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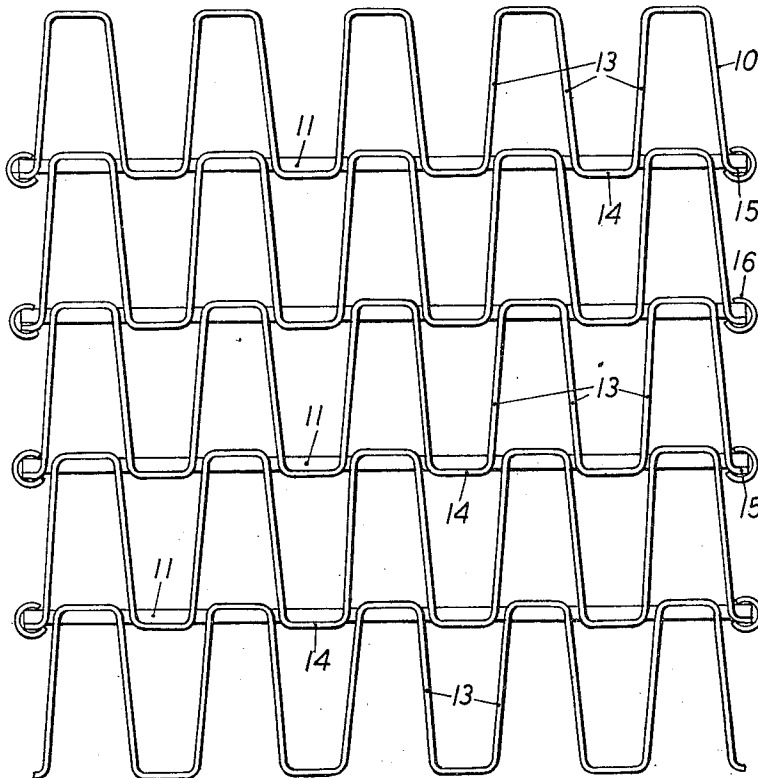
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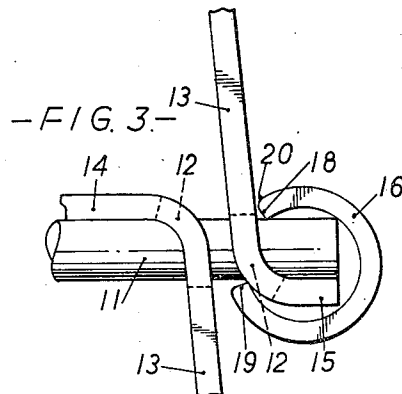
CONVEYOR BELTS

Filed Nov. 7, 1961

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-FIG. 1.-



-FIG. 3.-

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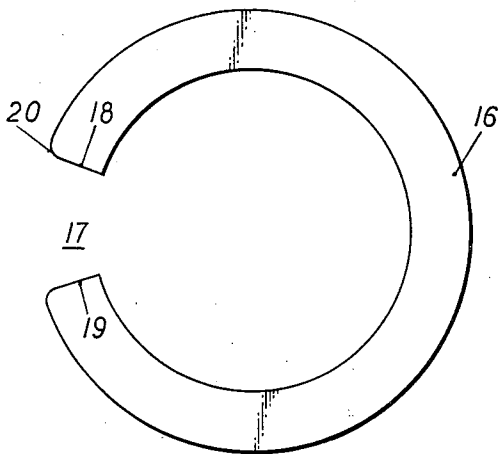
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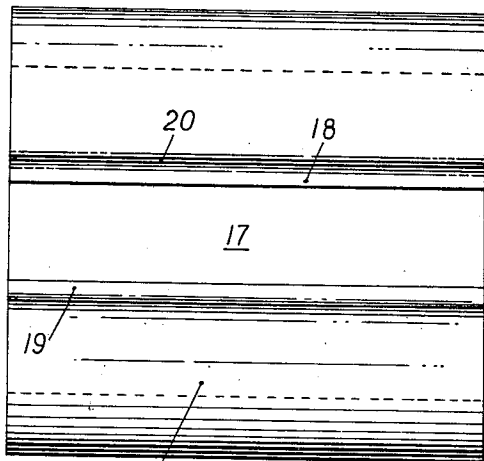
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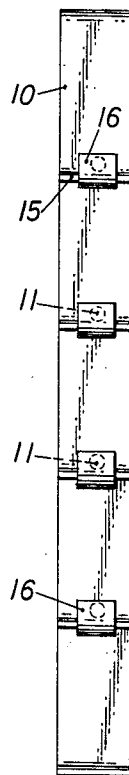
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-FIG. 4.-



