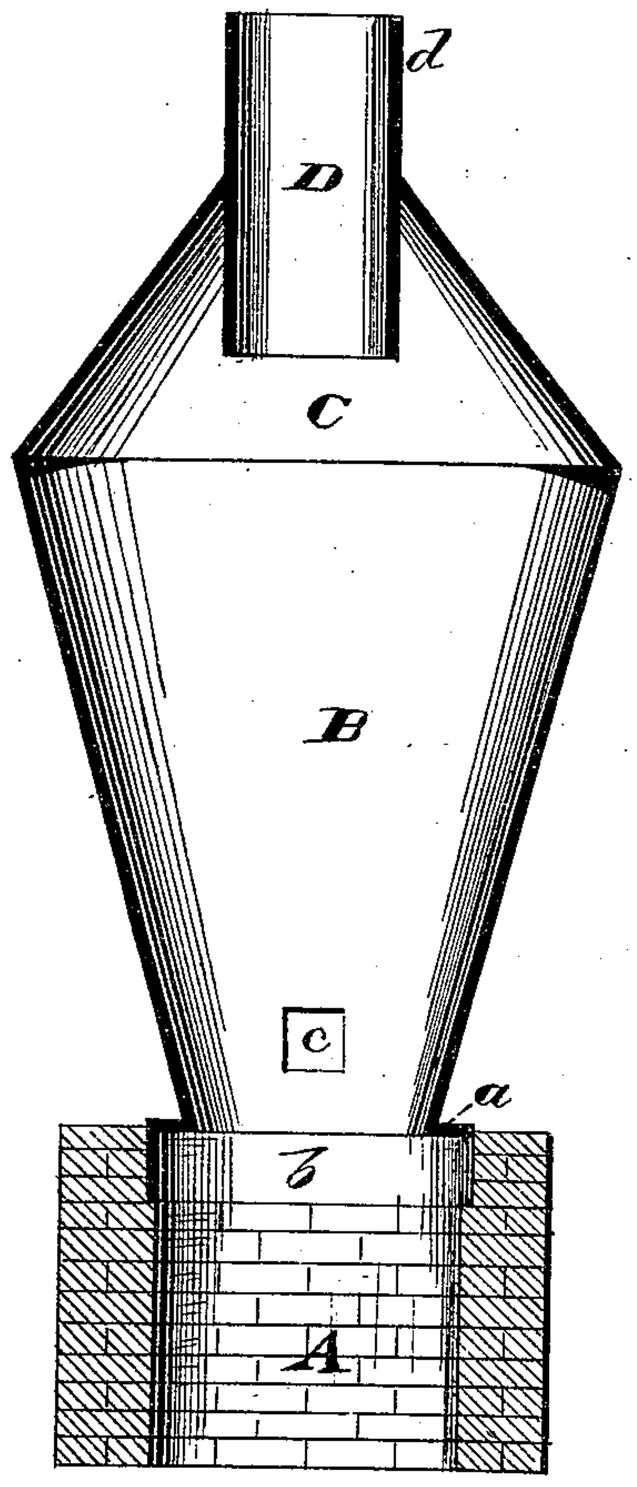
T. J. TAYLOR.

DUST-TRAPS FOR FURNACES.

No. 193,787. Patented July 31, 1877.



WITNESSES

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THOMAS JEFFERSON TAYLOR, OF EUREKA, NEVADA.

IMPROVEMENT IN DUST-TRAPS FOR FURNACES.

Specification forming part of Letters Patent No. 193,787, dated July 31, 1877; application filed May 18, 1877.

To all whom it may concern:

Be it known that I, THOMAS J. TAYLOR, of Eureka, in the county of Eureka and State of Nevada, have invented certain new and useful Improvements in Dust-Traps for Smelting-Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawing, which forms part of this specification.

My invention relates to certain improvements in dust-traps for smelting-furnaces, and is designed to afford a simple construction, whereby the smoke will be forced in a direct line from the smoke-stack through the dust-arresting chamber, and finally out by the exit-flue, while all products of combustion heavier than the smoke will be thrown to one side, so as to be caught by the eddies, current along the wall of the chamber, and thereby be returned into the furnace for further consumption. This dust-chamber is made with its upper horizontal section, whose annular side inclines inwardly, and constitutes the deflecting wall, much shorter, or of less height than the lower horizontal section, in order that in starting and stopping the blast a reaction of the gases within this arresting-chamber may be prevented.

The exit-pipe which extends down some distance centrally into the upper sectional portion of the chamber is made very short in its vertical projection from out the latter, so that this exit-flue may not cause a draft sufficient to carry up and out from the chamber any dust whatever; but that the latter may be fully arrested, and subjected again to the action of the furnace.

The base of the chamber is made so that its connecting opening may be smaller in diameter by some twelve inches, more or less, than the mouth of the smoke-stack emptying into it, in order that dust and light volatile products may be prevented by this shoulder or supporting offset from entering the chamber, and on the contrary be cast down upon the coal in the furnace, and be reduced with the ore.

Referring to the drawing, which shows the device in central vertical section, A represents the wall or mouth of the smoke-stack of a smelting or other analogous furnace, upon which the dust-chamber rests. This latter is formed with the right-angular shoulder *a*, within which seats the extremity of the lower horizontal section B of the said chamber, and projects downward a little to form the annular space *b* between it and the wall of the stack.

The section B is of vertical dimension approximately twice that of the upper horizontal section C, which prevents a reacting tendency of the gases while the blast is being started or stopped, and aids in the general principle of having but a very slight central current, just sufficient to carry off the smoke.

The exit-flue D extends a suitable distance down into this upper section C to act as a guard or deflector in arresting the metallic products of the furnace action, as yet unconsumed, while its upper outward projection *d* is very short, thus obviating a draft by any means severe, and just causing circulation sufficient to pass out the smoke.

As the smelting process is in operation much of the unconsumed metallic and mineral elements are stopped in their ascent within the lower annular arresting-space *b*, and fall back to be properly reduced with the ore, while the peculiar construction of the dust-chamber creates but little tendency to affect the remaining products of the combustion, other than the smoke, and returns whatever of the same there may be carried within it back to the furnace.

A suitable opening, *c*, is formed preferably in the lower wall of the chamber, within which to introduce the ore to be subjected to the smelting treatment.

The above description is given with reference to my former Letters Patent No. 178,254, granted me June 6, 1876, and upon which the present invention is an improvement.

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

A dust-trap for smelting-furnaces, consisting in the upper outwardly-flaring body B,

provided with the contracted top C, and short cylinder D, extending slightly above the top C, and down partly through said top portion C, the lower portion of body B having an enlarged supporting collar or flange, which connects with the body by an annular horizontal flange or ring, *a*, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of May, 1877.

THOMAS JEFFERSON TAYLOR.

Witnesses:

LAMBERT MOLINELLI,

ALEXR. D. ROCK.