

No. 721,988.

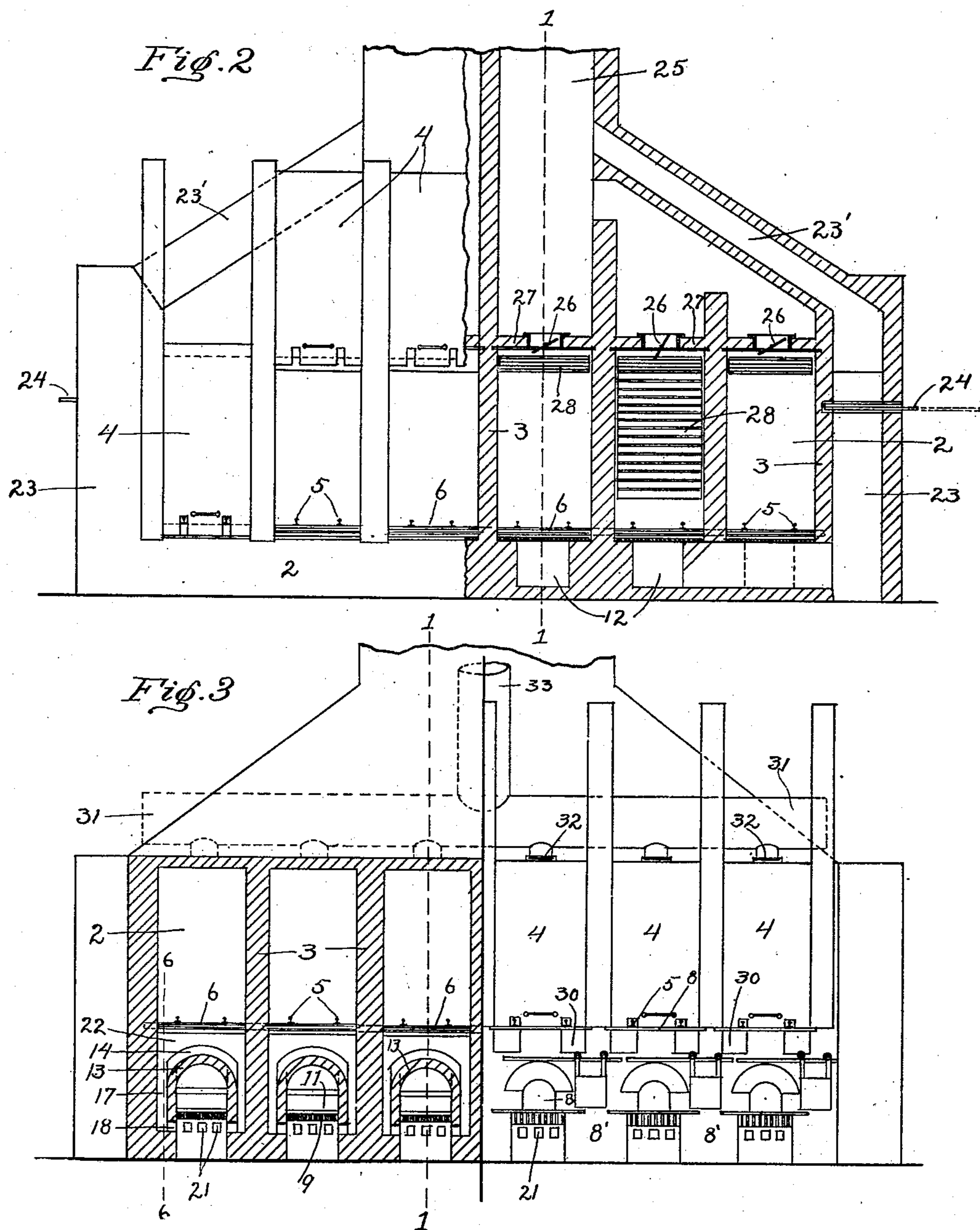
PATENTED MAR. 3, 1903.

T. M. WILSON.
BRICK DRIER.

APPLICATION FILED NOV. 9, 1901.

NO MODEL.

