ABSTRACT: A frame member for a roller conveyor track is formed of an upright web section supporting a roller bearing block on one of its faces. One of the edges of the web section contains a first leg extending angularly from the face containing the bearing block while the other edge has a second leg extending in the opposite direction. The frame member is selectively invertible whereby the first leg is positioned above the roller and acts as a guide surface or the second leg is located in the upper position and affords a discharge surface from the roller conveyor. The bearing block has a pair of arcuate recesses for supporting one end of a roller, one recess for each of the invertible positions of the frame member.
FRAME MEMBER FOR ROLLER CONVEYOR TRACK

SUMMARY OF THE INVENTION

The present invention is directed to a roller conveyor track arrangement and, more particularly, it concerns a frame member for the track which supports a bearing block for the rollers and is sandwiched between two positions.

In tracks for roller conveyors, it is often necessary to provide guide strips on tractor frame members to prevent the conveyed material from sliding off the sides of the conveyor. However, these guide strips are undesirable at discharge points on the roller conveyor and as a result at such locations the track frame member must be formed of a different sectional shape. This requirement increases the cost of the track frame and also its cost of installation.

Accordingly, the primary object of the present invention is to provide a frame member which is sandwiched between two positions, whereby it can serve alternatively as a guide strip or surface or as a discharge surface.

Another object of the invention is to provide a frame member supporting a bearing block on one face with angularly disposed legs at its upright ends which assist in conveying the material on or in discharging it from the conveyor.

Yet, another object of the invention is to position the bearing block on the web section of the frame member so that it acts in combination with the legs for proper operation of the conveyor.

Still another object of the invention is to provide a single frame member which can be selectively inverted to provide a construction which satisfies various requirements necessary in conveyor operation.

Therefore, in the present invention, an inexpensive construction is provided for a roller conveyor track by forming a frame member from an upright web section having a bearing block secured to one of its side faces and a first leg extending from the web in the direction of the bearing block and a second leg located along the opposite edge of the bearing block and facing in the opposite direction from the bearing block. Further, the bearing block is provided with a pair of oppositely directed recesses for supporting the end of a roller in either of the invertible positions of the frame member.

In accordance with the present invention, an inexpensive and relatively simple frame member is provided which can be disposed in either of two positions, in one position, the first leg is disposed above the roller and is directed inwardly over the rollers and acts as a guide strip. In the other position, the inwardly directed leg is disposed below the roller and in instances where a surface projecting above the roller might be disturbing, such as at a discharge point from the conveyor, this second position is desirable. Moreover, with the inwardly directed leg disposed below the roller, it may be employed for protection against contact with a chain drive or the like.

In a preferred arrangement, the bearing block is provided with a pair of recesses having oppositely directed openings for receiving the ends of a roller in either of the positions of the frame member. The arrangement of the oppositely directed recess openings facilitates the insertion of the rollers into the bearing blocks as compared to an arrangement where the recess openings face one another.

In either bearing block arrangement, the recesses hold the roller journal or the outward race of an antifriction bearing mounted on the end of the roller in an angular surface contact of greater than 180° whereby a resistance must be overcome, in inserting and removing the rollers from the recesses. Advantageously, the bearing blocks are press formed sheet metal parts and are spot welded to the surface of the frame member.

In a particularly advantageous model of the invention, the frame member has a Z-shaped profile with one leg being bent in the direction of the bearing block and the other leg in the opposite direction and having a flat inwardly directed U-shaped configuration. With the U-shaped edge of the frame member directed upwardly, the edge of the conveyor tract is provided with a rounded surface which is especially advantageous at discharge points. Moreover, the profile configuration of the frame member considerably contributes to the stiffness of the support arrangement for the roller conveyor.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings and descriptive matter in which there are illustrated and described preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a transverse view, partly in section, through a roller conveyor track with the frame members according to the present invention illustrated in a symmetrical arrangement;

FIG. 2 is a transverse view, similar to that shown in FIG. 1, however, displaying the frame members at the ends of the roller in inverted positions;

FIG. 3 is an enlarged view of a bearing block such as shown in FIGS. 1 and 2, with the bearing recesses disposed in oppositely facing directions; and

FIG. 4 is a partial enlarged sectional view of the end of a roller positioned within a bearing block mounted on a frame member.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIGS. 1 and 2, a section of a roller conveyor is shown formed of a roller 1 having journal bearings 2 at its opposite ends on which are fitted the inner races of antifriction bearings 3. The outer surface of the bearings 3 are covered by elastic cap guards 4 which protect them from any harmful influences.

