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3,265,192

RAIL TRACK WITH ELONGATED SNAP-ON BEARING STRIP

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FIG. 1

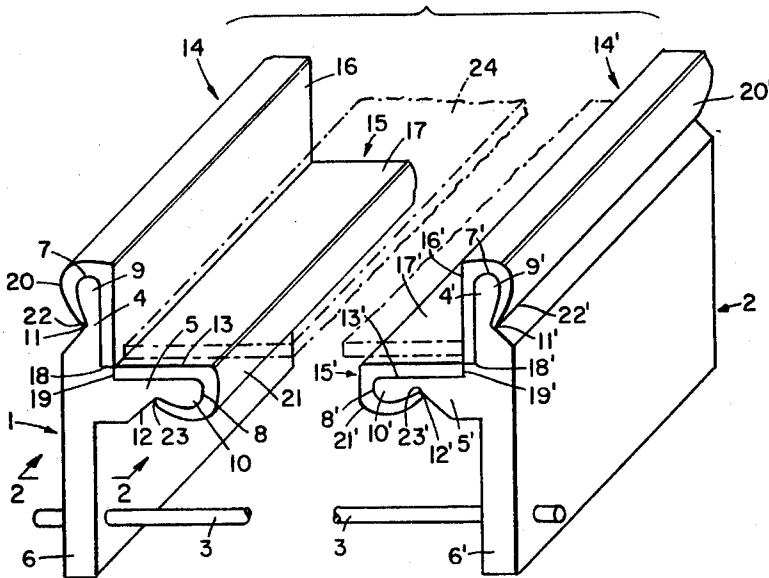


FIG. 2

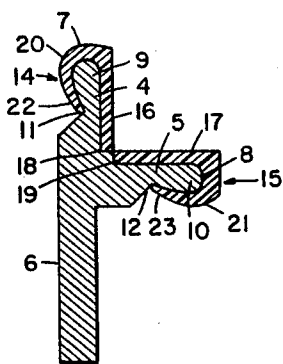
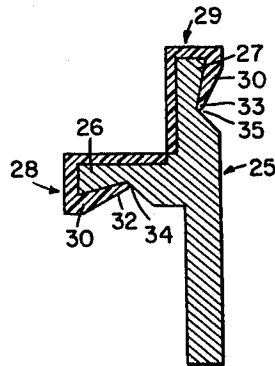


FIG. 3



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1

3,265,192

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The present invention deals with a rail track having mounted thereon elongated snap-on bearing strips and more particularly with a guide rail track for conveyor belts having snap-on bearing strips mounted thereon.

Conveyors of the type contemplated comprise a frame-work carrying a plurality of freely rotatable rolls spaced from each other longitudinally of the frame-work and on which a movable conveyor belt, e.g. an endless belt, travels for the purpose of reducing belt drag which would otherwise be particularly objectionable especially in long conveyor lines. In addition to the frame-work and rolls, the conveyor is provided with laterally spaced guide rails mounted on the frame-work forming a rail track on which the longitudinal marginal end portions of the belt ride in frictional contact therewith. The guide rails are provided so that the belt is maintained in longitudinal or linear travel without substantial lateral deviation from a prescribed path which could otherwise result in the belt becoming dislocated from the rolls or the frame-work. Since long conveyor lines are often directed along curved routes, or routes which do not follow a straight line, it will be apparent that a guide rail means is essential to maintain the travel of the belt along its prescribed path. However, since each opposite longitudinal end portion of the belt is in movable frictional contact with a guide rail there is considerable scoring and gouging of the rails by abrasion and sometimes to the extent that the gouging introduce undesirable catching of the belt, or resistance to belt travel, or fraying of the lateral edges of the belt. The abrasion is particularly pronounced when the rails are made of a light metal such as aluminum.

Therefore, it has been recognized that the guide rails could advantageously be provided with hard bearing surfaces, or surfaces resistant to abrasion by the conveyor belt. However, the provision of such bearing surfaces presents a problem since the rails, especially when composed of metal, expand and contract either because of the heat generated by the friction of the belt under prolonged usage or when the conveyor is located at least partly in zones of elevated temperature. When the bearing material is mounted on the rails and secured thereto by fixed securing means, e.g. bolts or screws, the bearing material, which is usually of a different composition from that of the rails, is subject to longitudinal stresses which tends to buckle the bearing material, or introduces a rippling of the bearing material. In extreme cases, the bearing material is subject to cracking and rupture.

