

March 14, 1939.

H. EDWARDS

2,150,211

LOADER CONVEYER

Filed April 4, 1936

3 Sheets-Sheet 1

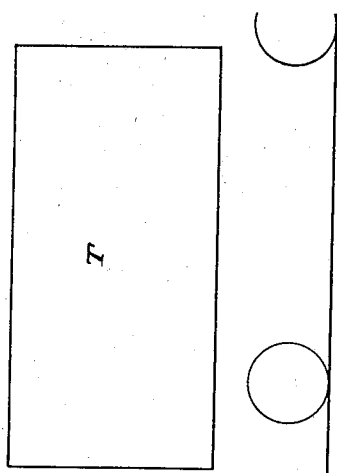


Fig. 1.

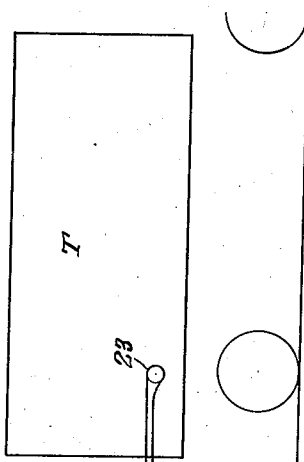


Fig. 2.

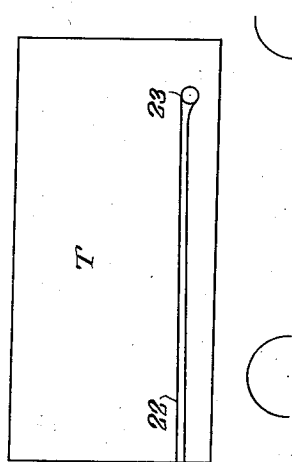


Fig. 3.

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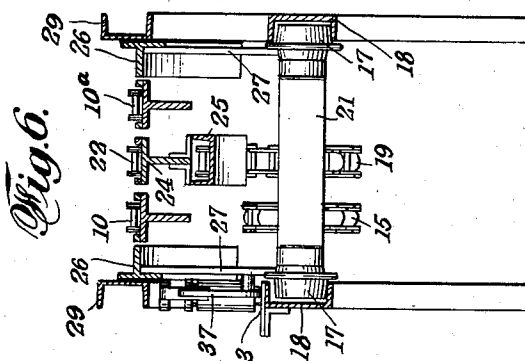
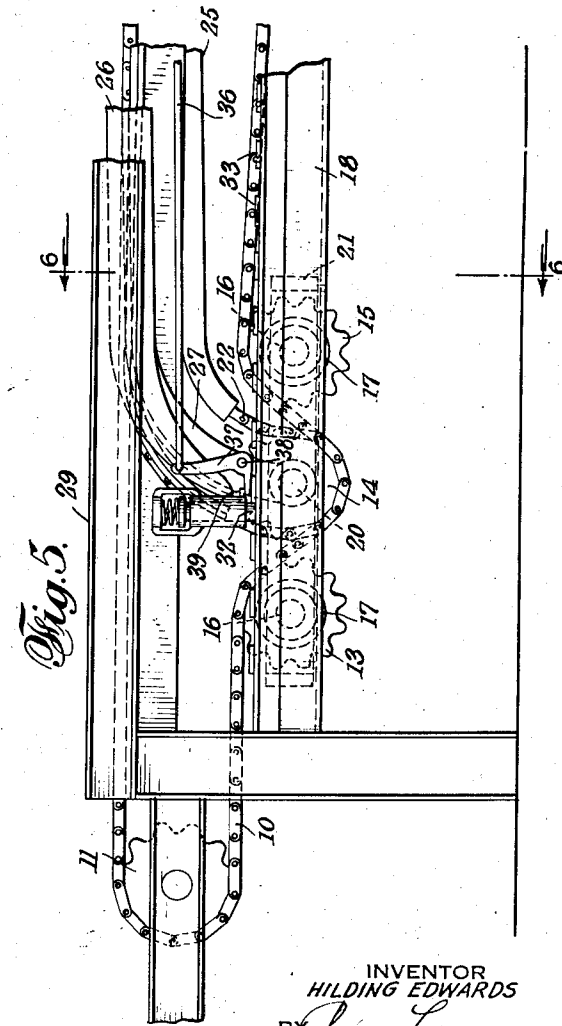
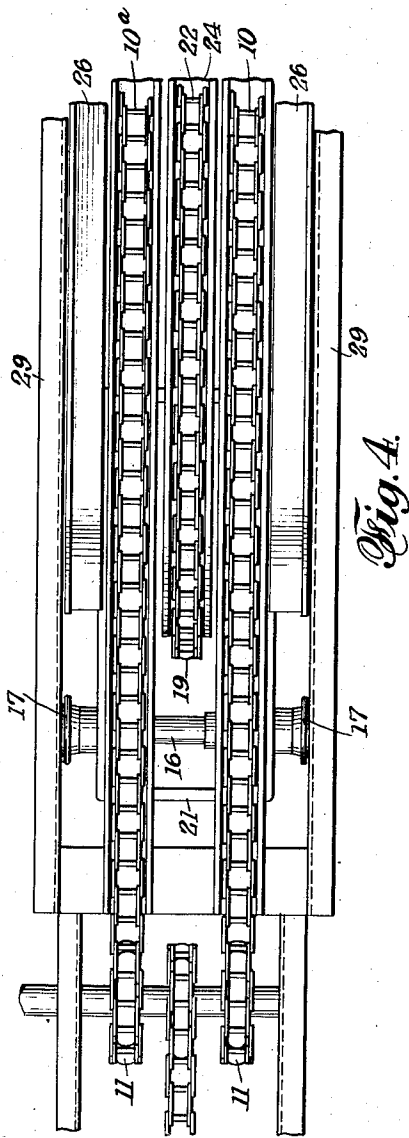
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3 Sheets-Sheet 2



