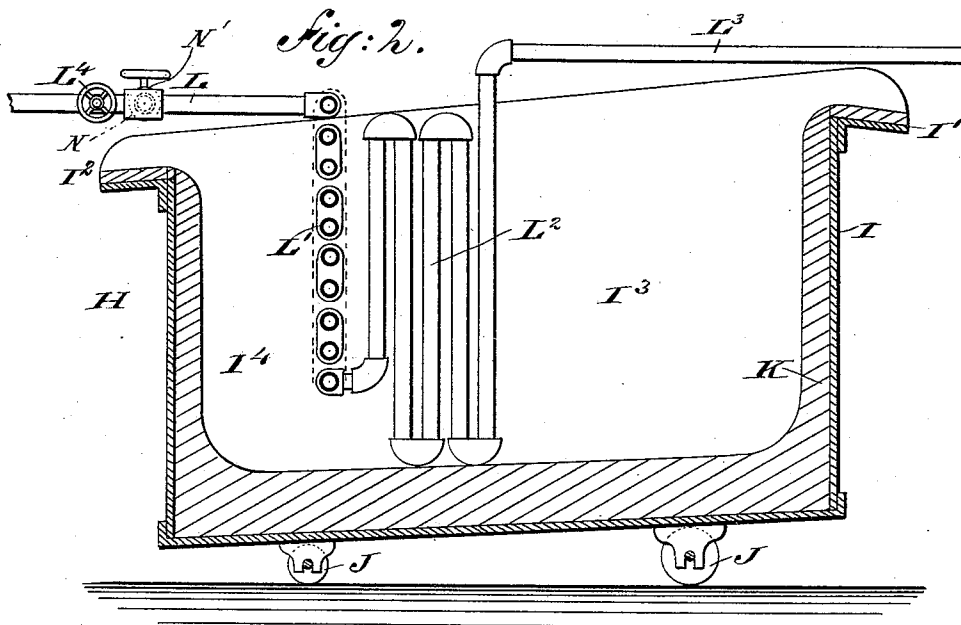
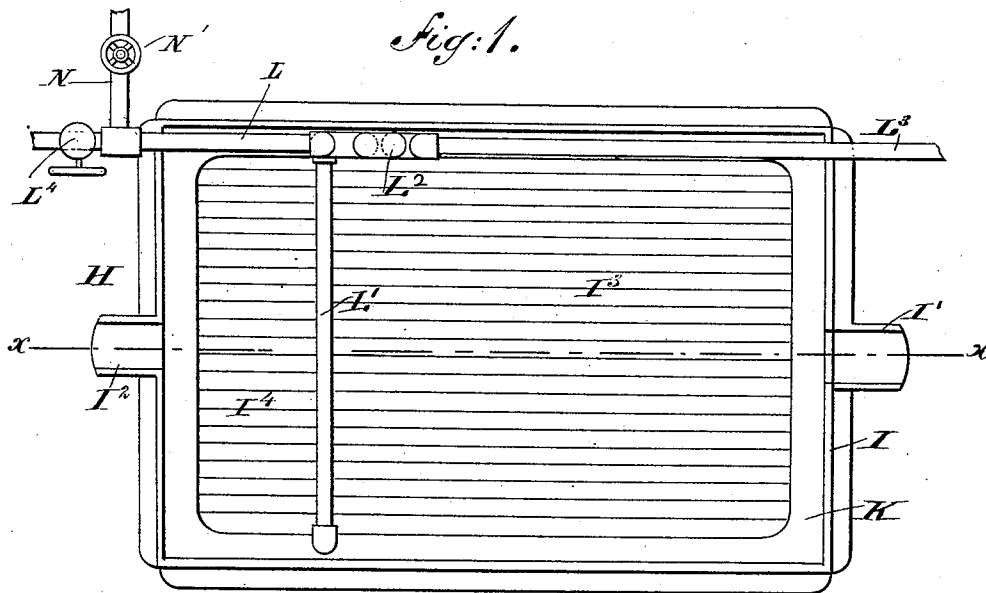


(No Model.)

