

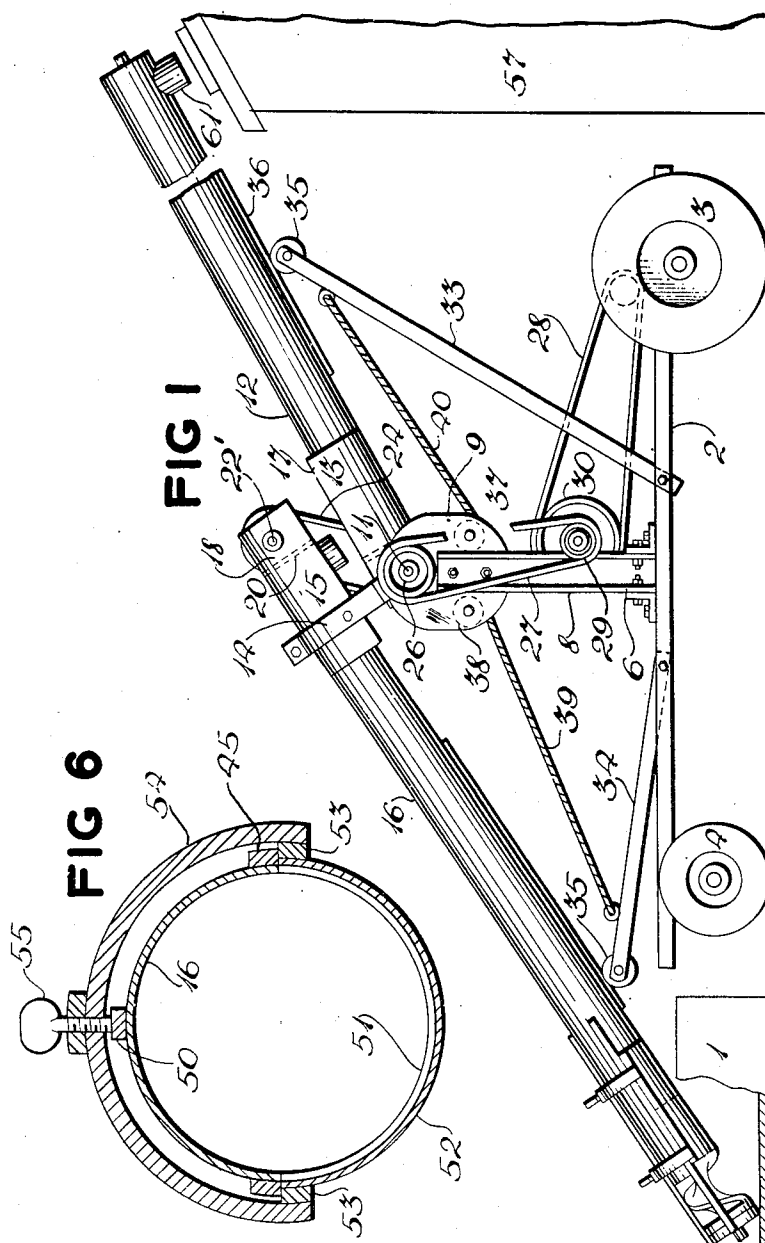
July 25, 1950

C. R. ADAMS
GRAIN CONVEYER

2,516,360

Filed Sept. 19, 1946

3 Sheets-Sheet 1



Inventor:
