June 19, 1951 E. A. REHBERGER 2,557,203

HEAVY DUTY LOAD CONVEYER

Filed April 23, 1949 5 Sheets-Sheet 1

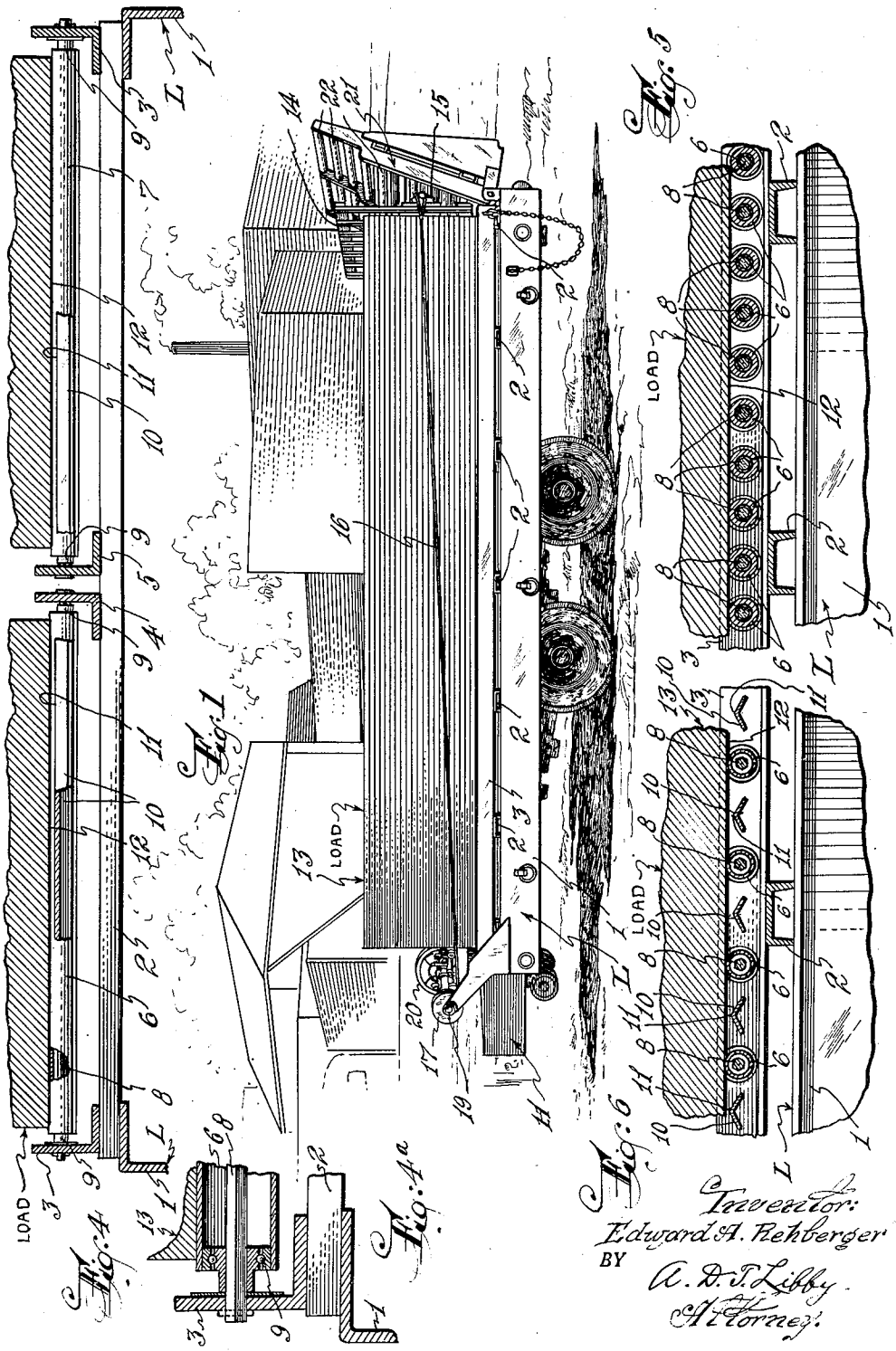


Fig. 1

Fig. 3

Fig. 4

Fig. 4a

Fig. 6

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Filed April 23, 1949 5 Sheets-Sheet 2

