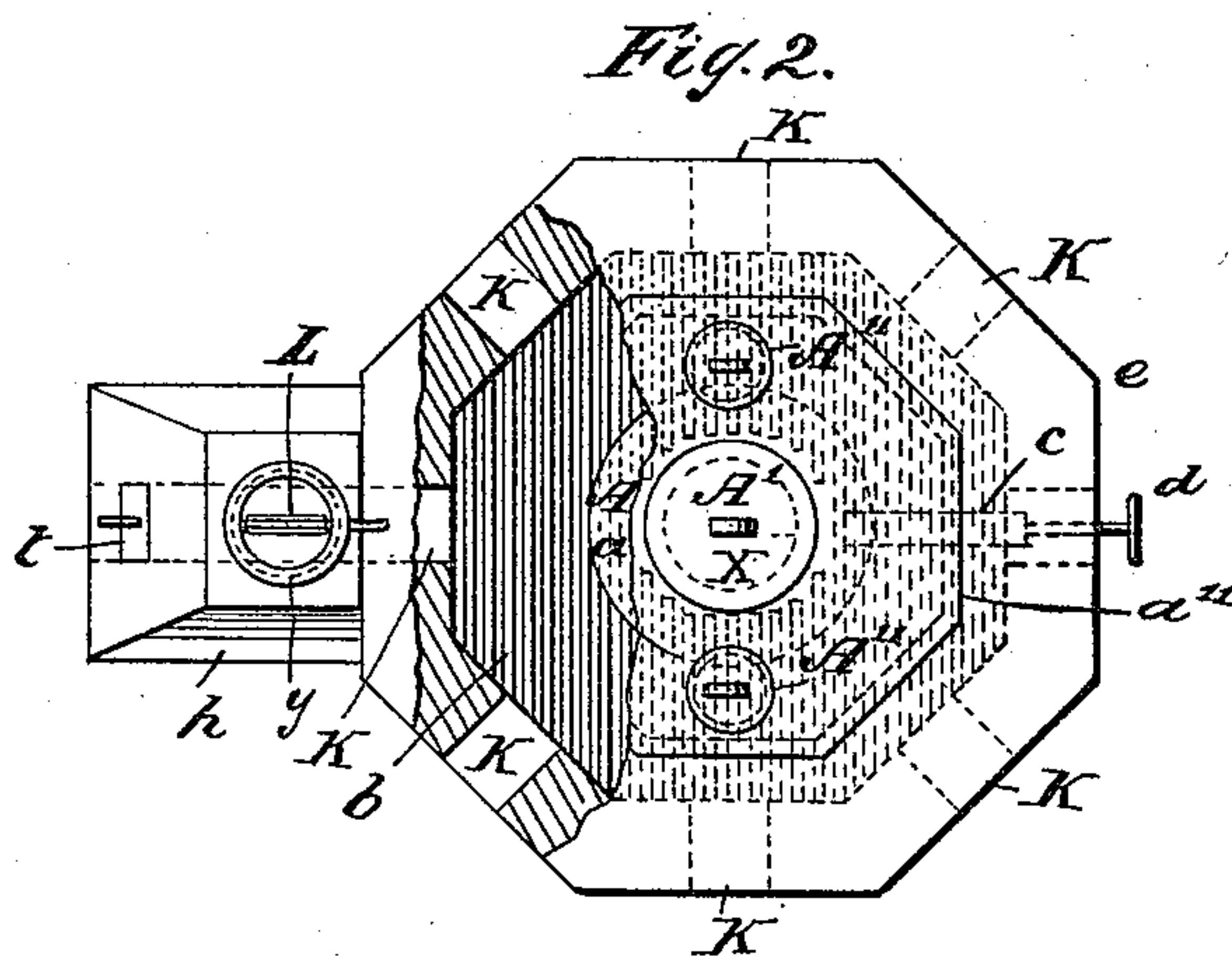
