F. J. FELDT.

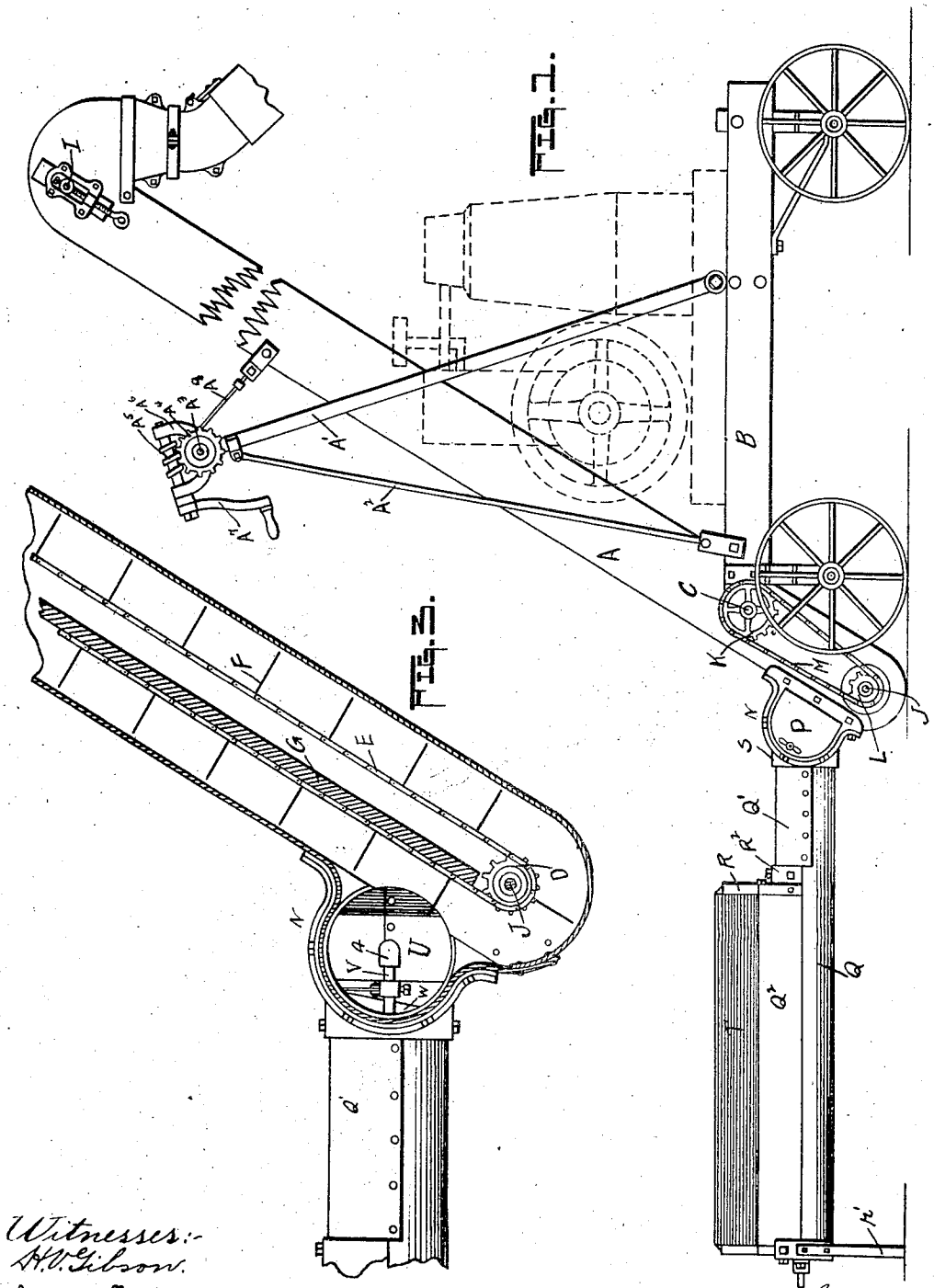
ELEVATOR.

