

G. PIERBONI.

KILN.

APPLICATION FILED AUG. 23, 1907.

937,644.

Patented Oct. 19, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

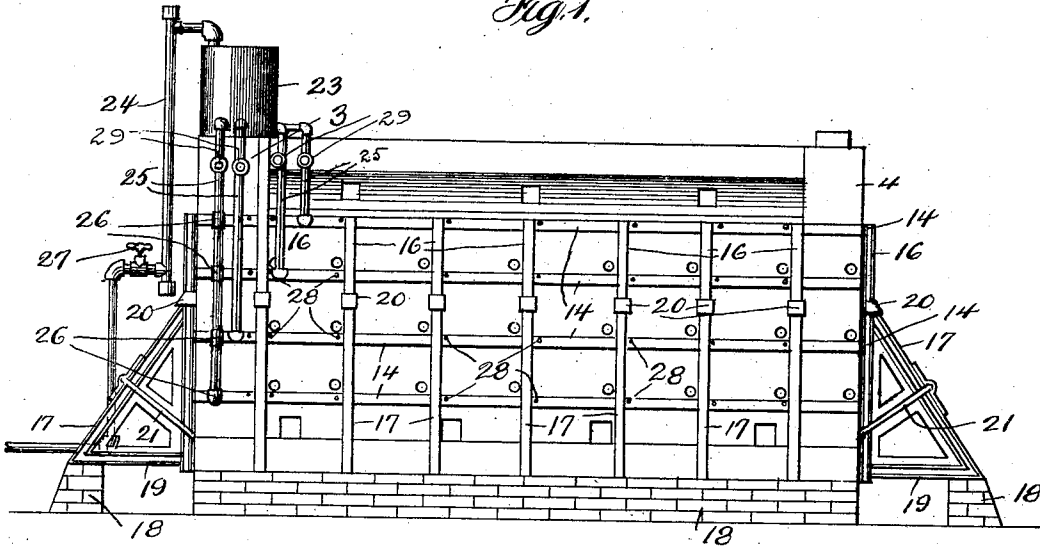


Fig. 2.

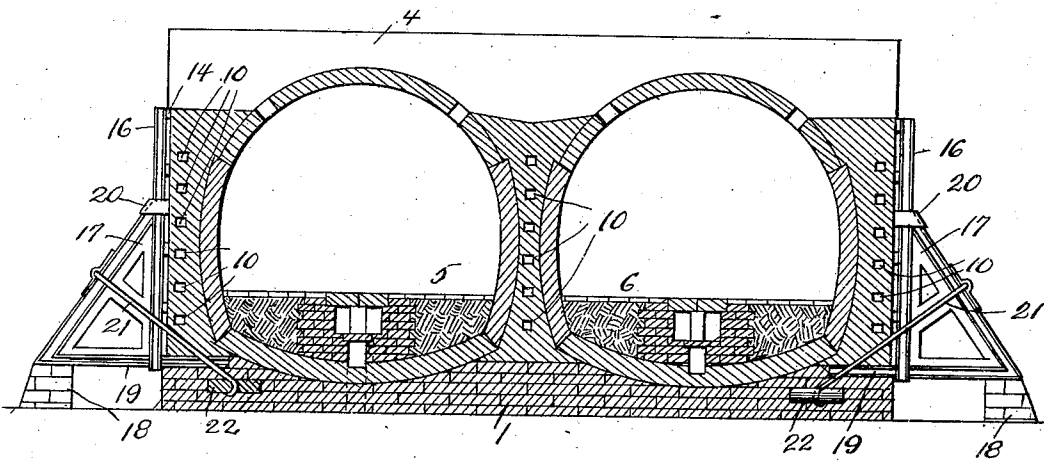


Fig. 3.

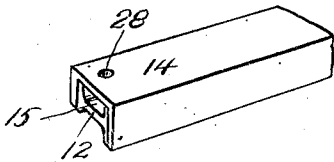
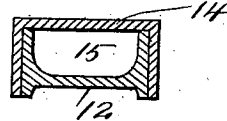


Fig. 4.