The present invention contemplates a solution of such problem and provides for a composite rail means for a rail track including a bearing surface in the form of a strip material of substantially hook-like cross-section which has a substantially hard bearing surface and which is snapable over the rail by virtue of a snapable resiliency whereby the bearing strip is maintained on the rail without the necessity of securing by means of fixed securing means. In such case the rail is permitted to expand and contract under frictional movement relative to the bearing strip substantially without any longitudinal buckling or rippling stresses on the bearing strip.

It is an object of the invention to provide a composite rail means for a rail track including a bearing surface means which maintains a smooth bearing surface under extended usage, including usage where temperature condi-

2

tions are such as to induce expansion and contraction of the rail, without deleteriously affecting the bearing means.

It is another object of the invention to provide a composite rail means including a bearing means which is easily and economically mountable on the rail means.

Other objects and advantages of the invention will become apparent from the description hereinafter following and the drawings forming a part hereof, in which:

FIGURE 1 is an isometric view of the composite rail track of the invention,

FIGURE 2 is a cross-sectional view along lines 2—2 of FIGURE 1, and

FIGURE 3 is a cross-sectional view of a modification of the invention.

Referring to FIGURES 1 and 2 the rail track of the invention comprises a pair of rail means or bars 1 and 2 interconnected by a linkage simply illustrated as a linking rod 3, although it is to be understood that other conventional linkage means may be employed. The rail means or bars 1 and 2 are preferably composed of metal, e.g. aluminum, iron, steel, etc. Each bar 1 and 2 has a cross-section in the shape of an angle, substantially resembling the well-known angle iron configuration, having an upwardly extending leg 4 and 4', respectively, and laterally extending leg 5 and 5', respectively, forming a right angle cross-section. Preferably, each bar 1 and 2 is also provided with a depending mounting leg 6 and 6', respectively, for the purpose of interconnecting the rods, as illustrated. While the legs are illustrated as integral with each other, they may otherwise be separably connected to each other to form the angle cross-section. A longitudinal portion of each leg 4, 4', 5 and 5' adjacent its free marginal longitudinal edge, e.g. marginal edges 7 and 7', 8 and 8', is shaped into the form of a head 9, 9', 10 and 10', respectively. Each leg 4, 4', 5 and 5' is provided with a longitudinal extending neck means 11, 11', 12 and 12', respectively, adjacent the head means.

The bars 1 and 2 are interconnected by a linkage, e.g. linkage rod 3, secured to mounting legs 6 and 6' so that the laterally extending legs 10 and 10' face each other providing seats 13 and 13' between upwardly extending legs 4 and 4'.

The legs 4, 4', 5 and 5' are each equipped with bearing means provided by an elongated bearing strip 14, 14', 15 and 15', respectively. Each bearing strip comprises a substantially flat hard outer surface 16, 16', 17 and 17', respectively, along its length adjacent one longitudinal edge thereof. The longitudinal edges of strips 14, 14', 15 and 15', are identified as edges 18, 18', 19, and 19', respectively. The strips 14, 14', 15 and 15' are further provided with a longitudinal portion 20, 20', 21 and 21', respectively, along the length thereof and including respectively the other longitudinal edges 22, 22', 23 and 23' thereof. The longitudinal portions 20, 20', 21 and 21' each diverge from the flat surfaces of their respective strips along a path positioning their respective other longitudinal edges 22, 22', 23 and 23' to face toward the under surfaces of the strips thereby forming a strip of substantially hook-like cross-section as illustrated by FIGURE 2.

The bearing strips are preferably composed of a resin material such as Teflon or nylon as a matrix impregnated with a metal or metal oxide or graphite which imparts hardness to the strip bearing surfaces while permitting the diverged portions thereof to have a snapable resiliency even under substantially high temperatures.

