

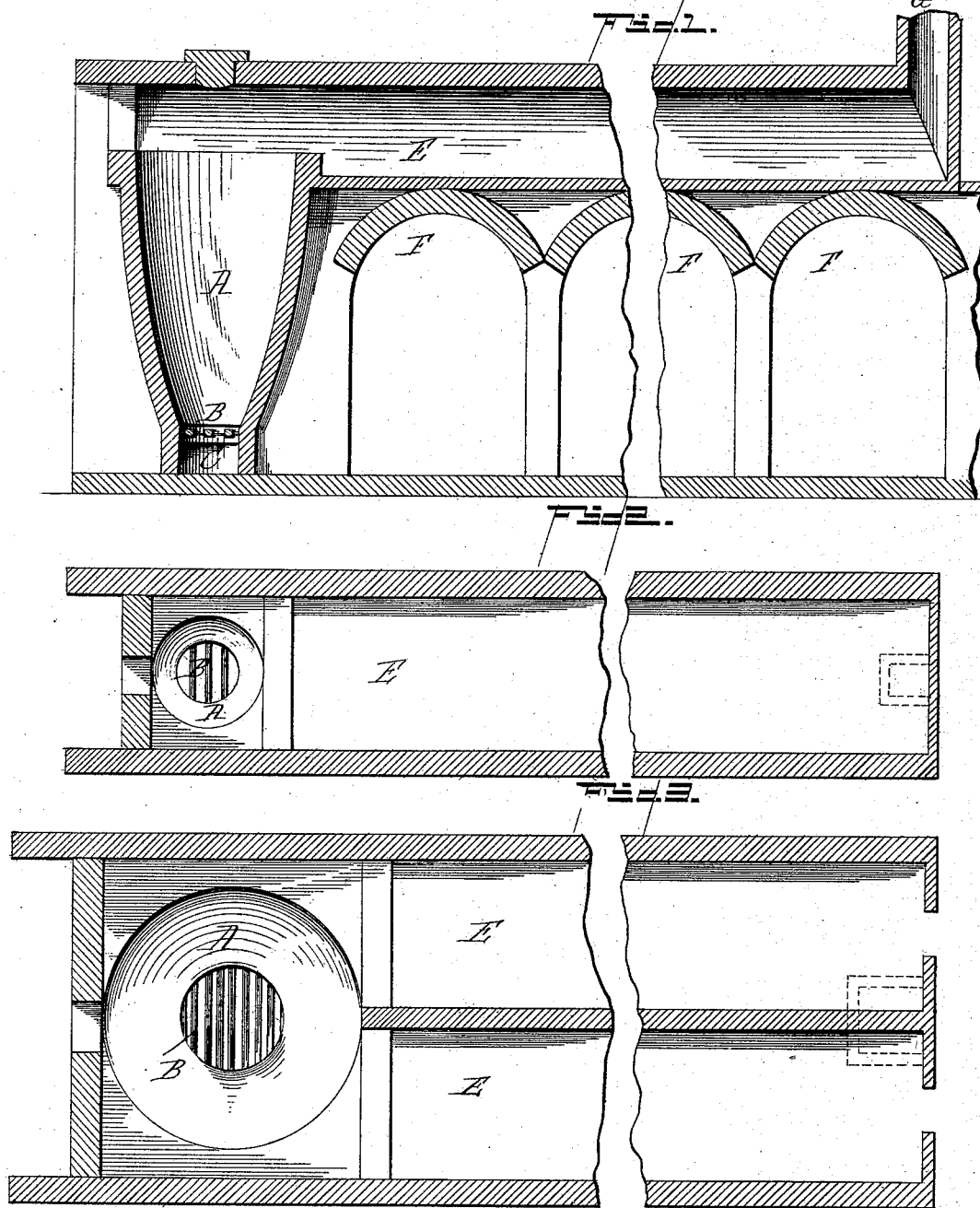
(No Model.)

2 Sheets—Sheet 1.

C. R. GOSTLING.
KILN FOR BURNING HYDRAULIC CEMENT.

No. 384,905.

Patented June 19, 1888.



WITNESSES

Edwin I. Yewell,
Alex. Mahon

INVENTOR,

Chas R. Gostling,
By
L. M. Finsbaugh
Attorney.

