(No Model.)

J. CONLEY.

CIRCULAR BRICK KILN.

No. 491,038. Patented Jan. 31, 1893.

Fig. 1.

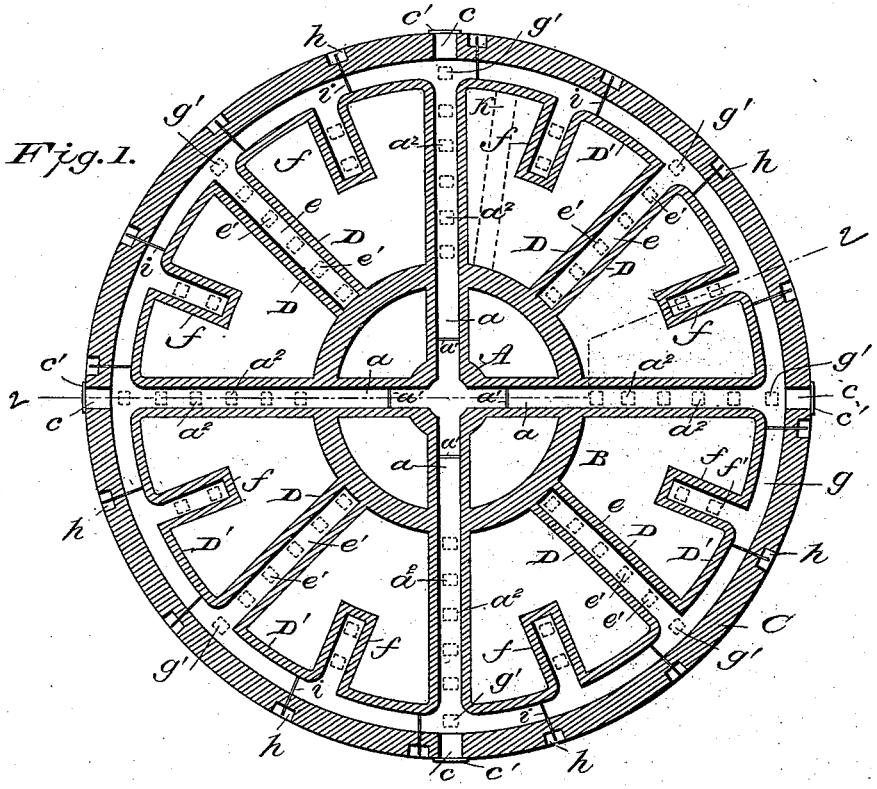
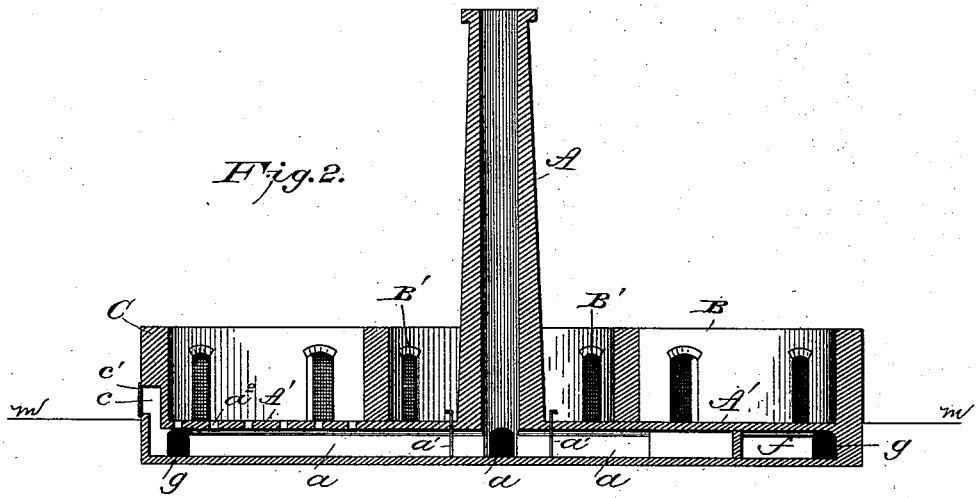


Fig. 2.



Witnesses
L. S. Elliott.
C. W. Johnson

Joseph Conley.
Inventor
by
Attorney

UNITED STATES PATENT OFFICE.

JOSEPH CONLEY, OF ST. JOSEPH, MISSOURI, ASSIGNOR OF ONE-HALF TO HUGH J. BOWEN, OF SAME PLACE.

CIRCULAR BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 491,038, dated January 31, 1893.

Application filed October 6, 1892. Serial No. 448,034. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH CONLEY, a citizen of the United States of America, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Circular 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 of reference marked thereon, which form a part of this specification.

This invention relates to improvements in circular brick or tile burning kilns.

The object of the invention is to provide a continuously burning circular kiln of improved construction in which the fuel is fed from the top upon the green bricks or objects to be burned, the combustion of the fuel being regulated by underground flues having suitable dampers, so that the sections of the kiln may be used progressively; the flues having openings and dampers which are cheap and simple in construction, as will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification: Figure 1 is a section view taken below the ground level of the kiln, and Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1.

A designates a central chimney, having openings at its base which lead into flues *a a*, said flues being below the ground level.