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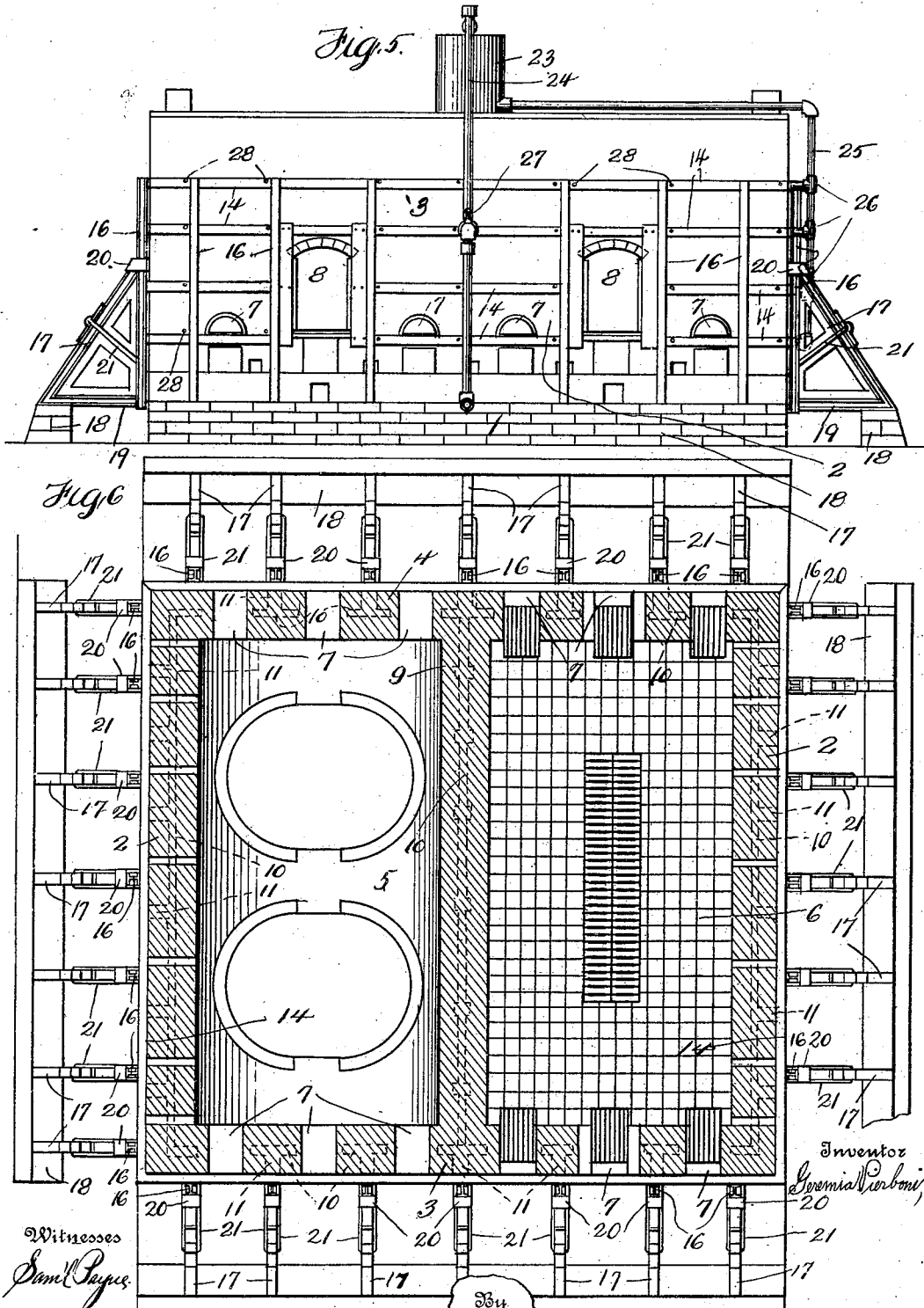
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

GEREMIA PIERBONI, OF CONNELLSVILLE, PENNSYLVANIA.

KILN.

937,644.

Specification of Letters Patent.

Patented Oct. 19, 1909.

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To all whom it may concern:

Be it known that I, GEREMIA PIERBONI, a subject of the King of Italy, residing at Connellsville, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Kilns, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in kilns, and the invention has for its object the provision of positive and reliable means for preventing the walls of a kiln from cracking or crumbling due to the excessive heat of the kiln.

My invention aims to reinforce the walls of the kiln and use a water distributing system in connection with the kiln for maintaining the walls thereof in perfect condition. To this end, I use a plurality of metallic braces which are distributed to thoroughly support the walls of a kiln. The metallic braces besides retaining the walls are employed for holding a plurality of circumferentially arranged water conduits, through which water is circulated for absorbing the heat of the kiln walls and preventing said walls from expanding to that extreme which will cause the same to crack or crumble.

