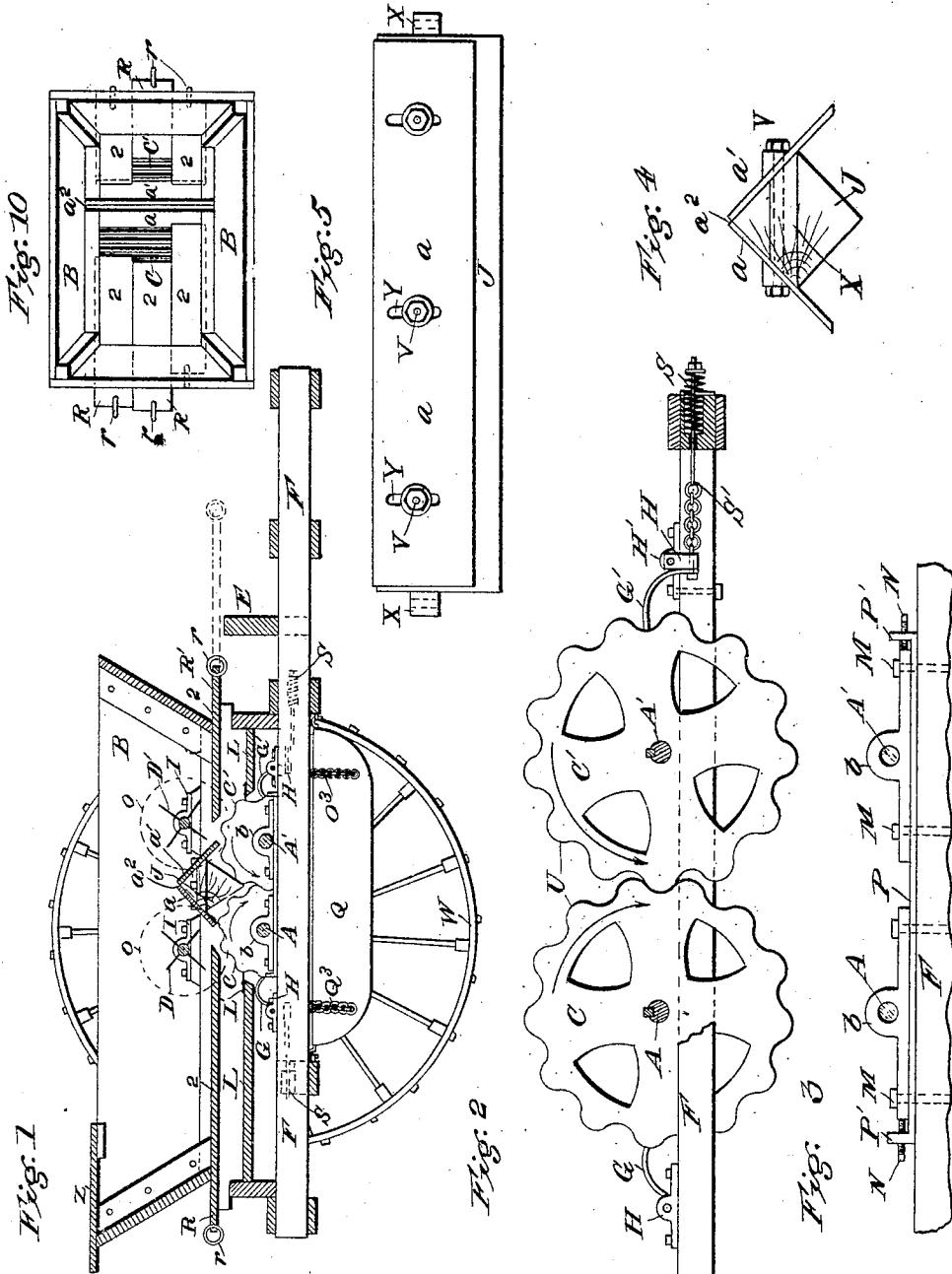


J. K. GOURDIN.
FERTILIZER DISTRIBUTER.
APPLICATION FILED SEPT. 15, 1905.

2 SHEETS—SHEET 1.



WITNESSES:
C. C. Muffey
