

J. WESTERMAN.
Puddling Furnace.

No. 103,401.

Patented May 24, 1870.

Fig. 1.

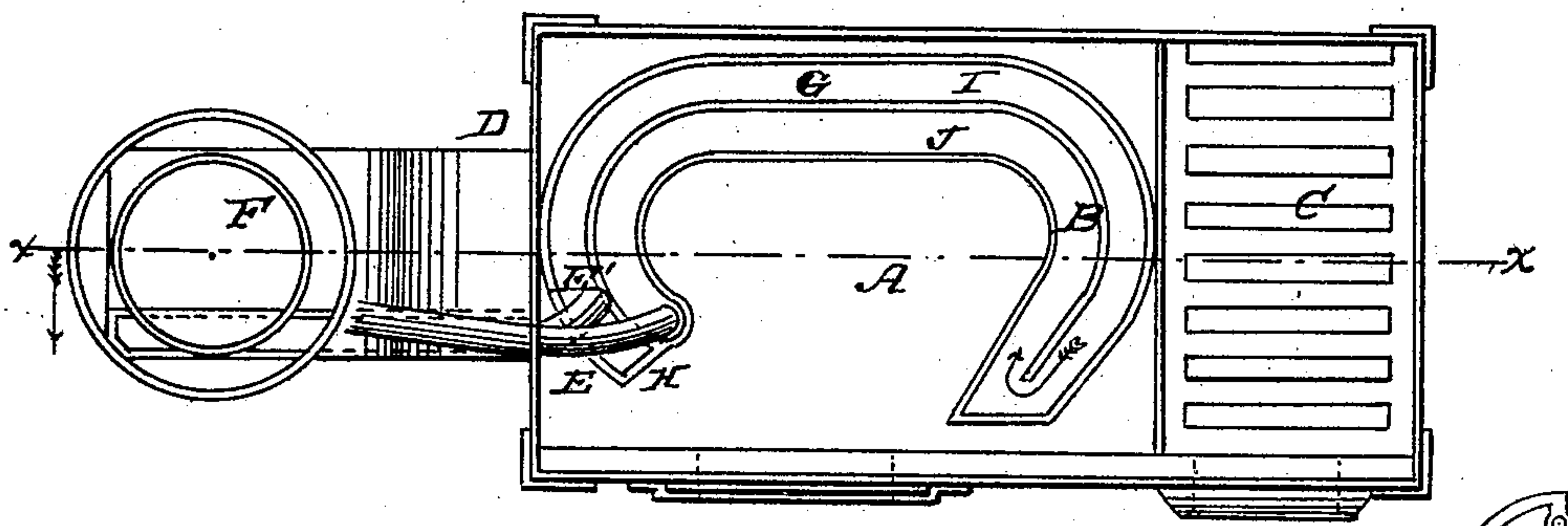
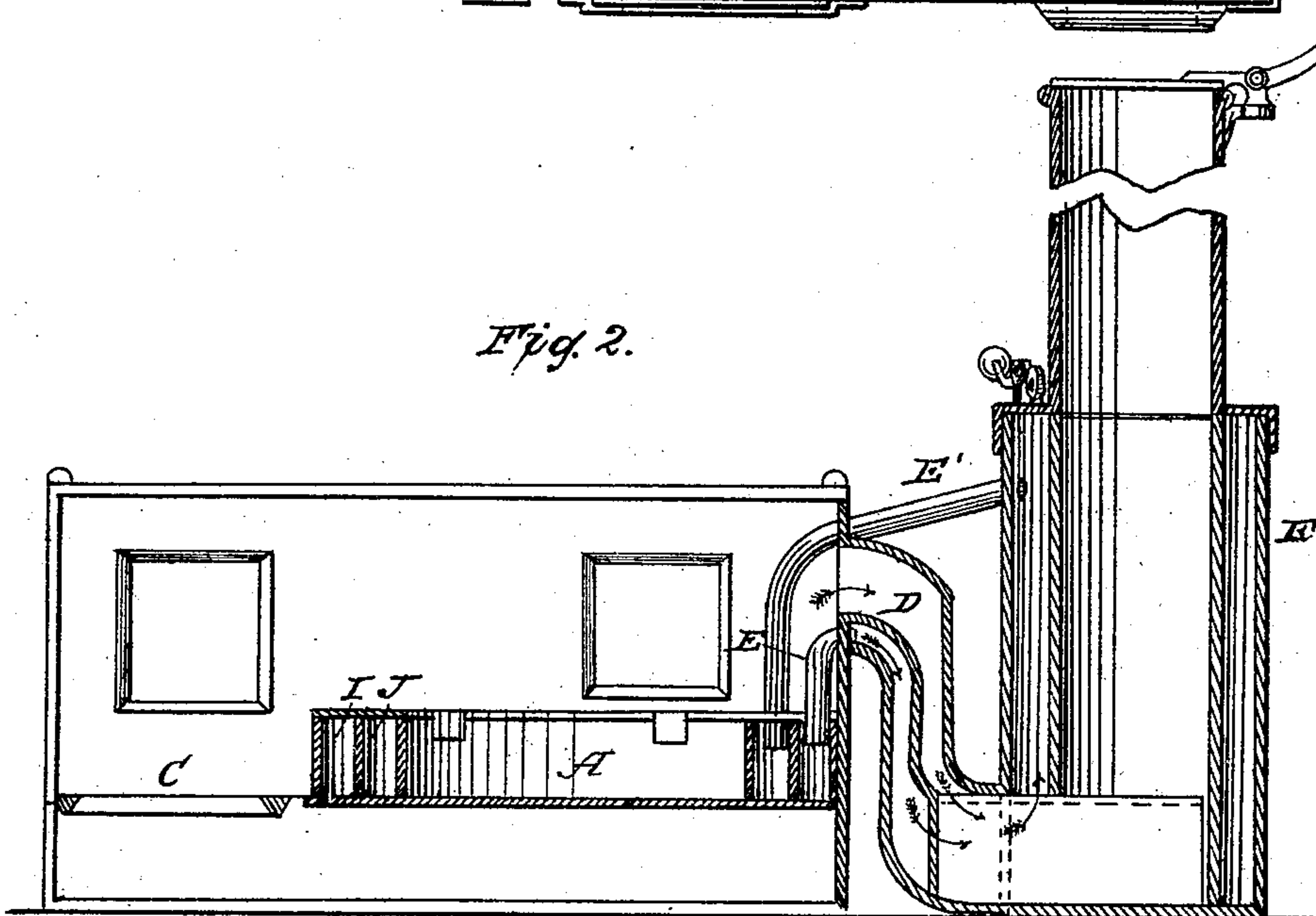


