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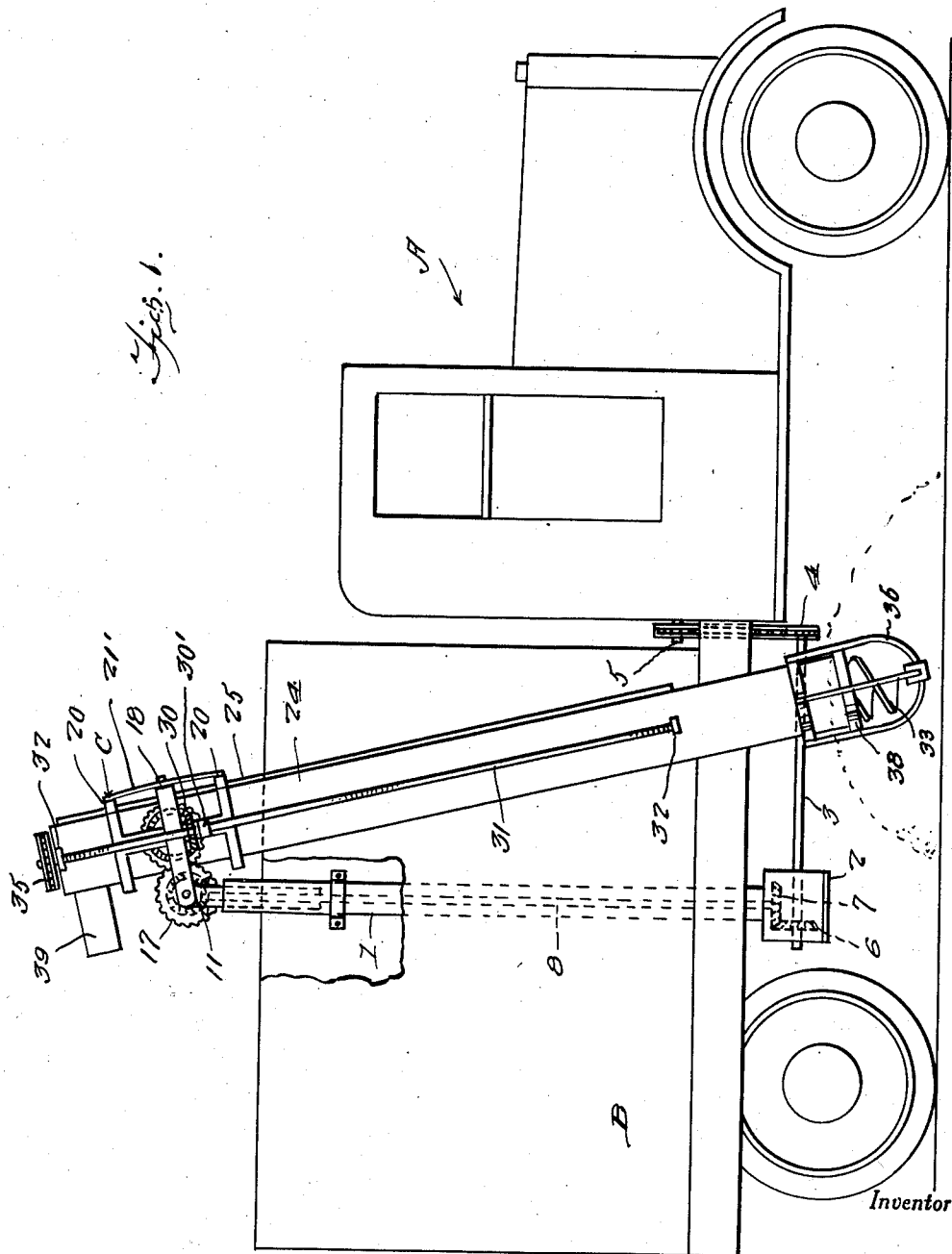
D. LOVE

