Oct. 12, 1937. G. HAMMER 2,095,867

COUPLER FOR ENDLESS CONVEYERS

Filed Feb. 26, 1937

Fig. 1

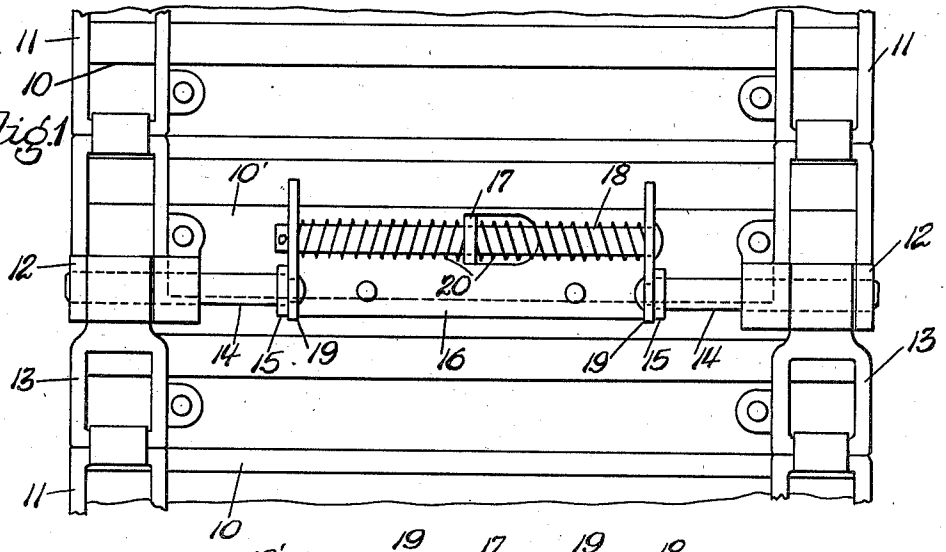
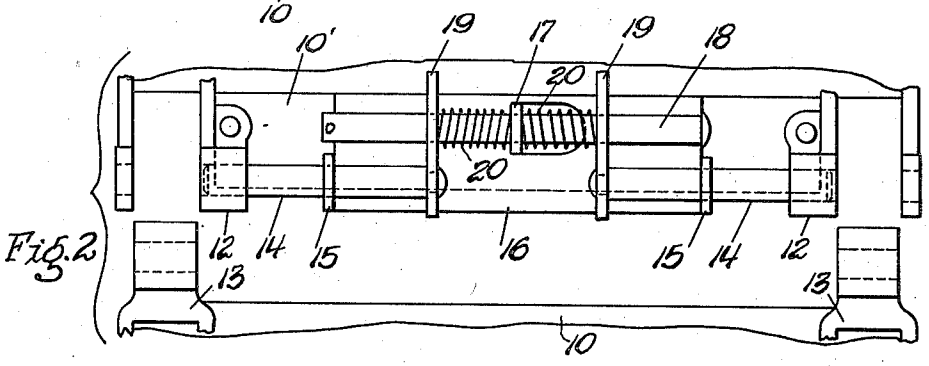


Fig. 2



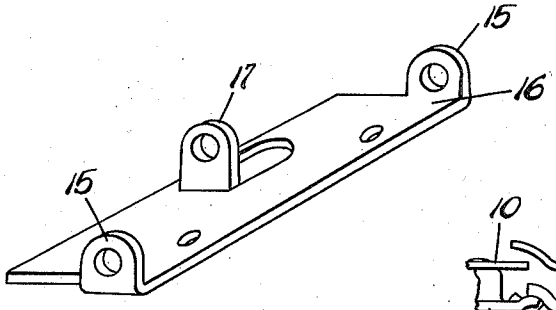
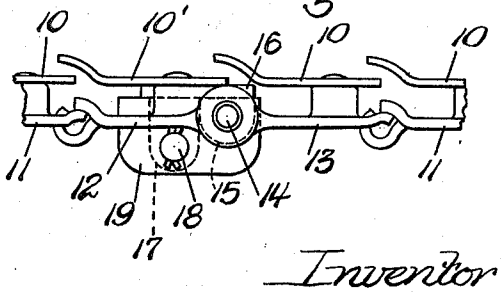


Fig. 3

Fig. 4



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COUPLER FOR ENDLESS CONVEYERS

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15 Claims. (Cl. 198—195)

This invention relates to a device for coupling and uncoupling the opposite ends of a conveyer of the link belt type; and more particularly the invention relates to a coupler for a conveyer having a plurality of transverse slats carried by a pair of spaced chains, a pair of links in each of which are adapted to interfit.

