O. P. FISHER.

REVOLVING HARROW.

No. 187,370. Patented Feb. 13, 1877.

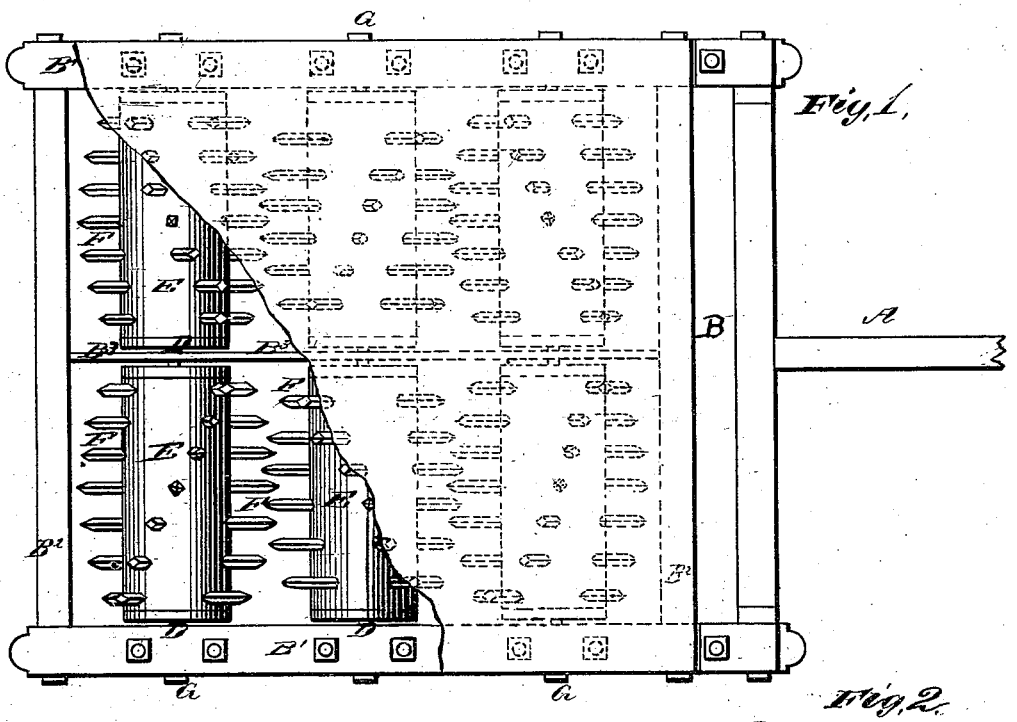

Fig. 1.

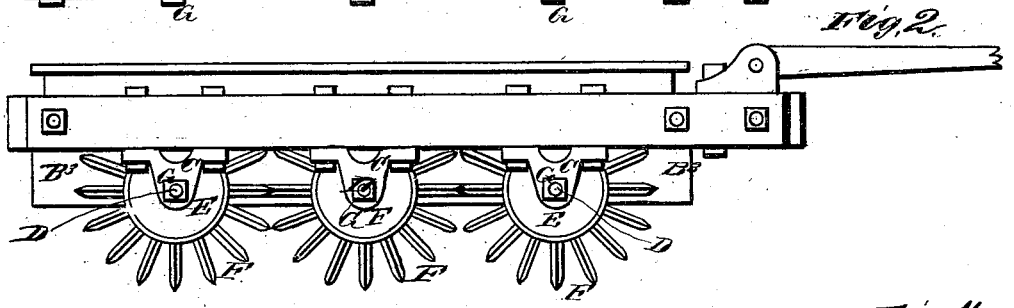

Fig. 2.

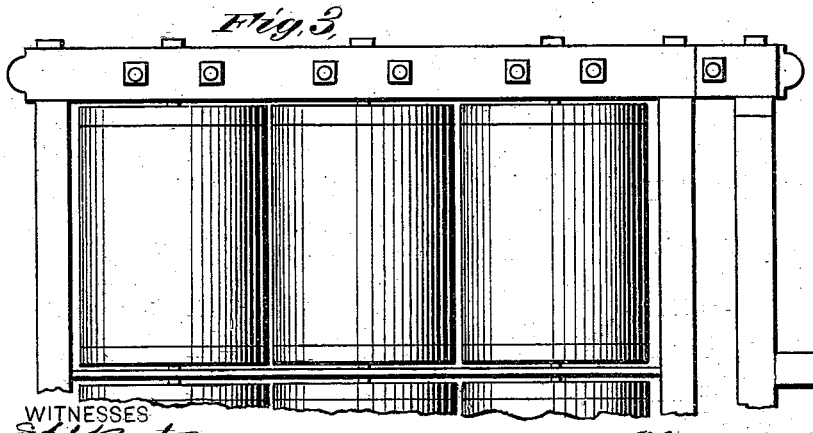

Fig. 3.