3 SHEETS—SHEET 2.



Witnesses.
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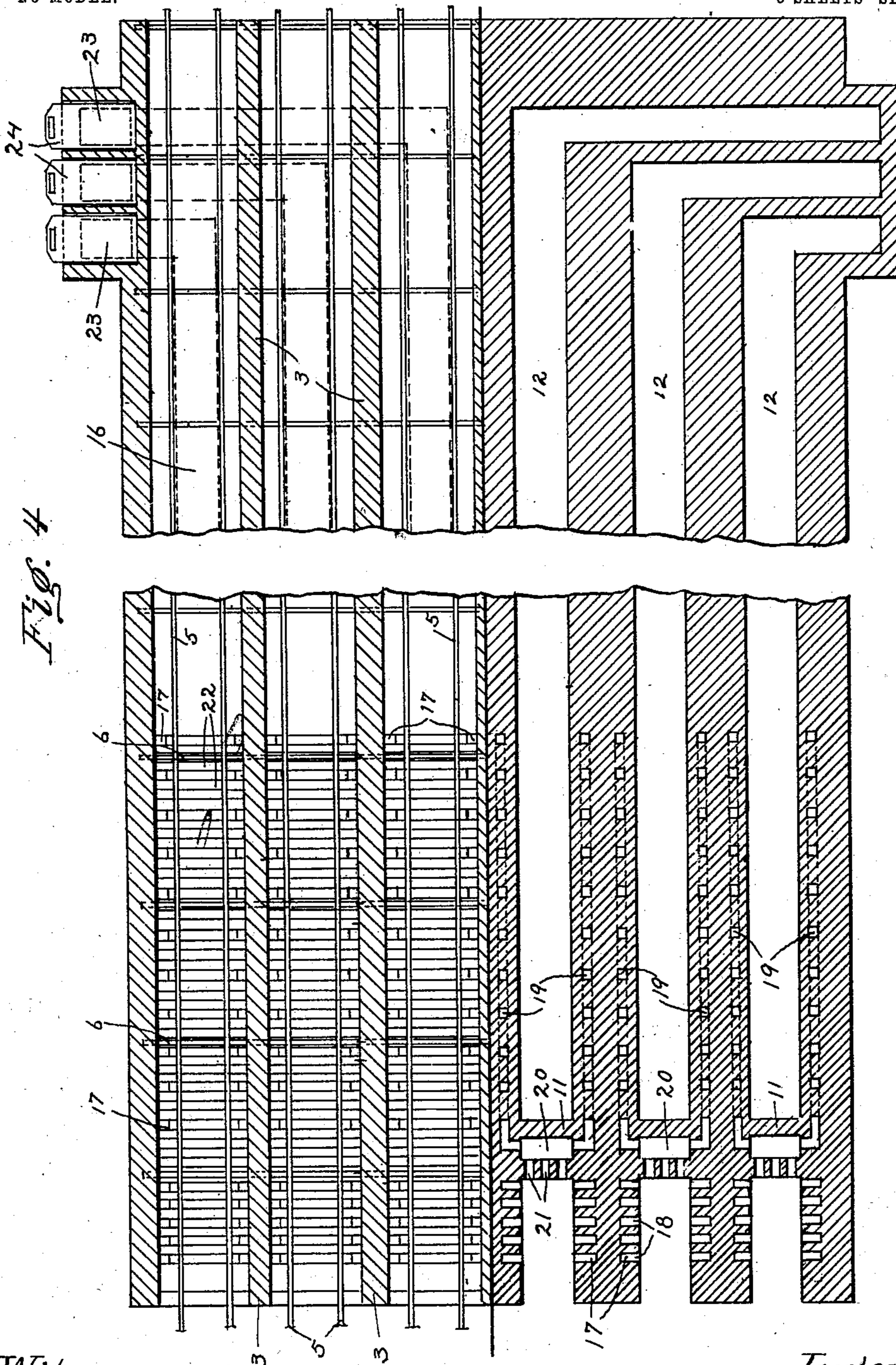
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UNITED STATES PATENT OFFICE.

THOMAS M. WILSON, OF LAYTON, PENNSYLVANIA.

BRICK-DRIER.

