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2,022,649

STOCK SUPPORT FOR HEATING FURNACES

Filed Jan. 16, 1935

2 Sheets-Sheet 1

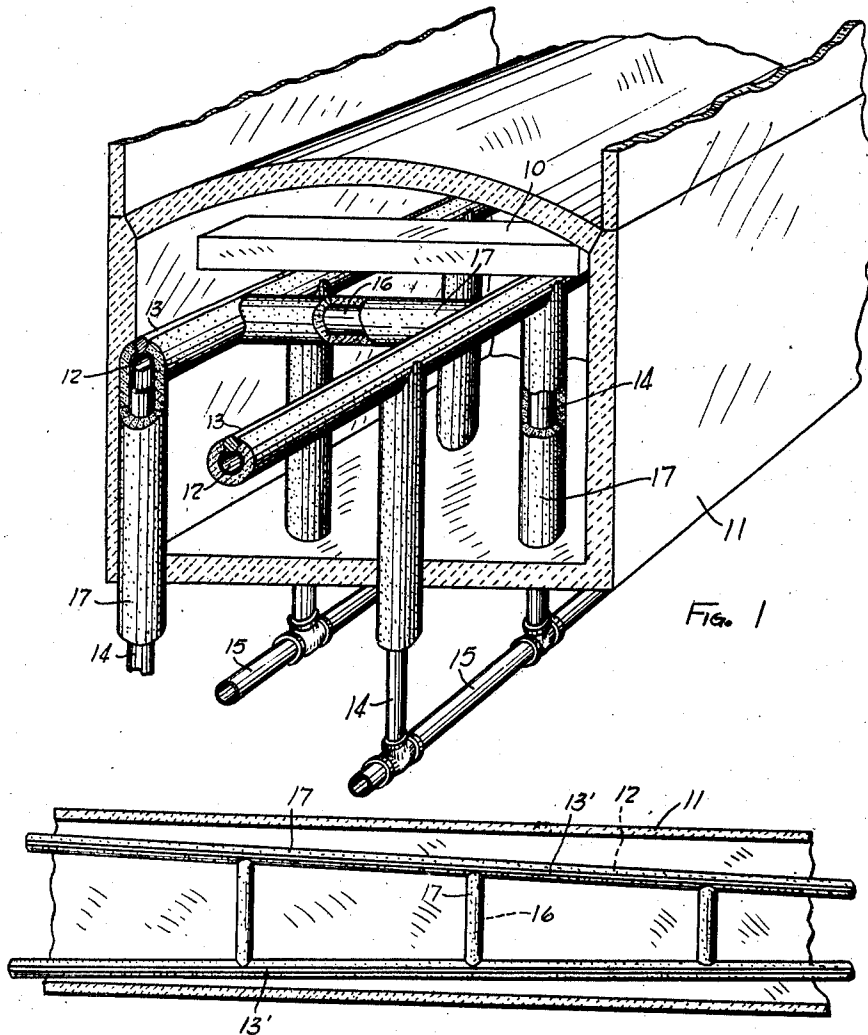


Fig. 4

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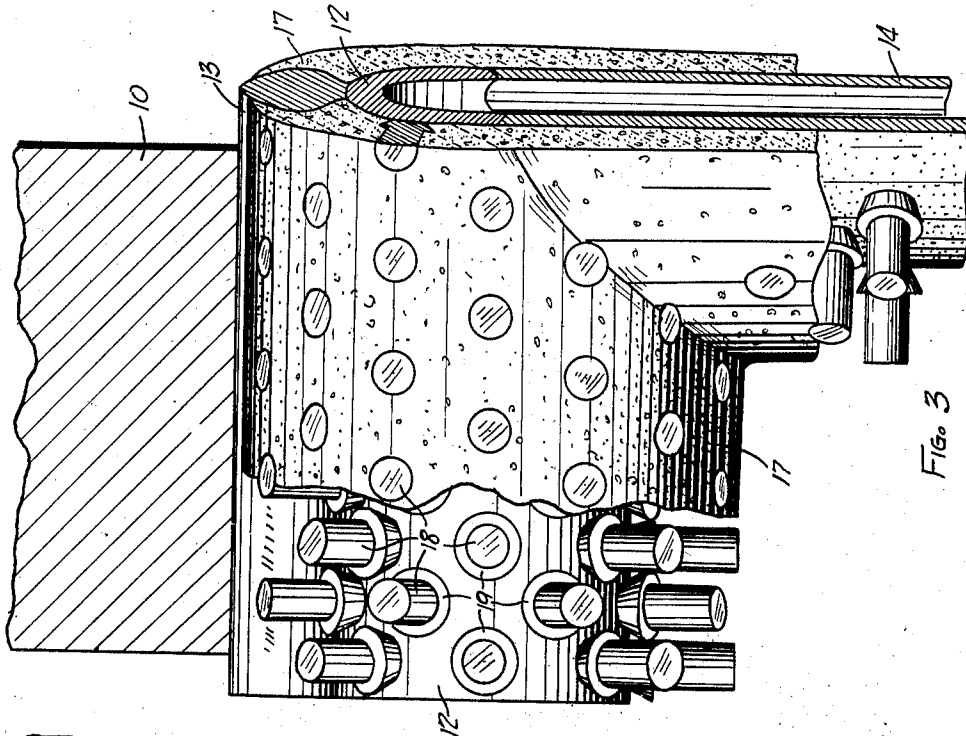


Fig. 3

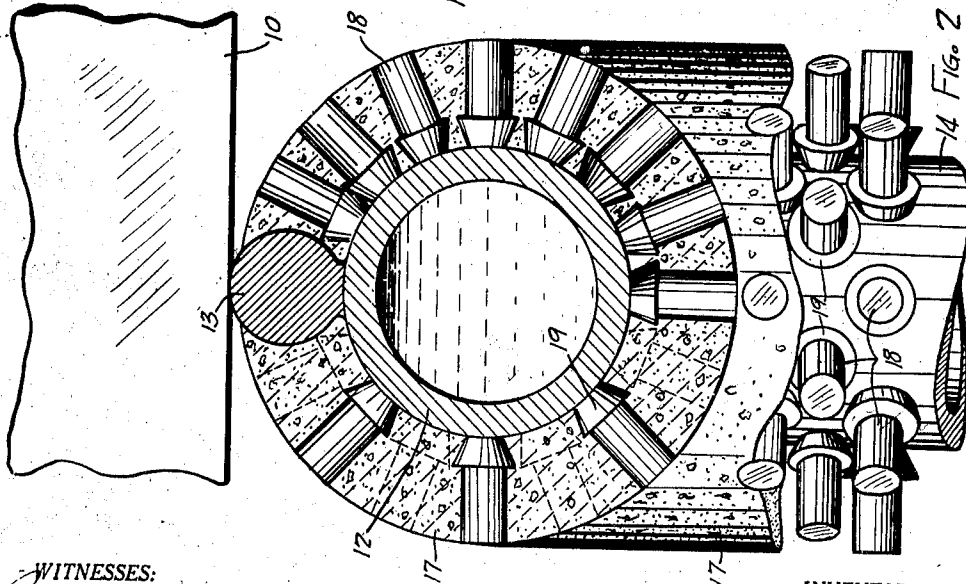


Fig. 2

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STOCK SUPPORT FOR HEATING FURNACES

John Wilson Corrison, Springfield, Pa.

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4 Claims. (Cl. 263-6)

This invention relates to stock supports for heating furnaces with particular reference to the type of heating furnaces employed for heating billets, slabs, or the like, used in metal processing.

A further object of the invention is to provide improved means for supporting the material being processed, which will hereinafter, for convenience, be referred to as billets, without limitation thereby.

A further object of the invention is to provide skid rails for the billets having associated conduits for cooling liquid, and with improved refractory insulation.

A further object of the invention is to provide pipes or tubes through which may be circulated cooling water and to which are attached skid rails so associated as to be affected by the cooling of the pipes, with refractory material secured about the exterior of the pipes for protecting the pipes against the intense heat of the furnace, but with the skid rail exposed for supporting the billets.

Another object in view is the provision of a furnace of the character described in which the rails which support the billets are arranged in a nonparallel relationship.

