

(No Model.)

W. IRONSIDE.

COMBINED PLANTER AND FERTILIZER DISTRIBUTER.

No. 300,262.

Patented June 10, 1884.

Fig. 1

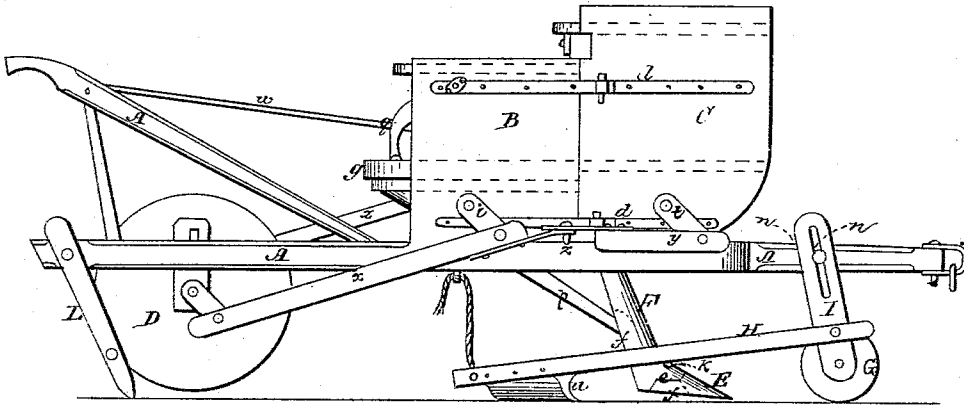


Fig. 2

Fig. 3

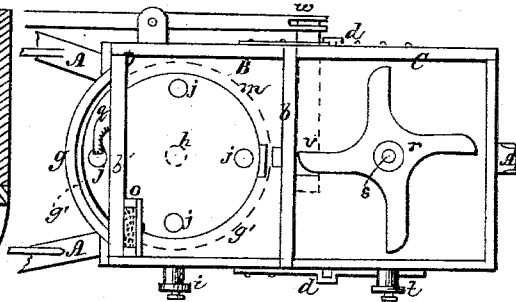
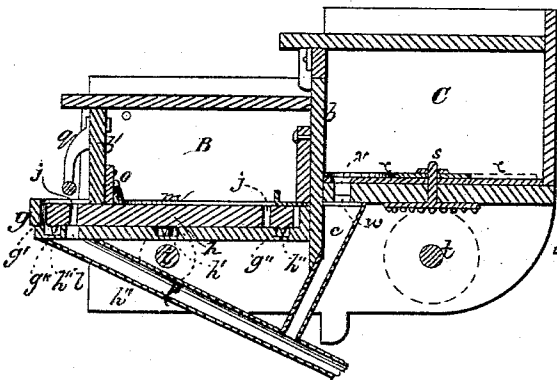
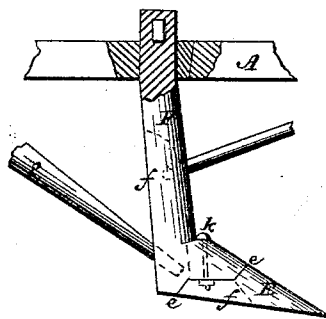


Fig. 4

Witnesses.

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WILLIAM IRONSIDE, OF KELTON, PENNSYLVANIA.

COMBINED PLANTER AND FERTILIZER-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 300,262, dated June 10, 1884.

Application filed July 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM IRONSIDE, a citizen of the United States, residing at Kelton, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in a Combined Planter and Fertilizer; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention is a combined planter and fertilizer-distributor, and embraces the following novel features, being an improvement upon my Letters Patent No. 43,995, dated August 16, 1864: Two conjoined boxes or hoppers, the one to hold seed-grain and the other fertilizing material, so made that the back of the grain-box forms the partition between the two hoppers, and each furnished with its own peculiar mechanism; also, the grain-box supplied with a set of interchangeable turn-plates, each fittingly pivoted, turned in a common bed by suitable gearing underneath, and provided with properly sized and spaced vent-holes, and said bed furnished with a plate-cap and brush on the inside, and with a presser and drop-spout on the outside; also, the manure-box furnished with a hopper-boy turned closely upon the metal-covered box-floor; also, by suitable gearing underneath, and provided with a suitable vent-hole and conjoining drop-spout; also, said hoppers suitably conjoined, and, with their individual mechanism, mounted upon a platform made upon the diverging rails of the plow-beam underneath; also, the counter-shafts of said box-gearing, having their bearings on the same level, their cranks of the same length, and their parallel moving wrist-pins independently adjustable with the counter-coupling and connection-rods of the driving-roller of the drill-plow; also, the main stem of the branching drop-pipes and the colter-staff conjoined, counter-braced, and fixed to the plow-beam by a cross-keyed wedge; also, slotted and adjustable standards for the fore or guide wheel of the plow, and to which the frame of the hinging seed-coverer is at-

tached; and, lastly, a pair of swinging legs hinged to the tail end of the drill-barrow, all of which and their purposes are hereinafter more fully described, and illustrated by the accompanying drawings, in which like letters designate identical parts of my invention in the different figures, respectively.

