

No. 624,748.

S. E. BRETHERTON.
HOT BLAST BOX.

(Application filed Jan. 11, 1899.)

Patented May 9, 1899.

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

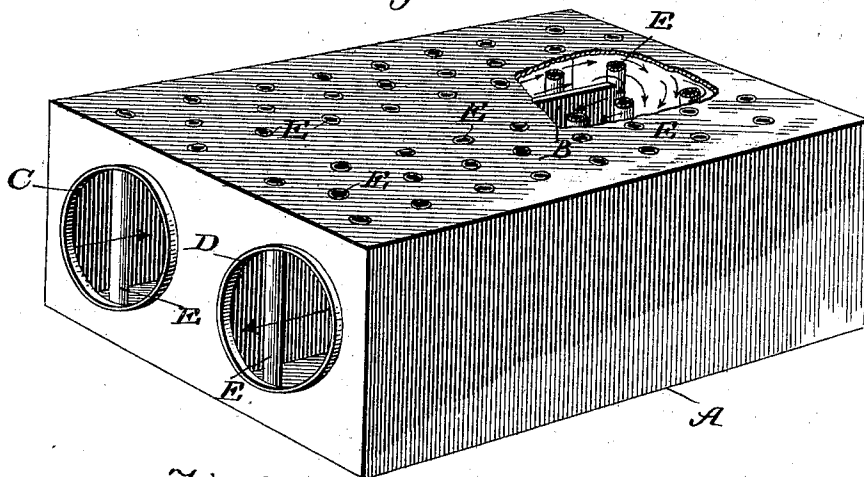
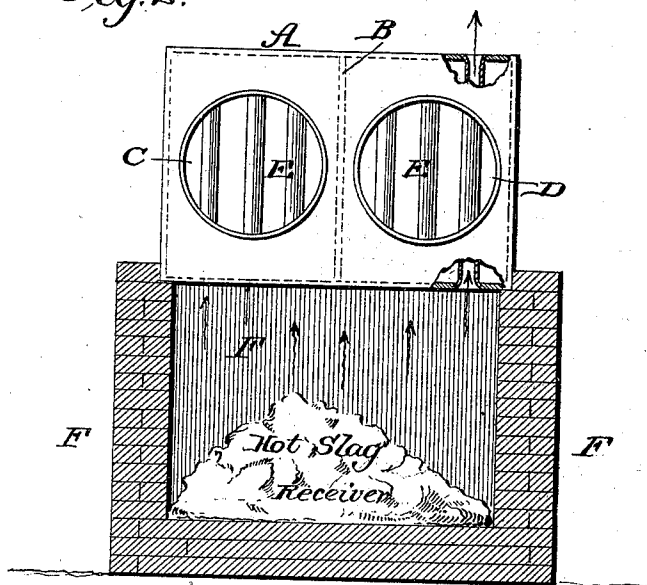


Fig. 2.



WITNESSES:

Jos. A. Ryan
Edw. W. Byrn.

INVENTOR

Sidney E. Bretherton.

BY Munn & Co.

ATTORNEYS.

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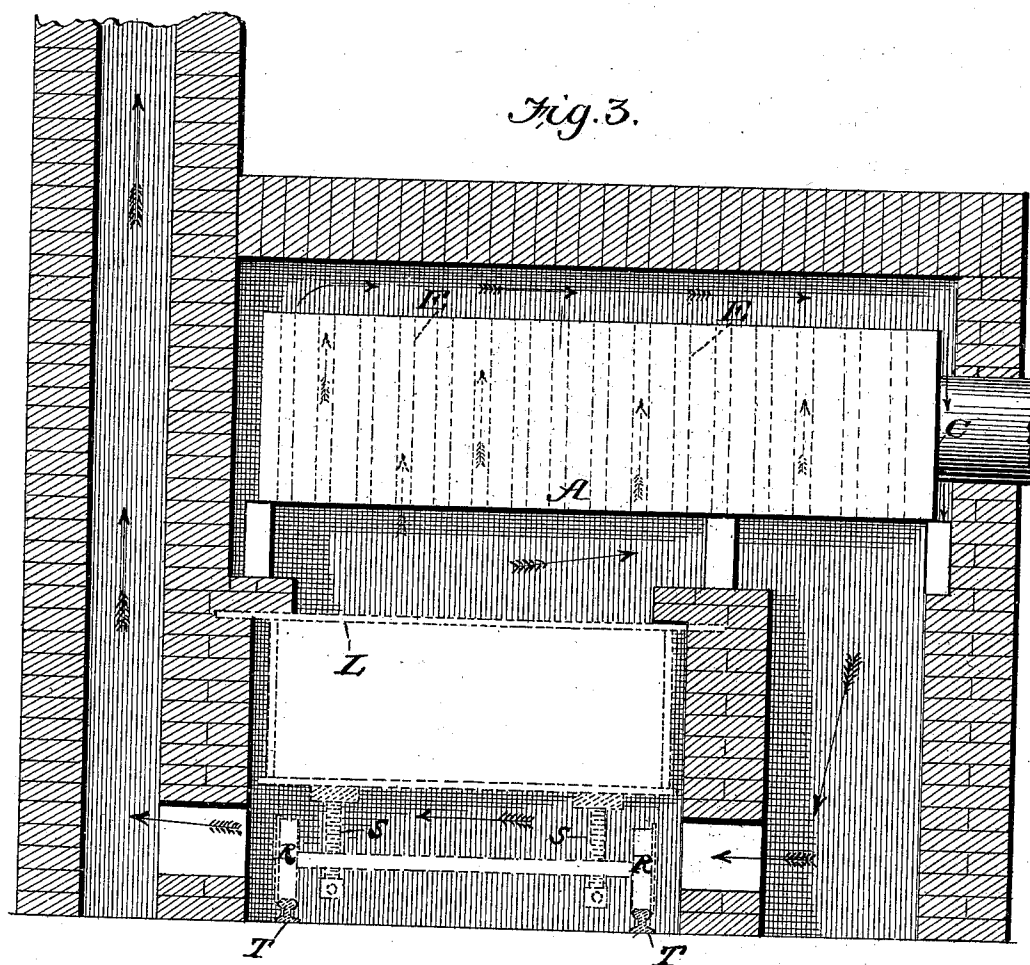
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Jos. A. Ryan
Edw. W. Byrnes

