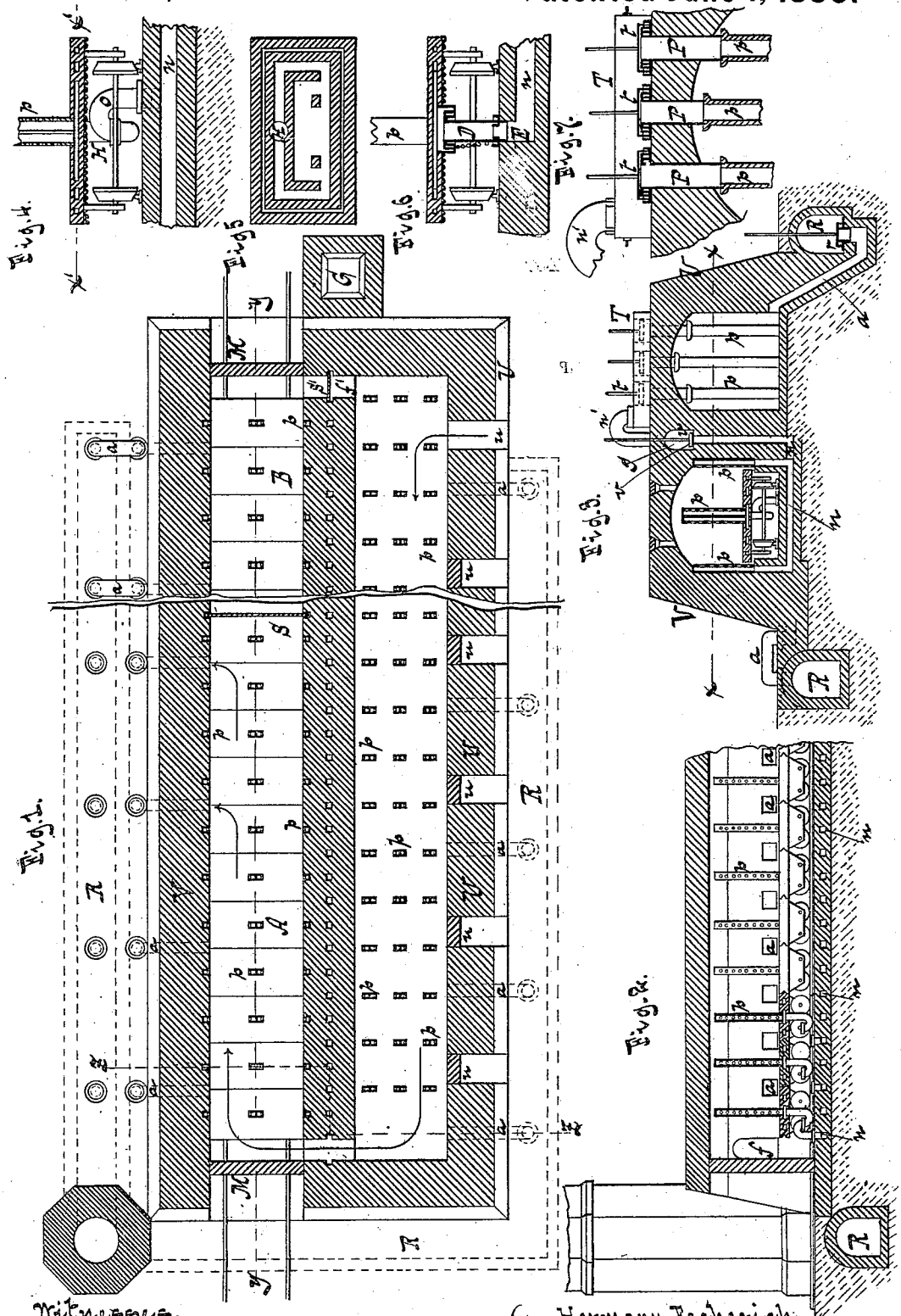
(No Model.)

H. ESCHERICH.

Kiln for Burning Brick, Pottery, &c.

No. 228,331. Patented June 1, 1880.



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UNITED STATES PATENT OFFICE.

HERMANN ESCHERICH, OF SCHWANDORF, BAVARIA, GERMANY.

KILN FOR BURNING BRICK, POTTERY, &c.

SPECIFICATION forming part of Letters Patent No. 228,331, dated June 1, 1880.

Application filed April 14, 1880. (No model.) Patented in France October 28, 1879.

To all whom it may concern:

Be it known that I, HERMANN ESCHERICH, a subject of the King of Bavaria, residing at Schwandorf, in the Kingdom of Bavaria and Empire of Germany, have invented a new and useful Improvement in Kilns for Burning Brick, Pottery, &c., which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a section in the plane *x x*, Fig. 3. Fig. 2 is a section in the plane *y y*, Fig. 1. Fig. 3 is a section in the plane *z z*, Fig. 1. The remaining figures are details, referred to in their proper places.

Similar letters indicate corresponding parts.

This invention relates to an improvement in kilns for burning bricks, pottery-ware, and the like; and it consists in the combination of a series of distributing-conduits communicating with the compartments for the articles to be burned, with vertical perforated pipes in each compartment, so arranged as to eject the jet of flame in a direction at right angles to the passage of the current of air circulating through said compartments, whereby equally effective results are obtained at the expense of less combustible materials, substantially as hereinafter set forth. Suitable movable platforms or cars are also provided for supporting the articles to be burned, said platforms being provided with connecting-tubes for leading the gas from the distributing-conduits to the pipes, as hereinafter more fully described. Suitable valves are also connected with the pipes or conduits, so that the supply of gas can be accurately regulated.

