Nov. 11, 1924. 1,515,329

H. BARKMANN ET AL

TRUCK

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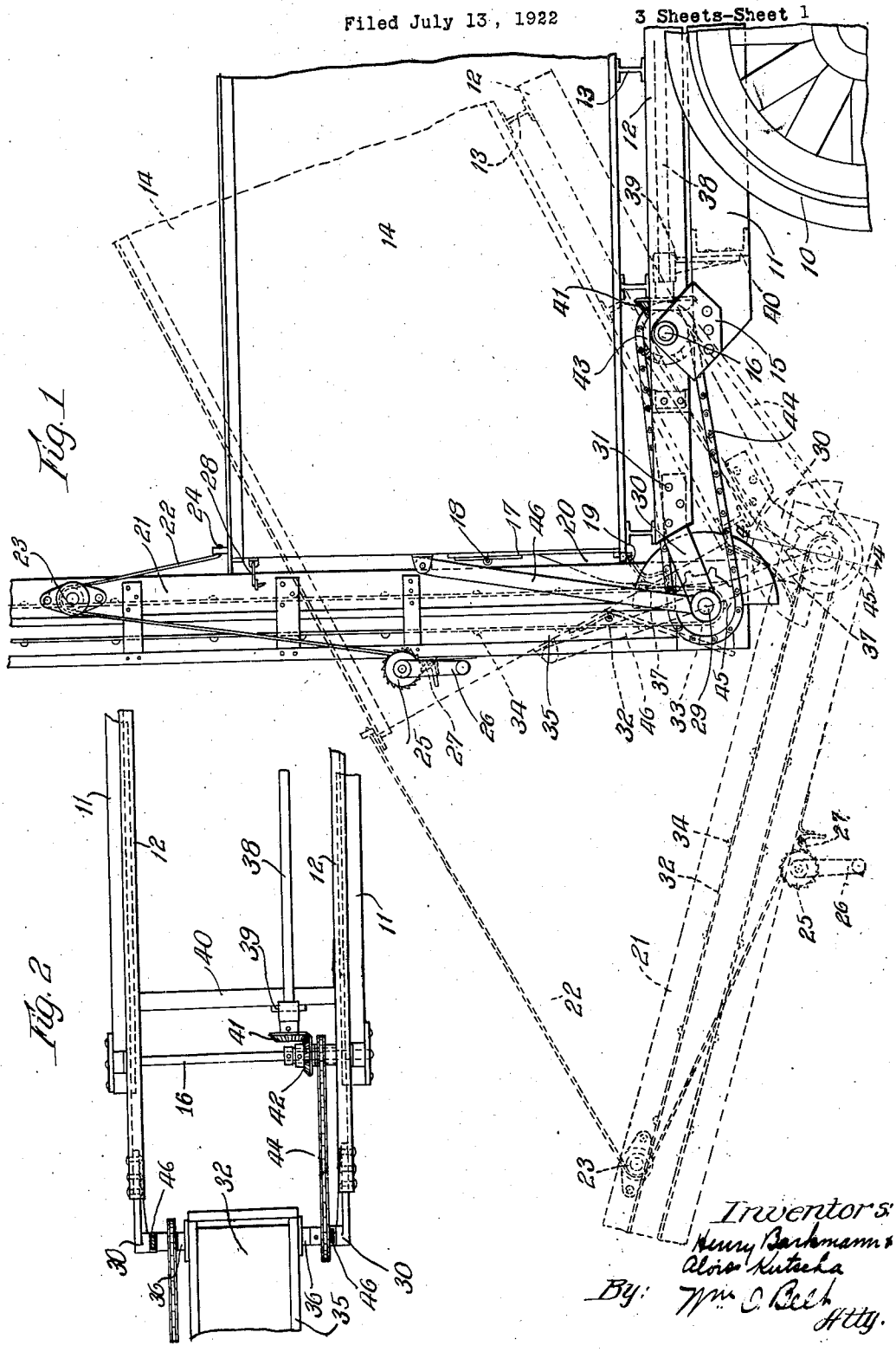


