

(No Model.)

2 Sheets—Sheet 1.

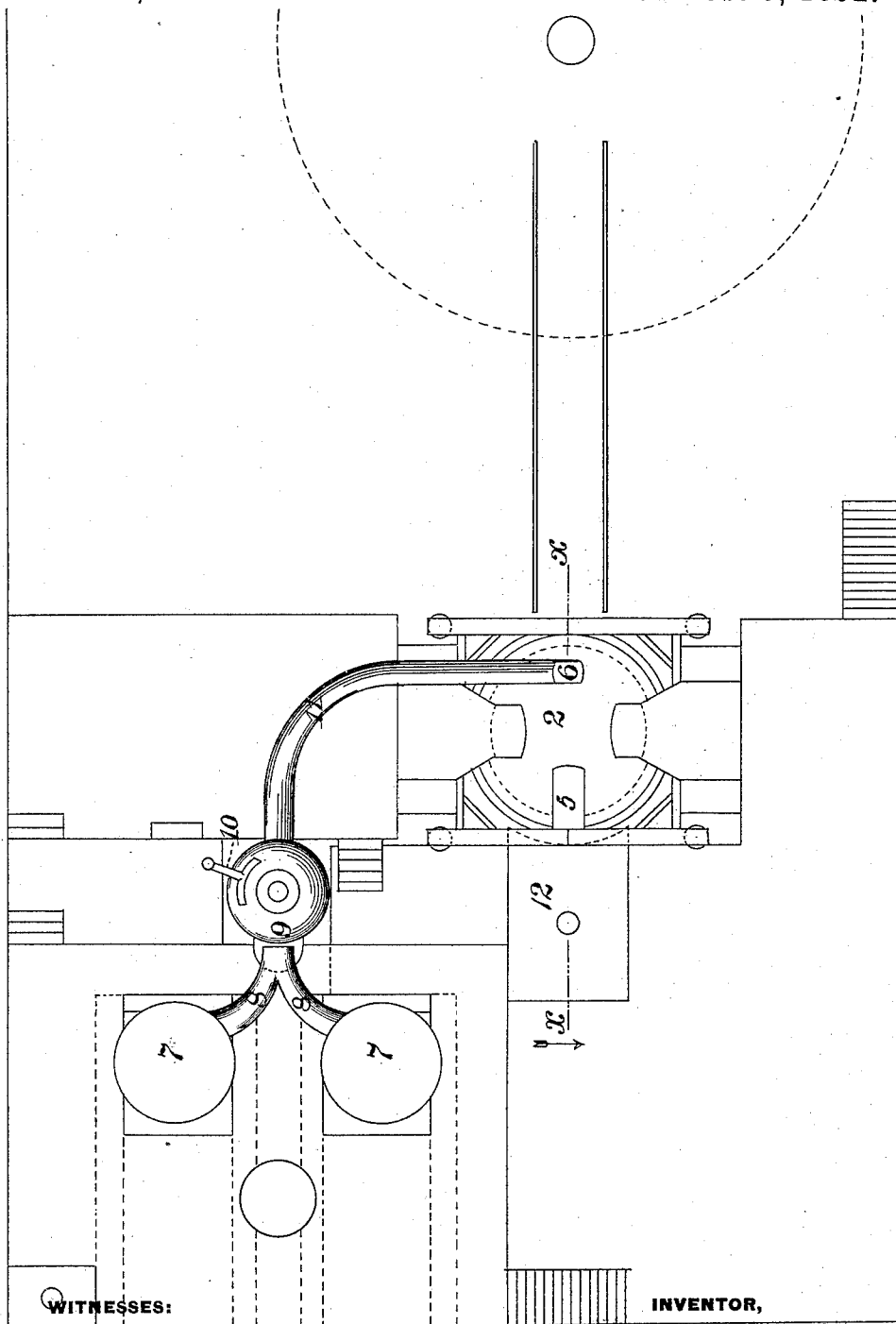
E. L. FORD.

PLATFORM FOR OPEN HEARTH FURNACES.

No. 468,532.

Patented Feb. 9, 1892.

FIG. 1.



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2 Sheets—Sheet 2.