This invention relates to an improvement in that class of kilns for which Letters Patent of the United States No. 223,585 were granted to me January 13, 1880.

The kiln consists of two burning-galleries, which are connected by two narrow passages, *f f'*. These passages can be closed by partitions—as, for example, the passage *f'*, which is closed by the partition S'.

In the wall U of the kiln are a number of doors, *u u*, through which the articles to be burned are introduced into one of the galleries. The other gallery has a railroad-track laid upon its floor, and the articles to be burned are placed upon cars, which cars are rolled on said track into the gallery through the doors M M. As soon as one division, A, of the gallery is filled with cars loaded with unburned ware the partition S is slid into place and the door M is closed, thus cutting off communication with the outer air. At the same time the passage *f* is opened, thus establishing a connection with the other burning-gallery, facing the wall U, and in which articles are being burned, whereby the warm gases and smoke pass over into the division A and act on the articles therein.

Ducts *a a* lead from the gallery A B into the smoke-gallery R, communicating with the chimney. These ducts *a a* are provided with valves *r*, Fig. 3, and by opening these the products of combustion can pass off. While this is going on the second division, B, of the gallery may be emptied of the burned articles and refilled. By withdrawing the partition S, opening the communications between the division B and smoke-gallery R, and closing the communication between the division A and smoke-gallery R, the fire will travel along in said gallery. The progress of the fire is thus regulated in the same manner as in the ring-furnace of Hoffmann. Instead of using coal, however, I heat by means of generator-gas, as in my patent above named.

From the gas-generator G the gas passes through the channel *g*, Fig. 3, and the ducts *n* and *n'* to the pipes *p*. These pipes *p* are constructed with openings or jets on two sides only, so that the jets of gas occupy a position at right angles to the current of air circulating through the galleries. The pipes illustrated in my former patent were perforated about their whole periphery, whereby a much greater quantity of gas was consumed.

In the gallery A B the side pipes, *p*, are let into the walls, while the central pipes are supported on the cars, whose construction is shown in detail in Figs. 4, 5, and 6. The platform of the car is made hollow, and the gas flows from the duct *n* into this hollow space through the tubes O H, Figs. 4 and 5. Fig. 5 is a section of the platform of the car in the plane *x' x'*, Fig. 4.

The tube H is attached to the car, and the tube O is let into the same when the car has

been placed in the proper position over the opening leading from the duct *n*; or, as shown in Fig. 6, the car may be provided with a tube, D E, made in sliding sections, which can be held up, when required, by a hook and chain or otherwise. The pipe *p* is fixed on the platform of the car and communicates with the hollow space of the same, thus throwing its jets of flame onto the articles on the platform of the car. At the same time the gas passing through the platform of the car absorbs its heat, and thus cools the same, preventing any injury from heat to the wheel-work.

In the gallery facing the wall U the gas is led to the pipes *p* through a duct, *n'*, communicating with a receiver, T. From this receiver pass pipes P, to which the pipes *p* are connected by any suitable joint, so that they can be readily removed when desired and the gallery entered by workmen. The gas-supply to any one pipe can be regulated or cut off by valves *t t*. The ducts *n* are also supplied with valves *v*, Fig. 3.

In the drawings the gas-channel is shown in the central wall and the smoke-gallery R at the sides; but the position of these parts may be interchanged without any detriment, if desired.

One advantage of the arrangement of valves is that if a reduction-flame is required in the kiln in place of an oxidizing-flame it is only necessary to admit an excess of generator-gas with a diminutive current of atmospheric air, so that the atmospheric air will not suffice to thoroughly burn the gas.

In order to save the excess of gas it is only necessary, when beginning a new operation of burning, to admit atmospheric air to the pipes *p* by opening the valve-casings toward the outside, so that air flows through the pipes and burns the still unburned gas.

Of course the joints between the pipes P and *p*, Figs. 3 and 7, as also the joints of the pipes O H or D E, Figs. 4 and 6, should be gas-tight, so that no escape of gas will occur, as otherwise an explosion might be the result.

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

1. The combination, in a kiln, of a series of distributing-conduits communicating with the compartments for pottery-ware, with vertical perforated pipes *p* in each compartment, so arranged as to eject the jet of flame in a direction at right angles to the current of air circulating through said compartments, substantially as shown, and for the purpose described.

2. In a kiln, the combination of a series of distributing-conduits, movable supporting platforms or cars, connecting-tubes attached thereto and communicating with the conduits, and perforated pipes supported on said platforms, substantially as and for the purpose described.

3. In a gas-burning kiln, the combination of the main gas-canal, the gas-distributing ducts *n n'*, leading from the gas-generator, a series of vertically-extending pipes *p*, arranged within the walls of the kiln and having perforations constructed to eject the gas at right angles to the current of air circulating through the kilns, and a series of valves, *t*, one for each perforated pipe, all substantially as and for the purpose described.

4. In a gas-burning furnace, the combination, with the gas-distributing ducts *n n'*, leading from the gas-generator, of a series of vertically-extending pipes, *p*, arranged within vertical recesses in the wall of the kiln, and perforated to direct the gas at right angles to the current of air passing through the kiln, substantially as described.

This specification signed by me this 12th day of February, 1880.

HERMANN ESCHERICH. [L. S.]

Witnesses:
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