APPLICATION FILED MAR. 13, 1908.

921,685.

Patented May 18, 1909.

3 SHEETS—SHEET 1.



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ELEVATOR.

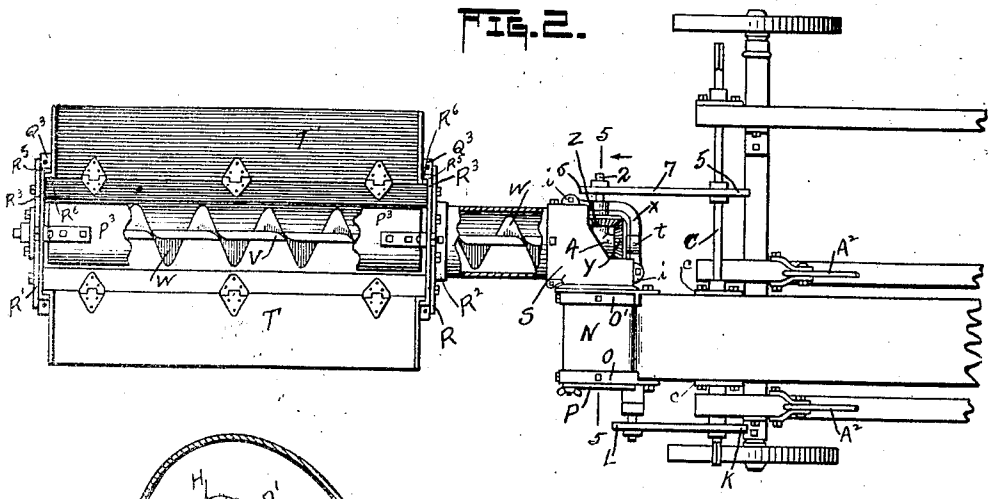
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3 SHEETS—SHEET 2.

FIG. 2.



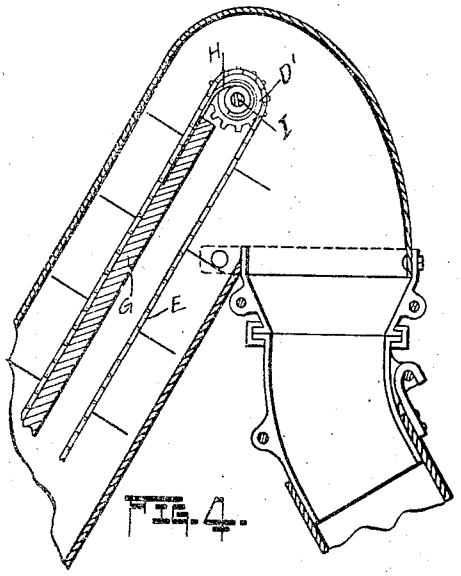


FIG. 4.

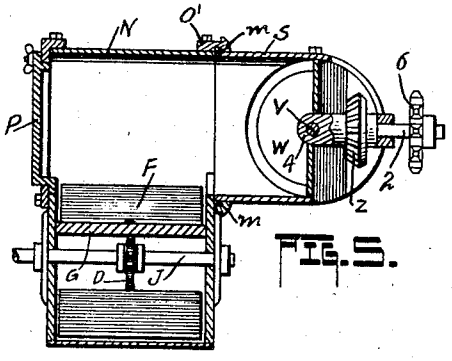


FIG. 5.

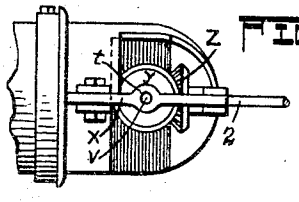


FIG. 6.

