

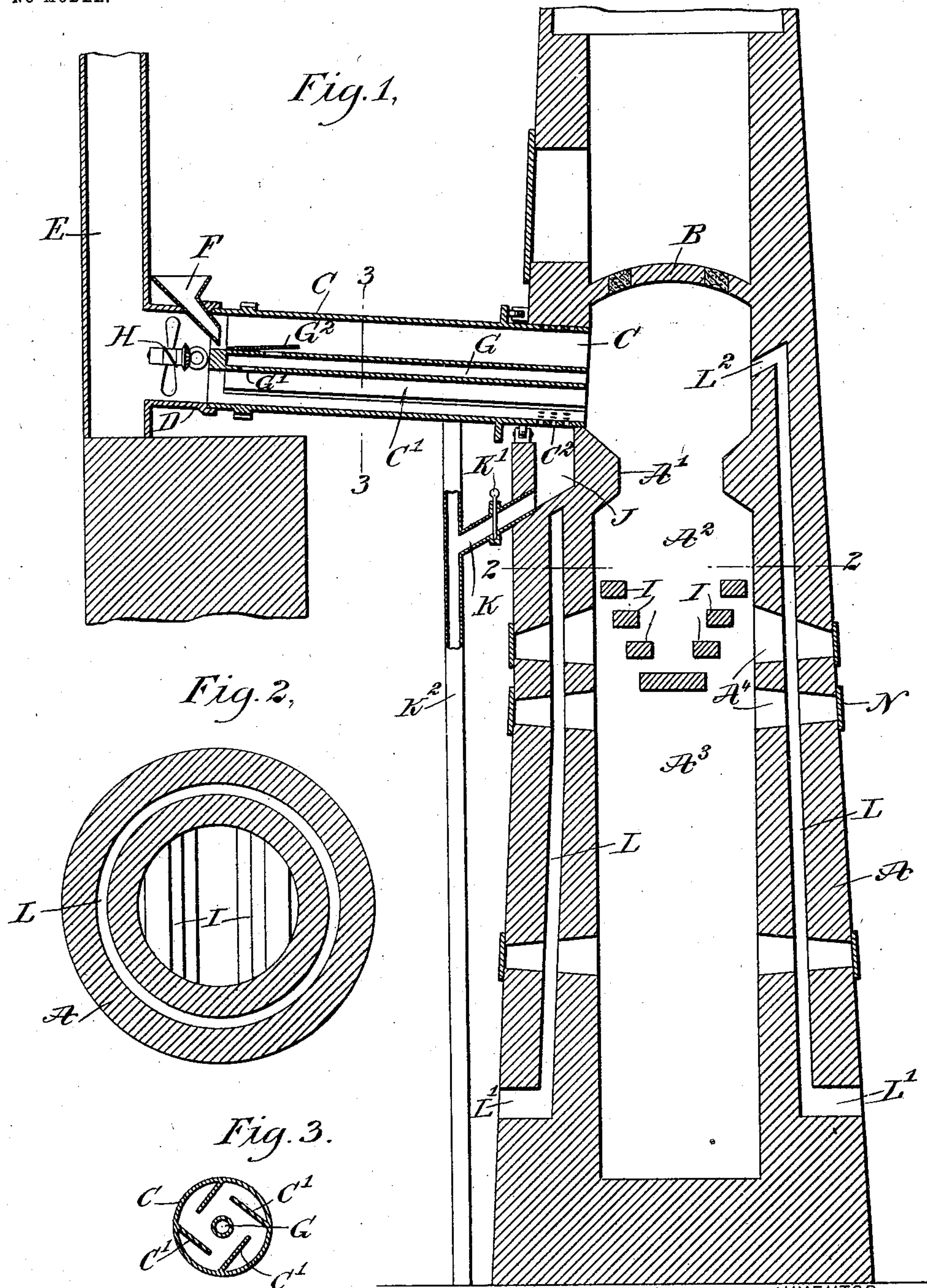
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H. STEHMANN.  
KILN.

APPLICATION FILED JUNE 26, 1902.

NO MODEL.



WITNESSES:  
*Edward Thorpe,*  
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# UNITED STATES PATENT OFFICE.