Besides using the water for cooling the walls of the kiln, I provide the walls thereof with air conduits communicating with the atmosphere, thus allowing air to circulate in the walls and help to maintain the same in a cool condition.

My invention can be used in connection with various types of kilns or buildings that are subjected to the action of fire or heat. I therefore do not care to confine my invention to the type of kiln illustrated, or to such changes as fall within the scope of my invention.

The preferred embodiments of my invention are illustrated in the accompanying drawings, wherein—

Figure 1 is an elevation of a kiln constructed in accordance with my invention, Fig. 2 is a cross sectional view of the same, Fig. 3 is a perspective view of a portion of one of the water conduits, Fig. 4 is an enlarged cross sectional view of the same, Fig. 5 is a front elevation of the kiln with the supporting frames at the front thereof removed, and Fig. 6 is a horizontal sectional view of the same.

In the accompanying drawings, 1 designates the foundation of the kiln, 2 the side walls thereof, 3 the front wall, 4 the rear wall, and 5 and 6 the arch shaped compartments or furnaces, these compartments or furnaces being fired through the medium of a plurality of fire openings 7, in the ends of the kiln access being had to said compartments through door-ways 8. The construction of the kiln just described is common to ordinary kilns at present used.

My invention consists in providing the walls of the kiln with air conduits or vents, reinforcing said walls, and providing the exterior sides of the walls with water conduits.

The walls 2, 3 and 4 together with the partitions 9 dividing the compartments or furnaces 5 and 6, are provided with a plurality of air conduits or vents 10, said conduits or vents communicating with the atmosphere by means of openings 11.

The exterior sides of the walls are provided with a plurality of circumferentially arranged channel beams 12, these beams being spaced or arranged at intervals to embrace the walls of the kiln. The channel beams 12 are inclosed upon their outer sides by channel bars 14, providing water conduits 15.

The channel beams and channel bars are retained in position by a plurality of vertically disposed I-beams 16 arranged upon each side of the kiln, and each I-beam is supported by a triangular metallic frame 17 resting upon a pier 18 and having an extension 19 built in the foundation or masonry work of the kiln. The triangular metallic frames 17 are connected to the I-beams 16 by stirrups 20, and said frames are tied to the kiln by stirrups 21 having their ends anchored in the foundation 1 of the kiln, as at 22.

Upon one end of the kiln is located a tank 23 connecting with a suitable supply of water by a pipe 24. Pipes 25 extend from the tank 23 downwardly upon one side of the kiln and connect with the several channel bars 14, as at 26. The pipe 24 is provided with a suitable valve 27 for controlling the admission of water to the tank 23, and each pipe 25 is provided with a check valve 29 so that the flow of water to the conduits 15 may be controlled.

When the kiln is in operation, the heated walls thereof will heat the water contained

in the conduits 15, and to allow the steam generated in said conduits to escape, I provide the upper edges of the channel bars 14 with openings 28.

- 5 From the foregoing description it will be observed that I have provided a metallic frame-work for the outer sides of the kiln, said frame-work having water conduits for absorbing the heat of the kiln walls, cooling
10 the same.

Having now described my invention what I claim as new, is:—

1. A kiln embodying walls, said walls having air conduits formed therein, channel
15 beams arranged upon the outer sides of said walls, channel bars inclosing the outer sides of said beams and providing water conduits, a water supply tank carried by said kiln, and connecting with said channel bars, said
20 bars having openings formed therein, I-beams embracing said bars, triangular metallic frames bracing said I-beams, and stirrups connecting said frames with said kiln.
- 25 2. A kiln embodying walls, water conduits arranged upon the outer sides of said walls,

a water tank by said kiln and connecting with said conduits, I-beams bracing said conduits, metallic triangular frames bracing said I-beams, and stirrups for connecting
30 said frames with said kiln.

3. A kiln embodying walls, water conduits arranged upon the outer sides thereof, I-beams bracing said conduits, metallic frames bracing said I-beams and stirrups connect-
35 ing said frames with said kiln.

4. The combination with a kiln, of metallic conduits carried by the walls thereof, I-beams bracing said conduits, frames bracing said I-beams, and stirrups connecting said
40 frames with said kiln.

5. The combination with a furnace, of the metallic frame-work embracing the side walls thereof, said frame-work comprising
45 metallic water conduits, I-beams, and means for bracing said I-beams.

In testimony whereof I affix my signature in the presence of two witnesses.

GEREMIA PIERBONI.

Witnesses:

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ALFONSO BOSILANE.