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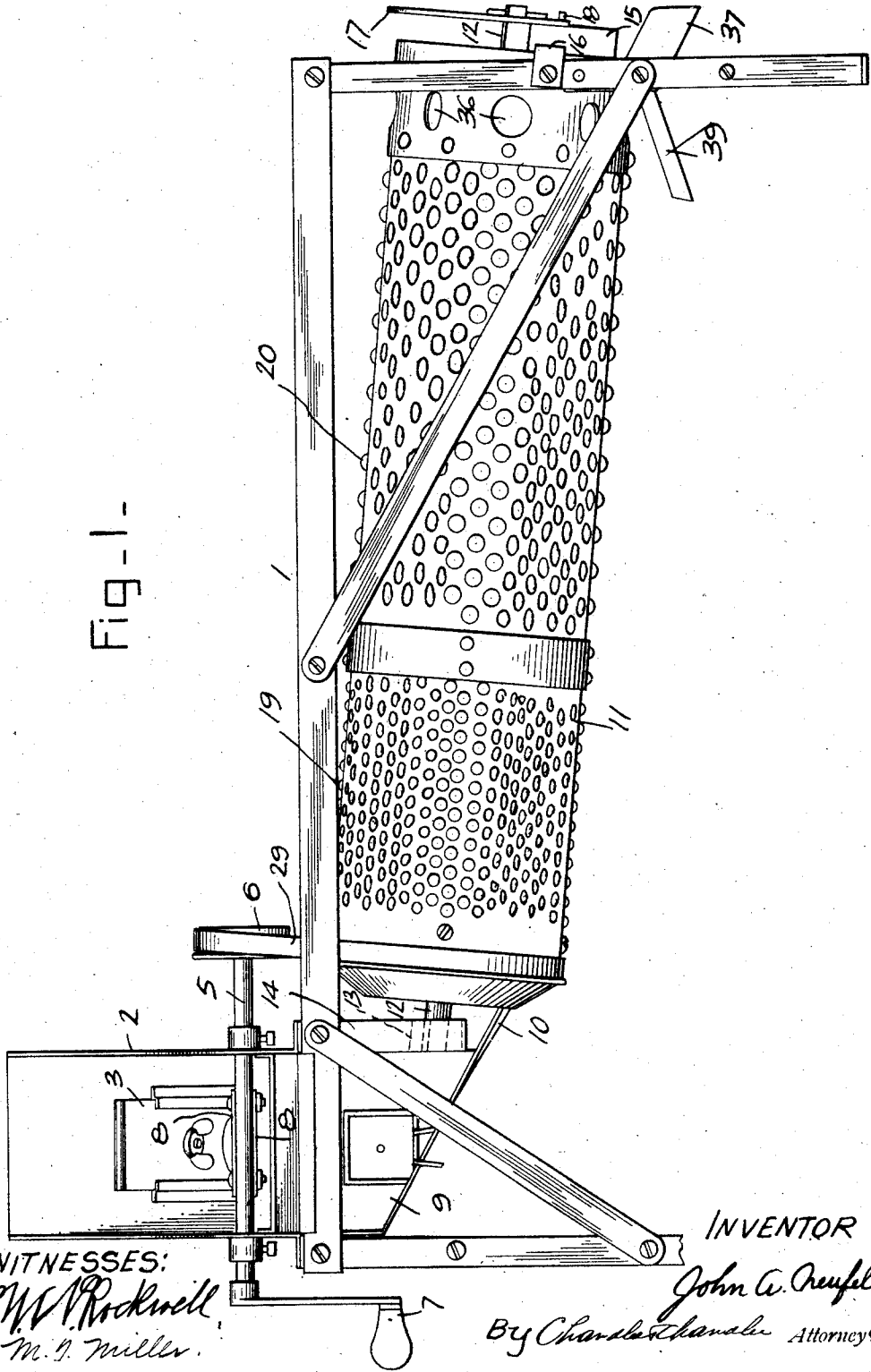
PATENTED MAR. 24, 1908.

J. A. NEUFELD.  
GRAIN SEPARATOR.

APPLICATION FILED JULY 22, 1907.

