

July 14, 1925.

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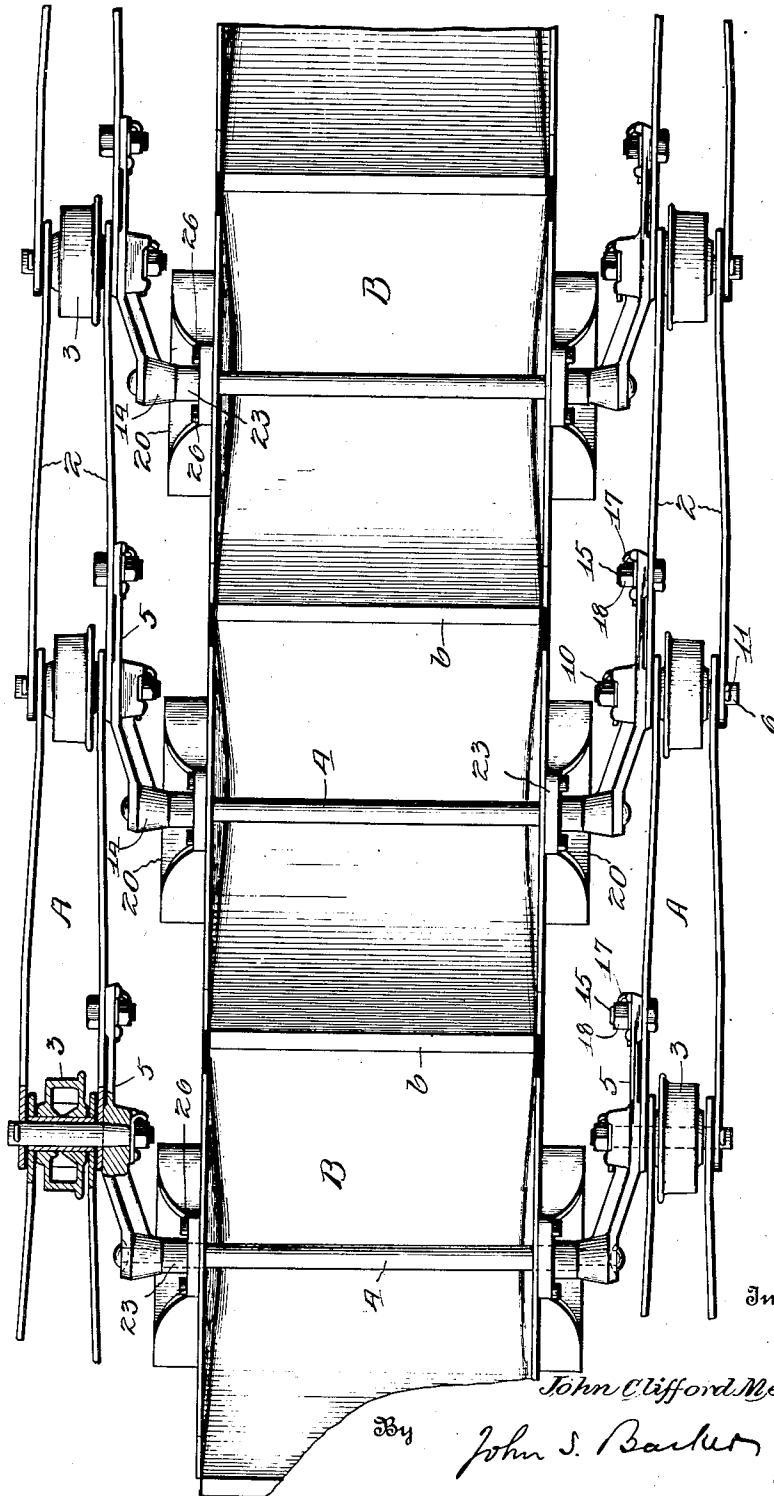
J. C. MERWIN

