(No Model.) 2 Sheets—Sheet 1.

L. M. WATKINS.

FERTILIZER ATTACHMENT FOR GRAIN DRILLS.

No. 285,711. Patented Sept. 25, 1883.

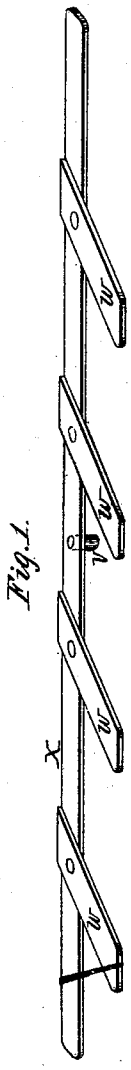


Fig. 1.

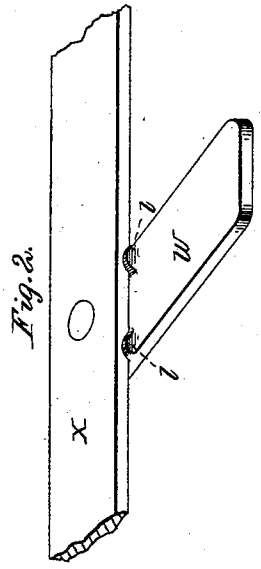


Fig. 2.

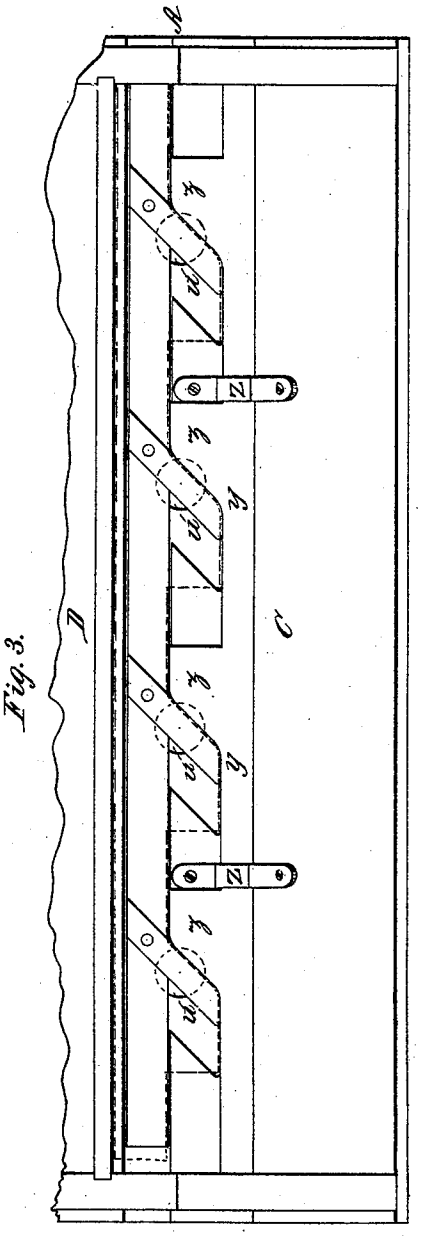


Fig. 3.

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(No Model.) 2 Sheets—Sheet 2.

L. M. WATKINS.

FERTILIZER ATTACHMENT FOR GRAIN DRILLS.

No. 285,711. Patented Sept. 25, 1883.

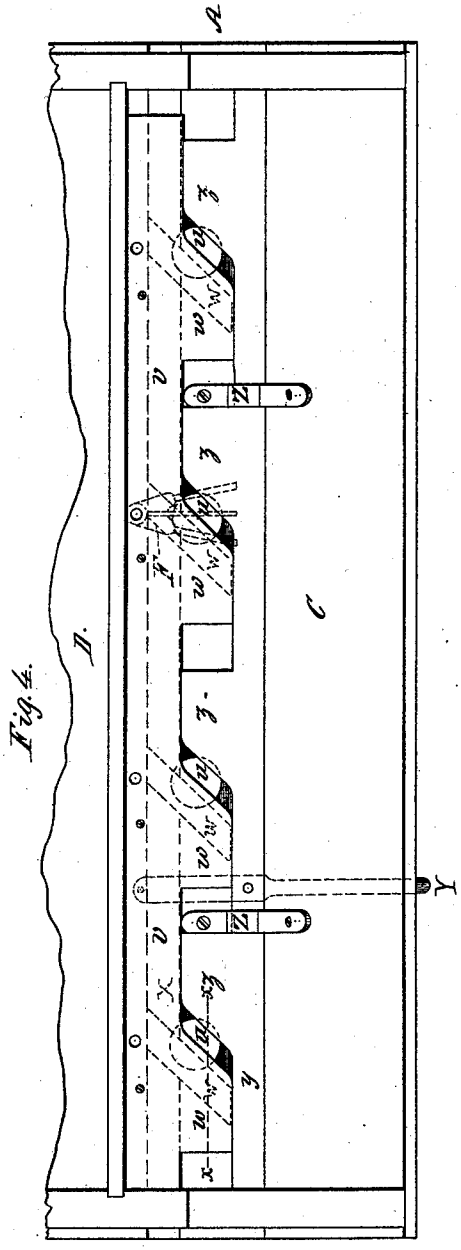


Fig. 4.

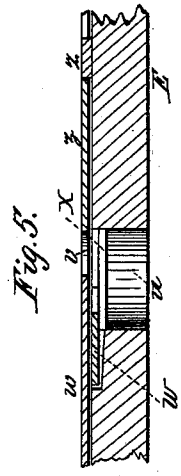


Fig. 5.

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UNITED STATES PATENT OFFICE.