3 SHEETS—SHEET 1.

Fig-1-



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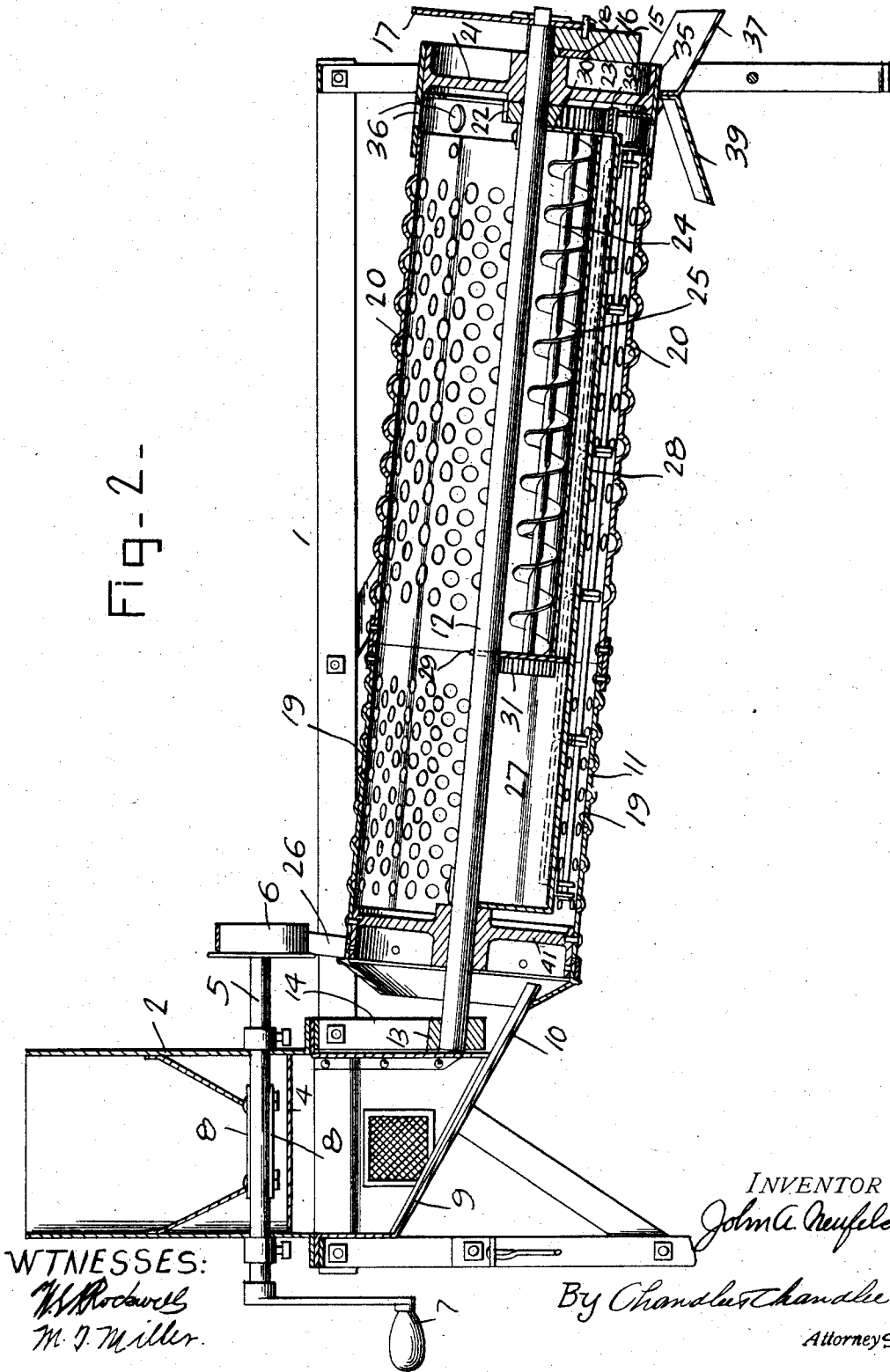
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3 SHEETS—SHEET 2.

Fig-2-



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3 SHEETS—SHEET 3.

