

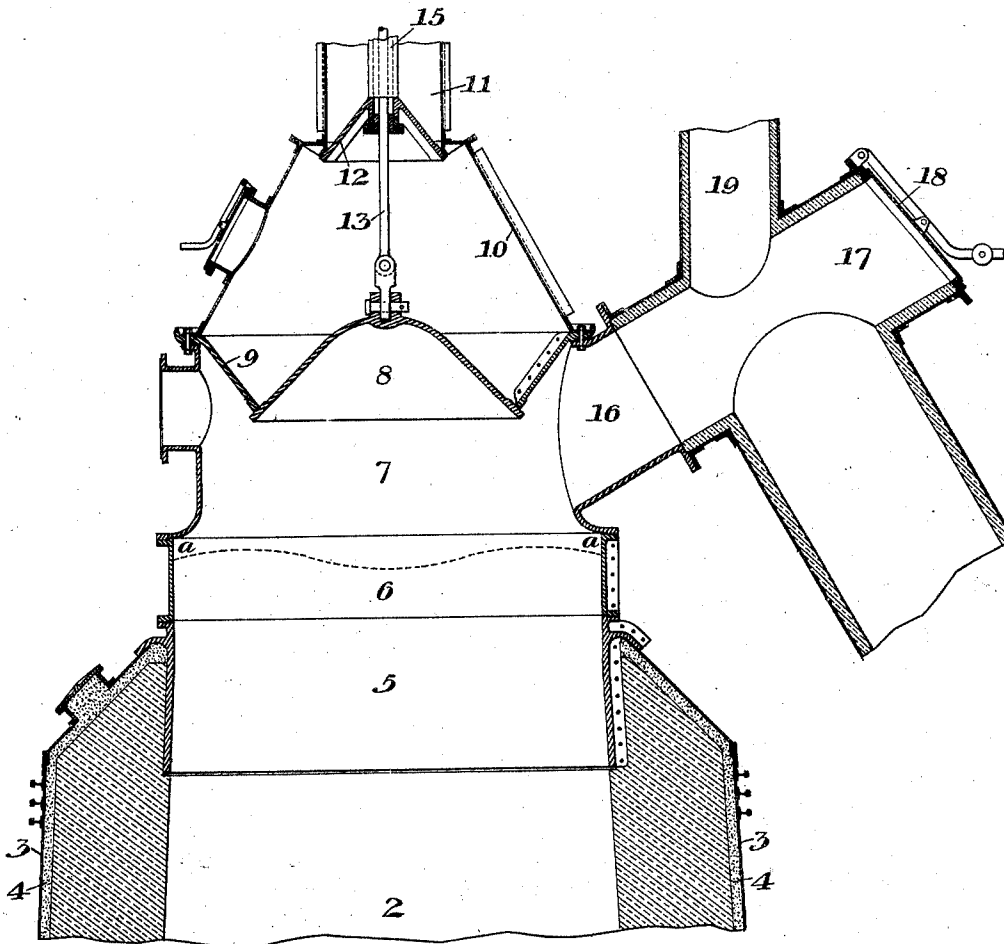
No. 759,991.

PATENTED MAY 17, 1904.

G. K. HAMFELDT.
BLAST FURNACE.

APPLICATION FILED JAN. 7, 1903.

NO MODEL.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE K. HAMFELDT, OF MUNHALL, PENNSYLVANIA.

BLAST-FURNACE.

SPECIFICATION forming part of Letters Patent No. 759,991, dated May 17, 1904.

Application filed January 7, 1903. Serial No. 138,162. (No model.)

To all whom it may concern:

Be it known that I, GEORGE K. HAMFELDT, of Munhall, Allegheny county, Pennsylvania, have invented a new and useful Blast-Furnace, of which the following is full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a central vertical section showing the upper part of a blast-furnace constructed in accordance with my invention.

My invention relates to the construction of blast-furnace tops, and is designed to provide for a better distribution of the stock, especially where a considerable amount of mesaba or other fine ores is used.

The invention consists in providing a metal shell which is supported on the stack and which, at least in part, is of smaller diameter than the internal diameter of the stack, this shell acting as a deflector to properly distribute the stock.

It also consists in such a shell of contracted diameter which is located above the top of the masonry stack and constitutes an extension thereof, as well as in the construction and arrangement of the parts, as hereinafter more fully described and claimed.

In the drawing, 2 represents the usual masonry stack, having an outer metallic shell 3, with a loose filling 4 between them. At the top of the masonry wall I provide a metal shell of cylindrical form, which I have shown as made in three sections 5, 6, and 7, which are bolted together. This shell may be made in one piece or of any desired number of parts, and its upper portion 7 above the stock-line and at the level where the material dropping from the bell strikes it is contracted or of smaller diameter than the lower part of the shell. The object of this is to prevent the finely-divided material from banking around the outer periphery of the charge and against

the masonry wall as the charge descends, since this fine material becomes pasty and adheres to the wall, causing scaffolding and slips. Inasmuch as the material dropping from the bell 8 strikes the contracted portion 7 of the shell, the stock is thereby distributed to largely avoid this evil. I have shown the main hopper 9 as being supported upon the upper end of the contracted portion 7, 10 being the casing leading upwardly and inwardly to the receptacle 11, closed by the smaller upper bell 12. The operating-rod 13 for the lower bell extends through the tubular rod 15 for the upper bell.

16 is the gas-outlet port, which leads from the upper part of the shell and has an extension 17, provided with explosion-door 18.

19 is the bleeder, leading upwardly from the gas-outlet.

The advantages of my invention result from the contracting of the metal shell at the level where the dropping stock strikes it, since thereby a desirable distribution is obtained. The stock-level is preferably maintained at about the level shown by dotted lines *a a*.

Many changes may be made in the form and arrangement of the shell and other parts without departing from my invention.

I claim—

A blast-furnace having an annular metal shell with its lower portion within the upper part of the masonry stack, said shell being extended above said stack and having its upper portion where the dropping charge strikes it of smaller diameter than the internal diameter of the top of the stack proper; substantially as described.

In testimony whereof I have hereunto set my hand.

GEORGE K. HAMFELDT.

Witnesses:

GEO. B. BLEMING,
H. M. CORWIN.