

(No Model.)

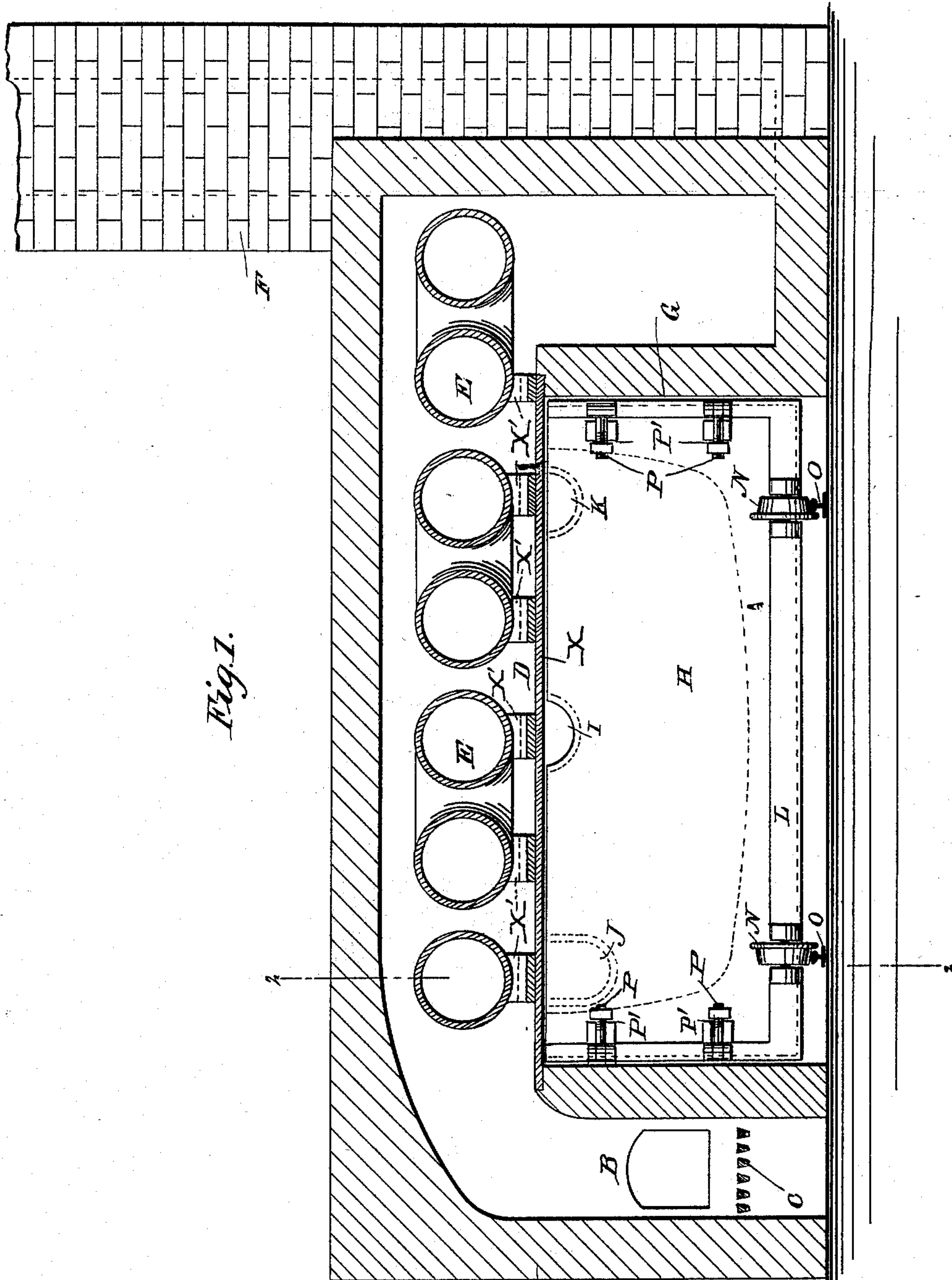
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A. L. ENGELBACH & S. E. BRETHERTON.
FURNACE.

