

UNITED STATES PATENT OFFICE.

AUGUSTUS MORAND, OF GERMANTOWN, PENNSYLVANIA.

IMPROVEMENT IN METHODS OF DRYING AND BURNING BRICKS, &c.

Specification forming part of Letters Patent No. **168,765**, dated October 11, 1875; application filed December 15, 1873.

CASE B.

To all whom it may concern:

Be it known that I, AUGUSTUS MORAND, of Germantown, Pennsylvania, formerly of Brooklyn, New York, have invented an Improvement in the Art of Drying and Burning Bricks and other Wares, of which the following is a specification:

My invention consists in the introduction of ozonized air, produced by the electrizing of atmospheric air, into the kiln, for the purpose of aiding in the process of burning, or of drying and burning, the bricks or other wares therein contained.

One method of carrying my invention into practice is as follows: In connection with any ordinary kiln for burning bricks, I arrange a pipe or system of pipes to enter the interior of the kiln, by means of which ozonized air is introduced into the presence of the brick or other wares while undergoing the process of drying or burning. The air so introduced may be forced or conveyed through the pipe or pipes by means of an air-pump, pressure-blower, or other apparatus for propelling air, and the air may be acted upon by electricity supplied from a battery or other apparatus for exciting and accumulating electricity; or the pipes or other means of conveyance between the air-propeller and the interior of the kiln may contain metals of different oxidizable qualities, combined and arranged in such a manner as to generate electricity by the friction caused by the air passing over them while in transit, and before it enters the kiln.

It is well known that the electrizing of air, or the charging it with electricity, has the effect of generating ozone or oxygen in active state, so that air which becomes charged with electricity becomes consequently charged with ozone. It is also well known that a current of electricity, when its circuit is broken, or when it passes through an imperfect conductor, produces heat; and of these properties I propose to avail myself, but do not confine myself to the use of electrized air only for heating purposes, but use it in connection with the heat obtained from the ordinary combustion of fuel; neither do I desire to limit my-

self to the kind of apparatus which is employed to generate or apply electricity, or in the method of introducing air charged with it into the kiln, as such may be made the subject of future applications.

The chief agent in my process is the ozone, occasioned, as before mentioned, by electrizing the oxygen of the air. The effect of ozone, through its powerful oxidizing properties, is to greatly improve the color of the brick, and such other wares as derive their color from oxide of iron as a constituent of the clay, in consequence of the more effectual oxidation thereof, and by the same property the combustion in the kiln is rendered more vivid, and the heat consequently intensified. The electricity with which the air is charged, while forming in itself the means of generating the ozone, has also an independent action on the contents of the kiln, and from its passage or circulation through the substance of the wares, produces heat, and thus acts as an auxiliary to the calorific effect of the ordinary furnaces.

By the use of electricity and ozone in the kiln, the air within the same is rarefied, and the gases which result from imperfect combustion of the fuel, and retard the process of burning, are more effectually consumed, thereby producing a more perfect combustion, and intensifying the heat to that state of incandescence necessary for the proper burning of the brick or other material under treatment.

I claim as my invention—

The improvement in the art of drying and burning bricks and other wares and materials, consisting of the introduction of electrized air, or of air charged with ozone, into the interior of the kiln, for the purpose of intensifying the combustion therein, and of heightening the color of the brick, substantially as set forth.

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

AUGS. MORAND.

Witnesses:

CHARLES M. HIGGINS,
ARTHUR C. FRASER.