Fig-5-

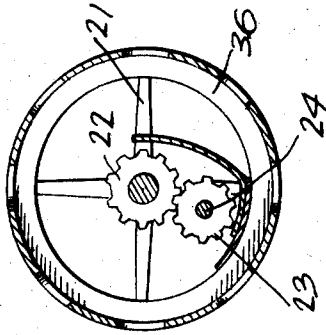


Fig-7-

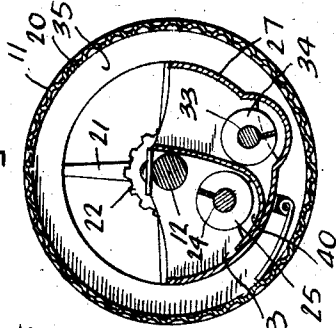


Fig-4-

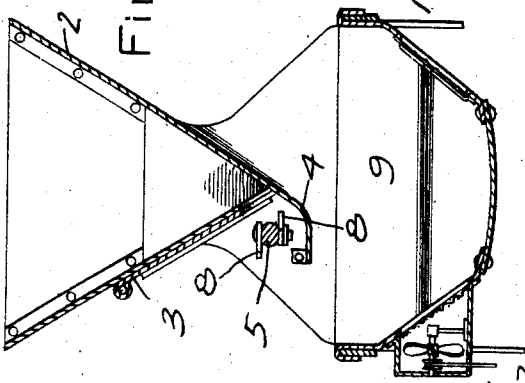


Fig-6-

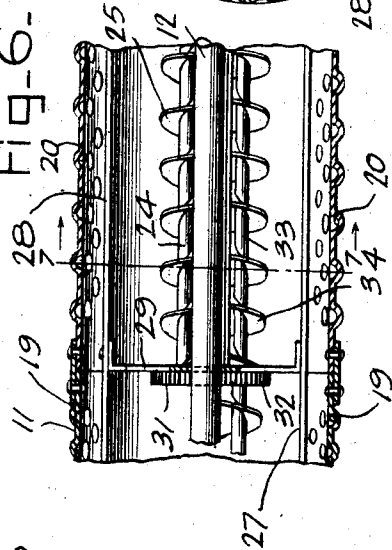
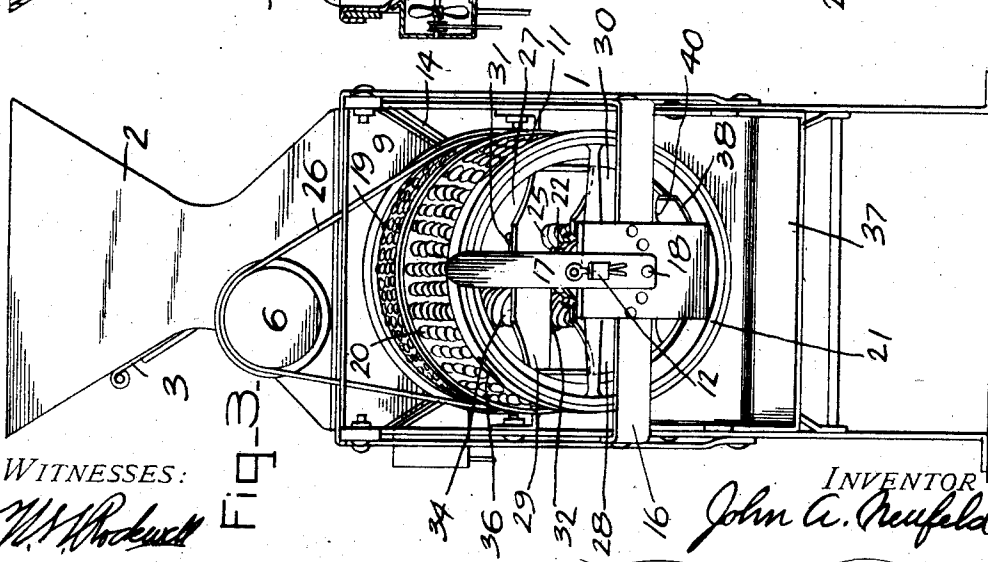


Fig-3-



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# UNITED STATES PATENT OFFICE.

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## GRAIN-SEPARATOR.

No. 882,955.

Specification of Letters Patent.

Patented March 24, 1908.

Application filed July 22, 1907. Serial No. 384,887.

