C. ROBINSON.

TWYER FOR BLAST FURNACES AND CONVERTERS.

APPLICATION FILED JUNE 24, 1908.

911,614.

Patented Feb. 9, 1909.

Fig. 3.

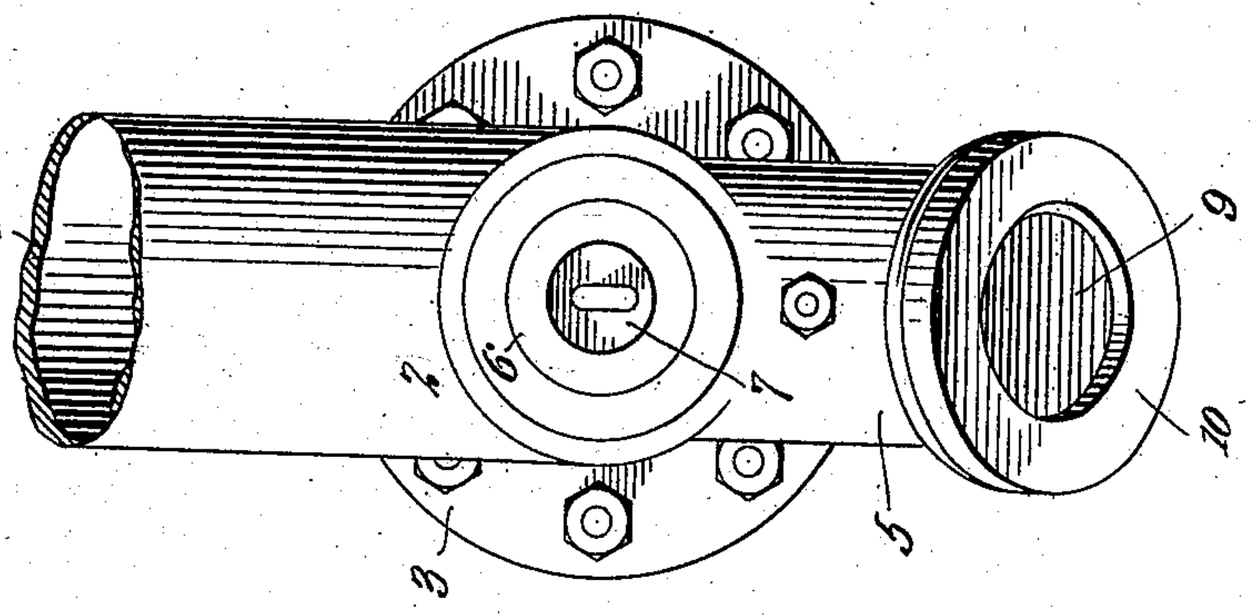


Fig. 2.

