

(No Model.)

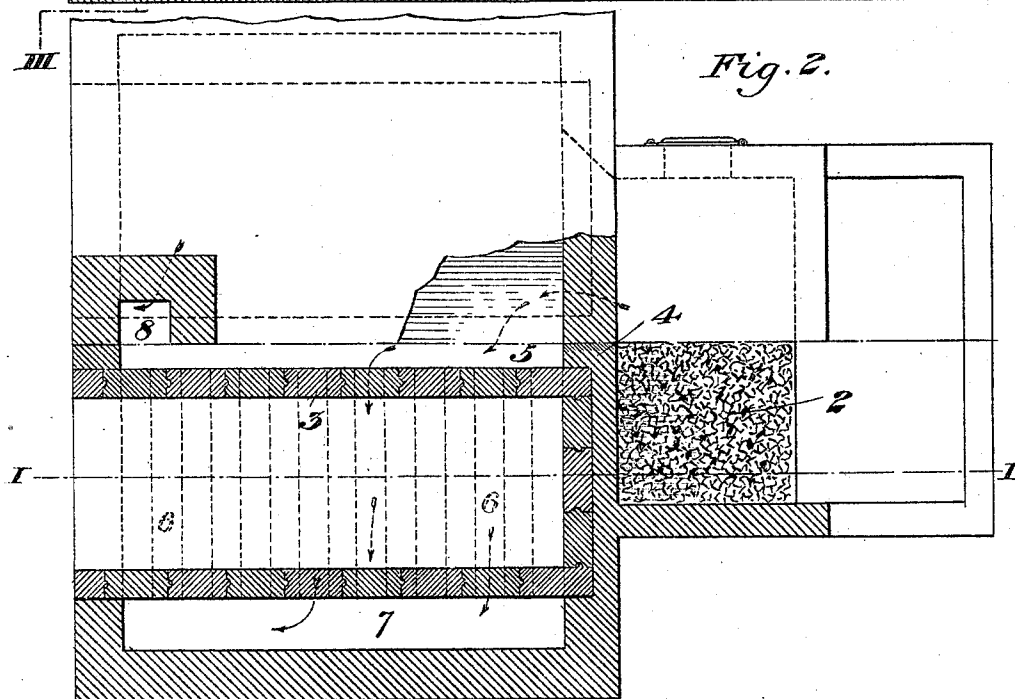
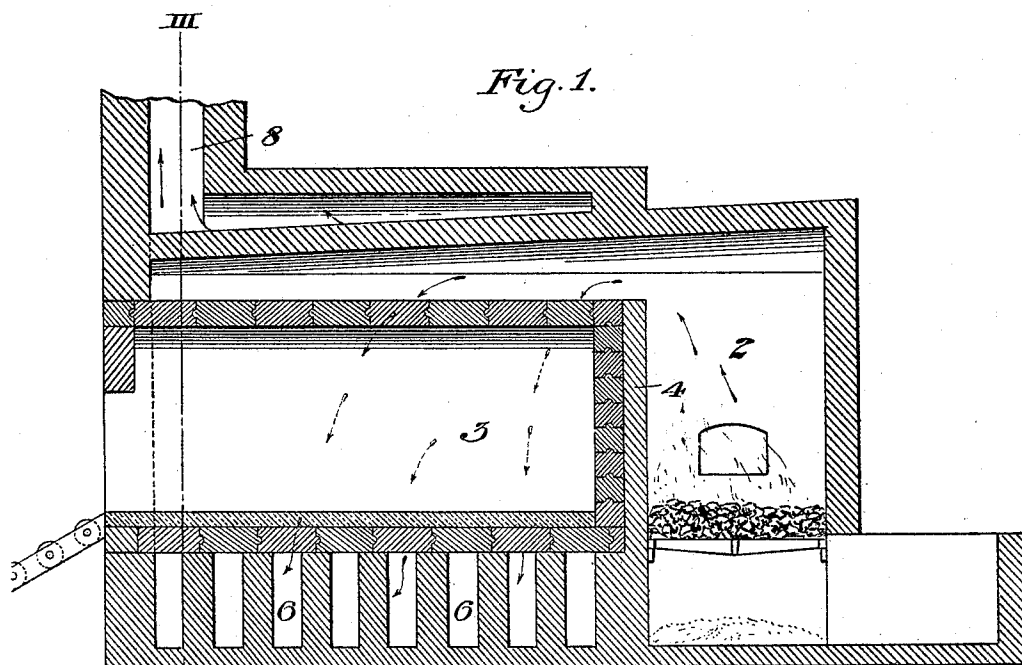
2 Sheets—Sheet 1.