2,223,894

GRAIN CONVEYER AND LOADER

Filed March 12, 1940

4 Sheets-Sheet 1



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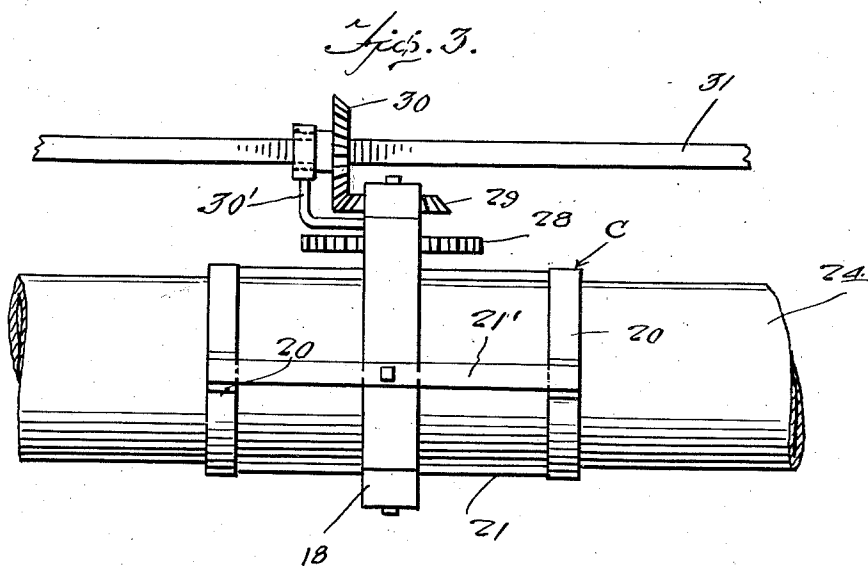
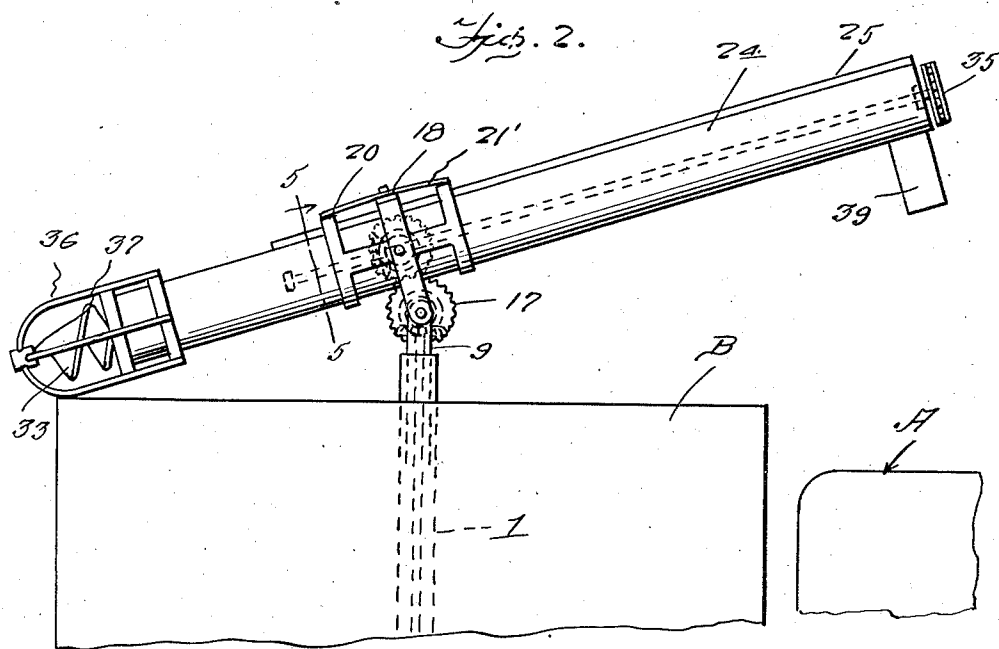
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4 Sheets-Sheet 2



