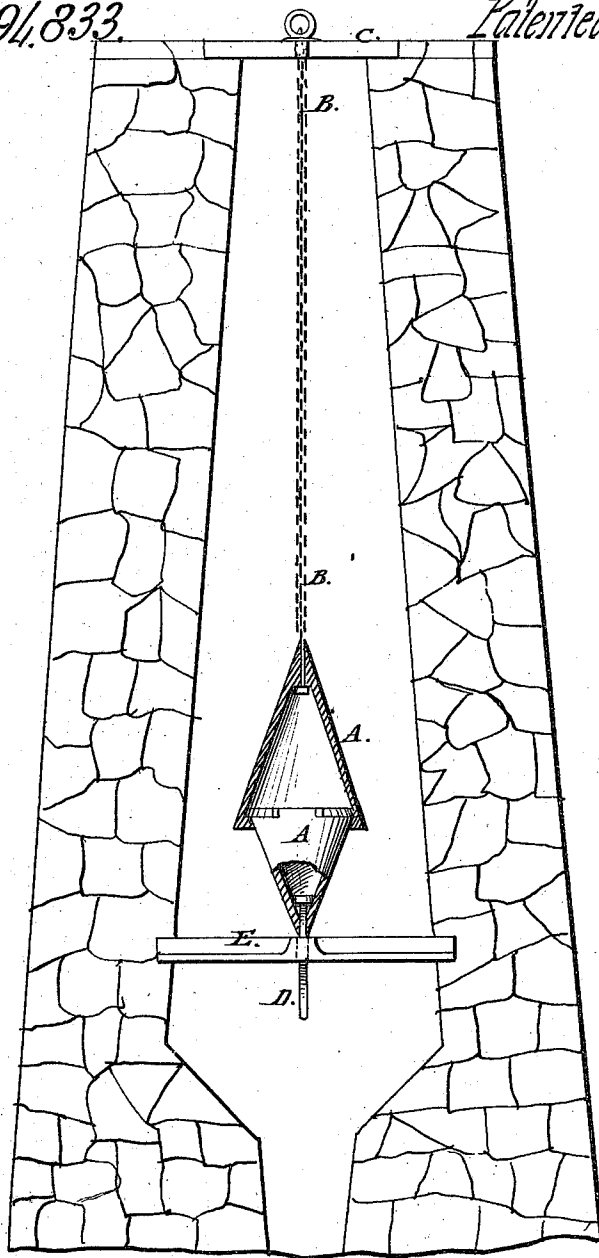


*W. A. Madara,*

*Blast Furnace.*

*No. 94,833.*

*Patented Sept. 14, 1869.*



*Witnesses:*  
*A. W. August*  
*W. T. Clark*

*Inventor:*  
*W. A. Madara*  
*Wm. B. Motomey*

# United States Patent Office.

WILLIAM A. MADARA, OF SPANG'S MILLS, PENNSYLVANIA.

Letters Patent No. 94,833, dated September 14, 1869.

## IMPROVED SMELTING-FURNACE.

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, WILLIAM A. MADARA, of Spang's Mills, in the county of Blair, and State of Pennsylvania, have invented a new and useful Improvement in Furnaces; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The figure represents my improved device, partly in section, suspended in a furnace-stack.

My invention has for its object to furnish an improved device for regulating the stock or fuel, ore, and flux, so that they may pass down properly mixed, preventing the heavier parts from sliding down in the middle, and pushing the fuel or lighter parts to the side, and which will prevent clogging, relieve the hearth from much of the weight, allow the blast to pass through more freely, and keep the furnace working cool in its upper part; and

It consists in the suspended double-cone regulator, in combination with the bars and chain, or bars by which it is suspended and supported in the furnace, as hereinafter more fully described.

A is the double-cone regulator, which is formed of two hollow cones, placed base to base, the lower one of which is made a little smaller than the other, so that its base may enter the base of the other or upper one.

The lower cone is made with segmental flanges upon the outer edge of its base, and the upper cone is made with segmental flanges upon the inner edge of its base, so that the two cones may interlock with each other, as shown in the figure.

To the apex of the upper cone is attached a chain or bar, B, the upper end of which is attached to the upper cross-bar C, which is made of such a length as to cross the furnace head-plates.

From the apex of the lower cone projects a bar, D, which passes through a hole in the middle of the bar E, which crosses the in-wall below the regulator.

The bars D E keep the regulator from being pushed out of place laterally by the stock, as it would be if unsupported against side pressure.

The upper edges of the side parts of the bar E are bevelled off, as shown in the figure, to prevent it from obstructing the descent of the stock.

Having thus described my invention,

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

The double-cone regulator A, constructed as described, in combination with the suspension-chain or bar B, cross-bar C, guide-bar D, and lower cross-bar E, substantially as herein shown and described, and for the purposes set forth.

WM. A. MADARA.

Witnesses:

C. C. PRICE,  
S. HOOVER.