

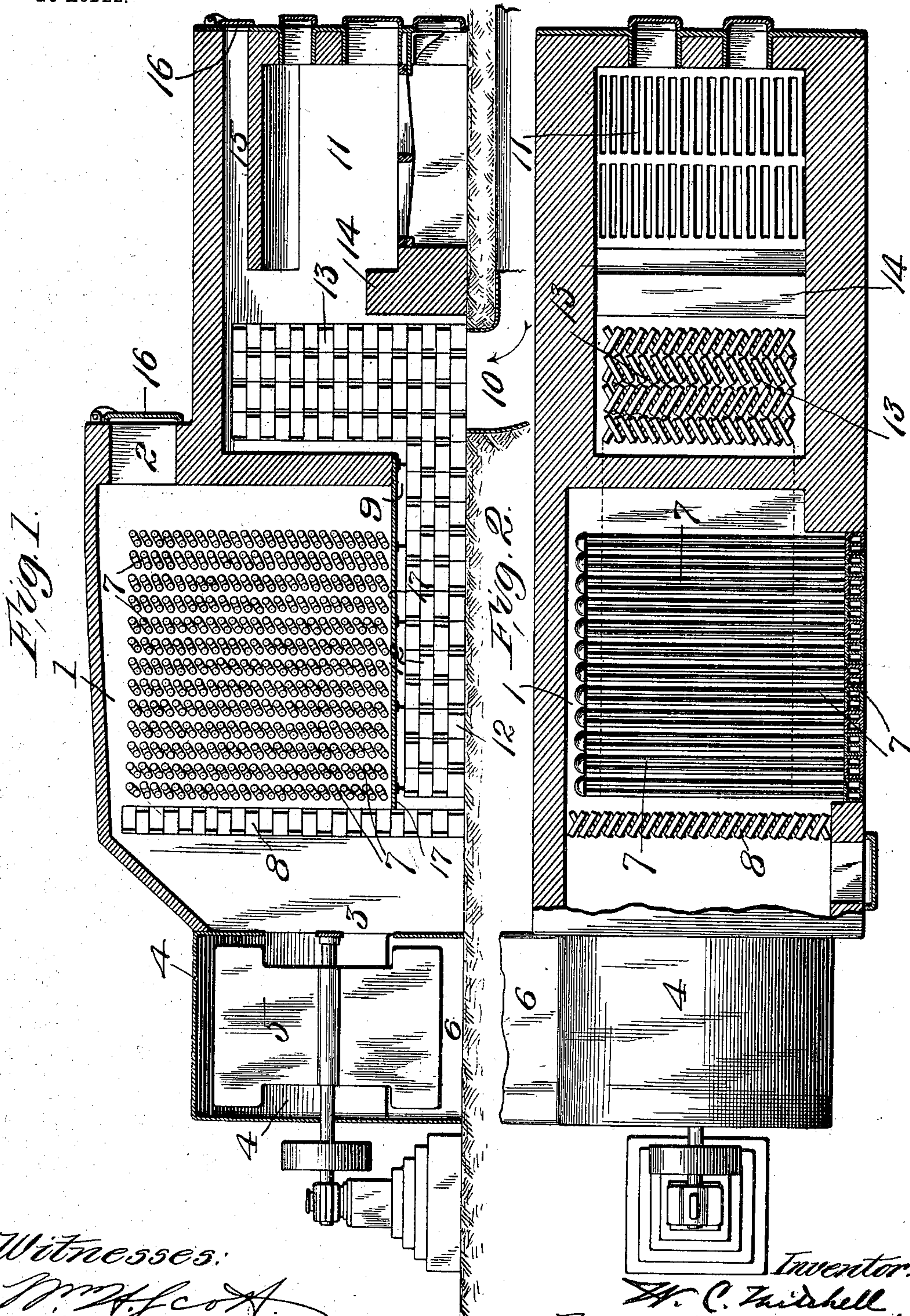
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W. C. MITCHELL.  
HEATER FOR KILNS.

APPLICATION FILED JUNE 26, 1902.

NO MODEL.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## HEATER FOR KILNS.

SPECIFICATION forming part of Letters Patent No. 735,282, dated August 4, 1903.

Application filed June 26, 1902. Serial No. 113,221. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER C. MITCHELL, a citizen of the United States, and a resident of Chicago Heights, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Heaters for Kilns, of which the following is a specification.

My invention relates to the drying of ware in kilns, and has for its principal objects to utilize various sources of heat and guard against excessive variations in the temperature of such sources and to prevent sparks from entering the kiln.

It consists in the construction hereinafter described and claimed.

