(No Model.) 2 Sheets—Sheet 1.

S. C. EDGAR.

FURNACE FOR SMELTING ZINC ORES.

No. 476,789. Patented June 14, 1892.

Fig. 1

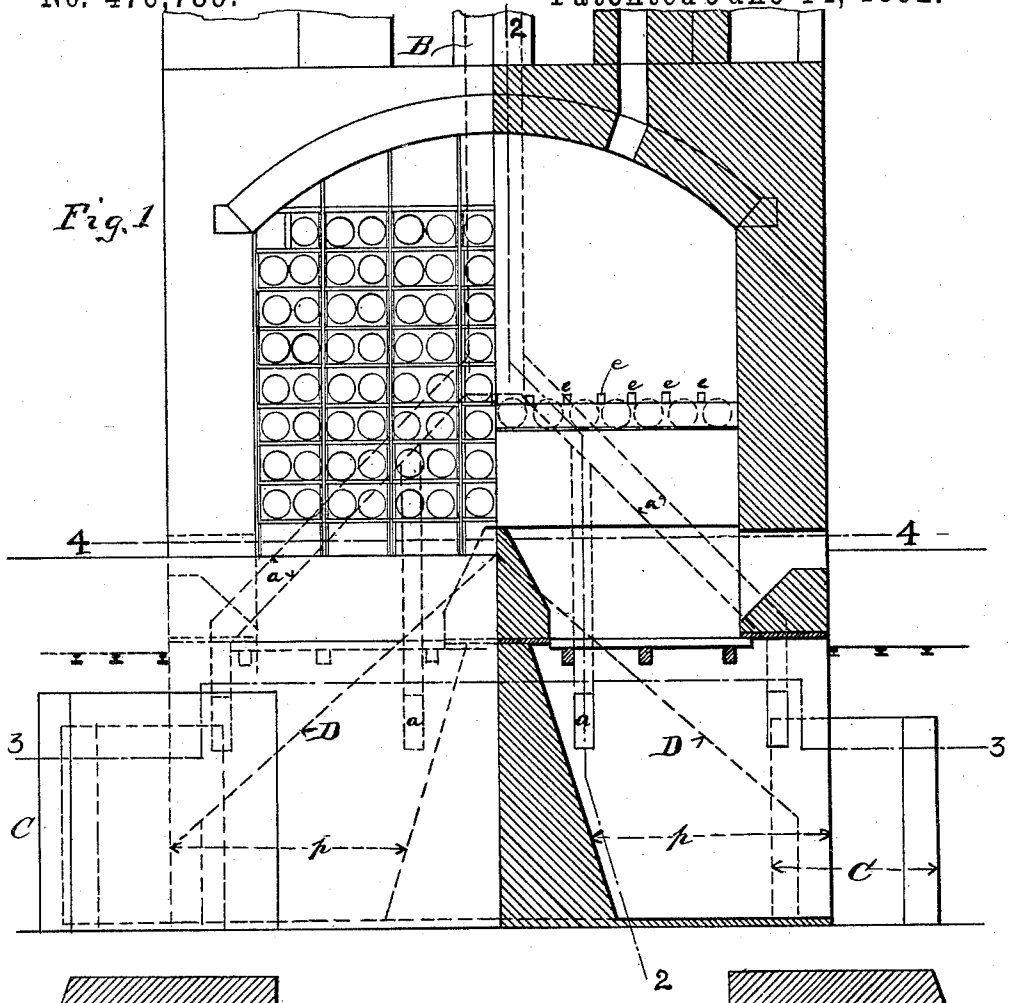
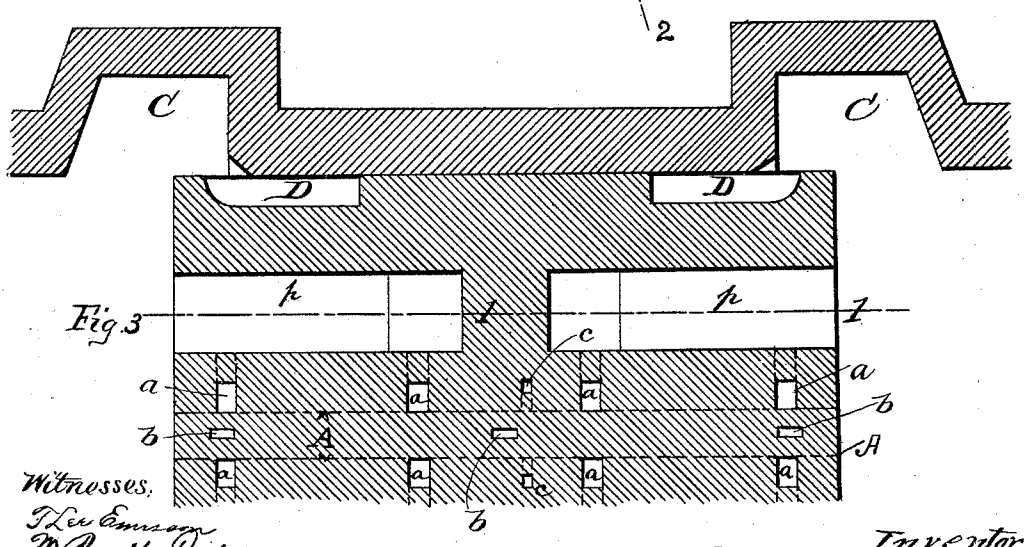


