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HOPPER OUTLET GATE CONTROL MECHANISM

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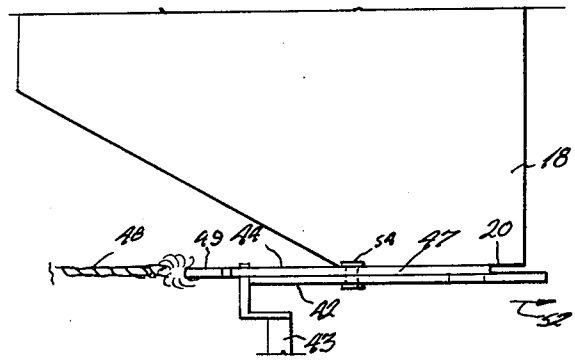


FIG. 1

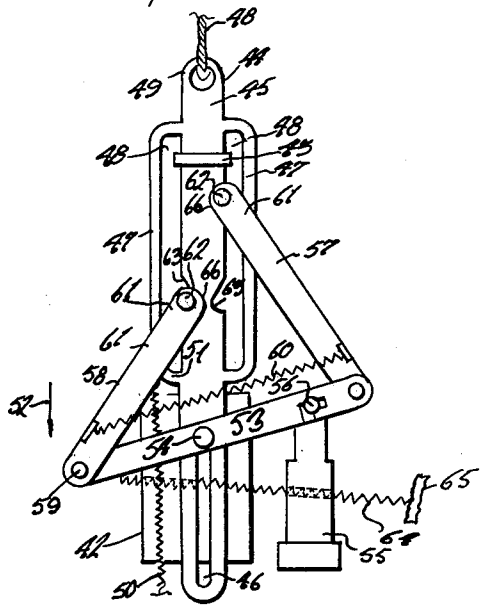


FIG. 2

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HOPPER OUTLET GATE CONTROL MECHANISM

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This invention relates to new and useful improvements in fertilizer and seed distributors, and in particular concerns itself with such distributors having a hopper equipped with a slidable outlet gate.

The principal object of the invention is to provide an efficient control mechanism whereby the hopper outlet gate may be slid between open and closed positions.

Another important object of the invention is to provide a control mechanism whereby the sliding of the outlet gate is effected with a snap action.

Still another object of my invention is to provide a device of the character herewithin described which is simple in construction, economical in manufacture, and otherwise well suited to the purpose for which it is designed.

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 elevational view of the control mechanism at the outlet of a hopper.

FIGURE 2 is a top plan view of the mechanism per se.

In the drawings, like characters of reference are used to designate corresponding parts.

Referring now to the drawings in detail, the invention comprises a control mechanism for a slidable outlet gate **55** at the bottom **20** of a seed or fertilizer hopper **18**. A stationary plate **42** is held underneath the hopper bottom **20** by means of a bracket **43** extending from a suitable frame and this plate **42** is welded to the bracket **43**.

This bracket **43** extends upwardly and is apertured to receive slideably the mechanism **44**.

This mechanism consists of an elongated bar **45** slotted at one end as at **46** and provided with parallel ribs **47** upon both sides thereof thus forming elongated slots **48** between the bar **45** and the ribs **47**.

A rope **48** extends from the end **49** of the bar **45** to adjacent the operator and a spring **50** extends from a point **51** on the bar rearwardly to a convenient anchorage on the frame thus normally biasing the mechanism in the direction of arrow **52** unless the rope **48** is pulled by the operator against the tension of the spring **50**.

A cross bar **53** is pivoted freely within slot **46** by means of pin **54** and the hopper shut-off gate **55** is freely connected by means of pin **56** upon one side of this cross bar **53**.

A pair of arms **57** and **58** are pivotally connected by one end thereof to the ends of the cross bar **53** by means of pins **59** and a spring **60** extending between these arms biases the other ends **61** toward one another.

These ends **61** are provided with pins **62** extending within the slots **48** within which they are adapted to move longitudinally.

The bar or strap **45** is provided with a pair of ratchet

notches **63** one upon each side thereof within which either of the pins **62** is adapted to engage depending upon the positioning of the device as will hereinafter be described.

Finally a further spring **64** extends from one of the pins **59** transversely across to an anchorage point **65** acting as an over-center snap spring depending upon the inclination of the cross bar **53**.

In operation, the device is normally held in the direction of arrow **52** by means of spring **50**. Assuming that the device is positioned as shown in FIGURE 2, with the hopper gate **55** open, movement of the rope **48** in a direction opposite to arrow **52** will cause the bar **45** to move in the same direction and as the left hand pin **62** is engaged within notch **63**, this pin together with the bar **58** will also be moved in this direction thus pivoting the cross bar **53** around pin **54**. Due to the fact that pins **62** are situated off center, the rounded portions **66** of the links **57** and **58** will rub as they pass one another thus maintaining the right hand pin **62** out of engagement of its corresponding notch **63**.

As the cross bar **53** is tilted over center the spring **64** snaps the mechanism fully over so that it takes up the position opposite to that shown in FIGURE 2 and with the gate **55** closed.

Release of the rope **48**, causes the spring **50** to move the mechanism again in the direction of arrow **52** and this time the right hand pin **62** engages with the notch **63** and pushes the left hand pin **62** out of engagement so that the mechanism is ready for a reversal of action as soon as the rope **48** is pulled again.

Since various modifications can be made in my invention as hereinabove described, and many apparently widely different embodiments of same made within the spirit and scope of the claim 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.

What I claim as my invention is:

A snap action control mechanisms for a slidable hopper outlet gate, said mechanism comprising in combination a stationary support, a fulcrum pin provided thereon, an elongated plate provided in one end portion thereof with a longitudinally extending slot slidably receiving said fulcrum pin, a pair of ribs disposed in spaced parallel relation at opposite side edges of the other end portion of said plate and secured at the ends thereof to said side edges whereby to provide a pair of parallel slots between said edges and the ribs, a transverse bar pivotally mounted intermediate its ends on said fulcrum pin and adapted to be operatively connected to a hopper outlet gate for sliding the same between open and closed positions, a pair of arms pivoted at one end thereof to the respective opposite ends of said bar, a pair of detent pins provided at the other end of said arms and slidable respectively in said pair of parallel slots, said side edges of said plate being provided with notches communicating with said pair of parallel slots and selectively receiving said detent pins, the ends of said arms eguipped with said detent pins being engageable with each other whereby only one of the detent pins may be received in its associated notch at one time, resilient means connected to said arms for biasing said detent pins into said notches, resilient means connected to said plate for sliding the same in one direction relative to said sta-

tionary support, and actuating means connected to said plate for sliding the same in the relatively opposite direction against the action of said last mentioned resilient means.

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