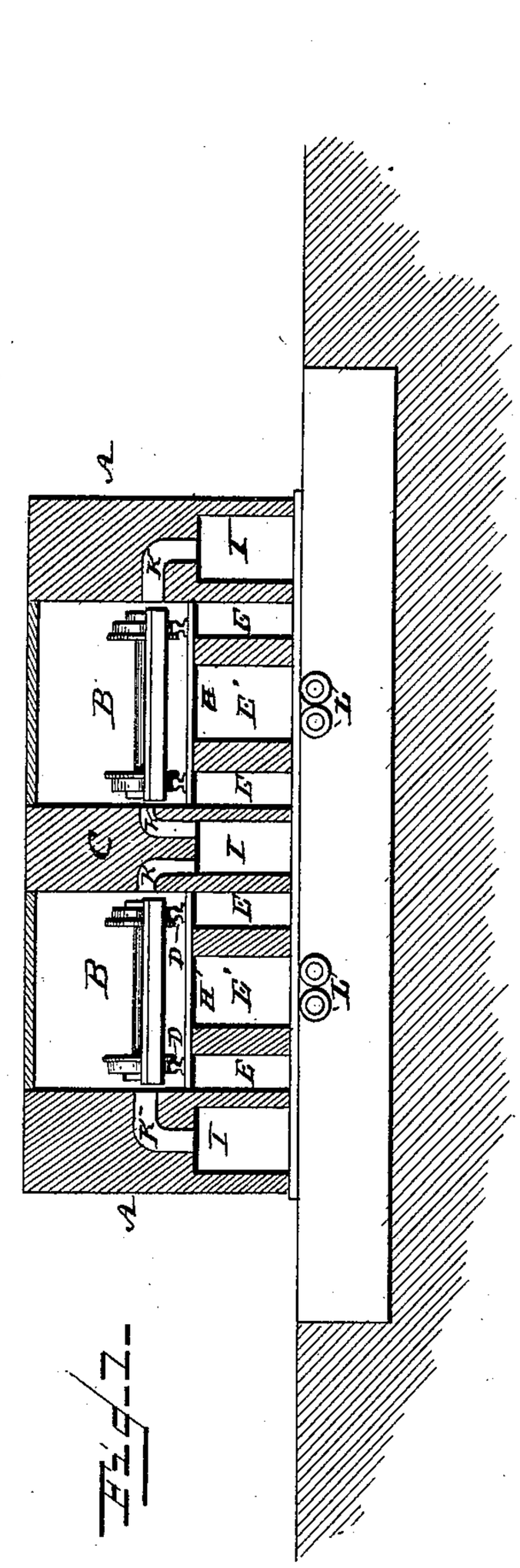