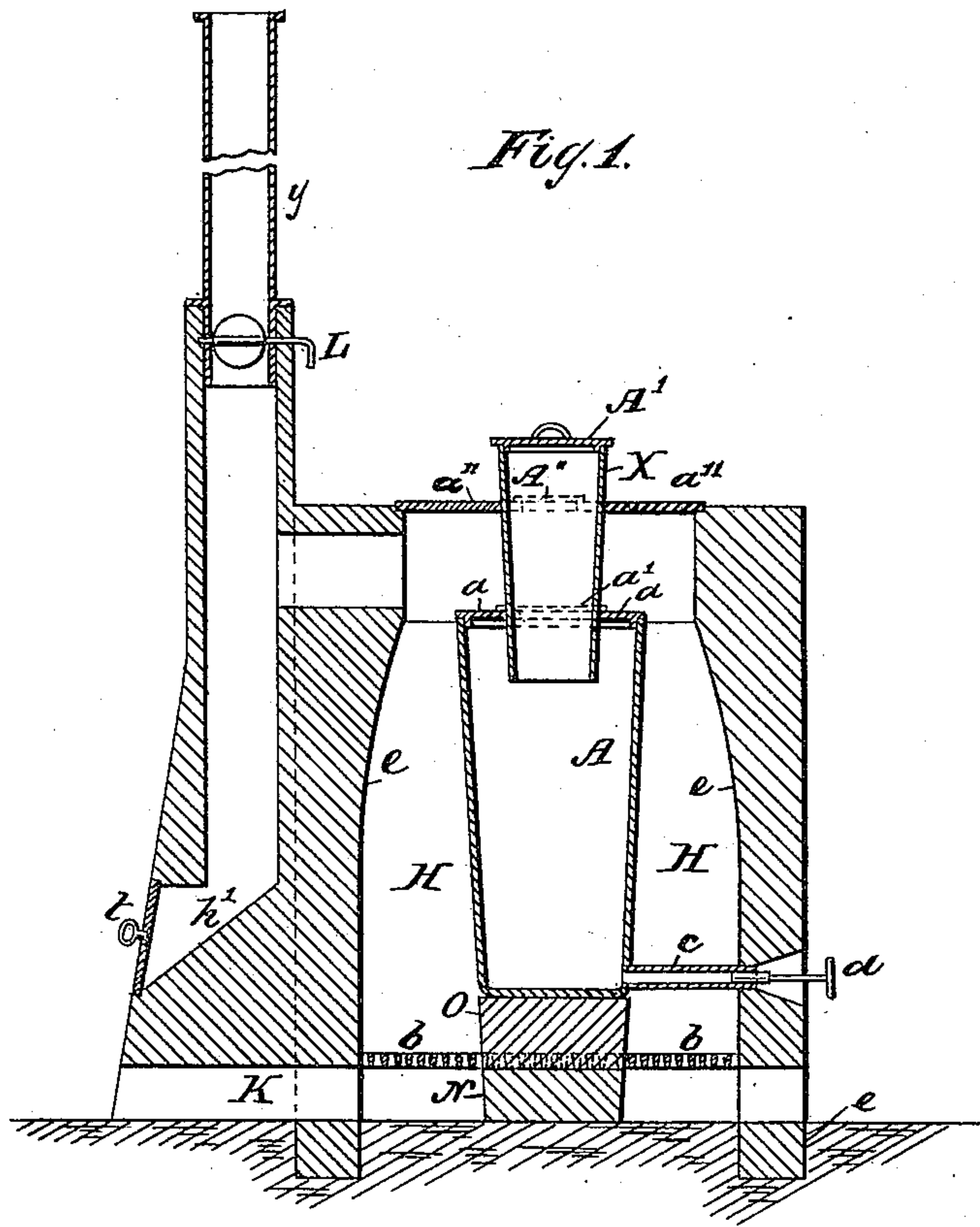


