(No Model.)

J. STARKEY.

TUNNEL FOR DRYING BRICK.

No. 513,738. Patented Jan. 30, 1894.

Fig. 1

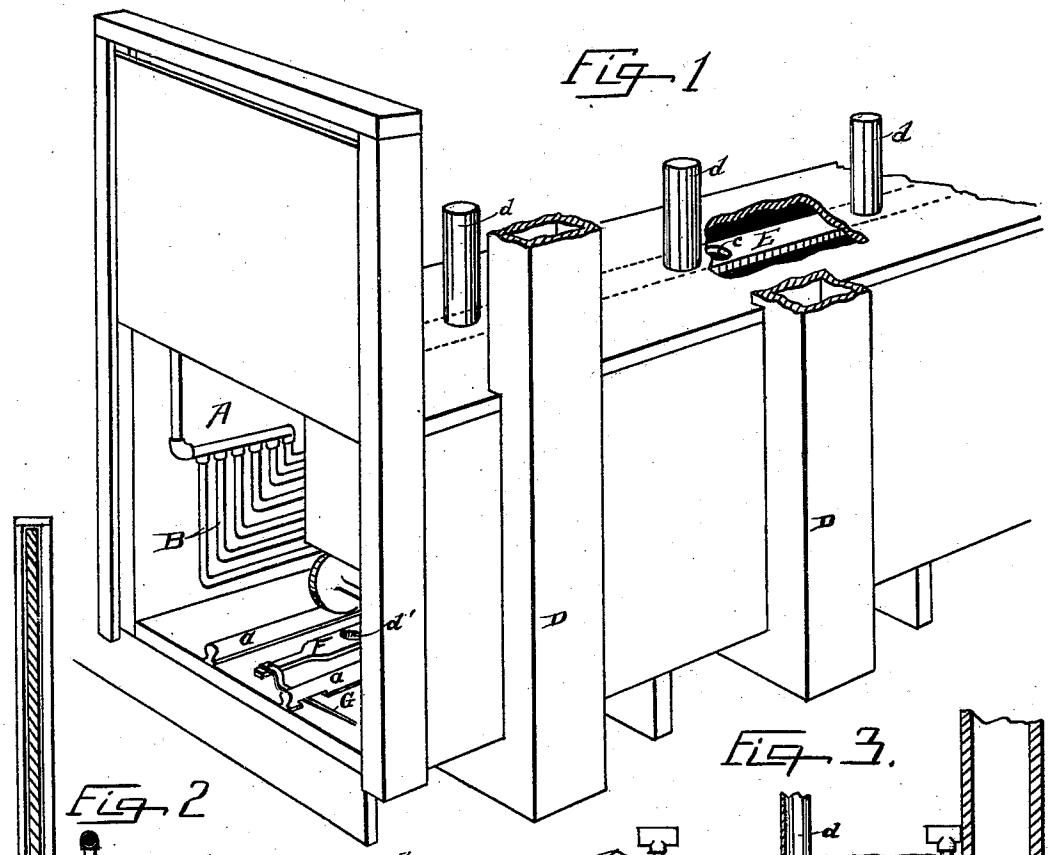


Fig. 2

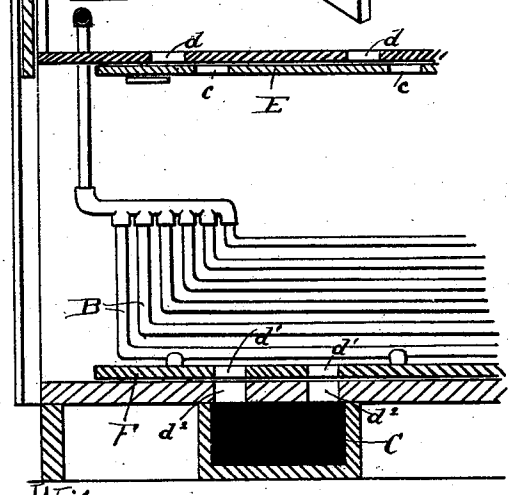
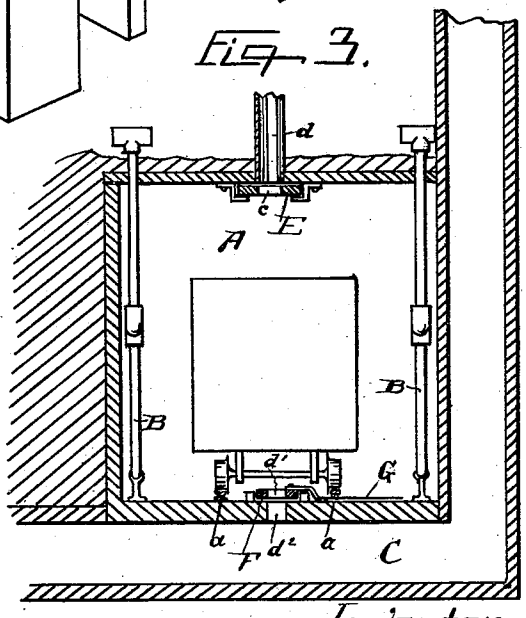


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN STARKEY, OF MINERVA, OHIO.

TUNNEL FOR DRYING BRICK.

SPECIFICATION forming part of Letters Patent No. 513,738, dated January 30, 1894.

Application filed January 4, 1893. Serial No. 457,239. (No model.)