Figure 1 is a side elevation of my device, showing the conjoined hoppers, with their connective mechanism, mounted upon the drill-frame, the parallel crank and wrist-pin couplings, with the connecting-rods of the driving-roller, the slotted standards of the fore wheel, with the swinging coverer, and the combination colter and drop-pipe. Fig. 2 is a longitudinal section through the two hoppers, showing their individual mechanism and the conjoining drop-spouts. Fig. 3 is a plan view showing the conjoined and uncovered hoppers, and the same view of individual mechanism of the two boxes, and Fig. 4 is a side elevation of the drill-plow, showing in section its several combination attachments.

A represents the drill-frame, consisting of the usual plow-beam, diverging side rails, and tail-pieces, and upon and to which the several parts of my invention are attached.

B represents the grain-hopper, and C the manure-hopper. Said boxes are made of suitable materials, shape, and dimensions, the box B with four sides and the box C with only three, as the back of box B, when the boxes are attached together, as shown, forms both the front of box C and the partition between the two. The box B is suitably fixed upon the platform *a* of the drill-frame, and the box C firmly attached to the back of box B by pins or lugs setting into the hasps *d*, as shown, the bottom front corners resting upon said platform. The bottom rear corners of box C are rounded off from the floor downward, to easily adjust or remove it or to reach the gearing underneath. The front piece, *b'*, of the box B slides up and out in order to easily reach the inclosed mechanism. Both boxes have sliding covers, as shown.

About midway up the sides of the box B is fixed the platform or bed *g*, into the top plane of which are cut a concentric circular shoulder, *g'*, and a concentric groove, *g''*, within, and having a central pivot, *h'*, in and upon

which to adjust the pivotal turn-plates *h*, as shown. Said turn-plates consist of a set of interchangeable disks, each of suitable material and dimensions, and provided with a central pivot, *h'*, and a circular row of spur-gearing cogs, *h''*, set near the outer edge of its bottom plane, so as to be easily and fittingly adjusted in the table-bed *g* and engage with the counter-shaft beneath. The plates *h* are each made to suitably gear with the counter-shaft *i* underneath, by which the plate is turned upon its plate-bed, each plate being made interchangeable with the others of its set only so far as said adaptation to the one table-bed is concerned, for while each turn-plate is provided with a circle of vent-holes, *j*, by which the seed-grain is carried round and dropped into the spout below—through a drop-hole *l*, suitably cut through the plate-bed *g*, as shown—they differ in the several plates each from the other as to the size, spacing, and number of vent-holes, according to the kind of seed-grain to be planted, and which also guides the choice of the plate to be adjusted in the grain-box.

A plate-cap, *m*, consisting of a thin sheet of metal, is cut in the crescent shape shown and tightly fitted upon the concentric shoulder *g'* within the rim of the table-bed and kept in place by a turn-button, for the purpose of keeping the grain upon the turn-plate and preventing it from otherwise slipping over the outer edge of the same into the surrounding groove *g''*, and thereby clogging the path of the orbital revolutions of the plate spur-cogs beneath.

A small brush, *o*, is suitably secured to the inside of the upsliding front *b'*, as shown, to assist the gravic force of the grain to crowd the kernels into said vent-holes as each comes round in turn; and as the filled holes pass round and over the drop-hole *l* said grain is again forced to drop through into the underhanging spout *p* by the presser *q*, which latter consists of a declining projective arm adjustably secured to the outside of the front *b'*, and reaching down over said drop-hole, for the purpose described.

The manure-box *C* is also furnished with a floor, fixed about midway up its sides, and fittingly covered with a thin sheet of metal to save wear. A hopper-boy, *r*, made of suitable material and dimensions, and cruciform, as shown, is suitably secured to a vertical spindle, *s*, piercing the center of the box-floor, and suitably geared to the counter-shaft *t*, to give it a rotary motion closely upon the floor. The front of the blades of said rotary cross are each square-edged and similarly curved toward the ends and rear, so that they may, like the arms of its namesake on the cooling-floor of a grain-mill, sweep the overlying material in the box toward and press it through the vent-hole *v*, and thence into the branch spout *c* beneath. The quantity of manure to be run through said vent at a time is regulated by the lever-moved vent-stop *w*, the lever

being a long rod or bar suitably pivoted to the outside of the box *B*, as shown, and kept to the desired regulative position by a check-pin thrust through the long arm of the lever and the tail-rung of the drill-plow handles, over which said arm extends. The counter-shafts *i* and *t*, by which reciprocal motion is imparted to said mechanism of the boxes *B* and *C*, have their bearings on the same level, and their counter-cranks being of the same length, their wrist-pins, when independently connected by the couplings *z*—those of the shaft *i* to the connecting-rods *x*, and those of the shaft *t* to the mutually-coupling parallel bars *y*—will always be on a level, and said parallel bars always in a horizontal position, so that not only will the couplings *z* always remain in place during the motion of said bars, but the cranks of the driving-shaft of the roller *D*, being arranged on the ends thereof at an angle with each other, will be relieved of all liability to reach a mutual dead-center, and will be constantly in position to impart a continuous and regular reciprocal motion to the counter-shafts *i* and *t*.