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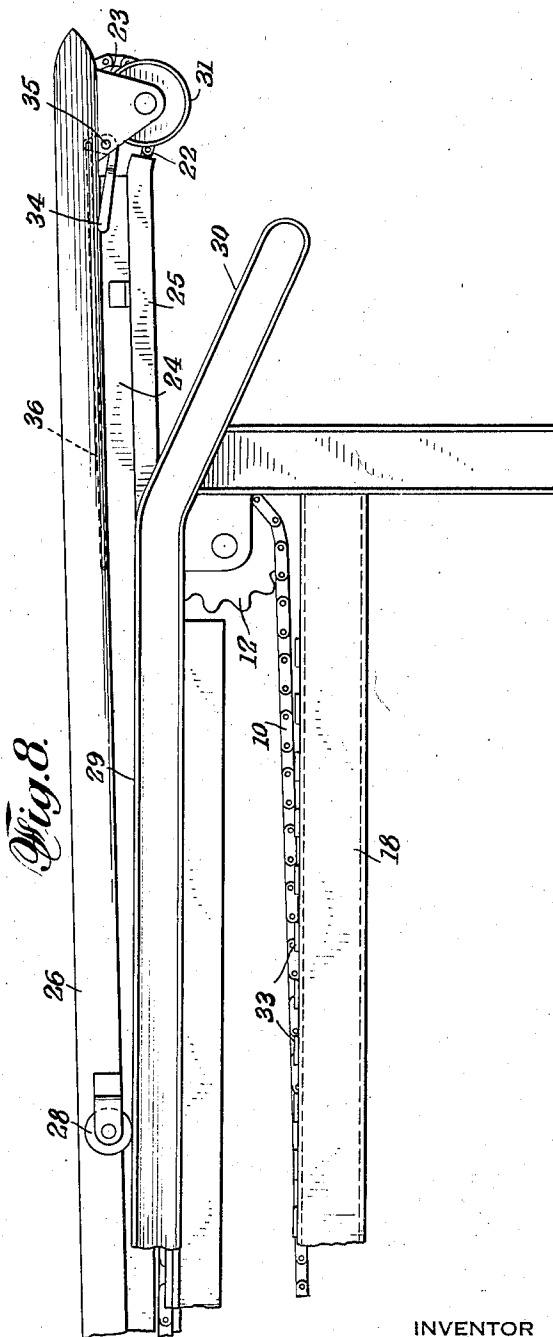
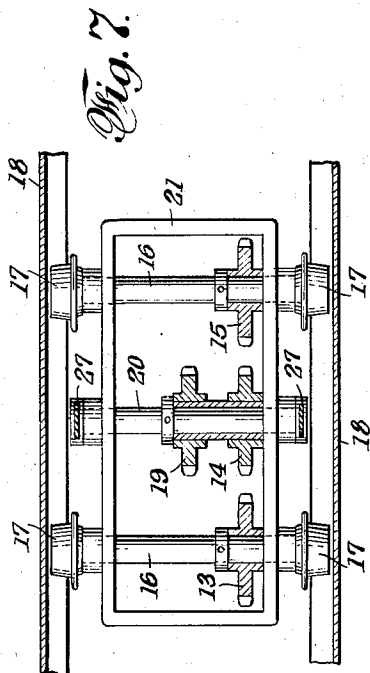
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LOADER CONVEYER