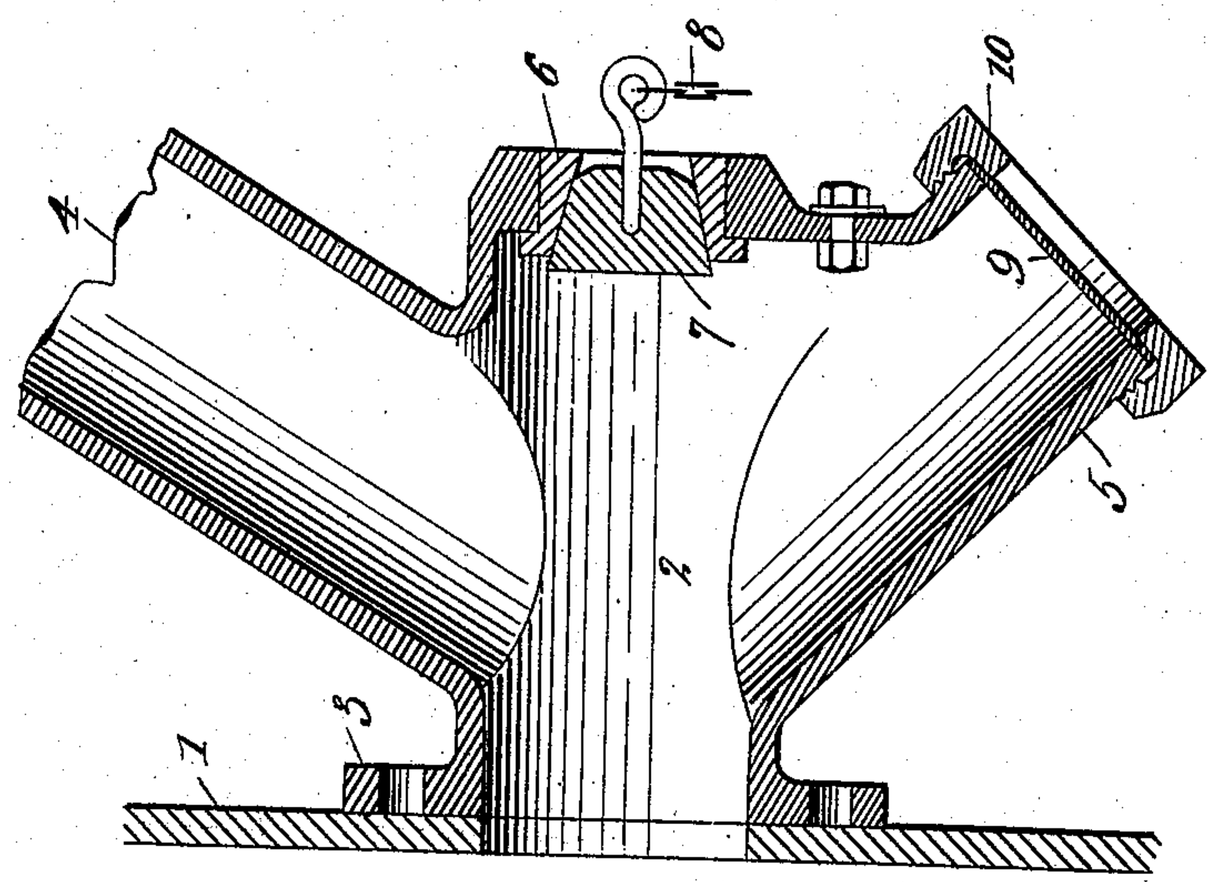
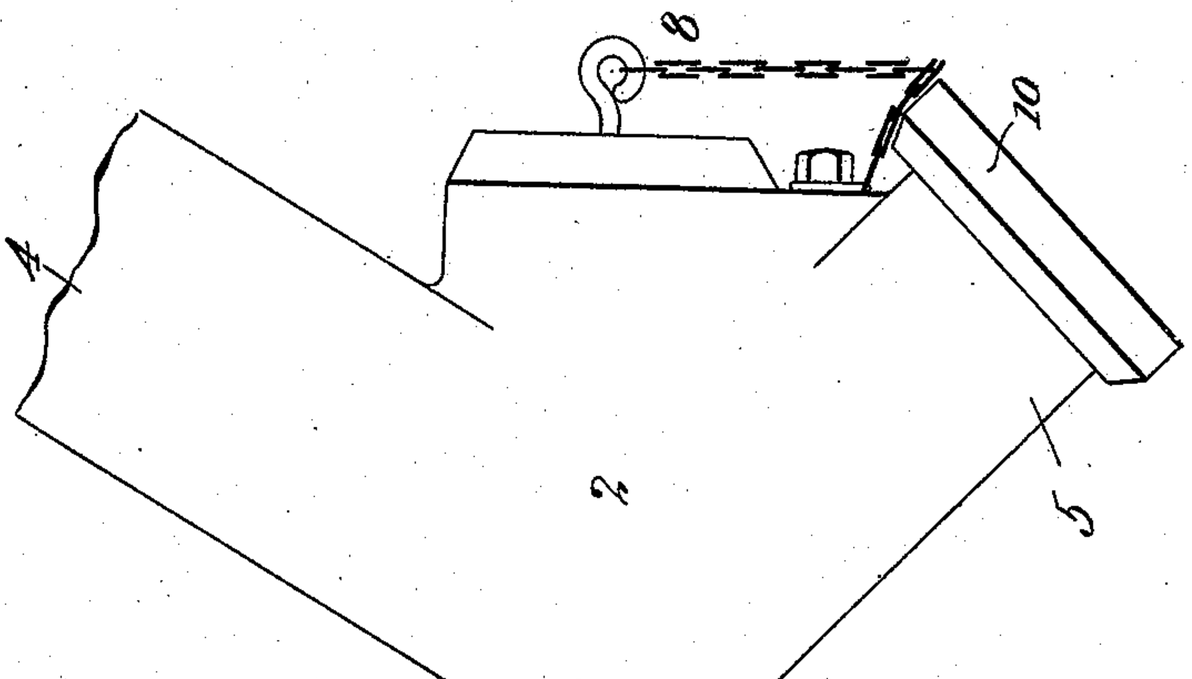