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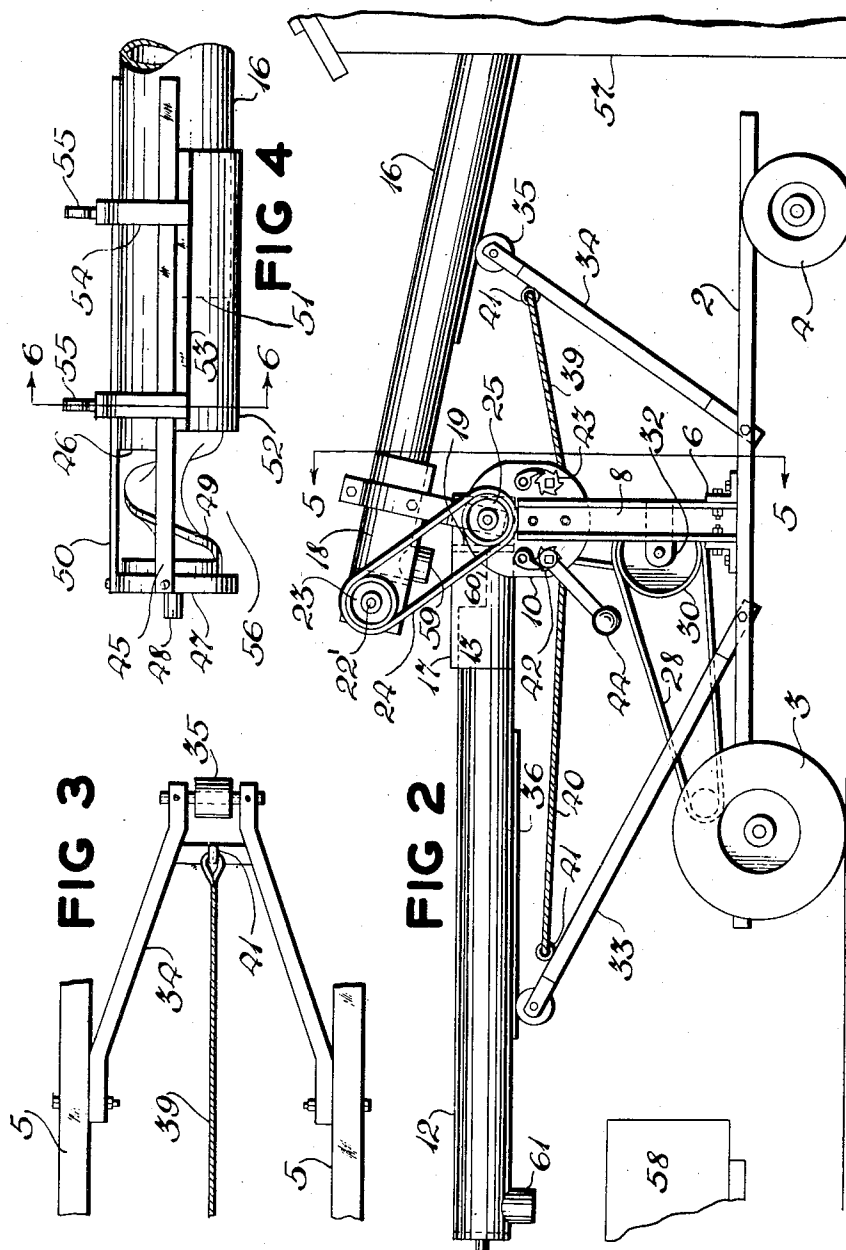
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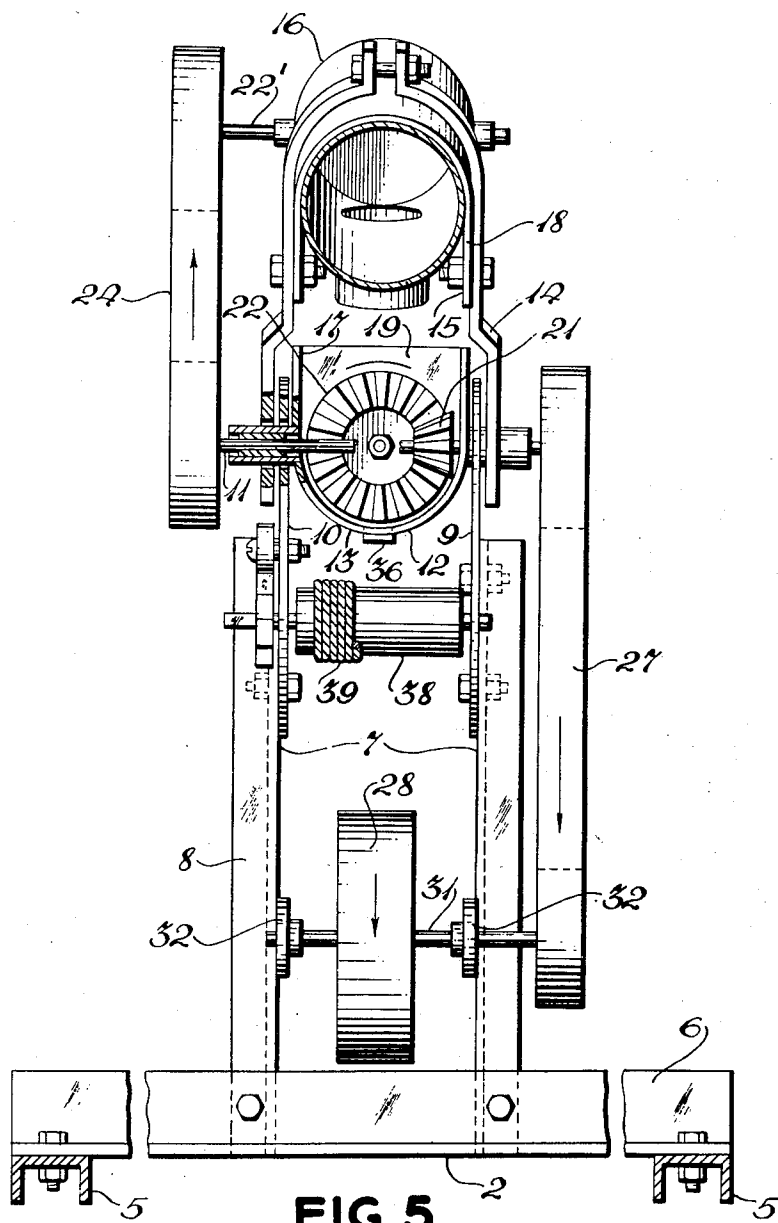