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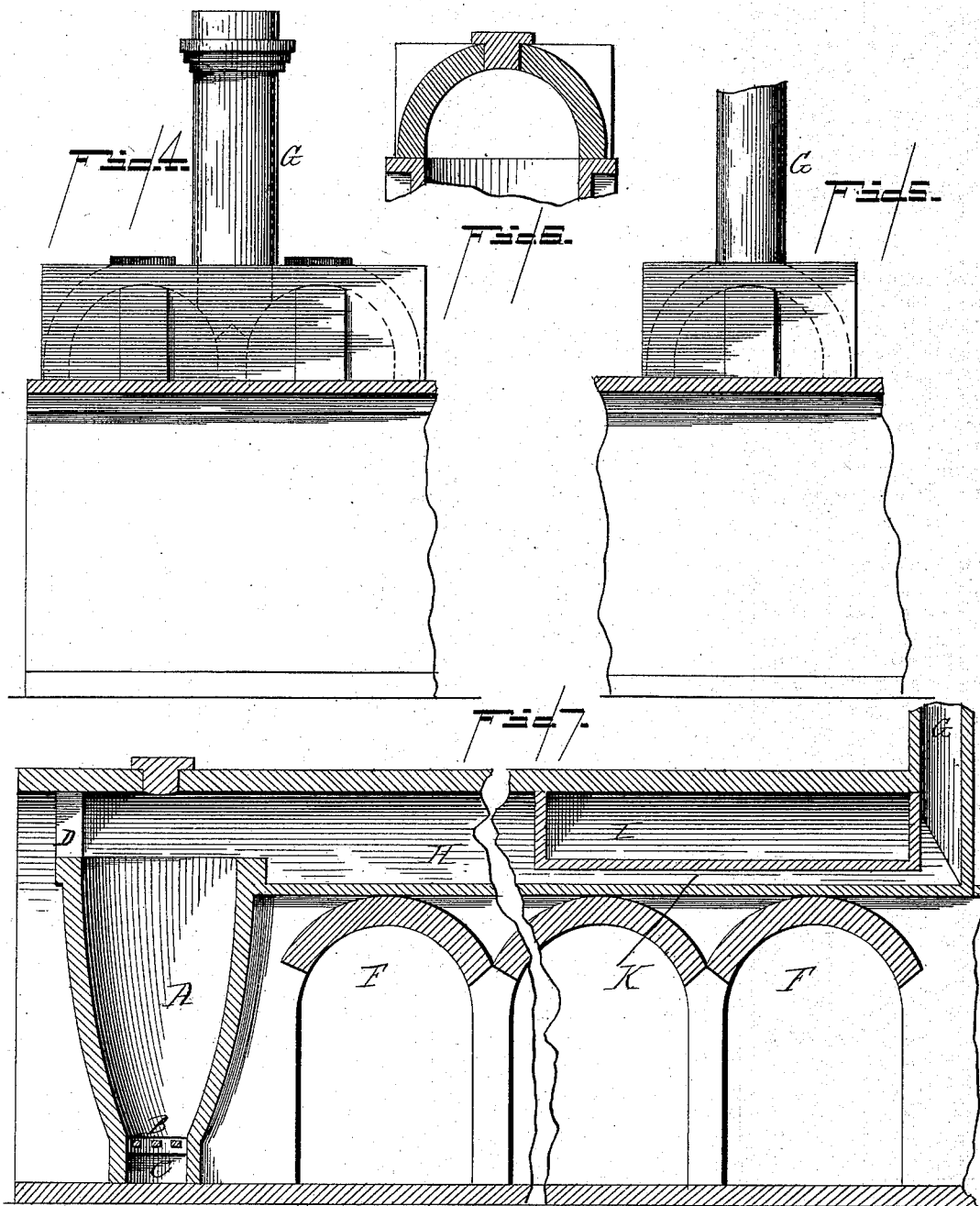
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UNITED STATES PATENT OFFICE.

CHARLES R. GOSTLING, OF WHITEHALL, ASSIGNOR OF ONE-HALF TO
SAML. B. WELLINGTON, OF CATASAUQUA, PENNSYLVANIA.

KILN FOR BURNING HYDRAULIC CEMENT.

SPECIFICATION forming part of Letters Patent No. 384,905, dated June 19, 1888.

