

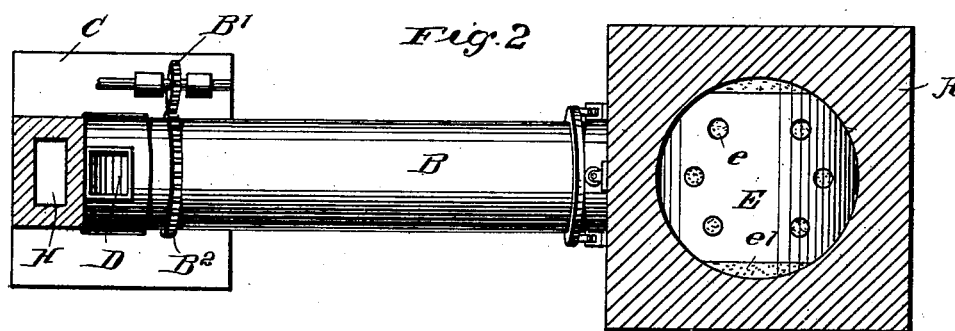
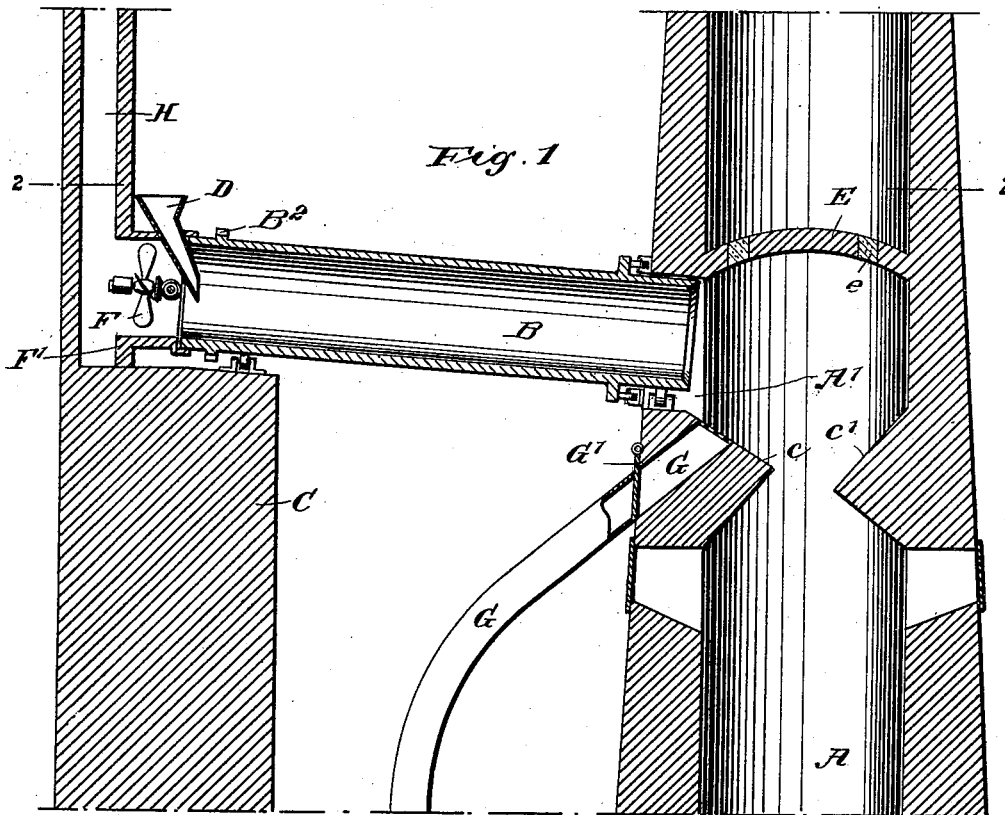
No. 676,638.

Patented June 18, 1901.

H. STEHMANN.
DRYING DEVICE FOR CEMENT KILNS.

(Application filed Feb. 14, 1901.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

HARRY STEHMANN, OF HOBOKEN, NEW JERSEY.