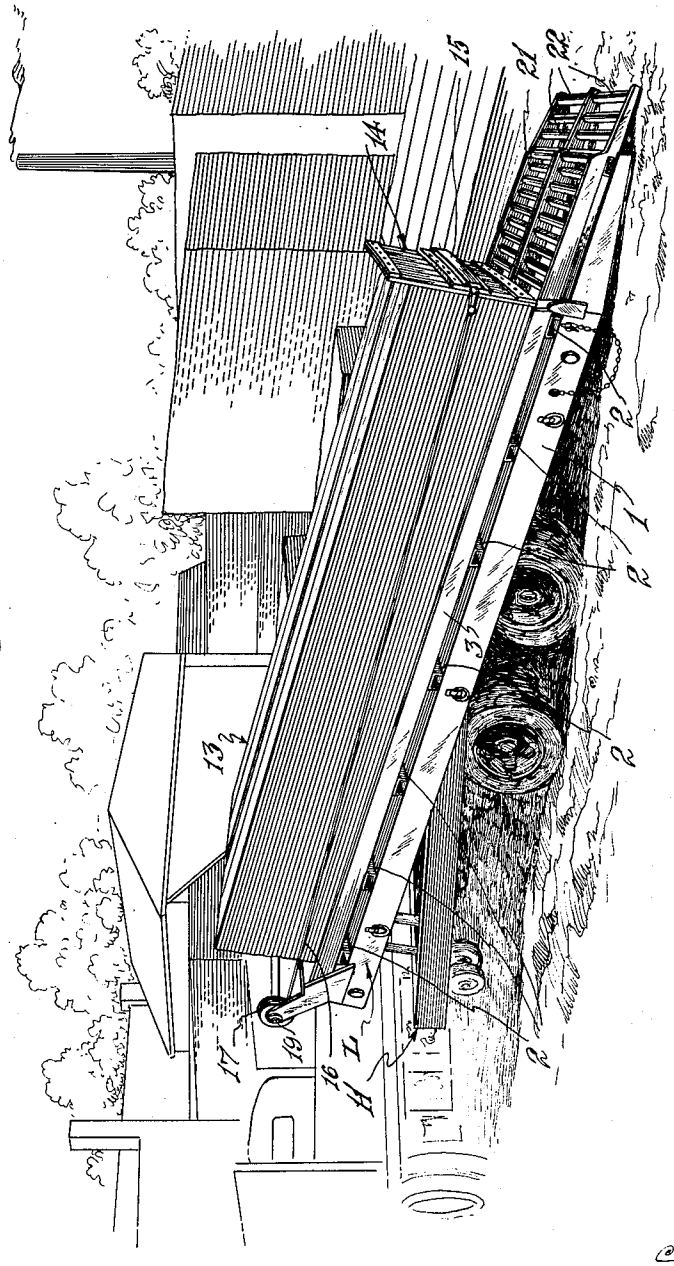


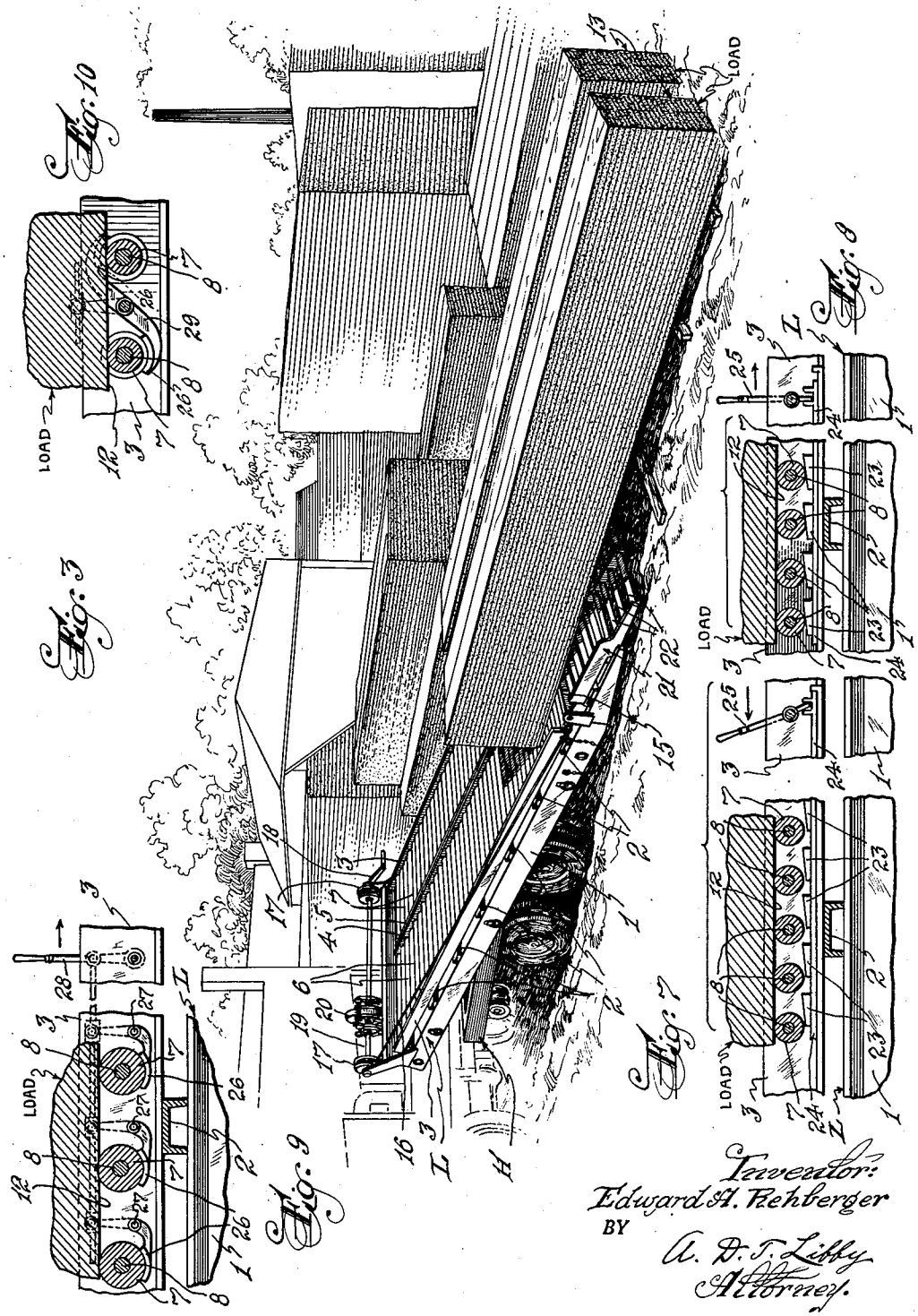
Fig. 2

