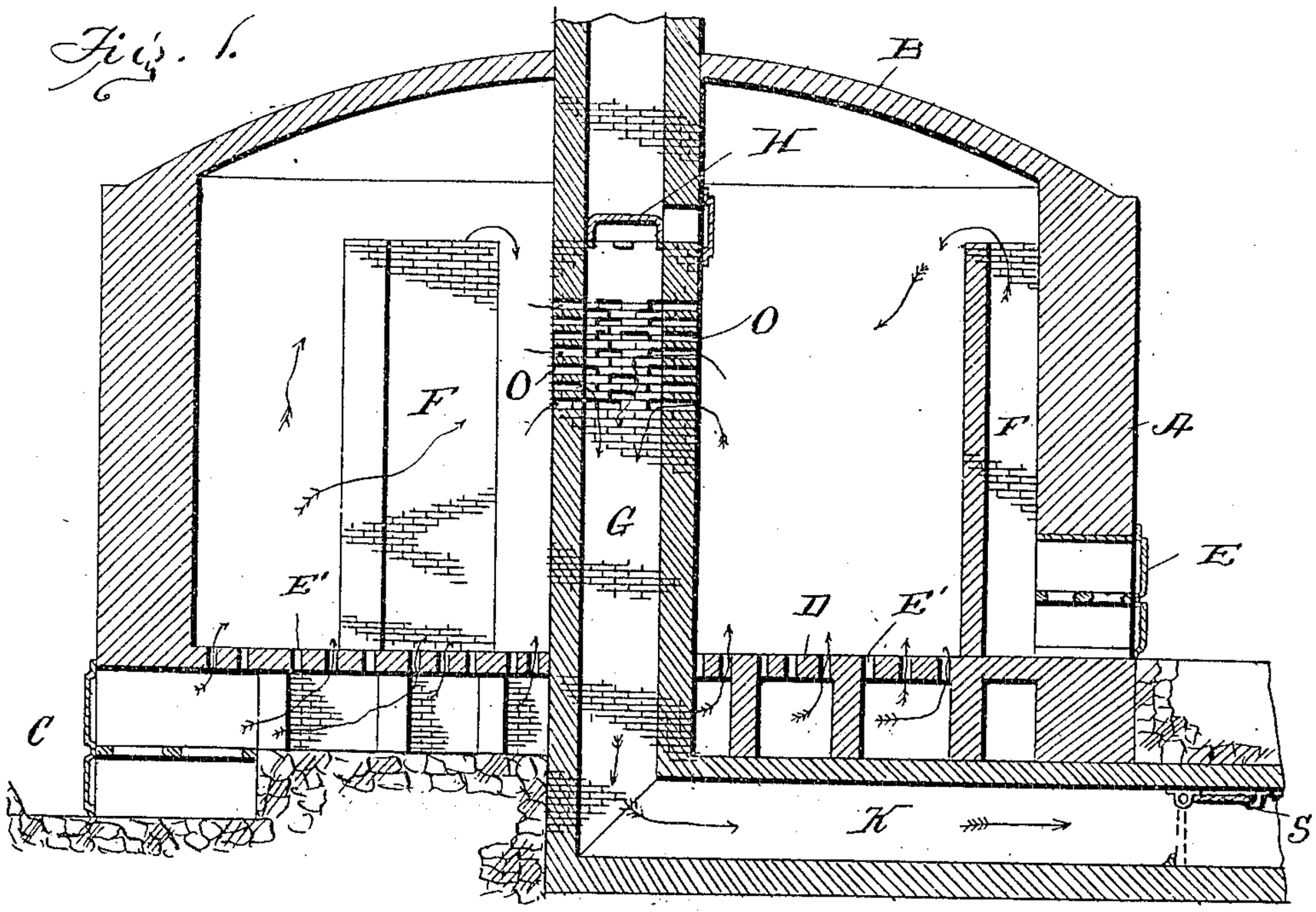
