(No Model.) 2 Sheets—Sheet 1.

C. M. KEEP.

FURNACE FOR BRICK KILNS.

No. 401,172. Patented Apr. 9, 1889.

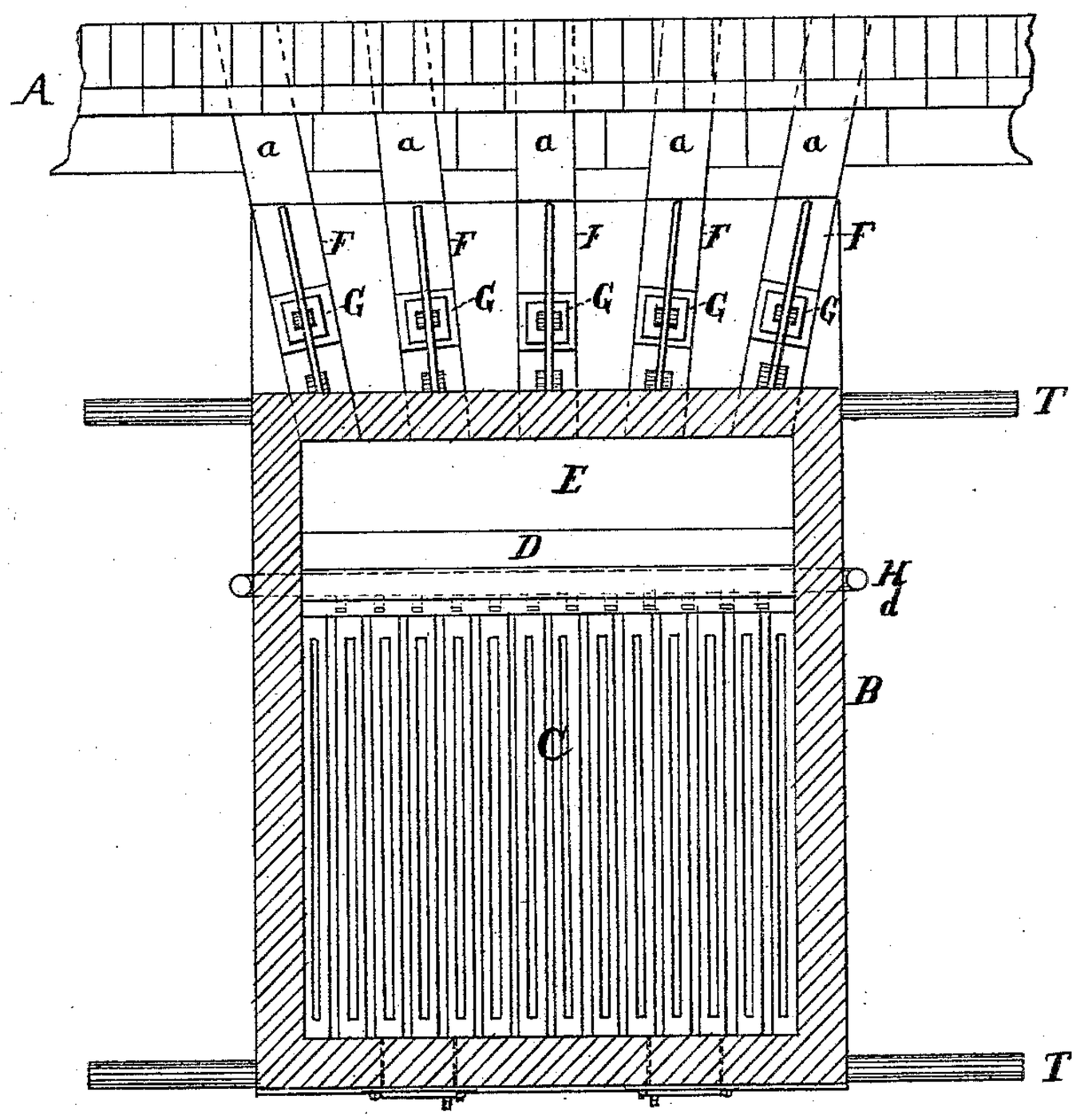

Fig. 1

Witnesses.
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R. F. Baggin.