Fig. 1

Fig. 2

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Fig. 3

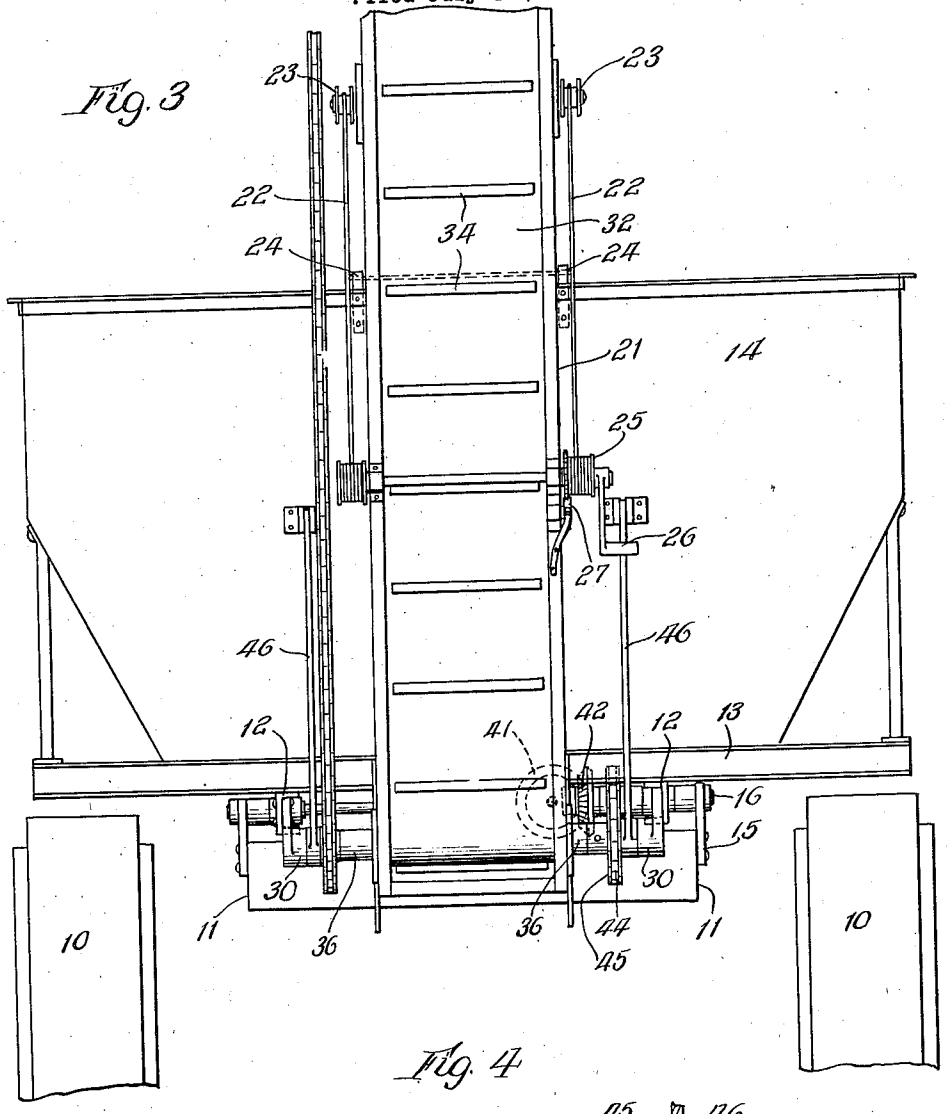
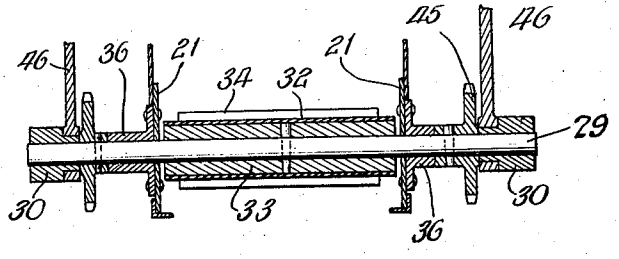


