

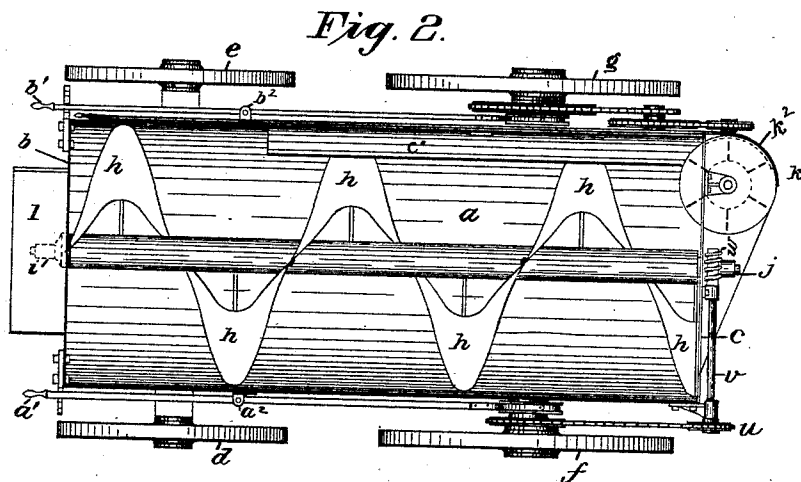
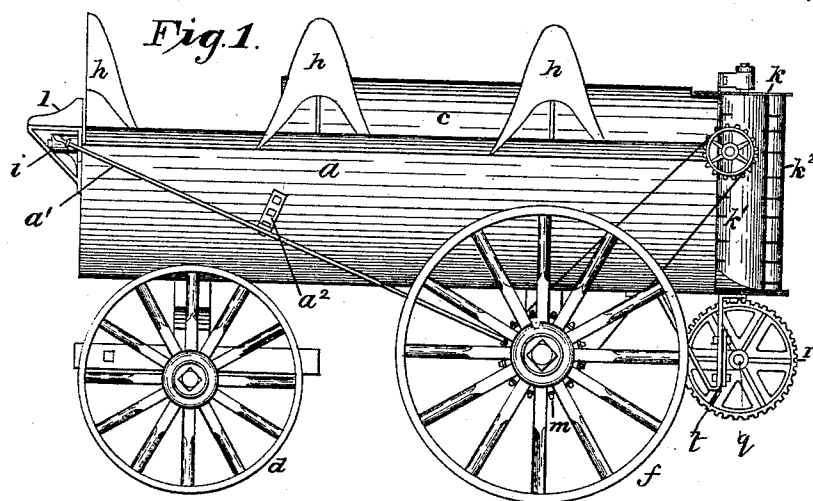
(No Model.)

2 Sheets—Sheet 1.

L. LAMBORN.  
FERTILIZER DISTRIBUTER.

No. 440,481.

Patented Nov. 11, 1890.



WITNESSES:

*J. E. Shaw*  
*J. S. Steffen*

INVENTOR

*Lewis Lamborn*

(No Model.)

