

(No Model.)

2 Sheets—Sheet 1.

T. L. GRAY.

COMBINED GRAIN PLANTER AND TOBACCO HILLER.

No. 544,222.

Patented Aug. 6, 1895.

Fig. 1.

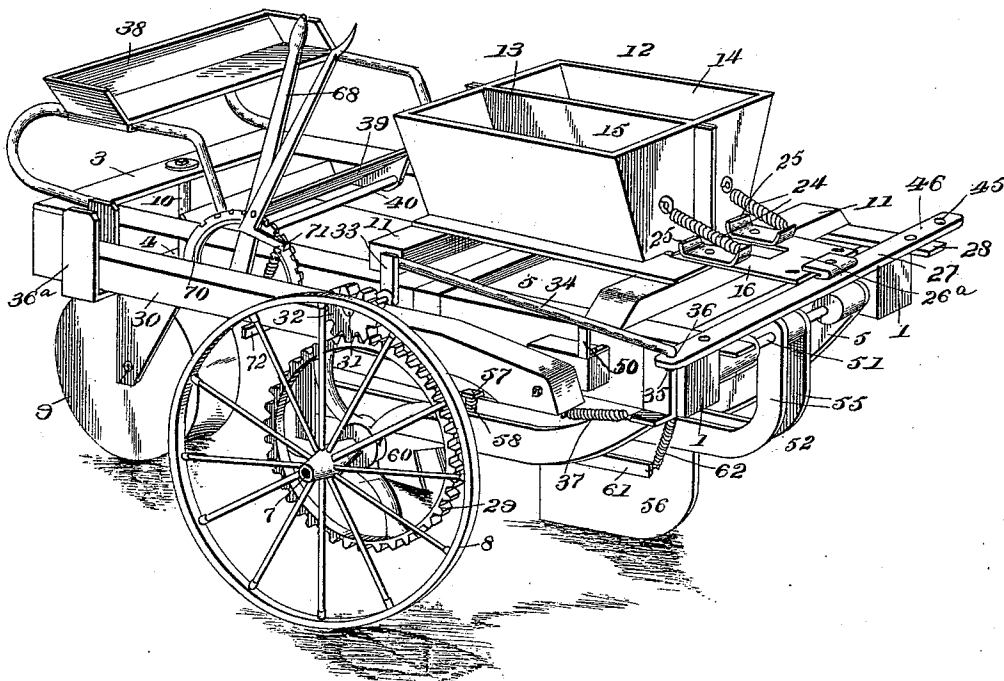
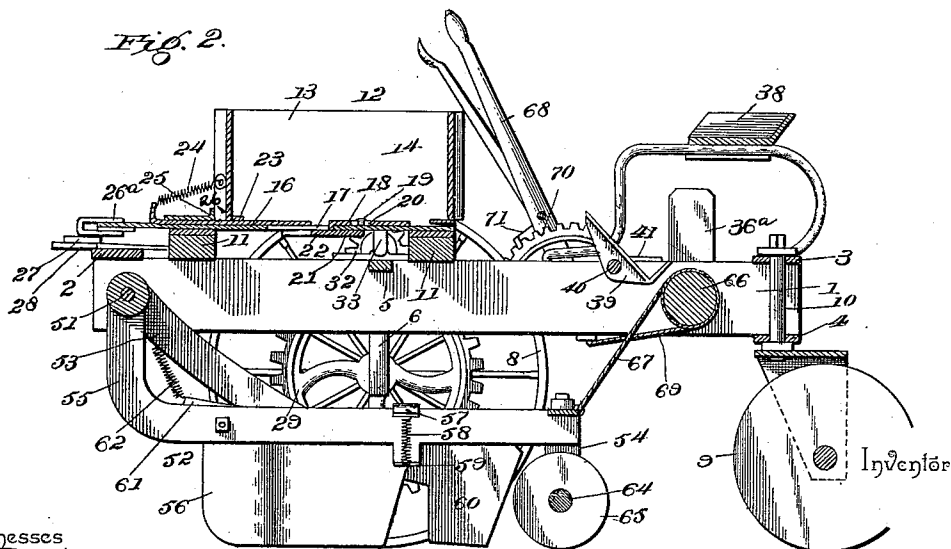


Fig. 2.



Witnesses

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O. D. Hayle

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(No Model.)

