

C. GRUNWALD.
MELTING HEARTH FOR ELECTRIC INDUCTION FURNACES.
APPLICATION FILED MAY 7, 1909.

Patented Dec. 14, 1909.

943,403.

Fig. 1.

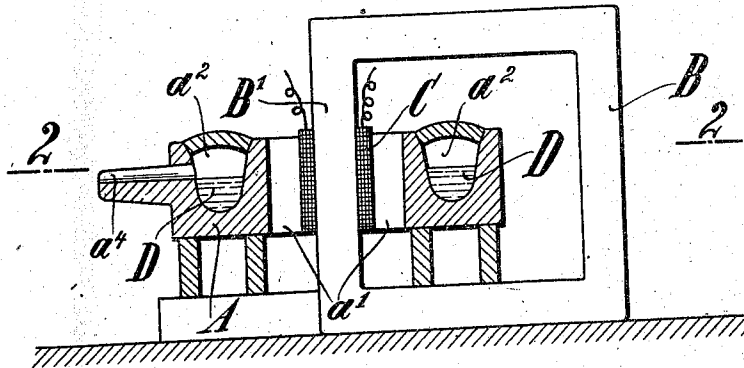
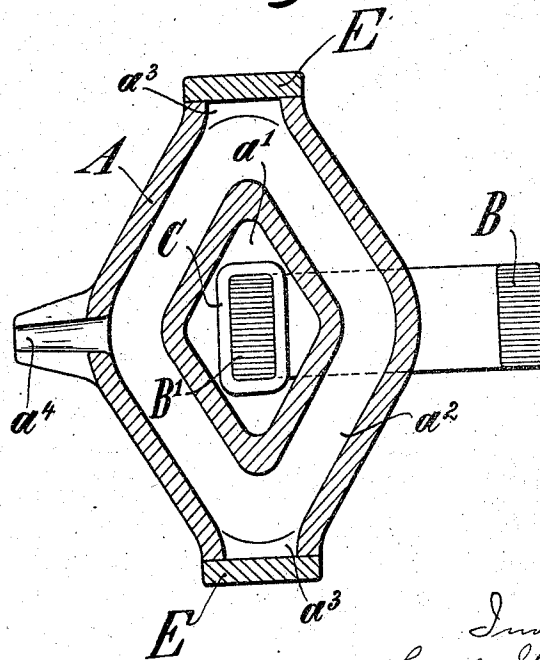


Fig. 2.



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UNITED STATES PATENT OFFICE.

CARL GRUNWALD, OF BREDENEY, GERMANY.

MELTING-HEARTH FOR ELECTRIC INDUCTION-FURNACES.

943,403.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed May 7, 1909. Serial No. 494,620.

To all whom it may concern:

Be it known that I, CARL GRUNWALD, a subject of the German Emperor, and resident of 38 Essenerstrasse, Bredeney, near Essen (Ruhr), Germany, have invented certain new and useful Improvements in Melting-Hearths for Electric Induction-Furnaces, of which the following is a specification.

The present invention relates to the particular formation of the melting hearth of electric induction furnaces.

Formerly the melting trough of such furnaces was generally made circular and open at the top. The material to be treated was in such case introduced from above into the trough which was provided with a removable cover. This arrangement has great disadvantages in as far as it makes it extremely difficult to serve the melting hearth and causes great losses in upward radiation when the furnace is being served. Furthermore it is very difficult to charge such furnaces mechanically. It is true that in some other electric induction furnaces the melting trough is closed at the top and is provided with lateral serving openings. However in these furnaces the shape of the melting trough and the arrangement of the serving openings are selected in such a manner that only a part of the melting trough is accessible through the serving openings. In accordance with the present invention these drawbacks are removed by forming the melting trough in such a manner and by providing it with lateral serving openings of such shape that the entire surface of the bath can be inspected and manipulated through the serving openings.

One embodiment of the invention is, by way of example, shown in the accompanying drawings, in which—

Figure 1 is a vertical section through an induction furnace, and Fig. 2 is a section on line 2—2, Fig. 1 looking from above.

The induction furnace principally consists of a melting hearth A, which is provided with a central opening a^1 , and an endless iron-yoke B which has one leg (B^1) passing

through the opening a^1 of the melting hearth. A coil C which conducts the primary current from the machine is arranged around the leg B^1 .

The melting hearth A is provided with a melting trough or channel a^2 which serves for holding the melting material D and which is completely covered by a vault. The center-line of the trough extends in such a manner that it forms a rhomb. At the two corners of the trough which form the acute angles of the rhomb are provided serving openings a^3 which are located above the surface of the melting bath and which can be closed by doors E. As shown in Fig. 2 the two serving openings a^3 of the improved device are located in such a manner relatively to the melting trough that the entire surface of the bath can be inspected and manipulated through the openings. It is therefore possible, without the slightest difficulty, to charge the furnaces by means of charging machines of the usual type and to inspect the entire surface of the melting material and clean it to remove the slag. The melting hearth is further provided with a discharge opening a^4 through which the furnace can be emptied by tilting.

Without departing from the spirit of the invention the center-line of the melting trough might be of other polygonal shape, such as triangular. By providing the serving openings at two corners of the triangle the entire surface of the bath could also then be inspected.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent, is:—

1. A melting hearth for electric induction furnaces having a melting trough provided with lateral serving openings, said trough being of a shape permitting inspection of and access to the entire surface of the bath in the trough through said serving openings.

2. A melting hearth for electric induction furnaces having a melting trough the center line of which forms a rhomb, and lateral serving openings located at the acute angles of the rhomb.

3. A melting hearth for electric induction furnaces having a melting trough of substantially rhomboidal shape.

5 4. A melting hearth for electric induction furnaces having a melting trough of substantially rhomboidal shape and a lateral serving opening at each of the corners forming the acute angles of the rhomb.

The foregoing specification signed at Barmen, Germany, this eighth (8th) day of 10 April, 1909.

CARL GRUNWALD. [L.S.]

In presence of—
OTTO KÖNIG,
C. J. WRIGHT.