2 Sheets—Sheet 1.

J. L. HILL.

CORN-PLANTER AND GRAIN-DRILL.

No. 191,054. Patented May 22, 1877.

Fig. 1

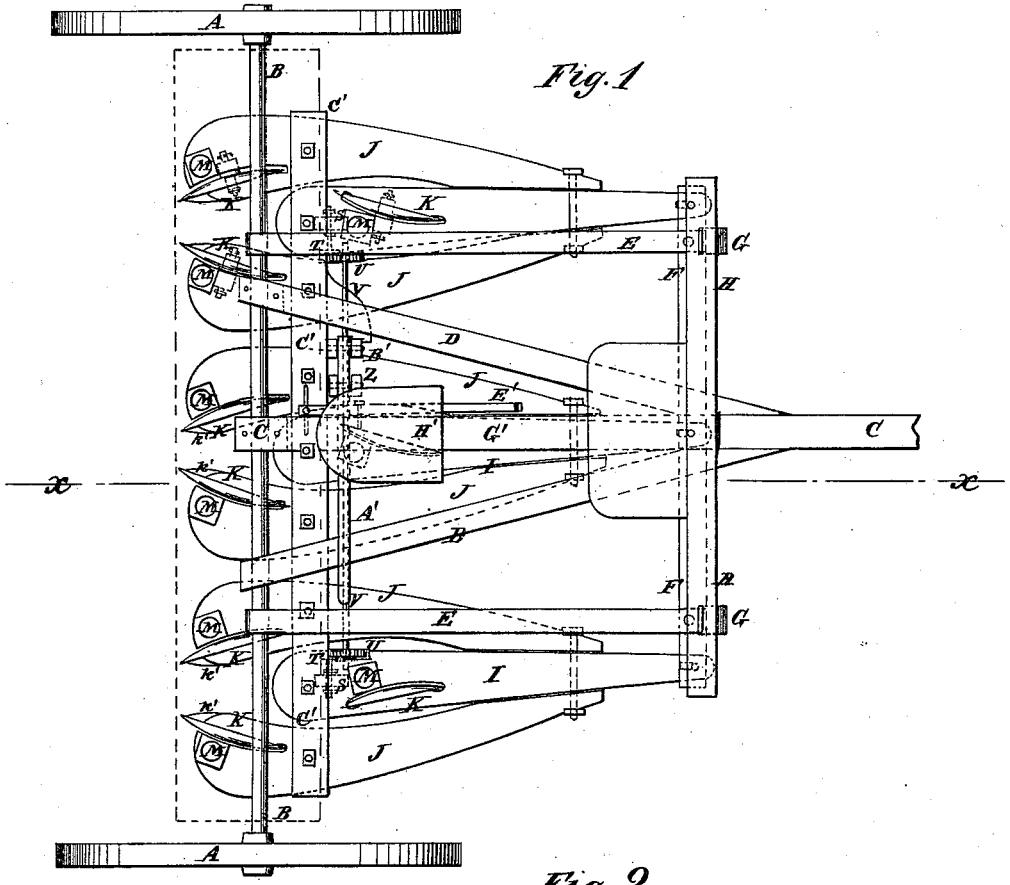
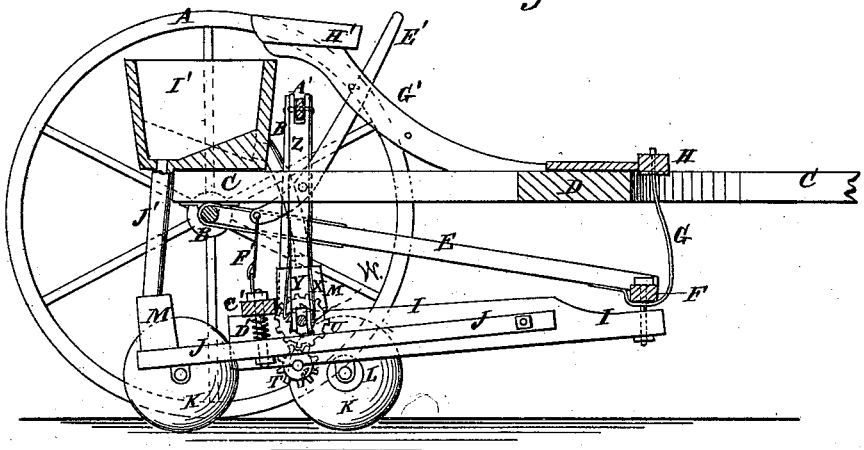


Fig. 2



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2 Sheets—Sheet 2.

