(No Model.) 2 Sheets—Sheet 1.

L. ROAT.

FERTILIZER DISTRIBUTER.

No. 525,922. Patented Sept. 11, 1894.

Fig. 1.

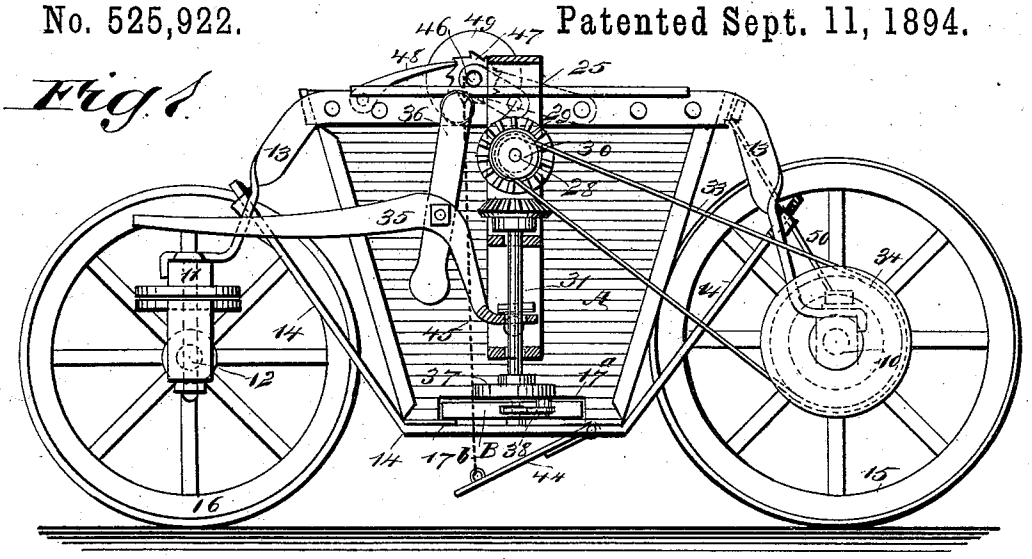


Fig. 2.

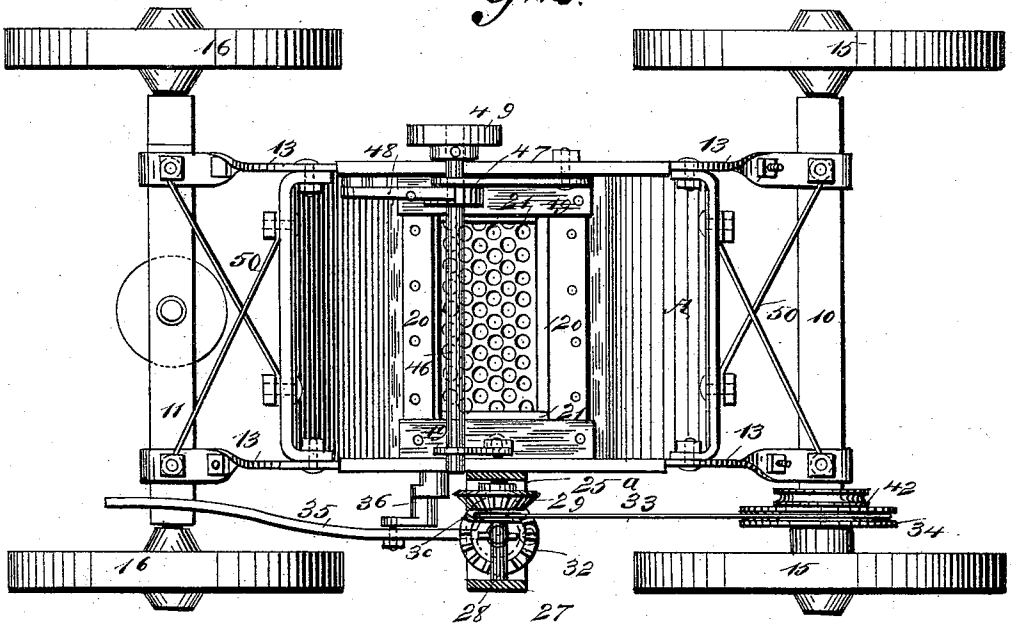
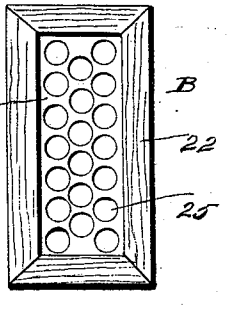


Fig. 3.