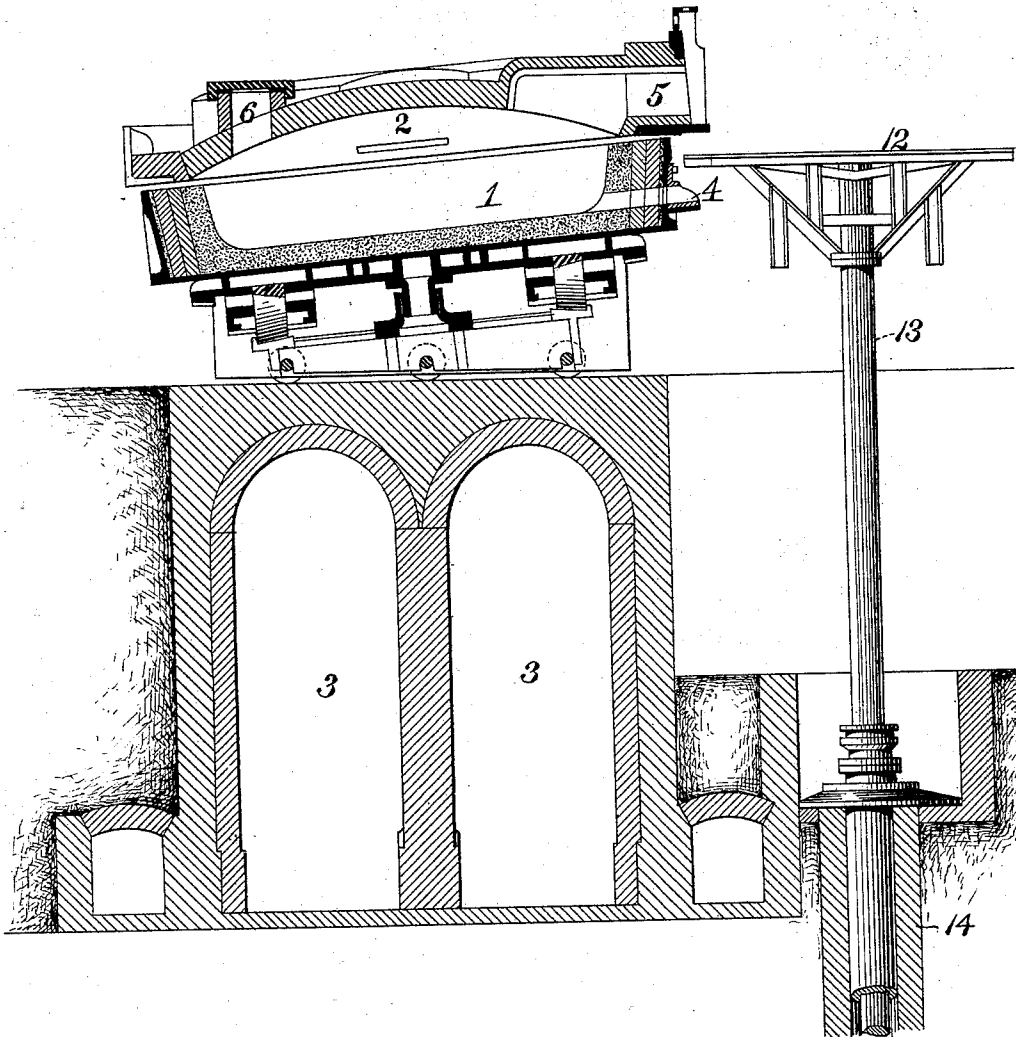
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FIG. 2.



WITNESSES:

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F. E. Gaither.

INVENTOR,

Edward L. Ford,
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UNITED STATES PATENT OFFICE.

EDWARD L. FORD, OF YOUNGSTOWN, OHIO.

PLATFORM FOR OPEN-HEARTH FURNACES.

SPECIFICATION forming part of Letters Patent No. 468,532, dated February 9, 1892.

Application filed January 29, 1890. Serial No. 338,484. (No model.)

To all whom it may concern:

Be it known that I, EDWARD L. FORD, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented or discovered a certain new and useful Improvement in Platforms for Open-Hearth Furnaces, of which improvement the following is a specification.

The invention described herein relates to certain improvements in plants employed in the production of that class or grade of metal known as "refined" or "dephosphorized" pig metal and of which the Pernot furnace, or a furnace having an inclined revoluble hearth, is one of the elements.

The invention has for its object such a construction and arrangement of elements as will facilitate the operation of the plant.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view showing the relative arrangement of the several parts of the plant; and Fig. 2 is a sectional view, the plane of section being indicated by the line *x x*, Fig. 1.

The refining-furnace is constructed as is customary in building Pernot furnaces, and consists of a hearth 1, top or roof 2, and regenerative chambers 3. The hearth is, as is customary, independent of the cover or top and of the regenerative chambers and is mounted on suitable supports so as to be somewhat inclined to a horizontal plane and as to be capable of rotation. The hearth is provided with a tap-hole 4, and in the rear side of the top or roof is formed a door 5, through which the refining material is charged, and through the roof is formed an opening 6 for charging in the molten metal. Within convenient proximity of the furnace are arranged the melting or cupola furnaces 7, which are connected by runners or troughs 8 to a holder or reservoir 9 for the reception of the molten metal for the cupolas. A burner connected by a pipe 10 to a suitable gas supply is arranged in the holder or reservoir above the level of the metal, which is maintained by the heat thus generated in a fluid condition. The molten metal is conducted by a trough 11 to the opening 6 in the top of the refining-furnace, said trough being by preference lined with lime, ground limestone, or other similar material. After a charge of metal has been treated and tapped off it is necessary to close

up the tap-hole with a suitable material and also to drop up the lining of the hearth at and adjacent to the tap-hole, it being customary to close up the tap-hole externally and then drop up the lining. As there is always more or less fluid slag remaining in the hearth, it is difficult to close the tap-hole when at its lowest position on account of the continual flow of the slag through the tap-hole. The distance between the tap-hole when turned to the back of the furnace or its highest position and the working platform is too small to permit of any work at the tap-hole. In order to overcome these difficulties, a section 12 of the working platform adjacent to the furnace is secured to the upper end of the piston 13 of a hydraulic cylinder 14, whereby said floor-section may be lowered, so as to permit easy access to the tap-hole when at its highest position, and may be again raised to the general level of the platform for the usual operations around the furnace, such as repairing the lining and charging in the refining materials.

As will be seen by reference to Fig. 2, the floor-section 12 may be lowered sufficiently far to permit of the withdrawal of the hearth from under the roof when required. Any other suitable means than the hydraulic cylinder may be employed for lowering and raising the floor-section. In order to provide a firm support for the platform 12, the latter is secured to a frame formed around the upper end of the piston 13, and from said frame depend legs 15, which will rest upon the ground when the piston is entirely lowered to permit of repairs to the furnace or other parts of the apparatus.

I claim herein as my invention—

In a plant for the production of refined pig metal, the combination of a Pernot or other furnace having an inclined revoluble hearth, a vertically-adjustable platform arranged adjacent to the higher side of the hearth, and means whereby the platform may be lowered or raised, substantially as set forth.

In testimony whereof I have hereunto set my hand.

EDWARD L. FORD.

Witnesses:

W. R. MERRICK,
TOD FORD.