S. F. REYNOLDS.

Combined Land-Roller, Harrow and Grain-Drill.

No. 198,778. Patented Jan. 1, 1878.

Fig. 1.

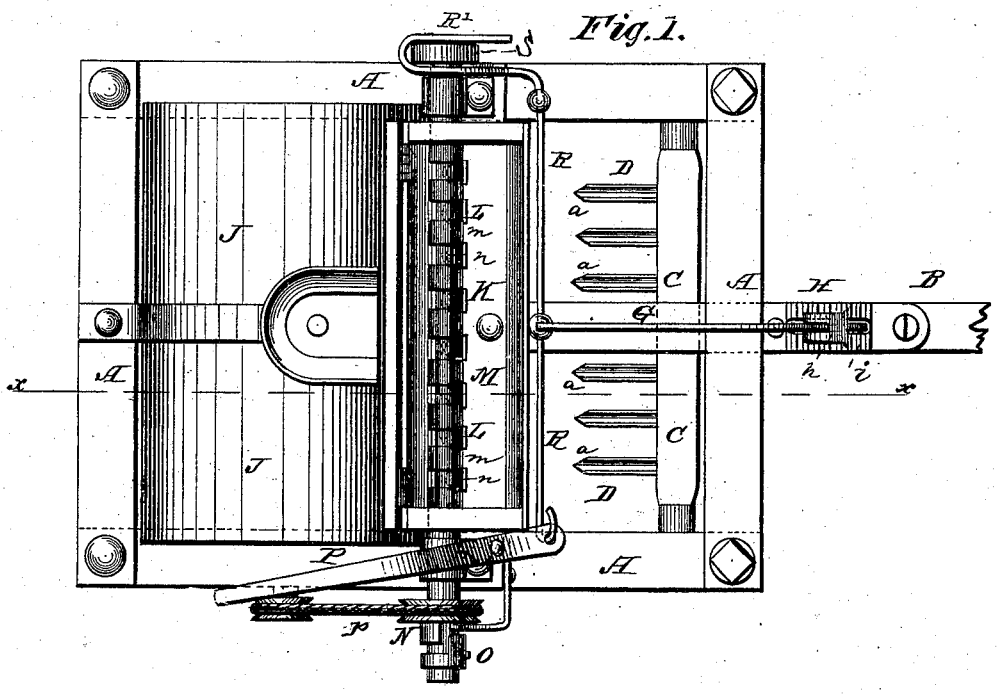


Fig. 2.

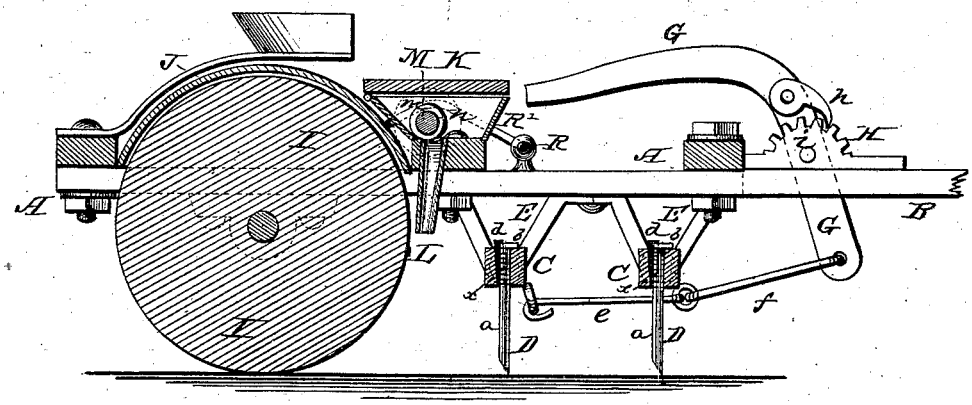
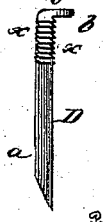


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL F. REYNOLDS, OF AUBURN, NEW YORK.

IMPROVEMENT IN COMBINED LAND-ROLLER, HARROW, AND GRAIN-DRILL.