-FIG. 5.-



-FIG. 2.-

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CONVEYOR BELTS

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Filed Nov. 7, 1961, Ser. No. 150,698

Claims priority, application Great Britain, Sept. 2, 1961,

31,613/61

2 Claims. (Cl. 198—193)

The present invention relates to conveyor belts of the type which includes a number of transverse links of flat strip or wire in castellated or zig-zag form, the upper edges of which constitute the load carrying surface and which overlap slightly in a direction longitudinally of the belt and are mounted on transverse rods spaced longitudinally of the belt and threaded through holes formed in the castellated or zig-zag limbs of the links.

In conveyor belts of this kind it is usual for each zig-zag or castellated link to be mounted on two longitudinally spaced transverse rods with each rod common to a pair of links and being threaded through holes in longitudinally or substantially longitudinally disposed limbs of the links where the latter overlap. Each link may extend over the entire width of the belt or merely over a portion thereof in which latter event the width at each longitudinal part of the conveyor belt is taken up by a plurality of links.

The objects of the present invention are to improve belts of this type not only from the constructional point of view, but also to meet various requirements of use and ease and cheapness of manufacture.

According to the present invention the end of a link at each longitudinal side edge of the conveyor is connected to the corresponding end of a transverse rod by a spring fastener or clip which is of circular or substantially circular contour and embraces both the link end and the end of the rod to exert a resilient load substantially in the plane of the conveyor belt.

Where the last castellated or zig-zag limb of each transverse link terminates at its outer end in a short foot portion substantially at right angles thereto, each spring fastener preferably is constituted by an annulus having a gap sufficient to permit the passage therethrough of the corresponding end of a transverse rod at a slight angle to the axis of the latter and the foot portion of the limb.

Accordingly both the end of the rod and the foot portion become housed within the annulus with one bounding edge of the annulus abutting against one face of the limb and a part of the periphery of the rod and the opposite edge of the gap abutting against both the other face of the limb in the region where this merges into the foot portion and the diametrically opposed portion of the periphery of the rod.

The invention is more particularly described with reference to the accompanying drawings which illustrate one embodiment, by way of example, and in which:

FIGURE 1 is a plan view of a portion of a conveyor belt showing the spring fasteners or clips at the ends of the castellated or zig-zag links and their interconnecting cross rods.

FIGURE 2 is a side view of the belt portion of FIGURE 1.

FIGURE 3 is a detail showing on an enlarged scale the relationship between one end of a cross rod, the corresponding end of a transverse link and a spring fastener or clip for holding together said link and rod ends.

FIGURE 4 is an end view of a clip or fastener before application to an end of a link and an end of a cross rod.

FIGURE 5 is a side view of the clip of FIGURE 4 in the direction of the arrow 5 thereof.

In the construction illustrated in the drawings the trans-

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verse links of flat strip are generally designated at 10, and the cross rods at 11, the former having holes or slots 12 which are provided at those positions in the links where each substantially longitudinally extending limb 13 of each castellation or zig-zag part of a link 10 merges either into a transverse yoke portion 14 or a short foot or part yoke portion 15 at an end of the link. The purpose of the holes or slots 12 is to receive the transverse rods 11 and it follows that their diameter or length, as the case may be, must be at least sufficient to provide a slight clearance for the passage of the rods 11 therethrough.