WITNESSES:

F. F. McArdle

Jos. A. Acker

INVENTOR

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(No Model.)

2 Sheets—Sheet 2.

L. ROAT.

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Fig. 4

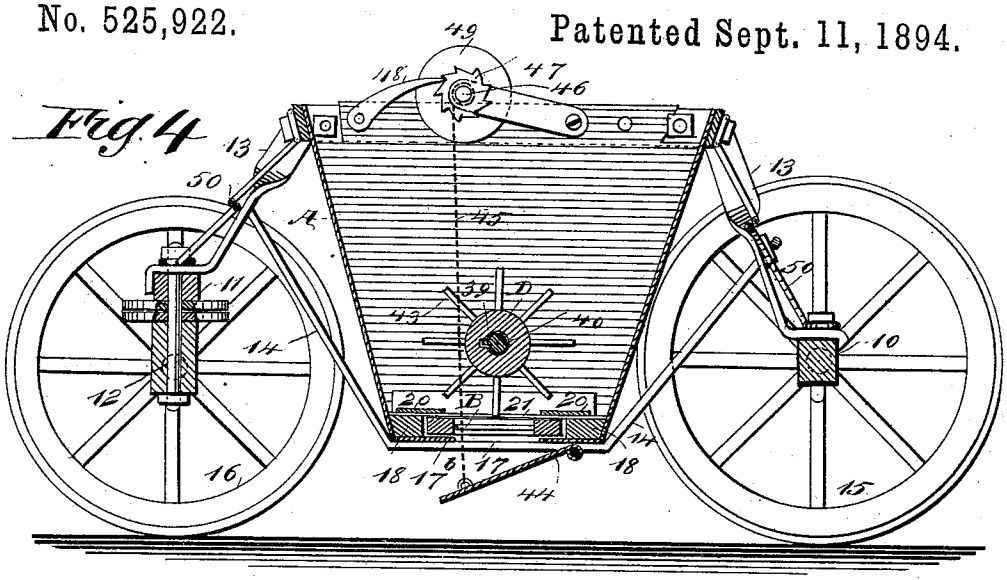


Fig. 5.

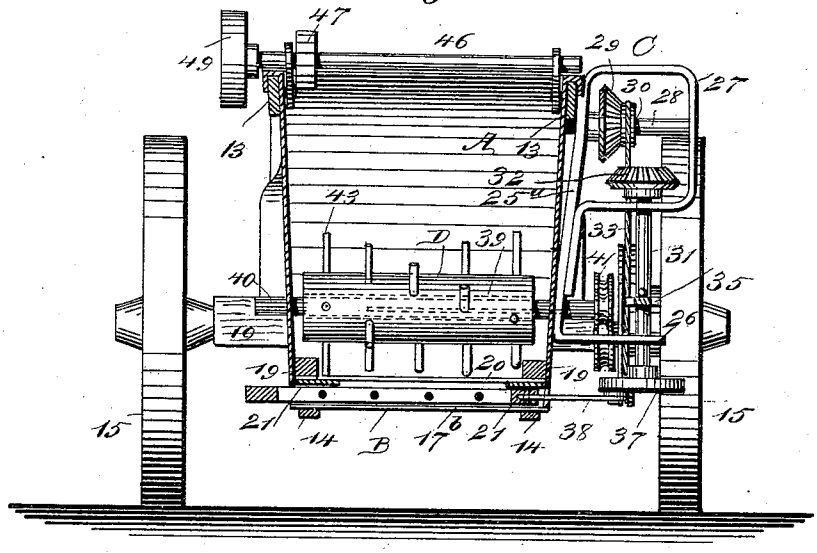
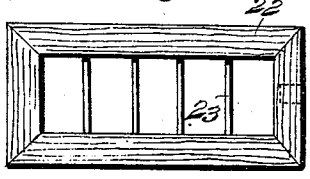


Fig. 6.



WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

LEWIS ROAT, OF MILTON, PENNSYLVANIA.

FERTILIZER-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 525,922, dated September 11, 1894.

Application filed May 26, 1894. Serial No. 512,562. (No model.)