Fig. 4



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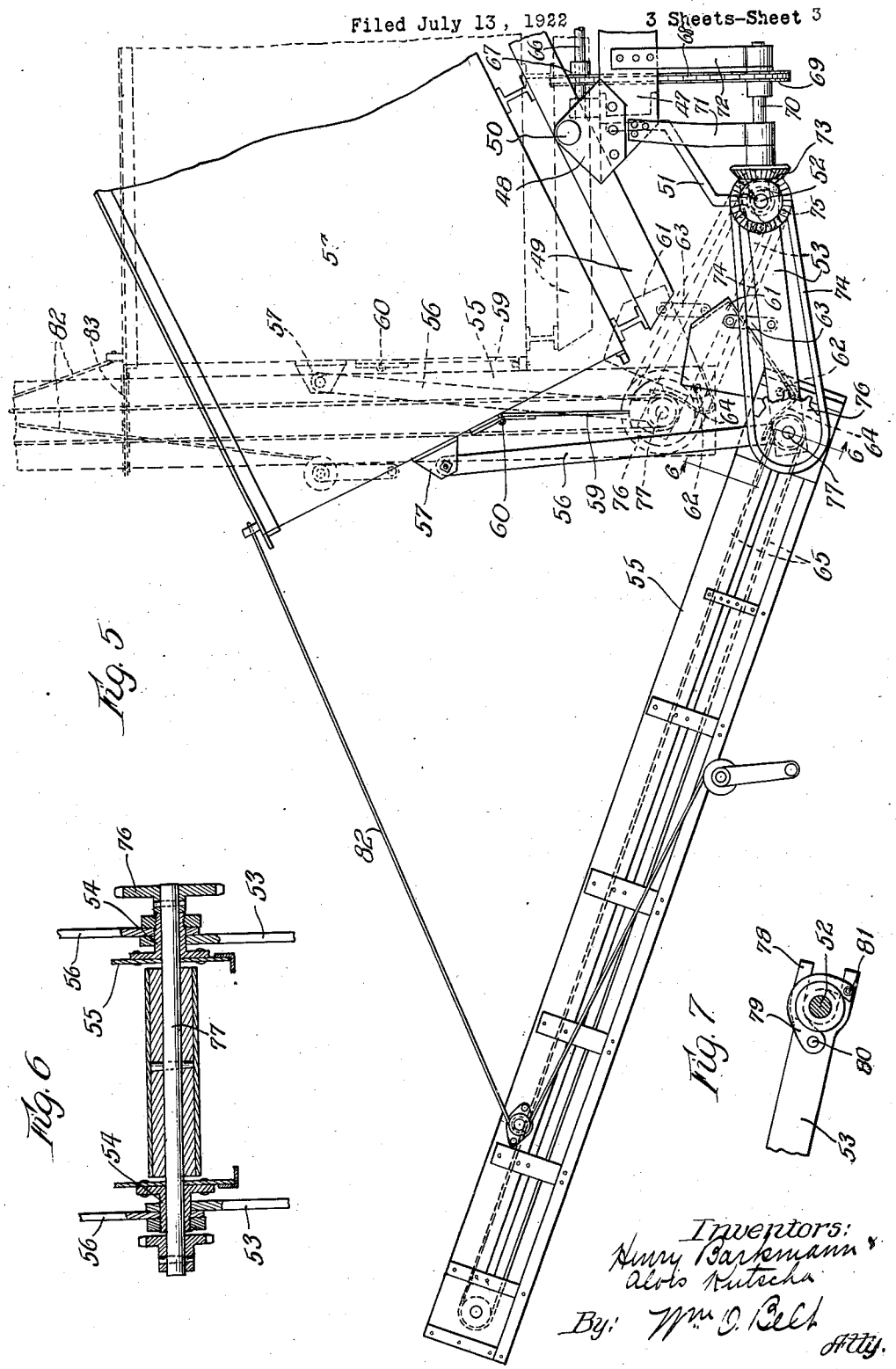


Fig. 5

Fig. 6

Fig. 7

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Patented Nov. 11, 1924. 1,515,329

UNITED STATES PATENT OFFICE.

HENRY BARKMANN AND ALOIS KUTSCHA, OF CHICAGO, ILLINOIS.

TRUCK.

Application filed July 13, 1922. Serial No. 547,752.

To all whom it may concern:

Be it known that we, HENRY BARKMANN and ALOIS KUTSCHA, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Trucks, of which the following is a specification.

The object of this invention is broadly to equip trucks with a conveyor that will always be in proper position for use and that can be driven from the power of the truck.

A further object of the invention is to provide a conveyor mounting suitable for application to conventional trucks having tilting bodies and that will maintain the receiving end of the conveyor in suitable relation to the discharge opening or outlet of the body and permit the driving mechanism for the conveyor to be always in operative condition regardless of the position of the body relative to the chassis.