A. J. SCHUMACHER.
FORE HEARTH.

No. 475,614.

Patented May 24, 1892.



WITNESSES:

Chas. Nida
C. Sedgwick

INVENTOR

A. J. Schumacher
BY Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ADAM J. SCHUMACHER, OF BUTTE CITY, MONTANA.

FORE-HEARTH.

SPECIFICATION forming part of Letters Patent No. 475,614, dated May 24, 1892.

Original application filed March 4, 1891, Serial No. 383,687. Divided and this application filed October 14, 1891. Serial No. 408,667. (No model.)

To all whom it may concern:

Be it known that I, ADAM J. SCHUMACHER, of Butte City, in the county of Silver Bow and State of Montana, have invented a new and Improved Fore-Hearth, of which the following is a full, clear, and exact description.

The invention relates to fore-hearths for smelting-furnaces, and is designed for use in connection with a discharge-trough such as shown and described in the application for Letters Patent of the United States, Serial No. 383,687, filed by me under date of March 4, 1891, and allowed August 28, 1891, and of which application this is a division.

The object of the invention is to provide a new and improved fore-hearth which is simple and durable in construction, completely separates the slag from the molten metal, and permits the formation of a cover from the slag for the molten metal contained in the device.

The invention consists of certain parts and details and combinations of the same, which will be hereinafter described and claimed.

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 plan view of the improvement, and Fig. 2 is a sectional side elevation of the same.

The fore-hearth H is preferably arranged below a discharge-trough, as fully described in the application above referred to. The fore-hearth H is provided with a tank I, preferably mounted on wheels J so as to conveniently move the hearth about. The interior of the tank I is lined with a suitable refractory material, as at K, and in the ends of the tank are formed the discharge-spouts I' and I², of which the former serves to discharge slag and the other the matte or bullion. A pipe L, connected with a suitable source of water-supply, extends over the tank I, and is then bent into a coil of pipe L', which extends transversely in the tank, so as to form a partition, which divides the tank into a larger and smaller compartment I³ and I⁴, respectively. The lower end of the coil of pipe L' is then formed into a longitudinally-extending coil of pipe L³, arranged along one of the sides of the tank,

which finally continues into the discharge-pipe L³, leading to one side of the tank. The coil of pipe L' in the tank I has the spaces formed between the several layers of pipe filled in with fire-clay or other suitable material, so as to form a solid wall or transverse partition. The inlet-pipe L is provided with a valve L⁴ for regulating the water-supply. On pipe L, between the valve and tank I, is arranged an inlet-pipe N, having a valve N' and serving for introducing detergents by means of a force-pump or other device to clean the pipes and coils. The discharge-trough discharges the molten mass into the larger compartment I³ of the tank I. After the slag has risen in the fore-hearth above the under end of the coil of pipe L' then the matte or lead will pass to the smaller compartment I⁴, while the slag occupies or remains in the larger compartment I³. When the tank is filled to overflowing, a thin coat of slag is allowed to chill on the surface, so as to form a cover, the slag then flowing in a constant stream through the spout I', perfectly free from mechanical mixture of matte or bullion, which latter is discharged continuously from the smaller compartment I⁴ through the outlet-spout I². Thus both the slag and the bullion will be continuously discharged, owing to their being located in different planes, so long as the supply continues, thereby avoiding the use of ladles to dip out the bullion.

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

A fore-hearth consisting in a tank having its rear end higher than its forward end and provided, respectively, with outlet-spouts I' I² in the upper edges of said ends, a lining of refractory material, and a transverse water-partition dividing the tank above its bottom and forward of its center into two communicating compartments, whereby a continuous discharge of slag and bullion through the spouts I' I² is provided for, substantially as set forth.

ADAM J. SCHUMACHER.

Witnesses:

ANTHONY FRENCH,
DANIEL LAUGHLIN.