

UNITED STATES PATENT OFFICE.

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CHAIN-CONVEYER.

SPECIFICATION forming part of Letters Patent No. 344,178, dated June 22, 1886.

Application filed March 2, 1886. Serial No. 193,781. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL GARLAND, of Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Conveyer-Chains; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates to certain new and useful improvements in what are known as "chain-conveyers," in which, in connection with some suitable trough or case, a chain is employed which is formed or provided with what are called "flights," for conveying or carrying along the material (such as sawdust or offal, &c.) discharged into or supplied to said trough or case; and my invention consists in certain novel devices and combinations of devices going to make up a chain of this type or description, which novel features will be hereinafter more fully explained, and will be most specifically defined and pointed out in the claims of this specification.

To enable those skilled in the art to make and use my invention, I will now proceed to more fully describe the construction and operation of a chain embracing my several improvements, referring by letters to the accompanying drawings, which form part of this specification, and in which I have shown my invention carried out in those forms, as to the several features, in which I have so far practiced it, and which are the best forms now known to me.

In the drawings, Figure 1 is a top view of a chain made according to my invention. Fig. 2 is a side or edge view of the same. Fig. 3 is a face view of a modified form of my invention. Fig. 4 is an edge view of the form of chain shown at Fig. 3.

In the several figures the same parts will be found designated by the same letter of reference.

At Figs. 1 and 2 the chain shown is made up of box-like links, the cross-bars or flights B of which are parallel and transverse to the length of the chain, and the side bars, A, of which are arranged out of parallelism, as clearly shown, each one of the box-like links, so to speak, being composed of the separate

side bars, A, and the separate cross-bars B, arranged and operated together in the following manner—that is to say: To each one of the cross-bars B is secured at the pintle-like ends of the latter those two ends of two side bars, A, which are nearer together than the other ends of said side bars, while said other ends of said side bars are flexibly connected to and hinged upon the pintle-like portion of the next or adjacent cross-bar B. To effect the rigid connection between the two converging ends of the side bars with one of the cross-bars B, I make the inner portion of the pintles of said cross-bar with small ribs or feather-like projections B², and engage said projections with splines or slots cut in the peripheries of the circular eyes of the side bars where the latter are slipped onto the said pintle like portions of the cross-bars B; and to flexibly connect the opposite or diverging ends of the side bars with the outer portions of the pintles of the next cross-bar I form said pintles with lug-like projections B', and form the eyes in the ends of said bars with cut-outs or slots A', and so that when the said side bars and the said cross-bars are turned out of a working position the convergent ends of the side bars may be coupled to and uncoupled from the pintles of the cross-bar, but when turned into a working position the lugs B' will retain the bars in their proper hinged condition, all in a manner well understood by those skilled in the art.

a² and a³ are respectively outwardly and inwardly projecting scrapers or clearers, which project from the outer and inner surfaces of the side bars in close proximity to the articulations of the chain, and these clearers or scrapers, being equal in height to the height of the side bars of the chain, operate as conveyers or carriers to push forward the mass of material or substance within the conveyer-trough, and to prevent any fine stuff in said trough (such as sawdust, for instance) from accumulating under the leading and rounded ends of the side bars of the chain, and to thus avoid any tendency of the chain to climb or ride over the material in the bottom of the box or trough of the conveyer.

Preferably some of the cross-bars B are extended upwardly, as seen at H, the said ex-

tensions constituting supplemental flights adapted to carry along any unusual quantities or any overcharge of material in the conveyer; but as these supplemental flights constitute the subject-matter of another application by me, they need not be further described herein. The leading ends of the side bars are preferably squared out, as seen at a' , as an additional precaution against any tendency of the chain to ride over any fine material in the bottom of the conveyer-trough.

At Figs. 3 and 4 is shown a preferable form of my improved conveyer-chain, which is made of duplicate parts, each comprising two side bars A A and one cross-bar B, formed integrally, the said cross-bar having two pintle-like ends, to which are coupled or hinged the forward divergent ends of the side bars of a similar link. In this form of chain there is employed substantially the same means for coupling the links together, so as not to become accidentally uncoupled, and consists in the lugs B', formed on the end portions of the pintles B³, and adapted to pass through cut-outs or slots in the eyes of the divergent ends of the side bars when any two links are turned out of their working position (in a manner well understood.) In this form of chain the diverging ends of the side bars, A A, have of course to be distended or forced somewhat widely apart in order to get them to embrace the pintle-like portion or ends of the cross-bar, with which they are flexibly connected. In putting together and taking apart the links this distention may be effected by any suitable expander, which may be applied, for instance, interiorly of the side bars, A, and at the points C and D, so as to force the divergent ends of the side bars farther apart, as indicated by the arrows at Fig. 3.

It will be observed that in both forms of chain shown the side bars, which are run at a slight angle to each other, have the end portions, in which are formed the eyes, to engage either rigidly or flexibly, as may be required, with the pintles of the cross-bars formed in planes parallel to a line running centrally and longitudinally of the chain. By this form or construction of the side bars those portions of the chain which are articulated or jointed work with freedom and perfection with the coupled links in any of their possible relative positions.

In carrying out my invention all the different features may or may not be used together, as some of them may be employed with more or less advantage in the absence of the others.

Of course any of the details of construction may be varied from the precise forms shown without departing from the spirit of my invention.

Having now so fully explained the construction and operation of my improved chain in

those forms in which I have so far practiced my invention, what I claim herein as new, and desire to secure by Letters Patent, is—

1. A conveyer-chain composed of links, each having a cross-bar and two side bars, and having the pintle-like devices formed or provided with lugs B³, and the convergent ends of the side bars formed with cut-outs or slots in their eyes, for the purpose of effecting a rigid union or connection between said portions of said side bars and the cross-bar of the three-part link, all substantially as hereinbefore described.

2. A conveyer-chain composed of links, each of which comprises one cross-bar and two side bars, the said two side bars being arranged divergently relatively to the cross-bar, and formed with the end portions in planes parallel to each other and to the central line of the chain, and both the cross-bar and the two side bars being rectangular or plate-like in cross-section for the purpose of constituting the carrier-receptacles, all substantially as hereinbefore set forth.

3. A conveyer-chain composed of obliquely-arranged side bars and parallel transverse or cross bars, the said side bars being formed or provided with one or more outwardly-projecting scrapers or clearing devices, a' , substantially as and for the purposes set forth.

4. In combination with the obliquely-arranged side bars, A A, a cross-bar or flight, B, formed or provided with a lug, B', near the end of each of its pintle-like portions, to engage with a correspondingly-shaped slot or cut-out in the eye of each of the side bars of another link, for the purpose of effecting the flexible connection between the parts of two links, and permitting the uncoupling and recoupling of such parts, all substantially as hereinbefore set forth.

5. In combination with the obliquely-arranged side bars, A A, of two adjacent links, a cross-bar or flight, B, having at different localities on each of its pintle-like portions the lugs B' and B³, for the purposes, respectively, of retaining in place the flexibly-connected ends of the side bars of one link and holding rigidly in place the ends of the side bars of another link, all substantially as hereinbefore described.

6. In combination with the side bars of a chain composed of a series of links, substantially such as described, the two series of projections or scrapers a' and a'' , arranged and operated in substantially the manner and for the purpose hereinbefore set forth.

In witness whereof I hereunto set my hand this 27th day of February, 1886.

MICHAEL GARLAND.

In presence of—

HEZEKIAH M. GILLETT,
MORRIS L. COURTRIGHT.