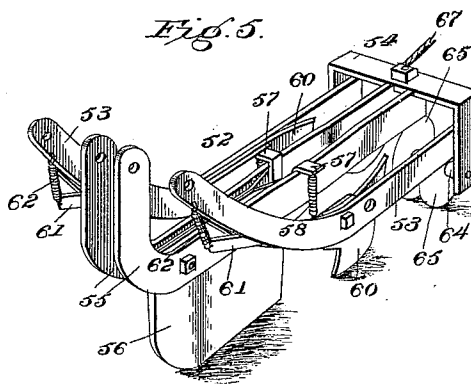
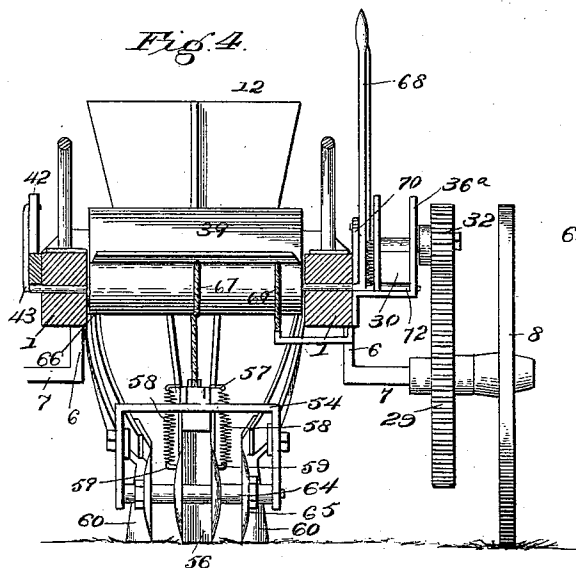
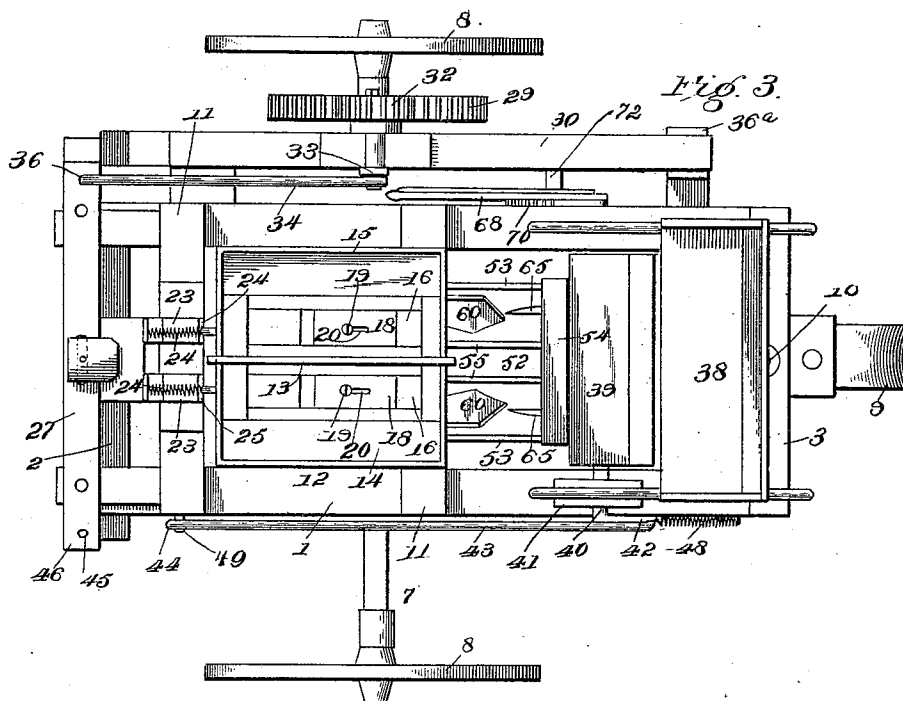
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Inventor

Thomas L. Gray

Witnesses

W. Johnson
E. J. [Signature]

By *W. S.* Attorneys.

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

THOMAS LOGAN GRAY, OF NEW PROVIDENCE, TENNESSEE.

COMBINED GRAIN-PLANTER AND TOBACCO-HILLER.

SPECIFICATION forming part of Letters Patent No. 544,222, dated August 6, 1895.

Application filed October 13, 1894. Serial No. 525,832. (No model.)

To all whom it may concern:

Be it known that I, THOMAS LOGAN GRAY, a citizen of the United States, residing at New Providence, in the county of Montgomery and State of Tennessee, have invented a new and useful Combined Grain-Planter and Tobacco-Hiller, of which the following is a specification.

