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2,369,756

BASE FOR METALLURGICAL FURNACES AND THE LIKE

Filed Dec. 20, 1941

2 Sheets-Sheet 1

Fig. 1.

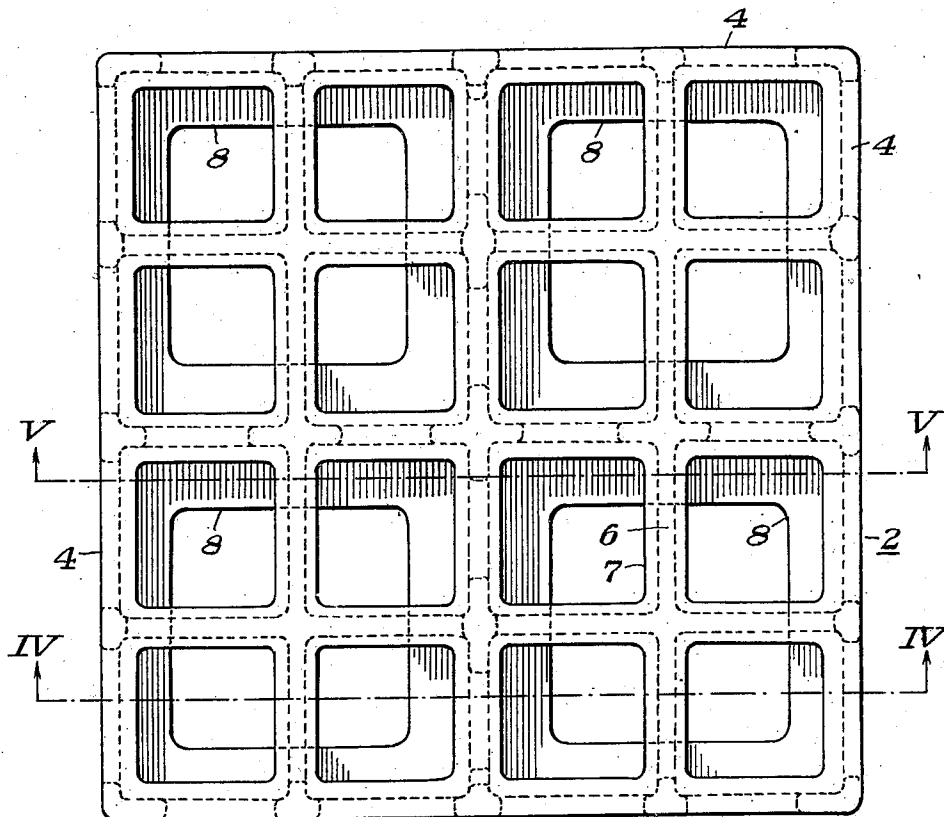
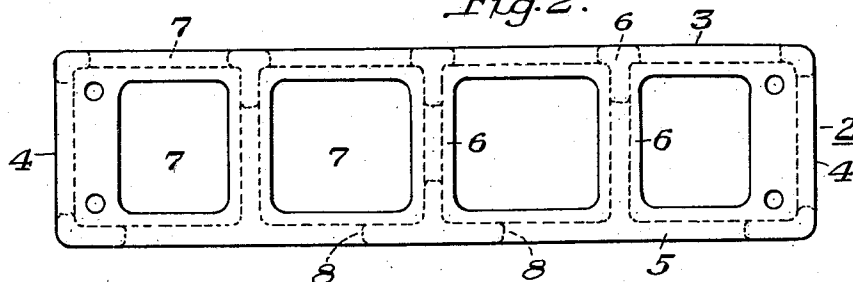


Fig. 2.



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Fig. 3.

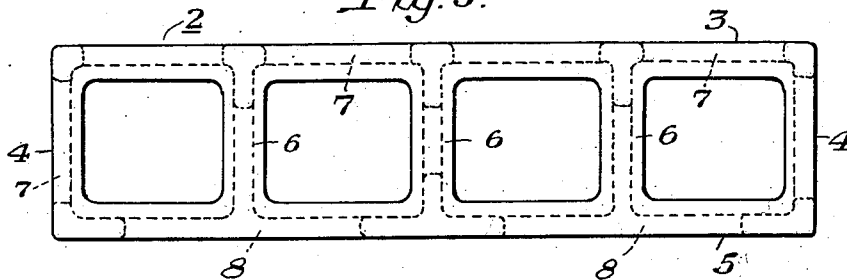


Fig. 4.

