M. L. GORHAM.

Seeding Machine.

No. 102,535. Patented May 3, 1870.

Fig: 1.

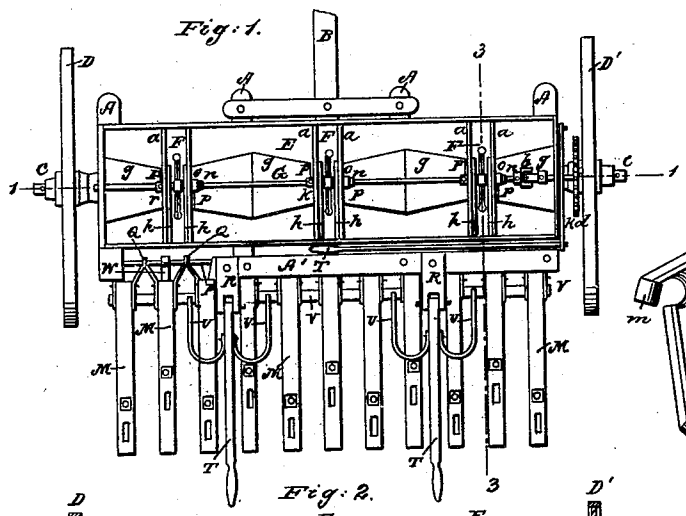

Fig: 13.

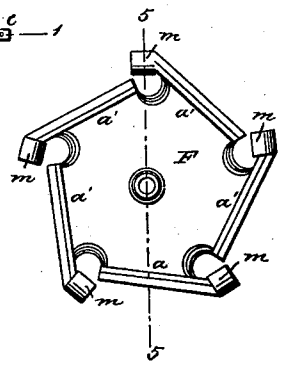

Fig: 2.

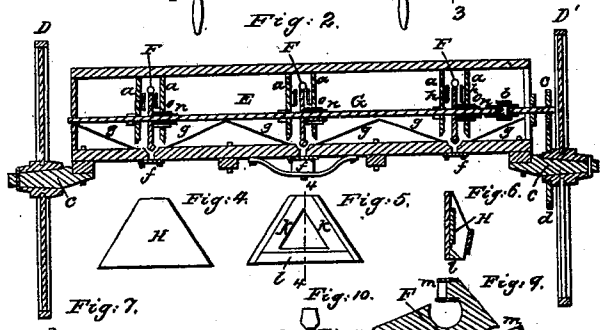

Fig: 4.

Fig: 5.

Fig: 6.

Fig: 14.

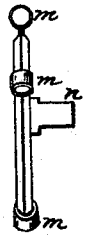

Fig: 15.

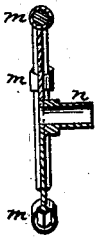

Fig: 7.

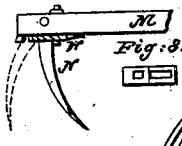

Fig: 8.

Fig: 10.

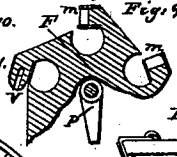

Fig: 11.

Fig: 9.

Fig: 3.

Fig: 12.

Witnesses:
Jacob Behl
M. E. Behl.

Inventor:
M. L. Gorham.

United States Patent Office.

M. L. GORHAM, OF ROCKFORD, ILLINOIS.

Letters Patent No. 102,535, *dated May* 3, 1870; *antedated April* 29, 1870.

IMPROVEMENT IN SEEDING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, M. L. GORHAM, of Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Seeding-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a plan or top view of a seeding-machine with the lid removed, having my improvements applied to it.

Figure 2 is a longitudinal vertical section, taken in the line 1 1, fig. 1, and 2 2, fig. 3.

Figure 3 is a transverse vertical section, taken in the line 3 3, fig. 1.

Figures 4, 5, and 6 are detached views of the seed-scatterers; fig. 6 taken on the line 4 4, fig. 5.

Figures 7 and 8 are detached views of the drag-teeth.