A further object of the invention is to provide a mounting for a conveyor that will accommodate itself to the movements of the body in dumping and that will maintain the conveyor always at the highest level that the position of the discharge opening or outlet will permit.

Further objects of the invention will become apparent as the description is read in connection with the accompanying drawings illustrating selected embodiments of the invention, and in which—

Fig. 1 is a side elevation of a portion of a truck showing the parts in traveling position in solid lines and in dumping position in dotted lines;

Fig. 2 is a plan view illustrating the driving connection between the power mechanism of the truck and the conveyor;

Fig. 3 is a rear elevation showing the parts in traveling position;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is an elevation similar to Fig. 1 showing a modified construction;

Fig. 6 is a section on the line 6—6 of Fig. 5; and

Fig. 7 is a fragmentary detail.

Referring to Figs. 1, 2, 3 and 4, 10 indicates the wheels of the chassis including a frame 11 on which is pivotally mounted a body comprising a frame 12, transverse beams 13 and a box 14. The rear end of the side members of the frame 11 are equipped with brackets 15 which support a shaft 16 on which the frame 12 is pivoted. In some trucks the shaft 16 is in the form of two studs secured to the frame 12 and in applying the invention to those trucks a shaft may be suitably supported in line with the studs or they may be replaced by a continuous shaft 1 as shown.

The rear end of the box 14 is equipped with a discharge outlet or opening normally closed by door 17 which is hinged at 18 to swing upwardly and rearwardly when the load is being discharged. We prefer to equip this outlet or opening with a fixed chute consisting of the bottom 19 and the side pieces 20.

A conveyor 21 of any suitable construction is pivotally mounted on the body adjacent to the discharge outlet or opening and is swung to and from unloading position by the cables 22 running over pulleys 23 on the conveyor and having one end fixed to the body at 24 and the other end to a drum 25 which is equipped with a crank 26 and a pawl 27. Suitable hooks or other fastenings 28 may be used to relieve the cables when the truck is traveling. Preferably the lower end of the conveyor is equipped with a shaft 29 mounted in brackets 30 which are suitably fixed to the body frame 12 as by rivets 31. The conveyor belt 32 passes over a suitable drum 33 carried by the shaft 29 and is equipped with battens 34 to assist in retaining the material on the belt. Preferably the side frames 35 of the conveyor are fitted with hubs 36 in which the shaft 29 is journalled in suitable bearings.

When mounted in this way, the conveyor may easily swing from the solid to the dotted line position shown in Fig. 1, while the receiving ends thereof remain always in proper position to receive the material passing through the discharge outlet or opening and the chute.

In order to assist in feeding the material on the conveyor we fix a flexible flapper 37 to the bottom of the chute and arrange its free end to lie on top of the conveyor in contact with the battens 34. When the conveyor is folded the flapper will take the position substantially like that shown in full lines in Fig. 1 and when the conveyor is lowered to discharge position the flapper will extend as shown in dotted lines in Fig. 1.

In order to drive the conveyor a shaft 38 is suitably supported in the chassis frame as

by a bracket 39 fixed to the cross piece 40 and carries at its rear end a beveled gear 41 adapted to mesh with a beveled gear 42 journalled on the shaft 16 or otherwise supported in alignment with the axis of the pivot between the body and the chassis. The gear 42 drives a sprocket 43 which meshes with a chain 44 running over the sprocket 45 on the shaft 29 of the conveyor. The shaft 38 may be connected with the driving mechanism of the truck in any suitable manner as will be understood by those skilled in the art. It may be arranged to drive the conveyor concurrently with the operation of tilting the body or otherwise as conditions may require or personal desires dictate. The shaft 16 may be termed the power shaft as it is employed in this embodiment of my invention as the driving shaft for the conveyor.

By including in the driving connection for the conveyor some element that is rotatable about the pivotal axis of the body, the driving mechanism will automatically accommodate itself to the movements of the body and will drive the conveyor in any position of the body relative to the chassis. Furthermore, it will be noted that the length of the driving connection exemplified by the chain 44 is constant for all positions of the body and conveyor. By pivoting the conveyor on the body, it is made to swing with the body in dumping and the receiving end of the conveyor is maintained at all times in proper relation to the discharge outlet or opening of the body. This arrangement permits the conveyor to be quickly put in discharge position and driven either concurrently with the movement of the body or independently thereof, so that the load or any suitable portion of the load may be quickly delivered at any height within the range of the particular conveyor used. The drum and cables permit the conveyor to be easily lowered to the desired angle under perfect control and also enable it to be raised to traveling position with a minimum of labor on the part of the operator. The hooks or fastenings 28 relieve the cables when the truck is traveling but inasmuch as the conveyor is in substantially vertical position, there is no great strain on these hooks or on the cables in case the hooks are removed.