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GRAIN CONVEYER AND LOADER

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4 Sheets-Sheet 3

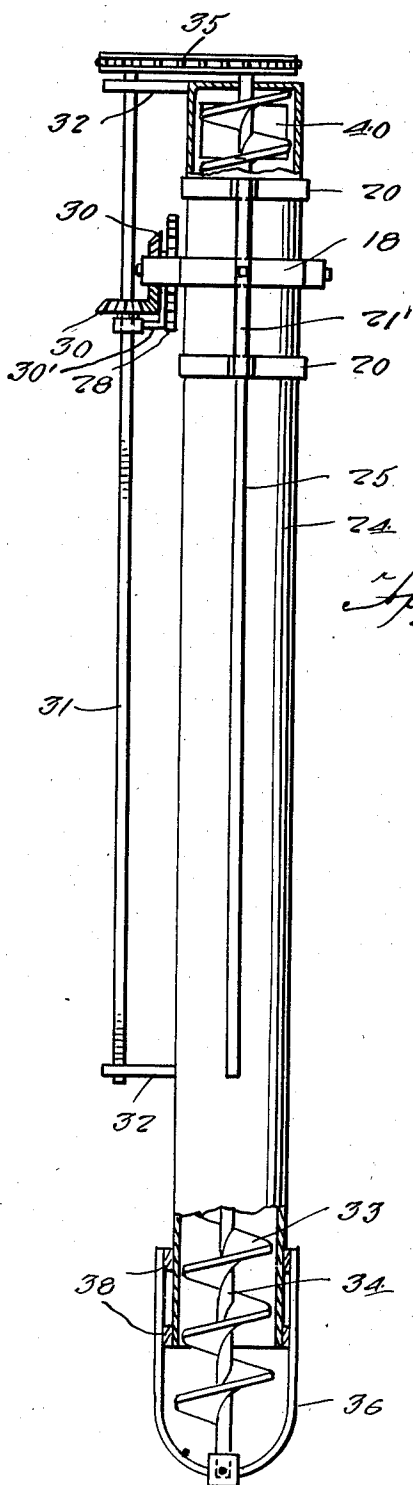


Fig. 4.

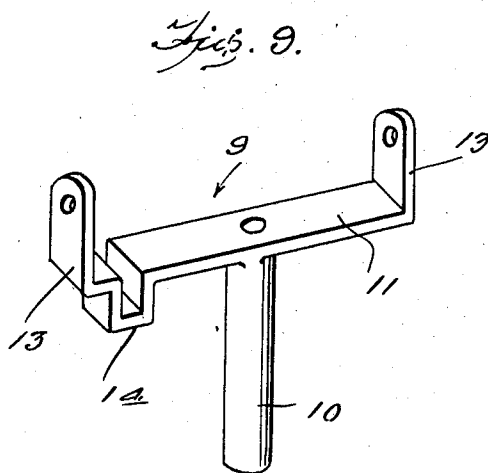


Fig. 9.

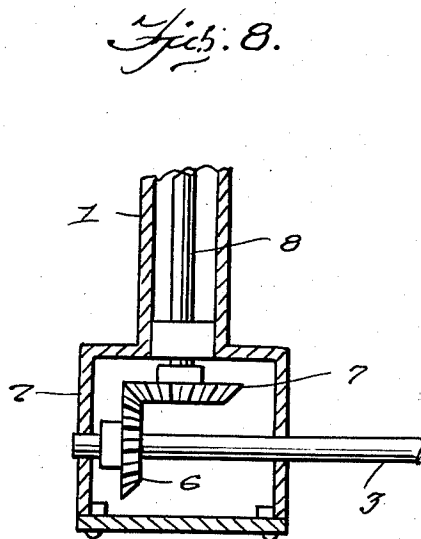


Fig. 8.

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UNITED STATES PATENT OFFICE

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GRAIN CONVEYER AND LOADER

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In Canada December 23, 1939

4 Claims. (Cl. 214—83)

This invention relates to a grain conveyer and loader, the general object of the invention being to provide means for lifting grain and the like from a pile on the ground or from a bin into the body of a vehicle, with means for placing the conveyer in different positions and in a position where it will be moved with the body as the vehicle is being moved from one position to another or traveling along the road.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is an elevation of a truck to which the invention is applied with parts broken away.