My invention relates to a machine for hilling tobacco and planting grain; and the objects in view are to simplify and improve the construction and arrangement of the parts to produce a simple, inexpensive, and efficient mechanism capable of suitable adjustment and adapted to be operated by power derived from a ground-wheel or by foot-power.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a plan view to show the feeding devices and operating mechanism. Fig. 4 is a rear view, partly in section. Fig. 5 is a detail view in perspective of the pivotal frame which carries the furrow opening and closing devices.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

The frame of the improved machine comprises the side beams 1, connected near their front ends by a transverse bar 2 and at their rear ends by the upper and lower transverse bars 3 and 4, and connecting the beams at an intermediate point is a yoke 5, having its ends dropped vertically, as shown at 6, and then turned out horizontally to form the spindles 7, upon which are mounted the ground-wheels 8. The combined supporting and packing roller 9 is provided with a spindle 10, which is mounted in bearings at the centers of the upper and lower cross-bars 3 and 4, at the rear end of the framework, said roller performing the function of a caster-wheel.

Resting upon transverse supporting-bars 11, which are attached to the upper sides of the side beams of the framework is a seed-box 12, preferably divided by means of a partition 13 to form a plurality of compartments

14 15, adapted, respectively, to receive grain and a fertilizing material. In the floors of the compartments of the seed-box are mounted the slides 16, provided with slots 17 and adjustable gage-plates 18, said plates being adjustable by means of screws 19 and slots 20 to vary the size of the openings 17. These openings 17 are adapted, when the slides are moved toward the rear, to be closed by a stop-plate 21, and when moved forward to register with outlet-openings 22, and mounted upon the slides are the cut-off plates 23, which are connected at their front ends to contractile springs 24, attached to the front of the seed-box. These cut-offs are provided with stop-shoulders 25 to engage similar stop-shoulders 26, whereby the rearward movement of the cut-offs is limited and forward movement is communicated thereto during the forward movement of the slides by the engagement of the gage-plates with the inner or rear ends of the cut-offs. In the construction illustrated the front ends of the seed-slides are connected by means of a cross-head 26^a, which is pivotally connected to an operating-lever 27, fulcrumed adjacent to one end upon a bearing-plate 28 at the front end of one of the side beams.

Fixed to one of the ground-wheels is a driving or master gear 29, and fulcrumed on the frame adjacent to the plane of said gear is an arm 30, upon which is mounted the spindle 31 of a pinion 32, which meshes with said gear. The spindle of the pinion carries a crank-arm 33, to which is connected a rod 34, having at its front end a terminal stud 35 to engage a perforation 36 in the free end of the lever 27. The rear free end of the arm 30 fits in a guide or keeper 36^a, and said arm is normally held in such a position as to maintain the pinion in engagement with the gear by means of a coiled contractile spring 37.

Fulcrumed between the side beams in advance of the driver's seat 38 is a foot-treadle 39, said treadle having a spindle 40, mounted in suitable bearings 41. This spindle terminates at one end—preferably the end opposite to the above-described mechanism for operating the lever 27—with a crank-arm 42, to which is connected a rod 43, terminating at its front end in a stud 44, adapted to be engaged with a perforation 45 in the short arm

46 of the lever 27 or an extension of said lever beyond its fulcrum. Also connected to said crank-arm is a coiled return-spring 48, by which the arm and the connecting-rod are returned to their initial positions after having been moved by the operation of the foot-treadle.

It will be understood that either the ground-wheel-operated mechanism or the foot-treadle may be employed as means for communicating motion to the lever 27 to operate the seed-slides, and to support the several connecting-rods when they are not in use I provide hooks or keepers 49 and 50, located, respectively, at opposite sides of the framework.

Upon a spindle 51, which is arranged between the side beams at their front ends, is pivoted a frame 52, which carries the furrow opening and closing devices, said frame having side bars 53, which are connected at their rear ends by a yoke 54, and intermediate parallel bars 55, which are connected to the central portion of said yoke. Pivottally mounted between said intermediate bars of the pivotal frame 52 is a furrow-opening shoe 56, provided at its rear end with lateral ears 57, which are connected by means of coiled springs 58 with similar ears 59 on said intermediate bars. These springs are arranged to depress the rear end of the furrow-opening shoe and are adapted to yield and relieve the shoe of strain when the latter encounters an obstacle.

Pivottally mounted upon the side bars of the frame 52 are the furrow-closing shovels 60, having arms 61, to which are connected the springs 62 for holding the shovels normally in their depressed or operative positions. These springs also provide for the yielding of the furrow-closing shovels when the latter encounter obstacles.

Mounted upon a horizontal spindle 64, which is mounted in bearings in the arms of the yoke 54, are the pulverizing-disks 65, which are preferably concave in construction, said disks being adapted to follow the furrow-closing shovels to pulverize the soil on the surface preparatory to compression by the packing-roller 9, hereinbefore described.