PIVOTED BUCKET CONVEYER

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2 Sheets-Sheet 1

*Fig. 1*



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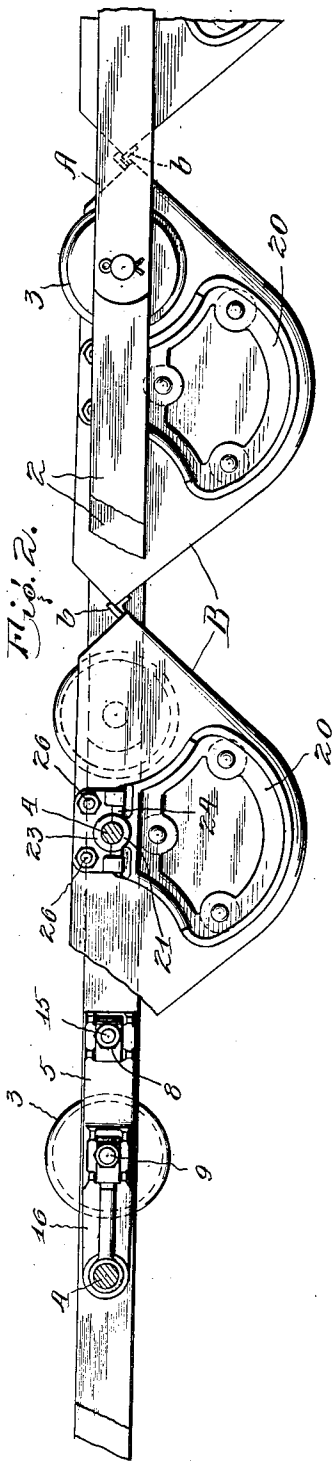
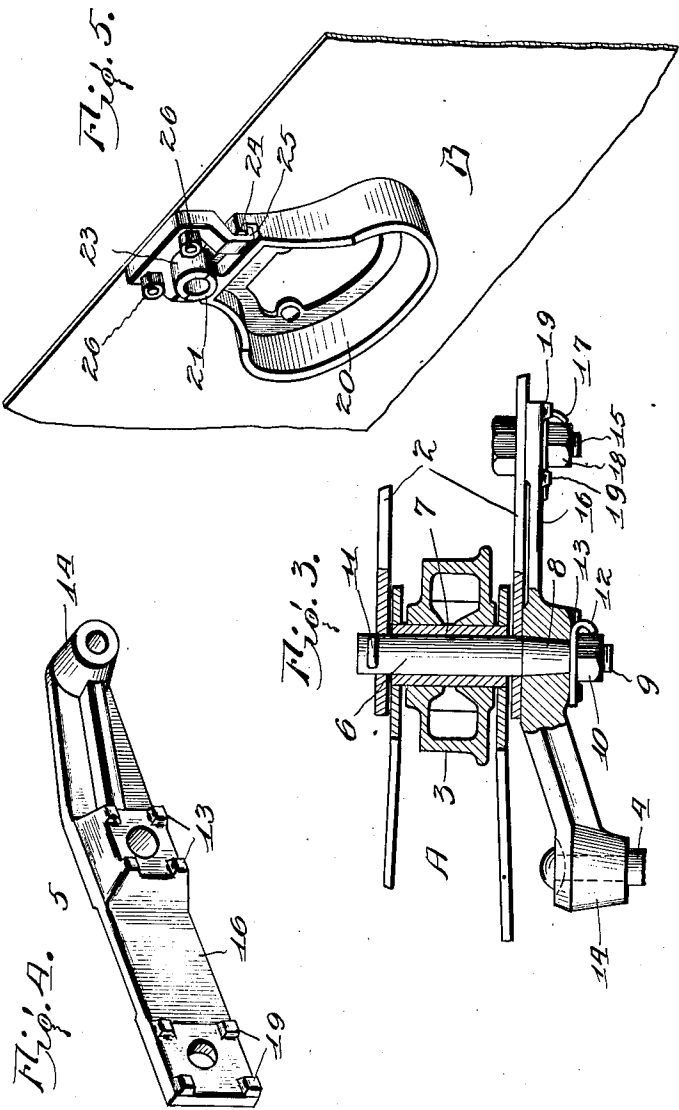
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# UNITED STATES PATENT OFFICE.

JOHN CLIFFORD MERWIN, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO CHAIN BELT COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

## PIVOTED-BUCKET CONVEYER.

Application filed April 18, 1922. Serial No. 554,691.

*To all whom it may concern:*

Be it known that I, JOHN CLIFFORD MERWIN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Pivoted-Bucket Conveyers, of which the following is a specification.