Whenever it is desired to use the grain-planter alone, the couplings *z* are withdrawn and the bars *y* triced out of the way, leaving the gearing of the box *C* entirely disengaged. The drop-spout *c* being a branch pipe conjoining with the one leading from the box *B*, does not interfere with independent working of the latter.

E represents the drill-coltter, and *F* its staff. The latter, being of suitably stout material, is rounded in front, in conformity with the front swell of the coltter, grooved into its rear face, as shown, and firmly secured to the plow-beam. The coltter is also suitably made of the shape shown, and firmly joined to the foot of its staff on the mutual joint-line *e*, by the nut-bolt *k*, passed through the foot of the staff and heel of the coltter, as shown. The foot of said staff-groove *f* also receives the drop end of the spout *p*, wherein the latter is secured and protected, so that the dropping seed will always fall into the center of the trench or furrow made by the coltter, and behind its protecting arched shell.

G represents said fore wheel, the counter-standards *I* of which are provided with longitudinal slots cut through their upper ends, as shown, and an attaching transverse bolt, by which a sliding adjustment is secured in the inclined slots *n*, cut into each side of the plow-beam, in order to regulate the height of the plow-head from the ground when working the drill, said slots making firm bearings for the leverage of said standards or legs.

H represents said seed-coverer, which consists of a suitable frame, as shown, one end of which is furnished with the suitably-inclined counter-shovels *u*, to cover the earth over the planted seed, for the roller *D*, coming behind, to press it down, and the other end is suitably hinged to said standards *I*, for the purpose

of drawing the shovels after the colter E, and also of allowing the frame to be triced to the drill-frame above when not used.

L represents the swinging legs, which are suitably hinged to the tail of the drill-frame to allow them to be swung up out of the way, or put into the position shown, which latter lifts and props the hanging roller-wheel against the lower rung of the leg-frame, and thus not only prevents the frame A from overturning, but steadfastly holds by gravic force the rear portion of the frame, together with the roller-wheel and drill-colter, above the ground when not in use; therefore,

What I claim as new, and desire to secure by Letters Patent, is—

1. In a combined grain-planter and fertilizer-distributor, the grain-box B, furnished and fitted with the partition-back *b*, the up-lifting-front *b'*, and the clamping-hasps *d*; also said box conjoined with the manure-hopper C, and both boxes mounted upon the platform *a* of the drill-frame A, substantially as and for the purposes herein specified.

2. In the grain-hopper B of the combined grain-planter and fertilizer-distributor herein described, the combination, with the table-bed *g*, provided with the concentric shoulder *g'* and groove *g''*, the drop-hole *l*, the plate-cap *m*, and the spout *p*, with the box-front *b'*, having the brush *o* and the presser *q* thereto attached, and with the counter-shaft *i*, of the set of interchangeable turn-plates *h*, furnished each with the circle of differential vent-holes, *j*, the center pivot, *h'*, and the spur-cogs *h''*, all substantially as and for the purposes herein specified.

3. In the adjustable manure-hopper C of the combined grain-planter and fertilizer-dis-

tributer herein described, the combination, with the partition-front *b*, and its metal-covered floor furnished with the vent-hole *v*, the branch spout *c*, and the lever-regulated vent-stop *w*, and with the vertical spindle *s* and its bevel-gear counter-shaft *t*, of the cruciform and outswEEPing hopper-boy *r*, substantially as and for the purposes herein specified.

4. In a combined grain-planter and fertilizer-distributor, as herein described, the counter-shafts *i'* and *t*, each reciprocally imparting motion through its respective and intermediate gearing, the former to the interchangeable turn-plates *h* in the box B, and the latter to the hopper-boy *r* in the box C, and having their bearings on the same level, their cranks of the same length, and their wrist-pins ready to couple and act in combination with the connecting-rods *x*, the independently-coupling parallel bars *y*, and the counter-cranks of the shaft of the driving-roller D, substantially as and for the purposes herein specified.

5. In a combined grain-planter and fertilizer-distributor, as herein described, the combination, with the plow-beam of the drill-frame A, of the rigidly-wedged colter-staff F, provided with the rear vertical groove, *f*, and a hollow arched foot, the last having a scarf-jointing edge, *e*, to which is adjusted and firmly bolted the correspondingly rear scarf-edged drill-colter E, substantially as and for the purposes herein specified.

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

WM. IRONSIDE.

Witnesses:

JOHN REMINGTON,
R. C. KELTON.