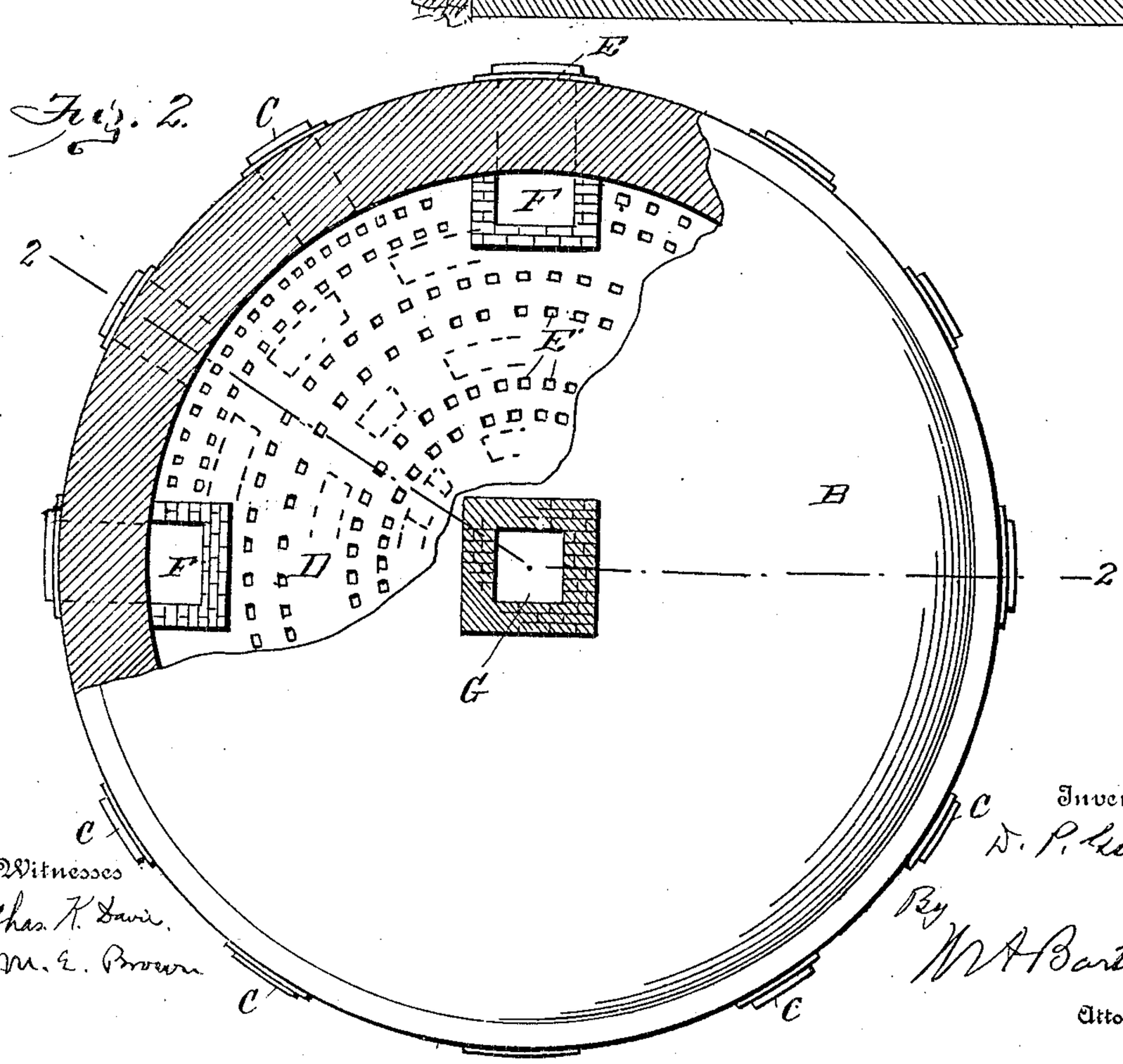