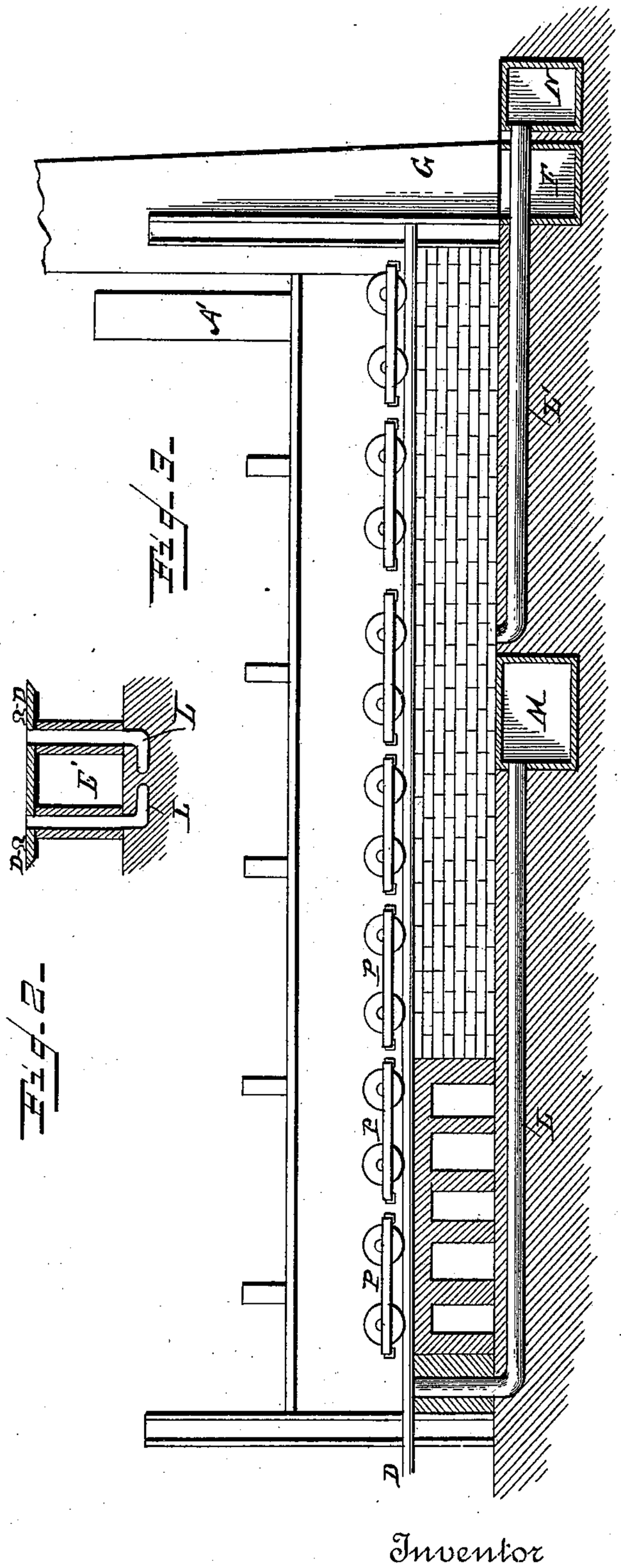
(No Model.) 2 Sheets—Sheet 1.