In the accompanying drawings, which form part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a vertical longitudinal section of my construction. Fig. 2 is a horizontal section thereof.

My construction comprises a chamber 1, which has an air-inlet opening 2, located in the front thereof near the top. On the side of said chamber opposite said inlet-opening 2 is an outlet-opening 3, which opens into a chamber 4, which contains a fan-blower 5, and this chamber has an outlet-flue 6, communicating with the kiln. Inside of the chamber 1 is a heating-coil 7, forming part of a suitable steam or hot-water heating system. Preferably this heating-coil is arranged to utilize the exhaust-steam of the power-plant, and its pipes are staggered in horizontal rows transverse to the direction of the draft. Inside of said chamber 1 and between the heating-coil and the outlet-opening is a wall 8 of open-work construction. This wall 8 is preferably made of fire-brick, resting on edge. The brick in each tier are arranged parallel to each other and spaced a slight distance apart, but at an angle to the plane of the wall. The brick of each alternate tier are arranged at an angle to those of the adjacent tier. This construction constitutes an open-work baffle construction which permits the free passage of the air, but to a certain extent prevents the solid particles from passing therethrough. During the operation of the device this wall absorbs a considerable amount of heat. So long

as the wall is cooler than the air passing there-through the air tends to heat the wall; but whenever the temperature of the air falls below that of the wall the wall tends to heat such air. In this manner the wall serves to maintain for a long period comparative uniformity of the temperature of the air passing there-through. The chamber 1 has a second inlet-opening 9 therein, located preferably near the bottom of the wall thereof. This second inlet-opening 9 preferably communicates with a flue 10, which is the outlet-flue for the furnace of another kiln. This second inlet-opening 9 also communicates with a combustion-chamber of a furnace 11, preferably arranged in front of said chamber 1. At the bottom of the chamber 1 is an open-work construction 12, similar to the wall 8, this open-work construction being arranged in the path of the products of combustion entering through the opening 9. The front end 13 of this open-work construction is built upwardly between the front wall 14 of the furnace 11 and the front wall of the chamber 1, so as to be in the direct path of the products of combustion from said furnace 11. The furnace 11 is provided with an air-inlet flue 15, located above the combustion-chamber and opening into the said furnace at the top of the open-work wall. Said inlet-opening 15 and said inlet-opening 2 are provided with suitable doors 16 or dampers, and in like manner said flue 10 is provided with a suitable damper. A sheet-iron floor 17 is preferably provided between said heating-coils 7 and said open-work construction 12. Said floor 17 rests upon the top of said open-work construction 12 and extends from said opening 9 to the wall 8 and preferably supports said heating-coils 7. The blower 5 is thus in communication with three distinct sources of heat, each of which is capable of use without the others. The use of any one heating system, however, heats up the open-work construction, which continues to radiate the heat for a considerable period after its source of heat has become inoperative. The open-work construction thus renders it practicable to utilize such different and variable sources of heat as the waste or live steam of the power-plant and the waste heat



of other kilns, as well as a furnace specially provided for use when the other sources of heat are unavailable.

What I claim is—

5 1. A heater for kilns comprising a chamber having an inlet-opening on one side and an outlet-opening on the opposite side, a heating-coil in said chamber and an open-work baffle construction of great heat capacity be-  
10 tween said heating-coil and said outlet-opening, a blower in said outlet-opening for drawing air through said chamber, an open-work baffle construction of great heat capacity at the bottom of said chamber having an open-  
15 ing communicating with an independent source of heat, substantially as described.

2. A heater for kilns comprising a chamber having an inlet-opening on one side and an outlet-opening on the opposite side, a heat-  
20 ing-coil in said chamber and an open-work baffle construction of great heat capacity between said heating-coil and said outlet-opening, a blower in said outlet-opening for drawing air through said chamber, an open-work  
25 baffle construction of great heat capacity at the bottom of said chamber having an open-

ing communicating with an independent source of heat, said open-work construction extending upwardly in front of said chamber, and a fireplace in front of said open-work con- 30  
struction, substantially as described.

3. A heater for kilns comprising a chamber having an air-inlet opening and an outlet-opening, a heating-coil in said chamber and an open-work baffle construction of great heat 35  
capacity between said heating-coil and said outlet-opening, a blower in said outlet-opening for drawing air through said chamber, an open-work baffle-work construction of great heat capacity at the bottom of said chamber, 40  
said chamber having an opening communicating with an independent source of heat, said open-work construction extending upwardly in front of said chamber, a fireplace in front of said open-work construction and 45  
a cold-air flue above said fireplace, substantially as described.

W. C. MITCHELL.

In presence of—

ZOLA TUCKER,  
T. PERCY CARR.