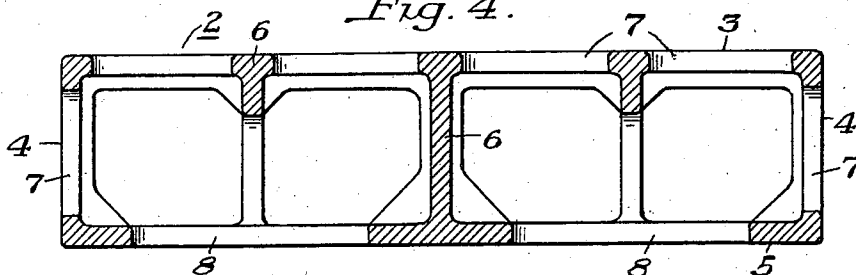
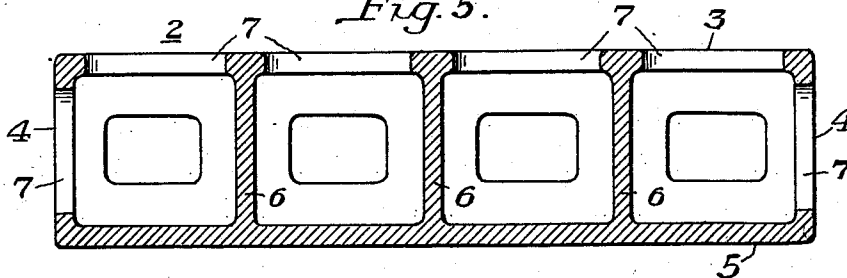


Fig. 5.



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BASE FOR METALLURGICAL FURNACES
AND THE LIKECharles M. Sackerson, Cleveland, Ohio, assignor
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3 Claims. (Cl. 263—47)

This invention relates to bases or supporting means for furnaces and, particularly, to an improved base or supporting means for metallurgical furnaces, such as box annealing furnaces, and the like.

Various types of bases have been suggested and used for supporting the charge in metallurgical furnaces. While such bases usually satisfactorily supported the charge in the furnace, they were not designed so as to permit the heating gases to circulate in and around the lower portion of the charge to satisfactorily heat the same. Some bases suggested were designed so as to permit the gases to pass only in one direction through the base and around the charge therein, but such bases did not permit maximum circulation of the gases and were not entirely satisfactory.

In the present invention, there is provided a base for metallurgical furnaces which is so constructed that the heating gases pass in both a longitudinal and transverse direction through the base, and up through the lower portion of the charge, thereby eliminating the above named disadvantages.

Accordingly, it is the general object of the present invention to provide an improved base, for use with metallurgical furnaces and the like, which is so constructed and arranged that the heating gases are permitted to pass both longitudinally and transversely through the base so that the lower portion of the charge resting thereon is efficiently and effectively heated.

It is another object of the invention to provide an improved base for use with metallurgical furnaces and the like which is simple and inexpensive in its construction and, at the same time, a base which is strong and rugged.

It is a further object of the invention to provide an improved base for use with metallurgical furnaces and the like whereby the heating gases pass entirely underneath and around the lower portion of the charge so as to rapidly penetrate the same, thereby heating the charge to the desired temperature in a minimum amount of time.

Various other objects and advantages of this invention will become more apparent during the course of the following specification and will be particularly pointed out in the appended claims.

In the accompanying drawings there is shown, for the purpose of illustration, one embodiment which my invention may assume in practice.

In these drawings:

Figure 1 is a plan view of the improved base of my invention;

Figure 2 is an elevation of one side of the base as shown in Figure 1;

Figure 3 is an elevation of another side of my improved base, similar to Figure 2;

Figure 4 is a section taken on line IV—IV of Figure 1; and

Figure 5 is a section taken on line V—V of Figure 1.