Specification forming part of Letters Patent No. **198,778**, dated January 1, 1878; application filed November 20, 1877.

To all whom it may concern:

Be it known that I, SAMUEL F. REYNOLDS, of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Combined Land-Roller, Harrow, and Grain-Drill; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a combined harrow, land-roller, and grain-drill, as will be hereinafter more fully set forth.

In the annexed drawings, to which reference is made, and which fully illustrate my invention, Figure 1 is a plan view of my machine. Fig. 2 is a longitudinal section of the same on the line *x x*, Fig. 1; and Fig. 3 is a detail view of the tooth.

A represents the frame of my machine, provided with a tongue, B, which latter may be made rigid or loose, as desired. To the under side of the frame A, on each side, are secured two hangers, E E, in which are journaled two beams, C C, each provided with a series of harrow-teeth, D D. These teeth are made in **V** form, having a sharp edge, *a*, along the front, and hollow at the rear. The upper end of each tooth is bent or turned forward, forming a lip, *b*. The front of the tooth is, at its upper end, serrated, as shown at *x*. The teeth D are driven or passed through holes in the beam C until the lips *b* rest upon the upper surface of the beam. Keys *d* are then driven into the hollow backs of the teeth, which presses the serrations *x* into the wood, so that the teeth will thereby be held firmly in their places. The serrations *x x* are applicable to other forms of harrow-teeth, as well as to those above described.

The two beams C C are connected by a rod, *e*, which is attached to them by eyebolts or other suitable means; and the front beam is, by a rod, *f*, connected with the lower end of a curved lever, G, which passes through a slot in the tongue B. This lever also passes through and is pivoted in a slotted casting, H, secured on top of the tongue. This casting is formed with ratchet-teeth *i*, into which takes a pawl, *h*, pivoted to the lever, whereby the beams may be turned in their bearings, so as to hold the teeth D vertical, or at any angle desired, or throw them back entirely out of the way.

In the back part of the frame A is mounted a land-roller, I, covered on top by a housing, J, as shown. In front of the housing J, on top of the frame A, is secured the seed-hopper K, from the bottom of which projects a series of spouts, L L. The upper end of each spout L is made square, and is also cut from front to rear on a half-circle. In the box or hopper is a longitudinal shaft, M, which is cut with a series of circumferential grooves, *n*, leaving larger or solid portions *m* between the grooves. The shaft M is movable endwise in the box, so that when it is desired to close the spouts L the shaft M is simply moved to one side to bring the larger portions *m* directly over the spouts, which portions *m* then fill the semicircular cuts in the upper square ends of the spouts. By moving the shaft M so that the parts *n* will be over the spouts the seed can pass out freely.

The shaft M is rotated by means of a belt, *p*, from a pulley on the land-roller journal, passing over a loose pulley, N, on the shaft. On this shaft is secured a clutch, O, which, by moving the shaft, is thrown in gear with the clutch-pulley N, and the shaft thus rotated. By adjusting the clutch O out or in on the shaft, the position of the parts *m n* of the shaft is adjusted with relation to the spouts, and thus the amount of seed to be sown easily regulated.

The shaft M is moved endwise by means of a lever, P, having a rod, R, attached to it, and this rod formed with a loop, R′, which fits over a disk, S, on the other end of the shaft.

The machine, thus constructed, can be used as a combined harrow, seed-drill, and land-roller, or it can be used separately for any one or two of these purposes.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The tongue B and slotted casting H, with ratchet-teeth *i*, in combination with pawl *h*, lever G, rods *e f*, and the swinging teeth D

D, substantially as and for the purpose set forth.

2. The harrow-tooth D, constructed as described, with hollow at the back, sharp front edge *a*, serrations *x*, and lip *b*, and fastened in the beam by a key, *d*, substantially as herein set forth.

3. The spouts L, having their upper ends made square and cut on a semicircle, in combination with the rotating and endwise-movable shaft M, formed with alternate large and small parts *m* and *n*, substantially as and for the purposes herein set forth.

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

SAMUEL F. REYNOLDS.

Witnesses:

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FRED. F. NEYHART.