Jan. 6, 1931. H. H. HARRIS 1,787,980

LINK CONVEYER

Filed May 7, 1928

Fig. 1.

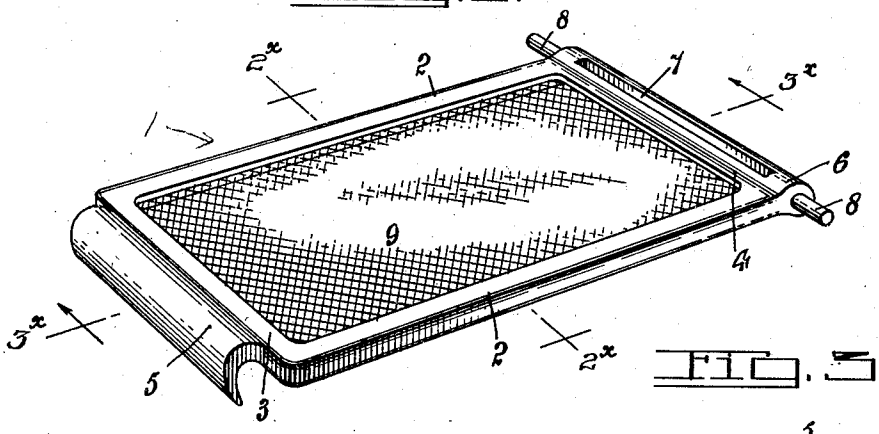


Fig. 5.

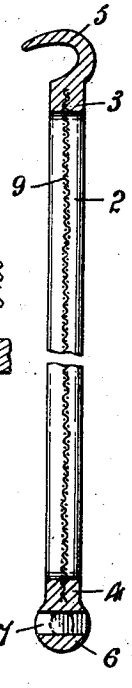
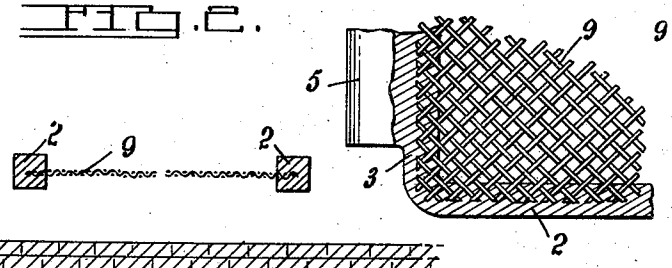


Fig. 4.

Fig. 2.



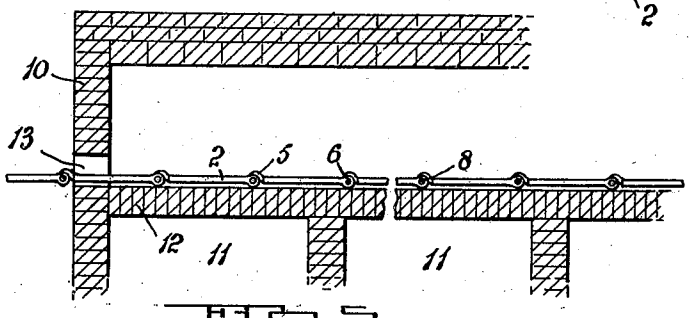


Fig. 3.

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UNITED STATES PATENT OFFICE

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LINK CONVEYER

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This invention relates to conveyer links and particularly to conveyer links for use in heat treating furnaces.

It has heretofore been the custom to use flat metallic links or plates interengaged to form a chain or conveyer, but such links fail to permit perfect heat treatment. The reason for this is that the base of any article travelling on such a link thru a heat treating furnace receives only so much heat as is passed thru the link. It is easy to see that the heat passed thru the link may be less than that around the rest of the article.

In the case of very small articles, many of which may be grouped on each link, the uneven heating condition is magnified with the result that loss of heat and space is preferred to poor results and consequently it is not customary to closely group articles on a single link.

In addition, the metallic links or plates of the conventional type conveyer absorbs as much heat in transit thru a furnace as the articles they carry. The heat is largely lost as the various links ride out of the furnace, merely by radiation and convection. Thus there are two definite types of heat losses in the use of conveyer links now in use.

It is the object of this invention to provide a link which will permit ready access of heat to the entire surfaces of any articles placed thereon by permitting heat to uniformly reach the underside of such articles.

It is a further object to provide a link which will permit the maximum loading of small articles thereon with minimized danger of uneven heating.

It is a still further object to provide a link which will not absorb as much heat as links now in use and consequently not lose as much heat by radiation and convection.

