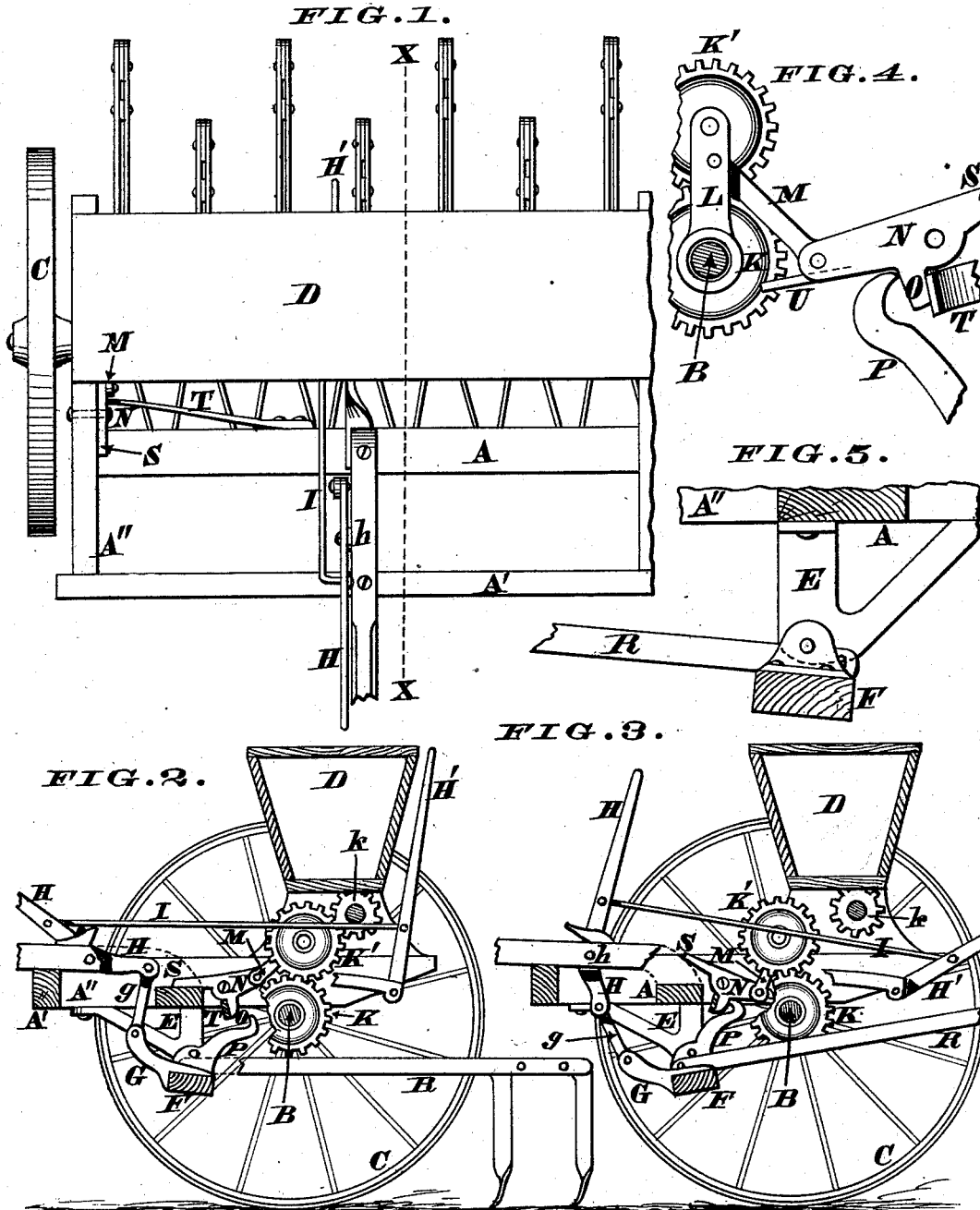


J. P. FULGHAM.
Seeding-Machine.

No. 216,735.

Patented June 24, 1879.



Attest.
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UNITED STATES PATENT OFFICE.

JESSE P. FULGHAM, OF RICHMOND, INDIANA, ASSIGNOR OF ONE-HALF HIS RIGHT TO THE WAYNE AGRICULTURAL COMPANY, OF SAME PLACE.