J. R. KEMP.

BRICK DRYING KILN AND CAR TO BE USED THEREIN.

No. 374,540. Patented Dec. 6, 1887.





Witnesses

Edwin L. Yewell,

W. F. McCoy

Inventor

J. R. Kemp

By his Attorney

L. C. Linsabaugh

(No Model.) 2 Sheets—Sheet 2.

J. R. KEMP.

BRICK DRYING KILN AND CAR TO BE USED THEREIN.

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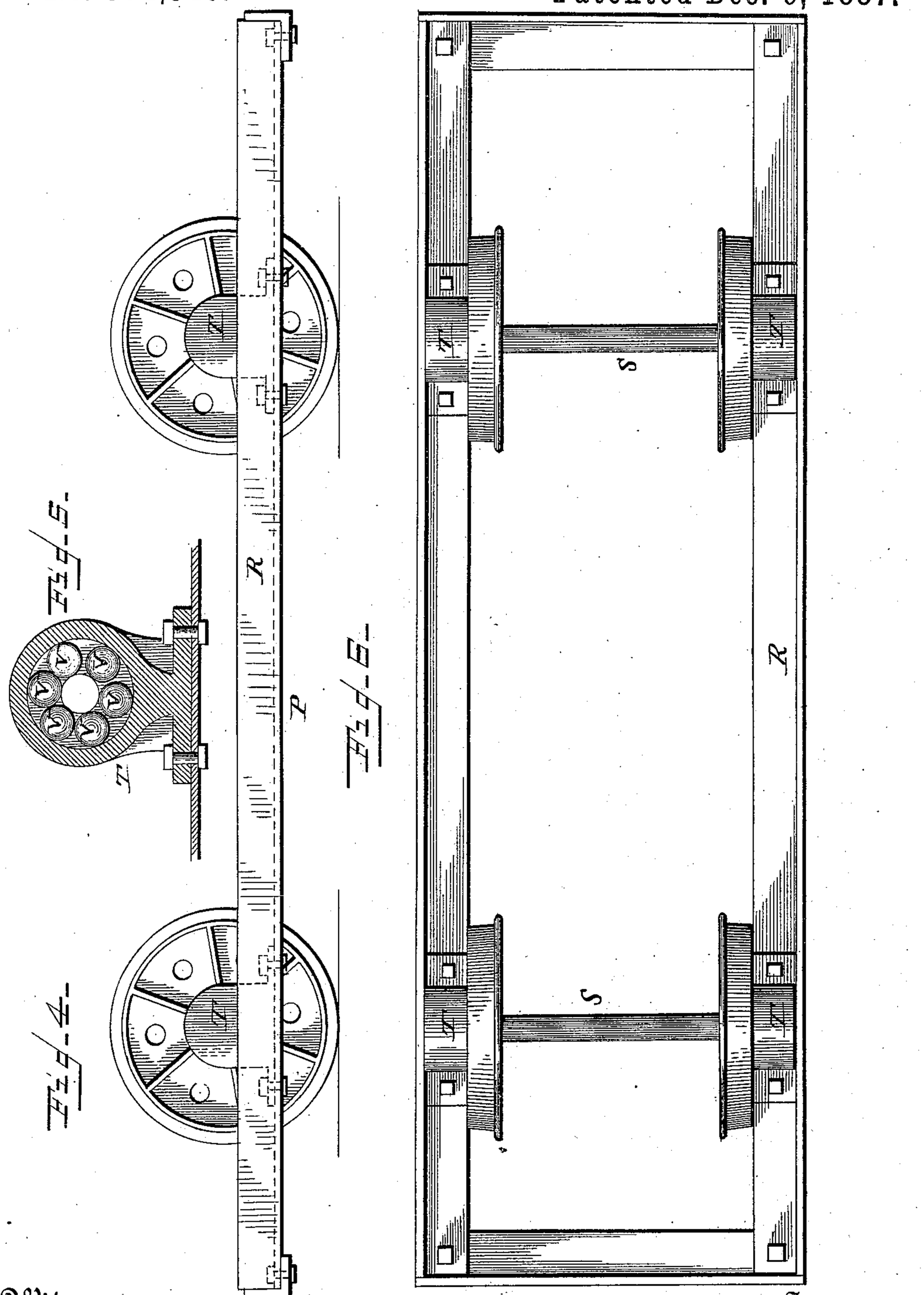

Witnesses
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UNITED STATES PATENT OFFICE.

J. RITNER KEMP, OF COLUMBUS, OHIO.

BRICK-DRYING KILN AND CAR TO BE USED THEREIN.

SPECIFICATION forming part of Letters Patent No. 374,540, dated December 6, 1887.

Application filed March 14, 1887. Serial No. 230,872. (No model.)

To all whom it may concern:

Be it known that I, J. RITNER KEMP, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Kilns for Drying Brick and Cars to be Used Therewith; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in drying kilns or tunnels for brick and other purposes, and to cars specially adapted for use in such kilns.

The object of my invention is to provide a drying-kiln in which the articles are dried by hot air coming up through the sheet-iron floor and through flues which are disconnected from the furnace, whereby the articles are removed from direct contact with the fire. Another object of my invention is to construct the cars on which the articles to be dried are placed so that they will be brought down close to the bottom of the kiln and brought at once into contact with the hot-air currents.

In an application filed by me September 14, 1885, Serial No. 177,005, I have shown, described, and claimed the fire-arches extending from the furnaces located at one end of the kiln to the other, said fire-arches being separated from the drying-oven by a sheet-iron floor, and while I have shown the general construction of the kiln as embraced in the application above referred to, in this application only such portions will be claimed as are necessary to point out the improvements.