Fig. 2.



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BRICK-KILN.

No. 843,452. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed February 14, 1906. Serial No. 301,043.

To all whom it may concern:

Be it known that I, DAVID P. GUISE, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Brick-Kilns, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to kilns for burning bricks, tile, and the like.

The object of the invention is to produce a kiln wherein double sets of furnaces may be used simultaneously for burning bricks, &c., and the time of burning shortened from what is usual.

It is common to burn bricks and the like in a kiln having an updraft and also in a kiln having a downdraft, and it is not unusual to construct kilns with two sets of furnaces, one set operating by upward draft and the other set by downward draft; but such generally operate successively—that is, the updraft-furnaces are first lighted and afterward these fires are extinguished and the downdraft-furnaces are employed. If both these sets of furnaces have been employed simultaneously, no sufficient provision has been made, so far as I am aware, for an equable distribution of heat in the kiln, such as is involved in my invention.

Figure 1 is a vertical section of my kiln as it would appear on the line 2 2, Fig. 2. Fig. 2 is a top plan partly broken away to show the general arrangement of furnaces and flues and draft-stack.

Let A indicate the outer wall of a kiln, and B the roof thereof. A lower set or series of furnaces C C is arranged as usual in kilns to convey heat under the floor D and through openings E′ in said floor up into the burning-chamber. An upper series of furnaces E is arranged to convey heat to so-called "bags" F, which bags or bag-walls extend nearly to the top of the kiln. All this construction is old in this art.

In the center of the kiln I place a stack G, preferably opening upwardly and downwardly. About midway of the height of the kiln I make openings O into this stack. If the stack is of brickwork, as preferred, I form these openings by omitting alternate bricks from the wall. Preferably the stack G will be square in cross-section, as such form is more convenient for maintenance of heat-conduits. More or less of the openings O can be closed by loose bricks or by luting. If the draft from the stack is to be downward for the purpose of utilizing waste heat elsewhere, the upper part of stack G is closed by a partition H, which turns the heat down into conduit K, from whence it is conducted to the place of use, such draft being produced in any usual manner. If the draft is to be upward with due regard to the conservation of heat, then partition H will be omitted and damper S in conduit K may be closed.

Bricks having been arranged for burning in the kiln in usual manner, fires are kept in all the furnaces. The upper series of furnaces may be less in number than the lower set. The heat from both series will be drawn into openings O in the stack in directions roughly indicated by arrows, Fig. 1, the heat from the upper furnaces E entering the burning-chamber near the top and being drawn downwardly through the passages left between the material to be burned into openings O. The heat from below the floor will rise upward and also be drawn into openings O in the stack. Thus the different parts of the kiln will receive heat in almost uniform quantity, and the bricks will be uniformly burned in much less time than in any usual form of kilns.

It is very easy to close some of the openings O by clay luting or by loose bricks, so as to direct the inflow of heat to the stack to the proper height for securing best results. The draft in the stack G may be made upward or downward, according to the character of the material, quality of coal in the furnaces, &c. My kiln provides for most of the contingencies I have found to arise in actual use.

What I claim is—

1. In a kiln of the character described, a set of furnaces conveying heat through the floor, to the lower part of the burning-chamber, a separate and distinct set of furnaces conveying heat to the upper part of the burning-chamber, and a central stack in the kiln having side openings about midway of the height of the burning-chamber, said stack forming the draft-flue for both sets of furnaces acting simultaneously.

2. In a brick-kiln, a lower set of furnaces communicating with the lower part of the burning-chamber through the floor, an upper

series of furnaces communicating with the upper part of the burning-chamber, a central stack having openings about midway of the burning-chamber, and means for directing the draft either upward or downwardly in said stack.

3. In a brick-kiln, an upper and a lower series of furnaces communicating with the upper and lower parts of the burning-chamber respectively, a rectangular stack having a plurality of openings about mid-height of the burning-chamber, and means for guiding the direction of the draft in the stack.

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

DAVID P. GUISE.

Witnesses:
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