The brackets 30 may be of any form necessary or desirable in supporting the conveyor on the body of any particular truck. When the truck frame is short or does not lend itself to the attachment of brackets, such as shown, they may take the form of links running forward to some suitable point of attachment and in that or any other case it may be desirable to add straps running from the hubs 36 to the back end of the box as indicated at 46. The gist of the invention is in supporting the receiving end of the conveyor in proper relation to the discharge outlet and including in the driving mechanism some element that will rotate with the body about the axis of the shaft 16 so that the driving mechanism can automatically accommodate itself to the movement of the body and not require any connection or disconnection during the normal operation of the invention.

In Figs. 5, 6 and 7 we have shown another form of the invention to illustrate how similar results may be obtained when for any reason it is not practical to use the preferred embodiment. In this form the chassis frame 47 is equipped with brackets 48 to which the body frame 49 is pivoted by the pintles 50. The frame 47 is also equipped with brackets 51 supporting a power shaft 52 on which are pivoted links 53 which are in turn pivoted at their free ends on the hubs 54 on the conveyor 55. Straps 56 also pivoted on the hubs 54 have their upper ends pivoted to brackets 57 fixed to the back end of the body box 58. The box is equipped with a discharge in the back end normally closed by the door 59 hinged at 60 adapted to swing open to permit the material in the body to pass out on the conveyor.

A chute 61 is pivoted at its forward end on the conveyor at 62 and supported at its rear end by links 63 pivoted to the links 53 and to the chute. By this arrangement the chute automatically adjusts itself in position to assist the material passing from the body to land properly on the conveyor. The front end of the chute is preferably fitted with a flapper 64 adapted to cooperate with the battens 65 to insure the proper feeding of the material on to the conveyor.

The shaft 66 corresponding to the shaft 38 is equipped with a sprocket 67 driving a chain 68 running over a sprocket 69 on a shaft 70 supported in brackets 71 and 72 below the frame 47. The shaft 70 drives the shaft 52 through beveled gears 73 and a chain 74 passes over sprockets 75 and 76 on the shaft 52 and the conveyor shaft 77 respectively. It will be noted that in this movement also the length of the driving connection exemplified by the chain 74 is constant for all positions of the body and conveyor.

The rear ends of the links 53 may be forked as indicated at 78 to receive the shaft 52 or a suitable fixed bearing carried by the brackets 51, and the hooks 79 may be pivoted at 80 on the link so that they may swing into the position shown in Fig. 7 and be secured by bolts 81. By means of this connection and the use of bolts to secure the links 56 to the brackets 57 the conveyor is made readily attachable and detachable so that it can be used or omitted with very little trouble.

The conveyor is lowered and raised by

cables 82 similar to those shown at 22 in Fig. 1 and is held in traveling position by a chain 83 or other suitable means like hooks 28.

This embodiment of the invention permits the conveyor to be attached to a truck having a dumping body so mounted that it is not feasible to use the arrangement shown in Figs. 1, 2, 3 and 4. The positions of the shaft 52 and the brackets 57 are variables that can be changed to suit particular conditions. The nearer shaft 52 is to the axis of the pintles 50 the less will be the relative movement between the receiving end of the conveyor and the discharge outlet of the body. In most cases it will be possible to locate this shaft very near the axis of the pintles so that the movement of the receiving end of the conveyor will be so small as to be negligible. When the shaft 52 is coincident with the pintles 50 the arrangement will be substantially the same as that shown in Figs. 1, 2, 3 and 4. In fact, the rear ends of the frame members 12 and the brackets 30 disclosed in the preferred form are the equivalent of links pivoted to the shafts 16 and 29 and may be considered as such links. In some trucks brackets 57 can be so located with reference to the axis of the pintles 50 that their movement is principally horizontal and in that case the lowering of the conveyor relative to the body will be correspondingly less than in the embodiment illustrated in Figs. 5, 6 and 7 where the movement of these brackets is largely vertical. In some cases it may be desirable to have the links 56 extend between the shaft 77 and the pintles 50 in which case there will be no movement of the receiving end of the conveyor relative to the chassis when the body is swung about the axis of the pintles.