Fig 3



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(No Model.) 2 Sheets—Sheet 2.

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No. 476,789. Patented June 14, 1892.

Fig. 2.

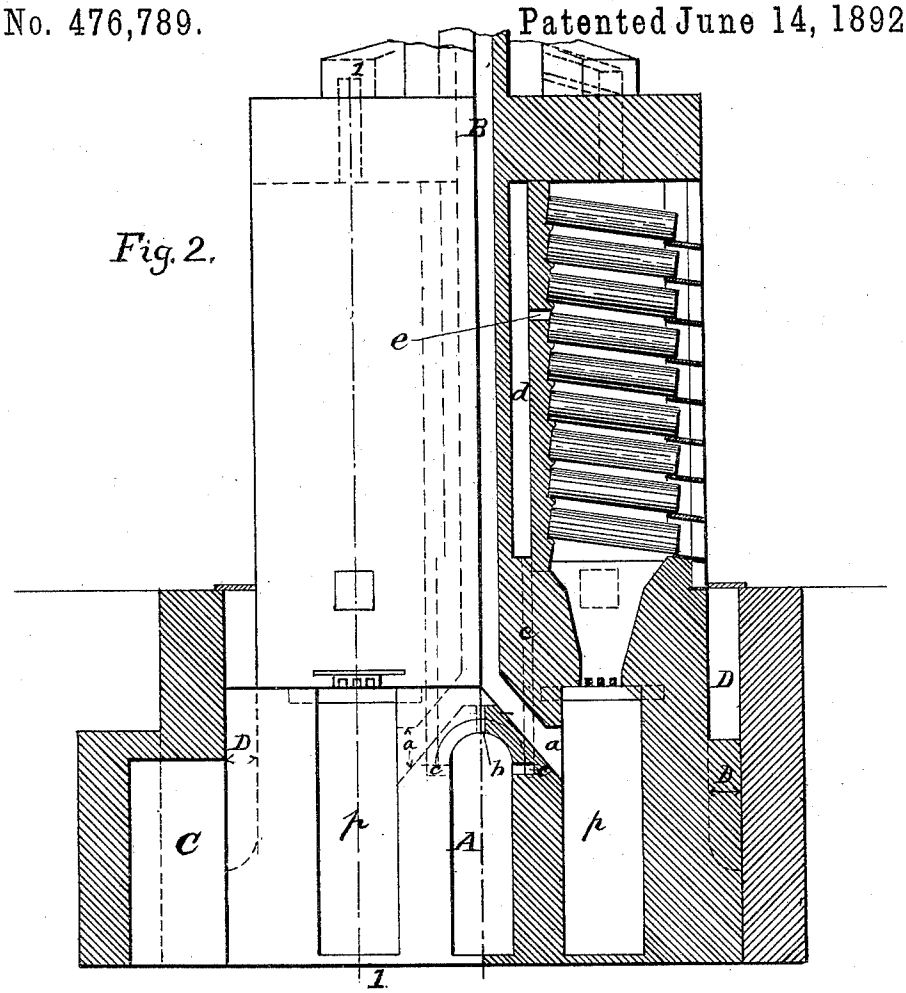
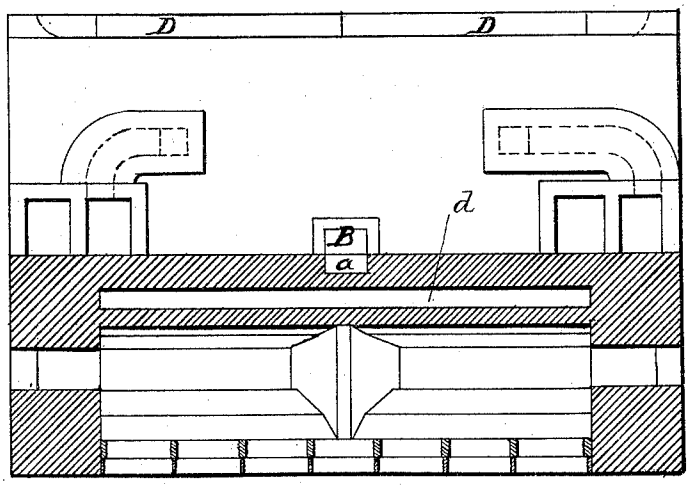


Fig. 4.



