F. J. POTHS.

ROTARY KILN FOR BURNING CEMENT.

APPLICATION FILED APR. 7, 1908.

929,167. Patented July 27, 1909.

Fig. 2

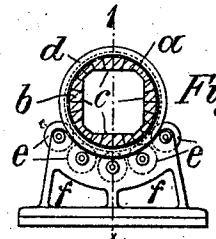


Fig. 1

Fig. 3

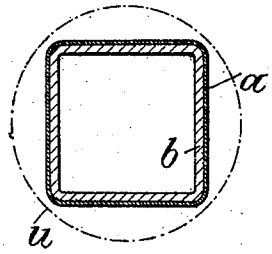


Fig. 4

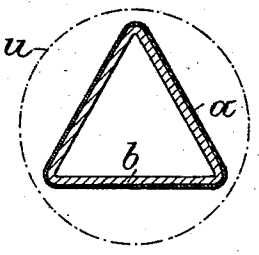


Fig. 5

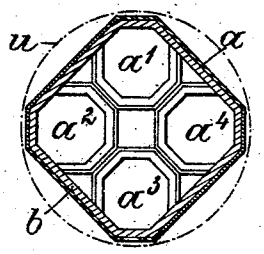


Fig. 6

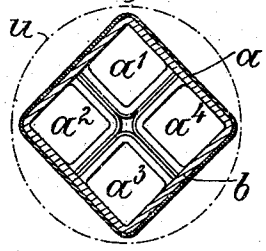
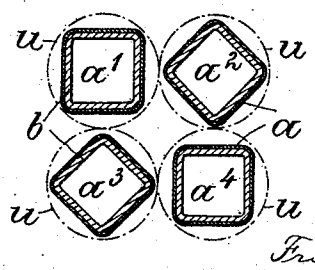


Fig. 7



Witnesses:
W. R. Schulz.
Arthur E. Jumpe.

Inventor:
Friedrich Julius Poths.
by Dawson Brisen. Atty.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRIEDRICH JULIUS POTHS, OF HAMBURG, GERMANY.

ROTARY KILN FOR BURNING CEMENT.

No. 929,167. Specification of Letters Patent. Patented July 27, 1909.

Application filed April 7, 1908. Serial No. 425,593.

To all whom it may concern:

Be it known that I, FRIEDRICH JULIUS POTHS, a subject of the German Emperor, and resident of No. 36 Sandweg, Hamburg, Germany, have invented certain new and useful Improvements in Rotary Kilns for Burning Cement, of which the following is a specification.

This invention relates to rotary cement kilns, and its object is to provide the same internally with more or less large flat surfaces that will insure a prolonged resting of the cement upon such surfaces instead of constantly moving along a cylindrical surface, while at the same time the useless internal space is reduced. In this manner the burning process is expedited and fuel is greatly economized owing to the reduced waste space in the interior.

A further object is to combine a plurality of such kilns in a manner to insure economy of working space as well as in the cost of manufacture.

The invention is illustrated in the annexed drawings, which show different embodiments of the same.

Figure 1 is a longitudinal section on line 1—1 of Fig. 2; Fig. 2 is a cross section on line 2—2 of Fig. 1 of a rotary cement kiln having a practically square internal section; Figs. 3 to 7 are cross sections of different forms and arrangements hereinafter referred to.

In all these figures the same reference letters are used to denote similar parts.

The flat surfaces within the rotary kiln can be readily obtained by forming a lining having flat surfaces and intervening corners to any desired number. Thus, the cylindrical rotary kiln shown at Figs. 1 and 2 can be so lined as to have an internal square or other polygonal cross-section. The axially inclined cylindrical outer kiln or shell *a* is constructed of iron or steel plates and is lined with fire-bricks *b* of varying size or form, and these are covered with fire clay *c;* the whole presenting practically a square cross-section. The kiln is fitted with collars *d* adapted to work on runners *e* journaled in bearings *f*. The worm wheel *g* mounted fast on the kiln *a*, is driven by a worm *h* keyed to a shaft *i* which is rotated through the intervention of the strap *k* and pulley *l*. The means for revolving the kiln form no part, as such, of the invention and may be altered to suit various circumstances. The rear end of the kiln is lodged in the aperture *m* of the chimney shaft *n* and in the latter is disposed the hopper with chute *o* for the introduction of fuel. The front end of the kiln rotates in a head piece *p* fitted with the usual coal-dust blast.

Fig. 3 shows the rotary kiln *a* constructed of an external shell of a practically square section which is lined with fire-bricks *b* of even thickness and the whole has a prismatical form.

Fig. 4 shows a triangular prism for use as a rotary kiln constructed in similar manner to that described with reference to the previous figure. A number of prismatic kilns can be combined into one structure.

Fig. 5 shows a cross-section of a combined rotary kiln having four internal octagonal chambers a^1, a^2, a^3, a^4; the external shell being inclined and revolved in the usual manner. It is advantageous to connect the rear ends of these kiln-chambers with a mutual supply chamber containing the fuel which latter is thus distributed uniformly into the various kiln-chambers a^1, a^2, a^3, a^4.

In Fig. 6, the kiln chambers a^1, a^2, a^3, a^4 have square sections and are mounted in a square shell which is lined at *b*. These separate kiln-chambers are firmly held together by any approved means and the complete structure is rotated by the aid of toothed rings indicated by dotted lines marked *u* and suitably mounted on the exterior of said structure. In some instances the separate kiln-chambers a^1, a^2, a^3, a^4 may be individually driven as will be seen from the arrangement shown in Fig. 7 in which for example, a combination of four is contemplated; each being fitted with a toothed ring *u*, all of which are in engagement for coöperative mo-

tion. Further, these self-rotating kiln-chambers may also be caused to simultaneously revolve around each other upon a mutual central axis after the manner of planet-motions.

What I claim is:

A cement kiln comprising an axially inclined rotatable shell, an inclosed lining having a series of straight working faces extending along the inner wall of said shell, and corners intermediate said faces.

Signed by me at Hamburg, Germany, this 26th day of March 1908.

FRIEDRICH JULIUS POTHS.

Witnesses:

SAGO BURMGUN,

ERNEST H. L. MUMMENHOFF.