

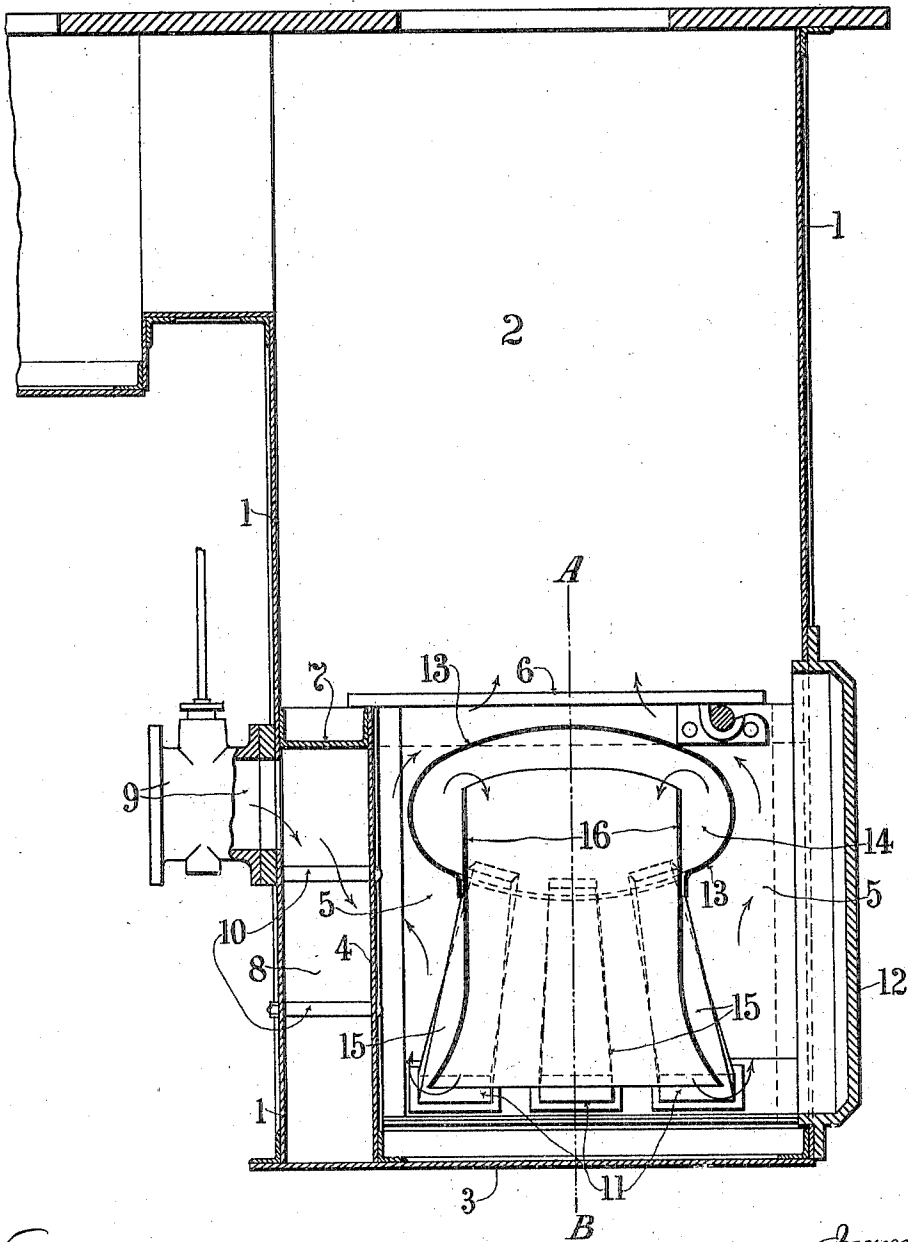
J. C. BARKER.
FURNACE FOR MELTING METALS AND FOR LIKE PURPOSES.
APPLICATION FILED NOV. 16, 1909.

948,126.

Patented Feb. 1, 1910.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses
Chas. A. Smith
A. L. Serrell

Inventor
John C. Barker.
by Harold Serrell
his atty

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2 SHEETS—SHEET 2.