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HEAVY DUTY LOAD CONVEYER

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HEAVY DUTY LOAD CONVEYER

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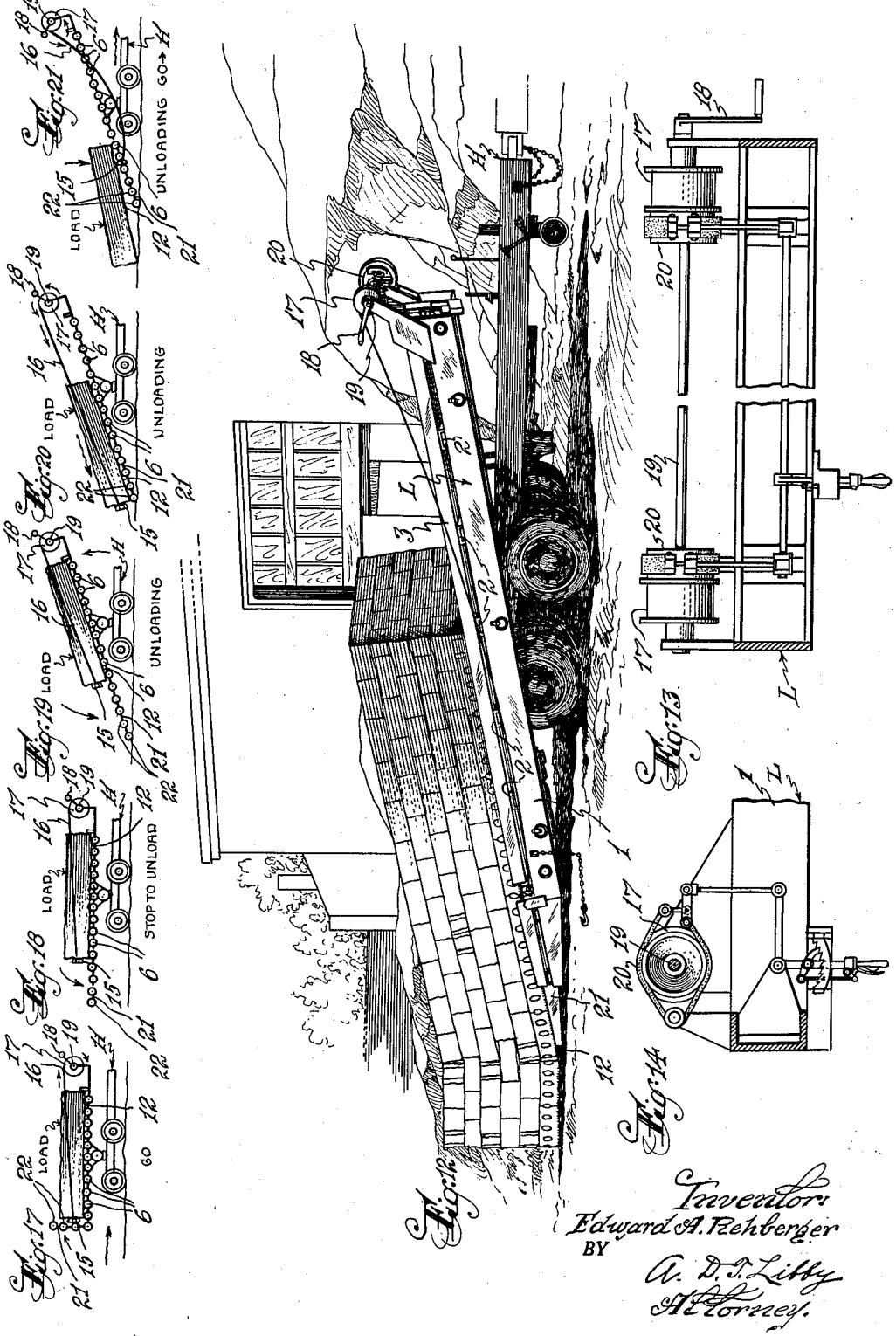