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Sidney E. Bretherton.
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

SIDNEY ELLIOTT BRETHERTON, OF SILVER CITY, TERRITORY OF NEW MEXICO.

HOT-BLAST BOX.

SPECIFICATION forming part of Letters Patent No. 624,748, dated May 9, 1899.

Application filed January 11, 1899. Serial No. 701,861. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY ELLIOTT BRETHERTON, of Silver City, in the county of Grant and Territory of New Mexico, have invented a new and useful Improvement in Hot-Blast Boxes, of which the following is a specification.

My invention is in the nature of a box or casing designed to catch and utilize for the purposes of a hot blast the greatest amount of waste heat from slag or any other product after it leaves the furnace or from a fire should it be desired to obtain a hot-air blast in that way.

It consists in the peculiar construction of said box as adapted for catching the heat when said box is set over a receptacle for receiving the hot slag or other product either with or without being surrounded with walls.

Figure 1 is a perspective view of the box alone, partly broken away, to show its interior construction; and Fig. 2 is a front elevation of the same, showing its position over the inclosing walls that form a receptacle for the hot slag or other material. Fig. 3 is a sectional view showing the box in a furnace-chamber.

A is the box, which is a rectangular casing of sheet-steel having arranged longitudinally in its middle a partition B, of sheet metal, extending from the top to the bottom of the box and running from the front end of the box to a point near the back end, leaving a sufficient space in the rear to make an open communication or passage-way from the space on one side of the partition to the space on the other side of the same.

The two compartments of the box have at their front ends openings C D for connection with pipes, the opening C being the inlet for fresh cold air and D being the outlet for the heated air forming the hot blast.

Through the box A, running from the top to the bottom, are numerous tubes E, constructed and arranged like the flues of a boiler and opening through the top and bottom of the box and firmly fixed therein by expanded ends or otherwise. These tubes strengthen and brace the box, but are chiefly designed to form vertical draft-passages for the hot currents of air and gases arising from the subjacent hot slag.

Now when the box is in position above the

hot slag the hot currents of air and gases arising from the same rise and pass through the tubes E, and the cold air entering the box at the inlet C circulates around the tubes E to the rear end of the box and passing around the rear end of the partition B moves toward the front and out through the discharge-opening D to the point of utilization of the hot blast, and as it passes through the box it will be seen that it absorbs the heat escaping upwardly from the slag through the tubes E, and thus utilizes this otherwise-wasted heat.

The box may be placed above any receptacle for hot slag, as at F in Fig. 2, or it may be located in the top of a furnace-chamber, as in Fig. 3, in which case it is above the settler-box. (Shown in dotted lines.) This box (shown in dotted lines in the lower part of the furnace) is mounted on wheels R, running on tracks T, so as to be run in and out of the furnace, and it is provided with lifting-screws S for adjusting the box to the lintel-plate L. These features, however, form no part of my invention, being already old and need not be further described, except to say that this box (shown in dotted lines) is a cast-iron box which receives the hot mass of material from which the heat is taken and utilized in my hot-blast box A, shown above the same. This latter box A has a broad flat casing arranged horizontally, with a vertical partition in it, and it forms a sort of intercepting top to the subjacent chamber, and its tubes E are vertical and so disposed through the thickness of the box as to be heated by the hot currents arising from the subjacent hot mass.

I do not claim, broadly, a heating-drum in which hot currents passing through one set of passage-ways impart their heat to alternating or intervening passage-ways; but my hot-blast box is designed for a special use, and to that end it is longer than it is broad and broader than it is thick, and the tubes E pass vertically through the thickness of the box.

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

1. A hot-blast box consisting of a horizontal metal casing, having a vertical longitudinal partition in the same extending from one end of the box to a point near the other end, and

- provided with an inlet and outlet opening located in the casing on opposite sides of said partition at its end which is joined to the casing, and a series of vertical tubes extending
5 from top to bottom of the box and opening into the space above and below the box to form passage-ways and radiating tubes for hot ascending currents substantially as and for the purpose described.
- 10 2. The combination of inclosing walls and a horizontally-disposed hot-blast box mounted at the upper part of said inclosing walls, said box having a vertical longitudinal partition
extending from one end of the box to a point near the other end with inlet and outlet open- 15
ings for the compartments on each side of the same, and a series of vertical tubes extending through said compartments and secured to and opening through the top and bottom walls of the said box, substantially as 20
and for the purpose described.

SIDNEY ELLIOTT BRETHERTON.

Witnesses:

H. G. BRETHERTON,
J. A. RULE.