Referring to the drawings, Figure 1 is a vertical sectional view of the kiln or drying-arch. Fig. 2 is a detached portion in section, showing the hot-air flues at their point of entrance into the kiln. Fig. 3 is a longitudinal sectional view of the drying-kiln. Fig. 4 is a side elevation of the car on which the articles to be dried are placed. Fig. 5 is a detached view of the friction-bearings of the axles of the car. Fig. 6 is a top or plan view of the car.

A indicates the side walls of the kiln or arch, the space between said walls being divided into two drying chambers or compartments, B, by a central or partition wall, C. The ends of the chambers or arches B are provided with suitable doors through which the loaded cars are placed into and removed from the drying-chambers, said cars being adapted to travel on the tracks or ways D, located in the bottom of said chamber.

E E′ are fire or hot-air flues which lead from the furnace, located at the side of the kiln and at the front end of the same, to the chamber F, located at the rear end of the kiln, and through said chamber F communicates with the smoke-stack G. The fire flues or arches E E′ run parallel with the sides of the kiln, and are separated therefrom by means of the metal floor H.

I are air-flues located in the outer and partition walls of the kiln, said flues being connected to the drying-chambers B at suitable intervals by means of the flues K. The object of these air-flues I is to conduct fresh air from the outside to the interior of the kiln, said air being heated in its passage through the flues I by the heat transmitted from the fire-flues E through the walls of said flues E.

The construction just described is essentially the same as that embraced in the application above referred to.

I will now proceed to describe the devices which I consider as improvements on the former construction.

In order to utilize the heat which would be otherwise wasted, I place the air pipes or flues L in the bottom or a short distance below the bottom of the main fire flues or arches E′, so that the heat therefrom will be utilized to heat the air in its passage therethrough. One end of the pipes L is connected to the air-chamber M, which communicates with the external air. The other end of the pipes L is bent outward and upward and enters the front end of the chambers B, as indicated in Fig. 2.

L′ are pipes similar to the pipes L, which extend from the air-chamber N and enter the chambers B near the center thereof, as in the case of the pipes L. It will be noticed that the heat which passes through the walls and bottom of the fire flues or arches E and E′, and which would be otherwise wasted, is utilized to heat the air in the pipes L, to effect the drying of the articles in the drying-chambers B, forming an induced current in the direction of the flue or stack A′, which carries off the water, smoke, fumes, or gases.

P indicates the cars, on which the material to be dried is placed. The frame R of the car is made of angle-iron, bolted together in any suitable manner, and is supported below the axles of the trucks S, so the articles will be brought near to the sheet-iron floor of the drying-chambers B, which is the hottest portion of the chambers.

T are the axle-boxes, secured to the upper side of the frame R, said boxes being provided with a cavity adapted to receive the friction-balls V and the axles of the truck, thus forming a friction-bearing for the axles which is of a simple, cheap, and durable character and not liable to be warped or made inoperative by the contractions and expansions incident to the changes of temperature to which they are exposed.

The pallets on which the brick or other articles are placed are arranged on the car-frame, and said frame may be provided with suitable standards and cross-bars which admit of any number of pallets being placed thereon in tiers one above the other.

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

1. In a kiln for drying brick and other material, the fire-arches located below the floor, and a series of air pipes and flues arranged at the sides and in the bottoms of said fire-flues and opening into or communicating with the drying-chambers of the kiln, whereby all the heat is utilized in the drying-chambers.

2. In devices for burning or drying brick, a kiln having a sheet-iron floor for protecting the brick from the direct action of the fire, and a car having its supporting-frame suspended below the axles of the truck, whereby the articles on the car to be dried or burned are brought close to the floor of the kiln, as set forth.

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

J. RITNER KEMP.

Witnesses:
THEODORE CONNOLY,
JULIUS M. MAYER.