Referring more particularly to the drawings, the improved base of my invention comprises preferably a cast steel rectangular-shaped body member 2 having a top 3, side and end walls 4, and a bottom 5. There is arranged between the side and end walls 4 preferably a plurality of spaced apart longitudinally and transversely extending rib-like portions 6 which are connected together to form an integral body unit. That is, longitudinally and transversely extending rib-like portions 6 are arranged substantially perpendicular to each other and are spaced apart from each other. There is arranged, through each of the side and end walls 4 and the rib-like portions 6, a plurality of openings 7 so as to provide a plurality of passageways through the body member extending both longitudinally and transversely thereof and being interconnected with each other. That is, the longitudinally extending rib-like portions 6 are spaced apart with the transversely extending rib-like portions having a hole arranged therethrough opposite the space between the longitudinally extending rib-like portions so as to provide a passageway therebetween which extends throughout the length of the body member and the transversely extending rib-like portions are spaced apart with the longitudinally extending rib-like portions having an opening arranged therethrough opposite the space between the transversely extending rib-like portions so as to provide a passageway between the transversely extending portions throughout the width of the body member. It will thus be seen that the passageways between the longitudinally extending rib-like portions and the transversely extending rib-like portions are substantially perpendicular to each other and are all interconnected with each other.

In the top 3 of the body member 2 between each of the rib-like portions 6 there is provided an opening 7 which communicates with the transversely and longitudinally extending passageways arranged therebelow between the transversely and longitudinally extending rib-like portions. There is arranged in the bottom 4 of the base preferably a plurality of larger openings 8 which also communicate with both the longi-

tudinally and transversely extending passageways between the rib-like portions 6. Thus, it will be seen that the top of the base has an open mesh-like appearance and that there is provided a skeleton frame-work which is open at the top and bottom, and at each side thereof, thereby providing as much open space as possible consistent with adequate structural strength.

It will be understood that the improved base of my invention is placed in the furnace with which it is adapted to be used with the bottom 5 thereof resting on the bottom of the furnace. The charge is adapted to be disposed on the top 3 of the base.

As a result of my invention, it will be seen that there is provided not only a base whereby the heating gases in the furnace may circulate both longitudinally and transversely of the base in a horizontal plane, but also a base whereby the gases may circulate from the bottom through the top of the base in substantially a vertical plane. Accordingly, it will be seen that by providing such a construction, the heating gases may circulate up through and around the base and the lower portion of the charge positioned thereon, thereby effectively heating the lower portion of the charge with the least amount of heat input.

While I have shown and described one specific embodiment of my invention, it will be understood that this embodiment is merely for the purpose of illustration and description and that various other forms may be devised within the scope of my invention, as defined in the appended claims.

I claim:

1. A removable base for metallurgical furnaces and the like comprising a body member having top, side, end and bottom walls so as to provide a box-like structure, a plurality of longitudinally extending spaced rib-like portions arranged within said body member throughout the length thereof, a plurality of similar laterally extending spaced rib-like portions arranged within said body member extending throughout the width thereof and disposed substantially perpendicular to said longitudinally extending rib-like portions, both of said longitudinally and laterally extending rib-like portions extending the height of the

body member and intersecting each other, an opening arranged in each of said side walls and each of said longitudinally extending rib-like portions between adjacent laterally extending rib-like portions so as to provide a passageway throughout the width of the body member between each of said laterally extending rib-like portions, a similar opening arranged in each of said end walls and each of said laterally extending rib-like portions between adjacent longitudinally extending rib-like portions so as to provide a passageway throughout the length of the body member between each of said longitudinally extending rib-like portions whereby a plurality of interconnected passageways are provided throughout both the length and width of the body member so as to provide a checker-like arrangement of passageways whereby heating gases may circulate into and around through all of the openings and passageways of the body member.

2. A removable base for metallurgical furnaces and the like, as defined in claim 1, including an opening arranged in the top wall between adjacent longitudinally and laterally extending rib-like portions communicating with the respective passageways arranged therebelow in the body member so as to provide a checker-like arrangement of openings in said top wall whereby the heating gases may circulate into and around through all of the passageways and up through the openings in the top of said body member.

3. A removable base for metallurgical furnaces and the like, as defined in claim 1, including an opening arranged in the top wall between adjacent longitudinally and laterally extending rib-like portions communicating with the respective passageways arranged therebelow in the body member so as to provide a checker-like arrangement of openings in said top wall, and a plurality of openings arranged in the bottom wall of said body member communicating with the passageways arranged thereabove between the laterally and longitudinally extending rib-like portions whereby the heating gases may circulate into and around through all of the passageways and up through the openings in the top of said body member.

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