Figure 2 is a fragmentary view showing the top part of the truck with the conveyer part of the invention in raised position so that it can be moved with the vehicle from one place to another.

Figure 3 is a detail side view of the conveyer body with the cradle thereon and showing part of the drive means.

Figure 4 is an elevational view of the conveyer body and the screw with the driving means, parts being broken away.

Figure 5 is a section on the line 5—5 of Figure 2.

Figure 6 is a perspective view of the cradle.

Figure 7 is a perspective view of the skeleton frame or cage at the lower end of the conveyer body.

Figure 8 is a sectional view through the drive means at the bottom of the vehicle body.

Figure 9 is a perspective view of the T-shaped member to which the cradle is connected.

In these views the letter A indicates a truck and the letter B indicates a body thereon which is open at its top so as to receive the grain or other material to be hauled by the truck.

In carrying out the invention a vertically arranged tubular member 1 is fastened to an interior wall of the body and projects above the top thereof and it also extends through the bottom of the body where it connects with a gear housing 2. A shaft 3 has its rear end journaled in the housing 2 and its front end is suit-

ably supported from an underneath part of the truck where it is connected by the chain and sprocket means shown generally at 4 with a driven shaft 5 of the truck. Within the housing 2 the shaft 3 has attached thereto a beveled gear 6 which meshes with a similar gear 7 on the lower end of a vertical shaft 8 journaled in the tubular member 1. A substantially T-shaped member 9 is formed with a tubular stem 10 which extends into the upper end of the tubular member 1 and the shaft 8 passes through this stem and through the cross member 11 and the upper end of the shaft receives a bevel gear 12. The cross member 11 of the T-shaped member is provided with the upwardly extending perforated lugs 13 at its ends and adjacent one of the lugs 13 the cross member is formed with a substantially U-shaped depending part 14. A shaft 15 passes through the perforations of the lugs 13 and has a beveled gear 16 thereon meshing with the gear 12 and a straight gear 17 is fastened to the shaft 15 and extends into the channel formed by the part 14. A substantially yoke-shaped frame 18 of inverted shape has the lower ends of its side members pivoted to the ends of the shaft 15 and a cradle C, see Figure 6, has the pintles 19 thereon which are journaled in intermediate portions of the side members of the frame 18 as shown more particularly in Figure 5. This cradle includes the substantially ring-shaped end members 20 and the connecting longitudinally extending bars 21 which carry the pintles and each ring-shaped member 20 is provided with an outwardly pressed part 22 which forms an interior groove 23. The cradle slidably receives the elongated tubular housing 24 of the conveyer mechanism which has a longitudinally extending rod 25 attached thereto which slides in the grooves 23, it being seen that the housing passes through the rings 20. This pipe or rod 25 acts to prevent rotary movement of the conveyer housing in the cradle though the housing can slide in the cradle. A bar 21' of the cradle is bolted at its center to the top of frame 18.

A hub 27 is rotatably arranged on one of the pintles 19 and carries a large gear 28 which meshes with the gear 17 and a beveled pinion 29 which meshes with a beveled pinion 30 carried by a bracket 30' attached to the frame 18. Said pinion 30 is slidably arranged on a square shaft 31 having its end portions rotatably arranged in brackets 32 carried by the housing 24. A spiral or screw 33 is carried by a shaft 34 rotat-

ably arranged in the housing 24 and the upper end of the shaft passes through the closed upper end of the housing where it is connected with the upper end of the shaft 31 by the chain and sprocket means shown generally at 35. A cage or skeleton frame of substantially conical shape is shown at 36 and carries the bearing member 37 at its lower end for the lower end of the shaft 34, the upper end of the skeleton frame being connected to the rings 38 fastened to the lower end of the housing 34. A spout 39 leads from an opening 40 in the upper end of the housing 24 for the escape of the material lifted by the screw conveyor and as will be seen from Figure 4 the lower end of the conveyer projects from the bottom of the housing so that it can be placed in a pile of grain such as shown in Figure 1 or in a bin containing grain or other material to be lifted.