Fig. 1

Fig. 17

Fig. 18

Fig. 19

Fig. 20

Fig. 13

Fig. 14

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HEAVY DUTY LOAD CONVEYER

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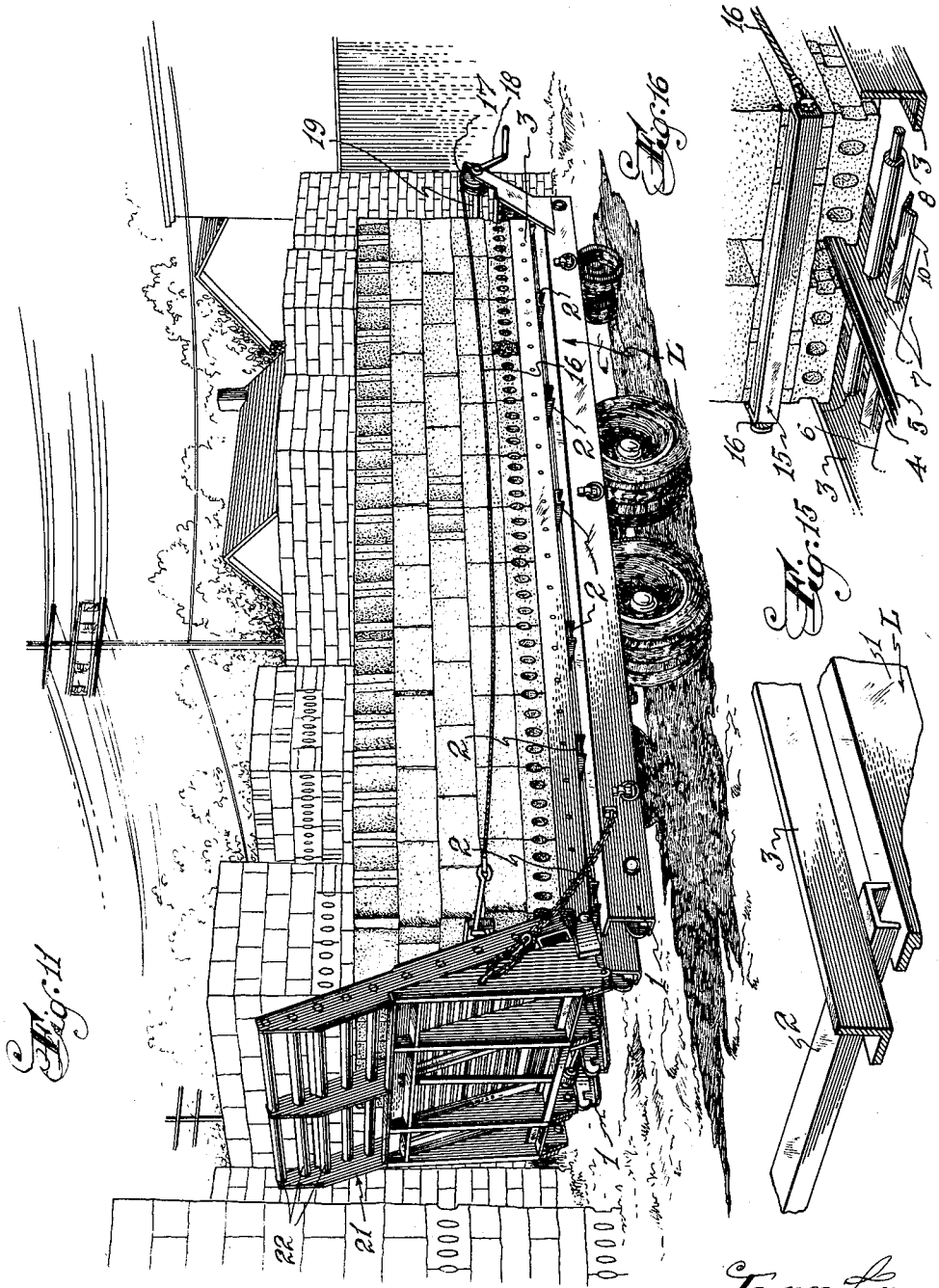


Fig. 11

Fig. 15

Fig. 16

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HEAVY-DUTY LOAD CONVEYER

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Application April 23, 1949, Serial No. 89,279

6 Claims. (Cl. 214—85)

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This invention relates to a heavy duty load conveyor, especially adapted for loading, carrying and unloading heavy materials, such as steel girders, concrete blocks, bricks, lumber and other building material.

In my Patent 2,452,681, I have shown and described a heavy duty load conveyor designed more especially for uses specified therein whereas my present load conveyor is designed to better handle the articles previously mentioned.

It is therefore one of the objects of my invention to provide a load conveyor which will allow the load of a kind to be described to be easily, quickly and safely unloaded.

While retaining the principal features of my said patent I have added thereto a new superstructure that will allow such items as building material to be expeditiously handled in bulk thereby saving much time and labor.

My improved structure will be readily understood and appreciated by reference to the annexed drawings wherein,

Figure 1 is a side view of my new and improved load conveyor showing one type of load thereon ready for hauling.

