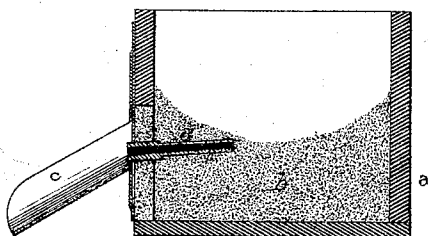


O. BOLTON, Jr.

Cupola and Other Metallurgic Furnaces.

No. 137,125.

Patented March 25, 1873.



WITNESSES.

W. K. Duhamel
Alex. S. Davidson

INVENTOR.

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UNITED STATES PATENT OFFICE.

OGDEN BOLTON, JR., OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN CUPOLA AND OTHER METALLURGIC FURNACES.

Specification forming part of Letters Patent No. **137,125**, dated March 25, 1873.

To all whom it may concern:

Be it known that I, OGDEN BOLTON, JR., of Pittsburg, county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Tapping Furnaces, of which the following is a specification:

The nature of my invention relates to the construction of tapping-holes for furnaces, in which iron and steel are reduced or melted; and consists in the use of a tapering pipe, so as to regulate the flow of molten metal, as will be more fully set forth hereafter.

The accompanying drawing represents a sectional view of my invention.

a represents the furnace, the bottom of which is covered with the sand *b* to any suitable depth, and upon which the molten metal rests. To the side of the furnace is attached the spout *c*, down to the bottom of which the sand is made to slope from the rear part of the furnace, and upon it is laid the tapering pipe *d*, through which the metal is to flow.

After all the cracks and openings made by the connection of the pipe to the furnace have been stopped up, sand is poured over the front of the furnace so as to completely close the

end of the pipe, and until the breast is sufficiently thick at this point.

When the metal is tapped it flows out in an even stream. By the use of a pipe in this manner the breast can be knocked out every day and a new one put in, and thus prevent the hardening and baking of the sand.

The pipe may be of any desired shape, size, or construction that may be preferred, and may be made with a closed end, or have its end closed with clay, so as to prevent the sand from running out and forming a hollow breast.

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

The tapping-pipe *d*, in combination with the breast *b* of the furnace, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have hereunto affixed my signature this 11th day of February, 1873.

OGDEN BOLTON, JR.

Witnesses:

JOHN S. HOLLINGSHEAD,
JOHN TEDDER.