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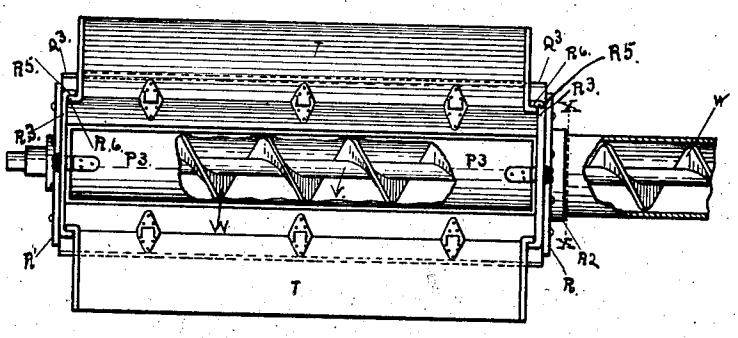
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921,685.

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3 SHEETS—SHEET 3.

FIG. 7.



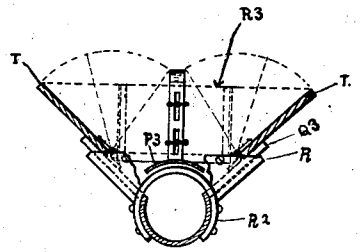


FIG. 8.

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UNITED STATES PATENT OFFICE.

FERDINAND J. FELDT, OF PEORIA, ILLINOIS, ASSIGNOR TO J. A. ENGEL & CO., OF PEORIA, ILLINOIS, A CORPORATION OF ILLINOIS.

ELEVATOR.

No. 921,685. Specification of Letters Patent. Patented May 18, 1909.

Application filed March 13, 1908. Serial No. 420,875.

To all whom it may concern:

Be it known that I, FERDINAND J. FELDT, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Elevators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to grain elevators and more particularly a grain elevator of the class employed in connection with wagon dumps, and consists of a drag adapted to receive the grain as it is discharged from a loaded wagon and an elevator adapted to receive the material as it is delivered from the drag and conduct the same to an elevated point from which it may be discharged through suitable spouts or supplemental conveyers.

The object of my present invention is to provide an elevator which is particularly adapted to the handling of small grains such as wheat, oats and also for the handling of shell corn.

My invention has for its further object improved means for moving the drag into or out of position to receive the material from the wagon.

A further object of my invention is to provide a spiral conveyer in connection with the drag to facilitate the handling of small grain.

In the drawings, Figure 1 is a side elevation showing the elevator tube broken away and also showing in broken lines the relative position of an engine adapted to be carried upon the truck, if desired. Fig. 2 is a plan view showing a portion of the truck and showing the drag and its connection with the elevator, a portion of the connection between the drag and the elevator being broken away to show the spiral conveyer. Fig. 3 is a vertical sectional view through the elevator and through the base or boot of the elevator. Fig. 4 is a vertical section through the top portion of the elevator tube and through the spout connection. Fig. 5 is a sectional view through the line 5—5 of Fig. 2, looking in from the side next to the truck. Fig. 6 is a detailed view of the gearing and sprocket connection showing the manner of mounting the gearing. Fig. 7 is a plan view of the drag with certain portions broken away; and Fig. 8 is an end view taken on the line x—x, of Fig. 7 and showing walled portions of the hopper broken away.

In carrying out my invention for useful purposes, of course it is designed that a suitable dump shall be provided but I have not shown a dump as it is not a part of my present invention.

Referring particularly to the drawings, A is an elevator adapted to be supported upon the truck in such a manner that the same may be raised or lowered at will. In the drawings, B refers to a truck which may be of any construction desired. C is a shaft suitably journaled upon the truck, and suitably fashioned to have power appliances coupled thereto, and the elevator A is supported on said shaft in a manner that will facilitate its being turned thereon as a pivot, there being provided cast plates c adapted to be bolted to the sides of the conveyer, said plates being provided with journal bearings at their central portions adapted to be supported on said shaft. At the head and the bottom of the conveyer there are provided sprocket wheels as D, D′ fixed upon shafts I and J, there being two of such sprocket wheels in each the head and the bottom. Upon such sprocket wheels there are adapted to be carried two sets of link belts as E and to said belts are fixed a series of flights as F.

