

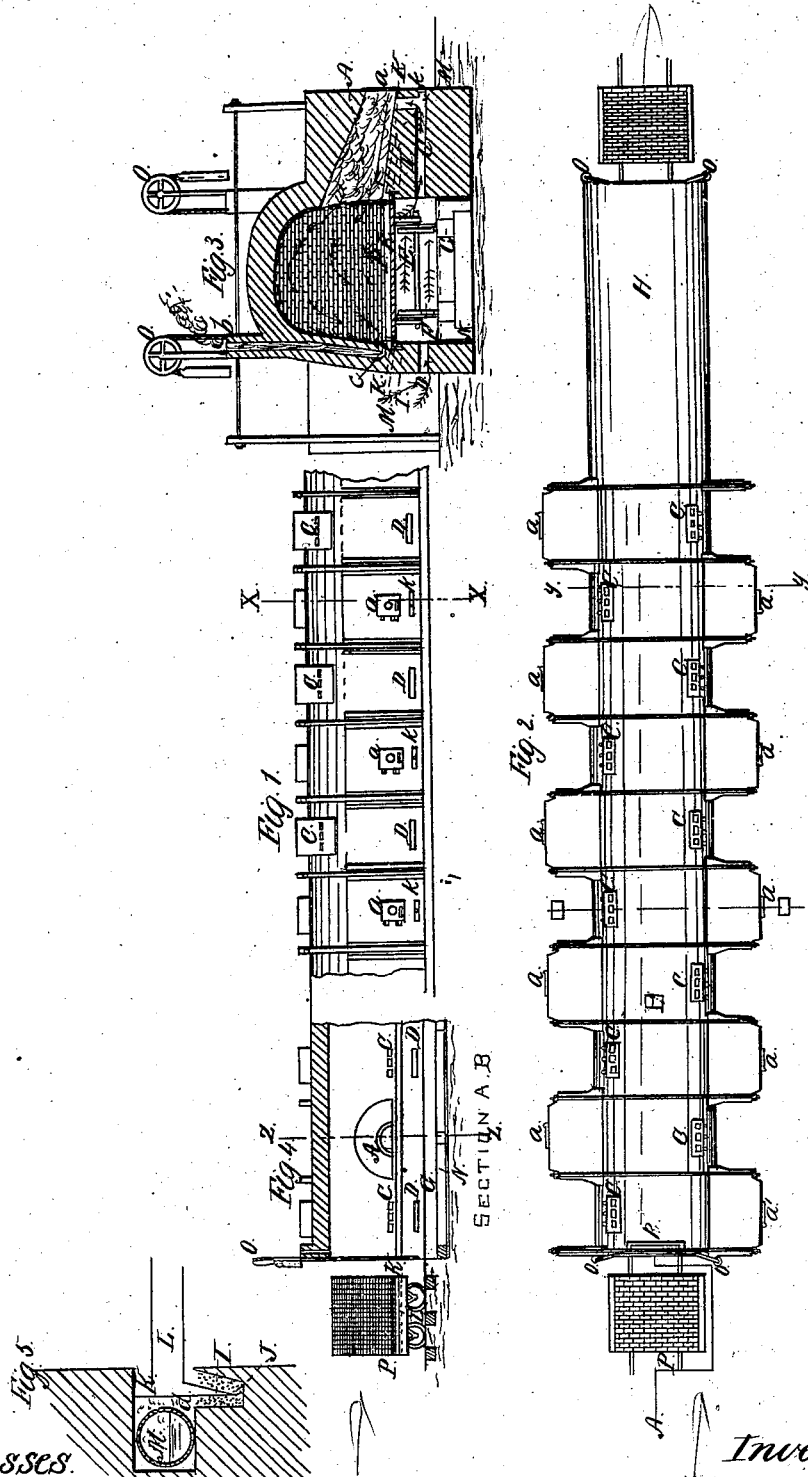
W. Gilbert

Sheet 1-2 Sheets.

Brick Kiln.

No. 109,815.

Patented Dec. 6, 1870.



Witnesses.  
Frederick Eberts  
Samuel J. Spurr.