FIG 5

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UNITED STATES PATENT OFFICE

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GRAIN CONVEYER

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6 Claims. (Cl. 198—91)

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My invention relates to improvements in grain conveyors, an object being to provide a device of the character herewithin described which is mounted on a mobile platform particularly suitable for use in the transference of grain from a circular reservoir into a granary, following the discharge of grain into said reservoir by gravity from a truck backed up over the edge thereof.

A further object is to provide a device of the character herewithin described which, by including two independently swingable conveyors one of which overlaps the other, facilitates the use of conveyor trunks of the most efficient lengths, and wherein the delivery end of the overall conveyor may be raised or lowered without interfering with the intake end of the overall conveyor.

A further object is to provide a device of the character herewithin described which, by the use of two independently swingable conveyors, the degree of elevation of both may be kept well within efficiency limits.

A further object is to provide in combination with a device of the character herewithin described by the use of which the intake end of the intake trunk will work itself down into grain within a bin or granary during the transference thereof into a truck, more quickly than according to conventional construction if the regulator plate as hereinafter described is open to substantially its maximum extent at the beginning of the operation of such transfer.

A further object of my intake volume regulator is to facilitate the cleaning up of a grain pile at the conclusion of the transference thereof, at which time my regulator plate is moved into closed position thus forming a hopper or scuttle for the lower half of the intake end of the intake grain trunk into which the last particles of the grain mass may be shovelled quickly, conveniently, and with a minimum of effort.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as this specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my grain conveyor in the position it would assume during the process of transferring grain from a low, circular reservoir into a granary.

Figure 2 is a side elevation of my grain conveyor in the position it would assume during the transference of grain from a granary into a truck.

Figure 3 is a plan detail illustrating one of my trunk elevating and sustaining booms.

Figure 4 is an enlarged fragmentary repre-

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sentation of my intake volume regulating assembly.

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

Figure 6 is an enlarged section on the line 6—6 of Figure 4.

In the drawings like characters of reference indicate corresponding parts in the different figures.

In the loading of grain into a granary, greater efficiency is achieved at a smaller expenditure of effort if instead of transferring grain, truck load by truck load, directly into a granary, the truck loads are simply deposited into a low and preferably circular reservoir 1 over which the rear ends of the trucks will be backed prior to the lifting of the bottom end-gate. Following the lifting of the end-gate, the main body of grain within the truck will be deposited by gravity into the reservoir and that remainder which does not flow out may be shoveled or swept out which is not a laborious operation in comparison with that of piling the residue into a mound and manipulating the intake end of a truck-mounted conveyor trunk in and around the pile.

It is to be understood however that the design of my conveyor is not such as to confine its use to the steps hereinabove set forth, and accordingly, my invention will be seen to comprise a substantially rectangular platform 2 mounted on the pairs of wheels 3 and 4, the platform being of any desired construction such as that which I have illustrated and which comprises longitudinal channel members 5 which may be suitably decked across, transverse angle bars 6 intermediately of the platform, and if desired at the ends thereof.