IMPROVEMENT IN SEEDING-MACHINES.

Specification forming part of Letters Patent No. **216,735**, dated June 24, 1879; application filed February 26, 1879.

To all whom it may concern:

Be it known that I, JESSE P. FULGHAM, of Richmond, in the county of Wayne and State of Indiana, have invented certain Improvements in Seeding-Machines, of which the following is a specification.

This invention relates to that class of implements known as "seeding-machines," and, among other things, to an improvement in the manner of raising and lowering the drag-bars; also, to an improvement in the manner of connecting and disconnecting the gear-wheels that drive the seeding device.

Various devices have been heretofore employed for lifting the drag-bars out of the way as the machine is advancing, and allowing them to play readily when in use; but the device shown by me I think more efficient and simple than anything that has heretofore been employed, as it raises all the drags by a simple movement of a lever, which can be operated either in front or in the rear of the machine, and when the drags are allowed to fall when in use each has a perfectly free and independent action.

In my machine I show the following improvements:

First. An oscillating or swinging rail, to the upper side and near the front edge of which all the drag-bars of the seeder are attached by hooks passing through the holes in the ends of the drag-bars, or in any manner so that each bar is left free and plays up and down when the rail is rocked backward, so as to allow the drags to engage with the earth, thus allowing each drag to run the same depth in passing over uneven ground. When the rail is rocked forward the inner edge comes in contact with the under side of the drags, and simultaneously lifts them all from the ground.

Second. I attach an arm rigidly to the drag-bar rail, and by means of a suitable link-connection connect the said arm with a lever attached to a suitable part of the machine, so that when the lever is drawn back to a certain point, where a stop is provided, thereby rocking forward the rail and lifting the drags, the linked end of the lever will have passed slightly beyond a line drawn from the fulcrum of the lever to the end of the arm attached to the rail, thus effectually locking the device in position.

Third. I provide a peculiar gearing-plate which swivels on the axle, and to which the intermediate gear-wheel is attached, and I attach to one end of the gearing-plate a connecting strap or rod, the other end of which is attached to the side rail of the machine or some other suitable part, and has on the under side of it a lug or projection, so that when the drag-bar rail is rocked forward, raising the drags out of the ground, a projection on the rail will come in contact with this lug, thus turning the crank-arm a sufficient distance to stop the feeding mechanism. I also provide on this crank-arm a suitable projection, against which a spring rests of sufficient strength to turn the crank-arm back when the drag-bar rail is rocked backward, so that as the drags touch the ground the machine will be thrown in gear with the feeding mechanism.

Should the wheels catch on the points of the cogs, instead of going properly in gear, the spring will hold it in that position until the machine is put in motion, when it will drop in gear, thus preventing any danger of breaking the gearing.

Again, I provide the crank-arm with a stop, which may rest on the strap or rod which connects it with the gearing-plate, or on some other suitable part of the machine, so that the stop allows the crank-arm to assume the position on a line with the attachment to the gearing-plate and its own center of motion, thus effectually locking the machine in gear.

In the drawings, Figure 1 is a plan view of a part of the machine. Fig. 2 is a sectional view of the machine through the line *xx* of Fig. 1, designed to show more fully the working of the parts heretofore referred to when the machine is in operation, the gearing connected, and the drags working on the ground. Fig. 3 is a similar sectional view, showing the same parts when the gearing is disconnected and the drags lifted by rocking forward the rail. Fig. 4 is an enlarged view of the mechanism for detaching the gears; Fig. 5, an enlarged view of the rail, showing its connection with the frame-work of the machine.

With the exception of the parts heretofore referred to, my machine is constructed in the usual manner, with the ordinary frame-work *A A' A''* resting on the axle *B*, which is continuously revolved by the driving-wheels *C*.

It has the ordinary grain-box D, to which are connected any suitable feeding devices, with their appropriate connections, to feed out and distribute the seed.

