

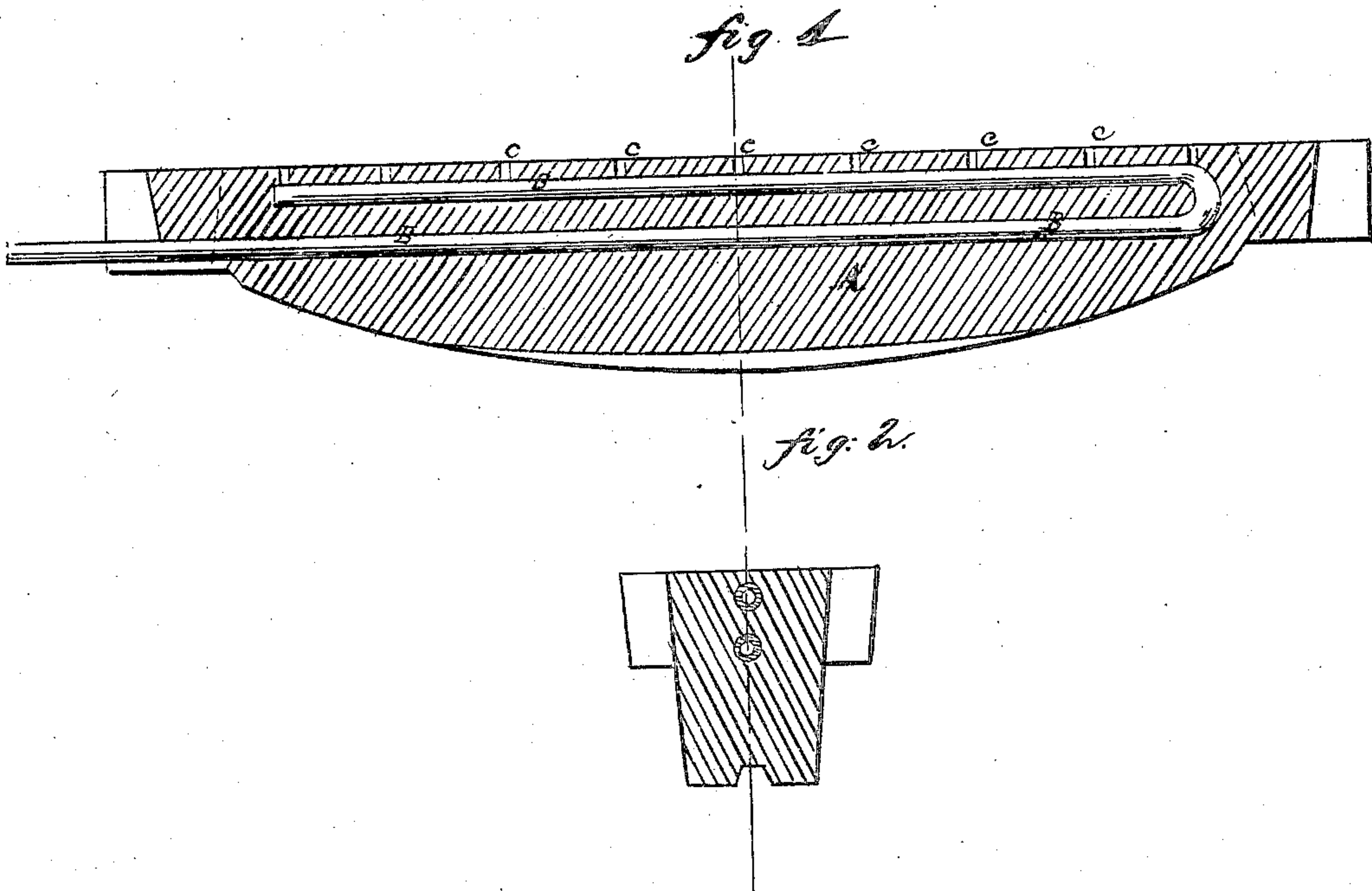
PATENTED

JAN 21 1868

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Henry Speeler's

Improvement in Fire Grates



Witnesses

W. B. Stockbridge

[Signature]

Inventor

Henry Speeler

per
Alexander D. Massey
[Signature]

United States Patent Office.

HENRY SPEELER, OF TRENTON, NEW JERSEY.

Letters Patent No. 73,662, dated January 21, 1868; antedated December 21, 1867.

IMPROVEMENT IN FIRE-GRATES.

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, HENRY SPEELER, of Trenton, in the county of Mercer, and in the State of New Jersey, have invented certain new and useful Improvements in Fire-Grates; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and the letters of reference marked thereon.

In the annexed drawings, making part of this specification, A represents one of a series of grate-bars of any furnace or fire-grate. This grate may be cast in two parts, and the tube B, made as seen in fig. 1, may be placed between the parts, and the two then connected together, or the bent tube B may be formed first, and the perforated bar A may be cast around it. The pipe B is intended to convey steam into the grate-bar, and emit it into the fire, through perforations *c c*, in the upper edge of the bar. The pipe passes into the bar at one end, and then along through it to near the other end of the bar, where it is curved and passed back to nearly above its place of beginning, which end is closed, running, as it returns, near the upper edge of the bar. Perforations in the upper portion of the pipe allow the steam to escape on to the perforations *c c* of the grate-bar, and thence into the fire. By passing the steam first the length of the bar, before any of it is allowed to escape, it becomes superheated, and is thereby rendered more suitable for promoting combustion. This grate-bar, as represented, is in the form of the usual "double grate-bar," having its upper face smooth, and is closed at the lower edge. It may be used in any furnace or fire, and while creating more draught in the fire, will consume the carbon and hydrogen, and obviates the necessity of clearing away the "clinkers" and other substances that accumulate in the furnace and fire. The steam passing from the boiler into the outer end of the pipe B, and thence around the pipe through the grate-bar, becomes superheated and ascends into the incandescent fuel through the perforations *c c*, thereby consuming the carbon and hydrogen, as before cited.

It will be understood that these bars are interspersed in the furnace between the ordinary grate-bars, the number of them required being regulated by the draught in the furnace in which they are used. The perforations *c c*, at the rear end, are a little larger than those at the front, to correspond with the point where the bulk of the fire rests on the bars. A stop-cock may be placed at the outer end of pipe B for regulating the flow of steam into the fire.

By this device and means more heat is created in the furnace, and less fuel is required for use than in the manner now commonly known.

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

The within-described grate-bar A, provided with the tube B, bent as described, the upper portion of said bar and tube being perforated as specified, and used substantially as and for the purposes set forth.

In testimony that I claim the foregoing, I have hereunto set my hand, this 12th day of December, 1867.

HENRY SPEELER.

Witnesses:

C. M. ALEXANDER,
J. M. MASON.