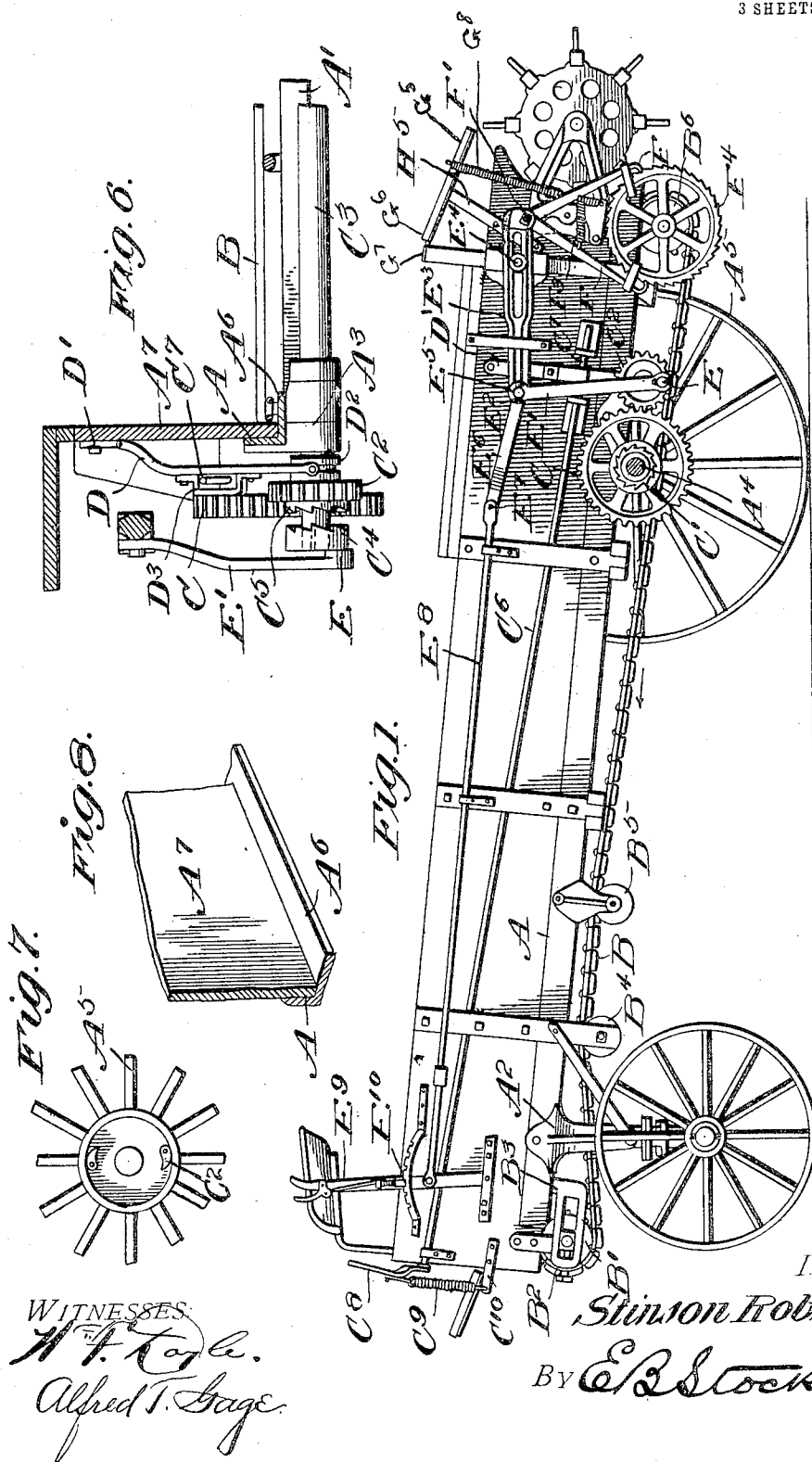


S. ROBINSON.
FERTILIZER DISTRIBUTER.
APPLICATION FILED JULY 6, 1905.

3 SHEETS-SHEET 1.



INVENTOR

Stinson Robinson,

By *E. B. Stocking*
Attorney

WITNESSES:

