C. S. BATCHELDER.
LIME OR CEMENT KILN.
APPLICATION FILED MAY 2, 1902.

Inventor
Chester S. Batchelder.
C. S. Batchelder.
LIME OR CEMENT KILN.
APPLICATION FILED MAY 2, 1902.

Inventor
Chester S. Batchelder

Witneses

By Virtue of Affidavit

The Keats Print Co., Pottsville, Pa.
CHESTER S. BATECHLER, OF SPOKANE, WASHINGTON.

LIME OR CEMENT KILN.


Application filed May 2, 1902. Serial No. 105,636. (No model.)

To all whom it may concern:

Be it known that I, CHESTER S. BATECHLER, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Lime or Cement Kilns; and I do hereby declare the following to be full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention, which relates to kilns for the manufacture of lime and cement, contemplates the production of a kiln of improved construction and operation, the improvement consisting, generally speaking, of means for obtaining an uninterrupted feed of the material through the kiln-chamber, whereby the treatment of such material is rendered uniform and may be readily controlled to insure the best results in the finished product.

The details of the improvement, together with a full statement of the operation and resulting advantages, are set forth in the following description, in connection with which attention is called to the accompanying drawings, illustrating the improved kiln in its preferred form.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a kiln embodying the improvement. Fig. 2 is a vertical cross-sectional view on line 2 2 of Fig. 1.

Referring to the drawings by letter, A denotes the kiln, which is preferably of the vertical type shown and provided with an open top, (not shown,) through which the material to be treated is introduced. The kiln has a vertically-disposed chamber a for the material, which chamber is preferably of rectangular form in cross-section, and the lower portion thereof is contracted and terminates in a closed lower end. The chamber a is provided with a water-jacket B, the inlet and outlet of which is at b and the outlet at b'. Said inlet and outlet are controlled by valves c o'. At one end of the lower portion of the chamber is a water-jacketed extension A', from which depends a discharge-spout d, constituting the outlet from the chamber, though this extension may be omitted and the outlet from the chamber located at any other point. In the bottom of the chamber is a conveyer E, operated to insure an uninterrupted feed of the material through the chamber, and while any type of constantly-moving conveyer may be employed I prefer the screw or spiral type shown. The shaft e of the conveyer may be hollow, as shown, to receive a cooling medium, such as air or water, and is fixed to the shaft beyond the kiln-casing is a pulley f, by which the conveyer is driven. The conveyer preferably extends to within the extension A'.

In the preferred operation of my improved kiln the material with solid fuel is introduced into the chamber and ignited and air blast is provided at tuyers f f', located in the furnace wall at proper intervals. When the material at the zone of heat has received its proper treatment, the conveyer is continuously operated to draw off the material from the base of the chamber, and thus cause an uninterrupted flow of material through the chamber, and consequently through the zone of heat. By this means not only is the material uniformly treated, but by regulating the speed of the conveyer which carries the material to the outlet 2 the best results in the finished product may be obtained, as the duration of time of the passage of material through the heating zone may be nicely calculated and readily controlled. The bottom of the chamber preferably conforms to the curvature of the conveyer, and by locating the conveyer at this point, which is remote from the heating zone, the conveyer is not subjected to a high degree of heat, the material being materially cooled before reaching the conveyer.

My improved kiln in addition to possessing the advantages above set forth may be built economically by reason of its simplicity and the absence of masonry in its construction. By reason of the continuous operation of the kiln the capacity is largely increased over kilns in which the feed of material is intermittent. The material discharged from the chamber may be readily conducted to any desired point or directly loaded upon cars or other means of conveyance.

I claim as my invention—
1. A lime or cement stack-kiln having its calcining-chamber provided with a water-jacketed contracted lower end, and a constantly-moving conveyor at the lower end of the said chamber whereby an uninterrupted feed of material through the chamber is obtained.

2. A lime or cement stack-kiln having a vertical calcining-chamber the lower end of which is provided with means for cooling it, and a rotary conveyor at the lower end of the chamber for effecting a constant feed of material through the said chamber.

3. A lime or cement stack-kiln having a vertical calcining-chamber provided with a water-jacketed contracted closed lower end, and a rotary conveyor at the lower end of the said chamber for effecting a constant feed of material therethrough.

4. A lime or cement stack-kiln having a vertical calcining-chamber provided with a water-jacketed contracted closed lower end, an extension of the said chamber having an outlet, and a rotary conveyor in the lower end of the said chamber and extension for directing the material to the outlet and effecting a continuous feed of material through the said chamber.

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

CHESTER S. BATCHELDER.
Witnesses:
W. T. NORTON,
T. L. JENKINS.