Figure 9 is an enlarged sectional view of the seed-distributing wheels.

Figures 10 and 11 are views of the supplemental grass-seed cups.

Figure 12 is an end view of the hopper, gear-wheels, &c., with most of the carrying-wheel removed.

Figure 13 is a side view of seed-distributing wheel, enlarged.

Figure 14 is an edgewise view of the same.

Figure 15 is a sectional view of the same, cut through on the line 5 5.

Similar letters of reference indicate corresponding parts in the several figures.

Whereas, on the 6th day of August, 1861, Letters Patent No. 32,992, were issued to me for an improved seeding-machine, mounted upon wheels, with seed-box, seed-distributing wheels, seed-scatterers, &c.:

Now, the object of this invention is to improve said machine, so as to sow broad cast all small grains and grass-seeds in the quantities desired, and that will cultivate the ground and cover the seed at the same operation, and to provide a drag-tooth, that when it comes in contact with any substance offering greater resistance than the strength of the tooth will bear, it will yield to such resistance and prevent breaking. These and other improvements, hereinafter described, constitute the subject matter of this patent.

In the drawings—

A represents a frame-work, in which B is the draft-pole. To the lower side of the end-piece of this frame, near midway of their length, are secured the axles C C, upon which the wheels D D′ revolve.

On the top of this frame, over the axles, is secured the hopper or seed-box E, which is of the same length of the frame, and within this seed-box are placed transversely vertical partitions *a*, forming inclosures for the wheels F, which are fitted on a shaft G, that passes longitudinally through the hopper E.

This shaft, near its end, toward wheel D′, but inside of the hopper, is provided with a universal joint *b*.

On the outer end of this shaft is placed the smaller toothed wheel *c*, which is held in place by a pin or otherwise, and works into the toothed wheel *d*, secured to the hub of wheel D′.

The bottom of the hopper E, underneath the wheels F, is curved out to form a receptacle for the seed. Through this bottom, underneath the wheels in this receptacle, there are small openings fitted with valves *f*.

The hopper E, except at points beneath the wheels F, is provided with a second or upper bottom formed of inclined planes *g*.

The partitions *a* are provided with inclined troughs *h* upon their inner sides, which extend down to openings *i*, which open into the upper part of the scatterers H, which are constructed as at figs. 4, 5, and 6.

With inverted V-shaped spouts *k*, and right-angle triangular piece *l* at their lower edges, these scatterers are placed on the outside of the hopper E, covering the openings *i*, with which the troughs *h* communicate.

The seed-distributing wheels F are provided with seed-cups *m*, on forward parts of arms *a′*, and placed at or nearly at right angles to a radial line. The extremities of the arms *a′*, from the cups *m* rearward, are beveled on both sides, forming double inclined planes.

These wheels are constructed with a hub, *n*, on one side, through which the shaft G passes.

Over this hub, on the outside of the partitions *a*, are placed thimbles *o*, to which the stirrers *p* are attached, and secured in place by set-screws, or otherwise.

On the outside of the other partitions are similar thimbles *r*, with stirrers placed upon the shaft G, held in place by screw or otherwise.

The end of shaft G, which carries the small toothed wheel, is supported in a bearing in lever K, secured to end of hopper E, as at fig. 12, and works in clasp *s*.

Through the extended end of this lever is passed the end of lever L, which is supported upon the fulcrum *t*, and held in proper place by ratchet *u*.

The supplemental cups, figs. 10 and 11, are constructed of proper form and size to pass into, and held in cups *m* in wheels F, as at *v*, fig. 9.

The wedge-shaped slide-plates *w* are held in place on the under side of beams M by bolts passing through their slotted forward ends, and through the beams.

The drag-tooth N is passed through a mortise in

the rear end of slide-plates *w*, and also through a mortise in beams M, and is pivoted near their upper end to the beams.

On the sides of beams M, and forward ends, are secured ear-plates *x*, which extend forward of beam, and are bent in V-form and strung up on the rod P, as at Q in fig. 1, in which a portion of the beam A′ is removed to show the connections.