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UNITED STATES PATENT OFFICE.

SELWYN C. EDGAR, OF ST. LOUIS, MISSOURI.

FURNACE FOR SMELTING ZINC ORES.

SPECIFICATION forming part of Letters Patent No. 476,789, dated June 14, 1892.

Application filed July 30, 1891. Serial No. 401,197. (No model.)

To all whom it may concern:

Be it known that I, SELWYN C. EDGAR, a citizen of the United States, residing at St. Louis, State of Missouri, have invented a certain new and useful Improvement in Furnaces for Smelting Zinc Ores, of which the following is a full, clear, and exact description.

My invention relates to that class of zinc or spelter furnaces known as "Belgian" furnaces; and the object of the invention is to ameliorate the condition of the workman in the cellar or basement.

The invention consists in supplying a passage-way or tunnel below the retorts and parallel with the ash-pits to facilitate the workman's access to the fires and ash-pits and for purifying the basement's atmosphere, all as I will proceed now more particularly to set forth, and finally claim.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a front view of the furnace, one half in elevation and the other half in longitudinal section on line 1 1 of Figs. 2 and 3. Fig. 2 is an end view of a double furnace, one half in elevation and the other half in transverse section on line 2 2 of Fig. 1. Fig. 3 is a horizontal section on line 3 3 of Fig. 1, showing the entrance of gas-flues leading to central chimney; and Fig. 4 is a top view or plan, one-half of it in horizontal section.

In the preferred construction the furnace is made double, the two being placed back to back, each with a full bank of retorts in front. The separation-wall between the two furnaces affords ample space for various flues, sustains and strengthens the furnaces, and supports three chimneys, one of which I utilize to carry off the noxious gases from the ash-pits and basement, thereby to ventilate the basement.

A is the passage-way or tunnel, and B the added chimney.

C are ash-pockets, into which ash-slides D D open, whereby the ashes and other refuse from cleaning and recharging the retorts are conveyed away.

p p are the ash-pits arranged beneath the usual grates, which are set at the bases of the banks of retorts. In these ash-pits and the basement accumulate the sulphurous and other noxious gases liberated by the ashes and cinders of the furnaces, and to such an extent do these gases gather that the workmen are nearly suffocated in attending to their duties. The ash-pits are relieved of such noxious gases by means of flues *a*, connecting them with the chimney or flue B. The passage-way or tunnel A is ventilated by flues *b*, connecting them with the chimney B, and obviously the hot gases escaping from the ash-pits into chimney B will induce ventilation of the passage-way A through its flues *b*.

By means of the central passage A, which extends parallel with and between the ash-pits of the furnaces, the workmen engaged in cleaning the fires and in other duties may pass from one set of furnace-fires to those on the opposite end without, as was heretofore necessary, coming up to the main floor at one end and going down again to the basement at the other end of the furnace, thus saving much time and labor. Moreover, the men can work with comfort, as the waste gases and heat are nearly all carried off through the aforementioned flues.

In the central passage-way A are arranged two flues *c c*, leading from said passage-way to space *d* back of the retorts and thence through a series of small holes *e* to the furnace-box, for the purpose of supplying oxygen to aid combustion.

Parts shown in the drawings and not specially described in this specification may be as usual or of any approved form.

What I claim is—

1. In a zinc-smelting furnace having two complete furnaces arranged back to back, as usual, and provided with usual basement ash-pits, the passage-way A, extending from end to end of the furnace and parallel with the ash-pits, substantially as described.

2. In a zinc-smelting furnace having two complete furnaces arranged back to back, as usual, and provided with usual basement ash-pits, the passage-way A, extending from end to end of the furnace and parallel with the ash-pits, combined with a ventilating-chimney and flues connecting them, substantially as described.

3. In a zinc-smelting furnace having two complete furnaces arranged back to back, as

usual, and provided with usual basement ash-pits, the passage-way A, extending from end to end of the furnace and parallel with the ash-pits, combined with a ventilating-chimney and independent flues connecting the ash-pits and chimney and the said passage-way and chimney, substantially as described.

In testimony whereof I have hereunto set my hand this 29th day of July, A. D. 1891.

SELWYN C. EDGAR.

Witnesses:
WM. H. FINCKEL,
E. A. FINCKEL.