Inventor
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By his Attorneys
Hallock & Hallock

(No Model.) 2 Sheets—Sheet 2.

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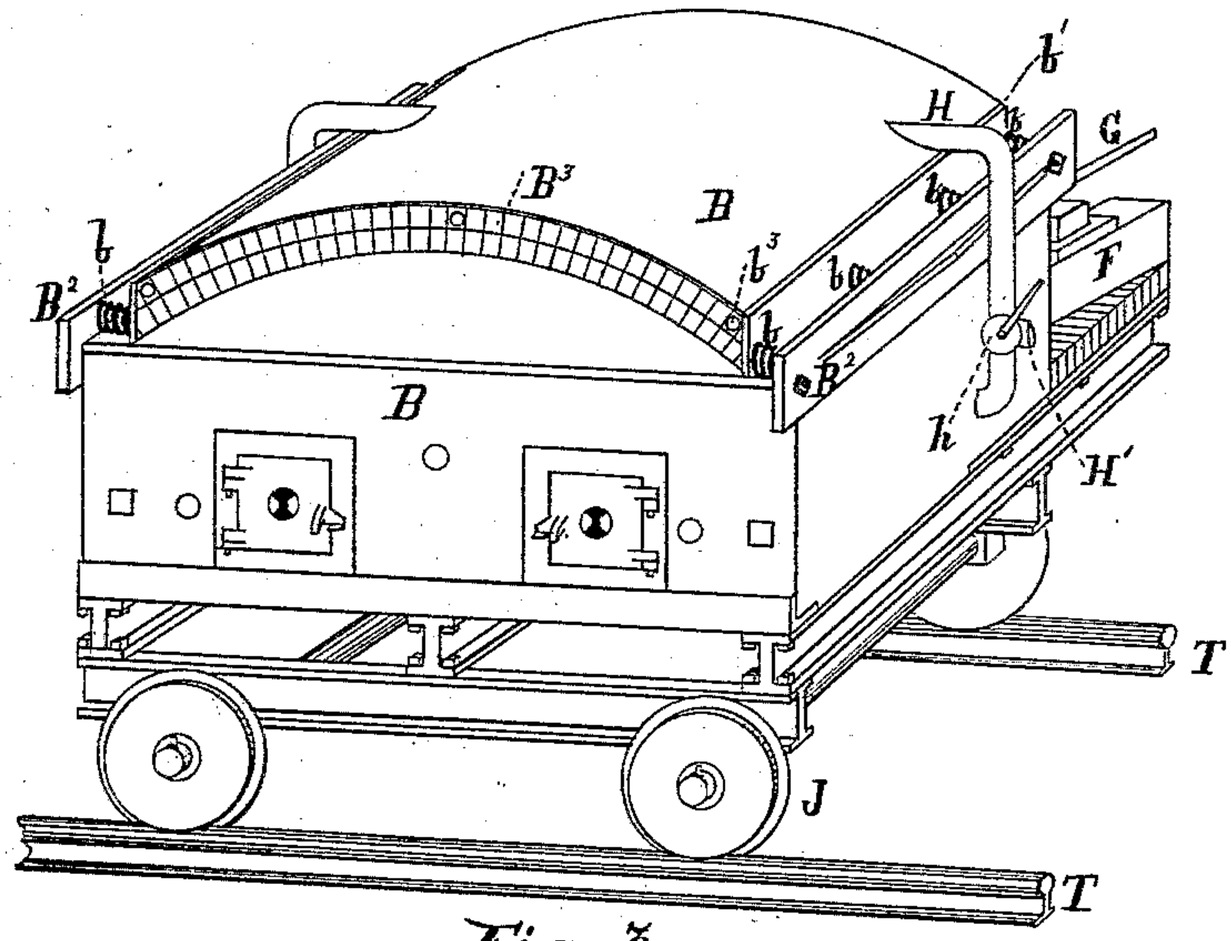