Figure 2 is a view similar to Figure 1 but with the loading frame of the load conveyor tilted to unloading position.

Figure 3 is a view similar to Figure 2 with the load nearly off the loading frame.

Figure 4 is a part sectional and elevational transverse view across the loading frame between a pair of spaced rollers.

Figure 4*a* is a view showing the method of mounting the rollers.

Figure 5 is a side view of a portion of the superstructure on the loading frame.

Figure 6 is a view similar to Figure 5 but showing a modified construction.

Figure 7 is a view similar to Figure 5 but showing brake means for the rollers.

Figure 8 is a view similar to Figure 7 but showing the brake applied to the rollers.

Figure 9 is a view similar to Figure 8 but showing a modified form of brake.

Figure 10 is a view similar to Figure 9 but showing a modified form of brake.

Figure 11 is a combined side and rear end view of the load conveyor with a load of concrete blocks thereon ready for hauling.

Figure 12 is a view similar to Figure 11 but with the loading frame tilted to unloading position.

Figure 13 is an end view of the windlass and brake shown at the front end of the loading frame shown in Figures 11 and 12.

Figure 14 is a view of the left hand end of Figure 13.

Figure 15 is a schematic view showing the arrangement of the main supports members of the super-structure.

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Figure 16 is a schematic view showing how a certain type of load may be held in position on the super-structure.

Figure 17–21 shows diagrammatically the different steps in unloading the load conveyor.

In the drawings wherein like numbers refer to corresponding parts,

The load conveyor shown in Figures 1, 2, 3, 11 and 12 is, so far as the hauling frame H is concerned, the same as shown and described in my Patent 2,452,681 so a further description of this part of the load conveyor does not seem to be necessary.

My present improvements resides in the loading frame L on which is mounted a new superstructure which will now be described in detail.

Referring to Figures 1 and 15, 1 is one of the side channel members of the loading frame. Spaced longitudinally across the top of these side channels is a plurality of support members 2 preferably in the form of channel irons.

Positioned at the opposite ends of and on the members 2 are side support members 3 which may be in the form of angle irons. Also preferably positioned closely adjacent each other and located midway between the two side angle irons 3 are similar angle irons 4 and 5, it being understood that angle irons 3, 4 and 5 are fastened to the cross bars 2 in a satisfactory manner as by welding. It should also be understood that the cross bars 2 are anchored as by welding to the said channels 1 of the loading frame. Positioned between the side angle irons 3 and the centrally located angle iron 4 and also between the other side angle 3 and the angle iron 5, are a plurality of rollers 6, and 7, as is best seen by reference to Figure 4. The two groups of the rollers 6 and 7 are supported in the same manner, so a description of one will serve for both. Each roller end is supported on a polygonally shaped, preferably hexagonal rod 8 through the medium of an antifriction bearing 9. The ends of the rod 8 being non-rotatably supported by their respective angle irons 3, 4, and 5, as diagrammatically shown in Figure 4*a*.

The number of rollers 6 and 7 will depend on the character of material carried by the load conveyor. For general all around use, I propose to have the rollers fairly close together as shown in Figure 5 so that short building material such as bricks can be carried on the rollers without any danger of their being caught between the rollers during the unloading operation.

For certain classes of material that are to be carried, every other roller may be dispensed with and a member 10 may be in the form of an angle iron and fastened to the angles 3, 4, 5, in the manner shown in Figure 6 but in this case the

point 11 of the angle iron 10 is below the surface 12 which corresponds to a plane tangent to the upper surfaces of all the rollers, so that no friction will be applied to the load material during the unloading process. It will be seen that the members 10 will also act as frame strengthening members as well as to prevent some material such as concrete blocks from tipping down between the roller but will allow chips or other material to pass below, out of the way of the rollers. It will be noted from Figures 4 and 6 that the angle irons 3, 4, and 5 have their upwardly projecting sides long enough so as to at least act as side guides for the load placed on the corresponding rollers.

As shown in Figure 1 the load 13 is in the form of lumber and is held in position at the rear by a readily removal lattice plate 14 and a cross bar 15 to the opposite ends of which are attached pull ropes or chains 16 that are adapted to be wound up on a windlass 17 that may be operated by a crank 18.