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Fig. 3

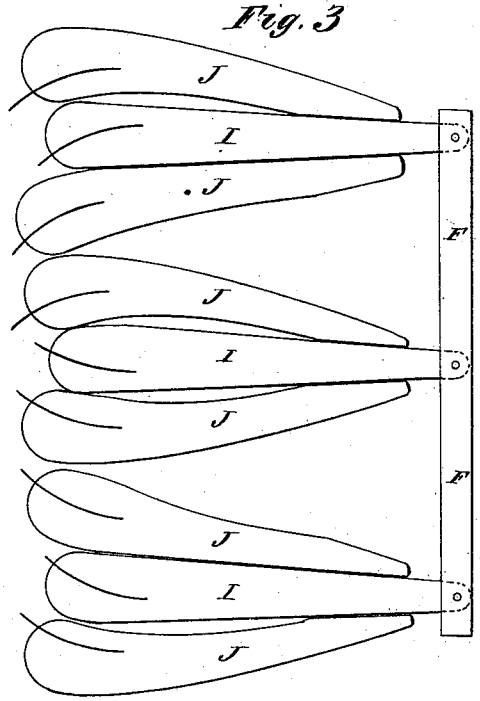
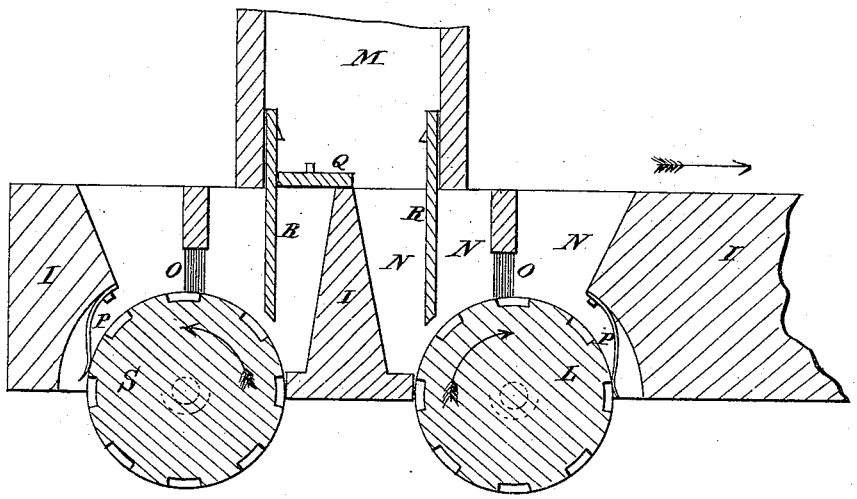


Fig. 4



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UNITED STATES PATENT OFFICE.

JOHN L. HILL, OF CLIMAX, KANSAS.

IMPROVEMENT IN CORN-PLANTER AND GRAIN-DRILL.

Specification forming part of Letters Patent No. **191,054**, dated May 22, 1877; application filed February 26, 1877.

To all whom it may concern:

Be it known that I, JOHN LYSANDER HILL, of Climax, in the county of Greenwood and State of Kansas, have invented a new and useful Improvement in Combined Corn-Planter and Grain-Drill, of which the following is a specification:

Figure 1, Sheet 1, is a detail top view, showing the construction of the machine. Fig. 2, Sheet 1, is a vertical section of the machines taken through the line *x x*, Fig. 1. Fig. 3, Sheet 2, is a detail view, showing the arrangement for drilling small grain. Fig. 4, Sheet 2, is an enlarged detail section of the seed-dropping device.

Similar letters of reference indicate corresponding parts.

This machine is convertible, being adapted for use both as a corn-planter and drill.

The construction and arrangement of parts are as follows: A are the wheels, which revolve upon the journals of the axle B. To the center of the axle B is attached the rear end of the tongue C, which is strengthened against side strain by the braces or hounds D. The forward ends of the braces D are attached to the opposite sides of the tongue C, and their rear ends are attached to the axle B.

To the end parts of the axle B are attached the rear ends of two bars, E, which incline downward, and have their forward ends attached to the end parts of a cross-bar, F.

To the end parts of the cross-bar F, and to the ends of the inclined bars E, are attached the lower ends of two bars, G, which pass up through holes in the end parts of a cross-bar, H, and have a number of holes formed through them to receive the pins or bolts by which they are secured to said cross-bar H, so that the points of draft attachment may be raised and lowered as may be required. The cross-bar H is attached at its center to the tongue C.

To the end parts of the cross bar F are bolted the forward ends of the center plow-beams I, which bolts pass through short longitudinal slots in the beams I, so that the rear ends of said beams may be raised and lowered as required.

To the opposite sides of the beams I, at a little distance from their forward ends, are pivoted the forward ends of two beams, J. The side beams J are made of about the same length as the center beams I, so that the rear ends of said side beams may project in the rear of the said center beams. The beams are thus arranged in groups of threes.