Application filed November 2, 1887. Serial No. 254,063. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. GOSTLING, a citizen of the United States of America, residing at Whitehall, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Kilns for Burning Hydraulic Cement, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in kilns for the manufacture of hydraulic cement.

The object of my invention is to construct a kiln for the burning of the limestone or other material of which the cement is made, and utilizing the waste heat therefrom in a separate chamber to dry the plastic mass produced in the process of manufacturing hydraulic cement, as described in an application for patent filed by me of even date herewith, Serial No. 254,062.

In the drawings, Figure 1 is a longitudinal sectional view of the kiln and drying-chamber. Fig. 2 is a longitudinal sectional plan view, wherein a single drying-chamber is employed. Fig. 3 is a similar view showing two drying-chambers. Fig. 4 is a front view of the double drying-chamber. Fig. 5 is a similar view of a single drying-chamber. Fig. 6 is a vertical sectional view of the drying chamber over the furnace. Fig. 7 is a longitudinal sectional view of the kiln with the supplemental drying-chamber.

A indicates the kiln in which the material is burned after it has been crushed and reduced to a powdered condition and to a plastic mass and afterward dried, as described in the application above referred to. The kiln A is by preference of the form of an inverted cone, having the grate-bars B and ash pit C at the lower portion. The lower portion of the kiln is provided with a suitable opening through which the contents of the kiln are discharged after being burned, while an opening, D, is provided at the top, through which the material to be burned is supplied to the kiln. The upper end of the kiln communicates with a drying arch or tunnel, E, which is preferably about one hundred feet long and about the same width as kiln, supported on suitable arches of masonry, F, and communicates at its rear end

with a stack or chimney, G. The kiln A may communicate with a tunnel, as shown in Figs. 1, 2, 5, and 7, or, when it is desired to increase the capacity of the kiln, it may be made sufficiently large to require two or more drying arches or tunnels, as shown in Figs. 3 and 4.

In the modification shown in Figs. 6 and 7 the drying-chamber is divided into two compartments, H and I. The chamber H receives the products of combustion directly from the kiln A to dry the material placed therein, while in chamber I the material to be dried does not come in contact with the products of combustion at all, as the waste heat passes through the flues or passages K under said chamber and escapes to the stack G.

It will be understood that after the limestone has been ground and reduced to a finely-divided condition and to a plastic mass, as described in the application above named, it is transferred to the arches or tunnels E by a pump, or in any other suitable manner, where it is dried and afterward transferred to the kiln A, where it is burned to the required degree of heat.

Instead of transferring the plastic mass to the drying arches or tunnels in bulk, I may mold it into bricks or blocks for more convenient handling, or the mass may be placed in metal barrows or trolleys and run into the arches or tunnels, where, after drying, the barrows, with their contents, are taken to the kiln A, and the dried material deposited therein with the usual amount of fuel to effect a complete burning of the mass.

I may in some instances do the initial drying of the plastic mass by means of steam-pipes before it is put into the tunnels or arches, and these steam-pipes may be arranged in a suitable chamber adapted to receive the plastic material. I also arrange the outlet for waste heat at rear end of kiln, so that it is drawn down over the mass in the tunnels or chambers, by which means the cement slips or bricks become perfectly dried before going in kiln.

I do not limit myself to drying cement slips or cement bricks or other body in a semi-liquid state in tunnels or chambers leading from cement-kilns only, as such tunnels or chambers can be erected in connection with

other kilns, furnaces, or ovens, and other semi-liquid bodies can be dried therein. Nor do I limit myself to making the bed or flooring of chamber or tunnel of the same width, as it may be wider at one end than at the other.

Having thus described my invention, what I claim is—

1. An apparatus for drying and burning hydraulic cement, consisting of a vertical kiln opening at the top into a horizontal chamber, in which the slip is dried preparatory to burning, and through which all the products of combustion from the kiln pass on their way to the smoke stack, as set forth.

2. In kilns for burning cement, a vertical kiln in which the cement is burned, a horizontal tunnel or tunnels communicating with the upper portion of the vertical kiln, said tunnels being divided into compartments, around which the waste products of combustion from the burning kiln are caused to pass on their way to the stack, as set forth.

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

CHARLES R. GOSTLING.

Witnesses:

GEORGE W. LERCH,
R. CLAY HAMERSLY.