(No Model.) 2 Sheets—Sheet 1.

A. LINDGREN.

SEEDING MACHINE.

No. 473,324. Patented Apr. 19, 1892.

Fig. 1.

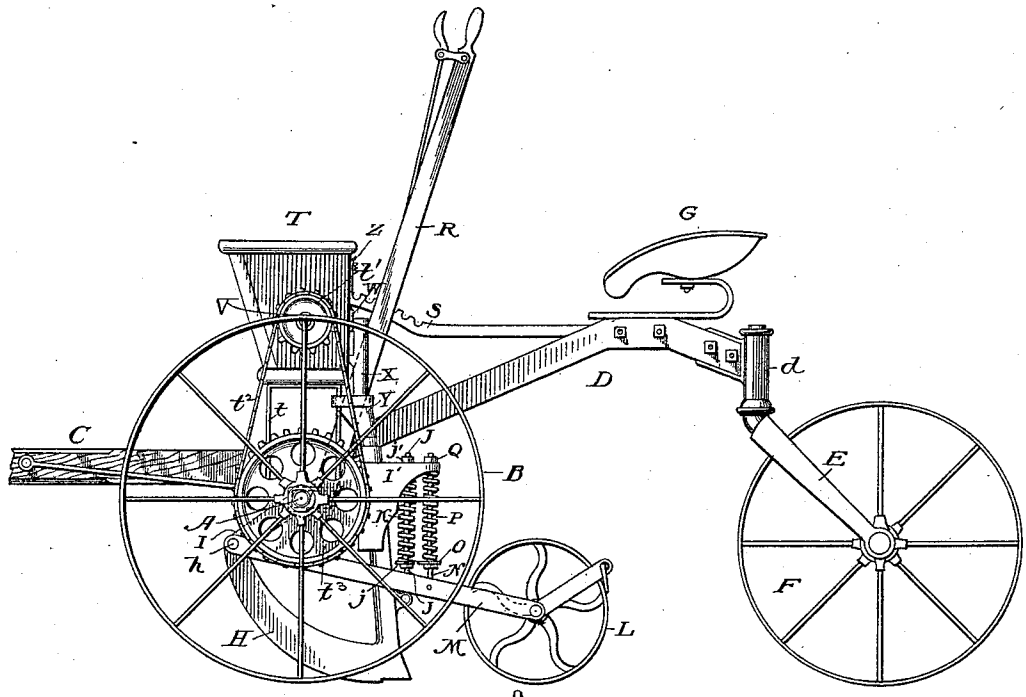
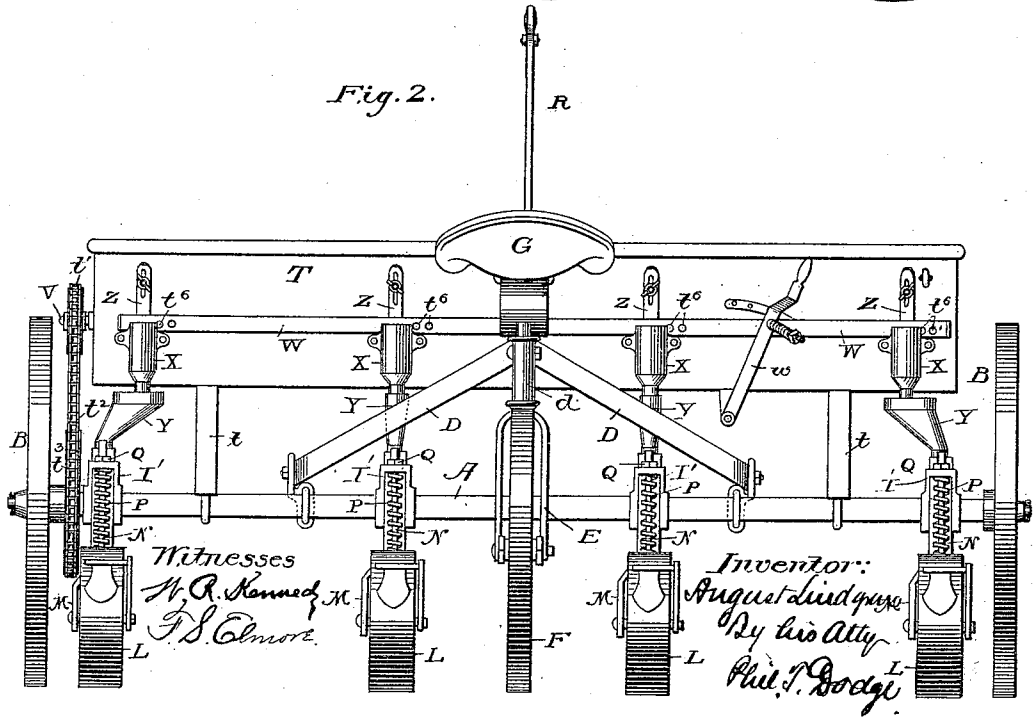