To all whom it may concern:

Be it known that I, LEWIS ROAT, of Milton, in the county of Northumberland and State of Pennsylvania, have invented a new and Improved Fertilizer-Distributer, of which the following is a full, clear, and exact description.

My invention is an improvement in that class of fertilizer distributers which are provided with means for pulverizing, feeding, and discharging the fertilizing material, and for closing the discharge opening when the machine is not performing its ordinary function.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine. Fig. 2 is a plan view thereof. Fig. 3 is a plan view of the riddle utilized for the distribution of the lime or similar fertilizing material. Fig. 4 is a longitudinal vertical section through the machine, illustrating an agitator or beater located therein over the riddle. Fig. 5 is a transverse vertical section of the machine; and Fig. 6 is a detail plan view of the form of riddle employed for the distribution of manure and fertilizing material of that class.

In carrying out the invention the machine is in the nature of a vehicle, comprising a hopper-like body A, which may be constructed entirely of metal, or of wood and metal combined, or almost entirely of wood. The hopper body A, as its name implies, may be tapered downwardly at its front and rear, whereby its lower end is of less area than its upper end. The body is supported from a rear axle 10 and the forward bolster 11 of the forward axle 12 through the medium of truss bars or beams 13, which are bolted or otherwise attached to the upper outer side portions of the body, and are carried downward to an attachment respectively to the rear axle and the forward bolster. The bottom of the body receives its support from inverted truss bars 14, which engage with the bottom of the body at each side and extend upward at front and rear to a secure engagement with the front and rear portions of the main truss supports 13.

The rear axle is provided with ground wheels 15 of a predetermined diameter, and the forward axle 12 with similar wheels 16. An opening 17 is made in the bottom of the hopper body, extending from side to side and through the sides, while an opening 17^a is made in each side, meeting the opening in the bottom. Blocks 18 are located upon the bottom of the hopper body at the inside, and extending from one side to the other, one at the front and the other at the rear. These blocks are of such width as to leave exposed a portion of the bottom at the margin of the opening 17 therein, the projecting portions of the bottom forming slide-ways 17^b, as shown best in Figs. 1 and 4; and blocks 19, are located upon the interior of the body adjacent to each side, and the blocks 19 may be made to rest upon the front and rear blocks 18.

Knives 20 are secured upon the upper faces of the front and rear blocks 18, and extend over the inner faces of the said blocks substantially as far inward as the slide-ways 17^b, or nearly to the front and rear margins of the opening 17, while knives 21 are secured preferably to the bottom portion of the side blocks 19, and these latter knives, as shown in Figs. 2 and 5, are made to extend inward beyond the inner faces of these side blocks, in order that all the knives may extend over the upper surface of a riddle B, adapted to slide at the bottom of the body upon the ways 17^b and out through the side openings 17^a.

The riddle consists of a frame 22, preferably rectangular and of skeleton construction, and when the riddle is to be used for the distribution of manure the frame is made to contain a series of bars 23, which bars are made to extend preferably from one side member to the other, or transversely of the frame, as shown in Fig. 6, the said bars being located at predetermined intervals apart; but when the fertilizer to be distributed is of the nature of lime, the riddle is constructed as shown in Fig. 3, the frame 22 remaining the same, but the space within the frame is made to contain a plate 24, provided with a number of perforations or openings 25, arranged at desired intervals apart, preferably as close

together as the plate will allow consistent with strength.

Upon one side of the hopper body, preferably the left-hand side, a bracket C is secured in any suitable or approved manner, which bracket usually consists of a straight body member 25^a, which is secured to the hopper body, a horizontal foot member 26, and an upper loop member 27. A shaft 28, is journaled transversely within the loop member of the bracket C, and the said shaft has secured upon it a beveled gear 29 and a pulley 30. A vertical shaft 31, is journaled in the foot member 26 of the said bracket C, and in the bottom portion of the loop 27, extending upward into the latter. The shaft 31 has vertical movement in its bearings, and is provided at its upper end with a beveled gear 32 capable of meshing with the gear 29 on the upper shaft 28, which gear is driven by a belt 33 passed over the pulley 30 on the upper driving shaft 28, and over a larger pulley 34 located upon the rear axle 10 of the machine. The vertical shaft 31 will drop through gravity sufficiently to carry the gears 29 and 32 out of engagement, and it is carried up to produce a contact between these two gears through the medium of a shifting lever 35, fulcrumed upon any desired support, but preferably upon an arm 36, pivotally attached at its upper end to the upper portion of the left-hand side of the body, and the said shifting lever is of angular construction and is carried forward so as to be within convenient reach of the driver's foot, for example; and any approved form of rack may be provided to hold the shifting lever in a lower position, and this may be accomplished by the foot of the driver.

