

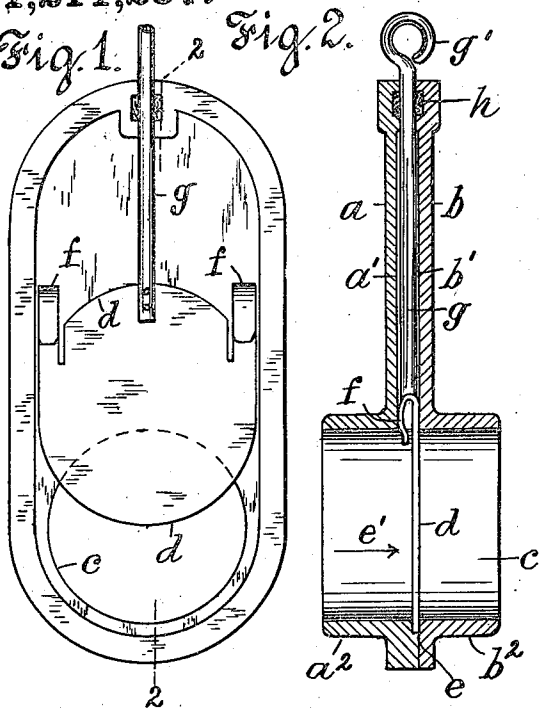
W. S. ROCKWELL.
GATE FOR AIR BLASTS.
APPLICATION FILED MAY 18, 1916.

Patented Jan. 2, 1917.

1,211,237.

Fig. 1.

Fig. 2.



Inventor
Walter S. Rockwell,
per Thomas S. Crane, Atty.

UNITED STATES PATENT OFFICE.

WALTER S. ROCKWELL, OF NEW YORK, N. Y., ASSIGNOR TO W. S. ROCKWELL COMPANY,
OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

GATE FOR AIR-BLASTS.

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Specification of Letters Patent.

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Application filed May 18, 1916. Serial No. 98,264.

To all whom it may concern:

Be it known that I, WALTER S. ROCKWELL, a citizen of the United States, residing at 300 West One hundred and sixth street, New York, county of New York, and State of New York, have invented certain new and useful Improvements in Gates for Air-Blasts, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to a gate for regulating the air-blast supplied to forges and furnaces; and the object of the invention is to prevent the accidental displacement of the valve-plate in the gate, which frequently occurs in practice from the vibrations of the blast in the air-pipe, and other causes which jar the valve-plate and shift it from its adjusted position.

The blast-gate of the present invention includes a casing made in two sections having inlet and outlet-nozzles upon their outer sides for inserting the gate in a blast-pipe, and having a closed chamber at one side of the passage connecting the nozzles, into which chamber the valve-plate is retracted when opening the gate.

To operate the gate in a closed chamber, a rod is connected to the valve-plate and extended through and outside of the chamber, where it can be manipulated to adjust the valve-plate.

In my application No. 66,152 filed December 10, 1915 for patent on blast gate, I have claimed a spring operating in connection with the rod for holding the valve-plate from accidental displacement, and my present application is designed to cover leaf-springs projected from the edge of the plate next to the closed chamber and extended into the chamber when the gate is closed, and flexed to one side of the plate to contact elastically with the adjacent wall of the chamber, and thus hold the plate from accidental displacement.

Several forms of the invention are shown in the annexed drawing, in which—

Figure 1 shows the inner side of the casing with a valve-plate having integral spring tongues; Fig. 2 is a longitudinal section of the same taken on line 2—2 in Fig. 1.

The opposite sections of the casing are designated *a* and *b* and provided respec-

tively with nozzles *a*² and *b*², and a passage *c* connecting the same through one end of the casing. The sections at one side of the passageway are separated sufficiently to form a closed chamber into which the valve-plate slides when opening the passage *c*. The inner walls of the chamber are marked *a'* and *b'*.

The valve-plate is wider than the passageway and fits a groove *e* at both sides and the lower end of the passageway, and is preferably fitted to make a close joint with one side of the groove against which the air-pressure in the connecting pipe presses the valve-plate normally, as shown by the arrow *e'* in Fig. 2. The exterior of the casing is, in practice, preferably provided with such an arrow to indicate its proper location in a blast-pipe. Guides in a line with the groove *e* are extended from the passageway into the chamber, the inner wall *b'* of the casing being preferably employed to form such guides.

The plate is shown with integral tongues *f* which are reflexed over the upper end of the plate to form flexible leaf-springs, their outer side contacting with the wall *a'* of the chamber, and thus pressing the plate constantly toward the wall *b'*.

To avoid needlessly lengthening the casing, the spring-leaves *f* are made to partly enter the passageway when the valve-plate is closed, which construction requires the chamber to open directly into the top of the passageway; but the air-pressure from the air-pipe which enters such chamber is prevented from escaping, or moving through the passageway, by the contact of the valve-plate with the casing around the entire periphery of the passageway.

A shifting-rod *g* is shown extended through the chamber and through the usual stuffing-box *h* upon the top of the same, and is provided at its outer end with an eye *g'* to adjust the valve-plate *d*. The springs *f* operate to maintain such adjustment until the plate is again moved by the operator.

It is obvious that in this invention the springs project from the edge of the valve-plate which is next to the chamber into which the plate is retracted when the passage *c* is opened, and such projection of the springs from the valve-plate enables them to operate within the chamber when

the valve-plate is substantially withdrawn from the chamber to close the passageway.

Having thus set forth the nature of the invention what is claimed herein is:

- 5 1. A blast-gate having a casing formed in two longitudinal sections with a closed chamber between the same, the sections having respectively inlet and outlet-nozzles to engage a pipe, and the closed chamber having parallel walls, a valve-plate movable in the casing between the said nozzles and into the closed chamber when the gate is opened, a rod attached to the plate and extended through the closed chamber and outside of the same for adjusting the plate, and a leaf-spring projected from the edge of the plate next to the chamber and extending into the chamber when the gate is closed, and flexed to one side of the plate to contact elastically with the adjacent wall of the chamber, and

thus hold the plate from accidental displacement.

2. A blast-gate having a casing formed in two longitudinal sections with a closed chamber between the same, the sections having respectively inlet and outlet-nozzles to engage the pipe, and the closed chamber having parallel walls, a valve-plate movable in the casing between the said nozzles and into the closed chamber when the gate is opened, a rod attached to the plate and extended through the closed chamber and outside of the same for adjusting the plate, and a leaf-spring integral with the plate and reflexed at one side of the same, and its outer side contacting with the wall of the chamber to hold the plate from accidental displacement.

In testimony whereof I have hereunto set my hand.

WALTER S. ROCKWELL.