The present invention relates to pivoted bucket conveyers and has for its object to improve the means for supporting the buckets and uniting them with the conveyer chains from which the buckets are suspended and by which they are moved.

In the accompanying drawings illustrating the invention—

Figure 1 is a top plan view of a short section of a conveyer embodying the invention, parts being in section and parts broken away.

Fig. 2 is a side view of the same parts as shown in Fig. 1.

Fig. 3 is a plan view, partly in section, showing the bracket piece attached to chain A.

Fig. 4 is a perspective view of the bracket piece.

Fig. 5 is a perspective view of dumping cam attached to the bucket.

In the accompanying drawings, A, A designate parallel sprocket chains and B a series of buckets, these parts constituting a pivoted bucket conveyer of a type now well known, and in common use. The buckets, as is well known, are mounted so as to be free to swing on their supports in order that they may maintain horizontal positions during the major portions of their circuit but be free to be tipped for the purpose of discharging their contents. The chains A engage with suitable driving, supporting and directing wheels, but these are not shown since they constitute no part of the invention here claimed. Neither are the means for loading the buckets, nor those employed for tilting them to discharge their contents, shown, as these may be of well known or approved kind, and form no part of the present invention.

The buckets are provided with overlapping lips *b* to close the spaces between the buckets, as is common in apparatus of the kind to which my invention pertains.

Each link of a chain A comprises a pair of side bars 2, and at the joints of the chain,

supported upon the cross-connecting parts between the side bars, are wheels or rollers 3, such as are commonly used in these conveyers.

4, 4 designate the cross bars upon which the buckets B are pivotally hung. These bars have their opposite ends connected with corresponding links of the opposite chains A, and serve both as supports for the buckets and also to maintain the chains parallel with each other and in proper spaced relationship.

Each cross rod is connected at each end with a link of the chain by means of a separate bracket piece 5 that extends rearwardly beyond the end thereof, where it is formed into a bearing 14, in which is seated one end of the rod 4. It is united securely to the inner face of an inner side bar 2 of a chain link by means of bolts, two being usually sufficient, and these are designated 6 and 15. The bolt 6 serves the double purpose of a connecting pin for the adjacent links of the chain A, and a means for uniting the bracket to the side bar; and has a main cylindrical part, a tapering portion 8 near its inner end, and a screw-threaded part 9 beyond the tapering portion. The pin 6 passes through a sleeve 7 that unites and is securely seated in the ends of the side bars of that link that is overlapped by the side bars of the adjacent link that is united thereto, as is common in chains of the kind shown in the drawings. The tapering portion 8 of the pin is adapted to tightly fit a correspondingly tapering seat in the bracket 5. A nut 10 is applied to the threaded portion 9 of the pin and when this is screwed tightly against the inner face of the bracket it draws the tapering portion of the pin closely into its seat in the bracket where it is held against rotation by frictional engagement therewith. A nut lock 12 holds the nut 10 in place and in turn is held in proper position by the lugs 13 carried by the bracket 6, between which the nut lock lies. A cotter pin 11 is passed through the outer end of the pin 6 and holds in place the outer side bars of the connected links. An extension 16 projects forward from the strengthened bearing of the bracket piece 5, in which the connecting pin 6 is seated, and lies alongside of the inner face of the side bar 2, to which it is united by the bolt 15. 18 indicates a securing nut upon the bolt 15,

and 17 a nut lock for the nut, which nut lock is held in place by lugs 19 extending from the inner face of the extension 16.

20 indicates a dumping cam secured to the end of bucket B. This cam may be of any usual or preferred shape, and as its operation is well understood in this art, it needs no description here. The upper portion of the cam is formed with a half bearing 21 for the rod 4 that supports the bucket. The other half bearing for the rod, designated 23, is carried by a separable piece 22 bolted to the end of the bucket. When this piece is in place the two parts, 21 and 23, constitute a cylindrical bearing for the rod 4. The cam 20 is provided, on either side of the bearing section 21, with an outwardly extending lip or flange 24. These flanges are engaged by hooks 25 carried by the piece 22. By reason of the interlocking of the parts 24 and 25, the bolts 26 that unite the piece 22 to the end of the bucket are largely relieved of the strains incident to the weight of the bucket and its contents.