To the windlass rod 19 there is attached a brake 20 for the purpose of controlling the speed of movement of the load when the ramp 21 has been moved to unloading position and the loading frame L tilted in the manner described in my aforesaid patent. The form of brake shown in Figures 13 and 14 differs from that shown in Figures 1 and 9 but since the method of controlling the brake as shown in Figures 13 and 14 is obvious as shown by the drawing no further description of this device seems necessary.

It is to be noted that the ramp 21 is provided with rollers 22 in a manner similar to the rollers 6 and 7. If desired, the rollers 6 and 7 may be individually supplied with braking shoes 23. A plurality of these brake shoes, one for each roller may be carried on a common carrier 24 that is adapted to be operated by the brake arm 25 as shown in Figures 7 and 8 wherein it is seen that an operation of the brake arm 25 in the direction of the arrow will apply all of the brake members simultaneously to its corresponding rollers.

In Figure 9 a modified form of brake shoe 26 pivoted at 27 may be applied by a brake arm 28 as will be seen from Figure 9. In Figure 10 a different form of a brake 29 is utilized. In this figure the brake shoe support is somewhat S shaped in form and carries at its ends brake shoes 26 to simultaneously engage adjacent rollers.

The general operation of the superstructure carried by the loading frame is shown in Figures 17–21 inclusive. Figure 17 shows the trailer in full loading position while Figure 18 shows the ramp moved to unloading position; Figure 19 with the loading frame tilted; Figure 20 with the load moved downwardly so one end is on the ramp; Figure 21 with the load almost removed from the loading frame with the load conveyor being pulled out from the load. From what has been said it will be seen that the superstructure applied to the loading frame of the load conveyor described in my Patent 2,452,681 has accomplished many advantages over the original load conveyor especially for certain classes of work to which reference has been made.

Having thus described my invention what I claim is:

1. A load conveyor comprising a hauling frame and a loading frame tiltably carried on the hauling frame, the loading frame including at least a pair of spaced longitudinally extending main girders on opposite sides with spaced cross bars positioned along the length of the girders and fastened thereto, a superstructure located on and fastened to the cross bars, said structure having a pair of longitudinally extending auxiliary girders located one at each side of the frame at the ends of and on said cross bars and a pair of closely adjacent longitudinally extending girders located centrally between the side auxiliary girders and a plurality of rollers positioned between the side auxiliary girders and said pair of centrally located girders, hydraulic means on the hauling frame for tilting the loading frame, means comprising a winch mounted at the front end of the loading frame and having brake means associated therewith for controlling the speed of movement of a load from the loading frame when tilted and for pulling at least certain types of load over the rollers onto the loading frame, and means for anchoring the load to the loading frame.

2. A load conveyor as defined in claim 1 further characterized in that the loading frame has a combined loading and stop ramp pivotally mounted at its rear end with rollers arranged thereon similarly to their arrangement on the superstructure, and further defined in that fixed cross members may be utilized in place of certain of the rollers.

3. A load conveyor as defined in claim 1 further characterized in that the loading frame has a combined loading and stop ramp pivotally mounted at its rear end with rollers arranged thereon similarly to their arrangement on the superstructure, and further defined in that fixed cross member may be utilized for alternate rollers.

4. A load conveyor as defined in claim 1 further characterized in that the loading frame has a combined loading and stop ramp pivotally mounted at its rear end with rollers arranged thereon similarly to their arrangement on the superstructure, and further defined in that fixed cross members in the form of angle irons are utilized for alternate rollers, said fixed cross members being placed like an inverted V with the point of the V being below a longitudinal plane tangent to the upper parts of the rollers.

5. A load conveyor as defined in claim 1 further characterized in that brake means independent of the winch brake means are supplied and can be applied simultaneously to the rollers on the superstructure.

6. A load conveyor as defined in claim 1 further characterized in that said rollers are supported between members having parts that extend above the top plane of the rollers to act as guides for the load during at least the unloading operation.

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