Fig. 1.



Witnesses:

Thomas Ober

Benj. Pike

Inventor

Cyrus Robinson

By his Attorney

Fleming Bird

UNITED STATES PATENT OFFICE.

CYRUS ROBINSON, OF MOUNT VERNON, NEW YORK.

TWYER FOR BLAST-FURNACES AND CONVERTERS.

No. 911,614. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed June 24, 1908. Serial No. 440,063.

To all whom it may concern:

Be it known that I, CYRUS ROBINSON, a subject of Great Britain, residing at Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Twyers for Blast-Furnaces and Converters, of which the following is a specification.

My invention relates to improvements in blast furnace and converter twyers.

The primary object of my invention is to provide a twyer which will avoid the hitherto frequent destructive fires resulting from the contact of the hot slag with the explosive gases and air in the twyer.

Secondary objects are to provide a twyer with a simple and effective valve for closing the barring or punch-rod hole and one which opens automatically when the air blast is cut off, and a simple, free and certain escape for the hot slag when it runs from the furnace.

I attain these objects by the constructions below described and shown on the accompanying drawings, in which—

Figure 1 shows my improved twyer secured to a furnace; Fig. 2 is a vertical section, and Fig. 3 is a front elevation.

1 represents the side of a furnace with my improved twyer secured thereto.

2 represents the body portion of my twyer, the bottom of which is constructed at a sharp downward angle from a point near the furnace opening and is curved so as to form a partially tubular channel or duct for the slag terminating in the tubular outlet 5. This tubular end 5 is screw threaded on the outside to receive the internally screw threaded cap 10, which latter is provided with an annular shoulder for holding the fusible disk 9 firmly against the end of the tube 5 and over the opening in the end thereof when the said cap is screwed into place.

The barring hole is fitted with a bushing 6 of brass or other suitable metal, the cylindrical opening in which tapers inwardly at its inner end so as to receive and seat the conical valve 7 when the latter is pulled into position by means of the chain 8, thus rendering the twyer air tight. The valve 7 is held in position in the barring hole by the air pressure from the blast, and as soon, therefore, as the blast is sufficiently reduced, the valve automatically falls into the twyer, thus opening the barring hole through which the gases escaping from the furnace immediately and freely flow into the outside atmosphere where there is no longer danger of their ignition.

By constructing the twyer with the bottom inclined from a point near the furnace opening to the slag outlet the hot slag running out of the furnace is immediately carried by the action of gravity to the fusible stopper which is melted, thus allowing the slag to run freely from the twyer. The pressure of the air being diminished the valve falls in and the gases rush out into the atmosphere instead of mixing with the air in the twyer and bustle pipe, and thus the danger of explosions from the ignition of the confined gases by the hot slag is avoided.

What I claim is:

1. A twyer for blast furnaces and converters provided with a valve for the barring hole automatically releasable by the diminution of the air pressure.

2. In a twyer provided with a barring hole, a valve for the barring hole and a flexible attachment to the valve extending without the twyer for bringing said valve into coöperation with said hole so as to close the same.

3. A twyer provided with a barring hole, a valve for the same, adapted to be retained therein by the air pressure within the twyer and to be released upon the diminution thereof, and means for closing said barring hole with said valve from without the twyer.

4. In a twyer provided with a barring hole and a valve within the twyer for closing the same, means for closing said barring hole with said valve from without the twyer.

CYRUS ROBINSON.

Witnesses:
FRANCIS RISK,
J. WARREN BIRD.