*To all whom it may concern:*

Be it known that I, JOHN A. NEUFELD, a citizen of the United States, residing at Mountain Lake, in the county of Cottonwood, State of Minnesota, have invented certain new and useful Improvements in Grain-Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention has reference to improvements in grain separators, and it aims to provide an exceedingly simple and effective machine of that class designed primarily for separating wild oats and cockles from wheat kernels.

More especially, however, the invention resides in the provision of a separating machine of the celled or pocketed type in which the revolving inclined cylinder carries within its interior a partitioned trough in which a pair of screw conveyers are arranged, the conveyers differing in point of length so as to permit the longer to discharge the cockles, which lodge in the smaller cells of the feed end of the cylinder and fall into the adjacent compartment of the trough, through the openings at the front or discharge end of the cylinder, while the wheat kernels which are dislodged from the larger cells and fall into the forward compartment of the trough, are discharged by the shorter conveyer through a chute at the forward end of the cylinder, the wild oats being likewise discharged through the above-mentioned openings with the cockles.

With the above and other ends in view the invention consists in the construction, combination, and arrangement of parts, all as hereinafter fully described, specifically claimed, and illustrated in the accompanying drawings, in which like parts are designated by corresponding reference numerals, in the several views.

Of the said drawings, Figure 1 is a side elevation of the improved separator, Fig. 2 is a longitudinal section therethrough, Fig. 3 is a front elevation, Fig. 4 is a transverse vertical section through the hopper, Fig. 5 is a similar section through the cylinder, Fig. 6 is a fragmental plan view of the cylinder, with a portion of the casing broken away to

illustrate the position of the conveyers, Fig. 7 is a vertical section on the line 7—7 of Fig. 6.

Referring more particularly to the drawings the numeral 1 indicates the skeleton supporting frame of the machine, upon the rear end of which is mounted a feed hopper 2, provided with a regulating slide 3 whose lower edge is slightly cut away to form a channel through which the grain passes into a curved feed plate 4, formed by an extension of one of the sides of the hopper. Disposed directly above this plate is a shaft 5, arranged longitudinally of the machine and projecting at opposite ends through the front and rear walls of the hopper, as shown, one end of said shaft carrying a flanged pulley 6 and the other end a handle 7. Said shaft is further provided with a pair of oppositely extending blades 8 which are arranged longitudinally thereof directly below the above-mentioned channel and are adapted to feed the grain feeding therethrough to a second hopper 9 disposed beneath the main hopper 2 and provided with a spout 10 through which the grain is discharged into an inclined separating cylinder 11. One or other of the hoppers is provided with a fan attachment for removing dust from the grain to a certain extent, prior to the passage of the grain into the cylinder, the fan being disposed within a casing fitted in one of the side walls of the hopper and driven from any preferred source of power, the opposite side wall having a screen set thereinto, through which the dust escapes.

The cylinder 11 which is inclined forwardly and downwardly of the machine, is secured at opposite ends to the rims of a pair of wheels 21 and 41 rotatably mounted upon a shaft 12 supported at one end by a bearing block 13 carried by a bracket 14 secured to the frame adjacent the lower hopper 9, while its opposite end fits in a vertical slot formed in a second bearing block 15 secured to a cross-beam 16 attached to the forward end of the frame, the projecting end of the shaft being squared at such point and carrying a lever 17 provided at its lower end with a pin 18 fitting interchangeably in a series of openings formed in said block, by means of which the position of the troughs and conveyers located within the cylinder may be adjusted, as hereinafter described. The cylinder 11 is

preferably constructed of sheet metal and its upper or rear half is provided on its inner face with pits or cells 19, while the front or lower half of the cylinder is provided with similar depressions 20 whose diameter is somewhat greater than those first-mentioned. The cells may be formed by means of a hemispherical punch or similar implement. The lower wheel 21 to whose periphery the adjacent end of the cylinder is secured, has formed upon its hub, or rigidly secured thereto, a gear 22 which meshes with a similar gear 23 secured to the adjacent end of a shaft 24 disposed longitudinally of the cylinder and provided with a screw conveyer 25, the rotation of the cylinder itself being effected by a belt 26 which passes around the rear end of the cylinder and around the pulley 6 above-referred to.

