W. N. WEIDNER.

BRICK-KILN.

No. 170,421. Patented Nov. 23, 1875.

Fig 2

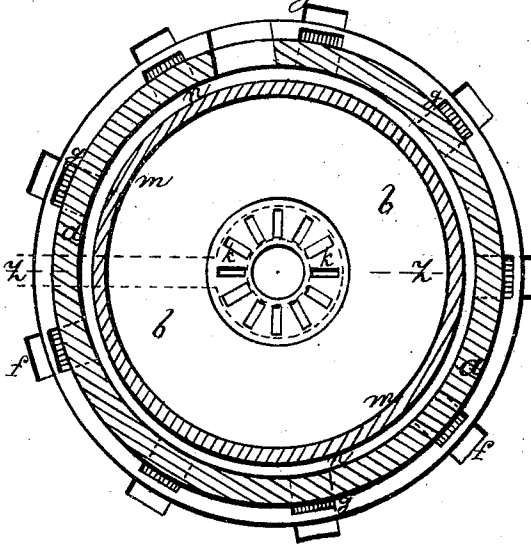


Fig 3

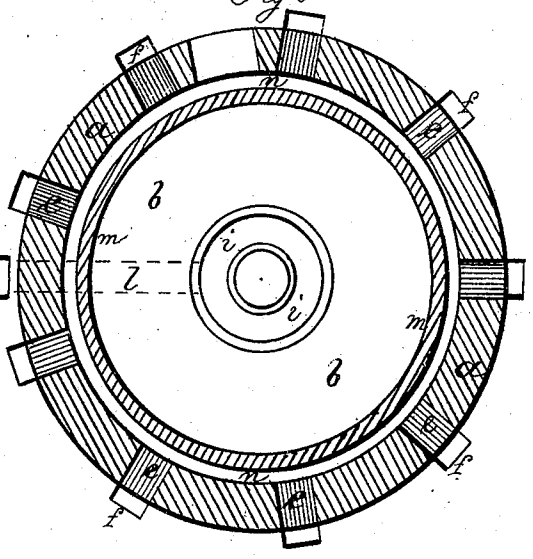
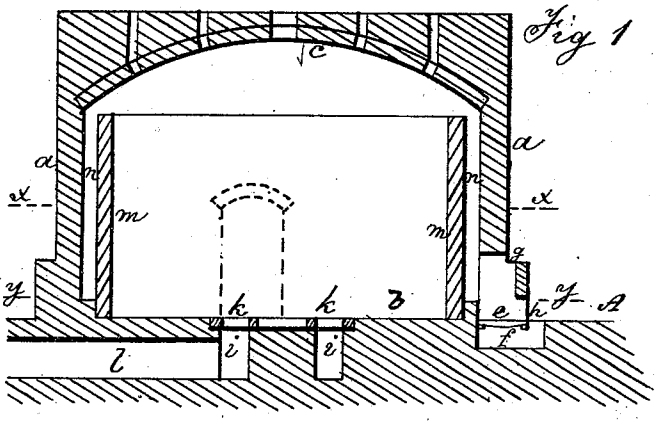


Fig 1



Witnesses.
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UNITED STATES PATENT OFFICE

WILLIAM N. WEIDNER, OF PERTH AMBOY, NEW JERSEY.

IMPROVEMENT IN BRICK-KILNS.

Specification forming part of Letters Patent No. **170,421**, dated November 23, 1875; application filed January 14, 1874.

To all whom it may concern:

Be it known that I, WM. N. WEIDNER, of Perth Amboy, Middlesex county, State of New Jersey, have invented an Improvement in Kilns, and in the mode of setting the same, of which the following is a specification:

The object of my invention is to avoid the loss of heat and fuel, and the reduction in the capacity of the kilns, which result from the modes of setting and apparatus usually employed for burning articles of clay, &c.

On reference to the accompanying drawing, Figure 1 is a sectional elevation, showing a kiln which may be employed in carrying out my invention; Fig. 2, a sectional plan on line *x x*, Fig. 1; and Fig. 3 a sectional plan on the line *y y*, Fig. 1.

A represents a suitable base or foundation for supporting the permanent walls *a* of a circular kiln, the top *c* within the kiln being of a dome shape, and being perforated, as usual, for the escape of the heat after the materials in the kiln have been sufficiently burned. At regular intervals in the wall *a* are furnaces *g*, the grates *e* of which are level with the foundation, the ash-pits *f* being formed in the latter. Each furnace communicates with the interior of the kiln at a point level, or thereabout, with the floor *b*, which is unobstructed throughout its entire extent; and in the center of the floor are openings *k*, communicating with a flue, *i*, formed in the foundation. The flue *i* communicates, through a passage, *l*, which extends under the floor of the drying-room, with a suitable chimney.

Ordinary kilns are so constructed that the heated gases pass directly through the kiln in nearly straight lines from the inlet to the outlet openings; or they are oblong or square in shape, and provided with permanent walls, erected within the kiln for deflecting the gases.

In the former kilns the direct currents of gases have a cutting effect, heating the articles unduly where they are exposed to the currents, burning them irregularly, and causing them to warp and crack.

Where permanent walls are used they reduce the capacity of the kiln nearly one-fourth, and absorb a large proportion of the heat, causing a corresponding waste of fuel, amounting, as I have ascertained by actual test, to nearly forty per cent.

In the improved kiln described the floor between the inlet and outlet openings is wholly unobstructed, and the disposition, or, as it is technically termed, "setting," of the articles to be burned within this space, constitutes the most important element of my improvement. The said articles—as, for instance, fire-brick, saggers, tiles, sewer-pipe, &c.—are arranged upon the floor B, and piled upon each other until they form a temporary wall, *m*, which occupies the space allotted to the permanent wall in an ordinary kiln, and performs the same function as the said wall, without detracting from the capacity of the kiln, and without causing any waste of heat or fuel.

Apart from the saving of fuel effected, the mode of setting the kiln is most beneficial, inasmuch as the greater part of heated gases, instead of passing in direct lines from the inlet to the outlet, and cutting and warping the articles, are directed, in a sinuous course, first upward, at one side of the articles, through the temporary flue *n*, and then downward on the other side, heating the articles uniformly, the gases being condensed as they accumulate in the center of the kiln, and imparting an intense diffused heat to all parts of the chamber.

I am aware that clay pipes have been burned by placing each pipe above an outlet flue or opening, and by the use of a permanent wall, to throw the heated gases upward prior to their descent through the pipes to the outlet; and I do not claim, broadly, arranging articles to be burned so that the gases must descend in contact therewith; but

I claim as my invention—

1. The mode herein described of setting a kiln—that is to say, arranging the articles to be burned in the form of an annular wall between the central outlet-flue and the inlet-flues in the wall of the kiln—whereby the heated gases are caused to pass upward outside of said wall, and downward at the opposite side.

2. A kiln consisting of a circular permanent wall, *a*, a series of furnaces, *g*, communicating with the interior of the kiln near the base thereof, a central outlet on a level, or thereabout, with the base, and an unobstructed floor between the inlet and outlet openings, as set forth.

WM. N. WEIDNER.

Witnesses:

ALBERT H. HOOK,

JOHN M. D. KEATING.