G is a partition or inner wall extending from side to side of the elevator and upon this partition the conveyer is designed to bear when carrying its load of grain.

To prevent grain from passing between the upper extremity of the partition G and the sprocket wheels D′, there is provided the supplementary wall H which may be of sheet metal or any suitable material which is secured to the partition G in the manner shown in Fig. 4 and is bent in form to pass around the cross shaft I, which carries the sprocket wheels D D. This sheet metal wall or partition is suitably cut to provide openings through which the sprocket wheels D′ may pass in their turning by the movement thus provided. The grain, as it is elevated, is carried above shaft I and in position to drop when released by the conveyer into the hopper below.

In the operation of the device to elevate grain, the carrier belts comprising the sprocket chains E and the flights F, are adapted to be driven from shaft C and to accomplish this, there is provided the sprocket

wheel K fixed upon shaft C which is connected with the sprocket wheel L fixed upon shaft J in the elevator boot by means of the sprocket chain M.

A boot adapted to receive grain and to discharge same into the elevator is provided at the lower end of elevator A and comprises a semi-cylindrical part N secured at its edges to or forming a part of the upper walls of the elevator tube, the marginal edges of such semicircular formed part being supported and held by means of the brackets O O', the same being securely bolted to the sides of the elevator case, the closure piece P shown in Fig. 1 being provided to close the opening and is so carried within one of the brackets that it may be readily detached therefrom. There is adapted to be connected with the boot under the elevator A, a drag adapted to be swung up and down so that it may be adjusted to be out of the way of a wagon being driven into position to discharge its load of grain and then to be swung downwardly into position at the rear of the wagon so that it may receive the grain as it is discharged from the wagon. The drag comprises a semi-cylindrical portion Q which forms its bottom part, the forward end of the same being fitted into a circular opening in the deflector box S and being properly secured thereto, the rear end thereof being connected with a closure plate R' and likewise being properly secured thereto.

r' is a leg, such leg being provided and connected with the closure plate R' adapted to support the rear end of the drag upon the ground.

R is a closure plate properly secured to the part Q. A central opening is provided within the closure piece and from around this opening projects the flanged part R^2.

Q' is a semicircular closure piece connected with the part Q and also with the flange R^2 at one end and the deflector box S at the other end.

R^3 R^3 are closure pieces for the respective ends of the hopper and are connected with the plates R and R' and extend upwardly therefrom some distance, and are each provided with inwardly turned edges R^5.

T T' are deflector wings which may be connected with the body of the drag in a detachable manner, if desired, the said wings being provided to give the top portion of the drag a hopper form so as to adapt it to receive grain dumped from a wagon therein. Said wings are bent inwardly at right angles with their length to form a closure for the ends and the edges thereof are bent outwardly as at R^6 adapted to engage the inwardly bent portions R^5 of the closure pieces R^3, whereby the said wings may be firmly supported.

The cylindrical portion formed by the lower section Q and the closure section Q' is connected with the deflector box as previously stated, which said deflector box is provided as a connection between the drag and the boot N of the elevator A and is walled in as shown in the drawings, the face or wall U thereof having one portion at an angle with a center line through the length of the drag and a center line through the length of the boot and furnishes a means for deflecting the grain as it is delivered from the drag into the elevator boot and is desirable from the fact that the drag and elevator boot are relatively at right angles with each other.

V is a shaft journaled at one end in the plate R' of the drag and at the forward end within the sleeve 4 carried within the wall U of the deflector box, there being provided on said shaft the continuous spirals W. The shaft V passing through the sleeve 4 which is carried within the wall U of the deflector box, is supported in the journal or boxing *t* in the bracket X, said bracket being securely bolted to the deflector box as at *i*.

Y is a beveled pinion fixed upon shaft V and Z is a beveled pinion fixed upon the stud 2 which is supported within a suitable journal upon bracket X.