An important object of the invention is to provide a coupling device for a conveyer of the type mentioned above in which means is carried on one of the transverse slats adapted for engaging each pair of interfitting links.

Another important object of the invention is to provide resilient means in the coupling device for holding the engaging means in engagement with the interfitting links.

Another object is to provide means on the engaging means adapted to be pressed against the resilient means for drawing the engaging means out of engagement with the interfitting links.

Still another object is to position the coupling device between the spaced chain and on the under or inner side of the conveyer for the purpose of keeping the upper or outer side free from obstructions.

Briefly, these and other important objects are achieved by providing in a conveyer of the aforementioned type, on one of the slats and between the spaced chains thereof, means for movably carrying a pair of pins resiliently urged toward each chain for engaging a pair of interfitting links in each. A plate is carried by each pin, the plates being adapted to be pressed together against resilient means for moving the pins out of engagement with the interfitting links for uncoupling the opposite ends of the conveyer.

An illustrative embodiment of the invention is shown in detail in the accompanying sheet of drawings, in which:

Figure 1 is a plan view of the under or inner side of a portion of a conveyer of the type hereinbefore referred to, showing the coupling device in position and coupling the ends of the conveyer, also showing the interfitting links;

Figure 2 is a somewhat similar view showing the coupling device in released position and the conveyer uncoupled;

Figure 3 is a detail perspective view of the bracket for supporting the movable coupling means; and,

Figure 4 is a side view of a portion of the conveyer in coupled position, illustrating the mounting of the coupling device on the under or inner side of the conveyer.

The conveyer belt shown in the drawing is of the type employed in numerous instances, among them harvesting machines and grain binders, and comprises transverse portions or slats 10 and on either end thereof side portions or links 11. Each link 11 is pivotally interconnected with an adjacent link to form a chain. Chains are thus provided at either side of the conveyer and are trained over sprockets as is conventional.

In the present preferred form of the invention, the links 11 in each chain are of the hook-connection type; and, at the points of interconnection of the opposite ends of the conveyer each chain is provided with a type of interfitting links 12 and 13 peculiar to the preferred embodiment of the invention disclosed herein.

As best shown in Figures 1 and 2, each interfitting link 12 is provided with a bifurcated portion, and each interfitting link 13 is formed to fit therebetween. Openings are formed in the links 12 and 13, which are in alignment when the links are interfitted. Each interfitting link 12 carries an opposite end of one of the transverse slats 10, which particular slat will hereinafter be designated as 10', and each interfitting link 13 carries opposite ends of an adjacent slat 10. The remaining links 11 in each chain also carry opposite ends of transverse slats, providing a conventional conveyer having a pair of spaced link chains and transverse slats carried thereby.

The slat 10', which is carried at its opposite ends by the interfitting links 12, has movably mounted thereon means for engaging the interfitting links 12 and 13. These means are in the form of pins 14 adapted to enter the aligned openings formed in the interfitting links for the purpose of coupling the opposite ends of the conveyer. The aforesaid slat 10' also carries means in the form of a pair of apertured ears 15 which support the pins 14.

In the instance of the present disclosure of invention the spaced apertured ears 15 are formed integral with a bracket 16 and at opposite ends thereof, as shown in Figure 3. This bracket is secured to the slat 10' by rivets or any other preferred means.

Resilient means is provided between the pins 14 for the purpose of urging each pin outwardly through each apertured ear 15 and into engagement with and through the openings in the interfitting links 12 and 13, as will be described.

A third ear 17 is carried by the slat 10' preferably formed as an integral portion of the bracket 16, as best shown in Figure 3. A rod 18 is carried by this ear at a point substantially midway between its ends.

Each pin 14 is provided with means for moving it out of the respective openings in the interfitting links 12 and 13 and against the resilient means. The means herein disclosed comprises a plate 19 rigidly carried by each pin 14 and loosely carried on opposite end portions of the rod 18 and inwardly of each of the spaced ears 15.

A pair of compression springs 20 is carried by the rod 18, one on either side of the apertured ear 17, and between said ear and each of the plates

19. The compression springs 20 form the resilient means hereinbefore referred to, and by pressing outwardly against the plates 19 urges the pins 14 toward each of the chains and into the aligned openings in the interfitting links 12 and 13 when the conveyer is coupled.