Fig. 2.



(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

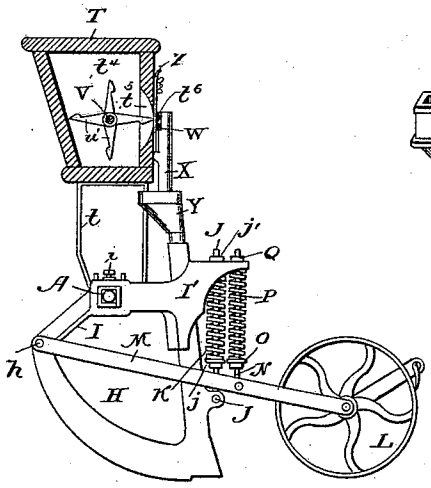


Fig. 6.

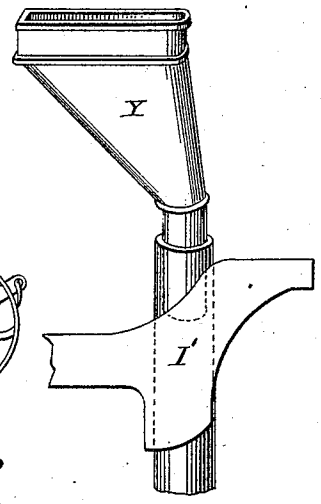


Fig. 4.

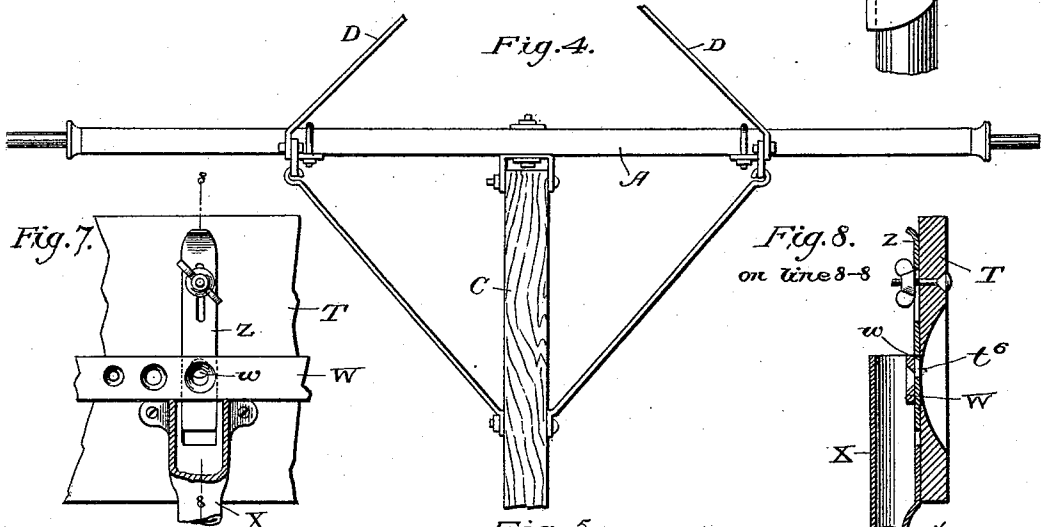
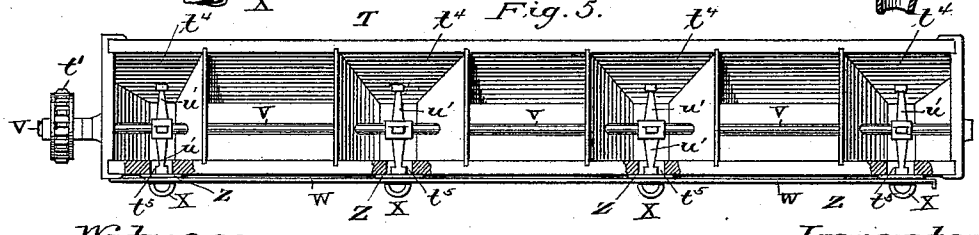


Fig. 7.