SPECIFICATION forming part of Letters Patent No. 721,988, dated March 3, 1903.

Application filed November 9, 1901. Serial No. 81,655. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. WILSON, a citizen of the United States, residing at Layton, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Brick - Driers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to brick-driers; and one object thereof is to provide furnaces of improved construction.

A further object is to provide improved means for protecting the furnace-walls and 15 for heating and supplying air to the drier-tunnels.

A further object is to improve the construction of the stack or inlet end of the drier, also the tunnel-floors.

20 The invention consists in the novel structural features hereinafter described and claimed, and illustrated by the accompanying drawings, wherein—

Figure 1 is a vertical longitudinal sectional 25 view of my improved drier, taken on lines 1 1 of Figs. 2 and 3. Fig. 2 is a view of the stack or inlet end of the drier, one half thereof being in elevation and the other half in section, taken on line 2 2 of Fig. 1. Fig. 3 is a view 30 of the front or furnace end, one half being in elevation and the other half in section, taken on line 3 3 of Fig. 1. Fig. 4 is a sectional plan view, part thereof being taken above the tunnel-floors and the remainder on line 4 4 of 35 Fig. 1. Fig. 5 is a vertical cross-sectional view of the lower portion of the drier, taken on line 5 5 of Fig. 1; and Fig. 6 is a vertical longitudinal sectional view of the same, taken on line 6 6 of Fig. 3.

40 In the present embodiment of the invention the drier is constructed with six tunnels 2, separated by longitudinal partition-walls 3 and provided at the ends with usual doors 4. The car or truck supporting rails 5 rest on 45 ties 6, the latter being preferably of rail-section and of sufficient length to traverse all the tunnels. Said ties are sustained by the partition and side walls of the drier slightly above the tunnel-floors, forming a longitudinal 50 air-passage 7 immediately above each tunnel-floor. This construction not only affords a free and effective circulation, but also

relieves the tunnel-floors of all weight, thus permitting of the latter being made quite thin and capable of readily radiating heat from 55 the furnace-flues immediately therebeneath.

Each tunnel 2 is provided with a furnace 8, having a grate 9, ash-pit 10, and bridge-wall 11, and extending rearward from the latter, immediately beneath the tunnel-floor, is a flue 60 12. The furnace-crown is formed, preferably, of overlapping sections 13, 14, and 15, the latter merging into the main portion 16 of the tunnel-floor. With the furnace-crown thus constructed in overlapping sections slip- 65 joints are provided, which take up the expansion and contraction without injury to the structure. By this means, also, I am enabled to construct a very thin crown which readily radiates the heat. A continuous or unbroken 70 crown would have to be thicker, and in addition the distortion incident to expansion and contraction would necessitate frequent repairs. It will be observed that cross-section 13 has a slip-joint union 13' with the furnace front wall 8', so that the latter will not 75 be crowded or bulged by expansion of said crown-section.

The side walls of the furnace are formed with vertical air-ducts 17, opening at their 80 upper ends into the space separating the furnace-crown and tracks, whereby air passing upward therethrough and over the crown is heated before entering the tunnel. At the same time the walls and crown are maintained 85 at a comparatively low temperature and prevented from burning out. Ducts 17 at the forward end of the furnace open into the ash-pit, as shown at 18, while the other ducts on each side of the furnace communicate with 90 an elongated duct 19, and the two ducts 19 of each furnace communicate with opposite ends of chamber 20, formed in bridge-wall 11. Air is supplied to this chamber through openings 21 in the rear wall of ash-pit 10. A structure 95 is thus provided which preserves the bridge-wall and at the same time heats the air passing to the tunnel. The several crown-sections are preferably traversed and reinforced by cords 22, which in no way impede the circulation of air. 100

The main portion 16 of the floor, or at least that part thereof covering flues 12, of which the furnace-crown forms a continuation, may

be formed of thin or "split" brick or tile or of metal sheets or plates, whereby the heat of the flues will readily radiate into the tunnel.

As the weight of the brick is sustained entirely by the cross-ties, the flue-covering or tunnel-floor may be made very thin and light.

