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CHAIN CONVEYOR TRACKS

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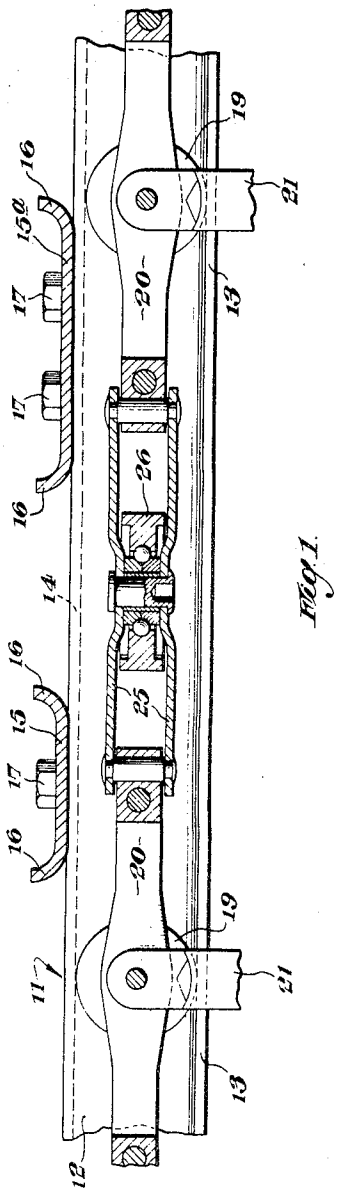

Fig. 1.

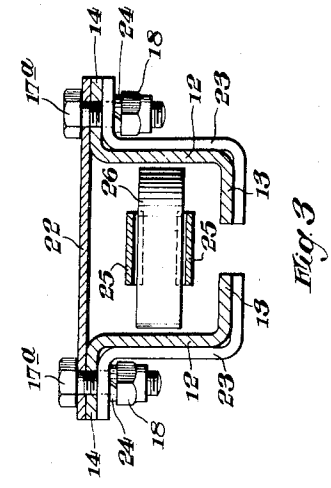

Fig. 3

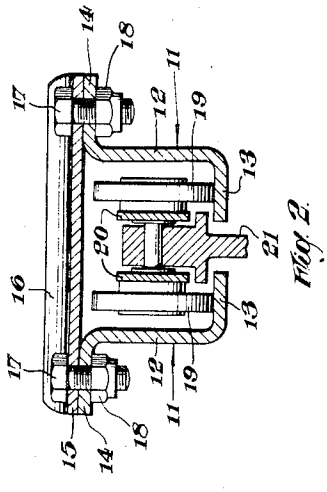

Fig. 2.

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CHAIN CONVEYOR TRACKS

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1 Claim. (Cl. 198—177)

This invention relates to tracks for chain conveyors and more particularly to a novel kind of track which is compact, very resistant to deflection by the strains and forces exerted by the chain when in operation, and may be built up in a very simple manner.

Tracks constructed with a tubular or trough-like conformation, i.e. having side walls and a bottom with a longitudinal slot, are in common usage. The internal construction may be effectively rectangular, square or circular and the longitudinal slot may be central or somewhat offset. The conveyor chain runs through the track, some of the links being load carriers and provided with wheels or rollers running in vertical planes on the bottom of the track, and other links alternating therewith having wheels or rollers running in horizontal planes and engaging the side walls of the track. Such tracks may be of one piece construction, or be built up from more than one member. In the latter case, two identical track members such as angles or channels are generally used, which face one another with inturned horizontal bottom flanges which are spaced apart at their edges to form a slot through which support members hang from the load-carrying links of the conveyor chain. The track members are connected at the top by brackets, top plates, crossbolts and spaced tubes, or similar methods.

The present invention includes a track for a chain conveyor which comprises two similar Z-section beams, i.e. having a central web and a flange at each end thereof, the flanges extending at right-angles to the web in opposite directions, said beams being disposed with their webs vertical and parallel to one another, and with the upper flanges out-turned, and the lower flanges in-turned with the edges spaced apart to form a longitudinal slot, the beams being connected together by spacer members bolted to and spanning the upper flanges.

This construction provides a simple compact structure which has considerable strength despite its shallow depth. It enables the use of simple joints between adjacent lengths of track which are both strong and stiff. Brackets can readily be attached to the top for connection to tubular supporting members or the like, or if necessary or convenient direct connection may as easily be made to appropriate overhead supporting building structure. Moreover there is ready access to both the heads and nuts of the connecting bolts during the installation of the track. Also, there is easy access to the chain available at most points, but if necessary the top can be readily enclosed. Moreover, the Z-section beams can be easily rolled into curves such as are required in chain conveyor installations.