The ends of the roller, together with the cap guards 4, are fitted into bearing blocks 5 which are secured to the inside faces, that is, the surface facing toward the roller, of frame members 6 and 7. Each of the bearing blocks 5 has a pair of oppositely directed bearing recesses or sockets 8, 9. As shown in FIGS. 1 and 2, the frame members 6 and 7 may have their legs 10 disposed in the upward position or in the downward position depending on the function of the roller conveyor at a particular point. In FIG. 2, the leg 10 on the lefthand side is shown in the upward position while on the righthand side it is shown in the downward position so that conveyed materials may be discharged from the right-hand side of the conveyor.

As illustrated in the drawings, the frame members 6 and 7 have a generally Z-shaped profile with a first leg 10 extending perpendicularly from one edge of the web sections 6a, 7a of the frame members and facing in the same direction as the bearing block. At its remote end from the web section, the leg 10 has an angularly bent section or guide strip 11 which is directed toward the roller 1. The other or second leg of the frame members 6 and 7 is located at the opposite edge of their web sections and has a generally U-shaped configuration with the opening of the U facing inwardly toward the roller and providing a rounded outer surface 13. The rounded surface 13 of the second leg 12 obviates the need for any special edge protection. In addition, the configuration of the frame members provides them with greater structural rigidity or stiffness.

The bearing blocks 5 can be formed of pressed sheet metal parts. The bearing recesses 8 and 9 are arranged to hold the cylindrical guard cap 4 through an angle α, that is, having an angular surface of contact somewhat greater than 180° and affording a clamping effect for the bearing journal 2 of the roller 1 within the bearing block 5. In FIG. 3, the weld points 14 indicate the manner in which the bearing blocks are spot welded to the side surface of the frame members 6 and 7.
In accordance with the function of the frame members of the roller conveyor at any particular point, the frame members can be inverted between two positions, that is, with the first leg 10 or the second leg 12 in the upward position and the other leg in the downward position. As indicated in FIG. 2, the frame members may be positioned asymmetrically to one another. The bearing block 5 is located closer to the second end 12 of the frame member than to the first end 10, whereby the second end is approximately at the level of the roller when it is in the upward position for facilitating discharge of the materials from the roller conveyor. In positioning the frame members they are invertible by rotating about an axis through the bearing block.

While specific embodiments of the invention have been shown and described in detail to illustrate the application of the inventive principles, it will be understood that the invention may be embodied otherwise without departing from such principles.

We claim:
1. A frame member for a roller conveyor track comprising an upright web section, a bearing block secured to one face of said web section, said bearing block comprising a pair of bearing recesses spaced apart in the upright direction and arranged to receive one end of a roller, a first leg secured to said web section at a location spaced in the upright direction from said bearing block and extending angularly outwardly from the face of said web section supporting said bearing block and said web section being invertible between a first position with said first leg located above said bearing block and one of said bearing recesses positioned to receive the one end of a roller and a second position with said first leg located below said bearing block and the other of said bearing recesses positioned to receive the one end of a roller so that in the first position said leg acts as a guide strip for material being carried along on the roller conveyor track.

2. A frame member, as set forth in claim 1, wherein a second leg is secured to said web section on the opposite side of said bearing block in the upright direction from said first leg, and said second leg extends angularly outwardly from the face of said web section opposite the face containing said bearing block.

3. A frame member, as set forth in claim 1, wherein said first leg extends substantially perpendicularly to said web section.

4. A frame member, as set forth in claim 3, wherein the end of said first leg remote from said web section is bent substantially perpendicularly to the remainder of said first leg and extends in the direction toward said bearing block.

5. A frame member, as set forth in claim 4, wherein said second leg has a generally U-shaped configuration with the opening thereof facing in the direction of said bearing block.

6. A frame member, as set forth in claim 1, wherein said first leg and said second leg are positioned at the opposite ends of said web section.

7. A frame member as set forth in claim 1, wherein said recesses in said bearing block each have an arcuate surface of U-shaped configuration in the plane of said web section and are arranged to receive and support the bearing end of the roller, the arcuate surface is arranged to contact the bearing end of the roller through an angle at least greater than 180° for effecting a clamping support for the end of the roller.

8. A frame member as set forth in claim 7, wherein the openings provided by said U-shaped recesses in said bearing blocks are arranged to face in opposite directions.

9. A frame member as set forth in claim 8, wherein said bearing blocks are pressed sheet metal parts and are spot welded to said web section.