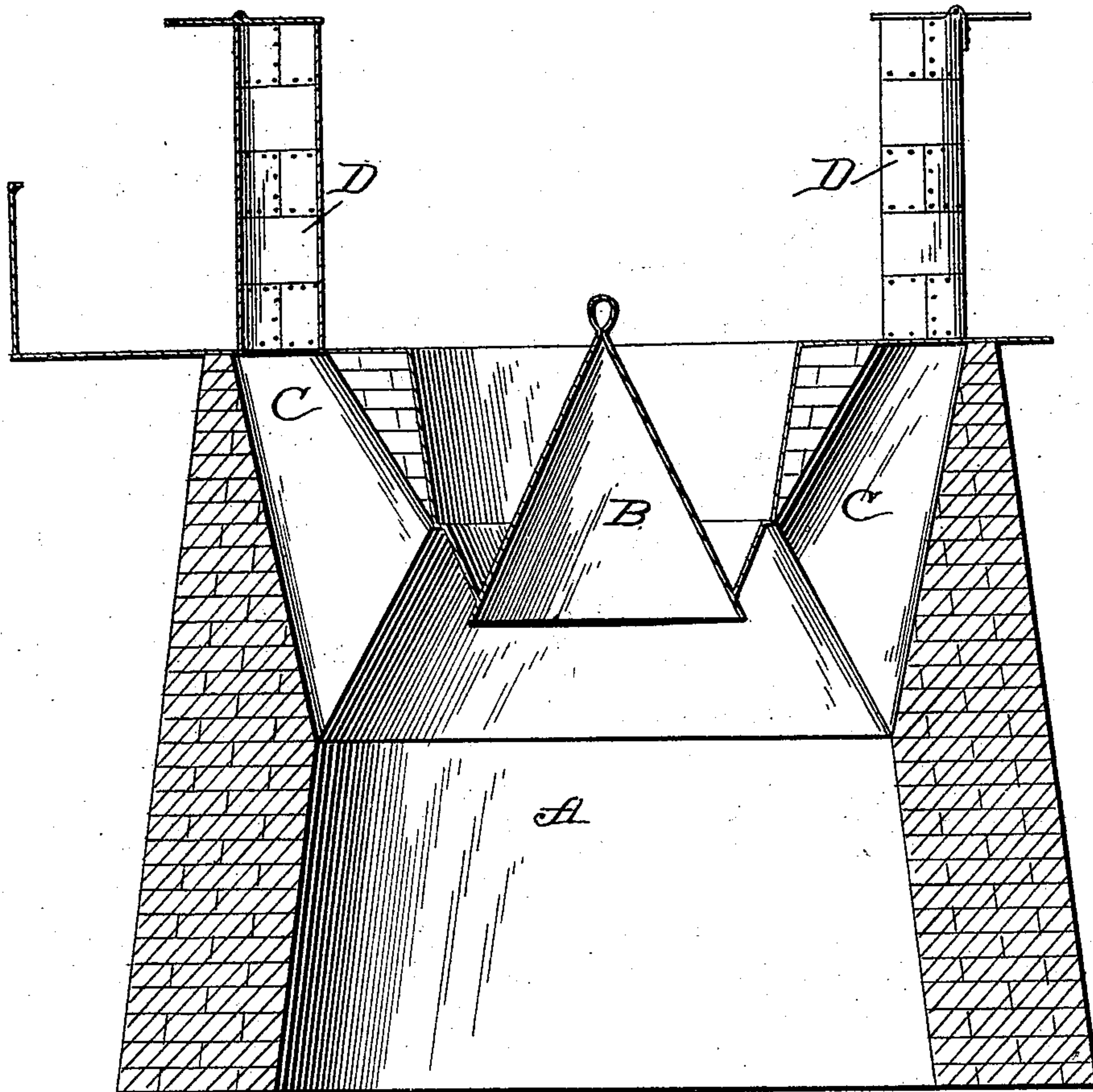


(No Model.)

P. C. REED.  
BLAST FURNACE.

No. 533,019.

Patented Jan. 22, 1895.



Attest  
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# UNITED STATES PATENT OFFICE.

PHILETUS C. REED, OF SHARPSVILLE, PENNSYLVANIA.

## BLAST-FURNACE.

SPECIFICATION forming part of Letters Patent No. 533,019, dated January 22, 1895.

Application filed September 5, 1894. Serial No. 522,195. (No model.)

*To all whom it may concern:*

Be it known that I, PHILETUS C. REED, a citizen of the United States of America, residing at Sharpsville, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Blast-Furnaces, of which the following is a specification.

My invention relates to blast furnaces, and is designed to protect the workmen from danger of explosions which very often take place by reason of the ignition of the gases which are generated in the upper part thereof, in the reduction of the contents of the furnace. It very often happens that these gases will ignite and explode in the confined space in the top of the furnace, with a result of throwing off the bell, to the possible injury of the operator working near the top of the furnace stack, and it is the object of my invention to overcome this difficulty, and provide an outlet for the pent up gases at a point above the space occupied by the workmen.

In the accompanying drawing is shown a sectional view of the top of a blast furnace in which I have illustrated my invention.

In the drawing I have illustrated an ordinary form of furnace, which need not be particularly described. The workmen in charge of the furnace are constantly at work at the upper part, and are in proximity to the mouth of the furnace, which is ordinarily covered by a bell. It is my purpose to provide for the escape of the gases which are generated, and which rise to the top of the furnace, so as to prevent explosions in the furnace chamber which have the effect of blowing off the bell, or perhaps of loosening the masonry of the furnace, and at the same time, I aim to allow for the discharge at a point where there is absolutely no danger to the workmen.

To this end I tap the furnace at its extreme upper end, between the central opening thereto and the edge of the outer walls, and make as many of these openings as I may find necessary. These openings extend to the interior chamber through the upper walls of the stack, and being made flaring as shown, and from the top of the furnace these openings are continued up to a suitable height by metal chimneys or stacks.

In the accompanying drawing, the furnace proper is shown at A, the bell at B, the flaring openings at C, and the extensions at D, in the form of chimneys or stacks. These chimneys are preferably closed by clapper valves which are readily opened by a chain or rope extending to the platform about the upper part of the furnace; and they are also readily blown open by the force of any explosion, so as to relieve the interior of the furnace instantly from any undue pressure. The gases are thus discharged at a point above the heads of the workmen, and no injurious effect can be exerted by this explosion for this reason.

What I claim is—

In combination with a furnace, a bell covering the mouth thereof, gas conduits in the wall of said furnace surrounding said bell and independent thereof and stacks extending from the platform above the furnace leading from said conduits, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

PHILETUS C. REED.

Witnesses:

THOMAS DICKINSON,  
A. W. WILLIAMS.