The rod P is supported in hangers *y*, secured to the under side and near the rear end of cross-beams A of main frame.

On the upper and under sides of beam A′ are secured the pieces R and S, and in the rear end of R is pivoted the levers T.

To these levers are secured, on hinge-bolt, the curved rods U, to the lower ends of which are secured the lifting-beams V, which are hinged by connections W to rod P.

The first part of my invention consists in constructing the partitions *a a*, &c., in hopper E, so that the opening under them, to admit the seed from the seed-box to the seed-distributing wheels, may be of any proper depth, so as not to rise above the bottom of the shaft G, and extend from about the center of the bottom of the hopper to the side thereof, and upon the side of the hopper from which the wheels lift the seed, and the partitions in the opening to be beveled only on the side next to the distributing-wheels, as seen at *a a*, &c., fig. 2, and in dotted lines at *a*, fig. 3.

The second part of my invention consists in constructing the seed-distributing wheels F with hub *n*, extending through partition *a* sufficiently to receive the stirrer-thimbles *o*, beyond which they are secured in position on shaft G by suitable set-screws, by means of which they are made adjustable on the shaft, for the purpose of placing them in proper position between the partitions *a a*.

The third part of my invention consists in providing suitable thimbles, *o* and *r*, with stirrers *p p* attached, the one placed upon the hub of wheel F, and the other upon the shaft G, outside of the partitions *a a*, forming the inclosures for wheels F, and secured in place by proper set-screws. These thimbles serve to prevent the shaft G having any movement in the direction of its length, and the stirrers assist in carrying the seed to the openings under partitions *a a*, and prevent their closing.

The fourth part of my invention consists in providthe shaft G, near its end, with a universal joint, *b*; and the extended end of shaft G, carrying the toothed wheel *c*, has its bearing in lever K, which is screwed by fulcrum-pin at one end to the end of seed-box E, the other and extended end being free to rise and fall under clasp *s*.

Through the extended end of lever K is passed the end of lever L, which works upon fulcrum *t*, secured to the side of the hopper E.

The ratchet *u* is also secured to the same side of the hopper, near the hand or free end of the lever. This lever is provided with a suitable catch, at the proper place, to drop into and take hold upon the teeth of the ratchet *u*.

It will be seen that, by this arrangement, the toothed wheels *c* and *d* can be thrown into and out of gear, by raising and lowering the free end of lever L, for the purpose of starting and stopping the distribution of the seed, as desired.

It will also be seen that, by this arrangement, different-sized wheels can be used, instead of the wheel *c*, by which the speed of the shaft G can be increased or diminished, as the wheels are larger or smaller than the wheel *c*, for the purpose of distributing more or less seed, as desired, and for adapting the machine to the distribution of different kinds of seeds.

For the purpose of sowing different kinds of grass-seed I have provided supplemental seed-cups, of smaller capacity, and of proper form and size, to pass into and be held in the tubular cups *m* upon the peripheries of the wheels F.

The opening in these cups may be of any proper size, and may or may not extend through the whole of their length, and as represented at figs. 10 and 11, and seen in place at *v*, fig. 9, which embodies the fifth part of my invention.

In fig. 7, M is a portion of a beam, mortised near its rear end, to receive the tooth N.

To its under side is secured, by screw-bolt, the wedge-shaped slotted plate *w*, through which the upper end of the drag-tooth is passed, and pivoted in the forward end of the mortise, near the upper edge of the beam, on a proper pin or bolt. Fig. 8 is an under face view of plate *w*, showing its construction.

It will be seen that, if the tooth N be subjected to a heavy strain from meeting with obstructions, the plate *w* will be forced back, and, when once started, will be instantly freed from the pressure of the bolt-head, on account of its wedge form, and the tooth will be liberated from all strain, and will assume the position represented by the dotted lines, as at fig. 7. The force required to relieve the tooth will depend upon the tension upon the bolt. This embodies the sixth part of my invention.

