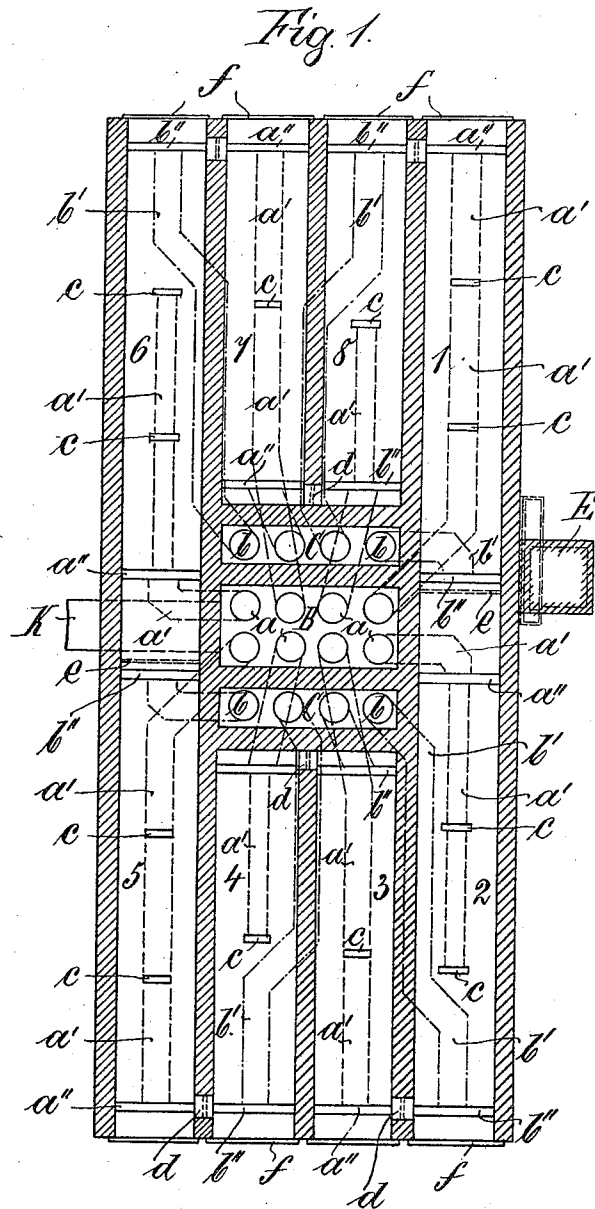


APPARATUS FOR DRYING POTTERY AND THE LIKE.

1,060,425.

3 SHEETS—SHEET 1.



Witnesses:
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John A. Percival

Jacob Bühner.

by: Crosby Marks Attorney.

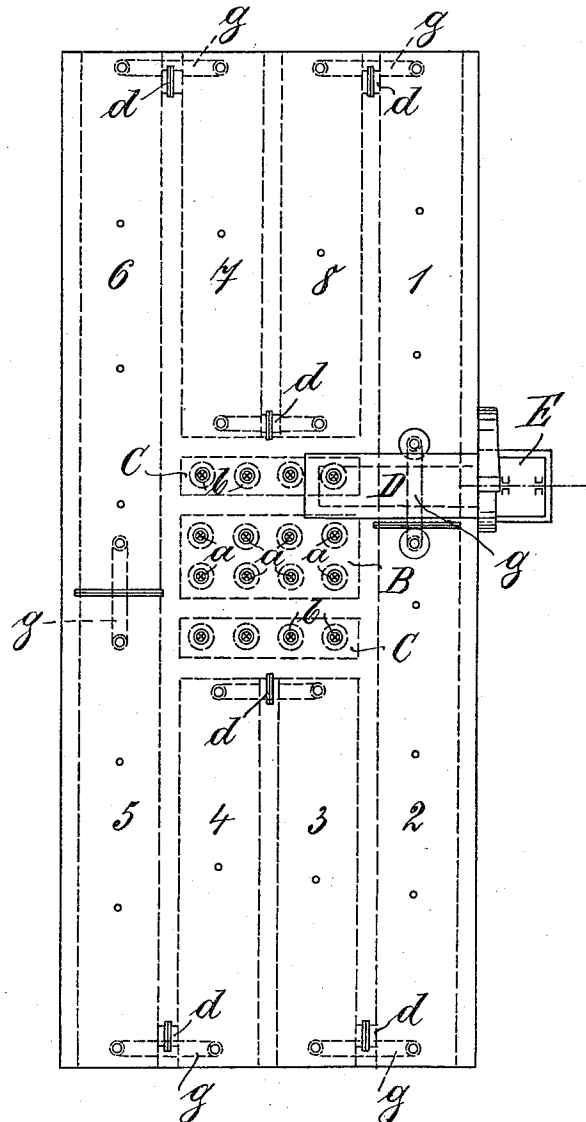
J. BÜHRER.
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 APPLICATION FILED SEPT. 17, 1912.

