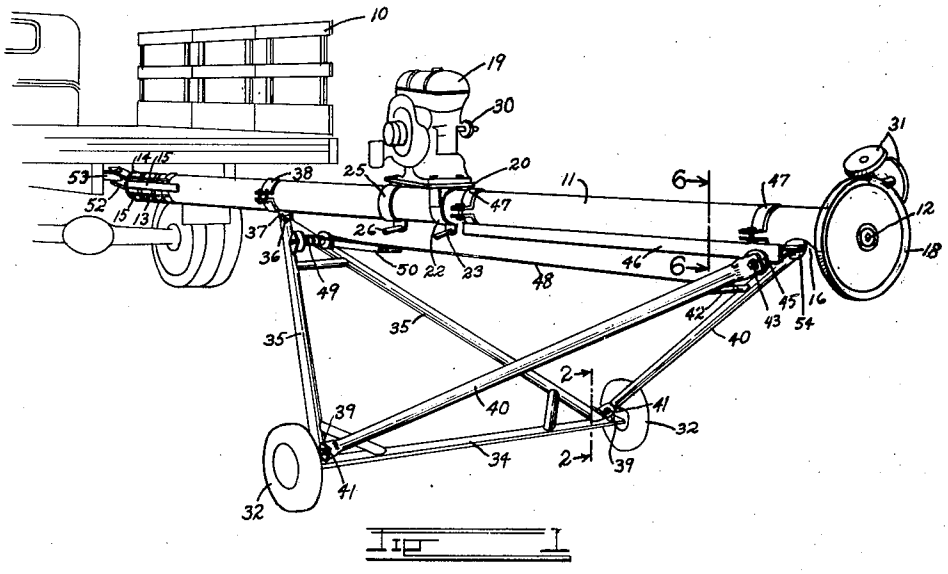
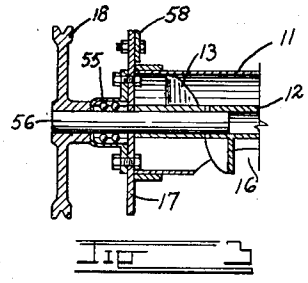
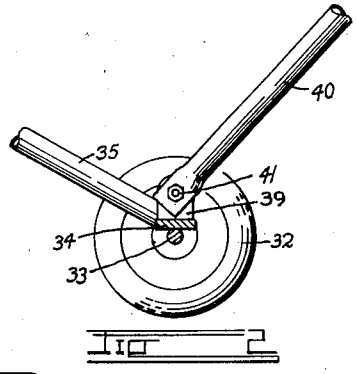
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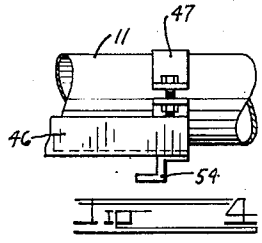
GRAIN LOADING DEVICE

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GRAIN LOADING DEVICE

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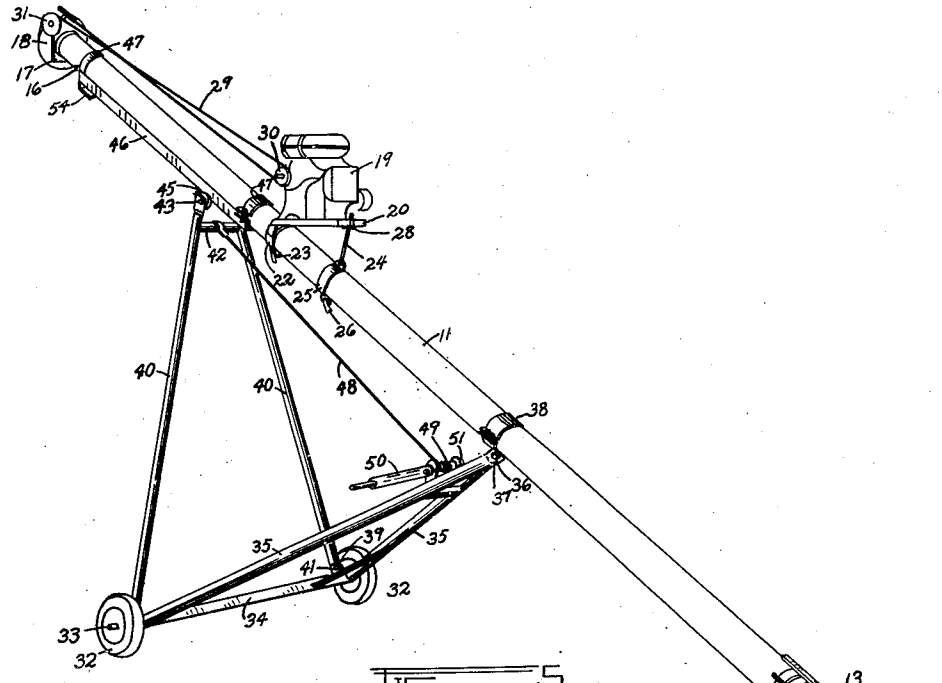


