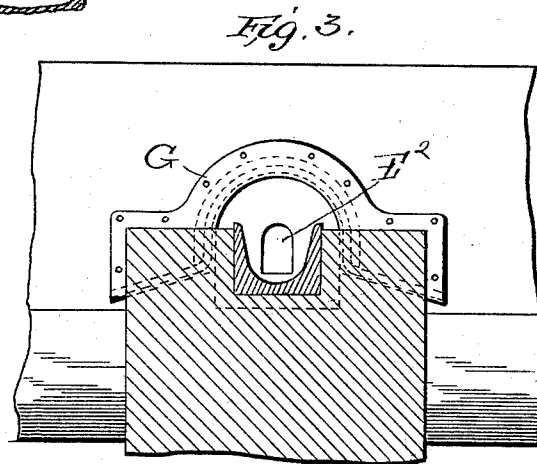
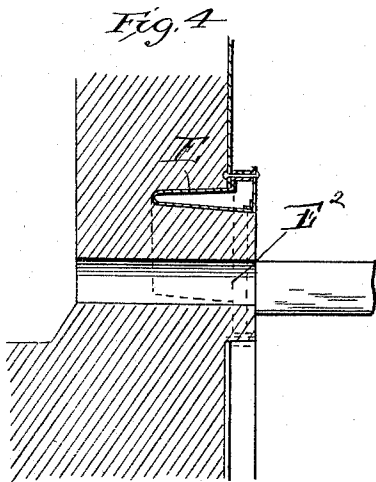
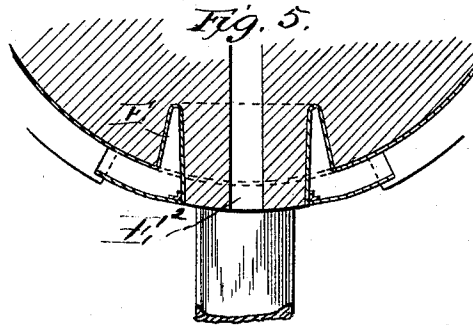
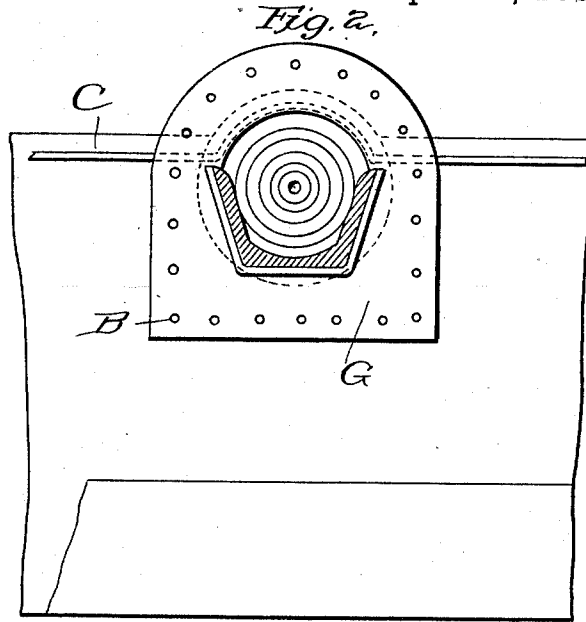
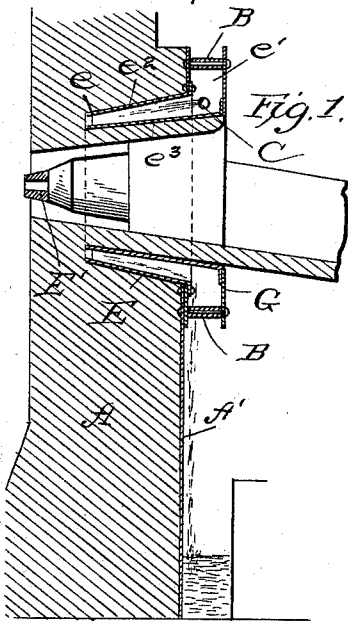


(No Model.)

S. R. FELLOWS.
COOLER FOR CINDER NOTCHES.

No. 518,495.

Patented Apr. 17, 1894.



Attest
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UNITED STATES PATENT OFFICE

SAMUEL R. FELLOWS, OF HUBBARD, OHIO.

COOLER FOR CINDER-NOTCHES.

SPECIFICATION forming part of Letters Patent No. 518,495, dated April 17, 1894.

Application filed December 2, 1893, Serial No. 492,610. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. FELLOWS, a citizen of the United States of America, residing at Hubbard, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Coolers for Cinder-Notches, Tuyeres, &c., for Furnaces, of which the following is a specification.

My said invention relates to certain improvements in the construction of coolers for cinder notches, tuyeres or iron notches for blast smelting or other furnaces for the reduction of ores and the object of the invention is to provide a spray cooler which will insure the spraying of the water upon the needed parts in the most effective manner possible.

The invention is illustrated in the accompanying drawings, in which—

Figure 1, is a sectional view of a portion of a furnace wall embodying my invention. Fig. 2, is a front elevation of the same. Figs. 3, 4 and 5 are views showing the spray cooler adapted for an iron notch for blast furnaces. The furnace wall is shown at A, and the hearth jacket at A'.

E represents a circular, semi-circular or similarly formed double thimble which is shown in the accompanying drawings in the form of a truncated cone arranged horizontally and having a closed inner end *e* and an open outer portion *e'* forming an annular chamber in the furnace wall surrounding the cinder notch or tuyere which is represented at E', or the iron notch which is shown at E², Figs. 3, 4 and 5. The outer wall of the thimble, shown at *e*², is secured at its outer edge, as stated, to the hearth jacket or held in place by bands or other holding means while the inner wall *e*³ is extended outward beyond the edge of the outer wall and is connected to a guard plate G which is secured by means of suitable bolts to the jacket or otherwise as shown at B. The service pipe for supplying

the water is shown at C, extending from any suitable source of supply. It is to conform to the upper portion of the mouth *e'* of the annular thimble as shown in dotted lines in Fig. 2, and is provided with a series of perforations facing inwardly toward the interior of the thimble and adapted to throw a spray of water into the upper portion of the thimble as shown in Fig. 1. The water thus thrown into the upper portion flows around through the annular space and out at the bottom as indicated by the arrows.

In Figs. 3, 4 and 5 the invention is shown as applied to an iron notch and the water after leaving the thimble is discharged laterally through the passages 2 to the water well around the base of the hearth jacket.

Having thus described my invention, what I claim is—

1. In combination with the furnace wall having an opening therein, an annular channel in the brick work around said opening, a thimble located in said channel having a closed inner end and an open outer end, and a supply pipe for directing a spray into said thimble.

2. In combination, with the furnace wall and jacket having an opening through the same, the annular thimble having double walls of different length with its outer shorter wall secured to the hearth jacket, a guard plate secured to the longer wall and also having bolt connection with said jacket, and a supply pipe placed over the extended wall of the thimble and having perforations for directing the spray into the thimble, substantially as described.

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

SAMUEL R. FELLOWS.

Witnesses:

A. W. WILLIAMS,
ELLA BOYCE.