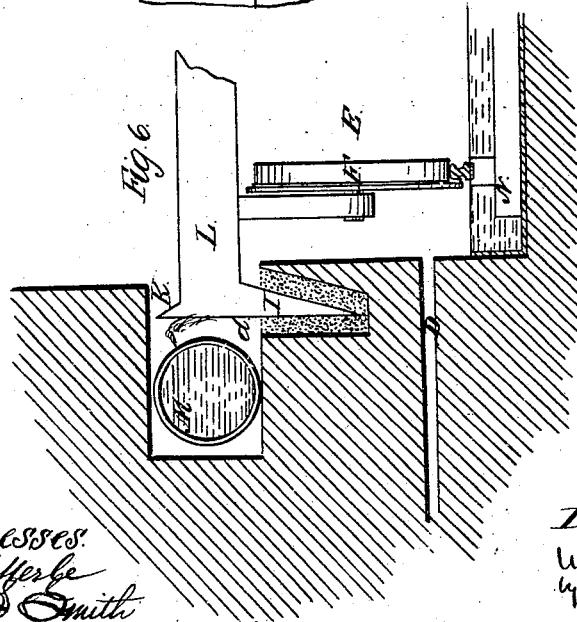
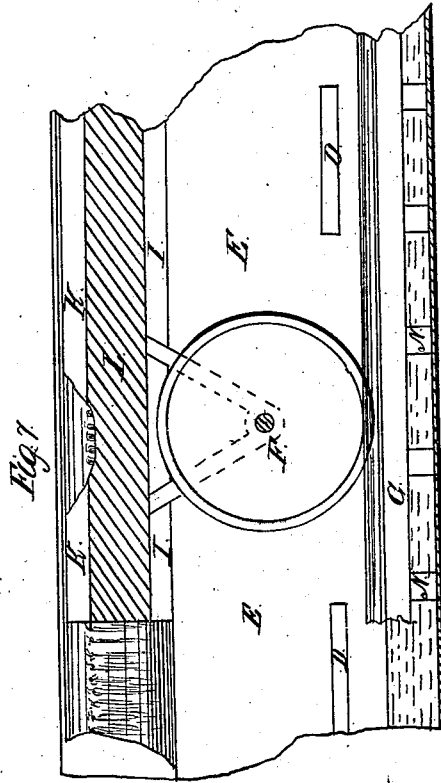
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Brick Mill.

N<sup>o</sup> 109,815.

Patented Dec. 6, 1870.



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# United States Patent Office.

WILLIAM GILBERT, OF DETROIT, MICHIGAN.

Letters Patent No. 109,815, dated December 6, 1870.

## IMPROVEMENT IN PERPETUAL BRICK-BURNING KILNS.

The Schedule referred to in these Letters Patent and making part of the same.

### To whom it may concern :

Be it known that I, WILLIAM GILBERT, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Perpetual Brick-Burning Kilns; and I do declare the following is a true and accurate description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a sectional side elevation.

Figure 2 is a plan of the top.

Figure 3 is a vertical section on lines *x x* in fig. 1, and *y y* in fig. 2, and *z z* in fig. 4, and *C D* in fig. 2.

Figure 4 is a vertical section on lines *A B*, in fig. 2.

Figure 5 is an enlarged section of the parts surrounded by dotted lines in fig. 3.

Figure 6 is a vertical cross-section, showing the end of one side of the car, the sand-joint, and the sprinkling-pipe; and

Figure 7 is a broken side elevation of the car and the sprinkling-pipe.

Like letters indicate like parts in each figure.

The nature of this invention relates to an improved construction of a brick-kiln, which will allow the work of loading perpetually the bricks at one end of the kiln and unloading at the other without being obliged to stop the fires, and is more especially designed to be an improvement upon my kiln for which Letters Patent of the United States, No. 82,511, were issued to me on the 29th day of September, 1868.

The invention consists in a novel construction of the truck-platform and an arrangement by means of which very little, if any, heat is allowed to pass from the kilns to the open space below, or the cold air from below the platform from entering the kiln, while, should any of said cold air become slightly heated and rarified, it will pass through flues to create a draught to the fire.

It also consists in a pipe for throwing a spray of water against the sides of the trucks, near the top thereof, to prevent heating, and in interposing between the platform of the trucks and the bricks piled up thereon, a layer of ashes, sand, or other suitable material, which will prevent the platform from being heated, and in a new and ingenious arrangement of the various parts to produce the desired results, as more fully hereinafter described.

