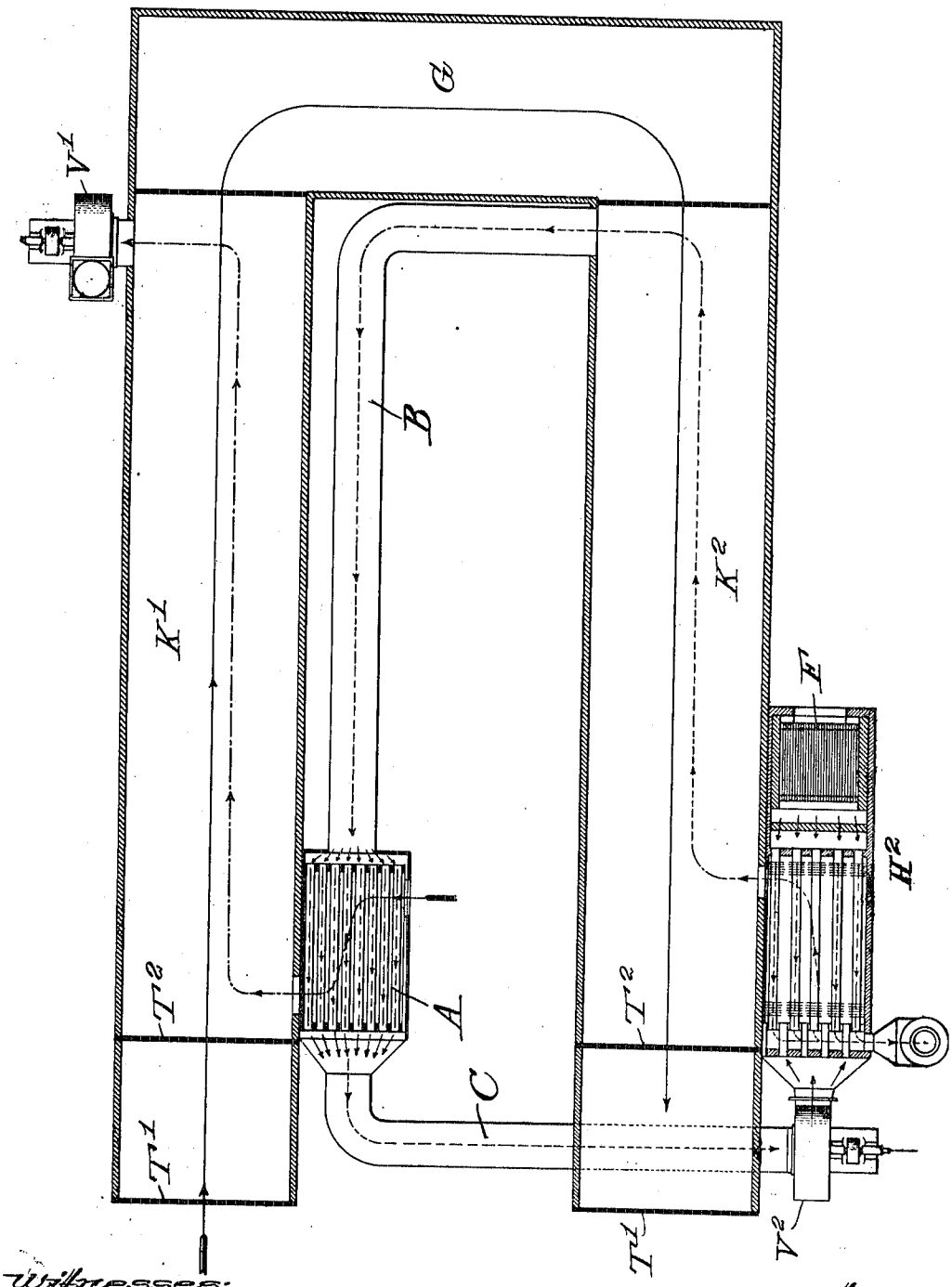
L. JUNGELS.

DRYING CANAL.

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1,084,803.

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Witnesses:
Fred. S. Grumbach
Thomas J. Drummond

Inventor,
Ludwig Jungels,
By Edward Head & Smith.
attys.

UNITED STATES PATENT OFFICE.

LUDWIG JUNGELS, OF LENNEP, GERMANY.

DRYING-CANAL.

1,084,803. Specification of Letters Patent. Patented Jan. 20, 1914.

