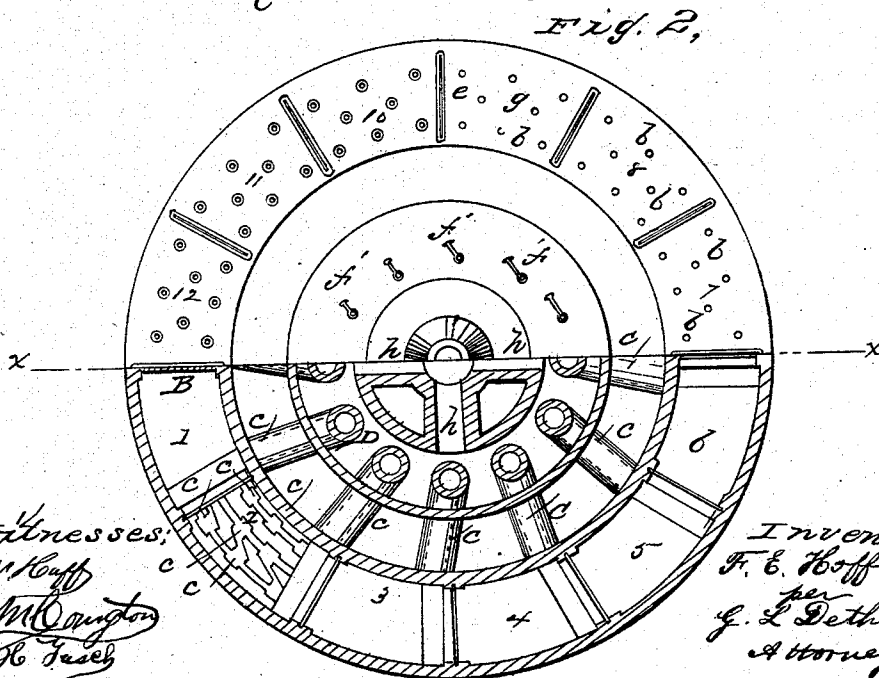
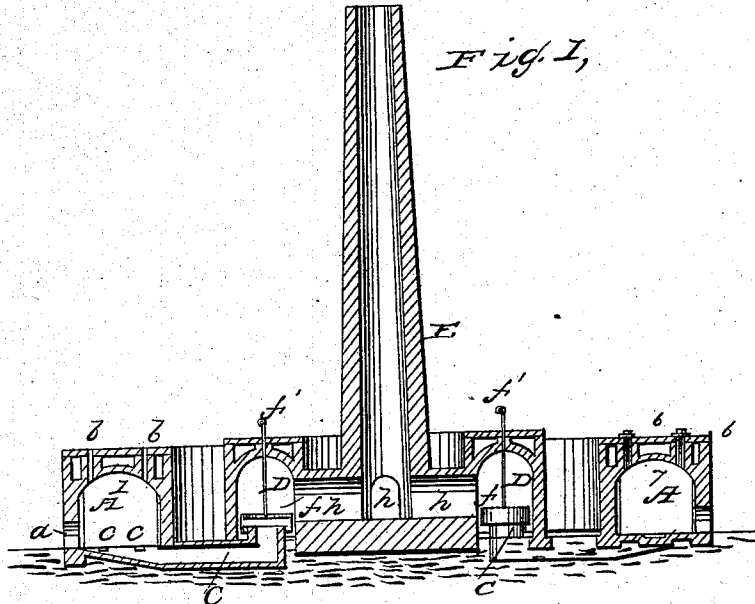


F. E. HOFFMANN.

Circular Brick Kiln.

No. 48,244.

Patented June 13, 1865.



UNITED STATES PATENT OFFICE.

FRIEDRICH E. HOFFMANN, OF BERLIN, PRUSSIA.

IMPROVED CIRCULAR BRICK-KILN.

Specification forming part of Letters Patent No. 48,244, dated June 13, 1865.

To all whom it may concern:

Be it known that I, F. E. HOFFMANN, of Berlin, Prussia, have invented a Circular Oven or Kiln; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical central section of this invention, the line *x x*, Fig. 2, indicating the plane of section. Fig. 2 is a plan or top view of the same, partly in section.