The invention, therefore, comprises a system of skid rails and their supports, the supports constructed of tubular material upon which the skid rails are secured, said tubular material being connected into a circulating system for cooling fluid, said tubular supporting members being also enveloped in a refractory material secured thereto by members which are in turn secured directly to the tubular parts.

The drawings illustrate an embodiment of the invention and the views therein are as follows:

Figure 1 is a fragmentary perspective view showing conventionally the arrangement of a pair of skid rails and their tubular supporting structure,

Figure 2 is a transverse sectional view through one of the skid rails and its supporting structure,

Figure 3 is a fragmentary view in side elevation of one of the skid rails and its supporting structure, and

Figure 4 is a plan view of an arrangement of the skid rails.

Like characters of reference indicate corresponding parts throughout the several views.

The present invention is adapted for association with heating furnaces used for heating metal in various forms and shapes, and as hereinbe-

fore noted, generically referred to as billets, one of which is shown at 10. A furnace structure, indicated conveniently at 11, is intended as no limitation in any way upon the invention, but merely for the purpose of illustrating the use of the invention.

The invention comprises the structure within the furnace for supporting the billets, and consists primarily of a structure composed of tubes or pipes 12 along the top of which are secured the skid rails 13 which are the direct support for the billets 10. These pipes 12 are themselves supported by other tubular supports 14, and all formed into a circulating system by means of pipes 15 outside of the furnace, preferably below the floor thereof. Also, preferably, the pipes 12 will be held in their relation to parallel by cross pipe 16.

All of the tubular structure within the furnace will be provided with refractory material 17 which will be secured to the tubular structure in any approved manner. As shown in the drawings, a plurality of pins 18 are secured to the surface of the tubular structure, in any convenient manner, as by welding, and will extend radially. Preferably, and for the purpose of more securely anchoring the refractory material, shoulders or heads 19 will be formed as a part of the pins 18. These heads 19 will, as shown in the structure, be the part which will be secured directly to the tubular structure and the refractory material in plastic form will be packed in about these pins and will be rigidified in such manner as the nature of the refractory material provides.

It is customary in such furnaces to employ skid rails or like supports running parallel throughout the length of the furnace. Under such conditions the billets when moving along the skid rails continue with the same spots in contact with the skid rails which are ordinarily cooled and, therefore, produce areas upon the contacting sides of the billets which are not heated to the same temperature as the remaining part of the billet. Such unheated portions are known in the art as "black spots". The present invention includes mounting the skid rails in some manner other than parallel so that the spots of contact of the billets upon the skid rails will vary throughout their travel, and, therefore, formation of black spots will be largely or entirely eliminated.

At Figure 4 the skid rails 13' are indicated as diverging or converging, dependent upon which end is employed as the receiving end. So

mounted, billets moving throughout the length of the furnace will naturally bring into contact with the skid rails different parts; therefore, every part of the underside of the billet will be subjected to the heat of the furnace and will be delivered at the delivery end in proper heated condition without the usual final heating or "soaking".

As the operation of a furnace constructed in accordance with the present invention differs in no wise from the operation of a furnace in ordinary use, no further explanation seems to be required.

Of course, the stock support for heating furnace illustrated may be modified and changed in various ways without departing from the invention herein set forth and hereinafter claimed.

I claim:—

1. In a heating furnace, a tubular supporting structure, members outstanding from the tubular parts and extending radially therefrom, and refractory material imbedded within the outstanding members.

2. In a heating furnace, a tubular supporting

structure, skid rails extending along said tubular structural parts, members outstanding from the tubular parts, and refractory material imbedded about the tubular parts held by the members with the skid rail extending above the refractory material, said outstanding member extending radially from the tubular structure through the refractory material.

3. In a heating furnace, a tubular supporting structure, refractory material enveloping the tubular structure, and members imbedded in the refractory material and fixed to the exterior of the tubular structure, said members extending through the refractory material radially of the tubular structure.

4. In a heating furnace, a tubular supporting structure, refractory material enveloping the tubular structure, members imbedded in and extending entirely through the refractory material and fixed to the exterior of the tubular structure, and skid rails extending longitudinally along the tubular structure and above the refractory material.

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