2 Sheets—Sheet 2.

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No. 440,481. *Fig. 3.*

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*Fig. 5.*

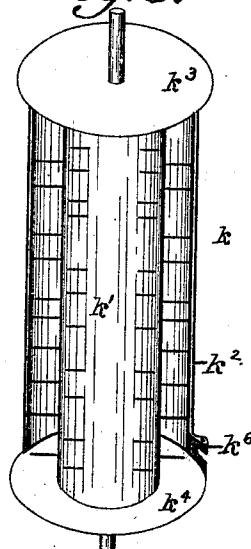
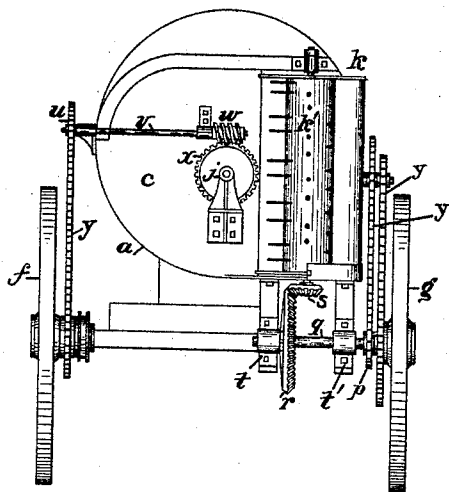
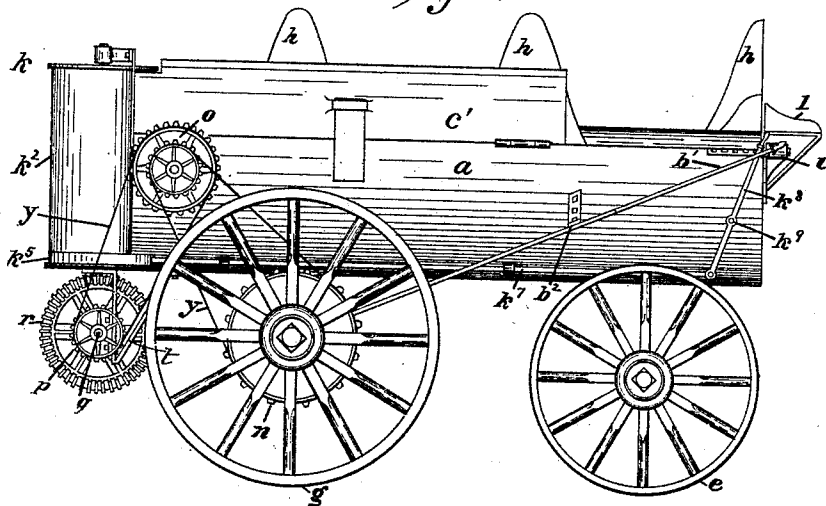


*Fig. 4.*



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LEWIS LAMBORN, OF PHILADELPHIA, ASSIGNOR OF ONE-HALF TO NELSON H. STRONG, OF MEDIA, PENNSYLVANIA.

## FERTILIZER-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 440,481, dated November 11, 1890.

Application filed July 15, 1890. Serial No. 358,864. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS LAMBORN, a citizen of the United States, residing in the city of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Fertilizer-Distributers, of which invention the following is a specification.

This vehicle is designed to carry and distribute all kinds of fertilizers. Its chief features consist of, first, a body having the form of the arc of a circle in its cross-section; second, a rotary conveyer mounted therein adapted to move the load gradually and by a regulated speed toward the delivery-aperture; and, third, a rotary distributor proper, which controls said aperture by means of a reciprocating or swinging curved door, which door also acts as a guide to the fertilizer thrown off by the distributing-cylinder and insures its even dissemination. The operative parts of the machine are under the control of the driver from his seat, which is located in the usual position.

In the annexed drawings, Figure 1 is an elevation of the rear or left side; Fig. 2, a top view; Fig. 3, a rear end elevation; Fig. 4, an elevation of the off or right side of the complete machine. Fig. 5 is a detail perspective of the distributor proper.

*a* represents the vehicle-body, the bottom and sides of which are rounded, as shown. The head-board *b* is fixed and close, and the tail-board *c* fixed and, except as to the aperture therein for the delivery of the load, close. The body *a* is supported on wheels *d* and *e* and *f* and *g*. The front wheels *d* and *e* swivel as in ordinary wagons. The hind wheels *f* and *g* are provided with clutches and gearing for imparting the necessary motion to the conveyer and to the distributor proper, as below described. *h* is an ordinary screw conveyer, the journals of which have bearings at *i* and *j* in the head and tail boards.

*K* is the distributor proper, consisting of the spurred cylinder *K'* and the door *K<sup>2</sup>*. The door *K<sup>2</sup>* swings on the journals of cylinder *K'*, from which it is hung by the plates or straps *K<sup>3</sup>* and *K<sup>4</sup>*. The cylinder *K'* is set in front of the delivery-aperture, which is opened and closed at will by means of door *K<sup>2</sup>*.

*K<sup>5</sup>*, Fig. 4, is a rigid strap flexibly attached to door *K<sup>2</sup>* at *K<sup>6</sup>*, Fig. 5.