Fig. 5

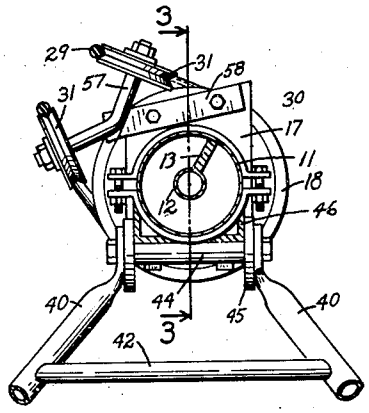


Fig. 6

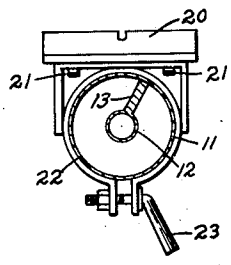


Fig. 8

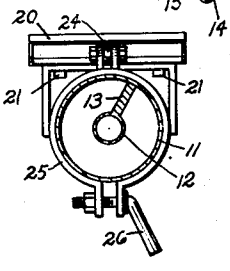


Fig. 9

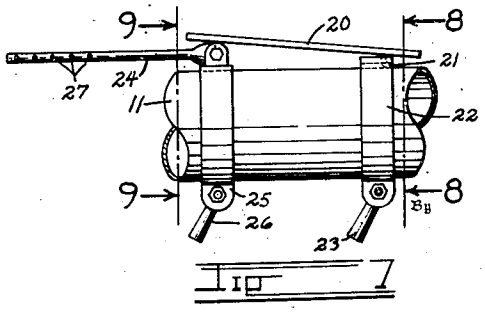


Fig. 7

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UNITED STATES PATENT OFFICE

2,492,341

GRAIN LOADING DEVICE

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Application October 20, 1947, Serial No. 780,858

1 Claim. (Cl. 198—233)

1

This invention relates to a grain loading device designed for elevating and transporting grain from a stock pile to a truck, or from a truck into a railway car, and for all other uses where movement or elevation of bulk grain or similar granular or comminuted material is desired.

The principal object of the invention is to provide a grain loader of this type which will be conveniently portable; which can be attached to a truck or towing vehicle so as to trail therebehind; which can be quickly and easily detached from a tow vehicle and elevated to any desired incline; and which will operate efficiently from a self-contained power unit.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a perspective view of the improved grain loader in the traveling or towing position;

Fig. 2 is an enlarged, detail section, taken on the line 2—2, Fig. 1;

Fig. 3 is a similar detail section, taken on the line 3—3, Fig. 6;

Fig. 4 is a fragmentary detail view of an upper, back-supporting band used on the improved loading device;

Fig. 5 is a perspective view of the improved grain loader in the operating position;

Fig. 6 is an enlarged cross-section through the loader, taken on the line 6—6, Fig. 1;

Fig. 7 is a fragmentary, detail view of an engine mounting employed on the loader; and

Figs. 8 and 9 are cross-sections, taken on the lines 8—8 and 9—9, Fig. 7.

A portion of an automotive truck or other vehicle is indicated at 10. The improved grain loader employs an elongated conveyor tube 11 through which a hollow conveyor shaft 12 extends. A screw conveyor 13 of the flat, continuous helix type extends throughout the length of the shaft 12. The shaft 12 and the conveyor 13 extend beyond one extremity of the tube 11 so as to be rotatably supported in a ball bearing carried in a bearing plate 14 carried by arms 15 extending from the end of the tube 11. The latter extremity of the tube forms the intake for the conveyor.