In inclined slots in the rear ends of the beams J I J revolve concaved or saucer-shaped cutters K, the cutters of the central or main beams I being intended to open a channel to receive the seed, and the cutters of the side beams being intended to cover the seed. The cutters of the side beams J are so arranged that their rear parts may be closer together than their forward parts, as shown in Fig. 1.

The hubs L of the cutters K, at the convex side of said cutters, are made cylindrical in form, or have small cylinders L attached to them, in the faces of which are formed small recesses to receive the seed and drop it to the ground.

To the upper sides of the beams I J are attached the seed-boxes M, from the bottom of which passages N lead down to the dropping-cylinders L, so that the seed may enter the cups of said cylinders.

In the forward part of the cavity N, directly above the dropping-cylinder L, is secured a brush, O, which bears against the said cylinder to prevent any more seed from passing over said cylinder than enough to fill its dropping recesses.

In the forward part of the cavity N is secured a spring, P, which rests against the face of the cylinder L to prevent any more seed from dropping to the ground than what is contained in the dropping-holes, and at the same time cause all the seed for each hill to be dropped at the same time.

The seed is prevented from passing into the cavity N and coming in contact with the dropping-hubs L by a slide, Q, placed upon the bottom of the said seed-boxes M.

To the forward sides of the seed-boxes M are secured slides R, to relieve the brushes O and prevent them from being too much crowded by the seed.

The recessed hubs L are used for drilling small grain.

I will now describe the device for dropping the seed in hills. To the lower sides of the

main or central beams I, just in the rear of the hubs L, are pivoted small cylinders S, having recesses formed in them of such a size as to contain enough grains for a hill.

The dropping-cylinders S are connected with the seed-boxes M by cavities N, and are provided with brushes O, springs P, and slides Q R in the same manner as the dropping-hubs L.

To the inner journals of the dropping-cylinders S are attached small gear-wheels T, the teeth of which mesh into the teeth of the larger gear-wheels U, attached to the ends of the rod V.

The rod V works in bearings in the main beams I, and to its middle part is attached a ratchet-wheel, W, against one side of which rests a push-pawl, X, and against its other side rests a pull-pawl, Y.

The pawls X Y are attached to the lower end of the bar Z, the upper end of which is pivoted to a lever, A′, so that the cylinders S may be turned to drop the seed for a hill at each upward and at each downward movement of the said lever A′.

The end of the lever A′ is pivoted to a standard, B′, attached to the cross-bar C′, and in its lower end may be formed an additional bearing for the rod V.

The cross-bar C′ is bolted to the rear ends of the central or main beams I, and is connected with the side beams J by bolts and spiral springs D′, to give the said side beams J the necessary play.

To the side of the tongue C is pivoted a lever, E′, the rear end of which is connected with the cross-bar C′ by a rod or chain, F′, so that the cutters K may be raised and lowered by operating the lever E′.

The forward end of the lever E′ moves up and down along the side of the standard G′ of the driver's seat H′, and is held in any position into which it may be adjusted by a pin placed in one or another of the holes formed in the said seat-standard G′. The lower end of the standard G′ is secured to the tongue C.

When the machine is to be used as a planter the middle set of beams J I J is not used.

When the machine is to be used for drilling, the outer side beams of the two side sets are exchanged, and the said two sets themselves are then exchanged. This adjustment brings the concave sides of all the cutters of the side sets of beams inward, as shown in Fig. 3.

When the machine is to be used for drilling, a long seed-box, I′, is attached to the rear ends of the tongue C and braces D, directly over the axle B.

The interior of the seed-box I′ is divided into nine compartments by cross-partitions, and in the bottom of each compartment is formed a hole, with which is connected the end of a short flexible tube, J′. The other ends of the tubes J′ are connected with the seed-boxes M to keep them supplied with seed.

To the rear ends of the beams I J are attached scrapers K′ *k*′, in such positions as to scrape off any soil that may adhere to the concave sides of the cutters K.

When the machine is to be used as a cultivator, the middle set of beams is not used, the outer beams of the side sets are exchanged, the inner beams of the side sets are also exchanged, and the sets themselves are then exchanged. This adjustment brings the concave sides of the two inner cutters of each set inward to move the soil toward the plants, and the concave sides of the outer cutter of each set outward to hold the cutters against lateral movement.

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

1. The combination of the recessed cylinders S, the gear-wheels T U, the rod V, the ratchet-wheel W, the push and the pull pawls X Y, the bar Z, and the lever A′, as herein shown and described.

2. The combination of the seed-boxes M, the slides Q R, the brushes O, and the springs P, with the recessed hubs of the concaved rotary cutters K, and with the beams I J, substantially as herein shown and described.

JOHN LYSANDER HILL.

Witnesses:
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ORLIN COLBURN.