P. EYER.

MUFFLE KILN.

APPLICATION FILED JUNE 6, 1912.

1,051,366.

Patented Jan. 21, 1913.

Fig. 2.

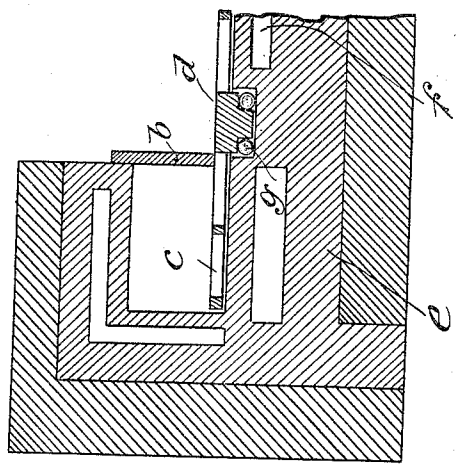
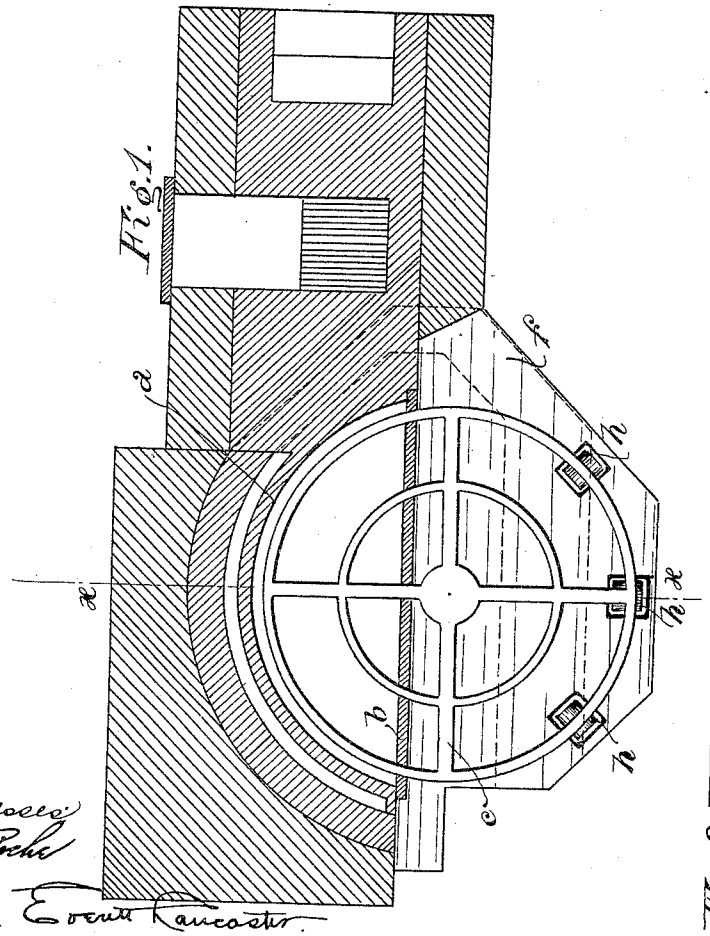


Fig. 1.



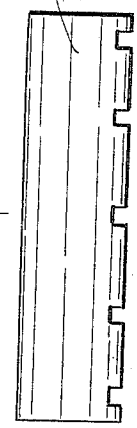


Fig. 3.

Witnesses:

Inventor:
Philipp Eyer
by B. Singer
Atty

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PHILIPP EYER, OF HALBERSTADT, GERMANY.

MUFFLE-KILN.

1,051,366. Specification of Letters Patent. Patented Jan. 21, 1913.

Application filed June 6, 1912. Serial No. 702,115.

To all whom it may concern:

Be it known that I, PHILIPP EYER, a subject of the German Emperor, residing at Halberstadt, Germany, have invented certain new and useful Improvements in Muffle-Kilns, of which the following is a specification.