HARRY STEHMANN, OF WHITECLIFFS, ARKANSAS, ASSIGNOR TO DORA STEHMANN, OF WHITECLIFFS, ARKANSAS.

## KILN.

SPECIFICATION forming part of Letters Patent No. 724,965, dated April 7, 1903.

Application filed June 26, 1902. Serial No. 113,245. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY STEHMANN, a subject of the Emperor of Germany, and a resident of Whitecliffs, in the county of Little River and State of Arkansas, have invented a new and Improved Kiln, of which the following is a full, clear, and exact description.

The invention relates to cement-kilns, lime-kilns, and the like—such, for instance, as shown and described in the Letters Patent of the United States, No. 676,638, granted to me June 18, 1901.

The object of the present invention is to provide a new and improved kiln arranged for continuous operation to produce Portland cement, lime, and the like of a very high quality and at a comparatively low cost.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional elevation of the improvement. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 1, and Fig. 3 is a transverse section of the drying-drum on the line 3 3 of Fig. 1.

The shaft A of the kiln has its upper portion closed by an arch or top B, formed with apertures or recesses which are filled with a suitable refractory substance during the regular working of the kiln. Immediately below the arch or top B is arranged in the wall of the shaft a laterally-extending opening, into which fits more or less tightly the lower end of an inclined revoluble drying-drum C, journaled at its outer upper end in a suitable bearing D, connected with a chimney E. In the top of the bearing D is held a hopper F for discharging the material to be treated in lump or brick form into the upper or feed end of the drying-drum C. The latter is provided at the inside with longitudinally-extending bars or plates C', standing at an acute angle to the wall of the drying-drum C, as plainly indicated in Fig. 3, the said bars or

plates forming supports for the material to glide on on rotating the drum, so that the material gradually moves in the drum toward the lower end thereof, to finally pass into the shaft of the kiln below the top or arch B thereof.

In the drum C extends centrally a pipe G, opening at its lower end into the shaft of the kiln and formed at its upper end with openings G', through which heated gases from the shaft can pass directly into the upper or feed end of the drum C, so as to dry the outside of the material to prevent the same from sticking together or on the supporting-bars C'. A guard-plate G<sup>2</sup> extends over the upper end of the pipe G, so that the material passes from the hopper F over the said guard-plate G<sup>2</sup> without clogging the openings G'.

Within the bearing D is arranged a suction-fan H for drawing the gases through the drum C and the said pipe G from the shaft A of the kiln. Thus when the kiln is in operation the material gliding slowly down the supporting-plate C' is gradually dried to be in proper condition upon reaching the upper end of the shaft A.

The lower or discharge end of the drying-drum C discharges the material onto a throat A', below which is a preliminary heating-chamber A<sup>2</sup>, the bottom of which is formed by bars I, extending transversely in the shaft A and arranged in double step form, as plainly indicated in Fig. 1. Below the lowermost of the bars I is the usual burning-chamber A<sup>3</sup>. The lower end of the drying-drum C is provided in its wall with perforations C<sup>2</sup>, opening into a chamber J, arranged in the wall of the shaft A, and the inclined bottom of this chamber J connects with an outwardly-extending and downwardly-inclined pipe K, having a valve K' and discharging into a stand-pipe K<sup>2</sup>. Now any material that becomes pulverized in the drum C moves down the drum until it reaches the perforations C<sup>2</sup>, and then the pulverized material drops through the perforations C<sup>2</sup> into the chamber J, from which the accumulating pulverized material can be discharged from time to time to the outside of the kiln by way of the pipes K K<sup>2</sup> on opening the valve K'. In the wall of the shaft A is arranged an an-



nular chamber L, connected at its lower end with air-inlets L' and opening at its upper end into a channel L<sup>2</sup>, leading to the shaft A, below the top B, so that the heat radiating from the inner wall of the shaft A heats the air passing up the chamber L, and this air in a heated condition passes into the top of the shaft and through the drum C and pipe G to cause a proper drying of the material during its passage through the drying-drum C.

The shaft A is provided with the usual openings A<sup>4</sup>, closed by doors N for the introduction of the fuel and for allowing the insertion of suitable tools to move the material from the chamber A<sup>2</sup> into the burning-chamber A<sup>3</sup>.