(No Model.)

J. B. ALZUGARAY.  
CRUCIBLE FURNACE.

No. 428,441.

Patented May 20, 1890.



WITNESSES:

*Eduard Wolff.*  
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INVENTOR:

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BY  
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his ATTORNEYS

# UNITED STATES PATENT OFFICE.

JOSÉ BAXERES ALZUGARAY, OF OPORTO, PORTUGAL.

## CRUCIBLE FURNACE.

**SPECIFICATION** forming part of Letters Patent No. 428,441, dated May 20, 1890.

Application filed October 10, 1889. Serial No. 326,538. (No model.) Patented in Spain March 4, 1889, No. 9,293, and in Portugal September 3, 1889, No. 1,397.

*To all whom it may concern:*

Be it known that I, JOSÉ BAXERES ALZUGARAY, a citizen of the Argentine Republic, and a resident of Oporto, Portugal, have invented a certain new crucible furnace for the extraction, melting, reduction, and refining of metalloids, heavy metals, alkalies, and alkaline earthy metals and their separation from the various ores, as also a furnace suited to such purpose, (for which I have obtained patents in Portugal, No. 1,397, dated September 3, 1889, and in Spain, No. 9,293, dated March 4, 1889,) of which the following is a specification.

My invention relates to a furnace which can be used for the purpose of fusing, smelting, or refining all kinds of metals, ores, regulus, or slags, such as antimony, silver, arsenic, bismuth, cobalt, copper, tin, nickel, gold, and lead.

In order to make my invention more clearly understood, I shall now refer to the accompanying drawings, in which—

Figure 1 is a vertical section of the furnace. Fig. 2 is a plan view, partly in section, of the furnace.

The same letters of reference indicate corresponding parts in all the figures.

A is an iron, lime, alumina, magnesia, or other suitable crucible for fusing the ore; c, the discharge-pipe cast with the crucible or fixed to it for the discharge of the reduced refined metal and the dross.

d is the plug or key of the discharge-pipe, which closes the crucible during the process.

N O are fire-brick or other suitable supports on which the crucible rests; b, the grating of the fire-box, on which the combustible coal, charcoal, coke, &c., are placed, and through which the air passes to keep up the combustion.

e are the walls of the furnace arranged in octagon form; H, the interior of the furnace, in the center of which the crucible is placed, so that it may receive the heat all around it.

a'' is the removable lid or cover of the furnace, having a central orifice, and a is the removable lid or cover of the crucible, having a

central orifice in alignment or coincident with the orifice in the furnace-lid.

X is a removable tapering charging-tube extending vertically through the said aligned orifices into the crucible and supported and sustained above and below by the furnace and crucible lids, said tube having a supporting-flange a' and movable cover A', and serving to introduce the charge into the crucible, to inspect the condition of the charge, and to concentrate the heat.

A'' is a lid of opening by which the combustible is introduced, and by means of which the process and working of the furnace may be watched. It is closed when necessary to avoid loss of heat or to accelerate the draft up the chimney.

K is a ventilator for introducing air into the furnace and ascertaining the amount of draft necessary for the combustion; h', discharge of chimney; y, chimney with damper L for regulating the draft; h, support for chimney.

t is a door for the chimney.

What I claim as new, and desire to secure by Letters Patent, is—

A metallurgic dry-process furnace consisting of the furnace structure having a fire-place in its base, a crucible arranged centrally in the furnace-chamber and having a metal and dross discharge pipe opening through the furnace-wall, a removable lid or cover for the furnace-chamber, having a center orifice, a removable lid or cover for the crucible, having a center orifice in the furnace-lid, and the charging, inspecting, and heat-concentrating tube extending through the said aligned orifices into the crucible, supported above and below by the furnace and crucible lids, and having a movable cover at its upper end, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSÉ BAXERES ALZUGARAY.

Witnesses:

J. DAVIS SMITH,  
ALFREDO PIO SHANSOL.