July 5, 1966 H. BEHR 3,259,208

APPARATUS FOR LINING OF METALLURGICAL FURNACES, PARTICULARLY CONVERTERS

Filed Oct. 13, 1964

FIG. 1

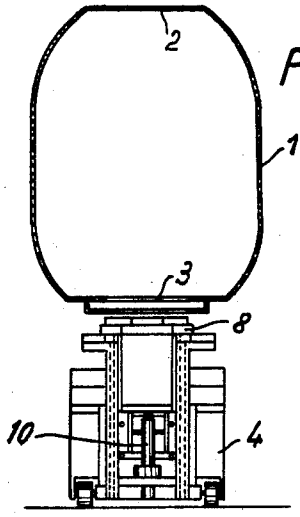


FIG. 2

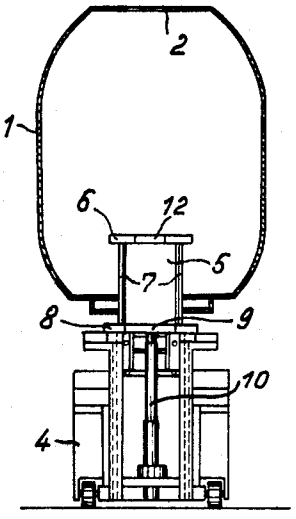


FIG. 3

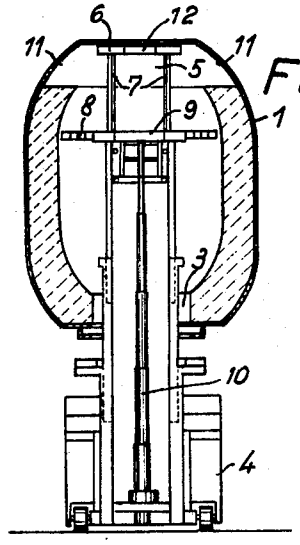


FIG. 4

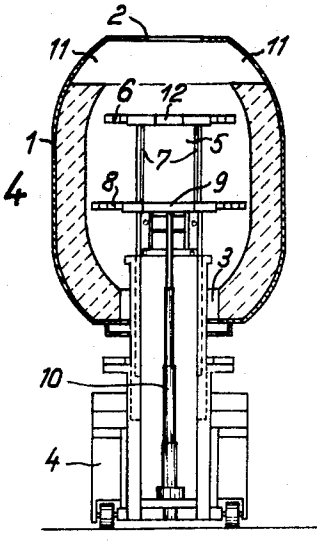


FIG. 5

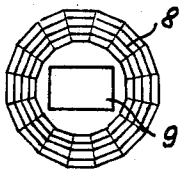
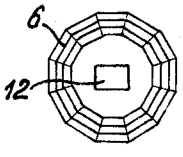


FIG. 6



Inventor:
Hugo Behr
By Emmett Montague
Attorney

United States Patent Office

3,259,208
Patented July 5, 1966

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APPARATUS FOR LINING OF METALLURGICAL FURNACES, PARTICULARLY CONVERTERS

Hugo Behr, Essen, Germany, assignor to Beteiligungs- und Patentverwaltungsgesellschaft mit beschrankter Haftung, Essen, Germany, a corporation of Germany

Filed Oct. 13, 1964, Ser. No. 403,529
Claims priority, application Germany, Nov. 8, 1963, B 74,187
3 Claims. (Cl. 182—128)

The present invention relates to an apparatus for lining of metallurgical furnaces, particularly converters, in general, and such converters, which have a removable bottom lined from below and having a bottom opening which is larger than the throat, in particular.

Apparatus having a working platform adjustable as to its height have been proposed before for the lining of metallurgical furnaces, more particularly of converters, whereby the working platform is moved to the inside of the furnace through the bottom opening. The diameter of these working platforms can be adjusted to the bell-shape of the converter and can be reduced to a corresponding small diameter at the height of the converter throat in the so-called "hat" of the converter. Since the lining material has to be fed continuously through an opening from below provided in the center of the working platform, the diameter for the passage of material is dependent upon the smallest diameter of the working platform in the "hat" of the converter. The passage opening for the material must, therefore, of necessity be maintained comparatively small and only small quantities of material can be fed through the opening upwardly to the working platform. By this arrangement, however, much lifting labor is required for the feeding of the lining material, which leads of necessity to long feeding periods and, thereby, also to long lining periods. Due to these long lining periods of the furnace, the degree of utilization of the total unit is lowered, which brings about appreciable disadvantages concerning the expenses.

