No. 655,528. Patented Aug. 7, 1900.

W. A. THOMAS & J. FISHER.

TWYER.

(Application filed May 17, 1900.)

(No Model.)

Fig. 1.

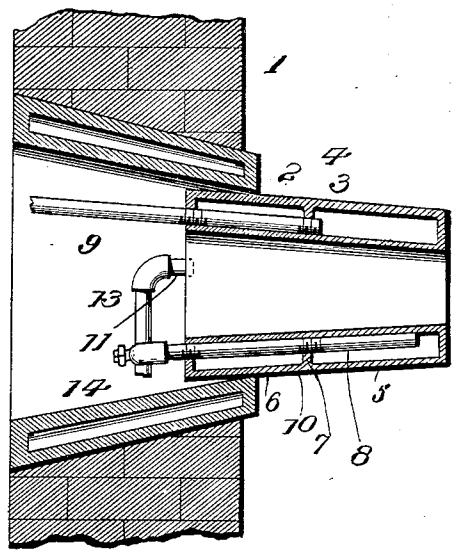


Fig. 2.

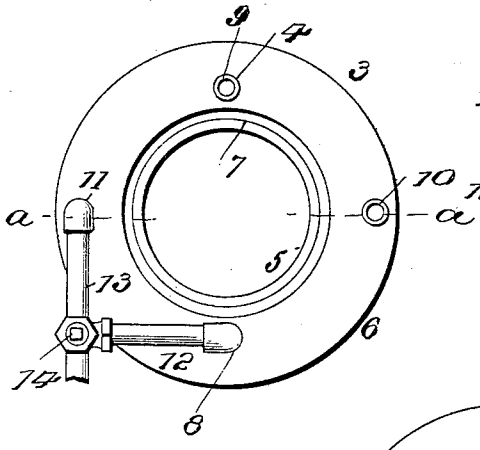


Fig. 3.

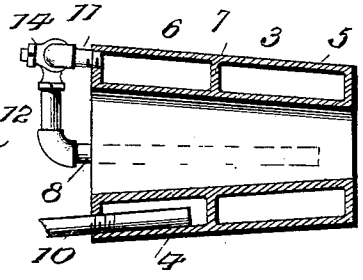
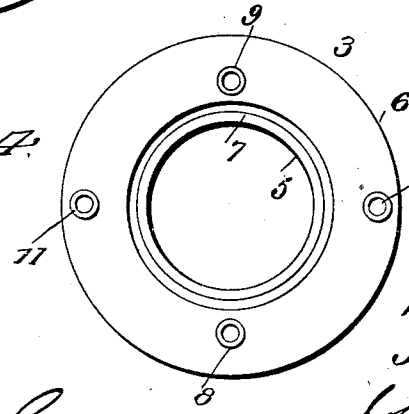


Fig. 4.



Witnesses

Inventors

William A. Thomas

Jacob Fisher

By Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM AUBREY THOMAS AND JACOB FISHER, OF NILES, OHIO.

TWYER.

SPECIFICATION forming part of Letters Patent No. 655,528, dated August 7, 1900.

Application filed May 17, 1900. Serial No. 17,017. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM AUBREY THOMAS and JACOB FISHER, of Niles, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Twyers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention contemplates certain new and useful improvements in twyers.

The object of the improvement is to obviate the difficulty heretofore encountered upon any check in the supply of water through the water-jacket. This check of the water-supply frequently results in the collapse of the twyer, allowing the slag in the stack to work back in through the twyer and into the air-pipes, besides which the removal and replacement of the twyer is rendered difficult of accomplishment.

The present improvement contemplates the division of the twyer into two compartments, each being provided with inlet and outlet pipes. The outlet of the outer compartment may be thrown into communication with the inlet of the inner compartment for supplying the latter with water previously circulated through the outer compartment.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of the twyer in position in the wall of a blast-furnace. Fig. 2 is an end view. Fig. 3 is a horizontal sectional view on line *a a*, Fig. 2. Fig. 4 shows separate feed-pipes for the two compartments.

Referring to the drawings, 1 designates the wall of a blast-furnace provided with a lined aperture 2, adapted to receive the twyer 3, which latter is provided with the usual water-jacket 4. This jacket is divided into inner and outer compartments 5 and 6 by a partition 7. Through this partition 7 opens an inlet-pipe 8 for supplying water to the compartment 5, the outlet being through a pipe 9, which leads from near the extreme inner end of the compartment. The supply to and outlet from the outer compartment 6 are through pipes 10 and 11, respectively. The discharge from pipes 9 and 11 may be carried off in any suitable manner, and the supply to the inner and outer compartments may be through separate sources, as shown in Fig. 4; but we prefer to connect the outlet-pipe 11 of the outer compartment to the supply-pipe 8 of the inner compartment, whereby the water from the former will circulate in the latter. To effect this latter purpose, we connect pipes 8 and 11, through branches 12 and 13, to a three-way cock 14. In this way the water discharged from the outer compartment may be conducted through inlet-pipe 8 to the inner compartment 5, from whence it will be discharged through pipe 9.

If the supply and discharge of each compartment are arranged independently of those of the other—that is, if the valved connection between the compartments be dispensed with—the flow of water through the inner compartment may be cut off at any time, as in case of accident to the twyer, without interfering with the circulation through the outer compartment. If the outlet of the outer compartment is connected to the inlet of the inner compartment and it is desired to cut off the flow of water to such inner compartment, it is only necessary to turn cock 14, so as to cut off the flow to inlet-pipe 8 and allow the discharge from pipe 11 to flow out through branch 12 and then be conducted away.

It will be noted that the outer compartment 6, being extended a short way into the furnace, may act as a complete twyer itself, and in the event of the collapse of the inner compartment will serve the purpose of a twyer, while the blast is being shut off and the slag drawn from the furnace.

We claim as our invention—

1. A twyer having inner and outer compartments, each of said compartments being provided with separate inlet and outlet pipes, and means for conveying the discharge from one compartment to the other compartment, substantially as set forth.

2. A twyer having inner and outer compartments, each of said compartments being provided with separate inlet and outlet pipes, and means for conveying the discharge from the outer compartment to the inner compartment, as set forth.

3. A twyer having inner and outer com-

partments, each of said compartments being provided with inlet and outlet pipes, and a cock connected to the outlet of one compartment and the inlet of the other compartment, substantially as set forth.

4. A twyer having inner and outer compartments, each of said compartments being provided with inlet and outlet pipes, a three-way cock, and branches connecting the latter to the outlet-pipe of the outer compartment and the inlet-pipe of the inner compartment, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

WM. AUBREY THOMAS.
JACOB FISHER.

Witnesses:
W. V. SMILEY,
JEAN KILPATRIC.