No. 518,493.

Patented Apr. 17, 1894.

Fig. 1.



WITNESSES:

Chas. O'Neil
C. Sedgwick

INVENTORS

A. L. Engelbach
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ATTORNEYS.

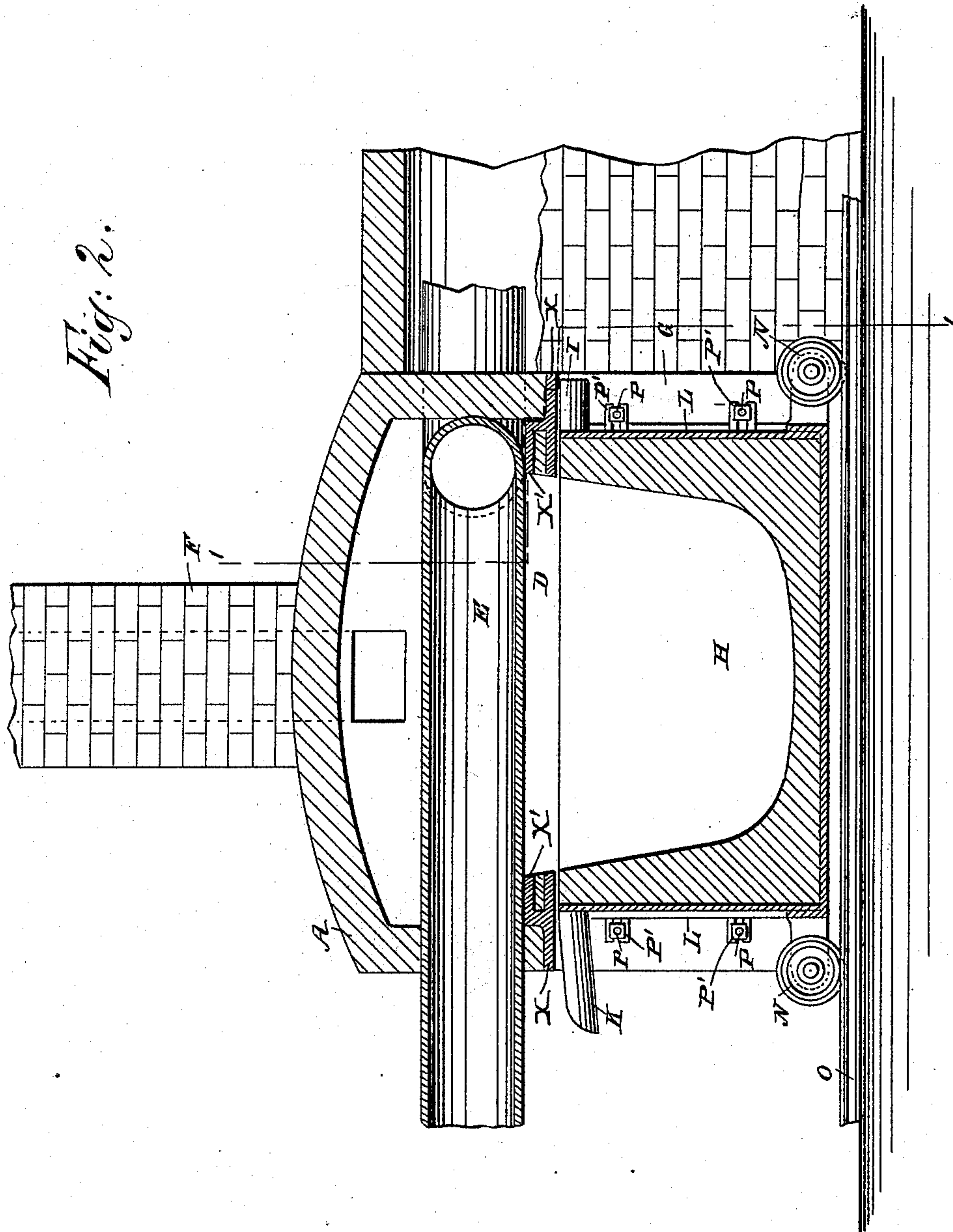
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UNITED STATES PATENT OFFICE.