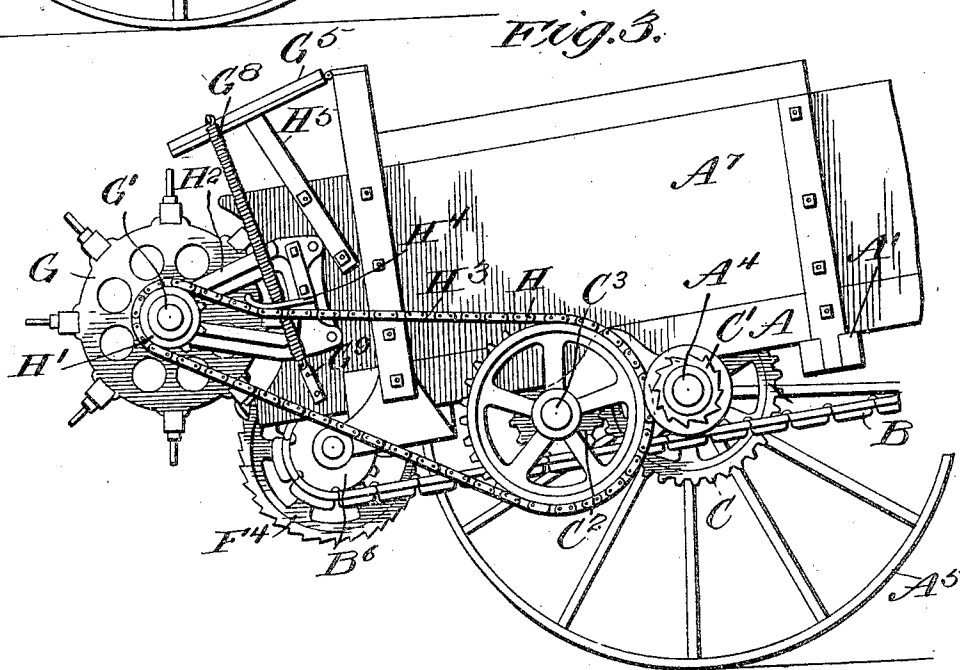
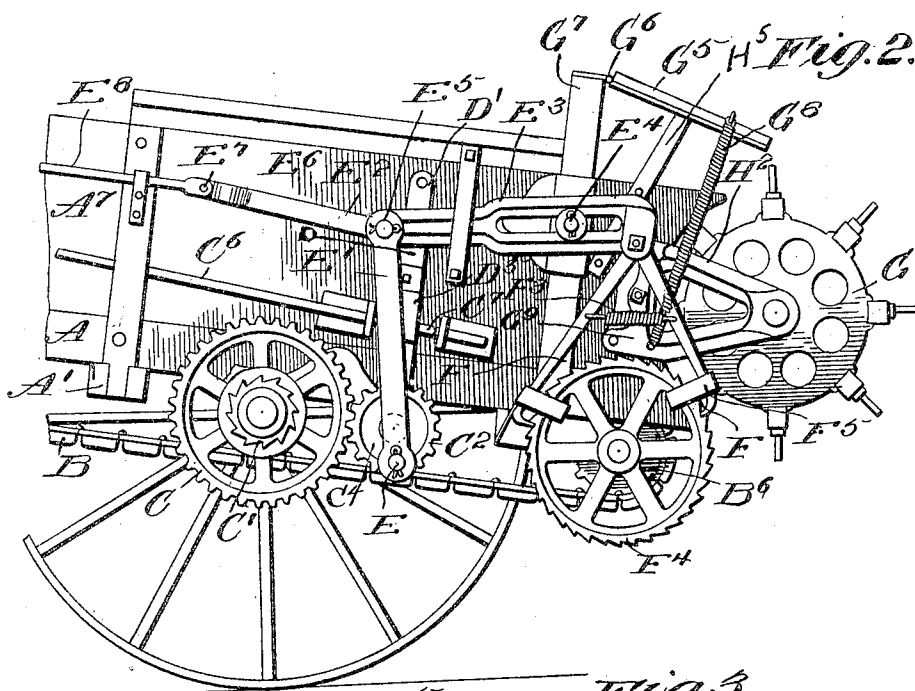
W. F. Taylor.
Alfred T. Gage.