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Patented Apr. 29, 1913.

3 SHEETS—SHEET 2.

Fig. 2.



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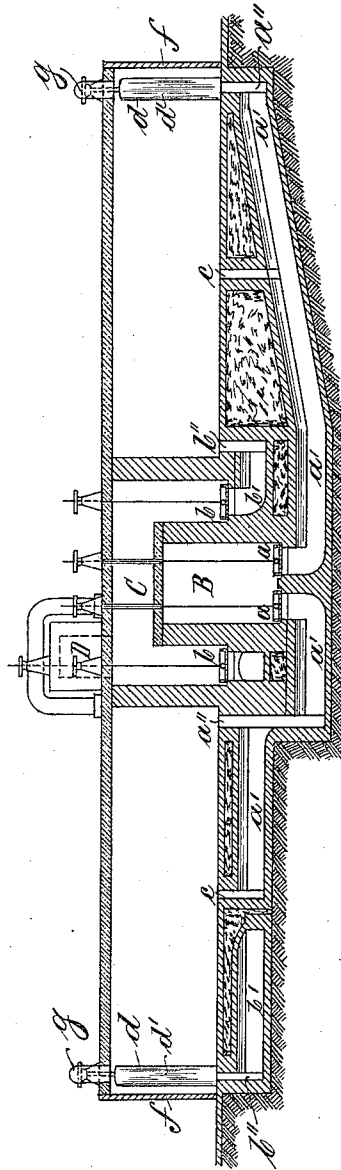
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JACOB BÜHRER, OF CONSTANCE, GERMANY.

APPARATUS FOR DRYING POTTERY AND THE LIKE.

1,060,425.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed September 17, 1912. Serial No. 720,722.

To all whom it may concern:

Be it known that I, JACOB BÜHRER, a Swiss citizen, and resident of 23/25 Schottenstrasse, Constance, in the Grand Duchy of Baden, German Empire, engineer, have invented certain new and useful Improvements in Apparatus for Drying Pottery and the Like.

This invention relates to an improved apparatus for drying pottery, bricks, tiles and the like and relates more particularly to that type of drying apparatus in which a plurality of drying chambers are arranged around a central hot-air chamber or duct and capable of being individually connected thereto through adjustable openings and of being connected with each other successively through adjustable openings, each drying chamber being also capable of being put into communication with a central moist-air chamber leading either to a chimney or to an exhaust fan or the like.

The present invention has for its object to improve the construction of drying apparatus of this type, to obtain a more uniform distribution of heat through the drying chambers, and to utilize the heat present in the drying chambers after the material in the latter has been fully dried.

According to the present invention each drying chamber is connected with the hot-air chamber and moist-air chamber by means of conduits arranged beneath the drying chambers. By this arrangement the conduits may open into the hot-air and moist-air chambers in close proximity to each other, thus enabling comparatively small central chambers to be employed, thereby economizing space.

Each hot-air supply conduit moreover opens through slots or orifices into its drying chamber at different points in the length thereof, so that a better distribution of hot-air in the drying-chambers is effected.

The drying chambers are furthermore adapted to be connected with each other successively through valved openings arranged at alternating ends of the drying chambers so that the hot-air is compelled to pass from end to end of each drying chamber and thus uniformly heat up the latter.