From these two examples it will be clear that we have produced a mounting for a conveyor that will permit it to be always in proper position to receive material discharged from the body and will make it possible to use a driving connection that can automatically accommodate itself to the movements of the body and the conveyor from traveling to discharge position.

We are aware that changes may be made in the form, construction and arrangement of the invention, as set forth in the selected embodiment herein, without departing from the scope or sacrificing any of its material advantages, and we therefor reserve the right to make all such changes as fairly fall within the scope of the following claims.

We claim:

1. In a truck, the combination of a chassis, a body pivotally mounted thereon, a conveyor mounted on the body, a power shaft on the chassis, and means operatively connecting said power shaft and said conveyor, the means being adapted to swing with the body about the pivotal axis thereof.

2. In a truck, the combination of a chassis, a body pivotally mounted thereon, a conveyor pivotally mounted on said body, a power shaft on said chassis, and a driving connection between said power shaft and said conveyor, the length of said connection being constant for all positions of said body and conveyor.

3. In a truck, the combination of a chassis, a body pivotally mounted thereon, a conveyor pivotally connected with the body, a power shaft on said chassis, and a driving connection between said power shaft and said conveyor including an element which when angularly displaced with respect to the pivoted axis of the body may be angularly displaced simultaneously with respect to the pivoted axis of the conveyor.

4. In a truck, the combination of a chassis, a body pivotally mounted thereon, a conveyor pivotally connected with the body, aligned sprocket wheels on said chassis and said conveyor, a chain cooperating with said sprocket wheels, and means for supplying power to the sprocket wheel on the chassis, the distance between said sprocket wheels being constant for all positions of said body and conveyor.

5. The combination of a chassis, a body pivotally mounted thereon and having a discharge outlet, a conveyor, means for supporting the receiving end of said conveyor in position to receive material from said discharge outlet regardless of the position of the body, a power shaft on said chassis, and a continuously engaged driving connection between said power shaft and said conveyor including a sprocket wheel on the chassis, a sprocket wheel on the conveyor, and a sprocket chain meshing with the sprocket wheels.

6. In a truck, the combination of a chassis, a body pivotally mounted thereon, a conveyor pivotally connected with said body and including a rotatable shaft, a power shaft on said chassis, and a driving connection between said power shaft and said conveyor including an element rotating about an axis approximately coincident with the pivotal axis of said body.

7. In a truck, the combination of a chassis, a body pivotally mounted thereon, a conveyor pivoted to said body and including a shaft, a sprocket on said shaft, a transverse shaft on said chassis, a sprocket on said transverse shaft, a chain cooperating with said sprockets, and means for driving said transverse shaft.

8. In a truck, the combination of a chassis, a body including a body frame and a box carried thereby, means for pivoting the body frame between its ends on the chassis,

a conveyor, means for pivotally connecting the conveyor with the body frame, and straps connected with the conveyor and the box.

9. In a truck, the combination with a chassis, a body pivoted thereon, a conveyor pivoted on the body, power means on the chassis, a shaft rotatably journaled on the chassis and driven by the power means, the axis of the shaft being coincident with the pivotal axis of the body, and means directly connecting the conveyor with the shaft.

10. In a truck, the combination with a chassis, a body pivoted thereon, a conveyor pivoted on the body and including a shaft, power means on the chassis, a second shaft rotatably journaled on the chassis and driven by the power means, the axis of the second shaft being coincident with the pivotal axis of the body, a sprocket wheel on the first shaft, a sprocket wheel on the second shaft, and a sprocket chain meshing with the sprocket wheels.

11. In a truck, the combination of a chassis, a body pivotally mounted on the chassis, a power shaft journaled on the chassis and arranged transversely thereof, a pivotally mounted conveyor, the pivotal axis of the conveyor being arranged to move solely in an arcuate path having its center coincident with the axis of the power shaft, and means driven by the power shaft for driving the conveyor.

12. In a truck, the combination of a chassis, a body including a body frame pivotally mounted on the chassis, a power shaft rotatably journaled on the chassis and having its axis coincident with the pivotal axis of the body frame, a conveyor pivotally mounted on the body and including a second shaft having its axis coincident with the pivotal axis of the conveyor, and means operatively connecting the power shaft to the second shaft.

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