DRYING DEVICE FOR CEMENT-KILNS.

SPECIFICATION forming part of Letters Patent No. 676,638, dated June 18, 1901.

Application filed February 14, 1901. Serial No. 47,248. (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 Hoboken, in the county of Hudson and State of New Jersey, have invented a new and Improved Drying Arrangement for Cement-Kilns and the Like, of which the following is a full, clear, and exact description.

My invention relates to cement-kilns, lime-kilns, and the like, and has for one object to utilize the waste gases for the drying of the material preparatory to its being admitted into the kiln.

Another object is to produce a draft in the kiln in such a manner as to obtain a product of superior quality at a relatively small cost and to keep the kiln in a good working condition, so that few repairs will be necessary.

The invention will be fully described hereinafter and the features of novelty pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a sectional elevation of a cement-kiln provided with my improvement, and Fig. 2 is a sectional plan on line 2 2 of Fig. 1.

The bottom part of the kiln A may be of any suitable construction. The upper part is normally closed by an arch or top E, formed with apertures and recesses *e e'*, respectively, which are filled with a suitable refractory substance during the regular working of the kiln. Immediately below the arch the kiln has a lateral opening A', into which fits more or less tightly one end of the drying drum or cylinder B, preferably inclined downward toward the kiln. The other end of the drum is supported in any suitable manner upon a wall C and is adjacent to the discharge end of a hopper D, delivering the material into the drum at the axis thereof and to a fan or other air-suction device F, the casing F' of which has a substantially air-tight joint with the periphery of the drum.

H is the smoke-flue or chimney.

Any approved means may be employed for rotating the drum, as a driving-pinion B', engaging a toothed ring B² on the drum.

Adjacent to and below the discharge end of the drum the kiln is provided with opposing inclined surfaces *c c'*, forming a throat, and from the surface *c* a channel G leads downward to the outside of the kiln, and this channel may be closed by means of a laterally-movable slide or door G'. The lower end of the channel or pipe G is open to the atmosphere.

In operation, the kiln being charged, as usual with fuel and material to be treated, the cement or other substance to be dried (which may have first been partially dried by exposure to air) is fed into the drum B through the hopper D, and the fan F, as well as the drum, are set in motion while the fuel is burning in the kiln. The material will then travel toward the kiln under constant agitation, while the fan will draw in cold air through the usual admission-openings at the bottom of the kiln, said air first quickly cooling the calcined product, then passing up to the combustion zone, where the fuel is consumed rapidly and completely, the hot combustion products passing up to the lateral opening A' and into the drum B to dry the material which is being agitated therein. The material slides down in the drum and finally falls into the kiln A. Should the combustion-gases be too hot, the door or slide G' may be opened to admit a suitable proportion of cold air. The inclined surface *c'* is intended to prevent an uneven distribution of the combustion-gases in the kiln. When the material crumbles readily, it will sometimes fail to slide down the incline *c*, and in this case the material may be removed laterally through the channel G and, if desired, formed into bricks and again brought into the kiln.

If repairs to the drying-drum should become necessary, the filling of the recesses *e'* and apertures *e* will be removed, and when the fan is stopped the major portion of the combustion-gases will take the direct upward path instead of passing through the drum B.

The material is thoroughly dried before reaching the kiln and is uniformly distributed by the incline *c*, which forms a throat with the opposing incline *c'*. The operation takes a comparatively short time, and the quality of the resulting product is very high.

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

1. The combination with the kiln having a top, a lateral opening below the top, the kiln-wall being inclined downwardly from said opening, and a channel extending to the outside of the kiln through the said inclined kiln-wall, of a drying-drum the discharge end of which communicates with the kiln at the said opening.

2. The combination with the kiln having a top, a lateral opening below the top, an incline

extending downwardly from said opening, a channel extending to the outside of the kiln at the said incline, and a door for closing said channel, of a drying-drum the discharge end of which communicates with the kiln at the said opening.

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

HARRY STEHMANN.

Witnesses:

JOHN LOTTA,

EVERARD BOLTON MARSHALL.