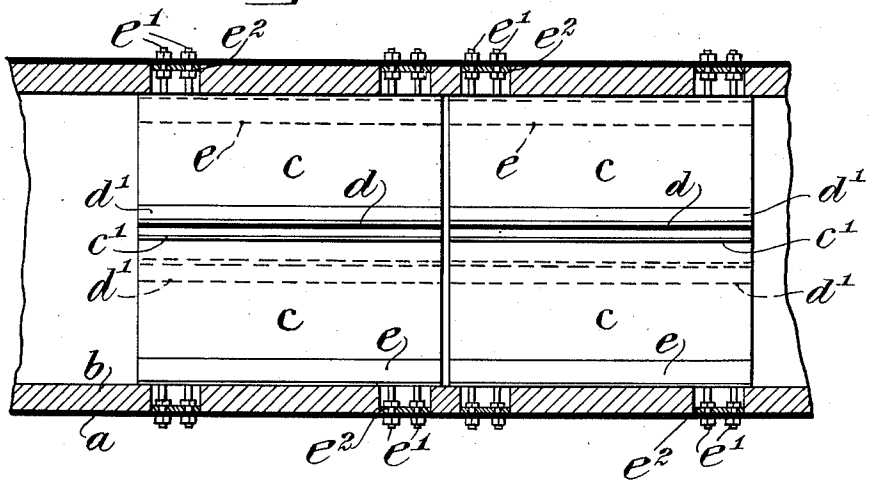
Oct. 13, 1925. 1,557,475

M. VOGEL-JÖRGENSEN

ROTARY KILN

Filed Sept. 5, 1924

Fig. 1.



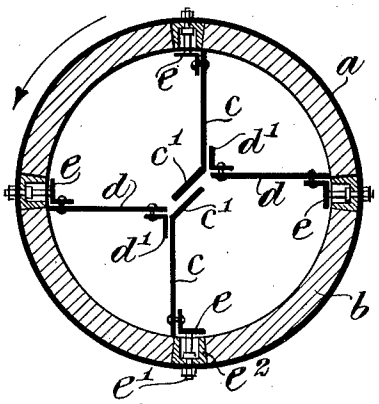


Fig. 2.

Mikael Vogel-Jörgensen. INVENTOR

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ATTORNEYS

Patented Oct. 13, 1925. 1,557,475

UNITED STATES PATENT OFFICE.

MIKAEL VOGEL-JÖRGENSEN, OF FREDERIKSBERG, NEAR COPENHAGEN, DENMARK, ASSIGNOR TO F. L. SMIDTH & CO., OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

ROTARY KILN.

Application filed September 5, 1924. Serial No. 736,046.

To all whom it may concern:

Be it known that I, MIKAEL VOGEL-JÖRGENSEN, a subject of the King of Denmark, residing in Frederiksberg, near Copenhagen, Denmark, have invented certain new and useful Improvements in Rotary Kilns, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

For the purpose of increasing the evaporating surface and more quickly driving off the water from cement slurry in rotary kilns in which the manufacture of Portland cement is carried on in the wet process, it has been found advantageous to provide longitudinal partitions in the upper portion of the kiln, as shown, for example, in Letters Patent of the United States No. 1,103,381, dated July 14, 1914. The slurry which enters one of the longitudinal compartments formed by such partitions in which the drying of the cement raw material is effected, moves onward in the same compartment throughout its length. The temperature to which each partition is subjected increases from the feed end of the kiln toward the delivery end and the partition is therefore subjected to different temperatures at different points in its length. By reason of the high temperatures to which the metal plates which form the partitions are subjected and to the differences in temperature at different points and to the variations in temperature, the partitions are apt to become loosened from the shell of the kiln and eventually to be disconnected therefrom altogether so that they work down into the hotter part of the kiln and are destroyed. It is the object of the present invention to provide such means for supporting the partitions in the kiln that, while properly conveying the cement raw material, they shall be free to expand without becoming loosened from the shell. To this end the partitions, of which there are preferably four, are fastened only at their outer edges to the shell and are free at their inner edges, near the axis of the kiln, where they are so formed as mutually to support one another while being free to expand and contract. The invention will be more fully explained hereinafter with reference to the accompanying drawing in which it is illustrated and in which—

Figure 1 is a view in longitudinal section of a portion of a kiln, with the improved partitions in place therein.

Figure 2 is a view of the same in transverse section.

The kiln may comprise as usual an outer shell *a* of metal with a lining *b*. In its upper portion, near the feed end, the kiln is divided longitudinally, to form longitudinal compartments, by partition plates *c*, *c* and *d*, *d*, which are secured to the kiln at their outer edges but are free at their inner edges, near the axis of the kiln, to permit transverse movement as well as expansion and contraction. They may be secured to the kiln at their outer edges by any convenient means. As shown, each plate *c* and *d* is riveted to an angle *e*, which in turn is secured to the shell by bolts *e'* and blocks e^2. The several plates, in the arrangement shown, are not truly radial, but whether radial or not may be described as extending toward the axis of the kiln. The two plates *d* are alike and at their inner edges may have flanges which for convenience in manufacture may be formed by angles *d'* riveted to the plates which are themselves flat. The two plates *c*, *c* are also alike and at their inner edges have flanges *c'* which are preferably inclined with respect to the body of the plate and overlap at the center of the kiln as shown.

It will be observed that while each of the partition plates *c*, *c* and *d*, *d*, is attached only at its outer edge and is free at its inner edge, nevertheless the several plates are mutually supported at or near the center and are adapted to sustain properly the cement raw material in its passage through the compartments formed by the partition plates. The plates being entirely free at their inner edges, unattached in any manner, expansion and contraction of the plates transversely has no tendency to cause them to buckle or to become loosened from the wall of the kiln at their outer edges and each plate can yield to its load without causing any other plate to bend or buckle. Longitudinally the partitions are formed in successive sections so that the sections near the zone of greatest temperature of the kiln can be replaced when necessary.

I claim as my invention:

1. A rotary kiln having longitudinal par-

titions secured to the wall of the kiln at their outer edges only and having their inner edges free and unattached.

2. A rotary kiln having longitudinal partitions secured to the wall of the kiln at their outer edges and free at their inner edges and unattached and formed at their inner edges for mutual support.

3. A rotary kiln having four longitudinal partitions extended toward the axis of the kiln, secured to the wall of the kiln at their outer edges only, and flanged at their inner edges for mutual support.

This specification signed this 15th day of August A. D. 1924.

MIKAEL VOGEL-JÖRGENSEN.