It is one object of the present invention to provide an apparatus for lining of metallurigcal furnaces, particularly converters, which avoids the drawbacks of the known lining apparatus.

It is another object of the present invention to provide an apparatus for lining of metallurgical furnaces, particularly converters, wherein a working platform, liftable and lowerable by means of a lifting device and the diameter of which corresponds about to the diameter of the bottom opening of the furnace, has a comparatively large passing opening for the material and is equipped with an auxiliary working platform having a smaller passage opening for the material and being of smaller diameter and capable of being sunk or received in the main platform.

With these and other objects in view, which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawing, in which:

FIGURE 1 is an elevation, partly in section, of a converter with the lining apparatus;

FIG. 2 is an elevation, partly in section, of the converter with the lining apparatus in a position ready for operation;

FIG. 3 is an elevation of the converter with a lining

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apparatus indicating the end position of the lifted working platform in the converter;

FIG. 4 is an elevation, partly in section, of the converter with the lining apparatus indicating the working position of the auxiliary platform in the converter;

FIG. 5 is a top plan view of the main working platform; and

FIG. 6 is a top plan view of the auxiliary working platform.

Referring now to the drawings, the converter **1** has a throat **2** and a larger bottom opening **3**.

The lining apparatus is mounted on a movable stage **4** and is moved just below the bottom opening **3** of the converter **1**.

A lifting device **5** (FIG. 2) is disposed on top of the movable stage **4**, and is used for lifting an auxiliary platform **6**, which is secured by means of supports **7** liftably to a main working platform **8**, which is substantially of a size or diameter equal with the bottom opening **3** of the converter **1**, but passable through the opening **3**. The main working platform **8** has a comparatively large passage opening **9** (FIG. 5) for passing of lining material through which opening **9** the lining material is passed to the working platform **8**, whereupon the lining of the converter **1** can start.

As indicated in FIG. 3, about 80–85% of the inside of the converter **1** can be lined by means of the lifting device **10** through the bottom opening **3** of the converter **1** from the main working platform **8**, whereby the lifting device **10** can comprise a telescoping rod to be expanded by any conventional means. Since the main working platform **8** has a diameter which is too large for the lining of the remainder of the inside of the converter **1** in the so-called "hat" portion **11** of the converter **1**, the main working platform **8** is lowered by means of the lifting device **10**, as shown in FIG. 4, to a point that the "hat" portion **11** is lined by means of the auxiliary working platform **6**, which has smaller diameter. The material for the lining of the "hat" portion **11** of the converter **1** is fed in large quantities through the large passage opening **9** of the main working platform **8** and from there in part quantities through the smaller passage opening **12** (FIG. 6) of the auxiliary working platform **6** fed to the latter for the lining operation.

While I have disclosed one embodiment of the present invention, it is to be understood that this embodiment is given by example only and not in a limiting sense, the scope of the present invention being determined by the objects and the claims.

I claim:

1. An apparatus for lining of a metallurgical furnace which has a bottom opening of a larger diameter than the top of said furnace, comprising

a main working platform having an outer diameter substantially complementary to said bottom opening of said furnace,

means for lifting and lowering said main working platform,

the latter having a large unobstructed opening adapted to pass lining material therethrough into said furnace, and

an auxiliary working platform smaller than said main working platform, and adapted to fit into the top of said furnace,

said auxiliary platform being received in and liftable from said main working platform and having an unobstructed opening smaller than that of said main working platform, said smaller opening being adapted to pass lining material therethrough into said furnace.

2. The apparatus, as set forth in claim 1, wherein said main working platform includes means for lifting and lowering, respectively, said auxiliary working platform.

3. The apparatus, as set forth in claim 2, wherein said means for lifting and lowering, respectively, said

auxiliary working platform comprises supports receivable in and liftable from, respectively, said main working platform.

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JOHN F. CAMPBELL, *Primary Examiner.*

M. L. FAIGUS, *Assistant Examiner.*