S. BURTON.

APPARATUS FOR MANUFACTURING SHEET IRON.

No. 585,334.

Patented June 29, 1897.



WITNESSES

L. C. Fidler.
J. A. Comer.

INVENTOR

Samuel Burton
by James K. Bakerwell
his Attorney

(No Model.)

2 Sheets—Sheet 2.

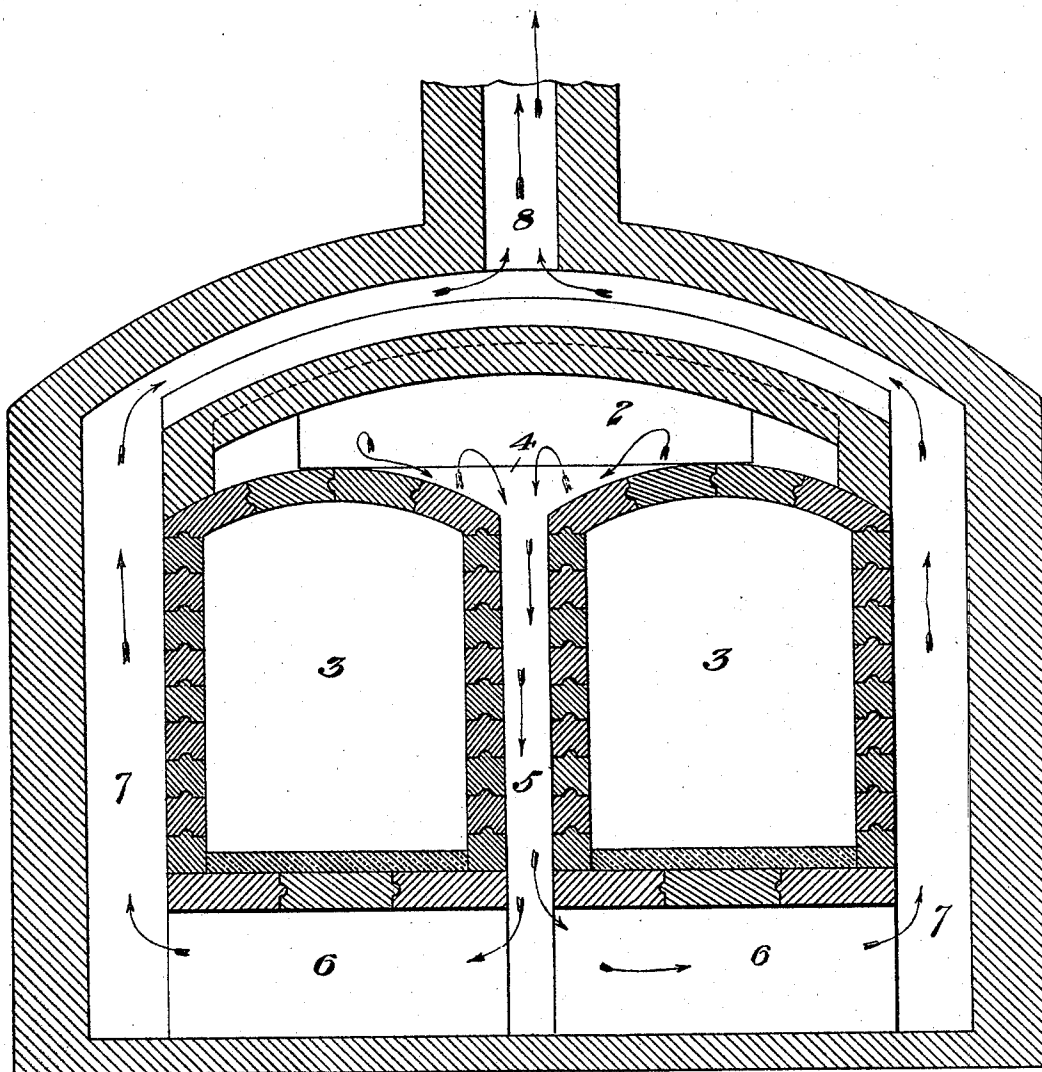
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Fig. 3.