The flues 12 lead to the rear or inlet end of the drier, where they turn laterally, three on each side in a six-tunnel drier, and communicate with vertical flues 23 at either side. The latter are each dampered at 24 and communicate through the inclined flue portions 23' with stack 25. Each tunnel 2 also communicates with the stack through a vertically-swinging damper 26, the portion of tunnel-ceiling 27 beneath the stack and in which the damper is located being slightly raised, as shown in Fig. 1, to permit the damper to work free of the loaded cars passing therebeneath and also to provide space of sufficient depth to be conveniently entered by the operator for inspecting the tunnel, &c. A vertically-adjustable curtain 28 is provided for each tunnel and preferably at or adjacent the stack end thereof, whereby the draft drawing through the tunnel may be maintained in the lower or bottom part thereof, with the upper portion of the tunnel confining the heated air practically undisturbed, which acts to "soak" the brick in the drying process, as will be understood. With this curtain and damper 26 the extent of draft and exit of vapors may be very accurately controlled. The front wall 8' of each furnace may be constructed with openings 30 for increasing the supply of air entering the tunnel. Traversing the drier, preferably at the forward end, is pipe 31, having dampered connection 32 with each tunnel, and leading to this pipe is a pipe 33, extending from a source of heated air, (not shown,) which may thus be admitted to the several tunnels as desired.

In a concurrent application filed October 26, 1901, Serial No. 80,089, I show and describe a series of connected kilns and a fan for drawing air from any one kiln and forcing it into any other kiln or into a drier, and such connection is contemplated in the herein-described arrangement of pipes, though of course other heat-supplying means may be utilized.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A furnace having a closed crown formed in overlapping sections to permit of expansion and contraction without injury to the furnace structure.

2. A furnace having a closed crown formed in longitudinal sections having overlapping transverse joints to permit of expansion and contraction without injury to the furnace structure.

3. A furnace having a stoking-opening at its forward end and a flue connection at its rear end, the furnace-crown being in longitudinal sections having overlapping closely-

fitting joints, each section overlapping the next adjacent forward section, whereby the crown is lowest at its front end and highest at its rear end.

4. A furnace having the exterior of its crown reinforced by separated transverse cords, the furnace side walls being formed with upwardly-opening air-ducts which discharge between the separated cords, whereby the crown is strengthened and the crown and side walls are preserved.

5. In a drier, the combination of a tunnel, a furnace beneath the same having its crown formed of a series of close-fitting overlapping sections, a furnace-flue extending longitudinally of the tunnel, and tracks above the furnace and flue.

6. In a drier, the combination of a tunnel, a furnace therefor having a grate and an ash-pit, a chamber at the rear of and communicating with the ash-pit, and air-ducts communicating at their lower ends with said chamber and at their upper ends with the tunnel.

7. In a drier, the combination of a tunnel, a furnace therefor having a grate and an ash-pit, a chamber at the rear of and communicating with the ash-pit and of substantially the same width as the latter, and air-ducts in the furnace side walls communicating at their lower ends with said chamber and at their upper ends with the tunnel.

8. In a drier, the combination of a tunnel, an elongated furnace beneath the same having a grate and an ash-pit, a bridge-wall at the rear of the grate and ash-pit formed with a chamber which communicates with the ash-pit, ducts extending from said chamber to the rear end of the furnace, and vertical ducts in the furnace-walls communicating at their lower ends with the first-mentioned ducts and at their upper ends with the tunnel.

9. In a drier, the combination of a tunnel, a furnace therefor having a grate and an ash-pit, a chamber at the rear of and communicating with the ash-pit, and vertical ducts in the furnace side walls communicating at their upper ends with the tunnel, the vertical ducts at the rear portion of the furnace communicating at their lower ends with the said chamber and the ducts in the forward portions of the walls communicating at their lower ends with the ash-pit.

10. In a drier, the combination of a tunnel, a furnace therefor having a grate and an ash-pit, and air-ducts in the furnace side walls communicating at their upper ends with the tunnel and at their lower ends with the ash-pit, whereby heated air is conducted directly from the ash-pit to the tunnel and whereby the furnace-walls are preserved.

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

THOMAS M. WILSON.

Witnesses:

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