No. 807,641

PATENTED DEC. 19, 1905.

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3 SHEETS—SHEET 2.



WITNESSES
H. F. Koyle
Alfred Sage

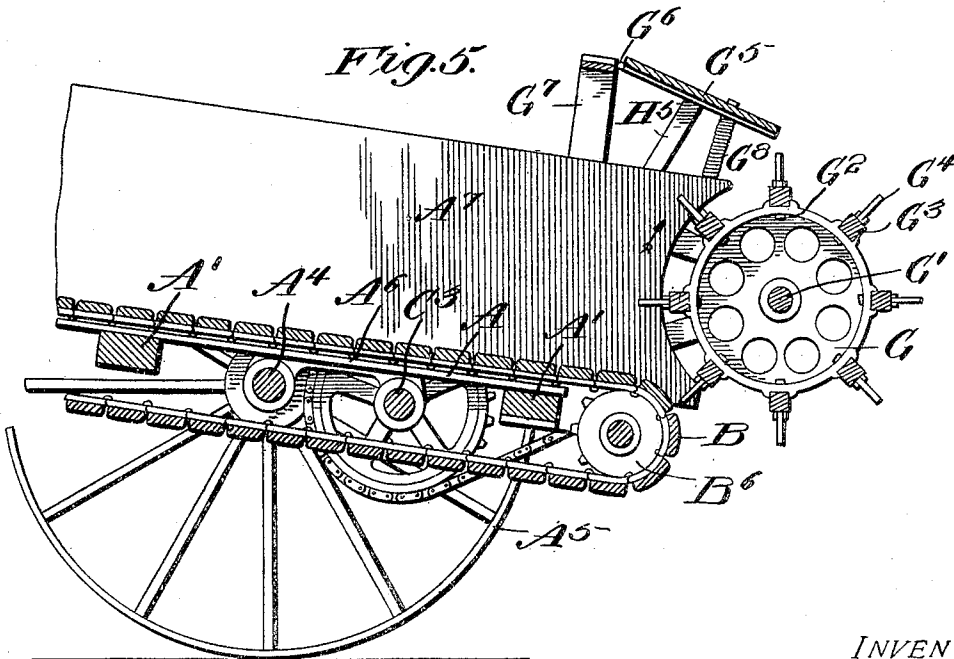
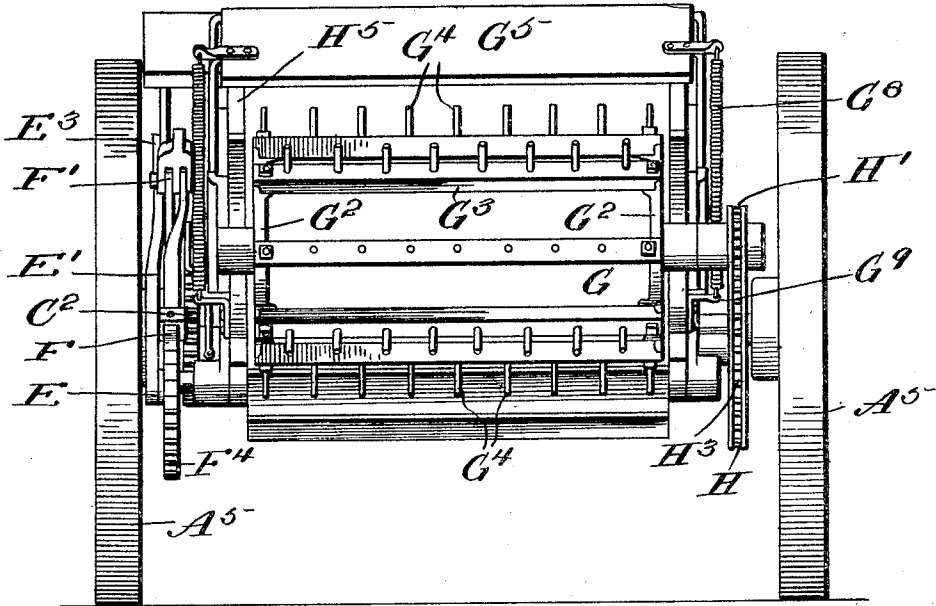
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3 SHEETS—SHEET 3.
Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

STINSON ROBINSON, OF VINTON, IOWA.