AUGUSTUS L. ENGELBACH AND SIDNEY E. BRETHERTON, OF LEADVILLE,
COLORADO.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 518,493, dated April 17, 1894.

Application filed April 6, 1893. Renewed March 6, 1894. Serial No. 502,593. (No model.)

To all whom it may concern:

Be it known that we, AUGUSTUS L. ENGELBACH and SIDNEY E. BRETHERTON, of Leadville, in the county of Lake and State of Colorado, have invented certain new and useful Improvements in Furnaces, of which the following is a full, clear, and exact description.

The invention relates to furnaces such as shown in our United States Patent No. 496,250, dated April 25, 1893.

The object of the invention is to provide certain new and useful improvements in furnaces, whereby the molten products are prevented, to a great extent, from incrusting in the settler, and also whereby the settler may be readily moved to or from the heater if incrustation should possibly take place.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional side elevation of the improvement on the line 1—1 Fig. 2; and Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1.

The improved furnace is provided with a heater built in suitable brickwork A, in which is arranged a fire-box B, containing a grate C, on which the fuel is burned in the usual manner. The fire-box B connects with a heating and combustion chamber D, through which pass the air pipes E, connected with the smelting furnace, as more fully shown and described in the application above referred to.

X is an open rectangular plate or frame around the upper edge of the chamber G and provided on its upper sides with lugs or projections X' on which rest the pipes E as clearly shown in the drawings. The rear end of the heating chamber D is connected with a chimney F, to carry off the products of combustion.

In the brickwork A is arranged a recess G,

into which is adapted to be moved a settler H, provided with an inlet spout I, through which the molten metal from the smelting furnace is discharged into the settler, and the latter is also provided with a matte discharge spout J and one or more slag discharge spouts K.

As illustrated in the drawings, the settler H for the molten ore, is preferably in the form of a cast iron box lined with fire brick as indicated in the drawings, and this box is set on a frame L, and fastened thereto by bolts P, pivoted to the uprights of the frame and swinging into the slotted lugs P' projecting from the cast iron box at the corners thereof, or other suitable means. The frame L is provided with wheels N, adapted to run on track rails O, leading into the bottom of the recess G so as to permit of conveniently running the settler in or out of the recess G. The settler is preferably made of such dimensions as to completely fill the recess G to prevent loss of heat. It will be seen that the heat generated by the burning fuel on the grate C keeps the molten metal in the settler H sufficiently hot to prevent as much as possible, any incrustation, and the heat of the molten metal run through the spout I into the settler H is utilized for heating the flues E through which passes the air, in addition to the heat generated by the burning fuel on the grate C and passing through the chamber D. In case the incrustation does take place in the settler H, then the latter can be readily run out of the recess G and a new settler of like construction be run into the recess, without any loss of time, so that the process of smelting ores as described in the above mentioned application, is not interrupted or interfered with to any great extent.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A furnace comprising the fire box, a combustion chamber leading therefrom to the chimney, air pipes E crossing the combustion chamber, a recess opening upwardly into the

combustion chamber under the said air pipes and a wheeled settler movable into and out of said recess, substantially as set forth.

2. The settler formed of a cast iron box
5 lined with fire clay and provided on its outer side at its corners with slotted lugs and the wheeled frame L into which the settler fits and provided on its vertical corner uprights

with pivoted bolts to swing into the slots of said lugs, substantially as set forth.

AUGUSTUS L. ENGELBACH.
SIDNEY E. BRETHERTON.

Witnesses:

FRANK SHAW,
J. W. SATTEN.