Secured to the platform via the transverse angle bars 6 is a supporting standard collectively designated 7 and seen to consist of a pair of transversely spaced posts 8 in the form of channels, at the apices are plates 9 and 10.

Journalled in the plates 9 and 10 and spanning same is a countershaft 11, a discharge grain trunk 12 being in turn journalled on the countershaft at the intake end 13 thereof and capable of vertical swinging movement therearound. Additionally journalled to countershaft 11 is a bracket 14 in the form of a yoke to which the spaced and overlapping, discharge end 15 of an intake grain trunk 16 is secured also capable of vertical swinging movement therearound. It is to be understood that said discharge end 15 of trunk 16 is in overlapping registration with the intake end 13 of trunk 12.

The intake and discharge ends 13 and 15 of the trunks 12 and 16 respectively are housed about each with an elongated U-shaped mantle 17 and 18 (the latter being inverted). Extending transversely within the aforesaid mantles are wall por-

tions 19 and 20 to divide off the screw-conveyor actuating machinery from the flight of the said conveyor and the grain moving therealong.

Such machinery is best illustrated in the accompanying Figure 5 wherein it will be seen that a bevelled pinion 21 is keyed to the countershaft 11 and meshes with a bevelled crown-pinion 22 keyed to one end of the screw conveyor extending through trunk 12, which end may of course be journaled in the wall portion 19. A similar arrangement exists in the adjacent overlapping end of trunk 16 wherein a similar bevelled pinion (not shown) is keyed to a stub shaft 22' on the external end of which is a driven pulley 23 rotated through the agency of belt 24 by pulley 25. Pulley 25 is keyed to one external end of countershaft 11, while, on the other end thereof is a driving pulley 26 rotated by a power-source through the agency of belts 27 and 28 which engage pulleys 29 and 30 respectively, both said pulleys being keyed to the shaft 31 journaled in the bearings 32 on posts 8.

Journaled for vertical swinging movement on platform 2 against the longitudinal members 5 and on either side of my platform as bisected by the standard 7 are booms 33 and 34 of the form clearly illustrated in plan in the accompanying Figure 3 and at the upper or sweep ends whereof are mounted trunk supporting rollers 35 designed to move on the longitudinally extending reinforcing tracks 36 secured against the undersides of trunks 12 and 16.

Journaled in the plates 9 and 10 and spanning the same are winding drums 37 and 38 to which are connected the cables 39 and 40, which cables are respectively secured to booms 34 and 33 via the eye-bolt 41.

The usual pawl and ratchet assemblies 42 and 43 are associated with the aforesaid winding drums and positioned upon the exterior sides of plate 10 to sustain either drum in any desired position and the trunk and boom operated thereby at any desired degree of elevation through the agency of the associated table. My winding drums, it is to be understood, may be operated by a removable handle 44.

In the accompanying Figures 4 and 7 I have illustrated my intake volume regulating assembly for installation upon the intake end of the intake trunk 16, from which figures this structure will be seen to comprise a pair of substantially diametrically opposed rails 45 positioned horizontally abreast and secured against the external surface of trunk 16 parallel with the axis thereof and projecting therebeyond to sustain in spaced relationship to the trunk-end 46 end-bearing plate 47 in which the trunnion 48 of the screw conveyor 49 is journaled.

Also secured against the exterior surface of trunk 16 midway between and above the rails 45 is a third rail 50 which similarly projects as described in connection with rails 45 and is also secured to plate 47. By reference to the phantom line 51 in Figure 4, it is to be understood that the lower half of trunk 16 is cut back or stepped to the extent indicated, and in external lapping relationship to the cut-back underside of said trunk is a semi-cylindrical volume regulating plate 52.

Plate 52 is provided with the flanges 53 upon the opposite parallel edges thereof, and secured as by welding to the flanges and spanning the concavity of plate 52 is a pair of spaced yokes 54. At the summit of each yoke is a set-screw 55 tightenable against rail 50, at which time it will

clearly be perceived particularly by reference to Figure 6 that my plate 52 will be tightened or clamped via the flanges thereof against the under-flanks of the rails 45.