FERTILIZER-DISTRIBUTER.

No. 807,641.

Specification of Letters Patent.

Patented Dec. 19, 1905.

Application filed July 6, 1905. Serial No. 268,513.

To all whom it may concern:

Be it known that I, STINSON ROBINSON, a citizen of the United States, residing at Vinton, in the county of Benton, State of Iowa, have invented certain new and useful Improvements in Fertilizer - Distributers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a fertilizer-distributor, and particularly to a machine of that type embodying an endless apron or belt with a spreading-drum at the delivery end thereof.

The invention has for an object to provide a novel and improved construction of the body of the wagon or carrier for supporting this endless belt comprising angle-irons at the opposite sides thereof, which carry upon their outer faces the bearings for the axles and shafts of the operative parts and upon their inner faces support the side-boards of the wagon-body and provide a track or way over which the loaded surface of the belt travels.

A further object of the invention is to provide an improved construction and arrangement of the driving mechanism for this belt by which the speed of rotation thereof may be governed and controlled, while the rotation of the spreader is simultaneously controlled.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings, Figure 1 is a side elevation of the distributor, showing the controlling means for the belt or spreader; Fig. 2, an enlarged side elevation of these controlling means; Fig. 3, a similar view at the opposite side of the machine, showing the driving means for the spreader; Fig. 4, an end view showing this spreader; Fig. 5, a longitudinal section at the delivery end of the machine; Fig. 6, a detail cross-section showing the mechanism for controlling operating parts of the invention; Fig. 7, a detail elevation of the hub of the traction-wheel removed from the rear shaft shown in Fig. 1, and Fig. 8 a detail perspective of the angle-iron construction.

Like letters of reference refer to like parts in the several figures of the drawings.

In a machine of this character it is very desirable to dispose the body as near the ground as possible and also to provide a driving or

traction wheel at the rear of the greatest possible diameter in order to render the draft of the machine light and easy. This is accomplished by means of the angle-irons A, preferably of L-shaped construction and disposed at opposite sides of the machine. These are connected together in any desired manner by cross-bars—as, for instance, shown at A' in Fig. 5—and also support upon their outer faces the bearings A² for the front running-gear and a similar bearing A³, as shown in Fig. 6, for the shaft A⁴ of the rear traction-wheels A⁵. The horizontal portion of this angle-iron provides a track or way A⁶, upon which the belt or endless apron travels at each side of the machine, while the side-boards A⁷, comprising the body of the vehicle, rest thereon. This belt B is of any desired construction; preferably a link chain carrying cross-slats thereon, and at the forward end of the body passes over a roll B', adjustably mounted, as shown at B², in the bracket B³, carried by the angle-iron. The lower stretch of this apron is adapted to pass over suitable idler-rolls B⁴ and B⁵, supported from these angle-irons, as shown in Fig. 1, and at the opposite delivery end of the machine the belt extends over the driving-roll B⁶ therefor, which is provided with suitable sprocket-teeth to engage the chain thereon, similar teeth being provided upon the apron-roll B' by means of loosely-mounted sprocket-wheels thereon. The driving-axle A⁴ has secured thereon a pinion C and at the hub thereof a ratchet-wheel C', which wheel is adapted to engage with a pawl C², disposed in the hub of the traction-wheel A⁵, so as to rotate its shaft and the parts carried thereby in the forward movement of the machine, but to prevent rotation thereof in any backward movement of the wheel. Power is transmitted from the pinion C to the gear C³, which is adapted to mesh therewith, but is also loosely mounted upon its driving-shaft C³, carried in the bearing A³. This shaft C³ has secured thereon a clutch member C⁴, adapted to cooperate with a similar member C⁵, carried by the face of the gear C³. This gear is shifted toward and from the clutch member C⁴ by means of a rod C⁶, having a crank-arm C⁷ thereon, said arm being disposed within a shipper-bar D, mounted at its upper end D' for pivotal movement and provided at its lower end with a connection D², extending into the grooved hub of the gear. A loop D³ is provided upon the outer face of this bar, within which the

