J. A. HILL.

Combined Seed-Planter and Fertilizer-Distributer.

No. 222,045. Patented Nov. 25, 1879.

Fig. 1.

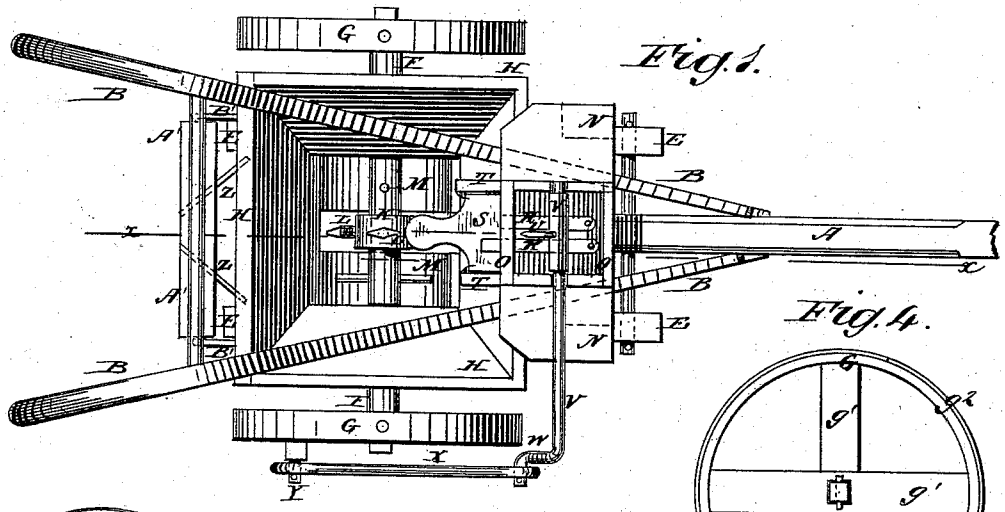


Fig. 4.

Fig. 2.

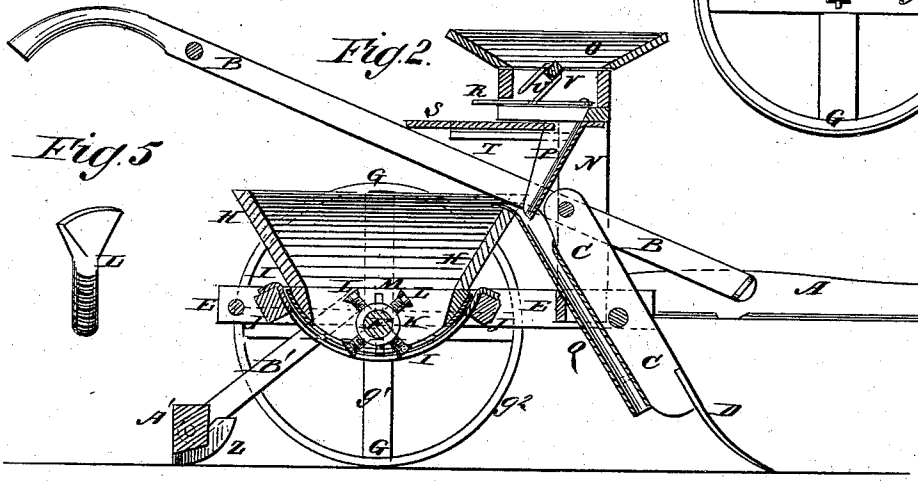
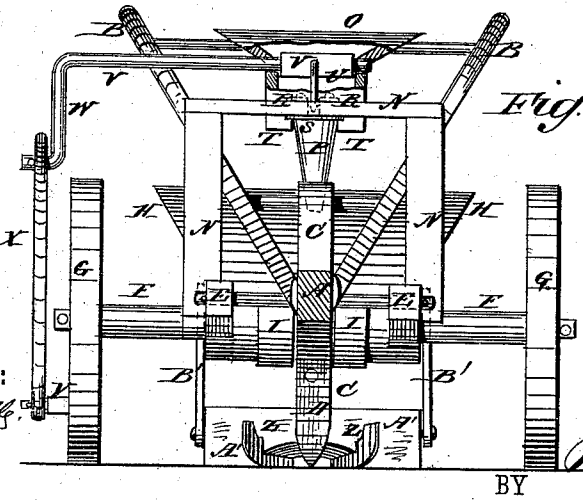


Fig. 5

Fig. 3.



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IMPROVEMENT IN COMBINED SEED-PLANTER AND FERTILIZER-DISTRIBUTER.

Specification forming part of Letters Patent No. **222,645**, dated November 25, 1879; application filed June 17, 1879.

To all whom it may concern:

Be it known that I, JAMES ADISON HILL, of Davis Cross Roads, in the county of Cherokee and State of Alabama, have invented a new and Improved Combined Seed-Planter and Fertilizer-Distributer, of which the following is a specification.

Figure 1 is a top view of my improved machine. Fig. 2 is a vertical longitudinal section of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a front view of the same, the plow-beam being shown in cross-section, and part being broken away to show the construction. Fig. 4 is a detail view of one of the wheels. Fig. 5 is a detail view of one of the screw-fingers.