From the foregoing it will be perceived that plate 52 may be slidably adjusted upon the pair of rails 45 and secured at any desired position either to close fully the space 56 existing between the edge 51 and plate 47, or partially so. By widening the aperture 56 at the commencement of transference of a mass of the grain in a granary 57, I find that the conveyor 49 works itself into the mass faster, and obviously, in the cleaning up operation, closing of the aperture 56 by sliding plate 52 along until it contacts plate 47 facilitates the clearing up operation at which time plate 52 functions as a hopper or scuttle into which the remainder may simply be shovelled instead of being worked into an increasingly smaller mound over which the trunk end must be manipulated and by which process the last particles cannot be picked up in any event.

For the purposes of orientation, I have indicated the rear end of a truck 58 in the accompanying Figure 2 in which position it will clearly be apparent that grain is being transferred from granary 57 through the intake trunk 16 to be precipitated from the discharge port 59 therein into the intake port 60 of discharge trunks 12. From the discharge port 61 of trunks 12 grain is precipitated into truck 58.

Since many modifications can be made in the invention herein described and since the accompanying drawings have been prepared only to illustrate the relative arrangement and interaction of parts and not with regard to accuracy of dimensions for manufacturing purposes which in view of this disclosure I consider to entail merely mechanical skill together with the skill of the mechanical draftsman, and since many apparently widely different embodiments of this invention may be made within the spirit and scope of the accompanying claims without departing from such spirit and scope it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense and I desire only such limitations placed thereon as justice dictates.

What I claim as my invention is:

1. A grain conveyor comprising in combination a supporting platform, a supporting standard mounted on said platform, a pair of separate grain trunks and associated conveying assemblies supported for vertical swinging movement on said standard with the adjacent ends in lapping relationship, the overlapping trunk having a discharge port in registration with an intake port on the underlapping trunk, means for actuating said conveying assemblies simultaneously, and means for swinging said trunks for the purpose specified.

2. The device according to claim 1 in which said means for swinging said trunks consists of a pair of vertically swingable booms mounted upon said platform, each having a trunk-supporting roller on the sweep end thereof, and means for swinging said booms.

3. The device according to claim 1 in which said means for swinging said trunks consists of a pair of vertically swingable booms journaled on said platform, each boom having a trunk supporting roller on the sweep end thereof, and means for swinging either of said booms which comprises a winding drum on said standard, and a cable

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anchored thereto, said cable being also connected to said boom.

4. The device according to claim 1 in which the means for swinging said trunks consists of a pair of vertically swingable booms each having a trunk-supporting roller on the sweep end thereof, said booms being journaled on said platform and upon either side of said standard, and a pair of winding drums on said standard, one of said drums having a cable connected thereto and to one of said booms, the other of said drums having a cable connected thereto and to the other of said booms for the swinging thereof and the consequent swinging of said trunks independently.

5. The device according to claim 1 in which the means for actuating said conveyor assemblies consists of a transverse counter-shaft journaled on said standard, said underlapping trunk being journaled on said shaft for the vertical swinging thereof as aforesaid, a drive wheel keyed to said shaft and operated from a power-source, a bracket journaled on said shaft and supporting said overlapping trunk in spaced relationship to said underlapping trunk, a stub-shaft on the adjacent end of said overlapping trunk, a driven wheel keyed thereto in driven connection with said drive wheel, and means actuated by said counter and stub shafts for operating the screw conveyors in said trunks.

6. A grain conveyor comprising in combination a supporting platform, a supporting standard mounted on said platform, said standard consist-

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ing of a pair of transversely spaced posts, the plane between said posts bisecting said platform into two parts, a counter-shaft spanning said posts and being journaled thereon, a discharge grain trunk journaled at the receiving end thereof on said counter shaft, a bracket in the form of a yoke spanning said trunk and being journaled on said counter shaft, an intake grain trunk secured at the discharge end thereof to said yoke in spaced, overlapping relationship with respect to the receiving end of said discharge grain trunk, a boom journaled for vertical swinging upon said platform on each of the said sides of said bisecting plane, a trunk supporting roller on the sweep end of each of said booms, a pair of winding drums journaled between said posts and below said trunks, each of said drums having a cable connected thereto and to one or other of said booms for swinging thereof as aforesaid.

CHARLES R. ADAMS.

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