4 is a sleeve carried loose upon shaft V, one end bearing against the beveled pinion Y and the other end passing through the wall U of the deflector box and has a portion extending at right angles from the length of shaft V, which bears up against beveled pinion Z and also is suitably formed to receive the end of stud shaft 2 to form a support for the same.

The spiral conveyer within the drag is adapted to be driven from the shaft C through the connection of the sprocket wheel 5 secured thereto and the sprocket wheel 6 secured to the stud shaft 2 by means of the sprocket chain 7, whereby as the shaft C is driven, the conveyer in the drag and the conveyer in the elevator tube will be driven simultaneously.

To facilitate the designed movement of the drag up and down out of the way of the wagon being driven into position to discharge its load, and into position to receive the discharge of the grain from the wagon, a swivel connection between the boot and the drag or the deflector box connected directly with the drag is provided. This connection is formed by providing the flanges *m* designed to be engaged by an annular groove in the collar or bracket O', as shown in Fig. 5, the said bracket or collar being formed in two separable sections to facilitate the uniting of the deflector box therewith to accomplish the swivel connection.

The upper part of the elevator is provided with means for tightening or loosening the conveyer within the elevator tube but as this means is old and does not count as a

part of my invention, I shall not give a detailed description of the same. Likewise, I have shown a hopper connected with the head of the elevator and pivotally connected therewith, a conveyer spout, but as this feature does not constitute a part of my present invention, I have also omitted a detailed description of the construction of the same.

To facilitate the raising and lowering of the elevator tube A, I have provided a pair of standards as A′, only one of said standards being shown herein, the said standard being adapted to be supported in an upright position but inclined somewhat from a vertical central line through its support.

A^2 A^2 are brace rods connected with the truck frame and also suitably connected with the standards A′ substantially in the manner as shown in Fig. 1 of the drawings. At the upper ends of the standards A′ there is adapted to be journaled a shaft A^3 extending between the two standards.

A^4 is a worm wheel fixed upon shaft A^3.

A^5 is a worm journaled in the bracket A^6, which said bracket is connected with the upper portion of one of the standards A′.

A^7 is a crank connected with the shaft carrying worm A^5 and is adapted to turn the same.

A^8 is a cable secured to the elevator at one end in the manner shown in Fig. 1, the other end thereof being connected with the shaft A^3 and is designed to be wound upon or unwound therefrom to raise or lower the elevator, as may be desired.

Engine parts are shown supported on the truck frame but as this feature does not form any part of my present invention, I have not given a detailed description of the same, and have shown no positive connection therewith for driving the elevator and drag.

P^3 refers to a shield or guard adapted to bear over the auger and at its ends it is provided with an upwardly extending slotted parts adapted to be secured to the end walls R^3 of the hopper by means of suitable bolts and nuts substantially in the manner shown in Figs. 7 and 8.

On account of the swivel connection between the elevator and drag, I am able not only to raise the drag out of the way of a wagon being driven into position to discharge its load, but the elevator may be adjusted at different angles to accommodate its use to varying conditions as they may arise, and to operate the parts in unison in such varied positions of adjustment of the elevator without in any way disturbing the drag, as would be the case if the drag were hinged to the elevator in the usual way.

By the means herein provided, the elevator, instead of being carried in a vertical position, may be adjusted so as to bring its discharge end closer to, or close to, the bin or receptacle into which it is proposed to discharge the grain, thereby dispensing with the use of long spouts or disfiguring conveying means.

What I claim is:

1. In a device of the class described, an elevator, a power shaft for actuating the same, a laterally swinging screw conveyer swivelly secured in operable relation with the lower end of said elevator and movable to a position to receive the discharge of a wagon, and gearing serving to connect the shaft of the screw conveyer to the power shaft and angularly disposed deflecting means interposed between the delivery end of the conveyer and the receiving end of the elevator.

