March 11, 1947. R. JEOFFROY 2,417,111

PORTABLE GRAIN ELEVATOR

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Fig. 1.

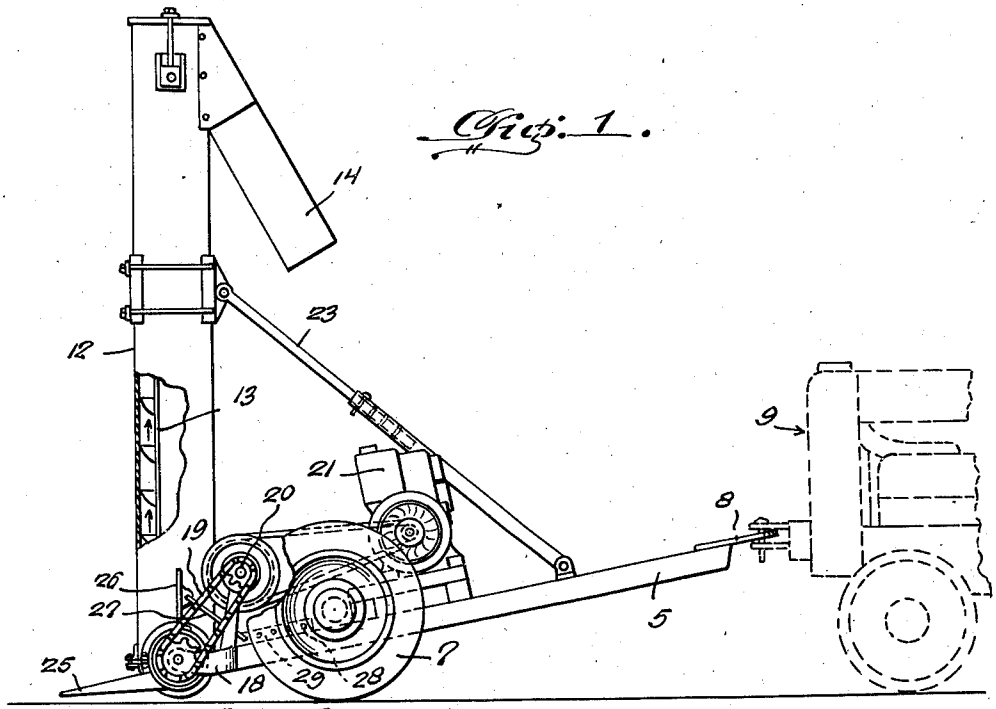
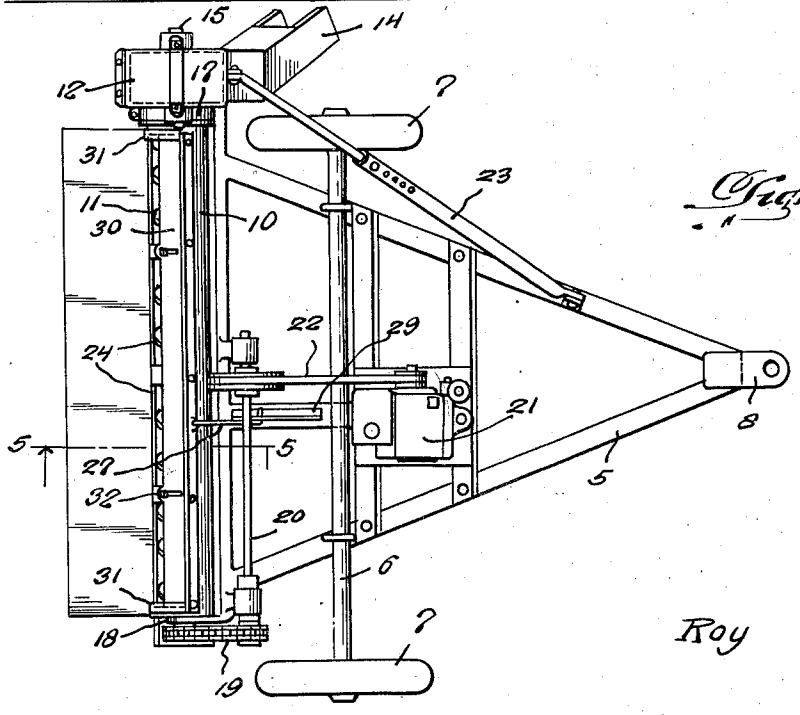


Fig. 2.