LUTHER M. WATKINS, OF HAGERSTOWN, MD., ASSIGNOR TO THE HAGERSTOWN STEAM ENGINE AND MACHINE COMPANY, OF SAME PLACE.

FERTILIZER ATTACHMENT FOR GRAIN-DRILLS.

SPECIFICATION forming part of Letters Patent No. 285,711, dated September 25, 1883.

Application filed March 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, LUTHER M. WATKINS, of Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Fertilizer Attachments for Grain-Drills; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a perspective view of the cut-off slide and its fingers. Fig. 2 is a perspective view of one of the fingers. Fig. 3 is a plan view of the slide in its groove in the hopper-bottom. Fig. 4 is a plan view of a hopper provided with the improved slide. Fig. 5 is an enlarged sectional view of the same, taken on the line *x x*, Fig. 4.

Similar letters of reference in the several figures denote the same parts.

My invention relates to improvements in the fertilizer-distributing mechanism of grain-drills, and has particular reference to an improved construction of cut-off for controlling the discharge of the fertilizing material from the hopper, as will be hereinafter fully set forth.

Referring to the accompanying drawings, A represents the hopper of a grain-drill, and C and D the fertilizer and grain compartments thereof, respectively. Resting upon and fastened to the top of the wooden bottom E in the fertilizer compartment of the hopper, at one side thereof, is a metal plate, *v*, having a number of lateral extensions, *w w*, which project out and partially cover the several discharge-openings *u*, and resting upon said wooden bottom, at the other side thereof, is another metal plate, *y*, having also lateral extensions *z*, similar in form to the extensions on the stationary plate *v*, and, like the latter, partially covering the discharge-openings *u*. The plate *y* is not fixed like the plate *v*, but, on the contrary, is arranged to slide longitudinally in guides Z, motion being imparted to it by means of a connected handle, Y, pivoted to the under side of the wooden bottom and projecting to the rear of the hopper, as shown. When the handle is moved in one direction, it will carry with it the sliding plate *y*, and the edges of the lateral extensions *z* of the latter will be brought up against the corresponding edges of the extensions *w* of the stationary plate *v*, thus completely covering the discharge-openings *u* and preventing the egress of any fertilizing material from the hopper-compartment. When, however, the handle is moved in the opposite direction, the lateral extensions of the sliding plate *y* will recede from the extensions of the stationary plate *v*, and will create openings of reverse-curve form, widest at the middle and tapering or converging down to a point at each end, as shown in Fig. 4. Over the slots or openings thus formed by the separation of the lateral extensions of the plates *v y* the vibrating stirrers F operate, and as they vibrate sweep the material from the ends toward the middle or wider portion of said slots, thus keeping the latter at all times clear and preventing the material from lodging in their ends or corners, as it might otherwise do.

The sliding plate *y*, it will be observed, constitutes a cut-off, which may be operated by hand to prevent egress of material from the fertilizing-compartment of the hopper while the machine is being transported to or from the field or from field to field. It is, however, essential in this class of machines that means be provided for automatically cutting off the delivery of fertilizer when from any cause it becomes necessary to raise the drill-teeth out of the ground, and it is in the peculiar construction of one of such automatic cut-offs that my present invention consists.

By referring again to the drawings it will be seen that in the upper surface of the wooden hopper-bottom, below the metal plate *v* and close to the openings *u*, I provide a longitudinal groove, in which I place a longitudinal cut-off bar, X, having lateral obliquely-projecting fingers W, which, when said cut-off bar is moved in one direction, lie under the lateral extensions *w* of the stationary plate *v*, as shown in Fig. 4, but which, when the bar is moved in the opposite direction, extend under and cover the reverse-curve spaces or slots under the stirrers. The wooden hopper-bottom around the openings *u* is beveled down to said openings, in order to afford a clearance for any of the fertilizing material that might by chance be carried in under the plates *v* and *y* by the fingers of the cut-off. Each of the cut-off fingers

W is made of a width just sufficient to cover its discharge slot or opening and no more, in order that it may only be necessary to cut away or bevel the wooden bottom around the openings *u* for a very short distance, to accommodate the fingers when retracted. Were a broader or differently-shaped finger employed, the hopper-bottom would have to be cut away to a greater extent, and the liability of the fertilizing material being carried in back of the fingers and becoming there lodged would be very much increased. The fingers may be formed integral with the bar, though I preferably form them separate from the bar, with lugs *l l*, as shown in Fig. 2, on one of their faces, and connect them to the bar by means of rivets or otherwise, the lugs *l l* resting against the edge of the bar and serving to hold the fingers in position, as shown in Fig. 2. A stud, V, is secured to the cut-off bar, and extends downward therefrom through a slot in the wooden bottom of the hopper, and has attached to it a rod connected to suitable operating mechanism (not shown) set in motion by the raising and lowering of the drill-teeth, such mechanism causing the slide to automatically close the discharge-openings when the drills are raised and to automatically open them again when the drills are lowered.

Having thus described my invention, what I claim as new is—

1. The combination, with the hopper having the series of discharge-openings in its bottom, of the stationary and sliding plates, constructed, substantially as described, with corresponding lateral extensions, which, when separated, constitute discharge-slots, as set forth, of the longitudinally-sliding cut-off bar having the lateral oblique cut-off fingers, which are adapted, when the bar is moved in one direction, to cover the discharge-slot formed by the aforesaid stationary and sliding plates, and thus constitute a means of preventing the discharge of fertilizer from the hopper independent of the said sliding plate, substantially as described.

2. The combination, with the cut-off bar, of the several obliquely-arranged cut-off fingers, each riveted or otherwise connected to the bar, and having the flanges or lugs on one of its faces for resting against the edge of the bar and holding the fingers in position, substantially as described.

LUTHER M. WATKINS.

Witnesses:
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