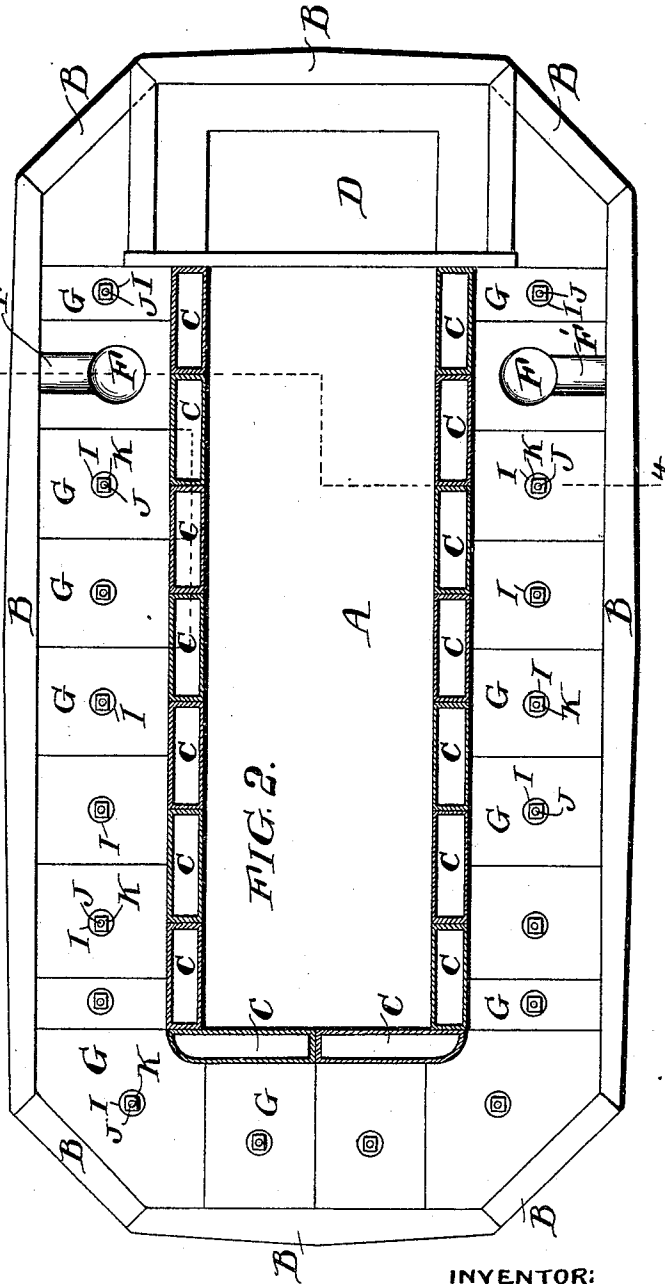
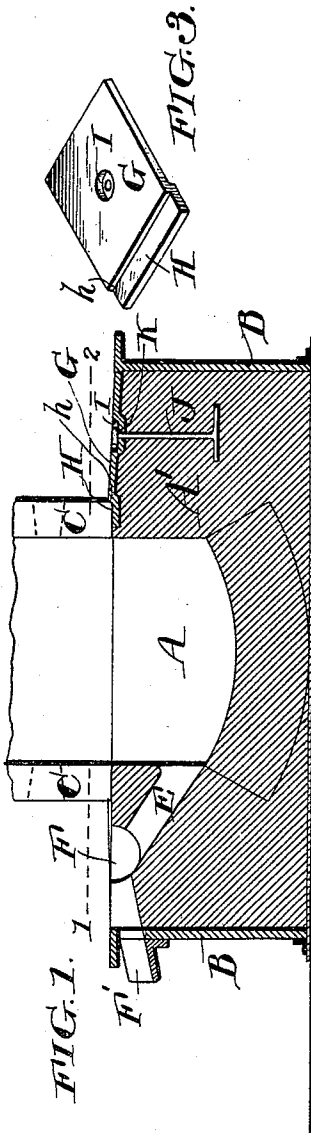


Patented Sept. 6, 1892.



WITNESSES:

Henry Denny
J. W. Russell.

INVENTOR:

Malvern W. - Shs
by his atty
Francis T. Chambers

UNITED STATES PATENT OFFICE.

MALVERN W. ILES, OF DENVER, COLORADO.

BLAST-FURNACE.

SPECIFICATION forming part of Letters Patent No. 481,950, dated September 6, 1892.

Application filed June 7, 1892. Serial No. 435,833. (No model.)

To all whom it may concern:

Be it known that I, MALVERN W. ILES, of Denver, county of Arapahoe, State of Colorado, have invented a certain new and useful Improvement in Blast-Furnaces, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to blast-furnaces, and has for its object to protect the crucible-walls, and at the same time insure the proper alignment and position of the water-jackets set above the crucible, and this I accomplish by covering the crucible-walls with iron plates suitably secured in place and having on their edges next to the crucible a notch or depressed flange, in which the water-jackets rest and are supported. In this way I make it easy to keep the top of the crucible clean and protect it from the water falling on it from the water-jackets, and at the same time I firmly secure the water-jackets in position, preventing them from bulging out at the sides, as they are apt to do, especially in long furnaces. This arrangement also makes it easier to replace water-jackets when it becomes necessary.

Reference is now had to the drawings which illustrate my invention, and in which—

Figure 1 is a cross-section on the line 3 4 of Fig. 2; Fig. 2, a plan on section-line 1 2 of Fig. 1, and Fig. 3 a perspective view of one of my cover-plates.

A A indicate the crucible, and A' its walls.
B B, &c., are the plates used in staying or supporting the crucible.

C C, &c., are sectional water-jackets.

D is the fore-hearth.

E is a tap leading from the crucible to the lead-well F, from which lead conduits F'.

G G, &c., are my cover-plates, preferably made of cast-iron and formed with a notch or depressed flange H, upon which the water-jackets C rest, with their outer corners against the shoulders h. An anchored bolt J extends through a hole in each plate and serves to secure the plate in position, a nut K screwing on the end of the bolt and resting in a countersunk hole or depression I on the face of plates G.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In combination with the crucible-walls of a blast-furnace, cover-plates G, anchored to the top of the crucible-walls and having a depressed flange H on their edges next to the crucible, and water-jackets C, set on the depressed flanges H, substantially as and for the purpose specified.

MALVERN W. ILES.

Witnesses:

JOHN M. WALKER,
JOHN S. WILLIAMS.