Underneath the front part of the machine, supported upon suitable stays or braces E E, I pivot the broad drag-bar rail F, as shown in Figs. 2, 3, and 5. This must be of sufficient breadth, so that the upper side may serve as leverage to raise the drags when the rail is tilted. Attached rigidly to this rail, at about midway the length of the machine usually, is the arm G, Figs. 2 and 3, which, by the connecting-rod g, is attached to the inwardly-curved lower end of the lever H, which lever has its fulcrum at h, and is so secured to the connecting-rod g, as heretofore described, that when the upper part is drawn backward, so as to tilt forward the drag-bar rail and lift the bars, the lower point of connection of the lever H is thrown forward of the line of connection between the fulcrum h and rod g, so as to lock the parts in place.

When it is desired to operate the machine again, pushing forward the upper end of the lever, the rail is tilted backward and the drags drop to the earth, where each has its independent play.

In the drawings I have connected this forward lever, H, by means of the connecting-rod I, with the lever H', at the rear of the machine, suitably attached to the frame-work, so that this device may be operated either in front of the machine or in the rear, as is most convenient.

For disconnecting the gearing apparatus I have shown swiveled about the axle beside the driving-gear K, Fig. 4, the gearing-plate L, which carries the intermediate gear-wheel K', driven by K, and, when in connection, meshing into the small gear-wheel k, secured to the feeding-shaft. Toward the outer end of this gearing-plate L, I have connected, as shown in Fig. 4, the end of the connecting-plate M, Figs. 2, 3, and 4, the other end of which has a pivotal connection with the peculiarly-constructed crank-arm N, Figs. 2 and 3, which is pivoted upon the side rail of the machine, as shown in the drawings, or to any other appropriate part. This crank-arm has beneath it a lug, O, Figs. 2 and 3, against which a projection, P, rigidly secured to the top of the rocking drag-bar rail F, operates when the said rail is tilted forward to lift the drag-bars R.

It will be seen that, by this arrangement of gearing, when the operator pulls back the lever H the rail is tilted forward, lifting the drag-bars, and at the same time the projection P, coming in contact with the lug O, on the under side of the crank-arm, moves the crank-arm forward a part of a revolution, thus moving down the connecting-plate M, attached to the gear-plate L, and thus disengaging the intermediate gear K' from the gear-wheel k.

To throw the gear-wheels into connection again when the drag-bar rail is tilted back-

ward, the crank-arm is employed. When the lug O is pushed backward by the spring T the motion of the crank-arm is reversed, and it pushes upward the connecting-plate M until the stop S rests on the center rail, thus throwing the intermediate gear into connection, in which position it is held by the stop S or stop U on the under side of the crank-arm and the spring T pushing against the lug O.

I have thus fully described the mechanism connected with this device, so as to show what I deem to be the best method of producing the results attained in my machine; but many structural changes may be made so as to accomplish the same results with mechanism differing slightly from that which I have shown, and yet containing the essential elements of my invention.

What I claim is as follows:

1. The combination, in a seeding-machine, of the oscillating or swinging bar and the inflexible drag-bars connected closely thereto, substantially as shown, whereby the drag-bars are permitted to play freely and independently in action, but are all elevated by a rocking movement of the bar.

2. In combination with the oscillating or rocking bar, the series of drag-bars connected thereto by loose joints or hinges, and arranged to extend across and bear thereon, substantially as described and shown, whereby the drag-bars are permitted to rise and fall independently, but elevated at their rear ends by a rocking motion of the bar.

3. The combination of the oscillating or swinging rail F, the tripping-piece P, rigidly secured to said rail, and the crank-arm N, for disconnecting the gearing, all operating as shown and described.

4. The combination of the gearing-plate L, connecting-plate M, and crank-arm N, connected thereto, with the detached independent swinging arm P, arranged to strike against and actuate arm N.

5. The combination of gearing-plate L, connecting-strap M, and a stop on the crank-arm N, when these parts are combined in a seeding-machine, for the purposes hereinbefore described.

6. In a seeding-machine, the oscillating or swinging rail F, located at the front of the machine, and connected to the drag-bars and to the gearing devices, substantially as described, so that by its tilting forward it may serve the double purpose of lifting the drag-bars and disengaging the gearing, substantially as herein described.

7. The combination, in a seeding-machine, of the oscillating rail connected to the drag-bars so as to lift them by its tilting, the lever, with its lock-connection, and the crank-arm to disconnect the gearing device, operated by the tilting of the rail, substantially as and for the purposes described.

Witnesses: JESSE P. FULGHAM,
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ARTHUR STEIN.