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UNITED STATES PATENT OFFICE.

SAMUEL BURTON, OF MARTIN'S FERRY, OHIO, ASSIGNOR TO HIMSELF, AND
THOMAS DELANEY, OF PITTSBURG, PENNSYLVANIA, AND HENRY KOHN-
LEIN AND JAMES BOSTON, OF BRIDGEPORT, OHIO.

APPARATUS FOR MANUFACTURING SHEET-IRON.

SPECIFICATION forming part of Letters Patent No. 585,334, dated June 29, 1897.

Application filed February 27, 1896. Serial No. 581,019. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL BURTON, of Martin's Ferry, in the county of Belmont and State of Ohio, have invented a new and useful Improvement in Apparatus for the Manufacture of Sheet-Iron, of which the following is a full, clear, and exact description.

My invention relates to an apparatus for use in the manufacture of sheet-iron and plates of iron and steel; and it consists in the matters hereinafter described, and referred to in the appended claim.

I will now describe my invention, so that others skilled in the art may employ the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical sectional view of my improved furnace on the line I I of Fig. 2. Fig. 2 is a plan view, partially in section; and Fig. 3 is a vertical cross-sectional view on the line III III of Fig. 1.

Like numerals of reference indicate like parts wherever they occur.

In the drawings, 2 represents the combustion-chamber of my improved heating and annealing furnaces, in rear of which combustion-chamber are the closed annealing-chambers 3 3, which are formed of fire-brick having tongue-and-groove joints, so as to be impervious to the flames and products of combustion. In rear of the bridge-wall 4 is a central downtake-flue 5, that opens into horizontal flues 6, beneath the chambers 3, which flues 6 open into the uptake vertical flues 7 at the sides of the chambers 3, which flues communicate with the stack 8. At the rear of the furnace the chambers 3 are provided with doors through which the sheets are placed in and removed from the furnace. Owing to this arrangement the chambers 3 are readily maintained at a temperature sufficient to reheat the sheets of metal preparatory to their passage through the finishing-rolls without the sheets being brought in contact with the flames or products of combustion.

In the manufacture of sheet-iron the sheets are formed by rolling in the usual manner until the reheating, whereby the metal is softened prior to the final pass through the finishing-rolls. At this step instead of piling the sheets in the ordinary reheating-furnace, where they are in indirect contact with the products of combustion, I pile them in the closed muffles, (shown in the drawings and hereinbefore described,) where they are heated while protected from the flames, products of combustion, and currents of air. One of these chambers is first filled and closed, and then the second chamber, so that by the time the second chamber is filled the sheets in the first chamber may be brought to the proper heat for passage through the finishing-rolls. When the sheets are brought to the proper heat, the chamber 3 is opened, and the sheets are passed to the finishing-rolls, and after being passed through these rolls the sheets are allowed to cool and need no annealing or pickling, as the hardening of the iron and the formation of scale is prevented by reheating the sheets in the muffles 3.

The advantages of my invention will be apparent to those skilled in the art. Not only are the steps of annealing and pickling as ordinarily practiced done away with, thereby obviating the use of expensive material and appliances, but a far superior grade of metal can be manufactured.

It will be found that ordinarily the final annealing may be dispensed with, yet with certain grades of iron a final annealing may be advisable. In such case the sheets may be annealed in annealing-furnaces built on the plan of the furnaces shown in the drawings or in the ordinary annealing-box.

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

The herein-described reheating or annealing furnace consisting in the parallel closed chambers, having doors at one end and a bridge-wall at their other end, the fire-box and combustion-chamber at said bridge-wall, a horizontal flue extending from the upper

edge of the bridge-wall over the tops of both
chambers and closed at its side, and rear end,
a central vertical flue spacing said chambers
apart and communicating with the horizontal
5 top flue, transverse flues leading from the
lower end of said central vertical flue to the
lower ends of vertical flues at the opposite
sides of said chambers and a stack with which

said side flues communicate at their upper
ends; substantially as described. 10

In testimony whereof I have hereunto set
my hand.

SAMUEL BURTON.

Witnesses:

JAMES K. BAKEWELL,
F. E. HARPELL.