The object of this invention is to furnish a machine which shall be so constructed as to open a furrow, deposit guano or other fine fertilizer in it, cover the guano, drop cotton-seed upon the covering-soil, and cover the seed; which may also be used for opening a furrow, dropping small seeds into the furrow, distributing a fertilizer upon the seed, and covering it, and which shall be simple in construction, convenient in use, and reliable in operation.

The invention consists in the combination of the horizontal frame, the upright frame, the two hoppers, the wheels and axle, the band or hub, the screw-fingers and the crank, connecting-rod, and crank-pin with each other and with an ordinary plow-stock, as hereinafter fully described.

A represents the beam, B the handles, and C the standard, of an ordinary plow-stock. D is the plow-plate, which is attached to the lower end of the standard C in the usual way. E is a small rectangular frame, the forward end of which is hinged to the standard C, at or near the rear end of the beam B, by a rod or round.

In bearings attached to the side bars of the frame E revolves the axle F, to the ends of which are attached the wheels G. The wheels G are formed by attaching an iron rim, g^2, to the outer ends of two planks, g', which cross and are halved to each other at their centers.

Through the centers of the crossed planks of the wheels G are formed square holes to receive the squared ends of the axle F, so that the said wheels may carry the said axle with them in their revolution.

To the middle part of the frame E is attached the hopper H to receive the cotton-seed. The bottom of the hopper H is made semi-cylindrical in form, passes beneath the axle F, and is slotted at right angles with the said axle to form a discharge-opening, the size of which is regulated by two bent strips, I, of sheet metal, fitted to the curve of the bottom of the hopper in such positions that their inner edges may overlap the side edges of the said discharge-opening, so that they may be moved toward or from each other to make the said opening smaller or larger, as may be desired.

The ends of the strips I are held in place against the front and rear sides of the lower part of the hopper H adjustably by blocks J, secured to the said sides.

Upon the middle part of the axle F is secured a band or hub, K, in which are formed a number of radial screw-holes to receive the screw-fingers L for pushing the cotton-seeds out through the discharge-opening in the bottom of the hopper H. The outer ends of the screw-fingers L are flattened or made wedge or fan shaped, as shown in Fig. 5, so that they may be turned edgewise to push out a smaller quantity of seed, or sidewise to push out a larger quantity of seed.

The quantity of seed discharged may also be regulated by screwing the fingers L in or out. To the axle F, at the sides of the band or hub K, are attached radial fingers M to keep the seed in the lower part of the hopper H stirred up, so that it may be more readily pushed out by the screw-fingers L.

To the forward parts of the side bars of the frame E is attached the lower end of a vertical frame, N, to the wide top bar of which is attached a hopper, O, to receive guano or other fine fertilizer. The bottom of the hopper O or the top bar of the frame N, that forms its bottom, is slotted to allow the fertilizer to escape into the spout P, attached to the lower side of the top bar of the said frame N. From the spout P the fertilizer drops into the flaring or spout-shaped upper end of the conductor-tube Q, which extends down along and is secured to the rear side of the standard C, so as to conduct the fertilizer into the bottom of the

furrow opened by the plow D, where it is covered by the falling of the sides of the said furrow in the rear of the said plow.

The size of the discharge-opening in the bottom of the hopper O, and, consequently, the amount of fertilizer distributed, is regulated by strips R, pivoted at their forward ends to the bottom of the said hopper, along the sides of its discharge-slot, and the rear ends of which project at the rear of the said hopper. The escape of the fertilizer may be entirely prevented, when desired, by a sliding plate, S, which slides in rabbeted cleats T, attached to the lower side of the top bar of the frame N.

The fertilizer is pushed out through the discharge-slot in the bottom of the hopper O by fingers U, attached to the lower side of the shaft V. The shaft V works in bearings in the sides of the hopper O, and to its end is attached, or upon it is formed, a crank, W, to which is pivoted the upper end of the connecting-rod X. The lower end of the rod X is pivoted to the crank-pin Y, attached to the wheel G. The crank Y is made shorter than the crank W, so that the revolution of the wheel G will only rock the stirrer-shaft V.

When the machine is to be used for planting sorghum or other small seeds, the seed is placed in the hopper O and the fertilizer is placed in the hopper H. In this case the seed is placed in the bottom of the furrow and is partly covered by the falling in of the soil at the sides of the said furrow, and the fertilizer is placed upon it.

The furrow is filled up, covering the seed and fertilizer, and rounding up the top of the ridge by the inclined plates Z, attached to the lower side of the covering-block A′, the ends of which are pivoted to the lower ends of two connecting-bars, B′. The upper ends of the bars B′ are pivoted to the side bars of the frame E. The covering-block A′, between the covering-plates Z, is concaved to give the desired form to the top of the ridge.

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

The combination of the horizontal frame E, the upright frame N, the two hoppers H O, the wheels and axle G F, the band or hub and screw-fingers K L, the shaft and fingers V U, and the crank, connecting-rod, and crank-pin W X Y, with each other and with an ordinary plow-stock, A B C, substantially as herein shown and described.

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Witnesses:
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