Now it is understood that when the kiln is in operation the material to be treated in lump or brick form is fed continually through the hopper F into the drum C, in which the material is partly dried, and glides by its own gravity down the plates C', to finally drop into the upper end of the shaft and into the throat A', from which the material passes into the preliminary heating-chamber A<sup>2</sup>, the material being then supported on the spaced bars I. Now the heat from the material burning in the chamber A<sup>3</sup> rises and passes to the material in the preliminary heating-chamber A<sup>2</sup>, especially as the said bars I are arranged in step form to allow ready passage of the heated gases between the said bars to reach the material in the chamber A<sup>2</sup>. By having the suction-fan H going the heat is drawn from the upper end of the shaft through the drum C and pipe G for the purpose previously described, so that the operation can be carried on continuously without requiring skilled labor for attending to the kiln. The pulverized material passed into the pipe K from time to time is re-formed into lump or brick shape and then returned to the hopper F, to be fed into the drum and kiln-shaft.

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

1. A kiln having a drying and feeding device, comprising a revoluble drum opening at one end into the kiln, a pipe arranged centrally in the drum, said pipe opening at its lower end into the kiln and provided with openings at its upper end, and a guard extending over the upper end of said pipe, as set forth.

2. A kiln having a drying and feeding device, comprising a revoluble drum opening at one end into the kiln and provided with longitudinal plates standing at an acute angle to the wall of the drum and extending inwardly to about the longitudinal center of the drum, and a pipe arranged centrally in the drum, said pipe opening at its lower end into the kiln and provided with openings at its upper end, as set forth.

3. A kiln having a drying and feeding device, comprising a revoluble inclined drum, opening at its lower end sidewise into the

kiln, the said drum having perforations near the discharge end, for the escape of pulverized material, as set forth.

4. A kiln having a drying and feeding device, comprising a revoluble inclined drum opening at its lower end sidewise into the kiln, the drum having perforations near the discharge end for the escape of pulverized material, longitudinally-extending supports within the drum for the material to glide on on rotating the drum, and a suction-fan in communication with the upper or feed end of the said drum, as set forth.

5. A kiln having a drying and feeding device, comprising a revoluble inclined drum opening at its lower end sidewise into the kiln, the drum having perforations near the discharge end for the escape of pulverized material, longitudinally-extending supports within the drum for the material to glide on on rotating the drum, a suction-fan in communication with the upper or feed end of the said drum, and a pipe extending centrally through the drum and opening at its lower end into the kiln-shaft and provided at its upper end with outlet-openings, to conduct heat directly to the material at the feed end of the drum, as set forth.

6. A kiln having a drying and feeding device, comprising a revoluble inclined drum opening at its lower end sidewise into the kiln, the drum having perforations near the discharge end for the escape of pulverized material, longitudinally-extending supports within the drum for the material to glide on on rotating the drum, a suction-fan in communication with the upper or feed end of the said drum, a pipe extending centrally through the drum and opening at its lower end into the kiln-shaft and provided at its upper end with outlet-openings, to conduct heat directly to the material at the feed end of the drum, and a protecting-plate over the upper apertured end of the said pipe, as set forth.

7. A kiln having a drying and feeding device, comprising a revoluble inclined drum opening at its lower end sidewise into the kiln, the drum having perforations near the discharge end for the escape of pulverized material, a chamber into which passes the pulverized material from the said drum, and a valved pipe connected with the chamber for carrying off the pulverized material, as set forth.

8. A kiln having a shaft provided with a top, a lateral opening below the top, a throat below the said opening, and supporting-bars arranged in step form below the throat, to form with the latter a preliminary heating-chamber, as set forth.

9. A kiln having a shaft provided with a top, a lateral opening below the top, a throat below the said opening, and supporting-bars arranged in step form below the throat, to form with the latter a preliminary heating-chamber, in combination with a drying-drum, the discharge end of which communicates

with the kiln at the said side opening, as set forth.

10. A kiln having a shaft provided with a top, a lateral opening below the top, a throat  
5 below the said opening, supporting-bars arranged in step form below the throat, to form with the latter a preliminary heating-chamber, and an annular chamber in the wall of the shaft, opening at its lower end to the out-

side and at its upper end into the shaft, below the top thereof, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY STEHMANN.

Witnesses:

HOWARD SCHULER,

CHARLES HENRY CROOKS.