Filed April 4, 1936

3 Sheets-Sheet 3



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2,150,211

LOADER CONVEYER

Hilding Edwards, New York, N. Y.

Application April 4, 1936, Serial No. 72,688

6 Claims. (Cl. 198—3)

The present invention relates to improvements in conveyers, particularly adapted for loading and unloading goods on trucks, box cars and the like, and has for its primary object the provision of means for projecting into and withdrawing from said truck or box car, a portion of the conveyer whereby the manual handling of the goods is reduced to a minimum.

Another object of the invention resides in the provision of an extensible conveyer, having its loading end movable in a vertical plane whereby said end may be placed upon the floor of trucks or the like of various heights.

Another object of the invention resides in the provision of trolley-like means normally latched against movement but, when unlatched, movable by a moving portion of the conveyer to any desired position, whereby the extensible portion of the conveyer is extended or retracted depending upon the direction of movement of said movable portion.

A further object of the invention lies in the provision of simple control means for freeing or unlatching said trolley-like means from a convenient position in relation to the conveyer.

With the above general and broad objects in mind and with other more specific features and advantages hereinafter disclosed, the invention resides in the novel combination and arrangement of the parts as illustrated in the accompanying drawings and described in the following specification.

In the drawings which constitute by way of example a preferred form of the invention:

Fig. 1 is a diagrammatic longitudinal side view of a conveyer constructed in accordance with the invention and shown in a retracted position.

Fig. 2 is a similar view with the extensible portion of the conveyer partly extended into the interior of a truck.

Fig. 3 is a view similar to Figures 1 and 2 with the extensible portion still further extended.

Fig. 4 is a fragmentary plan view of a drive end of the conveyer.

Fig. 5 is a side elevational view thereof.

Fig. 6 is a vertical sectional view as taken along the line 6—6 of Figure 5.

Fig. 7 is a plan view partly in section of a trolley mechanism employed in the invention.

Fig. 8 is a view similar to Figure 5 of the loading end of the conveyer and forming an extension thereof.

Referring to the drawings in greater detail, a truck, box car or the like T is shown as being

positioned in loading or unloading relation with the conveyer which is usually set upon a higher level L. The usual practice in the past has been to terminate the conveyer at a point adjacent the truck, to bring goods on the conveyer to that point and then to manually carry the goods into the interior of the truck. Vice versa, the practice has been, when unloading a truck, to manually carry the goods from a point within the interior of the truck to the conveyer.