Disposed interiorly of the cylinder and extending approximately from end to end thereof, is a metal trough 27 whose opposite end walls are rigidly secured to the shaft 12. This trough is, in turn, provided with a second trough 28 whose rear wall 29 is in the nature of a partition of the first-named trough and is disposed in direct alinement with the dividing line between the forward and rear sets of cells, as shown in Fig. 2. The forward wall 30 of the trough 28 which likewise forms that of the trough 27 is provided with an opening through which the shaft 24 extends the rear end of said shaft passing through a similar opening in the wall 29. This last-mentioned shaft is likewise provided upon its rear end with a gear 31 which is arranged exteriorly of the trough 28 and meshes with a gear 32 carried by a shaft 33 whose opposite ends extend through openings formed in the wall 30 and in the rear wall of the trough 27. The shaft 33 carries a screw conveyer 34 oppositely-arranged with respect to the screw conveyer 25. Both the troughs are approximately semi-cylindrical in shape and are so arranged that the bottom wall of the trough 27 lies in spaced relation to the inner face of the cylinder 11 while that of the short trough 28 is likewise spaced from the inner face of the first-mentioned trough. The cylinder 11 is further provided towards its front or lower wall with an inwardly-directed annular flange 35 slightly in the rear of which is formed an annular series of circular openings 36, directly below these openings is disposed a discharge chute 37 carried by the frame 1. The front wall 30 of the upper trough 28 is likewise provided with a discharge chute 38 which extends across the edge of the flange 35 and delivers the grain discharged thereunto by the conveyer 25 onto a third chute 39 which is likewise carried by the frame of the machine.

In the operation of the machine the grain is fed from the hopper 2 onto the platform or plate 4, from which it is discharged by the blades 8 into the second hopper 9 from which it passes into the separating cylinder which is slowly rotated by the belt 26. During the rotation of the cylinder the cockles, which are fed therewith the wheat will lodge in the small cells 19 and will be carried around with the cylinder being discharged from the cells at a certain point in the rotation of the cylinder into the rear portion or compartment of the trough 27 whence they are carried by the action of the screw conveyer 34 to the forward end of said trough and are discharged through the opening 40 which is formed in the front wall of said trough; the cockles discharged through this opening fall through the openings 36 onto the chute 37, whence they are discharged into a receptacle, not shown. The wheat kernels, which are too large to become lodged in the cells 19, are gradually worked down towards the rear end of the cylinder until the cells 20 are reached, in which cells they become lodged and are carried around by the rotation of the cylinder and are discharged into the trough 28, passing through an opening in the front wall thereof onto the chute 38 and from thence to the chute 39. The oats and other foreign seeds are too large to become lodged in either set of cells, and, in consequence, travel directly along the inner face of the cylinder until they reach the openings 36 through which they fall onto the chute 37, together with the cockles. The provision of the annular flange 35 prevents the oats which may pass between the openings 36 from reaching the chute 39 and being discharged with the wheat kernels.

The shaft 12 which carries the troughs 27 and 28 is capable of an adjustment by means of the lever 17 secured to the forward end thereof so as to dispose said troughs and their conveyers in proper position within the cylinder.

While a duplex arrangement of trough and conveyer has been described and illustrated, it is to be understood that where the machine is designed merely to separate the wheat from the cockles one trough and one conveyer only will be made use of, the operation of the machine in the last mentioned instance being similar to that above-described.

What is claimed, is,

1. The combination, in a grain separator, of a supporting frame; an inclined shaft journaled at opposite ends in said frame; an open-ended cylinder revolubly mounted upon said shaft and provided adjacent its rear end with a series of discharge openings, the inner surface of the cylinder having cells formed therein, the cells in one section of the cylinder having a different diameter from those in

the other section; a trough disposed within the cylinder and carried by said shaft, the bottom wall of said trough being separated from the inner surface of the cylinder; a second trough secured to said cylinder towards the front end thereof, and superposed upon the first-mentioned trough, said troughs having a common front wall provided with a pair of discharge openings, the bottom wall of the second trough being arranged in spaced relation to that of the first-mentioned trough; a screw conveyer disposed within each trough and adapted to discharge through the corresponding opening the material deposited therein from the corresponding set of cells; means for revolving the cylinder and for simultaneously operating the conveyers; a hopper for feeding grain into the cylinder; a chute disposed beneath the discharge openings in the cylinder; and a chute located adjacent the lower end of the cylinder.

