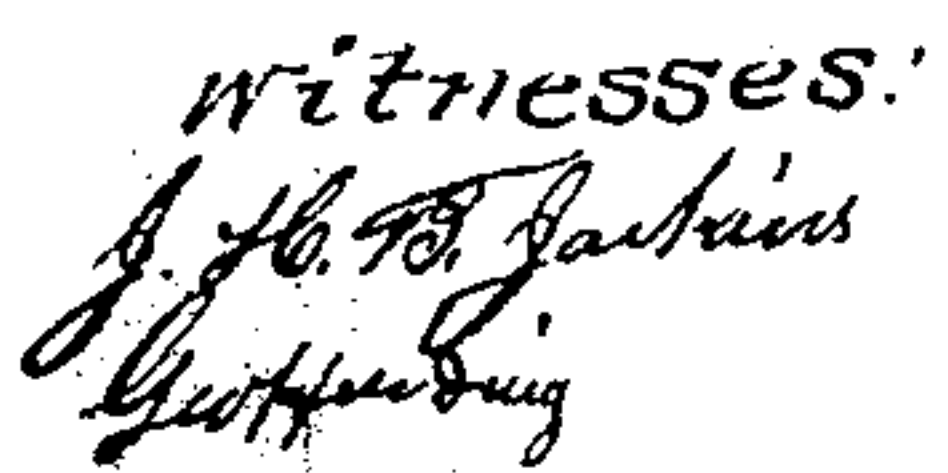


Lime Kiln.

Patented July 14, 1857.



UNITED STATES PATENT OFFICE.

LEONARD PHLEGER, OF PHILADELPHIA, PENNSYLVANIA.

LIMEKILN.

Specification of Letters Patent No. 17,807, dated July 14, 1857.

To all whom it may concern:

Be it known that I, LEONARD PHLEGER, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful
5 Improvement in the Construction of Limekilns; and I do hereby declare the following to be a full and exact description of the same, reference being had to the annexed drawings, making a part of this specifica-
10 tion, in which—

Figure 1 represents a vertical transverse section of the lime kiln, with my improvement. Fig. 2, a horizontal section on the line X, Y, of Fig. 1.

15 Heretofore it has been customary to construct lime kilns with a series of ordinary grate bars and to place the fuel thereon, and then to arch the limestone about two feet above the fire. This arch was constructed
20 of the limestone itself, and sustained the limestone in the kiln above; but frequently the extremities of the arch would burn off and the whole arch give way and precipitate the limestone down on to the fire and destroy
25 the kiln of lime.

The nature of my improvement consists in introducing into the body of the lime-kiln, about two feet above the grate bars, a series of water-cells, formed of iron, for the purpose of sustaining the lime-stone while being
30 burned, in order to prevent the falling of the limestone in the kiln and the admixture of coal and the lime whenever coal is employed as fuel.

35 A, B, C, D, Fig. 1, is an ordinary brick lime-kiln having a series of grate bars at E, E', of ordinary construction, a blower at F, and a door to supply the fuel at G, in the ordinary manner.

40 H, H', represent a series of cells, made of boiler iron, and forming a complete frame of cells, as shown in section in Fig. 2, and resting on projections in the interior of the kilns about two feet above the grates E, E'. This

frame is composed of a square cell, *a, b, c, d*, 45 about eighteen inches high and from 3 to 4 inches thick, made of boiler iron of about $\frac{1}{4}$ inch thickness. A series of cross cells, *e e', e e', e e'*, made of the same material and the same height and thickness, pass 50 transversely across this square frame, leaving intermediate spaces, *f, f, f*, of about four inches. A tank of water, K, is placed outside of the kiln, above the level of the water-cells, and communicates by a pipe L with 55 one side of the frame of cells H, H'. At M, a pipe O leads off from the frame of cells on the opposite side, and is elevated two or three feet above the surface of the cells, and opens into the air. 60

The limestone is thrown on to the frame of cells, H, H', without any arch being constructed as heretofore. The fire is built on the grates E, E', and as the heat rises it passes through the spaces *f, f, f*, between the 65 transverse cells, *e, e, e*, and communicates its heat to the limestone above. A constant circulation of water is kept up from the reservoir K, through the cells H, H', and out through the tube O, and this prevents the 70 cells *e, e, e*, from being burned. The supply of water in K must be maintained by a pump or spring.

The advantages of my improvement are that the necessity for an arch in the interior 75 of the kiln is obviated and the inconvenience attending its use is avoided.

Having thus described my improvement, what I claim as my invention is—

The employment in a lime kiln of the 80 series of water-cells, for supporting the limestone, arranged and operating substantially as above described.

LEONARD PHLEGER.

Witnesses:

J. H. B. JENKINS,
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