In order to utilize the heat present in the drying chambers after the material has been fully dried therein, the drying chambers are adapted to be connected successively by bridge pipes or the like so that, on opening

the usual end charging door, cold air will enter and be heated in the drying chamber and from thence pass through the bridge pipe to the next drying chamber where it mixes with the hot air coming from the central hot air chamber.

In order that the invention may be more clearly understood, reference is made to the accompanying drawings which illustrate one form of drying apparatus according to the present invention.

Figure 1 is a horizontal section through the apparatus, Fig. 2 a plan view of the same. Fig. 3 is a vertical section substantially on the line A B of Fig. 1.

The drawings illustrate a drying apparatus having 8 drying chambers numbered 1, 2, 3, 4, 5, 6, 7 and 8 respectively, the chambers 1 and 2 and 5 and 6 respectively being separated by means of any suitable slide valve or damper *e*, and the chambers 2, 3, 4, 5 and 6, 7, 8, 1 being connected in series through openings *d* which may also be provided with slide valves or dampers *d'* and which are arranged at alternating ends of the drying chambers.

Arranged centrally of the apparatus is a hot air chamber B of comparatively small capacity supplied with hot air by way of a pipe K from any suitable source. The hot air chamber B is connected to each of the drying chambers 1 to 8 by conduits *a'* opening in close proximity to each other and provided with any suitable form of controlling valves *a*, each conduit *a'* opening into its drying chamber at different points in its length through transverse apertures or slots *a''* and *c*.

The drying chambers are each provided at one end with an outer removable door *f*, and are further capable of being connected in series through bridge pipes *g* or the like. Extending over and on both sides of the hot air chamber B is a saddle shaped moist air collecting chamber C which is connected to the chambers 1 to 8 by means of conduits *b'* having valves *b* and opening in close proximity to each other and opening into one end of the drying chambers through transverse slots or openings *b''*. E is a blower or other exhaust device for withdrawing the moist air from the chamber C through a connection D.

It will be seen that if the valve *b* connecting the chamber C with the conduit *b'* leading to the chamber 4 is open and if all the

other conduits *b'* be disconnected from the chamber C and hot air supplied from the chamber B to the drying chamber 4 through its corresponding conduit *a'*, hot air will enter through the apertures *a''* and *c* into the chamber 4 and be distributed uniformly therethrough and the moist air will be withdrawn through the aperture *b''* into the conduit *b'* and chamber C, and from thence discharged through the blower E. It will be readily seen that this operation may be carried out in a similar manner in each of the drying chambers 1 to 8.

The method of operation of the drying apparatus is as follows:—Assuming that only the chambers 1, 2 and 3 are filled with goods to be dried, the hot air chamber B will then be connected through the valve *a* and conduit *a'* to the chamber 1 and the chambers 1, 2 and 3 connected in series by opening the slide valves *e* and *d* respectively, and the chamber 3 will be connected to the collecting chamber C by opening the controlling valve *b* connecting the moist air chamber C with the conduit *b'* opening therein. By this means hot air will enter the chamber 1 through the apertures *a''* and *c* and be uniformly distributed therein and will pass successively from end to end through the chambers 1, 2 and 3 to the collecting chamber C, the temperature of the hot air gradually falling on the way. It follows of course that those goods in the chamber 1 will be first dried and that in the meantime the chamber 4 may be filled with goods to be dried. As soon as the goods in the chamber 1 are sufficiently dry, the valve *d* separating the chambers 3 and 4 may be opened, and the chamber 3 disconnected from the moist air collecting chamber C, and the chamber 4 thereupon in similar manner connected to the collecting chamber C. At the same time hot air may be supplied direct to the chamber 2 from the hot air chamber and the valve *e* between the chambers 1 and 2 closed.

In order to utilize the heat present in the chamber 1, the latter may be connected with the chamber 2 by way of the bridge pipe *g* and air admitted to the chamber 1 by opening the door *f*. The air thus entering the chamber 1 will be heated and pass through the pipe *g* into the chamber 2 and mix with the hot air supplied thereto through the conduit *a'*. In a similar manner the chambers 5, 6, 7 and 8 may be successively put into operation and the other chambers successively put out of operation, and it will thus be seen that a continuous drying operation can be carried out and the hot air at the same time fully utilized.