2. In a device of the character described, an elevator provided with an opening in the boot thereof, a power shaft for said elevator, a vertically swinging conveyer trough or hopper swivelly secured in operable relation with the lower end of the elevator and movable to a position to receive the discharge of a wagon, one end of said trough or hopper being arranged to communicate with the elevator boot at all times, a screw mounted in said trough or hopper, means connecting the screw with the power shaft for causing the same to be operated and angularly disposed deflecting means interposed between the delivery end of the conveyer and the receiving end of the elevator.

3. In a device of the character described, an elevator, a power shaft for actuating the same, a conveyer trough or hopper swiveled in operative relation with said elevator and movable to a position to receive the discharge of a wagon, a screw conveyer within said trough or hopper and means connecting the said screw with the power shaft, whereby the same may be operated simultaneously with the operation of the conveyer an angularly disposed deflector interposed between the delivery end of the conveyer and the receiving end of the elevator.

4. In a device of the character described, an elevator, a power shaft for actuating the same, a boot at the lower end of the elevator, a deflector box swivelly connected with the boot of the elevator, a conveyer trough or hopper connected with said deflector box and movable to a position to receive the discharge of a wagon, a shaft having a bearing in one end of said trough or hopper, and the other end thereof supported in connection with the deflector box, a screw carried by said shaft and means connecting said shaft with the power shaft whereby the shaft carrying the screw may be operated.

5. In a device of the character described, the combination of an elevator, a power shaft for actuating the same, a shaft carried by said elevator and geared to said power shaft, a vertically swinging conveyer trough

or hopper swivelly connected to the boot of said elevator and movable to a position to receive the discharge of a wagon, a spiral conveyer suitably supported to be driven within said conveyer trough and means connecting the said spiral conveyer with the power shaft for causing the same to be operated an angularly disposed deflector interposed between the delivery end of the conveyer and the receiving end of the elevator.

6. In a device of the character described, an elevator provided with a boot at its lower end, a power shaft for actuating the same, a vertically swinging conveyer trough or hopper, a screw conveyer, a deflector box connected with the forward end of said screw conveyer and swivelly connected with the boot of the elevator and movable to a position to receive the discharge of a wagon and means connecting the screw conveyer with the power shaft, whereby the same may be operated.

7. In a device of the class described, an elevator pivotally supported upon a truck adapting it to be raised or lowered and provided with a boot at its lower end, a vertically swinging screw conveyer swivelly connected with the boot of the elevator, an integrally disposed deflector associated with the delivery end of the conveyer and the receiving end of the elevator, and means for connecting the screw conveyer with the power shaft, whereby the same may be operated.

8. In a device of the character described, the combination with a vertically swinging elevator provided with a boot at its lower portion, of a vertically swinging screw conveyer swivelly connected with the lower portion thereof, a suitable deflector associated with the delivery end of the conveyer and the receiving end of the elevator, a power shaft and means for connecting the same with the elevator, and separate means for connecting it with the screw conveyer.

9. In a device of the class described, the combination of an elevator suitably supported for vertical movement, and provided with a boot having an opening out of one side thereof, means for raising and lowering the elevator, a vertically swinging screw conveyer swivelly connected with the elevator boot and adjusted at right angles relatively with the opening in the boot of the conveyer, an angularly disposed deflector associated with the delivery end of the conveyer and the boot of the elevator, suitable conveying means within the conveyer and suitable elevating means within the elevator, and means for operating the conveyer and elevator simultaneously.

10. In an elevator, the combination of relatively adjustable conveyer and elevator sections swivelly connected together, a deflector associated with the delivery end of the conveyer and the receiving end of the elevator, suitable elevating and conveying means within the respective sections, and means for operating the elevator and conveyer simultaneously.

11. In an elevator, the combination of a conveyer, and an elevator adjustably and swivelly related, means associated with the connected ends of the elevator and conveyer to deflect grain being carried from the conveyer to the elevator, suitable conveying and elevating means within the respective sections and means for simultaneously operating the conveyer and elevator.

In testimony whereof I affix my signature, in presence of two witnesses.

FERDINAND J. FELDT.

Witnesses:

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H. V. GIBSON.