Application filed June 14, 1912. Serial No. 703,622.

To all whom it may concern:

Be it known that I, LUDWIG JUNGELS, a subject of the German Emperor, residing at Lennep, Germany, have invented an Improvement in Drying-Canals, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to the drying of gutter tiles and it has for its object to provide a novel device and method for this purpose by which gutter tiles can be dried without any appreciable loss due to breakage.

The present method of drying gutter tiles is to use pure air as a drying medium which is carried over the green tiles at a high temperature. This results in drying the outside parts of the tiles more rapidly than the interior and as a consequence the tiles are very apt to break when they have been brought to a uniform temperature. With my invention this breakage is avoided and I obtain this end by using an apparatus having two separate canals or passages through which the tiles are passed in succession, the tiles being partially dried in the first passage or canal and being completely dried in the second passage or canal in such a way as to avoid the danger of breakage.

The drawings show one embodiment of my invention.

The device illustrated in the drawing comprises two drying canals or passages K^1 and K^2 which are connected by a by-pass G. The canal K^1 has an entrance opening which is closed by the double doors T^1, T^2, and the canal or passage K^2 has an exit opening also closed by double doors T^1, T^2. The object of using the double doors T^1, T^2 is so that a carriage containing the tile can be entered into the canal K^1 and discharged from the canal K^2 without allowing the heating medium to escape. In delivering the carriage containing tiles into the canal K^1, the door T^1 is first opened to admit the carriage into the space between the doors and then the door is closed and the door T^2 opened thus allowing the carriage to pass into the canal K^1. The canals are shut off from the by-pass G by other doors.

The canal K^1 is heated by air which is drawn over a heater A and through the canal K^1 by means of a fan V^1, the heater and the fan being arranged so that the heated air traverses the full length of the canal. The canal K^2 is heated by super-heated steam which is generated in the heater H^2 having a furnace F connected therewith. The super-heated steam thus generated in the furnace H^2 is delivered to one end of the canal K^2 and then passes over from the other end of said canal through a pipe B to the heater A and from the heater through a pipe C to a fan V^2 which returns it to the heater H^2. The fan V^2 has no communication with the atmosphere and as a result the heating medium which is used in the canal K^2 is pure over-heated or super-heated steam. This steam after passing through the canal K^2 is made use of in the heater A for heating the air which is delivered to the canal K^1.

In the operation of the device the green tiles are first introduced into the canal K^1 where they are slightly dried by the heated air passing therethrough. They are then carried into the finishing drying canal K^2 through the by-pass G. This canal K^2 will be filled with over-heated steam which is at a higher temperature than the partially heated tiles which are delivered from the canal K^1. When these partially heated tiles are first introduced into the canal K^2, the steam in said canal K^2 will condense on the tiles thus providing a surface moisture which prevents the outside crust of the tile from drying too suddenly and too quickly thus the entire material of the tile is brought to the proper temperature uniformly and without danger of the tile cracking because of the fact that the outside of the tile has dried first before the inside.

It will be noted that in this invention the heat that is delivered to the first canal K^1 is derived from the steam that is used in heating the second canal K^2. The operation of the device will preferably be so adjusted that the quantity of water which is condensed in the heater A will be just equal to the water which is evaporated for furnishing steam to the canal K^2 and by this arrangement the coal consumption of the installation is reduced to a minimum.

My device is extremely economical in operation as the heat units which are delivered from the steam in the heater A are utilized in heating of the air delivered to the canal K^1 and therefore no heat is lost.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a device of the class described, the

combination with two separate drying canals through which the material to be dried is passed in succession, of means for circulating heated air through the canal into which the material is first introduced and means for circulating overheated steam through the other canal whereby the said material is partially dried by the heated air and the drying is completed under the influence of the over-heated steam.

2. In a device of the class described, the combination with two separate drying canals through which the material to be dried is passed in succession, of means for circulating heated air through the canal into which the material is first introduced and means for circulating over-heated steam through the other canal whereby the said material is partially dried by the heated air and the drying is completed under the influence of the over-heated steam and means to heat the air by circulating steam.

3. The process of drying gutter tile and similar material which consists first in subjecting said tile to the action of heated air to partially dry the same and then subjecting said partially heated tile to the direct action of over-heated steam, whereby the tile is completely dried.

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

LUDWIG JUNGELS. [L. S.]

Witnesses:

HELEN NUFER,

ALBERT NUFER.