Fig. 3

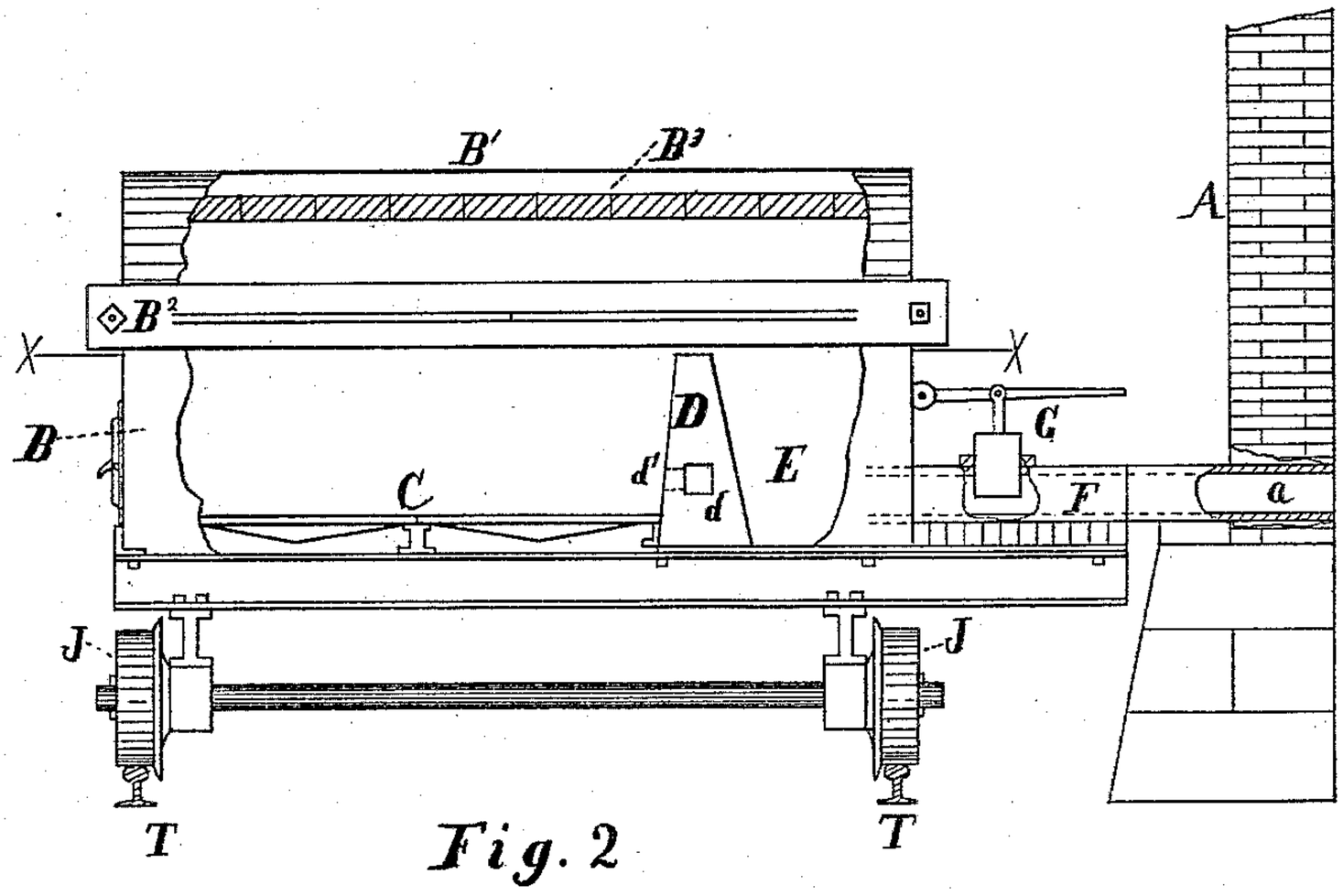

Fig. 2

Witnesses
S. O. Dobbins
R. F. Gaggin

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UNITED STATES PATENT OFFICE.

CHARLES M. KEEP, OF ERIE, PENNSYLVANIA.

FURNACE FOR BRICK-KILNS.

SPECIFICATION forming part of Letters Patent No. 401,172, dated April 9, 1889.

Application filed August 31, 1888. Serial No. 284,234. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. KEEP, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Furnaces for Brick and other Kilns; 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 furnaces for firing brick and other kilns; and it consists in certain improvements in the construction thereof, as will be hereinafter fully set forth, and pointed out in the claims.