To all whom it may concern:

Be it known that I, JOHN STARKEY, a citizen of the United States, residing at Minerva, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Tunnels for Drying Brick; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1, is a perspective view showing the arrangement of the tunnel proper. Fig. 2, is a longitudinal section showing a portion of a tunnel. Fig. 3, is a transverse section showing a car properly located upon the track.

The present invention has relation to tunnels for drying brick; and it consists in the novel construction of the tunnel, as hereinafter described and particularly pointed out in the claims.

Similar letters of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, A represents the tunnel, which may be of any length and width, and should be of sufficient height to receive ordinary cars designed and calculated to be moved in the manufacture of brick.

The sides of the tunnel A, are closed, and for the purpose of better closing the sides of the tunnel, the tunnel proper may be located below the surface of the earth, or the sides may be banked with earth or like material; and for the purpose of providing a tight, close top during the drying process the top of the tunnel may be covered with earth as indicated in the drawings Fig. 3.

Within the tunnel A, is located the track *a*, which track is centrally located within the tunnel when a single tunnel is constructed; but in the event a tunnel should be constructed of such a width that more than one track can be used, then in that event the tracks are arranged within the tunnel far enough apart so that the cars will not interfere with each other upon different tracks.

Upon the sides of the tunnel proper are located the steam pipes B, which steam pipes may be located and arranged substantially as shown in the drawings; and when a single tunnel such as shown in the drawings is used, the pipes are placed close to the sides of the tunnel.

The green brick are placed upon cars in the ordinary manner and the cars placed within the tunnel, after which the tunnel is entirely closed, except the bottom thereof, which is provided with means for opening the bottom in such a manner that the heat will escape through the conduits C, into and out of the chimneys D. After the brick have become thoroughly dried, the slide E, is adjusted so as to bring the apertures *c*, directly below the pipes *d*, thereby opening the top of the tunnel and permitting the cold air to find its way downward into the tunnel, and by the draft of the chimneys the heat contained in the brick and the tunnel is quickly removed, thereby providing a means for the rapid cooling of the brick.

The bottom or floor of the tunnel proper is provided with the slide F, which slide is provided with the apertures *d'*, which apertures are so adjusted that when the slide F, is moved in one direction, it will open the apertures d^2, which apertures lead to the conduits C; and when moved in the opposite direction, the apertures d^2, will be closed, thereby cutting off the draft of the chimneys D. For the purpose of operating the slide F, the lever G is provided, which lever is pivotally attached to one end of the slide F. The lever G, should be located substantially as illustrated in Fig. 1 and is so located for the purpose of bringing said lever out of the way of the movements of the cars.

By providing a tunnel having a tight closed top and sides no outside atmospheric air is permitted to come in contact with the surface of the brick, which prevents the brick from becoming checked or cracked by reason of too rapidly drying.

Heretofore it has been customary to permit atmospheric air to enter the tunnel during the time the brick are being dried. If the brick are rapidly dried, a shell or thin dry casing is formed upon the outer surfaces or portions of the brick, and a wet or damp center is left within the shell or thin dry casing. As the center becomes heated, the moisture contained within the shell, is con-

verted into steam and its expansion causes the outer surfaces of the brick to become checked or cracked, thereby greatly injuring the brick during drying. Ordinarily the heat must be applied gradually and slowly, and requires a great length of time to properly dry the brick.

By my apparatus the heat can be applied at once without any danger of checking or cracking the outer surfaces of the brick.

Heretofore it has been customary to create a draft or current through the tunnel during the time the brick are being dried. The air by which the current is created must necessarily be taken from the surrounding atmosphere, and is necessarily freighted with dampness, which dampness must necessarily be expelled from the atmospheric air, in addition to the dampness contained in the brick; thereby adding increased moisture which must be removed by heat. By my peculiar arrangement the atmospheric air is cut off and the evaporation of the water contained within the brick is brought about in substantially the same manner or principle that the water contained in a steam boiler is converted into steam. By this arrangement, as heretofore stated the brick are dried uniformly, and much more rapidly. The only object to be accomplished in drying brick is to remove the water contained in the brick therefrom; and when the surrounding atmosphere is heavily freighted with water, the process of removing the water contained in the brick must necessarily be retarded in proportion to the dampness contained in the atmospheric air. For the purpose of regulating the draft of the chimneys, the slide F, may be so adjusted that the apertures formed in said slide, and in the bottom of the tunnel, may be partially closed or be entirely closed as desired.

The object and purpose of providing the slide F and its apertures d' are to regulate the draft, as it will be understood that the draft is caused by reason of the heated air freighted with dampness finding its way to the outside air through the conduits C and chimneys D. It will be understood that as the temperature of the tunnel increases the draft will be increased owing to the top and sides of the tunnel being closed during the time the brick are being dried. The draft of the chimneys D is also regulated by means of the slide F and apertures for the treatment under my process of different kinds and grades of clay or other like material.

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

1. The combination of the air tight drying tunnel A having openings d in its top, the perforated slide E located in the top of the tunnel to control the inlet of air through said openings, the conduit C located below the tunnel and communicating therewith, the chimney D leading from said conduit, and steam pipes B located in the tunnel, substantially as shown and for the purpose described.

2. The combination of the air tight tunnel A having cold air inlets d at the top and hot air outlets d^2 at the bottom, the slides E and F for closing said inlets and outlets, the conduit C located below the tunnel and leading from its said hot air outlets, the chimney D communicating with said conduit, and the track a and steam pipes B located in the tunnel, substantially as shown and for the purpose described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN STARKEY.

Witnesses:
LAURA SHAEFFER,
F. W. BOND.