C. H. MACE.

BLAST FURNACE.

APPLICATION FILED SEPT. 28, 1917.

1,334,310.

Patented Mar. 23, 1920.

2 SHEETS—SHEET 1.

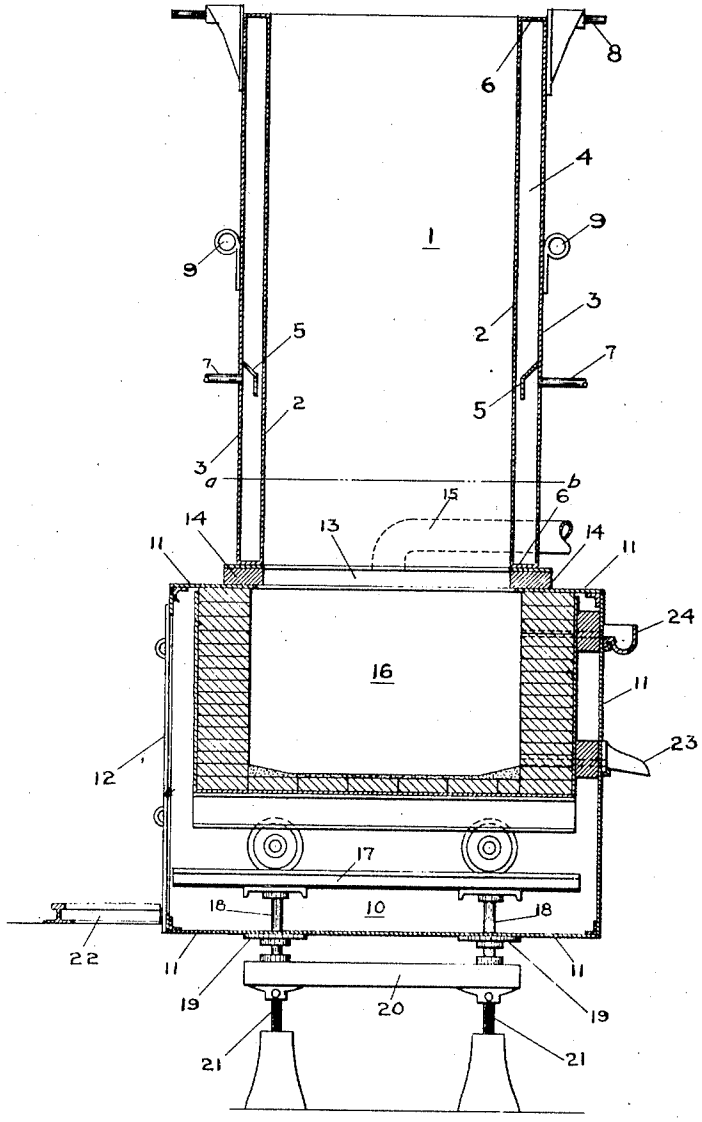


FIG. 1.

Witnesses:

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Wm. H. Harney

Inventor:

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2 SHEETS—SHEET 2.

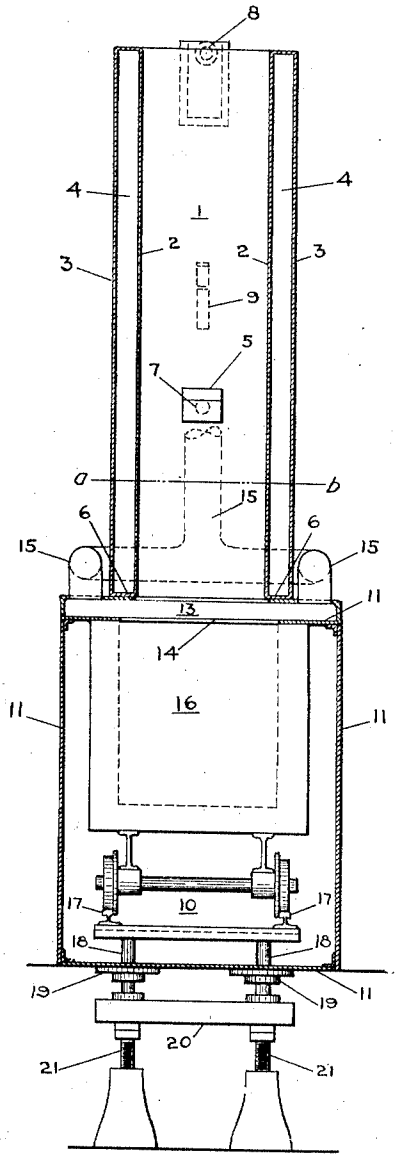


FIG. 2.