B designates a circular wall which surrounds the chimney and has at intervals doorways B′ which extend to the floor A′ of the kiln, the flues *a a* passing through this circular wall.

C designates the outer wall of the kiln, and this wall is provided with openings *c c* located above the level of the floor and on a line with the flues *a a*, said openings being adapted to be covered by swinging or sliding doors *c′* so that when desired a direct draft from those openings to the chimney may be had. The flues *a* have dampers *a′*, which are simply slides working in suitable grooves, and when lowered will form cut-offs.

D D designate walls extending between the circular wall B and the exterior wall C, said walls being arched over at the ground level as shown to form flues *e* which extend from the circular wall B outwardly and short flues *f* which are located between the flues *e* and *a*. The walls D′ which connect the walls D form a circular flue *g* between said walls and the exterior wall C. The flues *a e f* and *g* are formed by the walls as shown, and the arched portions of said walls above the flues are provided with apertures a^2, *e′*, *f′* and *g′*, the apertures *g′* being located on a line with the flues entering the flue *g*, and intermediately if desired.

The outer circular wall C is provided exteriorly with a series of recesses *h* and openings through which can be passed straight plates or cut-offs *i*, said cut-offs being manipulated by suitable handles on the outside of the kiln, and it will be noted that these cut-offs are located in the flue *g* between the flues which open into the same. The openings *c* which lead into the circular flue *g* extend downwardly from their outer to their inner ends where they meet the flues *a*, and by this construction moisture or dampness is kept out of the flues, as it locates the openings above the ground level, the ground level being designated by the line *m* in Fig. 2.

K designates a partition wall, which is built up within the kiln between the circular walls B and C, and the fires are started in the kiln to one side of this wall and continued therefrom around the kiln.

It will be noted from the construction herein shown and described that the employment of long damper rods to the dampers or cut-offs are dispensed with, and that the cut-offs *i* can be operated on the outside of the kiln while the rods connected to the inner cut-offs can be operated in the compartment surrounding the chimney.

The outer wall of the kiln is provided with doorways as shown in Fig. 2, so that a way may be had for stacking the green bricks within the kiln and removing them therefrom when burned; and the doorways B′ in the circular wall B provide a way or ways to the space surrounding the chimney.

With this kiln may be used temporary par-

titions which are located adjacent to the doorways and which can be removed as the burning of the bricks advances.

In operation, after the bricks have been stacked within the kiln the fuel is fed into apertures formed between the bricks and extends from the base of the kiln to the top thereof, the fuel being preferably slack coal fed from pots mounted on top of the kiln; the fire is then started to one side of the partition K, and there being a down draft through the bricks said down draft and the products of combustion pass into the flues *e* or *f* and toward one of the flues *a*, and by properly adjusting the cut-offs *i* and dampers *a'* the heat and products of combustion can be caused to circulate entirely around the kiln. By this construction and arrangement the heat which is usually wasted in starting the fire is utilized, and in practice it has been demonstrated that the heat is also increased by the arrangement of the draft, resulting in an increase in the value of the product; also the heat from the red-hot wares or bricks is radiated in the cooling and is utilized to burn other brick. The radiated heat contacts with the damp or unburnt ware or brick in advance of the fire, and generates therefrom a vapor or gas, which is usually called water-gas, and is consumed in the course of burning the brick or ware. This is especially desirable in certain classes of wares, as it gives to them an appearance which is often sought after.

In a kiln constructed as herein set forth the fires after being once started can be kept up continuously, and by properly arranging the dampers one section can be entirely cut off from the fire and the heat and products of combustion are led to the chimney so that a section of the kiln can be filled. It will also be noted that in this form of kiln no permanent furnace is used, and in starting the kiln a temporary furnace is built of green brick, said brick being burned and taken out with the other products of the kiln, thus saving considerable cost in the construction.

Having thus described my invention, what I claim as new, and desire to secure by Letters-Patent is:

1. In a circular kiln an outer wall, an inner wall and a central chimney, a circular flue adjacent to the outer wall and flues connecting the circular flue with the chimney, and intermediate flues *e* and *f*, said flues having apertures in the upper portion thereof which lead to the interior of the kiln, the circular flue being provided with cut-offs *i* arranged to separate each flue from the adjacent one, substantially as shown, and for the purpose set forth.

2. In a circular kiln, the combination with the inner and outer circular walls intersected below the ground level by flues *a*, openings *c* in the outer wall located above the ground level and connected with the flues *a*, dampers *a'* adapted to cut off the flues *a* from the chimney, intermediate flues *e* and *f*, each flue having openings connecting the same with the interior of the kiln, a series of cut-offs adapted to intersect the flue *g* and cut off the flues from the interior of the kiln, and a partition wall, substantially as set forth.

3. In a circular kiln for burning brick, the combination of the inner and outer circular walls and central chimney, the outer wall having openings and flues opposite thereto which lead to the chimney, openings in the floor of the kiln connecting with said flues, a series of radiating flues connecting with the main flues, said radiating flues and connecting flue being provided with openings which lead therefrom to the interior of the kiln, substantially as shown.

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

JOSEPH CONLEY.

Witnesses:
G. S. ELLIOTT,
E. W. JOHNSON.