It is a further object to provide a link capable of carrying out the above named objects which shall be cheap to manufacture, capable of use in link conveyers now in use without any change whatever in machinery or tools, and similar in installation to those now in use. In fact the new link herein described may replace other links if desired, so that the conveyer may contain both new and old links without any ill effects in the operation of the system.

An important object is to provide a conveyer link for heat treating furnaces where said link is of an open structure having a frame-supported perforated tray capable of stretching to accommodate expansion of the frame of the link.

A better understanding of my invention will be had with reference to the accompanying drawings in which

Figure 1 shows a perspective view of my improved link.

Figure 2 shows a cross section taken along line 2—2 of Figure 1.

Figure 3 shows a cross sectional view taken along line 3—3 of Figure 1.

Figure 4 shows a detailed sectional view of one corner of the link.

Figure 5 shows a conventional heat treating furnace having a link conveyer travelling thru it.

Referring more particularly to the drawings:

Numeral 1 refers generally to a conveyer link formed in the shape of a flat hollow rectangle bounded by two side walls 2 and by two end walls 3 and 4. Integrally cast with wall 3 is a curved coupling member 5 adapted to engage the next succeeding link, whose adjacent end is similar to the end of link 1 opposite to that carrying member 5. This opposite end, which is built integrally with wall 4 is enlarged at 6 thruout its length, slotted at 7 a width corresponding to the width of coupling member 5 and has protruding arms 8 by which the belt or conveyer formed by a plurality of links may be driven by a suitable mechanism (not shown).

Embedded in the walls 2, 3 and 4 are the marginal portions of a thin perforated tray 9, preferably in the form of a woven wire screen of a suitable heat-resisting material. While I prefer to embed the plate of screen 9 in the walls while casting the plate, it is also possible to cast the rectangular hollow exterior portion and attach the screen thereto by welding or in any suitable manner. Figure 4 illustrates the preferred manner of

manufacture, in which the wall is cast or poured over the edges of the screen.

Figure 3 shows the preferred position of the screen. By casting the screen centrally in the wall 2 the screen will not drag along the floor of the furnace.

In Figure 5 numeral 10 refers generally to a conventional furnace having grates or fireboxes 11, a floor 12 and a door 13 thru which a conveyer composed of a plurality of links 1 is adapted to enter the furnace and ride on the floor thereof. Figure 5 serves to give a complete idea of the manner in which I intend to use my improved link and to graphically illustrate the advantages of employing such a link.

It is preferred to make both the screen and the link frame of a heat resisting material, such for example as of a chrome-nickel alloy, whereby relatively long life will be assured, especially in high-temperature furnaces and it is also desirable to provide therein a screen or tray which will have the property of extending to accommodate expansion and the contraction of the frame of the link. For this reason I show the strands of the screen fabric as extending diagonally of the link and as being corrugated or other than straight in the direction of their length, so that the said strands are in themselves capable of extension as is the fabric as a whole, which will be readily understood.

While I have specifically shown a single embodiment of my invention it is evident that various changes in form may be made without departing from the spirit of my invention, and I desire to be limited in its application only by the scope of the appended claims in which I claim:

1. In combination with a heat treating furnace having a conveyer traveling therethrough, a link for said conveyer comprising a hollow metallic rectangle having cast walls, coupling members cast integrally with two opposed end walls, and a heat resisting screen integrally embedded centrally of the height of said walls whereby the screen will not drag in transit.

2. A conveyer link according to claim 1, wherein said screen is elastic to accommodate expansion of said rectangle.

3. In combination with a heat treating furnace having a conveyer traveling therethrough, a link for said conveyer comprising a wire fabric tray and a rectangular framework integral cast with said tray at the edges thereof, said tray being extensible under the influence of heating in the heat treating furnace to accommodate expansion of the sides of said framework.

4. In combination with a heat treating furnace having a conveyer traveling therethrough, a link of said conveyer comprising an open rectangular framework and wire mesh covering the opening in said framework, said mesh having its strands diagonally disposed with respect to the sides of said framework and integrally embedded therein to provide extensibility of said mesh upon expansion of said framework.

5. In combination with a heat treating furnace having a conveyer traveling therethrough, a link of said conveyer comprising an open rectangular framework composed of a heat resisting metallic alloy and wire mesh covering the opening in said framework, said mesh comprising wire strands of a heat resisting metallic alloy extending diagonally across the open rectangle and having the ends thereof integrally embedded in said framework.

In testimony whereof I affix my signature.

HENRY H. HARRIS.