The spacing means may consist of bars fixed across the upper flanges, or they may consist of pieces of plate fixed along the upper faces of the upper flanges.

The said invention also includes improved fish plate means for joining adjacent track lengths.

In order that the invention may be clearly understood, an example thereof will now be described with reference to the accompanying drawings, in which:

FIGURE 1 is a section through a length of conveyor track according to the invention;

FIGURE 2 is a transverse section through the track showing also a section of a chain link supported vertically by a pair of wheels; and

FIGURE 3 is a transverse section similar to FIGURE 2 but taken at a different point and showing fish plates attached at the two sides of the track at a joint, and a section through another type of link in the chain carrying a wheel which runs on a vertical axis to locate the conveyor chain laterally.

Referring to the drawings, there is shown a pair of track members **11** each having a central vertical web portion **12** and having its lower edge turned inwardly, to form an inwardly projecting right-angular flange **13**, and its upper edge turned outwardly to form an outwardly projecting right-angular flange **14**, such a configuration being generally referred to as a Z-section. Holes which may be elongated in the lateral direction of the members are provided at intervals along the member **11** in the upper flanges to accommodate bolts by which spacer members **15** (left hand side of FIGURE 1) are attached. These spacer members preferably have their side edges **16** turned up. This not only provides maximum rigidity but ensures that if, by an unusual mischance, the chain should tend to ride up from its track it will engage the curved surfaces of the spacer members. These spacer members are held in position by bolts **17** secured by nuts **18**. An alternative form of these spacer members is also shown at the right hand side of FIGURE 1, the spacer **15***a* being wider and having a pair of bolts at each end securing it to the track members to provide increased lateral rigidity between the two track members and prevent relatively endwise movement.

A study of the drawings will show that the construction described above provides a very rigid structure which can be built up very easily and simply, and in operation the inner surfaces of the lower flanges **13** between them provide a track upon which wheels **19** carried by chain links **20** may run. Between the two parts of chain link **20** is a depending suspension link **21** which passes down between the lower flanges of the track members.

Where the track passes around a curve the spacer members **15** may be replaced by a piece or pieces of plate as shown at **22** in FIGURE 3. The plate is, of course, well adapted to withstand heavy lateral strains on the track which might tend to displace one track member with respect to the other. The track may also be spaced by such plates on inclines or in dangerous positions where an operator might accidentally insert his hand.

Figure 3 also shows fish plates **23** consisting of short lengths of plate, also provided with upper and lower flanges facing in opposite directions, which are placed in position at the sides of the conveyor track to cover joints in the track members. They are held in position by bolts **17***a*, which are a little longer than the bolts **17** used with the spacer members, and may conveniently be provided with spring washers **24**. If the proportions of the section of the track members are carefully chosen, the fish plates may consist of short lengths of track. This type of joint between track members is particularly strong and rigid.

FIGURE 3 also shows another type of chain link **25** which is provided with a wheel **26** rotatable about a vertical axis, the wheel **26** being adapted to engage the inner surfaces of the vertical webs on either of the track members in order to guide or locate the chain laterally. In normal constructions of chain, the chain links **20** and the chain links **25** would alternate along the length of the chain.

As will be evident from the drawings, the track according to the invention is not much larger in cross section than the chain, and is remarkably compact compared with known types of track.

I claim:

A track for a chain conveyor comprising pairs of track rollers with the rollers of each pair rotatable at opposite

ends of a horizontal axis extending transversely of the track and, between successive pairs of track rollers, centralising rollers each rotatable on a vertical axis, the track consisting of two identical beams each having a central flat web and two parallel flanges extending, one at each boundary of the web, in opposite directions at right angles to the web, the beams being disposed with their webs vertical and spaced apart for engagement by the centralising rollers, with two of their flanges lowermost and extending inwardly towards one another, to provide tracks for the track rollers, with their edges spaced apart to form a longitudinal slot between them, and with the other flanges uppermost and turned outwardly from one another, and, spaced apart along the track, connecting members each spanning the outwardly turned flanges and bolts securing each connecting member to said outwardly turned flanges, and a joint between two aligned ends of adjacent track lengths comprising two fish plates disposed one on each side of the track, each fish plate overlapping said ends of the track lengths and

in surface-to-surface contact with the exteriors of adjacent beams, each fish plate having a central web positioned against the webs of said adjacent beams and having upper and lower flanges extending in opposite directions against the under-surfaces of the upper and lower flanges respectively of said adjacent beams, the securing bolts for the connecting members extending also through the upper flanges of the fish plates to secure fish plates to the track lengths.

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