2. The combination, in a grain separator, of a supporting frame; an inclined shaft journaled at opposite ends in said frame; a cylinder revolubly mounted upon said shaft and having an annular series of discharge openings formed therein adjacent its lower end, the inner surface of the cylinder being provided with cells, those of one section of the cylinder having a different diameter from those of the other section; a gear revolubly mounted upon the lower end of said shaft and rigidly connected with the cylinder; a trough secured to said shaft and disposed within the cylinder said trough having its bottom wall arranged in spaced relation to the cylinder; a second trough secured to said cylinder directly above the first-mentioned trough, at the forward end thereof, said troughs having a common front wall provided with a pair of discharge openings, one of said discharge openings communicating with said series of openings; a chute disposed adjacent the other of said openings; a screw conveyer disposed within each trough for ejecting through the corresponding discharge opening the material deposited therein from the corresponding set of cells; a pair of gears secured to the opposite ends of one of said conveyer shafts, one of said gears meshing with the first-mentioned gear; a gear secured to the other shaft in mesh with the other of said gears; and means for feeding grain into the cylinder.

3. The combination, in a grain separator, of a supporting frame; a hopper mounted on the frame, at the rear end thereof; a rotatable shaft journaled at opposite ends in the walls of the hopper; a pulley mounted upon one end of said shaft; a hopper disposed beneath the first-mentioned hopper; means carried by said shaft for discharging grain from the first hopper into the second hopper;

an inclined shaft journaled at opposite ends in the frame; a cylinder revolubly mounted upon said inclined shaft, and provided adjacent its lower end with a series of discharge openings; a discharge spout carried by the second hopper and extending into the upper end of the cylinder; a belt connection between the pulley and the cylinder for effecting the revolution of the latter when the first-mentioned shaft is rotated; a trough disposed within the cylinder and secured to said inclined shaft, the bottom wall of said trough being arranged in spaced relation to the inner surface of the cylinder; a second trough secured to said inclined shaft and located directly over the first-mentioned trough at the front end thereof, said troughs having a common front wall provided with a pair of discharge openings; means for depositing material into each trough during the revolution of the cylinder; rotatable means disposed within each trough for discharging the contents thereof through the corresponding discharge opening; and means for operating said discharging means.

4. The combination, in a grain separator, of a supporting frame; a hopper mounted thereon at one end; an inclined shaft journaled at opposite ends in the frame; a wheel revolubly mounted upon each end of said shaft; a cylinder secured to the periphery of said wheels; means for discharging the contents of said hopper into the cylinder; means for revolving said cylinder; a trough disposed within the cylinder and secured to said shaft, the bottom wall of the trough being arranged in spaced relation to the inner surface of the cylinder; means for depositing material in said trough during the revolution of the cylinder; a gear carried by the hub of one of said wheels; a screw conveyer disposed within the trough; and a gear carried by the conveyer shaft in mesh with said first-mentioned gear.

5. The combination, in a grain separator, of a supporting frame; a hopper mounted on the frame, at the rear end thereof; a rotatable shaft journaled at opposite ends in the walls of said hopper; a pulley mounted upon one end of said shaft; a hopper disposed beneath the first-mentioned hopper; means carried by the shaft for discharging grain from the first hopper into the second hopper; an inclined shaft journaled at opposite ends in the frame; a wheel revolubly mounted upon each end of the inclined shaft; a cylinder secured to the periphery of said wheels; a discharge spout carried by the second hopper and extending into the upper end of the cylinder; a belt connection between the pulley and the cylinder for effecting the revolution of the latter when the first-mentioned shaft is rotated; a trough disposed within the cyl-

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 said wheels; a screw conveyer disposed with-  
 in the trough; and a gear carried by the con-

veyer shaft in mesh with said first-mentioned  
 gear. 10

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

JOHN A. NEUFELD.

Witnesses:  
 D. G. HIELENT,  
 J. H. DICKMAN.