Fig. 2.



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JAMES WESTERMAN, OF SHARON, PENNSYLVANIA.

Letters Patent No. 103,401, dated May 24, 1870.

IMPROVEMENT IN FURNACES FOR BOILING AND PUDDLING IRON.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, JAMES WESTERMAN, of Sharon, in the county of Mercer and State of Pennsylvania, have invented a new and useful Improvement in Furnace for Boiling or Puddling Iron; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to a new and useful improvement in furnaces for boiling or puddling in and manufacture of wrought iron, whereby the bosh is more perfectly protected from injury by heat than in ordinary boiling furnaces, and whereby the waste heat is utilized; and

It consists in a partition in the water-bosh or chill around the hearth of the furnace, by means of which a return circulation of water is produced in the bosh; and

It also consists in a neck or flue in combination with the furnace, by means of which the surplus heat is utilized, as will be hereinafter more fully described.

In the accompanying drawing—

Figure 1 represents a top or plan view of the furnace with the cover removed, showing the bosh and the outlet-flue or neck, and its connection with a steam-boiler.

Figure 2 is a sectional elevation of the same, the section being through the line *x x* of fig. 1.

Similar letters of reference indicate corresponding parts.

A represents the hearth of the furnace.

B is the bosh, by which the hearth is nearly surrounded in the usual manner.

C represents the fire-grate.

D is the neck or discharge-flue of the furnace.

E E' are water-pipes by which the water-bosh is connected with the water-space of the steam-boiler, F.

The heat from the furnace is discharged through

the neck D into the fire-box of the boiler, as seen in the drawing.

G is a partition in the water-bosh B. This partition connects with the bosh at one end, as seen at H, dividing the bosh into two parts or forming two separate channels, I and J, through which the water circulates, the currents moving in opposite directions.

The water passes from the boiler into the channel I, through the pipe E', and moves around the end of the partition and into the channel J, as indicated by the arrow, and back into the boiler through the pipe E. Thus a constant circulation through the bosh will be maintained.

The boiler F may be simply a reservoir of water. In passing through the bosh more or less of it will be converted into steam and be discharged through the upper pipe while the circulation will be forced by the specific gravity of the water.

By means of the neck or discharge-flue D of the furnace all the surplus heat may be utilized for generating steam or other purposes.

In the use of my improvement I do not confine myself to either a boiling or a puddling furnace, although the furnaces are similar and may be identical in their form and general construction. I consider the improvement in the bosh of much more importance in the former, as a much higher temperature is produced in boiling than in simply puddling iron.

Having thus described my invention,

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

The partition G in the water-bosh of an iron-boiling or puddling furnace, substantially as and for the purposes herein shown and described.

2. In combination with the water-bosh B and the boiler F, the neck or flue D, substantially as and for the purposes described.

JAMES WESTERMAN.

Witnesses:

F. H. BUHL,
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