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The discharge consists of a discharge opening 16 formed in the cylindrical wall of the tube 11 adjacent its other extremity. At the latter extremity of the tube the shaft 12 is supported in a concentric ball bearing in a bearing plate 17. The shaft extends beyond the bearing plate 17 to carry a V-belt driven pulley 18.

The power to rotate the shaft 12 is supplied from a small, internal combustion engine 19. The engine 19 is mounted on a platform 20. The platform is hinged upon two hinge hooks 21 which engage receiving openings in a clamping band 22 which is clamped about the tube 11 by means of a suitable clamp bolt 23. The platform 20 may be supported at any desired angle by means of an adjustable brace 24 carried from a second clamping band 25 which is also clamped about the tube 11 by means of a suitable clamping bolt 26. The brace 24 contains a series of holes 27 through which a supporting pin 28 may be passed to support the platform at any height. The power is transmitted from the engine 19 through an endless belt 29. The belt 29 extends from a drive pulley 30 around a pair of idler guide pulleys 31, thence around the driven pulley 18. The idler pulleys are journalled on the extremities of a bent shaft 57 welded to an arm 58 bolted to the bearing plate 17.

The tube 11 is supported on wheels 32. The wheels are carried on stub axles 33 projecting from opposite extremities of an axle bar 34. An A-frame is built upon the axle bar 34 and comprises two side members 35 extending from opposite extremities of the axle bar 34 upwardly to a hinged mounting on a hinge bolt 36. The bolt 36 is carried in bolt ears 37 projecting from a third tube clamp 38 which is fixedly clamped about the tube 11 between the engine 19 and the intake extremity of the tube 11.

A hinge ear 39 arises from each extremity of the axle bar 34. A brace leg 40 is hingedly secured to each of the ears 39 by means of suitable bolts 41. The brace legs 40 approach each other at their free extremities and are held in spaced relation by means of a cross bar 42. An axle bolt 43 extends between the extremities of the legs 40 and carries a tubular roller 44 provided with terminal flanges 45. This roller rides along a pair of parallel track members 46 which extend between supporting clamp bands 47 secured to the tube 11.

A flexible cable 48 extends from the cross bar 42 to a winch 49 which can be rotated from a hand crank 50. The crank 50 may be locked against rotation by means of a ratchet latch 51.

The intake extremity of the tube **11** is provided with a pair of tongues **52** by means of which it may be attached to a draw bar **53** on the towing truck **10**. When being transported, the roller **44** is allowed to move toward the discharge extremity of the tube so that the wheels **32** will approach the tube **11**. At the extremity of its travel the roller enters into hooked holding members **54** which prevent the tube from bouncing upwardly while traveling. The tongue members are then attached to the draw bar **53** and the entire device is towed behind the truck **10** in a substantially level position.

When desired for elevating grain, it is detached from the truck **10** and the intake extremity is dropped into the pile of grain. The discharge extremity is elevated to the desired height by rotating the hand crank **50**. This causes the winch **49** to reel in the cable **48**, drawing the roller **44** along the track **42** to elevate the discharge extremity to any desired height, as shown in Fig. 1.

The shaft **12** is preferably a hollow tube, with short stub shafts **56** welded or otherwise secured in the extremities thereof, as shown in Fig. 3.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claim, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

Means for portably supporting a conveyor tube at an adjustable angle, comprising: an axle member; wheels supporting the extremities of said axle member; a side frame member mounted on each extremity of said axle member and being inclined toward each other to a common apex; a hinge bolt extending through said apex transversally of said tube; a first tube clamp surrounding said tube and hingedly mounting said hinge bolt; a hinge ear arising from each extremity of said axle member; a brace leg hingedly secured to each hinge ear, said brace legs approaching each other at their free extremities; a cross bar maintaining said latter extremities in spaced relation; a shaft extending between said latter extremities below said tube; a tubular roller rotatably mounted on said shaft; terminal flanges on the extremities of said roller; a pair of parallel roller tracks extending along said tube in contact with said roller between said terminal flanges; a tube clamp at each extremity of said tracks holding the latter to said tube; a cable reel mounted on said side frame members; and a cable extending from said reel to said cross bar for drawing said brace legs toward said side frame members for elevating said tube.

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