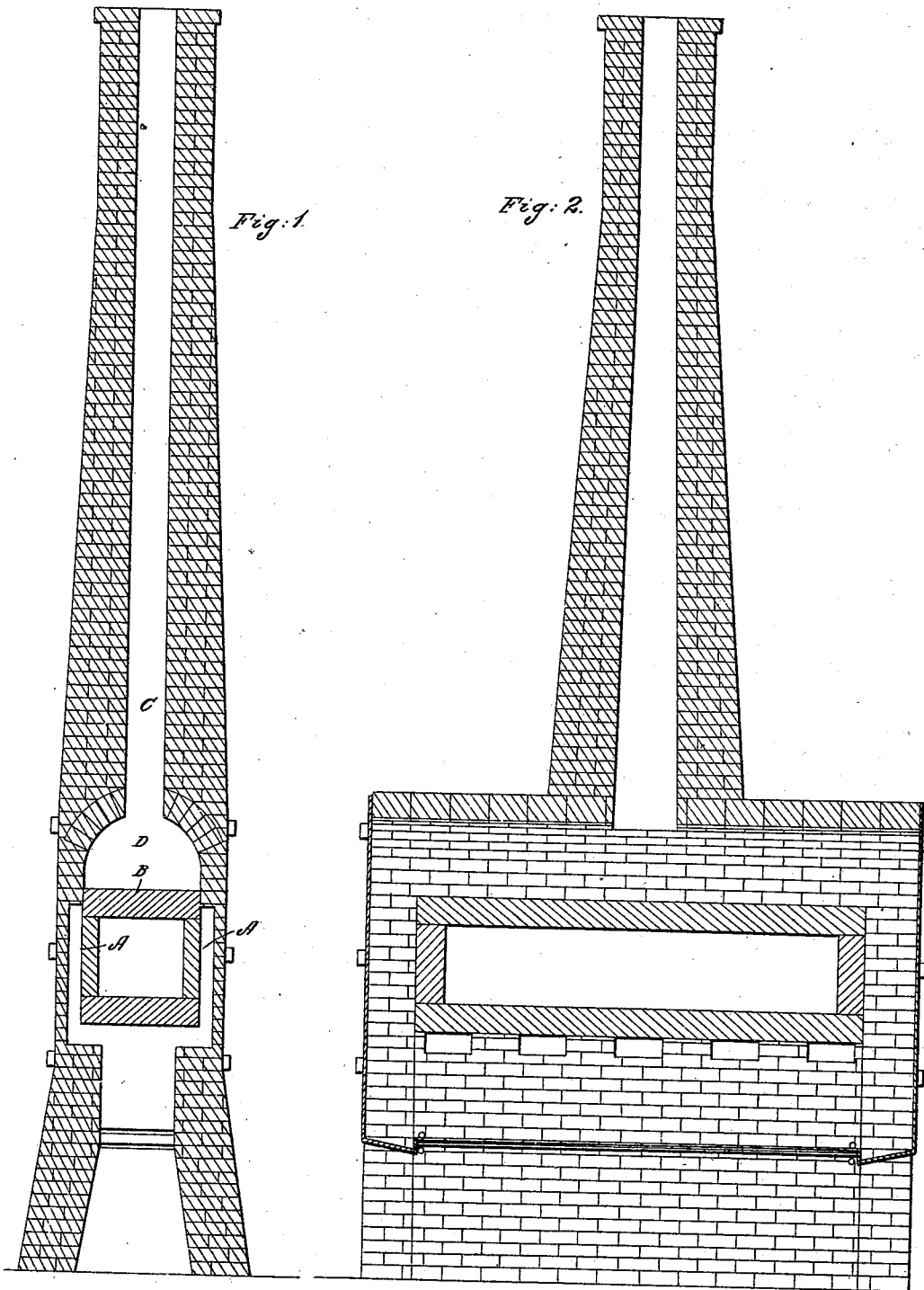


S. BROADMEADOW.
Cementation Furnace.

No. 5,326.

Patented Oct. 9, 1847.



UNITED STATES PATENT OFFICE.

SIMEON BROADMEADOW, OF NEW YORK, N. Y.

FURNACE FOR THE MANUFACTURE OF STEEL.

Specification of Letters Patent No. 5,326, dated October 9, 1847.

To all whom it may concern:

Be it known that I, SIMEON BROADMEADOW, of the city, county, and State of New York, have made a new and useful
5 Improvement in the Construction of Furnaces for Converting Iron into Steel by Cementation.

In the ordinary mode of constructing the converting furnace, the flues from the grate
10 pass upward on each side of the coffer or oven, and deliver themselves into an arch over the top of the oven, which arch has numerous flues opening into the dome, allowing a vast quantity of heat to escape, the
15 flame being from four to six feet above the top of the arch, inside the dome, and leaving the ends of the bars unconverted by the process, no damper being used in the process.

My improvement in the structure consists
20 in closing up the side flues, at the top of the coffer, and not allowing the flame to pass through them into the arch, but conducting it up each end of the coffer, (through temporary flues, made when building up the
25 ends after charging the oven) into and along the arch to the center, over which is the stack, having a damper at the top—thus allowing the flame a greater opportunity of
30 expending itself, and diffusing the heat more generally than by the old plan. When the fuel used in firing has partially spent itself, I nearly close the damper, by which means

the heat is forced into the side or dead flues, and enables me to obtain a greater amount of heat from the same fuel, which
35 would otherwise escape through the chimney.

In the accompanying drawing, Figure 1 is a front view of the converting furnace, the temporary brickwork used to inclose the
40 coffer and end flues, and likewise those that inclose the dead flues A A, the arch, D, and the stack, C, being removed, B being the covering of the iron to be converted, consisting of a layer of fire-clay, and a layer of
45 sand, removed and replenished at every charge of the convertory.

Fig. 2 is an elongated view of the coffer or oven, with the dead or stopped flues on
50 one side.

Having thus fully described the nature of my improvements in the construction of the
furnace for converting iron into steel by cementation—what I claim therein as new,
and desire to secure by Letters Patent, is—
55

The closing of the side flues at the top, and passing the smoke and flame through flues at each end of the oven, into and along the arch to the center, and thus into the chimney.

SIMEON BROADMEADOW.

Witnesses:

JOSEPH WOOD,

WM. VAN WYELE.