My invention is illustrated in the accompanying drawings, as follows:

Figure 1 is a top or plan view, with the furnace B in horizontal section, on the line *x x* in Fig. 2. Fig. 2 is a side elevation, with the side of the furnace broken away to show internal construction. Fig. 3 is a perspective view of the furnace.

The purpose, construction, and operation of my invention are as follows:

As the best brick-kilns are now constructed there are permanent furnaces built on each side of the space where the kilns are built, there being two furnaces to each kiln—one at each side. When the kilns are being filled and emptied, the furnaces are not in operation.

The purpose of my invention is to have portable furnaces which can be moved from kiln to kiln. The result of such an arrangement is that as soon as one kiln is burned the furnaces can be at once removed to a green kiln and put in connection therewith, and thus kept burning all the time. Fewer furnaces are required and no fuel is wasted in cooling off and heating up the furnaces. To accomplish this purpose, I build along the sides of the kilns a railway-track and mount my furnaces on trucks running on said tracks. The furnaces are provided with flues to match the flues of the kiln, so that when a furnace is set opposite a kiln the flues of the furnace will be in conjunction with the flues of the kiln.

There are other minor features of my invention which will be fully described further on.

In the accompanying drawings, A marks one of the side walls of a kiln. B marks one of my furnaces. J marks the truck on which the furnace is mounted, and T the tracks on which the truck is mounted.

The kilns will be built in line and the tracks T will run along each side of the kilns, and there will be as many furnaces on each line of tracks as are wanted.

Each kiln will have a series of flues, *a a a*, &c., and each furnace will have a series of flues, F F F, &c., in such position as to connect with the flues *a a* of the kiln when the furnace is adjusted in front of the kiln. Each of the flues F F F will have a damper, G, (or the dampers may be in the flues *a*,) so that the heat from the furnace may be shut off from any compartment of the kiln desired. This will be a great advantage, because by the proper use of the dampers the kiln can be burned evenly throughout, for if one compartment is found to be advancing faster than another it can be checked.

The furnace I show in the drawings has some peculiarities of construction which are desirable, but are not essential to the main purpose of my invention. The furnace B has a fire-box, C, combustion-chamber E, and bridge-wall D. It has an arched top of fire-brick, and above that a sheet-iron cover forming an air-chamber, B^3. The bridge-wall D has within it a chamber, *d*, and from it air-openings *d'* into the fire-box. A pipe, H, connects the chamber B^3 with the chamber *d*. Cold air can enter the chamber B^3 through openings such as b^3, and it will pass to the pipes H, thence to the chamber *d*, thence out through the openings *d'*. The draft of the furnace will cause the air to flow, as above described, and in its passage it will become greatly heated, and as it comes in contact with the flame and smoke as it passes over the bridge-wall it will greatly aid the combustion.

In Fig. 3 a branch pipe, H', is shown extending from the pipe H. In case the furnace was heated by a hydrocarbon-burner and it was desirable to use the hot air in the burner, the air can be shut off from the bridge-wall by the valve *h* and taken through the pipe H' to the burner. The base of the arched top B' sets against plates *b'*, which are supported by strong springs resting against the fixed plates B^2. The object of this is to allow the arch to

expand when heated without danger of fracturing it.

What I claim as new is—

1. A brick-kiln plant comprising a number of kilns having each a series of flues opening through its walls, and a portable furnace having a series of flues corresponding with the kiln-flues and arranged to be separably connected with the latter, substantially as and for the purpose described.

2. An improved portable furnace for brick-kilns of the kind herein described, provided with a hollow bridge-wall opening into the fire-chamber, an air-chamber above the fire-chamber, and with pipes connecting the air-chamber with the bridge-wall, whereby the air is heated and then fed directly into the fire-chamber of the furnace, substantially as and for the purpose set forth.

3. In a furnace substantially as shown, the combination, with the arched roof B, of the fixed base-plate B^2, the movable base-plates b', and the springs b between said plates.

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

CHAS. M. KEEP.

Witnesses:
JNO. K. HALLOCK,
S. D. DOBBINS.