*K<sup>7</sup>* is a rod attached to strap *K<sup>5</sup>*, and *K<sup>8</sup>* is a lever pivoted at *K<sup>9</sup>*, by which lever the driver from his seat at *l* controls the door *K<sup>2</sup>*.

Each of the hind wheels *f* and *g* is provided with an ordinary clutch, one member of which clutch carries a sprocket-gear, the respective gears being shown at *m* and *n*, Figs. 1 and 4.

*O*, Fig. 4, is a double sprocket-gear, having its bearing on a shaft which projects from the body *a*.

*p*, Figs. 3 and 4, is a sprocket-gear on shaft *q*, which also carries the bevel cog-wheel *r*, which gears into the bevel cog-wheel *s*, which is fixed on the lower journal of the distributing cylinder *K'*. The shaft *q* is supported by brackets *t t'*.

*u* is a sprocket-gear on the shaft *v* of the worm *w*, which worm engages the gear-wheel *x* on the shaft of the conveyer *h*.

*y* represents ordinary chain belts. *a'* and *b'* are shifting-levers by which the members of the respective clutches are moved in and out of gear. These levers are pivoted at *a<sup>2</sup>* and *b<sup>2</sup>*, respectively.

*c'*, Fig. 4, is a side-board employed to prevent any part of the load from being crowded over the side of the machine by the action of the conveyer.

The gearing by which motion is imparted to the distributing-cylinder *K'* is of a multiplying character, to be made such in order that said cylinder shall move with the required speed.

It is necessary to regulate the motion of the conveyer to adapt the machine for spreading different kinds of fertilizers and spreading them in different quantities. For this purpose the sprocket-gear *u* is made removable, so that other gears of greater or less diameter may be put in its place, as it may be required to increase or lessen the speed of the conveyer. The conveyer is geared to turn slowly. It works close to the rounded form of the body *a* and delivers the whole of the load through the aperture in the tail-board to the action of the distributing-cylinder *K'*, which runs at a high speed, and thus with considerable force casts the fertilizer, while

the curved door-guide  $K^2$  causes it to be widely sown.

The distributing-cylinder  $K'$ , with its swinging door  $K^2$ , can be arranged horizontally, if desired, by making the necessary changes in the gearing. It can also be used in connection with other forms of fertilizer-distributors.

The plates or straps  $K^3$  and  $K^4$  employed for hanging the door  $K^2$  from its bearings and for strengthening said door might each be in the form of a sector or a triangle; or two or more straight pieces diverging from the centers or bearings and attached to the door along its upper and lower edges might be employed.

I claim—

1. The combination of the body  $a$ , the side-board  $c'$ , hinged thereto, the screw conveyer within said body, the vertical distributor-wheel on one side of the center of the tail-board of said body, the brackets  $t$  under said distributor, and gearing also under said distributor for imparting a rotary motion thereto, substantially as described.

2. The combination of the concave body  $a$ , the screw conveyer therein, the vertical distributing-cylinder  $K'$  on one side of the center of the tail-board of said body, and the curved door  $K^2$ , pivoted upon the journals of

said cylinder, and means, as described, for rotating the screw conveyer and the distributing-cylinder, substantially as set forth.

3. The combination of the concave body  $a$  and tail-board thereof, the distributing-cylinder  $K'$  on one side of the center of said tail-board, the curved door  $K^2$ , pivoted upon the journals of said cylinder, a lever for opening and closing said door from the driver's seat, a clutch and pivoted clutch-lever, and gearing for imparting motion from the driving-gear  $g$  to the distributing-cylinder, substantially as set forth.

4. The combination of the body  $a$ , the screw conveyer  $h$  therein, the distributor  $K$  on one side of the center of the tail-board of the body  $a$ , and the curved door  $K^2$  of the distributor, clutches on both driving-wheels  $f$  and  $g$ , pivoted levers for operating said clutches, the lever  $K^8$ , for operating the door  $K^2$ , the horizontal shaft  $v$ , the worm-wheel  $w$  thereon, the pinion  $x$ , and belts to transmit motion from one of the driving-wheels to the conveyer, the horizontal shaft  $q$  under the distributing-cylinder, and gears  $r$  and  $s$ , substantially as and for the purpose described.

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Witnesses:

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