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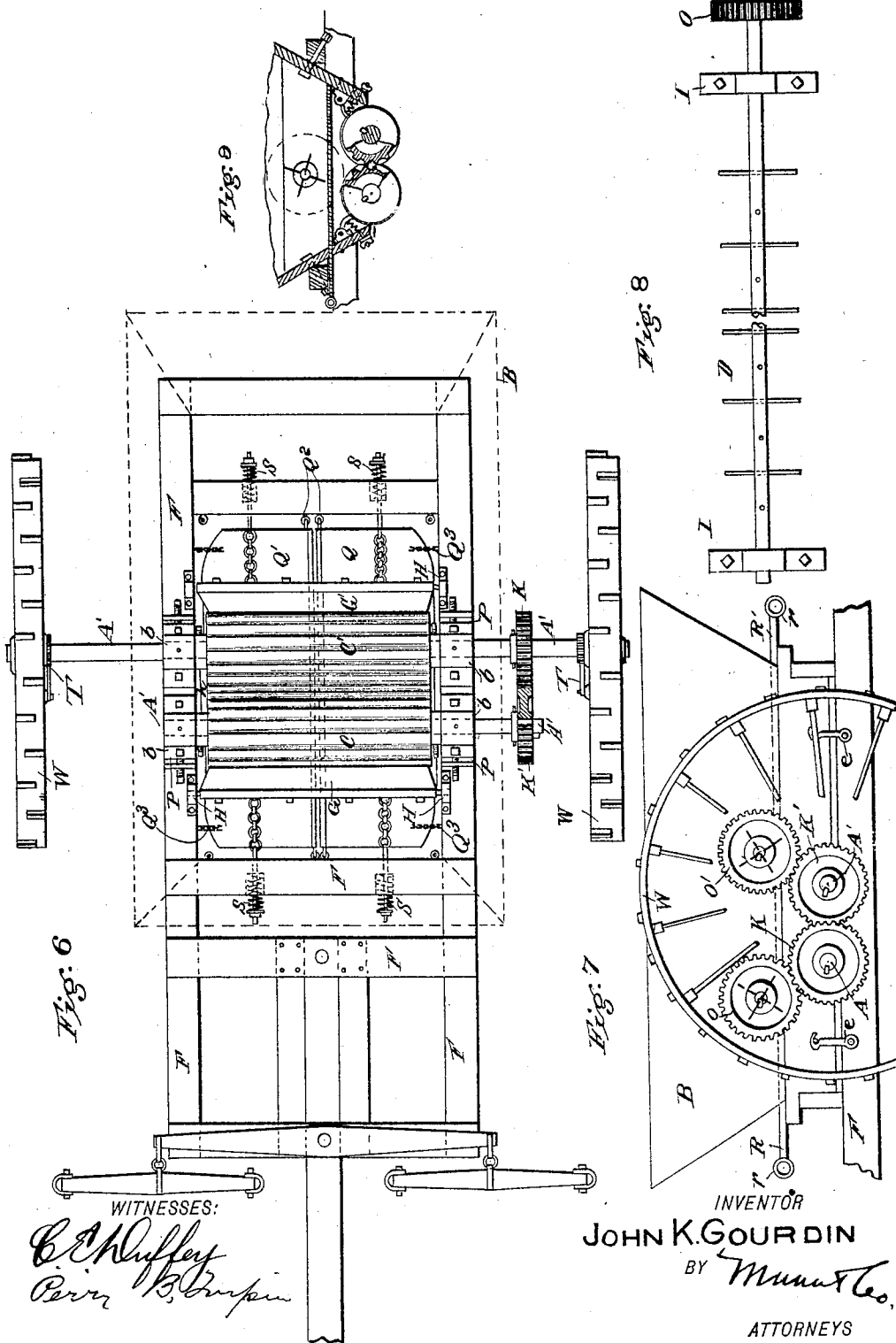
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ATTORNEYS

No. 813,881.

