

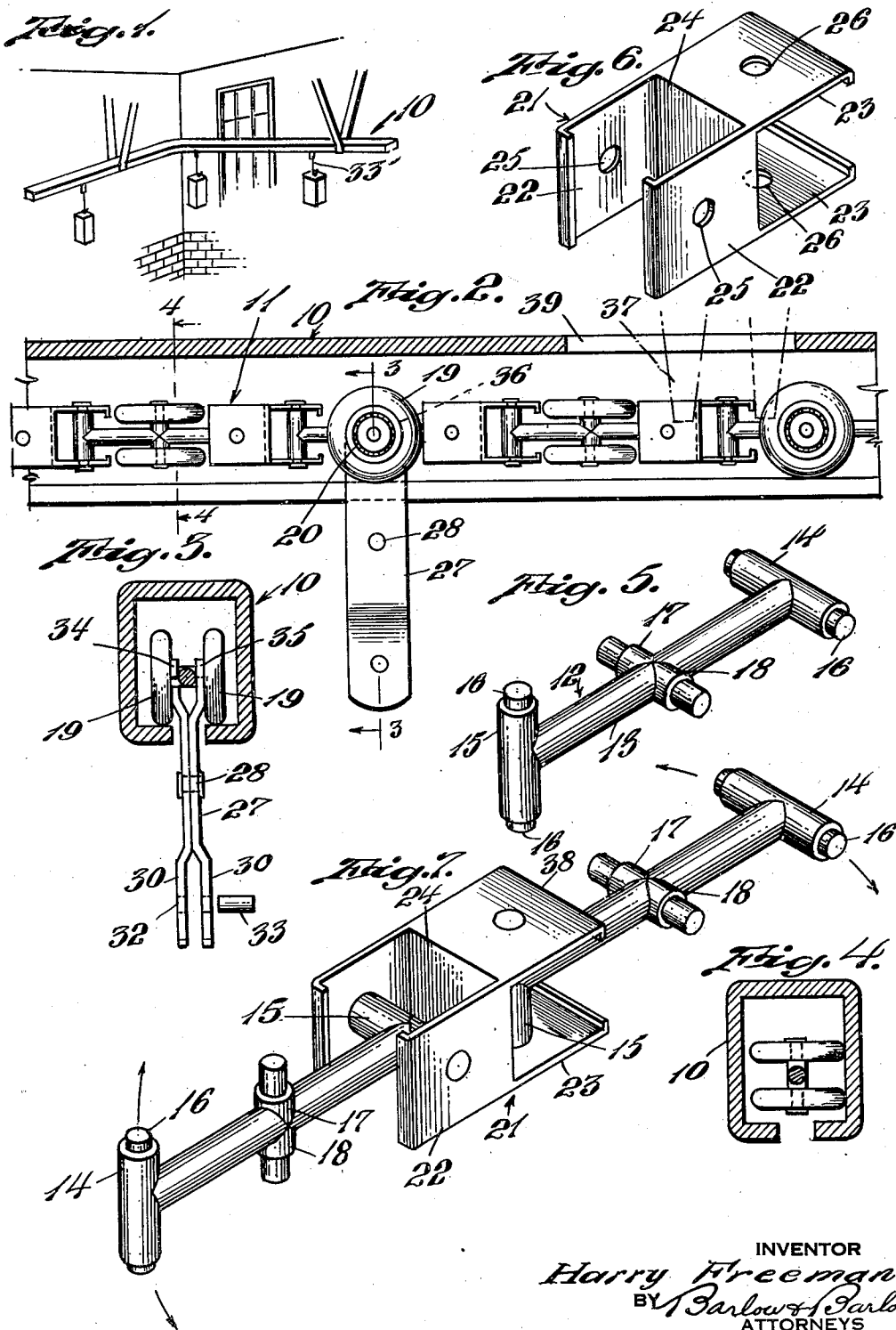
Dec. 6, 1949

H. FREEMAN
CONVEYER CHAIN

2,490,682

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2 Sheets-Sheet 1



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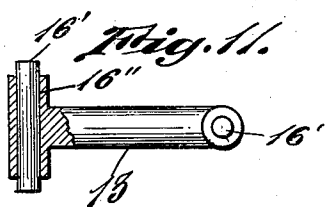
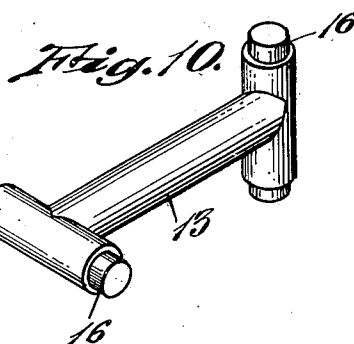
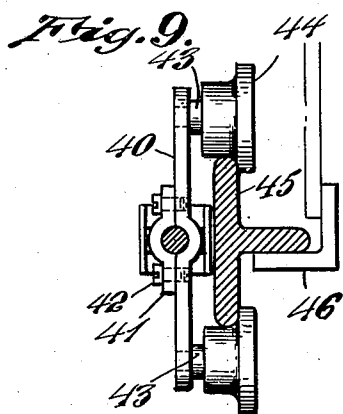
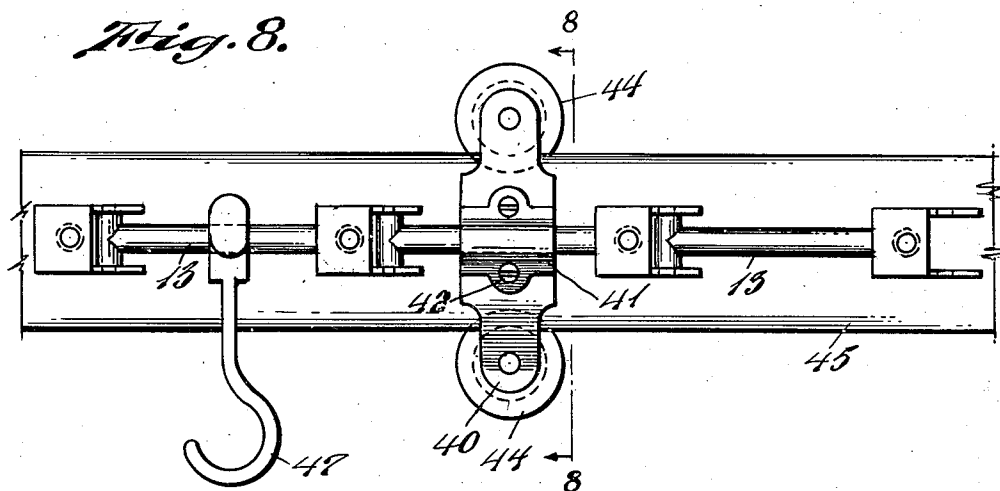
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Fig. 8.



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CONVEYER CHAIN

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4 Claims. (Cl. 198—177)

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This invention relates to improvements in flexible chains for conveyors.

A conveyor construction to which this invention has particular reference comprises an endless tubular track through which is propelled a flexible chain having vertically disposed wheels for contacting the bottom of the track and horizontal wheels for contacting the sides of the track when going around horizontal curves. The track is open at the bottom and work supporting pendants extend through this opening and are attached to a load bar carried by alternate links of the chain. The chain consists of a plurality of units, each comprising two frames movably connected to each other. One frame supports a pair of vertically disposed wheels and the other frame a horizontally disposed double wheel.

An object of this invention is the provision of a flexible chain construction economical to manufacture and which will tend to increase the general efficiency and desirability of a conveyor of this particular character.

Another object of the invention is the provision of a chain construction which may be employed with an exposed track.

Another object of the invention is the provision of a chain construction which may be propelled along the track in either direction by merely reversing the direction of movement of the power source.

Another object of the invention is the provision of a chain construction in which the load supporting pendant may be attached directly on the axle of the wheel.

Another object of the invention is the provision of a chain construction in which each wheel axle carrying section will be similar in construction.

Another object of the invention is the provision of a link section connector construction so as to provide a universal joint connection between adjacent links.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Fig. 1 is a view illustrating somewhat diagrammatically a suspended conveyor track forming part of this invention;

Fig. 2 is a longitudinal section through a fragmentary portion of the track showing a portion of the conveyor chain therein;

Fig. 3 is a sectional view taken substantially along line 3—3 of Fig. 2;

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Fig. 4 is a sectional view taken substantially along line 4—4 of Fig. 2;

Fig. 5 is a perspective view of a link section;

Fig. 6 is a perspective view of a link section connector;

Fig. 7 is a perspective view illustrating two link sections connected together;

Fig. 8 is an elevation of a modified chain construction showing the application of the invention to an open track;

Fig. 9 is a section taken substantially along line 8—8 of Fig. 8;

Fig. 10 is a perspective view of the link section shown in Fig. 8; and

Fig. 11 is a section of a further link modification.