As will be seen the T-member 9 will rotate in the upper end of the tubular member 1 which is held in a stationary vertical position by the truck body and thus the frame 18 and the cradle which carries the conveyer housing 24 can be revolved about a vertical axis without interfering with the transmission of the power from the power plant of the truck to the conveyer screw and the frame 18 with the cradle therein can be partly revolved about the shaft 15 as an axis which, of course, permits the lower end of the conveyer housing to be swung to different positions to cause the lower end of the screw conveyor to engage the grain from different parts of a pile or in a bin. Also, the conveyer housing can be raised and lowered through the cradle to adjust the distance of the lower end thereof from the ground or from the bottom of the bin.

When not in use the conveyer housing can be placed in the position shown in Figure 2 so that it can be conveyed from one place to another by the truck.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts provided that such changes fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A loader of the class described comprising a tubular upright, a frame including a lower part and an upper part pivotally connected together for movement about a horizontal axis, means for rotatably supporting the lower part of the frame from the upper end of the upright for movement about a vertical axis, a cradle passing through the frame and supported in the upper portion thereof, a conveyer housing slidably arranged in the cradle, conveying means passing through the housing and means for actuating the conveying means.

2. A loader of the class described comprising a tubular upright, a frame including a lower part and an upper part pivotally connected together for movement about a horizontal axis, means for

rotatably supporting the lower part of the frame from the upper end of the upright for movement about a vertical axis, a cradle passing through the frame and supported in the upper portion thereof, a conveyer housing slidably arranged in the cradle, conveying means passing through the housing and means for actuating the conveying means, said means including a shaft extending longitudinally on the conveyer housing and spaced therefrom, means for connecting the upper end of the shaft with the conveyer means, a gear slidably arranged on the shaft, gearing carried by the frame for rotating the sliding gear, a shaft passing through the tubular upright and means for rotating the gearing from said last-mentioned shaft.

3. A loading device for a vehicle body comprising a tubular upright carried by the body, a T-shaped member having a tubular stem rotatably arranged in the upper end of the upright and the cross piece of the T-shaped member having upwardly extending perforated ears, an inverted yoke-shaped frame having the lower ends of its limbs overlapping said ears, a shaft passing through the ears and said lower ends of the yoke frame and pivotally connecting the yoke frame to the ears, a cradle having pintles extending from the side posts thereof which are arranged in the side members of the yoke frame, a conveyer housing of tubular form slidably passing through the cradle, means for preventing rotary movement of the housing in the cradle, conveying means in the housing, a shaft carried by the housing, means at the upper ends of the shaft for driving the conveying means from the shaft, a gear slidably arranged on the shaft connected with the housing, a hub on one of the pintles, a gear on one end of the hub meshing with the gear which slides on the shaft, gearing connecting the hub with the shaft which connects the yoke frame with the perforated ears, a shaft passing through the upright, gears connecting the upper end of the said shaft with the gear on the shaft which passes through the perforated ears and means for rotating the shaft which passes through the upright from a part of the vehicle.

4. A loading device for a motor vehicle comprising an elongated tubular housing, a screw propeller passing through the same and including a shaft, a skeleton frame depending from the lower end of the housing, at the lower end of which the shaft is journaled, a shaft rotatably supported from an exterior part of the housing, means for communicating movement of the last-mentioned shaft to the upper end of the propeller shaft, a tubular upright supported by the vehicle body, a frame member supported for rotary movement in the upper end of the tubular upright and including a part supported for swinging movement about a horizontal axis, a cradle supported in said part of the frame and means for slidably supporting the housing in said cradle and means for rotating the shaft carried by the housing from the power plant of the vehicle without interfering with the movement of the parts.

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