Muffle-kilns are already known, which consist of annular flues open at both ends, comprising the firing-muffle proper and the adjoining pre-heating and cooling chambers and have a rotatable bottom of a likewise annular shape. By the rotation of the bottom the articles to be fired, which are placed on the said bottom at the one end of the flue are taken into the pre-heating chamber, thence into the firing muffle and finally into the cooling chamber, whereupon they leave the flue. As such annular kilns require a large space and much material (the firing muffle proper occupies about one sixth only of the whole kiln), and as besides in consequence of the two ends of the flue remaining open, large quantities of heat are lost, kilns of this kind have not found any wide introduction. In enameling works the articles were hitherto therefore mostly fired in square muffles closed on all sides. The articles to be fired were placed on an iron grate corresponding to the shape of the muffle and this grate was then pushed by means of a wheeled fork into the muffle; then the fork was run back, the gate closed and the grate with the articles on it was left in the kiln for the respective space of time necessary for firing the articles. After completion of the firing the gate is again opened, the grate is withdrawn by means of the fork and placed on an iron stand, whereupon the fired articles are removed from the grate and fresh articles packed on it, for it to be again placed into the kiln as aforesaid.

The present invention relates to closed muffle-kilns of this kind.

In the accompanying drawing Figure 1 is a horizontal sectional view, with parts in elevation, illustrating one form of my invention. Fig. 2 is a sectional view on line *x*—*x* of Fig. 1. Fig. 3 is a face view of a gate.

The muffle *a*, preferably of a round shape is closed by means of a sliding gate *b*. A grate *c* corresponding to the shape of the kiln, and preferably also of a round shape is so arranged that one section of it will always be within the muffle, while the other section is outside and accessible.

In the constructional form shown the center of rotation *d* of the grate *c* is situated close in front of the sliding gate *b*. The outside section of the grate rests on a table *e* made of fireclay and provided with flues *f* for the heating gases. For obtaining an easy rotation of the grate, it is preferably arranged to swivel at its center on balls *g*, while at its periphery it travels on rollers *h* journaled in the fireclay table *e*. The sliding gate is slotted in correspondence to the webs of the grate *c*, so that the gate *b* can be lowered quite down to the grate, and nevertheless a good closure is obtained avoiding losses of heat.

Firing with the enameling kiln according to the present invention is carried out as follows: While the one section of the grate is within the kiln with the articles which are being fired, the other section outside of the kiln is charged with fresh articles. When the firing is completed, the gate *b* is raised, the grate turned around an angle of 180 degrees and the gate *b* is again lowered. While now the articles freshly introduced into the kiln are being fired, the section of the grate outside of the kiln, carrying the fired articles is emptied and recharged with fresh articles. The emptying and recharging of the grate requires about the same time as the firing process. The waste-gases passing through the flue *f* will heat the fireclay table *e* and the section of the grate *c* standing on it. The articles to be fired will therefore at the same time, be heated, so that they will not be suddenly exposed to the high firing temperature in the muffle.

While I have herein shown and described one specific embodiment of my invention, I do not wish to be limited thereto except for such limitations as the claims may import.

I claim:

1. A muffle kiln structure comprising in combination, a horizontal table having a combustion flue therein, a frame grate rotatively mounted on said table and disposed above and adapted to be heated by the products of combustion passing through said flue, a kiln overhanging a portion of the grate at one side of the center of rotation thereof and having an interior chamber portion for receiving that part of the grate disposed within said chamber, and a removable

wall closing the front of said chamber portion and having recesses in its lower margin for receiving the bars of the grate, substantially as and for the purpose set forth.

2. A muffle kiln structure comprising in combination, a horizontal table having a combustion flue therein, a frame grate rotatively mounted on said table and disposed above and adapted to be heated by the products of combustion passing through said flue, a kiln extending across a portion of the grate from one peripheral point to another at one side of the center of rotation thereof and forming an interior chamber portion for receiving that part of the grate disposed therein, substantially as described.

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

PHILIPP EYER.

Witnesses:
Jos. E. WIMANN,
FRED C. H. ROEDER.