crank-arm C⁷ is disposed. The rod C⁶ is provided at its end next the front of the machine with an operating-lever C⁸, adapted to be held in its adjusted positions at either side of
 5 a vertical line by means of a spring C⁹, extending therefrom to a fixed support C¹⁰ upon the body of the vehicle. It will be seen that the rotation of the rod C⁶ throws the crank-arm from the position shown in Fig. 6
 10 to that shown in Fig. 1, thus carrying the gear into engagement with its coöperating clutch.

The clutch member C⁴ is provided with a crank-pin E, extending outwardly therefrom,
 15 from which a pitman E' extends upward to a toggle connection E². This toggle connection comprises a slotted lever E³, having its fulcrum at E⁴ and pivotally connected at E⁵ with the pitman. The opposite member E⁶
 20 of the toggle is pivotally connected at E⁷ with a rod E⁸, extending to the front of the machine and constitutes, practically, a fixed point in the operation of the toggle. For the purpose of varying the extent of move-
 25 ment of the lever E³ and the consequent travel of the opposite pawls F, pivotally mounted at F' thereon, this rod may be shifted longitudinally by means of the lever E⁹, connected therewith in the usual manner
 30 and adapted to be held in its adjusted position by means of the latch and sector E¹⁰, as shown. The pawls F are connected together by a spring F³, extending between the same, and in the oscillation of the lever E³ the pawls
 35 operate alternately to feed the belt or apron toward the discharge end of the body by engaging the opposite sides of the ratchet-wheel F⁴, secured to the driving-roll for the belt. These pawls are each provided with
 40 guard-plates F⁵ to prevent lateral movement thereof relative to the ratchet-wheel, as shown in Fig. 2.

For the purpose of driving the spreading drum or cylinder G the counter-shaft C³ is
 45 provided upon the opposite side of the machine from the belt-driving mechanism with a sprocket-gear H, secured to said shaft and conveying power to a similar gear H' of less diameter, secured to the shaft G' of the
 50 spreader-drum, said shaft being mounted in any suitable form of bracket—for instance, as shown at H² in Fig. 3. Power is conveyed between these sprockets by means of the chain connection H³ and the chain kept under proper tension and direction by means of
 55 a wiper H⁴, carried by the bracket and bearing upon the top of the chain. The driving-wheel upon this side of the machine is provided with pawls to engage the ratchet-wheel
 60 C', secured to the axle of the shaft A⁴, as hereinbefore described.

The spreader-drum G may be constructed in any desired manner, but is preferably composed of opposite heads G², between which
 65 the cross-bars G³ extend, each being pro-

vided with any desired number of teeth G⁴, which in the rotation of the drum lift the material upward above the same to perform the desired spreading or distributing action. For
 70 the purpose of preventing the upward throw of said material a guard-plate G⁵ is disposed above the upper portion of the drum and preferably mounted at G⁶ upon a standard G⁷, extending upwardly from the sides of the
 75 body and normally held under tension in its lowered position by means of a spring G⁸, extending therefrom to a fixed point G⁹ at each side of the machine. The downward move-
 80 ment of this guard is limited by means of the stop-plate H⁵, extending upward from the body and disposed beneath the board.