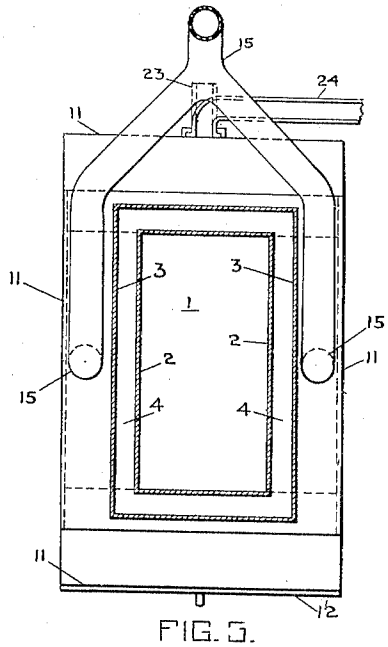


FIG. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

CLEMENT HAROLD MACE, OF DENVER, COLORADO, ASSIGNOR TO ANTONIO T. CAROZZA, OF BALTIMORE, MARYLAND.

BLAST-FURNACE.

1,334,310. Specification of Letters Patent. Patented Mar. 23, 1920.

Application filed September 28, 1917. Serial No. 193,692.

To all whom it may concern:

Be it known that I, CLEMENT HAROLD MACE, a citizen of the United States, residing in the city of Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Blast-Furnaces, of which the following is a specification.

My invention relates to blast furnaces and the object of my improvement is the providing of improved means of insulating certain parts of blast furnaces.

A further object of my improvement is the providing of improved means of air delivery in blast furnaces.

And a further object of my improvement is the providing of improved means of handling the crucible in blast furnaces.

With the foregoing and other objects in view my invention consists of the novel construction, combination and arrangement of parts as hereinafter specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of my invention, but it is understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings of the herein described embodiment of my invention Figure 1 is a sectional view of my improved blast furnace in elevation; Fig. 2 is a sectional view of my improved blast furnace taken at right angles to the view shown in Fig. 1; and Fig. 3 is a sectional plan view taken through "AB" of Figs. 1 and 2.

Similar numerals refer to similar parts throughout the several views.

1 is the shaft surrounded by fire sheet 2. 3 is the outer shell of the water jacket. The space 4 between fire sheet 2 and outer shell 3 is the water space. 5 is the baffle or deflecting plate to prevent the incoming cold water from impinging upon fire sheet 2. Fire sheet 2 and outer shell 3 are joined together by flanged ends 6. 7 is the water inlet to jacket space 4 and 8 is the water outlet. 9 are pad eyes for supporting fire sheet 2 and outer shell 3 and their attachments.

10 is the crucible chamber formed by walls 11 and removable door 12. Between crucible chamber 10 and shaft 1 are spaces or elongated twyer openings 13 for the admission of air on two opposite sides of the furnace. The other two opposite sides of the furnace are blanked by blocks 14. Elongated twyer openings 13 are joined to blast pipe 15.

Within crucible chamber 10 is removable crucible 16, which is mounted on wheels and rolls on track 17. Track 17 is supported by rods 18, operating through stuffing boxes 19, which stuffing boxes are secured to the bottom walls 11 of crucible chamber 10 and prevent the passage of air with reference to crucible chamber 10. Rods 18 are supported on jack frame 20. 21 are jacks for operating jack frame 20. 22 is the outside track to which track 17 registers when lowered into position for removing the crucible 16.

Crucible 16 is provided with the usual tapping spouts 23 for metal or matte and 24 for slag, which spouts are removable.

The operation of my furnace is as follows: The crucible 16 is run into place under shaft 1 and is elevated by jacks 21 until a tight joint is formed between shaft 1 and the crucible, door 12 is closed thus forming a tight insulating space 10 around the crucible. By this means I seal the chamber against the entrance of outside air, that is no air can enter from any source. The furnace is then charged in the usual way. The blast is introduced through diametrically opposite rectangular twyers 13, thus insuring a uniform blast on both sides of the charge.

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

1. In a furnace provided with a shaft, a crucible and twyers, a chamber below the shaft containing said crucible and being sealed against the entrance of outside air and from the interior of the crucible.

2. In a furnace, a shaft, a crucible, twyers between said shaft and said crucible diametrically opposed rectangular in section having straight parallel sides, the continuation of which sides form connecting surfaces between opposite twyers.

3. In a blast furnace provided with a shaft and a crucible, a chamber containing said crucible and sealed against the entrance of outside air and from the interior of the crucible, and means of relatively adjusting said crucible with reference to said shaft.

CLEMENT HAROLD MACE.

Witnesses:
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WILLIAM W. VARNEY.