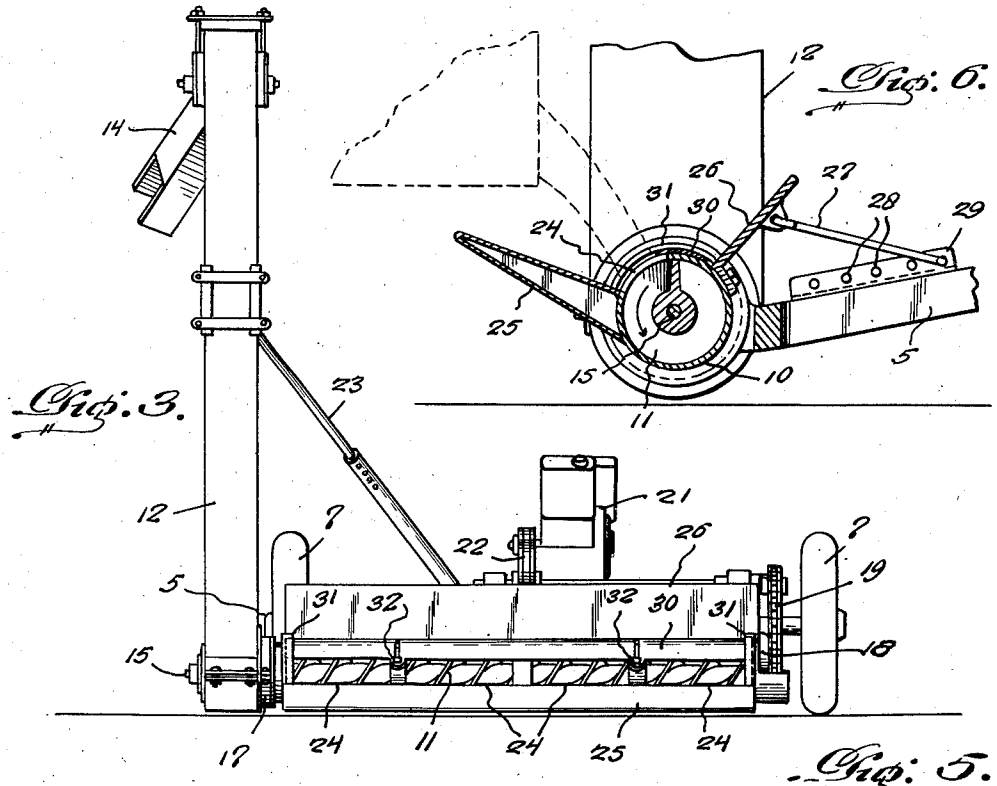
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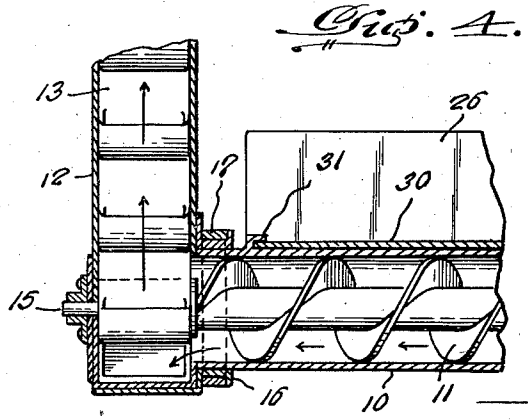
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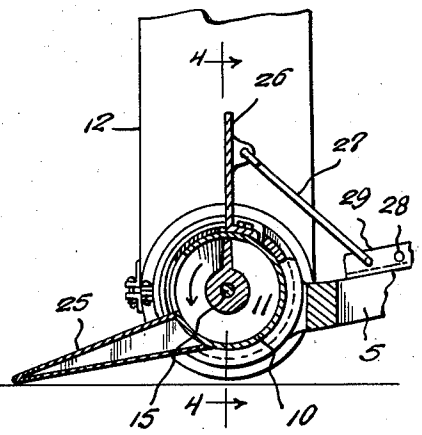
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PORTABLE GRAIN ELEVATOR

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PORTABLE GRAIN ELEVATOR

Roy Jeoffroy, Perryton, Tex.