Fig. 8.
on line 8-8

Fig. 5.



Witnesses
W. R. Kennedy.
F. S. Elmore.

Inventor:
August Lindgren
By his atty
Phil T. Dodge

UNITED STATES PATENT OFFICE.

AUGUST LINDGREN, OF MOLINE, ILLINOIS, ASSIGNOR TO THE MOLINE PLOW COMPANY, OF ILLINOIS.

SEEDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 473,324, dated April 19, 1892.

Application filed July 18, 1891. Serial No. 399,956. (No model.)

To all whom it may concern:

Be it known that I, AUGUST LINDGREN, of Moline, county of Rock Island, and State of Illinois, have invented a new and useful Improvement in Seeding-Machines, of which the following is a specification.

My invention relates to a wheeled machine designed to be operated by draft-animals and provided with furrow-opening runners, means for delivering beet-seeds or other seeds into the furrows, and furrow closing or covering wheels.

The invention consists in the general combination and arrangement of parts, as hereinafter explained, and in various details looking to changes in the distance between the furrows, to variations in the pressure of the runners and cover-wheels, and to other adjustments.

In the accompanying drawings, Figure 1 is a side elevation of my machine. Fig. 2 is a rear elevation of the same. Fig. 3 is a side elevation of one of the runners and the seed-box, the latter being shown in section. Fig. 4 is a top plan view of the front axle and its connections. Fig. 5 is a top plan view of the seed-hopper. Fig. 6 is a view illustrating the construction and operation of the adjustable seed-spouts. Fig. 7 is a rear elevation, partly in section, showing the main and secondary slides for controlling the feed-delivery. Fig. 8 is a vertical section through the same on the line 8 8.

Referring to the drawings, A represents a rigid front axle sustained at its ends by two ground-wheels B and provided at the middle with a draft pole or tongue C, jointed and braced thereto, as shown in Fig. 4, that it may rise and fall freely.

D is an arched frame or reach having its forward end forked and attached to the axle and its rear end provided with socket *d* to receive the vertical journal of the swiveling fork E, carrying the rear ground-wheel F. The arched frame thus sustained by three wheels may be turned freely in either direction, and gives direct support to the driver's seat G, mounted thereon.

H H are furrow-opening runners or runner-hoes, each connected at the forward end by a pivot *h* to an arm I, encircling the axle and extending in a fore-and-aft direction. Each of the arms I is secured by a set-screw *i* and is movable lengthwise of the axle, so that the distance between the runners and the furrow formed by them may be varied at will. Each runner, being free to rise and fall, is jointed at the rear end to a rod J, extending upward through the overlying arm I′, and encircled by a depressing-spring K, which bears at the top beneath the arm and at the bottom on an adjustable nut or collar *j*, threaded on the rod. By raising or lowering this nut the tension of the spring and the pressure on the runner may be varied at will. The descent of the runner in relation to the other parts is limited and adjusted by a nut *j′* on the upper end of the rod.

Behind each runner there is a pressure-wheel L, carried by the rear ends of arms M, having their forward ends mounted on the runner-pivots or other pivots which will permit them to rise and fall independently. Each pair of wheel-carrying arms is depressed by a rod N, having an adjustable collar O, receiving the pressure of the encircling spring P, the descent being limited by the adjustable nut Q on the top of the rod above arm I′, through which latter the rod slides.

To the axle there is secured rigidly a hand-lever R, by which the axle and its arms I may be rocked or tilted, so as to throw the runners and wheels upward and downward, thus enabling the attendant to lift them wholly out of action or force them down with any desired pressure. This lever carries an ordinary latch or locking device engaging a notched bar S to hold the runners and the follower-wheels in the adjusted positions.