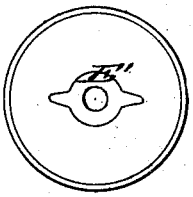

Fig. 4.

WITNESSES

E. H. Bates

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INVENTOR.

Oliver P. Fisher.

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

OLIVER P. FISHER, OF BASIL, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO JACOB F. CAMPBELL, OF SAME PLACE.

IMPROVEMENT IN REVOLVING HARROWS.

Specification forming part of Letters Patent No. **187,370**, dated February 13, 1877; application filed June 19, 1876.

To all whom it may concern:

Be it known that I, OLIVER PERRY FISHER, of Basil, in the county of Fairfield and State of Ohio, have invented a new and valuable Improvement in Harrows and Rollers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a plan view of my harrow and roller, and Fig. 2 is a side view of the same. Fig. 3 is a plan view of the machine used as a roller.

This invention relates to harrows and rollers; and it consists in the devices hereinafter particularly described and set forth.

In the annexed drawings, A is a draft-tongue, and B the frame of my device; B^1 B^1 being longitudinal beams, and B^2 B^2 the cross-bars. B^3 is a longitudinal vertical plate or center bearing, extending from the middle of one cross-bar to the middle of the other. C C are brackets bolted or otherwise secured to the under side of beams B^1 B^1. D D are long rods or shafts, which pass across frame B from side to side, through perforations in plate B^3, and are journaled at their ends in brackets C C. Rods D D support rollers E E, which are arranged in sets on both sides of plate B^3. F F are harrow-teeth arranged helically on rollers E, the direction of the curve alternating in successive rollers from left to right, or the reverse. The teeth are, moreover, so placed that in revolving those of two proximate rollers set in between one another without striking. By the above construction of my rollers and teeth the motion of the dirt is repeatedly changed, and it is thoroughly pulverized. The insides of rollers E E are provided with metal bushings E^1 E^1, which may extend entirely through said rollers, or may be used only at the ends thereof. Said bushings are provided with small ears, which set into recesses in said rollers and prevent said bushings from turning in said rollers, thereby compelling the said rollers to revolve. Rods D D are secured in place by nuts G G on the outside of brackets C C. By removing said nuts said rods can be withdrawn and said rollers displaced. For rolling land I substitute plain toothless rollers therefor, and again secure the bolts by screwing home the nuts, Thus my apparatus is readily convertible from a harrow into a roller, or vice versa. Brackets C C may be made detachable from frame A.

It will be seen that the teeth of the rollers are straight and placed close together, and that the lines of the teeth on any two of the rollers abreast with each other meet at the central cross-line of the harrow-frame, forming an obtuse angle, so that as the harrow advances the clods are moved from the central line, in opposite directions, outwardly, and then inwardly by the succeeding rollers, which out-and-in motion of the soil is continued by the successive rollers. By journaling the rollers E in the brackets C, in lieu of fixing their bearings in the harrow-frame, the line of draft of the harrow is raised, thus preventing the raising of the front end of the harrow.

It will also be observed that the distance between the teeth in each row is considerably less than the space between the rows themselves.

I am aware that a harrow provided with rollers having teeth arranged helically thereon, and extending entirely across the harrow-frame, the teeth on the proximate rollers being arranged in opposite directions, has heretofore been employed, and I therefore lay no claim to such invention.

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

1. The sectional rollers E E, journaled in the frame B and central plate B^3, and armed with teeth helically arranged thereon, which converge on each set of rollers abreast with each other toward the central line of the harrow, forming an obtuse angle with each other, the direction of the curve of the teeth in one roller being also opposite to that in the roller in rear of it, whereby the soil is moved from the central line of the harrow alternately outward and inward in oppposite directions, substantially as described, and for the purpose set forth.

2. The harrow-frame B, provided with the central perforated plate B^3 and perforated brackets C, in combination with the sectional rollers E E, having teeth F F, and the detachable rods D D, substantially as described, and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

OLIVER PERRY FISHER.

Witnesses:
LEWIS BIBLER,
V. H. GINDER.