To commence the drying operation, hot air is first supplied to one of the chambers, such as to the chamber 1 until the requisite temperature is obtained therein, whereupon the next drying chamber may be connected in se-

ries thereto and raised to the requisite temperature, each succeeding drying chamber being connected to the series as soon as the last of the series has been raised to the requisite temperature.

It will of course be understood that any desired number of drying chambers may be employed and that, if desired, each drying chamber may be individually utilized for drying purposes.

I claim:—

1. Drying apparatus comprising central hot-air and moist-air chambers, a plurality of drying chambers arranged around said hot-air and moist-air chambers and conduits arranged beneath said drying chambers and connecting said drying chambers with said hot-air and moist-air chambers respectively, said conduits opening into said hot-air and moist-air chambers in close proximity to each other.

2. Drying apparatus comprising central hot-air and moist-air chambers, a plurality of drying chambers arranged around said hot-air and moist-air chambers and conduits connecting said drying chambers with said hot-air and moist-air chambers respectively, the conduits connecting said drying chambers with said hot-air chamber opening into the drying chambers at different points in the length thereof.

3. Drying apparatus comprising central hot-air and moist-air chambers, a plurality of drying chambers arranged around said hot-air and moist-air chambers, conduits connecting said drying chambers with said hot-air and moist-air chambers respectively, said drying chambers having connecting openings arranged at alternating ends so as to be connected with each other successively, and valves for controlling said openings.

4. Drying apparatus comprising central hot-air and moist-air chambers, a plurality of drying chambers arranged around said hot-air and moist-air chambers, conduits connecting said drying chambers with said hot-air and moist-air chambers respectively, said drying chambers having connecting openings arranged at alternating ends so as to be connected with each other successively, valves for controlling said openings, an air-admission door to each drying chamber, and bridge pipes connecting adjacent drying chambers.

5. Drying apparatus comprising central hot-air and moist-air chambers, a plurality of drying chambers arranged around said hot-air and moist-air chambers and conduits arranged beneath said drying chambers and connecting said drying chambers with said hot-air and moist-air chambers respectively and opening into the latter in close proximity to each other, said drying chambers having connecting openings arranged at alternating ends so as to be connected with

each other successively, and valves for controlling said openings.

6. Drying apparatus comprising central hot-air and moist-air chambers, a plurality of drying chambers arranged around said hot-air and moist-air chambers and conduits arranged beneath said drying chambers and connecting said drying chambers with said hot-air and moist-air chambers respectively, said drying chambers having connecting openings arranged at alternating ends so as to be connected with each other successively, and valves for controlling said openings, the conduits connecting the drying chambers with said hot-air chamber opening into the drying chambers at different points in the length thereof.

7. Drying apparatus comprising central hot-air and moist-air chambers, a plurality of drying chambers arranged around said hot-air and moist-air chambers, conduits arranged beneath said drying chambers and connecting said drying chambers with said hot-air and moist-air chambers respectively, the conduits connecting said drying chambers with said hot-air chamber opening into the drying chambers at different points in the length thereof, an air admission door to each drying chamber and bridge pipes connecting adjacent drying chambers.

8. Drying apparatus comprising central hot-air and moist-air chambers, a plurality of drying chambers arranged around said hot-air and moist-air chambers, conduits ar-

ranged beneath said drying chambers and connecting said drying chambers with said hot-air and moist-air chambers respectively, said drying chambers having connecting openings arranged at alternating ends so as to be connected with each other successively, valves for controlling said openings, an air admission door to each drying chamber, and bridge pipes connecting adjacent drying chambers.

9. Drying apparatus comprising central hot-air and moist-air chambers, a plurality of drying chambers arranged around said hot-air and moist-air chambers, conduits arranged beneath said drying chambers and connecting said drying chambers with said hot-air and moist-air chambers respectively, the conduits connecting said drying chambers with said hot-air chamber opening into the drying chambers at different points in the length thereof, said drying chambers having connecting openings arranged at alternating ends so as to be connected with each other successively, valves for controlling said openings, an air-admission door to each drying chamber, and bridge pipes connecting adjacent drying chambers.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JACOB BÜHRER.

Witnesses:

AUGUST OOSTERMAN,
ANNA BÜHRER.