In the present instance, the conveyer proper is terminated as heretofore, that is, at a point adjacent the truck opening, but, in order to obviate the manual handling above described the conveyer is provided with an extensible portion adapted to be projected into the interior of the truck to any desired position so that when loading it is necessary only to merely lift the goods from the conveyer and place it in its proper position in the truck at a point adjacent said extensible end; and when unloading, to merely lift the goods from the truck to deposit it on the conveyer.

With reference to Figures 1, 2, and 3, the main or fixed portion of the conveyer comprises a chain or chains 10 and 10a trained, at the drive end, around a sprocket 11 and at the loading end, around a sprocket 12.

In the present instance, as seen in Figures 4 and 6, two chains are employed, one of them, such as the chain 10a, having an upper and a lower run uninterruptedly arranged between the mentioned sprockets; and the other chain 10 having its lower run engaged with a plurality of sprockets 13, 14 and 15 in the manner shown in Figure 5.

The sprockets 13 and 15 are each freely mounted on an axle 16 and fixed on each end of said axles there is provided a flanged wheel 17 adapted to run in longitudinal runways or channels 18 formed in the conveyer supporting frame work. The sprocket 14 is fixed with another similar sprocket 19 and both of said sprockets are adapted to rotate about an axle 20 fixed in a trolley frame 21 in which the axles 16 are also journaled.

From the above it will be apparent that if the trolley frame 21 is held stationary the movement of the chain 10 will cause rotation of all the sprockets and thereby cause only movement of a conveyer chain 22 which has one bight trained around the sprocket 19. When the frame 21 is freed for movement, it will then be carried bodily by the chain 10 in the direction of the movement of the lower run of said chain.

The conveyer chain 22 has its other bight trained around a sprocket 23 carried on the loading end of the auxiliary or extensible conveyer. This conveyer, supporting said chain 22 and sprocket 23, comprises a longitudinal supporting member 24 for guiding the upper end of the chain 22, a similar member 25 for guiding the lower run thereof and two spaced longitudinal members 26, each positioned immediately within the fixed frame work of the non-extensible portion of the conveyer. The members 26 are each provided with a downreaching extension 27 carried by the frame 21, or as shown, fixed with the axle 20. In this manner, it is apparent that movement of the frame 21 will cause similar movement of the extensible portion of the conveyer which comprises the elements 24, 25 and 26.

At a point somewhat adjacent the loading end of said extensible portion, the members 26 are each provided with a roller 28 adapted to roll upon the top surface of a longitudinal fixed member 29 of the mentioned conveyer framework. With this arrangement the auxiliary conveyer is disposed, as is indicated, at a slight angle to the fixed conveyer and it is for this reason that the auxiliary conveyer is fastened to the axle 20 to allow for variation in the mentioned angle in accordance with the amount of extension of the auxiliary portion.

The members 29 at the loading end are inclined downwardly as at 30 so that as the rollers 28 move down the incline 30 the wheels 31, carried on the auxiliary conveyer, serve to support said loading end by contacting the floor of the truck. This arrangement compensates for variations in the level of the truck floor as related to the conveyer.

The extensible conveyer portion is provided with a spring tensioned detent 32 at the drive end thereof, the detent being adapted to engage between cleats 33 provided, as herein shown, on the top of the guide members 18. This detent 32 prevents the movement of the trolley frame 21 due to the mentioned engagement between the cleats and hence the movement of the conveyer chain 10 serves only to impart similar directional movement to the conveyer chain 22 through the medium of the sprockets 14 and 19.

When it is desired to extend or retract the conveyer, a handle 34 carried at the loading end of the auxiliary conveyer, is manually rocked around its pivot 35 so as to cause a pull on a rod 36 which is connected to one arm of a bellcrank 37 pivoted at 38. The other arm of said bellcrank 37, in engagement with an extension 39 of the detent 32, will thereby raise said detent against its spring to free the trolley for movement.