Having provided the rail means and bearing strips above-described, the strips are mounted on the legs 4, 4', 5 and 5' by forceably snapping the diverged longitudinal end portions over the head means with the diverged longitudinal edges positioned adjacent the neck means. In this manner, the snapable diverged longi-

3

nal portions encompass, contain or otherwise embrace the head means. In mounting the strips over the head means the strips are positioned, for example, so that the flat surface 16 of strip 14 is adjacent the flat surface 17 of strip 15 and forming an angle therebetween. In this position a conveyor belt 24 may travel between the composite rail means or bars 1 and 2 with both its opposite longitudinal edges and its undersurface in frictional bearing contact with bearing surfaces, as illustrated.

Since the bearing strips are snapably mounted over the head means of each leg, the bars 1 and 2 are free to contract and expand longitudinally relative to the strips without deleteriously affecting the smoothness of the bearing surfaces. Should it be necessary to replace or adjust the strips relative to the rail means or bars, that is accomplished in the simple manner of forceably pulling away the strips from the head means and replacing or adjusting the strips.

FIGURE 3 is a modification of FIGURE 2 in that the bar 25 is provided with angular heads 26 and 27 rather than the curved heads illustrated by FIGURES 1 and 2, and the strips 28 and 29 are provided with diverged longitudinal portions 30 and 31 which are bent rather than curved, to follow a path positioning the longitudinal edges adjacent the necks 34 and 35.

Various modifications of the invention are contemplated within the scope of the appended claims.

What is claimed is:

1. A rail track comprising a pair of composite laterally spaced interconnected rail means in the form of elongated bars, each bar having a longitudinal portion adjacent a longitudinal marginal edge in the form of a head means, a longitudinally extending neck means on the bar adjacent the head means, a plurality of elongated strips each having a substantially flat hard outer surface along its length adjacent one longitudinal edge thereof, a longitudinal portion along the length of the strip including the other longitudinal edge diverging from the flat surface along a path positioning the said other longitudinal edge to face toward an under surface of the strip opposite the flat surface thereby forming a strip of substantially hook-like cross-section, said diverged portion having a snapable resiliency sufficient to snap over the head means of one of said bars, the strips each being mounted on each of said bars with the diverged portion thereof containing the head means and the diverged edge being positioned adjacent the neck means.

2. A rail track comprising a pair of composite laterally spaced interconnected rail means in the form of elongated bars having a cross-section in the shape of an angle, each bar having an upwardly directed leg connected to a laterally extending leg forming the angle cross-section, each leg having a longitudinal portion ad-

4

jacent a marginal longitudinal edge in the form of a head means, a longitudinally extending neck means on the bar adjacent the head means, a plurality of elongated strips each having a substantially flat hard outer surface along its length adjacent one longitudinal edge thereof, a longitudinal portion along the length of the strip including the other longitudinal edge diverging from the flat surface along a path positioning the said other longitudinal edge to face in the direction of an under surface of the strip opposite the flat surface thereby forming a strip of substantially hook-like cross-section, said diverged portion having a snapable resiliency sufficient to snap over the head means of one of said legs, the strips each being mounted on each of said legs with the diverged portion thereof containing the head means and the diverged edge being positioned adjacent the neck means.

3. A rail track according to claim 1, wherein the diverged portion is curved to face the said other longitudinal edge toward said undersurface.

4. A rail track according to claim 1, wherein the diverged portion follows an angular path to face the said other longitudinal edge toward said undersurface.

5. A rail track according to claim 1, wherein the head means of the laterally spaced bars are directed toward each other.

6. A rail track according to claim 2, wherein the diverged portion is curved to face the said other longitudinal edge in the direction of said undersurface.

7. A rail track according to claim 2, wherein the diverged portion follows an angular path to face the said other longitudinal edge in the direction of said undersurface.

8. A rail track according to claim 2, wherein the head means on the laterally extending legs of the laterally spaced bars are directed toward each other.

9. A rail track according to claim 8, wherein an elongated strip is mounted on each of the upwardly and laterally directed legs of each of the bars with the flat hard outer surfaces thereof adjacent each other forming an angle therebetween.

10. A rail track according to claim 9, wherein the angle is a right angle.

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