It will be readily seen that a simple and novel coupling device has been provided for coupling and uncoupling the opposite ends of a conveyer of the type hereinbefore referred to. When the conveyer is disconnected, as shown in Figure 2, the plates 19 are as between the thumb and fingers and pressed together against the resilient means or compression springs 20. The movable means or pins 14 are thus moved inwardly leaving the bifurcated interfitting links 12 open. The ends of the other interfitting links 13 are positioned in the space and the openings in the links aligned. The plates 19 are released and the pins 14 move outwardly through the aligned openings to couple the ends of the conveyer. The spaced ears 15 provide supports and stops for the pins 14 and the plates 19. The apertured ear 17 provides a support for the rod 18 which carries the springs 20 which are prevented from buckling under compression thereby.

To uncouple the ends of the conveyer, the plates 19 are pressed together against the springs 20 and the pins 14 are drawn from engaging position with and out of the aligned openings in the interfitting links 12 and 13.

As best shown in Figure 4, the coupling device is positioned on the under or inner side of the slat 10 thus removing it as an obstruction to the material engaging or outer side of the conveyer. The location of the coupling device substantially centrally between the spaced chains allows it to travel between and not in interference with the spaced sprockets (not shown) over which the conveyer may be trained.

It will be understood that only one of many preferred forms of the invention is herein disclosed and described and numerous modifications of the same or similar coupling devices may be utilized without departing from the spirit of the invention or from the scope of the appended claims.

What is claimed is:

1. In a device for coupling opposite ends of a link belt comprising a series of interconnected links each consisting of a transverse portion and side portions at either side thereof, the combination of means movably carried by one transverse portion substantially centrally between the side portions thereon and cooperating with said side portions and with corresponding side portions of an adjacent transverse portion for interconnecting said side portions, an abutting means on said first transverse portion, and resilient means between said abutting means and said first means for holding said first means in engagement with said corresponding side portions.

2. In a device for coupling opposite ends of a link belt comprising a series of interconnected links each consisting of a transverse portion and side portions at either side thereof, the combination of means movably carried by one transverse portion substantially centrally between the side portions thereon and cooperating with said side portions and with corresponding side portions of an adjacent transverse portion for interconnecting said side portions, an abutting means on said first transverse portion, resilient means between said abutting means and said first means for holding said first means in engagement with said corresponding side portion, and means carried by said first means adapted to be pressed against the resilient means to move said first means out of engagement with the side portions.

3. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, the combination of a pair of spaced aligned apertured ears on one of said slats, a third apertured ear on said slat positioned substantially centrally between and rearward of said first ears, a rod extending through said last named ear, a pair of plates loosely carried on the rod at either side of said last named ear, a pin carried by each plate for movement therewith and extending outwardly through each of the first named ears to engage and interconnect a pair of links in each chain, and a pair of compression springs carried by the rods between the last named ear and each plate for maintaining the pins in interconnecting position with the chain links.

4. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transversed slats carried thereby, the combination of a bracket carried by one of said slats substantially centrally between the chains, a pair of upstanding apertured ears in spaced alignment on the bracket, a third upstanding apertured ear on the bracket positioned at a point substantially centrally and rearwardly of said first ears, a rod extending through said last named ear, a plate loosely carried on the rod at either side of said last named ear, a pin carried by each plate for movement therewith and extending outwardly through each of the first named ears to engage and interconnect a pair of links in each chain, and a pair of compression springs carried by the rod between the last named ear and each of the plates for maintaining the pins in interconnecting position with the chain links.

5. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, the combination of a pair of spaced aligned apertured ears carried by one of said slats, a pin movably carried by each of the ears to engage and interconnect a pair of links in each chain, and resilient means cooperating with said pins for maintaining the engaged positions thereof.

6. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, the combination of a pair of spaced aligned apertured ears carried by one of said slats, a pin movably carried by each of the ears to engage and interconnect a pair of links in each chain, resilient means cooperating with said pins for maintaining the engaged positions thereof, and a plate carried by each pin and adapted to be pressed against the resilient means for moving each pin out of engagement with each chain.

7. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, each of said chains having at least a pair of interfitting links having openings therein, the combination with the slat carried by corresponding portions of the interfitting links of a pair of spaced apertured ears on said slat, a pin movably carried by each ear and extending therebeyond to enter the openings in the pairs of interfitting links in each chain, and resilient means positioned between the pins and cooperating there-

with for holding the pins in the openings in the interfitting links.

8. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, each of said chains having at least a pair of interfitting links having openings therein, the combination with the slat carried by corresponding portions of the interfitting links of a pair of spaced apertured ears on said slat, a pin movably carried by each ear and extending therebeyond to enter the openings in the pair of interfitting links in each chain, resilient means positioned between the pins and cooperating therewith for holding the pins in the openings in the interfitting links, and a plate carried by each pin adapted to be pressed against the resilient means to move the pins out of the openings in the interfitting links.

9. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, each of said chains having at least at pair of interfitting links having openings therein, the combination with the slat carried by corresponding portions of the interfitting links of a pair of spaced aligned apertured ears on said slat, a third apertured ear on the slat positioned substantially centrally between and rearward of said first ears, a rod extending through said last named ear, a pair of plates loosely carried on the rod at either side of said last named ear, a pin rigidly carried by each plate and extending outwardly through each of the first named ears to enter the openings in and interconnect the interfitting links in each chain, and a pair of compression springs carried by the rod between the last named ear and each plate for maintaining the pins in interconnecting position with said interfitting links.

10. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, each of said chains having a pair of interfitting links having openings therein, the combination with the slat carried by corresponding portions of the interfitting links of a bracket carried by said slat substantially centrally between the chains, a pair of apertured ears in spaced alignment on the bracket, a third apertured ear on the bracket positioned at a point substantially centrally between and rearwardly of said first ears, a rod extending through said last named ear, a pair of plates loosely carried on the rod at either side of said last named ear, a pin rigidly carried by each plate and extending outwardly through each of the first named ears to enter the openings in and interconnect the interfitting links in each chain, and a pair of compression springs carried by the rod between the last named ear and each of the plates for maintaining the pins in interconnecting position with said interfitting links.

11. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, the combination with one of the slats of a pair of spaced aligned apertured ears carried by said slat, a pin movably carried by each of the ears to engage and interconnect the pair of links in each chain carrying the aforesaid slat with an adjacent pair of links in each chain, and resilient means cooperating with said pins for maintaining the engaged positions thereof.

12. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, the combination with one of the slats of a pair of spaced aligned apertured ears carried by said slat, a pin movably carried by each of the ears to engage and interconnect the pair of links in each chain carrying the aforesaid slat with an adjacent pair of links in each chain, resilient means cooperating with said pins for maintaining the engaged positions thereof, and a plate carried by each pin and adapted to be pressed against the resilient means for moving the pins out of engagement with said pairs of links in each chain.

13. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, each of said chains having at least a pair of interfitting links having openings therein, the combination with the slat carried by the interfitting links of a pair of spaced apertured ears on said slat, a third ear carried by the slat, a pin movably carried by each of the first named ears and extending therebeyond to enter the openings in the pair of interfitting links in each chain, and resilient means positioned between the pins and the last named ear and cooperating therewith for holding the pins in the openings in the interfitting links.

14. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, each of said chains having at least a pair of interfitting links having openings therein, the combination with the slat carried by the interfitting links of a pair of spaced apertured ears on said slat, a third ear carried by the slat, a pin movably carried by each of the first named ears and extending therebeyond to enter the openings in the pair of interfitting links in each chain, resilient means positioned between the pins and the last named ear and cooperating therewith for holding the pins in the openings in the interfitting links, and a plate carried by each pin adapted to be pressed against the resilient means to move the pins out of the openings in the interfitting links.

15. In a coupling device for a conveyer of the endless belt type having a pair of spaced link chains and transverse slats carried thereby, each of said chains having at least a pair of interfitting links having openings therein, the combination with the slat carried by corresponding portions of the interfitting links of a pair of spaced aligned apertured ears on said slat, a third apertured ear on the slat positioned substantially centrally between and rearward of said first ears and parallel thereto, a rod extending through said last named ear parallel to the transverse slat, a pair of plates loosely carried on the rod at either side of said last named ear, a pin rigidly carried by each plate substantially at right angles thereto and parallel to the rod and extending outwardly through each of the first named ears to enter the openings in and interconnect the interfitting links in each chain, and a pair of compression springs carried by the rod between the last named ear and each plate for maintaining the pins in interconnected position with the interfitting links.

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