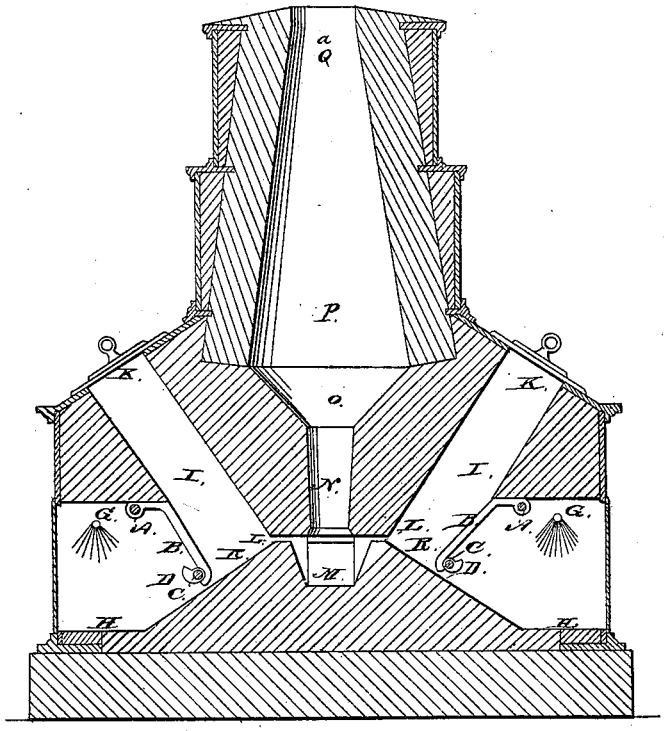
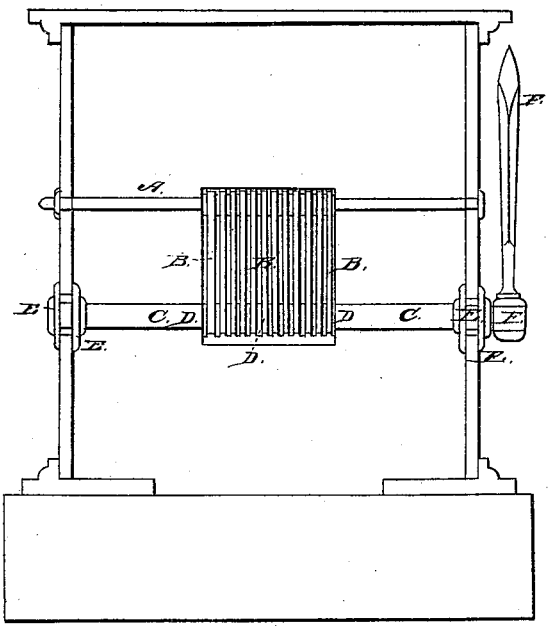
T. Pearson.

Blast Furnace.

No. 270. Patented Jul. 17, 1837.





Witnesses.

A. Whitney

William P. Boyden

Inventor.

Thomas Pearson,

UNITED STATES PATENT OFFICE.

THOMAS PEARSON, OF SOUTHFIELD FURNACE, NEW YORK.

IMPROVEMENT IN THE MODE OF BURNING FUEL BY MEANS OF A SUSPENSION-GRATE.

Specification forming part of Letters Patent No. **270**, dated July 17, 1837.

To all whom it may concern:

Be it known that I, THOMAS PEARSON, of Southfield Furnace, in the county of Orange and State of New York, have invented a new and useful Improvement in the Method of Burning Fuel in what I denominate a "Suspended Grate" with a rotary bearer having arms or wipers upon it for the purpose of clearing the said grate; and I do hereby declare that the following is a full and exact description thereof—that is to say:

I suspend each grate-bar by one end upon a pivot or general suspension-bar, and upon which every bar in the grate is also suspended. The grate-bars are inclined, so that the fuel will easily slide or pass down them as the fire consumes away, as also will any scoria or cinder that may form during the combustion of the fuel. At the bottom of the grate is an inclined stone dipping toward and passing under the bottom ends of the grate-bars, down which any slag or scoria will flow into the ash-pit. Near the lower ends of the grate-bars is a circular bearer, which is turned into grooves for the grate-bars to rest upon, and by which they are kept at proper distances from each other. Upon this said circular bearer are as many wrought-iron wipers placed firmly (or, if cast-iron, may be cast upon the bearer as part of it) as there are spaces between the grate-bars, and which arms or wipers, by turning the bearer round, clear out any slag that may have accumulated at the bottom of the grate-bars. Instead of the inclined stone at the bottom, an inclined grate may be used, passing under the bottom of the suspended grate as the inclined stone does.

A reference to the accompanying drawing will better explain the form of the grate and its peculiar use than any description can convey. In this drawing the grate is represented as applied to a blast-furnace for heating the air as it is blown into the furnace, that represented in the drawing being one of a peculiar construction devised by me for smelting by means of anthracite; but the application of my grate is not dependent upon any particular form of furnace.

A is the suspension-bar, on which all the grate-bars hang. B B, &c., are the grate-bars. C is the circular bearer for the bottom ends of the grate-bars to rest upon. D D are the wipers upon the said bearer, by which the slag is cleared from the bottom ends of the bars. E E are the sliding chairs or brasses, in which the journals of the circular bearer work, and which move in grooves that are part of a circle of which the suspension-bar A is the center or pivot, and allow the grate to be moved so as to admit of more or less thickness of fuel.

The grate may be cast all in one piece, or each bar separately.

The circular bearer and wipers may be all one casting; or the wipers may be put onto the bearer separately, and may be of either wrought or cast iron, care being taken to attach them firmly to the circular bearer. At the end of the circular bearer, on the outside of the furnace, is a key or lever for moving the same when clearing the bottom ends of the grate-bars.

In applying this grate as described in the drawing, the ash-pit is closed by an iron door, and the blast is thrown into it at G, so as to pass through the grate into the fire.

The drawing is made on a scale of one inch to a foot, and by reference thereto all information as to size, &c., may be obtained.

What I claim as my invention, and not previously known, in the foregoing description, is—

The suspended grate for burning fuel, with the circular bearer and the wipers thereon for clearing the bottom ends of the grate-bars, and also the sliding of the carriages of the said circular bearer in the arc of a circle of which the suspension bar or pivot is the center, so as to allow of more or less thickness of fuel being burned in the fire-place, according to the quality of it and the intensity of the heat wished to be produced, by consuming more or less perfectly the oxygen of the atmosphere as it passes through.

In witness whereof, and that the foregoing is a full and clear description thereof, I have hereunto set my hand this 20th day of January, in the year of our Lord 1837.

THOMAS PEARSON.

Witnesses:

ASA WHITNEY,

WILLIAM P. BOYDEN.