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4 Claims. (Cl. 198—7)

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This invention relates to a portable loading device for elevating grain from the ground or a platform into a vehicle or from a vehicle into a storage bin.

An important object of the invention is to provide a device of the above kind which is highly efficient in operation, comparatively simple in construction, and easy to operate.

Another object is to provide a device of the above kind to which the grain may be readily fed from the ground or platform and which may be readily adjusted to receive the grain from a vehicle and to properly discharge the grain into a vehicle or a bin.

Still another object is to provide a device of the above kind embodying an elevating conveyor bed by a horizontal screw conveyor having a tubular casing provided with front inlet openings, and an inclined blade carried by the casing and upwardly along which the grain may pass or be moved for passage through the inlet openings into the casing.

More specific objects and features of the invention will appear from the following description.

In the accompanying drawings, wherein like reference characters indicate corresponding parts throughout the several views;

Figure 1 is a side elevation, partly broken away and in section, of a grain elevator embodying the present invention.

Figure 2 is a top plan view thereof.

Figure 3 is a front elevation of the same.

Figure 4 is a fragmentary vertical section taken on the line 4—4 of Figure 5.

Figure 5 is a fragmentary vertical section taken on the plane of line 5—5 of Figure 2.

Figure 6 is a view similar to Figure 5, with the casing of the screw conveyor and parts carried thereby adjusted for using the elevator to load grain from a vehicle into a bin.

Referring in detail to the drawings, 5 indicates a triangular frame provided near the front or base end with a transverse axle 6 having supporting wheels 7 journaled on the ends thereof. At the rear or apex end of the frame is a clevis 8 to facilitate coupling of the device to a tractor 9, or the like.

Mounted for axial rotary adjustment on the front end of the frame 5 is the tubular casing 10 of a horizontal transverse screw conveyor including a conveyor screw 11 rotatable in the casing 10. The lower end of the casing 12 of an upright elevating conveyor is journaled on the outlet end of the casing 10 of the screw conveyor, and this

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elevating conveyor includes an endless bucket conveying element 13 for elevating the grain from the screw conveyor and discharging it into a rearwardly and laterally inclined discharge spout 14 on the upper end of the casing 12. The spout 14 is thus adapted to discharge the grain into a vehicle or bin at one side of the elevator.

At the outlet end of the screw conveyor, the shaft of screw 11 has a projecting end 15 which forms the footshaft of the endless elevating conveyor. The lower end of the conveyor casing 12 is reinforced and has an opening at its inner side surrounded by a flanged collar 16 journaled in a bearing band 17 fixed to the frame 5, whereby the elevating conveyor may be tiltably adjusted forwardly or rearwardly. The discharge end of the casing 10 of the screw conveyor is journaled in the collar 16, and the other end of casing 10 is closed and journaled on the adjacent end of the shaft of screw 11. The latter end of the screw shaft is journaled in an arm 18 of frame 5 and is operatively connected by a chain gearing 19 with the adjacent end of a transverse counter shaft 20 journaled on the frame 5. Mounted on the frame 5 rearwardly of shaft 20 is a motor 21 whose drive shaft is operatively connected to shaft 20 by a belt gearing 22. Thus, motor 21 drives the conveyor screw 11 and the endless conveying element 13. An adjustable guy rod 23 is provided between the rear portion of frame 5 and the casing 12 of the elevating conveyor for securing the latter in the desired tiltably adjusted position.

The casing 10 of the screw conveyor has a series of horizontally elongated and horizontally alined inlet openings 24 in the front thereof. Fixed to and projecting forwardly from casing 10 is a flat blade 25 that is attached to said casing at the bottoms of the openings 24 to lead the grain to the latter. Fixed to and projecting upwardly from the top of the casing 10 is a guard plate 26 adapted to prevent grain from passing rearwardly over said casing. Casing 10 may be rotatably adjusted so that the blade 25 extends downwardly to the surface of the ground or platform as shown in Figure 5, or so that it extends forwardly and upwardly as shown in Figure 5. When in the first position, the blade may act as a scoop for directing the grain, to the openings 24 when the device is pushed ahead by the tractor 9, or as an inclined plane up which the grain may be moved by shovelling or the like. When in the second position, the blade directs the grain to the openings 24 as it is discharged from a vehicle above the casing 10 as shown by dotted lines

in Figure 6. To secure the casing in different rotatably adjusted positions, a rod 27 may be pivoted to the guard plate 26 and provided with a hooked free end selectively engageable in a desired one of a series of apertures 28 of a keeper plate 29 secured on the frame 5 behind the screw conveyor.