Each spring fastener or clip, in the particular embodiment illustrated comprises an annulus 16 of hardened and tempered steel and of substantially cylindrical form but with a gap 17 therein to permit the insertion of an end of a transverse rod 11 and a foot or part yoke portion 15 of a link 10 into the space bounded by the cylindrical annulus 16, with one bounding edge 18 of the annulus at the gap 17 abutting against one face of a limb 13 and a part of the periphery of the rod 11 and the other bounding edge 19 at the opposite side of the gap 17 abutting both against the other face of the limb 13 in the region where this merges into the foot portion 15 and the diametrically opposed portion of the periphery of the rod 11. The bounding edge 18 may be radiused at 20, i.e. at the outer periphery of the annulus 16.

Conveniently and as shown the angle subtended by the arc of the gap 17 at the centre of the clip 16 is in the region of 36° when the clip is unloaded. Again where the annular clip 16 has a thickness of 0.048 inch and is intended to receive the end of a cross rod of 0.125 inch in diameter, the effective width of the gap at the inner periphery of the annular clip 16 is in the region of 0.08 inch when the spring is unloaded. In such event the internal diameter of the spring clip may be 0.255 inch, its external diameter 0.351 inch, while its length may be in the region of 0.375 inch. It will be appreciated, however, that these figures are given solely by way of example and that they may be modified to suit particular requirements.

Where the annular spring clip is cylindrical its outer periphery may function as a suitable rubbing surface for restraining the belt at its longitudinal edges against wandering to either side along a straight run. Where the belt is used to negotiate one or more bends in the horizontal plane of its load carrying surface the spring fastener or clips 16 constitute an efficient medium for enabling the belt to traverse the bend with the minimum of friction.

It will be appreciated that with a spring fastener or clip 16 the assembly of transverse links 10 and rods 11 to form a conveyor belt is simplified thereby enabling this to be performed, for example, by the potential user of a belt as distinct from the manufacturer thereof. It also facilitates the formation of belts of a predetermined width.

Again the spring fastener or clip 16 readily permits removal of a transverse rod 11 or link 10 for the purpose of carrying out repairs or adjustments to the conveyor belt of which said link or rod forms a part.

Finally with a spring fastener or clip 16 the links 10 are efficiently connected to their rods 11 to restrain relative articulation between the two. In other words the links 10 are prevented from movement longitudinally of the rods 11 with the result that there is no tendency for a link to close in and narrow the width of the belt as a whole.

In the foregoing the invention has been described with reference to specific illustrative devices. It will be evident, however, that variations and modifications may be made without departing from the broader scope and spirit of the invention as set forth in the appended claims. The specification and drawings are accordingly to be regarded in an illustrative rather than in a restrictive sense.

I claim:

1. A conveyor belt comprising a number of transverse links of strip material bent in zig-zag form so as to have transversely spaced limb portions extending generally in the longitudinal direction of the belt and transversely extending portions connecting adjacent limb portions of each link alternately at the leading and trailing margins of the link with the top edges of said limb portions and connecting portions being coplanar and constituting the load carrying surface of the belt, each link further having openings in the limb portions adjacent the leading and trailing margins of the link, said links being arranged successively with the limb portions of adjacent links overlapping slightly in said longitudinal direction of the belt so that said openings adjacent the leading margin of each link are aligned transversely with said openings adjacent the trailing margin of the adjacent link, straight rods extending through said aligned openings of adjacent links for pivotally connecting the latter, said rods having end portions projecting transversely beyond the limb portions at the opposite ends of the links connected thereby, and

a cylindrical spring clip for each of said end portions of the rods, said clip being longitudinally split to define longitudinal edges and a gap therebetween receiving the related end portion of a rod, said clip being disposed with its longitudinal axis perpendicular to said load carrying surface of the belt and with said longitudinal edges of the clip in clamping engagement with diametrically opposed points on the surface of the related end portion of the rod at the outside and inside, respectively, of the end limb portion through which said rod extends.

2. A conveyor belt as in claim 1; wherein said limb portions at the opposite ends of each link have feet directed transversely outward therefrom and lying against said end portions of the rods within said longitudinally split spring clips.

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