PATENTED FEB. 27, 1906.

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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

JOHN K. GOURDIN, OF PINEVILLE, SOUTH CAROLINA, ASSIGNOR OF
ONE-HALF TO ROBERT L. MONTAGUE AND ROBERT P. TUCKER,
OF CHARLESTON, SOUTH CAROLINA.

FERTILIZER-DISTRIBUTER.

No. 813,881.

Specification of Letters Patent.

Patented Feb. 27, 1906.

Application filed September 15, 1905. Serial No. 278,634.

To all whom it may concern:

Be it known that I, JOHN K. GOURDIN, a citizen of the United States, and a resident of Pineville, in the county of Berkeley and State of South Carolina, have invented certain new and useful Improvements in Fertilizer-Distributers, of which the following is a specification.

My invention is an improvement in fertilizer-distributers; and it consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a vertical longitudinal section of a machine embodying my invention. Fig. 2 is a detail side elevation of the crushing-rolls and the cleaners therefor. Fig. 3 is a detail side elevation of one set of boxes for the crushing-rolls with the adjusting means therefor. Fig. 4 is a detail cross-section of the adjustable feed-boards. Fig. 5 is a side elevation of one of the feed-boards and its supports. Fig. 6 is a top plan view of the machine. Fig. 7 is a side elevation thereof, partly broken away, illustrating the gearing for operating the agitators. Fig. 8 is a detail plan view of one of the agitators. Fig. 9 is a detail sectional view illustrating the construction of parts employed in fertilizer-distributing when no crushing is necessary; and Fig. 10 is a detail top plan view, parts being broken away, of the hopper, showing the series of bottom boards.

By my invention I seek especially to provide a fertilizer-distributer for use with cotton-seed and in the use of which the cotton-seed, which is largely used as fertilizer in Southern sections, may be crushed.

The machine as shown comprises the main frame F, to the side bars of which is journaled in suitable bearings the axle A, carrying the traction-wheels W, which may be clutched thereto at T, as shown in Fig. 6. To this axle A within the frame F is secured the crushing-roller C, which meshes with the opposite roller C'. These rollers are alike, are corrugated longitudinally, and mesh at their meeting faces and move in contact at said faces, so they will crush the seed as it is passed between them. The corrugations U of the rollers C and C' (see Fig. 2) are gradual, the depth of the corrugations being compara-

tively shallow relative to the width of same, so that between the ridges of the corrugations the curvature is very gradual in order to facilitate the thorough cleaning of the corrugations by the cleaning-blades G and G', presently described. The rollers C C' are supported on the shafts A A', and the shafts A and A' are mounted in boxes b, whose bolts M pass through slotted openings in the side bars of the frame F, so the boxes b can be adjusted toward and from each other, set-screws N, turning through the upturned flanges P' of the base-plate P for the boxes b, being provided for operating the boxes b in securing the desired adjustment. As best shown in Fig. 3, the boxes b are mounted on this base-plate P, which forms a convenient rail on which the boxes may be adjusted toward and from each other by means of the set-screws N, as shown in Fig. 3.

The scrapers G G' are alike and are similarly operated. They preferably comprise the spring-plates G or G', which are curved between their free edges, where they engage the corrugated rollers, and their opposite edges, where they are secured to saddles H, the latter being pivoted at H' and projecting below the pivot, forming a crank-like support for the scraping or cleaning blades G G', and spring devices engaging with the rocking saddles H operate to press the free edges of the spring-blades G and G' against the corrugated rollers. As shown, the spring devices comprise a coil-spring S, operating, through connecting rods and links at S', upon the rocking saddles H to actuate the scraping-blades into engagement with the corrugated rollers C and C'.