In order to adjustably limit the amount of grain that may be fed to the screw conveyor as conditions may require, a curved slide plate 30 movable on the periphery of casing 10 in guides 31 to adjustably restrict the openings 24. Means 32 is provided to secure the slide plate 30 in any desired adjusted position.

In operation, motor 21 drives the screw 11 and endless conveying element 13 through the gearing described. The grain is caused to pass up the scoop blade 25 into the casing 10 by moving the grain or the elevator, when loading from the ground or a platform. The screw 11 discharges the grain from casing 10 into the bottom of casing 12, and conveying element 13 elevates the grain to and discharges it into the spout 14 through which the grain flows by gravity into the bin or vehicle. When loading from a vehicle, the casing 10 is adjusted so that the scoop blade 25 extends upwardly and the openings 24 are raised as shown in Figure 6. Thus, as the grain is discharged downwardly and rearwardly from the vehicle, it passes through the openings 24 into casing 10, being directed to the openings by blade 25.

From the above description, the construction, operation and advantages of the invention will be readily appreciated by those skilled in the art.

What I claim is:

1. A portable grain elevator comprising a two wheeled frame, means to couple the rear of the frame to the front of a motor vehicle to be pushed forwardly thereby, a horizontal screw conveyor mounted transversely of and on the forward end of the frame, said screw conveyor including a casing having grain inlet openings in the front thereof and substantially from end to end of the same and a conveyor screw in the casing for discharging the grain through an end of said casing, a scoop blade rigidly secured at its rear edge to and projecting forwardly from said casing for directing the grain to said inlet openings, an upright elevating conveyor including a casing mounted at its lower end on the said end of the screw conveyor casing and an endless conveying element, a driving connection between said conveyor screw and said endless conveying element, and a motor mounted on said frame and operatively connected to said conveyor screw, the screw conveyor casing being axially rotatable to position the scoop in a forwardly and downwardly inclined position for loading from the ground or in a forwardly and upwardly inclined position to direct grain into the screw conveyor casing when discharged downwardly from a vehicle.

2. The construction defined in claim 1, together with an arcuate slide mounted on the screw conveyor casing for movement concentric with the axis of the same to adjustably restrict the inlet openings thereof.

3. A portable grain elevator comprising a wheeled frame, a horizontal screw conveyor mounted transversely of and on the forward end of the frame, said screw conveyor including a casing having grain inlet openings in the front thereof and substantially from end to end of the same and a conveyor screw in the casing for discharging the grain through an end of said casing, a scoop rigid with and projecting forwardly from said casing for directing the grain to said inlet openings, an upright elevating conveyor including a casing mounted at its lower end on the said end of the screw conveyor casing and an endless conveying element, a driving connection between said conveyor screw and said endless conveying element, and a motor mounted on said frame and operatively connected to said conveyor screw, a guard plate projecting upwardly from the screw conveyor casing behind the inlet openings, and means connected to the guard plate to secure the screw conveyor casing in different rotatably adjusted positions.

4. A portable grain elevator comprising a two wheeled frame, an elongated horizontal screw conveyor mounted transversely of and on the forward end of the frame, said screw conveyor including a casing having grain inlet openings in the front thereof substantially from end to end of the same and a conveyor screw in the casing for discharging the grain through an end of said casing, a scoop blade rigidly secured at its rear edge to and projecting forwardly from said casing at the bottom of said grain inlet openings for scooping the grain from the ground into said inlet openings upon forward movement of the grain elevator, an upright elevating conveyor arranged to receive the grain at its lower end from said screw conveyor through said end of said casing and including a casing mounted at its lower end on said end of the screw conveyor casing and an endless conveying element, said conveyor screw having a shaft extended to form the footshaft for said endless conveying element, a motor mounted on the frame and operatively connected to said conveyor screw, and means to couple the rear of the frame to the front of a motor vehicle to be pushed forwardly thereby.

ROY JEOFFROY.

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