Referring to the drawings for a more detailed description of the invention, 10 designates generally a tubular track which may be suspended in any appropriate and approved manner so as to be at a desired height. Through this track there is propelled a flexible chain designated generally 11, comprising link sections 12 having a body portion 13. One end of the body has an extension 14 which extends at right angles to the body portion from either side thereof. The other end of the body has a similar extension 15. The extensions at the opposite ends of the body are at substantially right angles to each other and have at the ends thereof mounting pintles 16. The pintles may be formed integral with the extension 14, 15 or may be in the form of a pin 16' (see Fig. 11) received in a bore 16'' provided in such extension 14, 15 as shown. The body portion also has a wheel axle 17 which extends from opposite sides of the body as at 18. On the end portions of this axle, wheels 19 are mounted, these wheels being provided with antifriction rollers 20. The sections 12 are positioned to extend end to end and a connector 21 for operatively connecting the sections is positioned between adjacent sections. The connectors are of a similar construction and each comprises two pair of spaced walls 22, 22, and 23, 23, connected by a wall 24. The walls 22, 22, and 23, 23, are disposed at substantially right angles to each other. The walls 22 have aligned bearing openings 25 and the walls 23 have aligned bearing openings 26. The adjacent pintles of adjacent sections are journaled in the openings 25, 26 and their end extremities are upset to secure the same in place. Since the pair of walls 22, 23 are disposed at right angles to each other, the link sections attached thereto will swing about axes at right angles to each other, thereby

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forming a universal joint connection between adjacent sections.

It will be apparent that the wheel axle of alternate link sections will be disposed at substantially right angles to the wheel axle on the other sections thereby providing a pair of wheels vertically disposed and a pair of wheels horizontally disposed with respect to the track 10. The vertical wheels will engage the bottom of the track along horizontal portions and the horizontal wheels will engage the vertical sides of the track when going around horizontal curves. The track is open at the bottom. Through the opening there extend work supporting devices or pendants 27 which are attached to the chain. The pendant comprises two plates pivotally secured to each other as at 28. The lower end portion of each plate is deflected outwardly and downwardly providing spaced arms 30 each having an opening 32 which is aligned for receiving a pin 33 upon which a hook 33' for supporting the work may be attached. The upper portion of the pendant is similarly formed so as to provide spaced arms 34, 35. The end portions of each arm 34, 35 terminate in hook portions 36 which are oppositely disposed so as to be attached over the axle 17 from opposite sides.

In order to propel this chain through the track, a usual propeller mechanism may be used and modified to include a dog 37. The dog will engage the edge of the wall 24 of the connector 21 when propelling the chain in one direction and engaging the edge 38 when propelling the chain in the opposite direction. An opening 39 is provided in the upper portion of the track through which the dog 37 may extend.

In Fig. 8 I have shown a modified application of the invention. In this application, the axle 17 is omitted from the chain section 12 and a bracket 40 is attached to the body 13 by means of a clamp element 41 and screws 42. At opposite ends of this bracket, there are provided wheel axles 43 each of which mount a wheel 44. One wheel engages the upper edge of an exposed track 45 and the other wheel engages the lower edge of the track. The track may be secured to a bracket 46 suspended at a proper height in any approved manner. Alternate sections of this modified chain may be provided with a bracket 40 for supporting wheel 44 and the other sections with hook elements 47 for supporting the work from the chain.

I claim:

1. A conveyor chain comprising a plurality of link sections each having a mounting pintle at opposite ends thereof disposed at substantially right angles to each other and with the sections positioned to extend end to end and a rigid connector between adjacent sections having bearing openings with the axes thereof disposed at substantially right angles to each other and in which is journaled the adjacent pintles of adjacent sections providing a universal joint connection between each of said sections, each section

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having intermediate the ends thereof an axle extending on opposite sides of the body, and wheels rotatably mounted on said axle.

2. A conveyor chain comprising a plurality of link sections each having a mounting pintle at opposite ends thereof disposed at substantially right angles to each other and with the sections positioned to extend end to end, each section having an axle thereon intermediate its ends for rotatably mounting a wheel on each section, and a rigid connector between adjacent sections having bearings openings with the axes thereof disposed at substantially right angles to each other and in which openings are journaled the adjacent pintles of adjacent sections providing a universal joint connection between each of said sections.

3. A conveyor chain comprising a plurality of link sections each having a body portion provided with mounting pintles at opposite ends thereof disposed at substantially right angles to each other and with the sections positioned to extend end to end, each section having an axle thereon intermediate its ends extending on opposite sides of the body portion for rotatably mounting a wheel on opposite sides of said body, and a rigid connector positioned between adjacent sections having bearing openings with the axes thereof disposed at substantially right angles to each other and in which openings are journaled the adjacent pintles of adjacent sections providing a universal joint connection between each of said sections.

4. A conveyor chain comprising a plurality of link sections each having a body portion provided with aligned mounting pintles extending from opposite sides of the body at opposite ends thereof and with the pintles at one end of the body disposed at substantially right angles to the pintles at the opposite end of the body and with the sections positioned to extend end to end with the adjacent pintles of adjacent sections being disposed at substantially right angles to each other, each section having an axle thereon intermediate the ends thereof and extending on opposite sides of the body, wheels rotatably mounted on said axle on opposite sides of the body, and a rigid connector positioned between adjacent sections having pairs of spaced aligned openings in which said adjacent pintles are pivotally journaled.

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