Above the axle on supports *t*, rising therefrom, is mounted the transverse seed box or hopper T, containing a longitudinal rotary shaft V, driven through a wheel *t′* on its end by a chain t^2 from a wheel t^3 on the hub of one of the front ground-wheels. The hopper is formed internally with as many seed-compartments t^4 as there are runners, and in each of these compartments the shaft is provided with a hub having radial arms *u′*, the ends of which sweep upward through vertical channels t^5 in the rear wall of the hopper past discharge-openings t^6, through which the seed

lifted by them escapes. The ends of the arms are preferably beveled backward, as shown, in order to more effectively deliver the seed outward through the openings.

The seed-delivery openings are formed in a slide W, which is mounted to slide along the rear side of the hopper under the control of an adjusting and locking lever *w*. This slide is provided, as shown, with a series of holes of different sizes for each distributer, so that by shifting the slide endwise the rate of seed-delivery may be increased or diminished by bringing into use larger or smaller holes. The seed escaping through the openings is received in stationary vertical tubes X, fixed to the rear side of the hopper, and is by these tubes discharged into the adjustable conductors Y, which are mounted upon the runners to deliver the seed through the usual tubes at their rear ends. The conductors Y are of round form at their lower ends and seated so as to turn freely in the shoes, while their upper ends, which receive the tubes X, are elongated horizontally, as shown in Fig. 6. This construction is adopted in order to permit the lateral adjustment of the runners, as before explained, without disturbing the connection of the conductors. As each runner is moved laterally its spout Y revolves and adjusts itself to compensate for the changed relation between it and its tube X.

As a means of regulating or cutting off the delivery through each opening independently I provide on the back of the hopper vertical slides Z, each lying between the back of the hopper and the main slide W. Each of these smaller slides is slotted vertically and secured by a set-screw. In its lower end it is provided with an opening *w*, which may be adjusted to register with the opening in the main slide or adjusted so that the opening in the main slide will be covered or closed to any desired extent.

Having thus described my invention, what I claim is—

1. In a wheeled seeding-machine, a rock-shaft with means for turning and locking the same, in combination with arms rigidly fixed to the shaft and furrow-opening runners jointed at their forward ends to said arms, whereby the turning of the shaft is caused to control the action of the runners.

2. In a wheeled seeding-machine, a rock-shaft and means for turning and locking the same, in combination with cross-arms fixed to the shart, furrow-opening runners jointed at their forward ends to the arms, and springs acting between the arms and runners to depress the latter.

3. In a wheeled seeding-machine, a rock-shaft, means for turning and locking the same, and cross-arms fixed to the shaft, in combination with furrow-opening runners jointed to the arms, pressure-wheels behind the runners, and carrying-arms for said wheels independently jointed to the cross-arms.

4. In a wheeled seeding-machine, the arms I and means for rocking and holding them, in combination with the runners and the roller-carrying arms independently jointed to arms I and the depressing-springs acting on the runners and the arms I independently.

5. In combination with the arms I and means for rocking and holding them, the runner, and the roller-carrying arms independently jointed to arms I, the depressing-springs acting, respectively, on the arms, and means, substantially as shown, for changing the tension of the springs independently.

6. In a seeding-machine, the combination of the axle and its sustaining-wheels, the frame jointed to the axle, the swiveling wheel to sustain the rear end of the frame, the cross-arms attached to the axle, the runners jointed to said arms, and means for turning and holding the axle to control the runners.

7. In combination with the hopper and seed-delivery arms thereon, the main slide W, provided with openings, in combination with the series of independent adjustable slides Z to control the respective openings.

8. In combination with the seed-hopper and the laterally-adjustable runners, the seed-conductors on the hopper, and the rotary conductors provided with elongated mouths and mounted on the runners.

9. In a seeding-machine, the wheeled axle, in combination with the runners and their carrying-arms secured to the axle and adjustable lengthwise thereof to change the distance between the furrows.

10. In a seeding-machine, and in combination with a rear frame provided with a sustaining-wheel, a front axle provided with ground-wheels and jointed to the frame so that it may be rocked, runners connected with and controlled by the axle, means connecting the frame and axle to rock and hold the latter, and a suitable seed-distributing mechanism driven from one of the front wheels.

In testimony whereof I hereunto set my hand, this 5th day of June, 1891, in the presence of two attesting witnesses.

AUGUST LINDGREN.

Witnesses:
M. G. MARONEY,
R. L. HEUGSTLER.