With the foregoing in mind and assuming that a loaded truck has been backed into position as shown in Figures 1, 2 and 3, the conveyer chain 10 is started, its upper run moving toward the left for the purpose of carrying articles from the truck. The initial position of the loading end of the extensible portion is, as shown in Figure 1, somewhat outside the truck but adjacent the opening thereof so that articles may be conveniently placed on the chain 22 to be carried by said chain to the left and thereby to deposit the articles on the chain 10.

As a portion of the truck is emptied, the operator manipulates the handle 34 to withdraw the detent 32, and since the upper run of the chain 10 is moving toward the left the lower run thereof moves toward the right, carrying the trolley 21 with it and thereby extending the conveyer at

the rate of speed of movement of the chain 10. When the extensible portion has been extended a required amount, the handle 34 is released so that the detent 32 may again engage between two cleats and thereby maintain the trolley stationary. It will be noted that the wheels 28 will run off the incline 30 permitting the extensible portion to be supported on a truck floor as by means of its wheels 31. This process is repeated, as the truck is unloaded.

The reverse operation is attained when loading, since in this instance the conveying chain 10 is driven to move toward the right and since the loading of a truck properly begins at the front thereof, the conveyor is first extended and then retracted intermittently as desired.

It will be seen from the foregoing that no manual power is required for extending the conveyer, that all the power necessary for such extension or retraction is supplied by the movement of the chain 10, it only being necessary to operate the handle 34 to position the extensible portion of the conveyer where desired.

As is usual in these structures, the conveyer is driven by means of a reversing motor M and controlled by switch means not shown.

The simple and expedient device herein illustrated may be varied according to the skill of the designer, hence interpretation of the following claims should not be had on the present specific disclosure but rather on the prior art.

What I claim as new and desire to secure by Letters Patent, is:

1. Conveying mechanism comprising a stationary portion and an extensible portion, means for maintaining said extensible portion immovable, conveyer chain means on the stationary portion, conveyer chain means on the extensible portion, means for driving the last mentioned chain means from the first mentioned chain means, means for freeing said extensible portion for longitudinal movement by the conveyer chain on the stationary portion.

2. A conveyer comprising a first chain having a conveying run and a return run, a second chain, a trolley bodily movable with the second chain and operatively connected with the return run of the first chain, means for maintaining the trolley immovable, and means for freeing said trolley for movement by the first chain and thereby causing said second chain to be moved in longitudinal relation to the first chain.

3. A conveyer comprising a frame, conveyer chain means operable in said frame, a trolley adapted for longitudinal movement by said chain means, means for guiding said trolley in said frame, an extensible conveyer portion connected with the trolley, conveyer chain means carried by said extensible portion and by said trolley, cleats on said frame, detent means on the extensible portion, and means for moving said detent means into and out of engagement with said cleats.

4. In a conveyer for loading and unloading trucks and the like, a stationary conveyer unit including a frame, said frame having a level portion and an inclined end portion, an extensible conveyer unit, means for slidably guiding the extensible unit in said frame, said means including rollers on the extensible unit having engagement with said frame, and wheels on said extensible unit adapted to approach and to finally engage the floor of a truck as the mentioned rollers are moved along the level and inclined portions of the frame.

5. In a conveyer for loading and unloading

5 trucks and the like, a stationary conveyer unit including a frame, said frame having a level portion and an inclined end portion, an extensible conveyer unit, means for slidably guiding the extensible unit in said frame, said means including rollers on the extensible unit having engagement with said frame, and wheels on said extensible unit adapted to approach and to finally engage the floor of a truck as the mentioned rollers are moved along the level and inclined portions of the frame, cleats on said frame, detent means on the extensible portion and means for moving said detent means into and out of engagement with said cleats.

6. A conveyer comprising a first chain having a conveying run and a return run, a second chain, and a trolley bodily movable with the second chain, and operatively connected with the return run of the first chain, in such manner that if movement of the trolley is restrained, the first chain transmits power to the second chain and drives it, while if movement of the trolley is unrestrained, movement of the first chain causes the trolley to "walk" along said first chain, and means to restrain the trolley.

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