Fig. 2

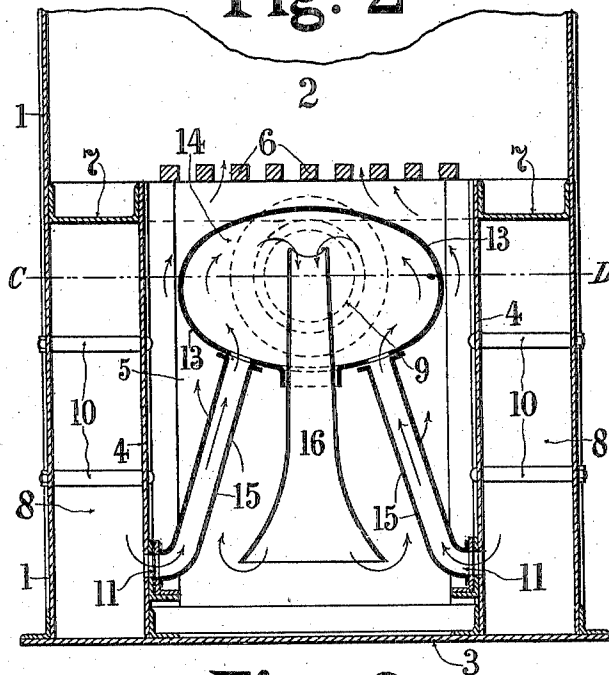
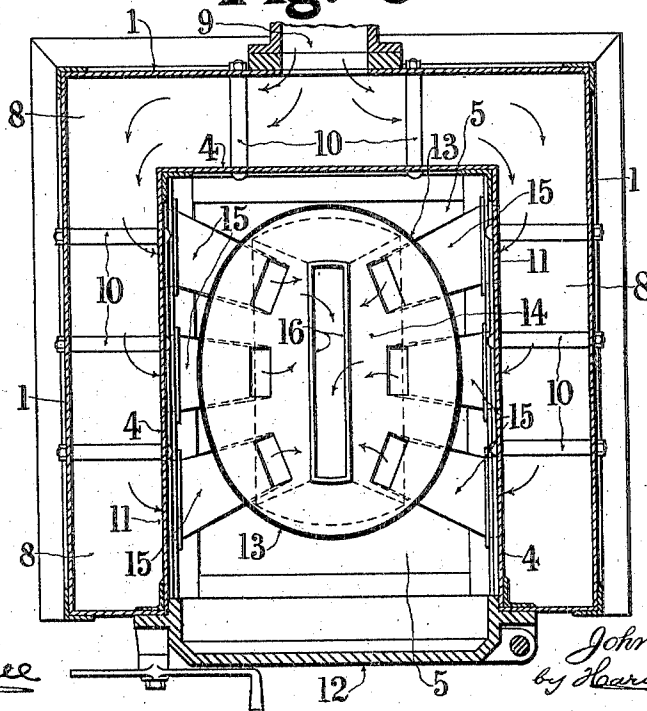


Fig. 3



Witnesses
Charles Smith
A. G. Lawrence

Inventor
John C. Barker,
by Harold Lawrence
his atty.

UNITED STATES PATENT OFFICE.

JOHN CHARLES BARKER, OF LEEDS, ENGLAND.

FURNACE FOR MELTING METALS AND FOR LIKE PURPOSES.

948,126.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed November 16, 1909. Serial No. 528,282.

To all whom it may concern:

Be it known that I, JOHN CHARLES BARKER, a subject of the King of Great Britain, residing at Leeds, in the county of York, England, have invented certain new and useful Improvements in Furnaces for Melting Metals and for Like Purposes, and of which the following is a specification.

This invention relates to furnaces used for the melting of metal and for like purposes, but has particular reference to furnaces for melting wrought iron or other metal ingots which are placed in crucibles and carried within the furnace upon or over a grate supplied with live fuel and in which an air blast for inducing the necessary current for such furnace is pre-heated prior to entering the ash-pit by causing it to traverse a chamber or chambers formed by the hollow wall or walls of the ash-pit beneath the furnace grate.