The seventh part of my invention consists of a series of independent drag-teeth, N, secured in beams M, provided with ears *x*, secured to the sides of and extending forward of their forward ends, and bent in V-form, with their forward ends pierced to receive the rod P, upon which they are strung, as seen at *q*, fig. 1.

The rod P has its bearings in hangers *y*, secured to the under side, and near the rear end of beams A of main frame. By this arrangement the teeth will be held parallel to and equidistant from each other, and left free to vibrate in a vertical direction, independently, to enable them to pass obstructions. By this arrangement, the ground can be cultivated and the seed covered at the same operation of sowing.

On the upper and under sides of beam A′ are secured the pieces R and S, and in the rear end of R are pivoted the levers T.

To these levers are secured, on hinge-bolts, the curved rods U, to the lower end of which are secured the lifting-beams V, which are hinged to rod P by connections W, as seen at W, figs. 1 and 3.

These teeth can be lifted, when desired, in sections of one-half, as at M^1, fig. 3, and, when so raised, the levers T, will be self-sustaining, as the curved rods U will have passed the fulcrum of the levers, and when they are lowered, as at M^2, fig. 3, the levers will be supported upon the pieces *s*.

The rods U are curved, as at fig. 1, for the purpose of allowing the teeth to rise in passing obstructions; all of which is embodied in the eighth part of my invention.

It will be seen that, by withdrawing the rod P and the fulcrum-pins of levers T, the drag and appliances will be detached, and the machine left simply a broadcast seeder.

For the purpose of enabling me to empty the seed-box or hopper E of any seed remaining in it, after having sown the quantity desired, or of changing the seed to a different kind, I have provided the openings through the bottom of the seed-box E, underneath the seed-distributing wheels, and have provided the openings with valves, *f*, for the purpose of opening and closing them as desired. These openings may be made in any convenient place within the inclosure formed by partitions *a a*, and may be fitted with any convenient device for opening and closing them as desired. This embodies the ninth part of my invention.

The tenth part of my invention consists in con-

structing the seed-distributing wheels F in the different figures, and, as seen enlarged at figs. 13, 14, and 15, with arms *a'*, the extremities of which are enlarged and beveled on their outer edges, forming double inclined planes, as represented in the different figures.

These arms *a'* extend farther forward **than** rearward, and upon their forward parts, the **cups** *m* are placed at or nearly at right angles to a radial line, and the parts of the arms *a'* underneath the cups *m* may be of any suitable form, and are provided with beveled edges.

The object of this arrangement is to produce a lifting seed-distributing wheel, with seed-cups relieved, so that, in passing upward through the seed, it will carry only that contained within the cups.

Having described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The thimbles *o* and *r*, with stirrers *p* attached, when constructed and applied as and for the purpose set forth.

2. The universal joint *b* on shaft G, levers K and L, and ratchet *u*, when constructed and arranged substantially as and for the purpose set forth.

3. The supplemental seed-cups, figs. 10 and 11, when constructed and applied as and for the purpoes set forth.

4. The drag-tooth N, beam M, and safety slide-plate *w*, with tension-bolt, when constructed as and for the purpose set forth.

5. The combination and arrangement of the drag-teeth N, in beams M, hung upon rod P, supported in hangers *y*, secured to main frame A, substantially as and for the purpose set forth.

6. The combination and arrangement of the levers T, curved rods U, lifting-beams V, supported upon rod P by connections W, substantially in the manner and for the purpose set forth.

7. The openings underneath the seed-distributing wheels with valves *f*, substantially for the purpose set forth.

8. In a seeding-machine, supported upon carrying-wheels, with lifting seed-distributing wheels, inclosed by partitions, with openings underneath to admit the seed to the seed-distributing wheels, with scatterers, upon which the seed falls; also, independent drag-teeth, substantially for the purpose set forth.

M. L. GORHAM.

Witnesses:

JACOB BEHEL,

R. C. BAILEY.