It will be noticed that in operation as the corrugated rollers are turned the free edges of the scraping-blades will be caused to traverse the curves of the corrugations and will efficiently clean the crushed material from the corrugated rollers, leaving the latter clean at all times, thus greatly facilitating the crushing operation, as will be understood by those experienced in handling this class of fertilizers.

A hopper B is provided over the corrugated rollers, and it is preferred to discharge the cotton-seed to the rollers about their upper portions or crown and separately to the opposing rollers. To this end I provide a

feed device J above and intermediate the axis of the rollers C and C' and having inclined feed-boards *a* and *a'*, which diverge from the apex *a*² of the feed device J and discharge at their lower free edges to the upper portions of their respective corrugated rollers. (See Fig. 1 of the drawings.) These feed-boards *a* and *a'* are slotted at Y for their securing-bolts *v*, so they may be adjusted to set their lower delivery edges nearer to or farther from their respective corrugated rollers to vary the feed. As shown, I use the same bolts *v* for the opposite feed-boards *a* and *a'*, the construction and operation of this feature being best shown in Figs. 4 and 5 of the drawings. Agitators D and D', mounted in boxes I and operated by gearing K, KI O, O' (see Fig. 7) from their respective corrugated rollers operate above the delivery edges of the feed-boards and prevent any clogging of the material within the hopper B. I also provide the hopper B with a series of adjustable bottom boards R and R', arranged in rear and front of the feed device J, the plurality of boards R and R' being provided side by side ranging from side to side of the hopper and the bottom boards being movable longitudinally toward and from the feed device, so the bottom boards may be adjusted to control the amount of material discharged to the corrugated rollers in the operation of the invention.

While the number of boards R and R', ranging from side to side of the machine, may be varied, I prefer in practice to employ two each of said boards R and R', as they will enable me to adjust the device for feeding the seed to the rollers at one side or the other, or at both sides, as may be desired.

It will be noticed that the inner edges of the bottom boards R and R' are beveled to coincide with the inclination of the feed-boards *a* and *a'*, and these bottom boards R and R' may be adjusted inwardly to abut the feed-boards *a* and *a'* and shut off the passage of seed to the crushing-rollers. This enables me to prevent any wasting of seed when the machine is being used as a wagon for carrying the seed from the barn to the field. For convenience the boards R and R' are provided with handle-rings *r* at their outer edges.

The seat Z (see Fig. 1) rests loosely upon the hopper and may be shifted back and forth in securing the desired balancing of the load upon the team, the driver in practice sitting on the seat Z with his feet in the seed within the hopper. Boards Q and Q' extend longitudinally beneath the framing and are hinged at their inner edges at Q² about midway between the side bars of the frame, so their lower edges may be adjusted outwardly to any desired extent in order to discharge the crushed fertilizing material in furrows arranged at any desired distance apart in the use of the invention and suitable securing de-

vices, such as chains Q³, (see Figs. 1 and 6,) being provided for holding the boards Q and Q' at any desired inclination.

Below the sliding bottom boards R R', which form a false bottom for the hopper, I provide the fixed bottom boards L, which extend at their inner edges adjacent to the front and rear corrugated rollers and are provided at such edges with flexible valve-plates L', which may be of leather, rubber belting, or other suitable material, and press against the corrugated rollers, operating to prevent the discharge to the ground of any uncrushed seed that may be passed in front or rear of the front and rear crushing-rollers.

In using the machine with fertilizers that do not need to be crushed the construction shown in Fig. 9 may be employed, in which the rollers do not operate in contact in such manner as to crush the fertilizer, but move sufficiently close together to avoid the too free discharge of the material. These rollers are corrugated, as previously described, and pivoted spring-actuated scraping-blades operate in connection therewith. It may be desired in some instances to modify the construction of the scraping-blades and their actuating-springs, which may be effected by the particular construction of said devices, as shown in Fig. 9 of the drawings.