In the type of furnace above referred to, the air blast after being heated by traversing the chamber or chambers formed by the hollow wall or walls of the ash-pit is admitted to the latter by way of openings formed near the base thereof, and as this is the coldest portion of the ash-pit the air blast delivered to the grate is not so effectively heated as is desirable; and the object of the present invention is to provide means or apparatus within the ash-pit and in connection with the air inlets thereto, whereby the air blast supplied to the ash-pit may be further heated prior to being delivered below the grate.

According to this invention, I employ within the ash-pit and immediately below the grate an additional heating chamber preferably consisting of a dome-shaped or elliptical casing which is coupled directly to the air inlets of the ash-pit by means of side connecting tubes or trunks, while depending from the said casing is a central tube or trunk having its lower end, which extends downward within the ash-pit, left open; so that the air blast, after traversing the chamber or chambers formed by the hollow wall or walls of the ash-pit, is delivered into the ash-pit side tubes or trunks which convey it into the aforesaid casing where it is superheated, when the superheated air passes out of the said casing by way of the central depending tube or trunk into the ash-pit below the grate. The air supplied to the grate is thus brought to

a highly heated condition, whereby a more beneficial result is obtained than in the case where the air blast is heated by merely traversing the chamber or chambers formed by the hollow wall or walls of the ash-pit.

In order that my invention may be clearly understood, I will proceed to describe the same with reference to the example of construction shown in the accompanying drawings, in which similar numbers of reference indicate like parts in all the figures; wherein:—

Figure 1 is a sectional elevation representing a furnace of the type first herein referred to, fitted with an air blast superheating apparatus constructed according to my invention. Fig. 2 is a transverse section taken on the line A. B of Fig. 1; and Fig. 3 is a sectional plan taken on the line C. D of Fig. 2.

In the drawings, the known furnace consists of a metal casing 1 forming the furnace portion 2 mounted on a base plate 3 and being provided with an internal metal casing 4 constituting the ash-pit 5, which casing 4 carries the furnace grate 6, while the space between the casings 4, 1 below the grate 6 is inclosed by a top plate 7 so as to form a chamber 8 around the ash-pit 5 on three of its sides to which air is supplied by way of an inlet 9 formed in the casing 1. The casings 4, 1 are stayed apart by distancing bolts 10 and air inlets 11 are formed in opposite sides of the casing 4 near the base thereof for admitting the heated air from the chamber 8 to within the ash-pit 5, while the fourth side of the said ash-pit 5 is closed by means of a door 12.

According to this invention, the ash-pit 5 is provided with a casing 13 forming an additional heating chamber 14 to which the air inlets 11 are connected by means of side tubes 15, which casing 13 is provided with a central depending tube 16 whose upper open end passes within the chamber 14 while its lower end is open to the ash-pit 5.

The air blast passing in by way of the inlet 9, after traversing the chamber 8 where it becomes heated, is conducted by the side tubes 15 into the casing 13 where it is superheated, which superheated air then passes out by way of the central tube 16 into the ash-pit 5 beneath the grate 6. The air supplied to the grate 6 is thus brought to a highly heated condition, whereby combustion is facilitated and a more beneficial result ob-

tained than in the case where the air blast is passed from the heating chamber 8 directly into the ash-pit 5.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a furnace for melting wrought iron or for like purposes in which the air blast for inducing the necessary current for such furnace is pre-heated; the combination with
10 a chamber or chambers formed in the wall or walls of the ash-pit beneath the furnace grate through which the air blast is caused to traverse, of a casing situated within the ash-pit immediately below the furnace grate
15 forming an additional heating chamber for superheating the air blast, said casing being connected directly to the ash-pit air inlets and being adapted to deliver the superheated air to beneath the furnace grate.

20 2. In a furnace for melting wrought iron or for like purposes in which the air blast

for inducing the necessary current for such furnace is pre-heated; the combination with a chamber or chambers formed in the wall or walls of the ash-pit beneath the furnace
25 grate through which the air blast is caused to traverse, of a casing situated within the ash-pit immediately below the furnace grate forming an additional heating chamber for superheating the air blast, said casing be-
30 ing connected directly to the ash-pit air inlets by side tubes and having a central depending tube for delivering the superheated air to beneath the furnace grate, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHN CHARLES BARKER.

Witnesses:

JOHN JOWETT,

VANCE EWART GALLOWAY.