In the operation of the invention it will be seen that the construction of vehicle having the angle-iron-supporting frame enables the construction of the body near the ground,
 85 thus facilitating the loading thereof, and also permits the use of a large traction-wheel, by which a much lighter draft can be secured, while these metallic angle-bars provide a firm support for the various operating-shafts of
 90 the distributing mechanism and also a track or way upon which the endless belt is adapted to travel. The entire mechanism is adapted to be thrown out of operative relation by means of the crank-shaft operated from the
 95 seat at the front of the machine, and when clutched in driving position the speed of rotation of the belt may be governed and controlled by the toggle connection, whereby the throw of the pawls upon the ratchet-wheel may be so
 100 governed as to prevent operation thereof and at the opposite extreme of movement to effect the most rapid desired movement of the belt. This adjustment is independent in its action from the driving of the spreader-drum, which
 105 is constant in speed, and all of the parts may be controlled by the driver from the seat of the wagon, so that the distributing of material may be governed to any desired extent for different conditions of use or entirely stopped
 110 without the necessity of leaving the seat of the wagon.

It will also be obvious that the construction and arrangement of parts are of a simple character adapted to secure the most efficient
 115 results and to reduce to a minimum the danger of injury and consequent repairs in the use of the invention, while they also materially economize in the construction of the distributor and render the same capable of operation
 120 by any unskilled employee.

Having described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In a fertilizing-distributor, a body portion, an endless belt mounted therein, a driving-shaft provided with a ratchet-wheel at one end of said belt, an operating-lever, pawls pivoted at one end thereof and extending from said operating-lever to opposite sides
 125 130

of said wheel, and means for shifting said lever longitudinally to adjust the throw of said pawls by moving the pivot of the lever relative to said ratchet.

2. In a fertilizer-distributor, a body portion, an endless belt mounted therein, a driving-shaft provided with a ratchet-wheel at one end of said belt, an operating-lever, pawls pivoted at one end thereof and extending from said operating-lever to said wheel, means for shifting said lever and pivoted pawls relative to the ratchet to adjust the throw of said pawls, a counter-shaft, means for driving the same, a crank-pin carried by said counter-shaft, and a pitman extending from said crank-pin to said lever.

3. In a fertilizer-distributor, a body portion, an endless belt mounted therein, a driving-shaft provided with a ratchet-wheel at one end of said belt, an operating-lever, pawls extending from said operating-lever to said wheel, means for shifting said lever transversely of its pivot to adjust the throw of said pawls, a counter-shaft, means for driving the same, a hub carried by said counter-shaft and provided with a crank-pin, a pitman extending from said crank-pin to said lever, a driving-gear slidably mounted upon said counter-shaft to clutch with the hub of said crank-pin, and a gear carried by the shaft of the traction-wheels of said body.

4. In a fertilizer-distributor, a body portion, an endless belt mounted therein, a driving-shaft provided with a ratchet-wheel at one end of said belt, an operating-lever, pawls extending from said operating-lever to said wheel, means for shifting said lever transversely of its pivot to adjust the throw of said pawls, a counter-shaft, means for driving the same, a hub carried by said counter-shaft and provided with a crank-pin, a pitman extending from said crank-pin to said lever, a driving-gear slidably mounted upon said counter-shaft to clutch with the hub of said crank-pin, a gear carried by the shaft of the traction-wheels of said body, a shaft extending longitudinally of the body and provided with an operating-handle at its forward portion, a shipper-rod carrying at its lower end the gear upon the counter-shaft, and a crank-arm upon said shaft adapted to actuate said shipper-rod.

5. In a fertilizer-distributor, a body portion, an endless belt mounted therein, a driving-shaft provided with a ratchet-wheel at one end of said belt, an operating-lever, pawls extending from said operating-lever to said wheel, a link for shifting said lever transversely of its pivot to adjust the throw of said pawls, a counter-shaft, means for driving the same, a hub carried by said counter-shaft and provided with a crank-pin, a pitman extending from said crank-pin to said lever, a driving-gear slidably mounted upon said counter-shaft to clutch with the hub of

said crank-pin, a gear carried by the shaft of the traction-wheels of said body, a shaft extending longitudinally of the body and provided with an operating-handle at its forward portion, a shipper-rod carrying at its lower end the gear upon the counter-shaft, a crank-arm upon said shaft adapted to actuate said shipper-rod, and a rod extending to the forward portion of the machine for the purpose of adjusting the relative position of said link.

