



# UNITED STATES PATENT OFFICE.

SILAS GRENELL, OF MOKENA, ILLINOIS.

## IMPROVEMENT IN GRAIN-DRILLS.

Specification forming part of Letters Patent No. 40,257, dated October 13, 1863.

*To all whom it may concern:*

Be it known that I, S. GRENELL, of Mokena, in the county of Will and State of Illinois, have invented a new and Improved Broadcast-Seeding Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a plan or top view of the same.

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

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a rectangular frame, which rests on an axle, B, the wheels C C of which may be of any suitable dimensions.

D is a draft-pole attached to the frame A, and E is an inclined board or chute, which is placed in the frame A and works on a pivot, *a*, which passes centrally through its back and elevated part. The front and depressed end of the board or chute E is suspended from the front end of the frame A by rods *b b*, which admit of a lateral vibrating movement of the board or chute, and this movement is given it by means of a bent or right-angled lever, F, which is secured in the front part of the frame A at one side and is connected to the front end of the board or chute at one side by a rod, *c*, and is also connected to the crank G of a rotating shaft, H, by a rod, *d*. (See Fig. 2.) The shaft H is placed transversely on the upper part of the frame A, and one of its journals at the crank end works in a fixed bearing; but the other journal has its bearing in an adjustable bar, I, which may be raised or lowered sufficiently to throw a pinion, *d'*, on the shaft in and out of gear with a wheel, J, attached concentrically to one of the wheels C. When the pinion *d'* is in gear with the wheel J a rotary motion is communicated to the shaft H by the forward movement of the machine, and a lateral vibratory movement communicated to the board or chute E. The bar I may be retained down on the frame A so as to keep the pinion *d'* in gear with the wheel J, by means of a hook, K; or any other suitable fastening may be used for the purpose.

On the back part of the frame A there is placed a seed box or hopper, L, having a hole, *e*, in its bottom, over which a slide, M, works. The front end of this slide is attached to the lower end of a lever, N, which has a fulcrum-pin, *f*, in a horizontal arm, *g*, attached to the front part of the seed box or hopper L. The lever N extends some distance above the arm *g*, and has a spring, O, bearing against it, said spring having a tendency to keep the slide M closed over the opening or hole *e* in the bottom of the seed box or hopper L.

The shaft H has a projection, *h*, attached to it, which, as said shaft rotates, forces outward the lower part of the lever N and causes the slide M to be moved outward, so as to expose the opening or hole *e* in the bottom of the hopper L and admit of the escape of seed from said hopper, the spring O throwing inward the slide M and closing the opening or hole *e* each time the projection *h* on the shaft H leaves or passes the lever N. By this means a reciprocating movement is given the slide M and the seed discharged on the back elevated part of the board or chute E.

The board or chute E has a series of pins, *i*, driven into its upper surface in rows, the pins of each row being opposite the centers of the spaces of its adjoining rows. These pins serve as scatterers and cause the seed as it passes down the chute to be spread out the whole width of the latter and discharged therefrom in proper broadcast form.

P is the driver's seat, which is attached to a rod, Q, which is secured to the back part of the frame A and projects over the board or chute E.

From the above description it will be seen that a very simple and efficient broadcast-seeding machine is obtained. The parts are very few, and the seed as it is disengaged from the chute E is in full view of the driver, so that in case of any defect in the operation of the seed-distributing mechanism it will be at once seen and rectified.

I would remark that the fulcrum of the lever N may be varied—that is to say, raised or lowered—so as to vary the length of the stroke of the slide M, and thereby regulate the flow or discharge of the seed as may be required.

I do not claim separately any of the parts irrespective of the combination and arrangement herein shown and described.

I claim therefore as new and desire to secure by Letters Patent—

The combination and arrangement of the slide M, hole *e* in the bottom of the seed box or hopper L, lever N, attached to slide, the shaft H, with projection *h* attached, spring O, and the vibrating board or chute E, all ap-

plied to the mounted frame A, as and for the purpose herein set forth.

SILAS GRENELL.

Witnesses:

R. H. TURNER,  
LEVI MOULTON.