Similar letters of reference indicate like parts.

This invention consists in an endless arch or channel divided into a series of distinct sections, each of which is provided with openings for introducing the fuel and the material to be burned, and communicates through a radiating flue with an annular smoke-chamber, in combination with suitable slides or movable partitions, and with a smoke-stack communicating with said annular smoke-chamber by four (more or less) passages in such a manner that brick or other material introduced into the several sections of the kiln can be gradually heated and cooled, and the operation of the kiln can be continued for any length of time with great economy in fuel.

A represents a circular or continuous arch or channel, which is divided into twelve (more or less) sections, 1 2 3—12. Each section is provided with a door, *a*, through which the brick or other material to be burned or heated can be introduced and removed, and with a series of apertures, *b*, in the top of the arch, through which fuel is introduced. In order to cause said fuel to arrange itself properly on the bottom of each section, said bottoms are provided with cavities *c*, situated opposite the openings in the top, as shown in Fig. 1 of the drawings.

The several sections can be separated one from the other by a movable partition, B, which is introduced through suitable slots, *d*, in the top of the arch, and those slots which are not occupied by the partition are covered up by movable covers *e*. Each section communicates, through a radial flue, C, with an annular smoke-chamber, D, and the inner ends of said flues turn up and are covered with dampers *f*, which can be raised or lowered by means of

rods *f'*, extending above the upper surface of said smoke chamber, or instead of the dampers *f* valves of any other description may be applied which will serve to open and close the flues C. Each of said flues can thus be readily opened and brought in communication with the smoke-chamber. The smoke-chamber communicates through channels *h* with the smoke-stack E.

The operation of this kiln, when used for burning brick, is as follows: Suppose the kiln were in full action and the movable partition B placed between sections 12 and 1, then the doors *a* of sections 1 and 2 are open, the valve of the flue for section 12 is open, all other openings and valves of the whole kiln are closed. In the sections 2, 3, 4, 5, and 6 is material—say bricks—the burning of which has just been finished. In 7 we have the fire. 8, 9, 10, 11, and 12 are filled with bricks yet to be burned. The doors of sections 1 and 2 are opened to fill 1 with fresh bricks and to empty 2 of burned and already cooled bricks. Through the doors *a* of sections 1 and 2 a current of atmospheric air will enter the burning-channel, will pass through the sections 3, 4, 5, and 6, and gradually be heated. Meanwhile the bricks contained in these sections gradually will be cooled. In section 7 the fuel is brought in through the openings *b* in the top of the arch and gas is produced, which, in mixing with the red-hot atmospheric air, is burned. The gaseous products of the combustion now pass through the sections 8, 9, 10, 11, and 12, gradually heating the bricks contained in these sections from 12 to 8 until they leave the burning-channel through the flue belonging to section 12. They then enter the smoke-chamber D, and finally escape through the smoke-stack. After the burning of the material in 7 is finished and section 1 is filled with fresh bricks the door of section 1 is closed. The partition B is now placed between sections 1 and 2, the valve of the flue for section 12 is closed, and that one for section 1 is opened. The fuel is now brought into section 8, and the operation is the same as before, and so on, as above stated. The operation of the kiln can thus be continued without interruption. The air which is introduced to support the combustion of the fuel is heated by passing through the material previously heated in the kiln, and serves at the same time to cool said material, so that no fuel

is wasted and no time is lost in cooling off the kiln for the purpose of emptying or recharging it.

This kiln can be made in any desirable form or shape, though I use, by preference, the circular form, and it can be used with great advantage for burning brick, tiles, limestone, pottery, chalk, gypsum, cement, and also for roasting ores and for various metallurgical operations.

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

1. The employment or use of a continuous arch divided into a number of sections, each provided with an opening to fill and empty it,

and with apertures for introducing the fuel, in combination with a movable partition with radiating flues and smoke-stack, constructed and operating substantially as and for the purpose specified.

2. The continuous smoke-chamber, in combination with the flues, dampers, smoke-stack, and sectional arch, constructed and operating substantially as and for the purpose specified.

FRIEDRICH EDUARD HOFFMANN,

Witnesses:

ALEXANDER WERNEKINCK,

CHAS. J. SUNDELL,

Consul of the United States at Stettin.