A crank disk 37, is secured upon the lower end of the vertical shaft 31, and a pitman 38, is connected with said disk through the medium of a crank pin, and the said pitman is likewise pivotally connected with one end of the riddle which is located in the bottom portion of the hopper body. Thus as the machine is drawn forward the riddle will be given a laterally reciprocating movement during the revolution of the shaft 31, and at the same time the riddle will be given a shaking movement to a certain degree, and the knives 20 and 21 will serve to prevent any clogging of the material contained in the hopper body at the upper surface of the riddle, and will likewise serve to break up lumps which may form in lime or like fertilizing substance.

It is at some times desirable to employ an additional spreader D, especially when the riddle shown in Fig. 6 is used for distributing manure. The auxiliary spreader consists of a cylinder 39, mounted upon a shaft 40, removably journaled in the sides of the hopper body, and upon the left-hand end of the said shaft a pulley 41, is secured, which may be connected by a belt with a second pulley 42, located upon the axle 10 as shown in Fig. 2. The cylinder 39 is splined upon the shaft so that the cylinder may be placed in the hopper and the shaft passed through suitable openings therein and then through the cylinder. The cylinder is provided with radiating pins 43, usually placed in spiral arrangement, and the said agitator will therefore revolve immediately over the riddle and will tend to force the material through the interstices of the riddle, and will likewise serve to break up any lumps that may have formed or that may exist.

The opening in the bottom of the hopper body may be entirely closed through the medium of a drop door 44, which is removably hinged to the said bottom at the rear of the opening therein, and a chain 45, is connected with the door at its free end, which chain is led upward through the opening 17 and through an opening in the riddle, when a riddle is used, to an engagement with a winding shaft 46, journaled at the top of the hopper body and provided with a ratchet wheel 47 to be engaged by a pawl 48 and a hand wheel 49, or its equivalent, through the medium of which the shaft may be revolved. The door is disconnected from the body when the shakers are used.

When the machine is not required for use in distributing fertilizer, it may be used as a cart for hauling any substance or material, by removing the riddle and toothed cylinder and manipulating the winding shaft to draw the bottom or drop door 44 upward to a closed position; and it is evident that when a load is to be dumped it may be expeditiously and conveniently accomplished by simply dropping the said door 44.

If in practice it is found desirable cross braces 50 may be located at the front and rear of the hopper body, being secured also to the main truss supports 13.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a fertilizer distributer, the combination, with the hopper-like, wheel-supported body and rotating axle, of the removable pulverizer and spreader, composed of a toothed cylinder, a detachable shaft having a spline connection with said cylinder, a drive shaft connected with such detachable shaft, and means which operatively connect the axle and drive shaft, as shown and described.

2. In a fertilizer distributer, a hopper-like body, wheel-supported and provided with an opening in its bottom, the detachable riddle held to reciprocate in said opening, the detachable auxiliary spreader held to revolve above the riddle, its splined shaft which is also removable, a drive shaft, a connection between the said drive shaft and an axle of the machine, a crank disk carried by the drive shaft, having a pitman connection with the riddle, a drop door capable of closing the opening in the body of the said hopper body, a winding shaft carried by the said hopper,

and a connection between the said shaft and the drop door, as and for the purpose specified.

3. In a fertilizer distributer, the combination, with a wheel-supported hopper body having an opening in its bottom, and a riddle sliding in said opening and removable therefrom, of a horizontal shaft journaled in a support at one side of the hopper body, and provided with a pulley and a beveled gear, a second shaft journaled vertically, and adapted to slide endwise and provided with a gear adapted to mesh with the said beveled gear of the first shaft, a crank disk carried by the adjustable second shaft, a pitman connection between the crank disk and the riddle, a shifting lever connected with the second shaft, and a driving connection between the first shaft and an axle of the machine, substantially as and for the purpose set forth.

LEWIS ROAT.

Witnesses:
J. B. KAUFFMAN,
JOS. ANGSTADT.