It will be seen that the connecting pin 6, when properly held in place by the nut 10, becomes in effect an integral part of the bracket 5, so that it oscillates therewith and with the links of the chain to which the bracket is secured, and within the sleeve 7 uniting the side bars of the other of the pair of links united by the said pin. The advantages of this construction are that by removing two succeeding pins 6 from the chain any chain link between them may be removed for repairs or replacement; or by removing the opposite pins 6, and the bolts 15, an entire bucket, with its supporting brackets 5, may be removed.

What I claim is:

1. In a pivoted bucket conveyer, the combination with a pair of chains arranged parallel to each other and conveyer buckets located between the chains, of cross rods on which the buckets are pivotally supported, and separable brackets supporting the ends of the cross rods and connecting them respectively with the opposite chains.

2. In a pivoted bucket conveyer, the combination with a pair of chains arranged parallel to each other and conveyer buckets located between the chains, of cross rods on which the buckets are pivotally supported, separable brackets in which the ends of the cross rods are supported, and separable connecting means uniting the brackets respectively with the opposite chains.

3. In a pivoted bucket conveyer, the combination of a pair of chains arranged parallel to each other and formed of links having side bars spaced apart, and conveyer buckets located between the chains, cross rods on which the buckets are pivotally supported, separable brackets in which the ends of the cross rods are supported, and separable

connecting means uniting each pair of brackets supporting a rod with the inner side bars of corresponding links in the opposite chains.

4. In a pivoted bucket conveyer, the combination with a pair of chains arranged parallel to each other and conveyer buckets located between the chains, of cross rods on which the buckets are pivotally supported, brackets in which the ends of the cross rods are supported, and separable pins that serve as the connecting pintles of links of the chains and also as means for uniting the said brackets to links of the opposite chains.

5. In a pivoted bucket conveyer, the combination with a pair of chains arranged parallel with each other and formed of articulated links, and conveyer buckets located between the chains, of cross rods on which the buckets are pivotally supported, brackets in which the ends of the rods are supported, separable pins rigidly mounted in the brackets and passing through the links at the places of articulation thereof whereby they serve both as the connecting pintles of the links of the chain and to unite the brackets to the chains.

6. In a pivoted bucket conveyer, the combination with a pair of chains arranged parallel with each other and formed of articulated links, and conveyer buckets located between the chains, of cross rods on which the buckets are pivotally supported, brackets in which the ends of the rods are supported secured to the inner sides of corresponding links in the opposite chains and extending to the rear beyond the ends of such links, pins having tapering portions seated tightly in the brackets, and outwardly extending cylindrical portions, the cylindrical portions of the pins extending through the links at their places of articulation whereby they serve as connecting pintles for the links and also as connecting means for uniting the brackets to the links of opposite chains.

7. In a pivoted bucket conveyer, the combination of a pair of chains arranged parallel with each other and formed of articulated links, and conveyer buckets located between the chains, cross rods on which the buckets are pivotally supported, brackets in which the ends of the rods are supported secured to the inner sides of corresponding links in the opposite chains and extending to the rear beyond the ends of such links, and also extending forwardly beyond the axis of articulation of the links to which they are united, separable pins secured fast in the brackets and passing through them and through the links at the places of articulation thereof whereby they serve both as connecting pintles for the chain links and as connecting means uniting the brackets to the chain links, and other separable connec-

tions uniting the forwardly extending portions of the brackets with the links of the opposite chains.

8. In a pivoted bucket conveyer, the combination with a pair of chains arranged parallel with each other and conveyer buckets located between the chains, of cross rods connected with the chains on which the buckets are pivotally supported, separate pieces secured to the ends of the buckets, bearing-carrying sections for the cross rods, the said sections having interlocking parts by which the strains due to the weight of the bucket and its load are transmitted from the upper bearing-carrying section to the lower, and vice versa.

9. In a pivoted bucket conveyer, the com-

bination with a pair of chains and pivoted buckets located between them, of cross rods carried by the opposite chains on which the buckets are pivotally supported, pieces secured to the ends of the buckets each carrying a lower segment of a bearing for a cross rod, other separable pieces secured to the ends of the buckets and each carrying an upper segment of a bearing for a cross rod, one of the said pieces being provided, on either side of the bearing parts, with flanges, and the other with hooks adapted to engage with the said flanges, whereby the strains incident to the bucket and its load may be transmitted from one section to the other.

JOHN CLIFFORD MERWIN.