It will be understood from the drawings and foregoing description that the rollers, corrugated as described, operate to crush the seeds, also as a force-feed delivering material positively from the machine as it proceeds when the different parts are in feeding position.

An important result following from the construction of the rollers as described is that thereby I secure an even and uniform distribution of the fertilizing material as it is discharged from the machine, the rollers operating when the material is properly fed thereto to distribute the fertilizing material evenly and uniformly as the machine proceeds.

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

1. The combination substantially as herein described, of the framing, the crushing and force-feed rollers corrugated longitudinally and meshing at their meeting faces, and having the depth of their corrugations comparatively shallow relative to the width of same, whereby gradual curvature is provided in the hollows of the corrugations, bearings and operating means for said rollers, the scraping-blades bearing at their free edges against the corrugated rollers, the pivoted saddles supporting said blades, the spring devices for actuating the blades, the hopper over the corrugated rollers, the feed device above the rollers and arranged intermediate the same and having the inclined feed-boards adjustably supported, the bottom boards arranged

in front and rear of the feed device and movable toward and from the feed-boards, and the boards below the movable bottom boards and having flexible valve-plates bearing against their respective rollers, all substantially as and for the purposes set forth.

2. The combination substantially as herein described, of corrugated rollers meshing at their meeting faces and having the depths of their corrugations comparatively shallow relative to the width of the same, whereby a gradual curvature of the hollows of the corrugations is secured, and scraping-blades operating at their free edges in contact with their respective corrugated rollers, substantially as set forth.

3. The combination with the corrugated rollers, of the scraping-blades bearing at their free edges in contact with their respective rollers, the rocking saddles to which said blades are secured and springs operating upon the rocking saddles to press the blades against their rollers, substantially as set forth.

4. The combination of the hopper, the corrugated rollers meshing at their meeting faces, the feed device above the rollers and having the inclined feed-board discharging at their lower edges to their respective rollers, and the bottom boards movable toward and from their respective feed-boards whereby to vary or shut off the feed, substantially as described.

5. The combination in a fertilizer-distributor with the hopper, and the feed-rollers, of movable bottom boards whereby to shut off or regulate the feed, and boards below said movable bottom boards and provided at their inner edges with yielding devices bearing against the rollers, substantially as set forth.

6. The combination of the corrugated rollers meshing at their meeting faces, the feed device above said rollers and having inclined

feed-boards discharging to their respective rollers, spring-actuated scraper-blades bearing against the rollers, the bottom board movable toward and from the inclined feed-boards, whereby to shut off or regulate the feed, said boards being arranged in series side by side, the boards below the movable bottom boards and having at their inner edges yielding devices bearing against their respective rollers, the pivoted boards extending longitudinally beneath the corrugated rollers, and means for adjusting the angle of said boards, substantially as set forth.

7. The combination of the hopper, the corrugated rollers, the feed device above the corrugated rollers, the boards forming a false bottom for the hopper and movable toward and from the feed device, the boards below the false-bottom boards and provided at their inner edges with yielding devices bearing against the corrugated rollers, and the scrapers below the latter boards and bearing against the rollers, substantially as set forth.

8. The combination with the framing, the hopper and the corrugated rollers meshing at their meeting faces, of the feed device above the corrugated rollers and provided with inclined feed-boards delivering at their lower edges to their respective rollers and adjustable toward and from said rollers, and the bottom boards movable in the hopper toward and from the feed-boards, substantially as set forth.

9. The combination with the framing, the hopper and the corrugated rollers, of a series of boards arranged side by side and movable longitudinally with relation to the corrugated rollers, whereby to control the feed of material thereto substantially as set forth.

JOHN K. GOURDIN.

Witnesses:

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PERRY B. TURPIN.