In the accompanying drawing—

*A* represents a series of bell-shaped furnaces, with an upward and inward inclination, built in opposite sides of a chamber of any desired length, and provided with an arched roof, *B*.

Each of these furnaces or fire-places is provided with a door, *a*, through which the fuel is introduced.

Flues, *C*, opening from the opposite side of the kiln, upon the same plane with the bottom of the interior

end of the fire-places or furnaces, afford an exit for the products of combustion.

These flues are three or more in number, as may be desired, and each flue is provided with a damper, *b*.

*D* is a series of openings through the walls of the kiln, upon opposite sides thereof, which admits cold air into the chamber *E*, whence, as occasion requires, it is carried, by means of the flues *c*, to the furnaces *A*, as shown in fig. 3, to supply air to the flame.

*F* is an iron railway-truck running upon the track *G*, which extends the whole length of the kiln and cooling-chamber *H*, which is an extension of the kiln, without furnaces. The platform of this truck is provided upon its two sides with V-shaped flanges, projecting above and below the plane of the platform.

The flange *I*, which projects below the platform, is inserted in gutters, *J*, which are built in each of the side-walls of the kiln, and the whole length thereof, and which are filled with sand, in which the flanges travel with the movement of the car, thus forming a complete joint, by means of which the chambers above and below the platform of the cars are kept entirely separate, and all communication between them is cut off.

The flange *K*, which projects above the platform *L* of the truck, and is designed to hold in place on said truck a layer of sand, ashes, or other suitable material, upon which the bricks to be burned are placed. This layer of ashes is designed to prevent the top of the platform from being heated.

*M* is a pipe, perforated at short intervals along its entire length, and which is placed in a proper recess, *N*, extending, upon each side, the whole length of the kiln. Through this pipe, which is supplied from suitable tanks, water is thrown upon the sides of the flanges *K* of the platform, to prevent them being heated.

The track *G*, or the bed thereof, is immersed in a water-tank, *N*, which extends the entire length of the kiln, to insure its protection from fire in case of accident.

Suitable sliding gates, suspended by cords and weights from the pulleys *O*, close the ends of the kiln as low as the flues *D c*, shown in fig. 3, or lower, if necessary.

The track extending through the kiln and cooling-chamber should extend beyond each end a few feet.

The bricks to be burned are loaded on the carriage *P*, which stands outside of the kiln upon the track. The fires being lighted through the door *a*, the heat and flames pass upward around and through the bricks upon the track, (which has been pushed into the kiln,) in the direction indicated by the arrows shown in fig. 3, seeking an outlet through the opposite flues *C*.

When the water-smoke has been driven off through

the flue R, a second car is pushed in, which drives the car already inside the kiln into contact with the next furnace of the series, in which a fire has been made, and so on, the operation is repeated until the kiln is filled with carriages loaded with bricks.

When the bricks upon the car first loaded and pushed into the kiln are sufficiently burned, a freshly loaded car is pushed into the kiln, which forces the first car into the cooling-chamber, which is again closed, and these operations are continued indefinitely, as may be desired.

The fires in the series of furnaces may be tempered to suit the condition of the bricks as they pass through the kiln, and the bricks, after being burned, are cooled gradually in the cooling-chamber, hereinbefore described.

A greater draught may be given to the fires, if necessary, through the openings *k*, under the grates of the furnaces.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In progressive burning kilns, the gutters J, filled

with sand, in combination with the downward-projecting flanges I, of the platform L of the truck P, and with the perforated water-pipe M, when arranged and operating substantially as and for the purposes herein set forth.

2. The platform L, provided with upturned flanges K, containing sand, ashes, or other non-conductors of heat, and with the down-turned flanges I, constructed and arranged substantially as described and shown, and for the purposes set forth.

3. In brick-kilns constructed as herein set forth, the perforated water-pipe M, for the purposes designated.

4. A progressive burning and cooling-kiln, composed of a series of furnaces, A, cooling-chamber H, railway-track G, water-tank N, gutters J, perforated pipes M, and flues O D c, and provided with suitable gates, all arranged relatively to each other, and operating substantially as and for the purposes herein described.

WILLIAM GILBERT.

Witnesses:

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A. F. DUNLOP.