Mounted transversely in the framework near its rear end is a drum 66, and reeled thereon is a cable 67, which is connected to the rear end of the frame 52, whereby when said drum is rotated the cable is either reeled or unreel to elevate or depress the furrow opening and closing devices. Pivoted to the framework adjacent to the drum is a hand-lever 68, connected at its lower end by means of a cable 69 with said drum, the cable 69 being reeled upon the drum in the opposite direction to the cable 67, whereby when the hand-lever is operated to unreel the cable 69 the drum is turned in the direction necessary to reel the cable 67 and thus elevate the furrow opening and closing devices. Attached to the hand-lever and arranged in operative relation with a segmental rack 70 is a spring-

actuated locking-pawl 71, to hold the hand-lever in its adjusted positions.

This being the construction of the apparatus, the operation thereof is as follows: When the connecting-rod 43 is in engagement with the seed-slide-operating lever 27, and the connecting-rod 34 is engaged with the hook or keeper 50, the driver may operate the foot-treadle to communicate motion to the lever 27. As the seed-slides are moved backward and the front ends of the gage-plates are removed from the adjacent terminals of the cut-offs a sufficient number of grains to form a hill pass through the opening or interval thus formed and rest upon the subjacent stop-plate, and during the forward movement of the slides said intervals are closed by the contact of the gage-plates with the rear ends of the cut-offs, and the grains which have passed through said intervals are moved forward upon the stop-plate until the outlet in the stop-plate is reached. Thus the seed-slides receive the grain during their backward movement and discharge the same during their forward movement, and the adjustment of the gage-plates provides for regulating the number of grains which form a hill.

The operation of the furrow opening and closing devices will be readily understood without a detailed description thereof.

The hand-lever 68 is provided with an arm 72, which extends laterally under the arm 30, whereby, when the hand-lever is operated to elevate the furrow opening and closing devices, said arm 30 is elevated to disengage the pinion carried thereby from the master-gear.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. The combination with a framework and ground-wheels, a hopper, a seed-slide, and a lever connected to the seed slide, of a pivotal arm 30 mounted to swing in a vertical plane, a spring 37 for holding said arm in its normal position, means including the lever for moving the arm in opposition to its actuating spring, a master gear arranged to receive motion from a ground-wheel, a pinion carried by said arm and adapted to mesh with the master gear when the arm is in its normal position a crank arm on the spindle of the pinion, and a connecting rod between the crank arm and the operating lever to communicate motion to the lever, substantially as specified.

2. The combination with a framework, of a pivotal frame having side and intermediate bars, a furrow opening shoe pivottally mounted between the intermediate bars and provided with actuating springs to maintain it in its normal position, furrow closing shovels pivot-

ally mounted upon the side bars and provided with actuating springs to hold them in their normal positions, pulverizing disks arranged in rear of the furrow closing shovels, and mounted upon said pivotal frame, a packing roller arranged to follow the pulverizing disks, and means for elevating the free end of the pivotal frame, substantially as specified.

3. The combination with a supporting framework, ground-wheels, a hopper, and seed slides mounted in the hopper to control the outlet therefor, of a pivotal operating lever connected at an intermediate point to the seed slides and having a short arm, a spring-actuated foot-lever, a crank-arm operatively connected with one of the ground-wheels, connecting rods attached to said crank-arm and the foot-lever respectively, and means for detachably connecting said rods to the operating lever, substantially as specified.

4. The combination with a supporting framework and ground-wheels, a hopper, a seed-slide, and an operating lever connected to the seed-slide, of a pivotal spring-actuated arm, a pinion carried by the arm and adapted when the arm is in its normal position to mesh with a gear on one of the ground-wheels, connections between the pinion and the operating lever, a frame supporting the furrow opening and closing devices and pivotally connected to the framework, a hand-lever provided with a lateral arm engaging said pinion supporting arm, whereby the pinion may be removed from engagement with the gear on the ground-wheel, and connections between said pivotal frame and the hand-lever whereby when the hand-lever is operated to throw the pinion out

of engagement with the gear the furrow opening and closing devices are elevated, substantially as specified.

5. The combination with a framework and ground-wheels, a hopper and means operated by the ground-wheels to control the discharge from said hopper, of a frame pivotally connected to one end of the framework, means connected to the other end of the framework for elevating the same, said frame comprising side-bars and parallel intermediate bars, a furrow opening shoe pivotally mounted between the intermediate bars of the frame and provided with return springs whereby when deflected by contact with an obstruction the shoe is returned to its normal position, the shoe and contiguous portions of the intermediate bars being provided with lateral ears which are connected by said return springs, and the ears on the shoe being adapted to engage the edges of the intermediate bars to limit the movement of the shoe, furrow closing shovels pivotally mounted upon the side bars of the frame and provided with forwardly extending arms, return springs connected to said arms of the furrow closing shovels, and pulverizing disks mounted upon the frame in rear of the furrow closing shovels, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THOS. LOGAN GRAY.

Witnesses:

CHAS. D. LITTLE,
H. B. BRYAN.