6. In a fertilizer-distributor, a body portion, an endless belt mounted therein, a driving-shaft provided with a ratchet-wheel at one end of said belt, an operating-lever, pawls extending from said operating-lever to said wheel, a counter-shaft, means for driving the same, a hub carried by said counter-shaft and provided with a crank-pin, a pitman extending from said crank-pin to said lever, a driving-gear slidably mounted upon said counter-shaft to clutch with the hub of said crank-pin, a gear carried by the shaft of the traction-wheels of said body, a shaft extending longitudinally of the body and provided with an operating-handle at its forward portion, a shipper-rod carrying at its lower end the gear upon the counter-shaft, a crank-arm upon said shaft adapted to actuate said shipper-rod, a link pivotally connected to the operating-lever of the pawls and disposed at an angle thereto, a rod extending to the forward portion of the machine for the purpose of adjusting the relative position of said link, a spreader-drum, a sprocket-wheel upon said counter-shaft at the opposite side of the machine from the gear thereon, and a chain extending from said sprocket-wheel to the spreader-drum.

7. In a fertilizer-distributor, a body portion, an endless belt mounted therein, a driving-shaft provided with a ratchet-wheel at one end of said belt, an operating-lever, pawls extending from said operating-lever to said wheel, a counter-shaft extending transversely of the body, means for driving the same, a hub carried by said counter-shaft and provided with a crank-pin, a pitman extending from said crank-pin to said lever, a driving-gear slidably mounted upon said counter-shaft to clutch with the hub of said crank-pin, a gear carried by the shaft of the traction-wheels of said body, a shaft extending longitudinally of the body and provided with an operating-handle at its forward portion, a shipper-rod carrying at its lower end the gear upon the counter-shaft, a crank-arm upon said shaft adapted to actuate said shipper-rod, a link pivotally connected to the operating-lever of the pawls and disposed at an angle thereto, a rod extending to the forward portion of the machine for the purpose of adjusting the relative position of said link, a spreader-drum, a sprocket-wheel upon said counter-shaft at the opposite side of the ma-

chine from the gear thereon, a chain extending from said sprocket-wheel to the spreader-drum, and a guard-plate disposed above said drum and normally held in its lowered position by spring tension.

8. In a fertilizer-distributor, a body portion provided with an endless belt, a driving-roll for said belt having a ratchet-wheel thereon, an operating-lever provided with an elongated pivoting-aperture, pawls pivotally connected to one end of said lever and disposed at opposite sides of said ratchet-wheel, means for oscillating the opposite end of said lever and means for shifting the lever laterally of its pivot.

9. In a fertilizer-distributor, a body portion provided with an endless belt, a driving-roll for said belt having a ratchet-wheel thereon, an operating-lever provided with an elongated pivoting-aperture, pawls pivotally connected to one end of said lever and disposed at opposite sides of said ratchet-wheel, means for oscillating the opposite end of said lever, and a connection to the end of said lever opposite said pawls for shifting the lever laterally of its pivot.

10. In a fertilizer-distributor, a body portion, a delivery mechanism mounted thereon, traction-wheels having their axle mounted upon said body portion, a driving-gear carried by said axle, a counter-shaft provided with a

gear loosely mounted thereon and having a clutch connection upon one face thereof, a cooperating clutch member secured to said counter-shaft and provided with a crank-pin, a pitman extending from said crank-pin, a lever actuated by said pitman and provided with pawls for operating the delivery mechanism and a cooperating ratchet carried by said mechanism.

11. In a fertilizer-distributor, a body portion, a delivery mechanism mounted thereon, traction-wheels having their axle mounted upon said body portion, a driving-gear carried by said axle, a counter-shaft provided with a gear loosely mounted thereon and having a clutch connection upon one face thereof, a cooperating clutch member secured to said counter-shaft and provided with a crank-pin, a pitman extending from said crank-pin, means actuated by said pitman for operating the delivery mechanism, a shipper-rod connected at its free end to said gear upon the counter-shaft, and an operating-shaft for said shipper-rod provided with a crank portion connected thereto.

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

STINSON ROBINSON.

Witnesses:

C. A. LEHMAN,
W. L. THOMAS.