(No Model.) 2 Sheets—Sheet 1.

L. S. EVANS.

COMBINED REVOLVING HARROW AND CULTIVATOR.

No. 383,286. Patented May 22, 1888.

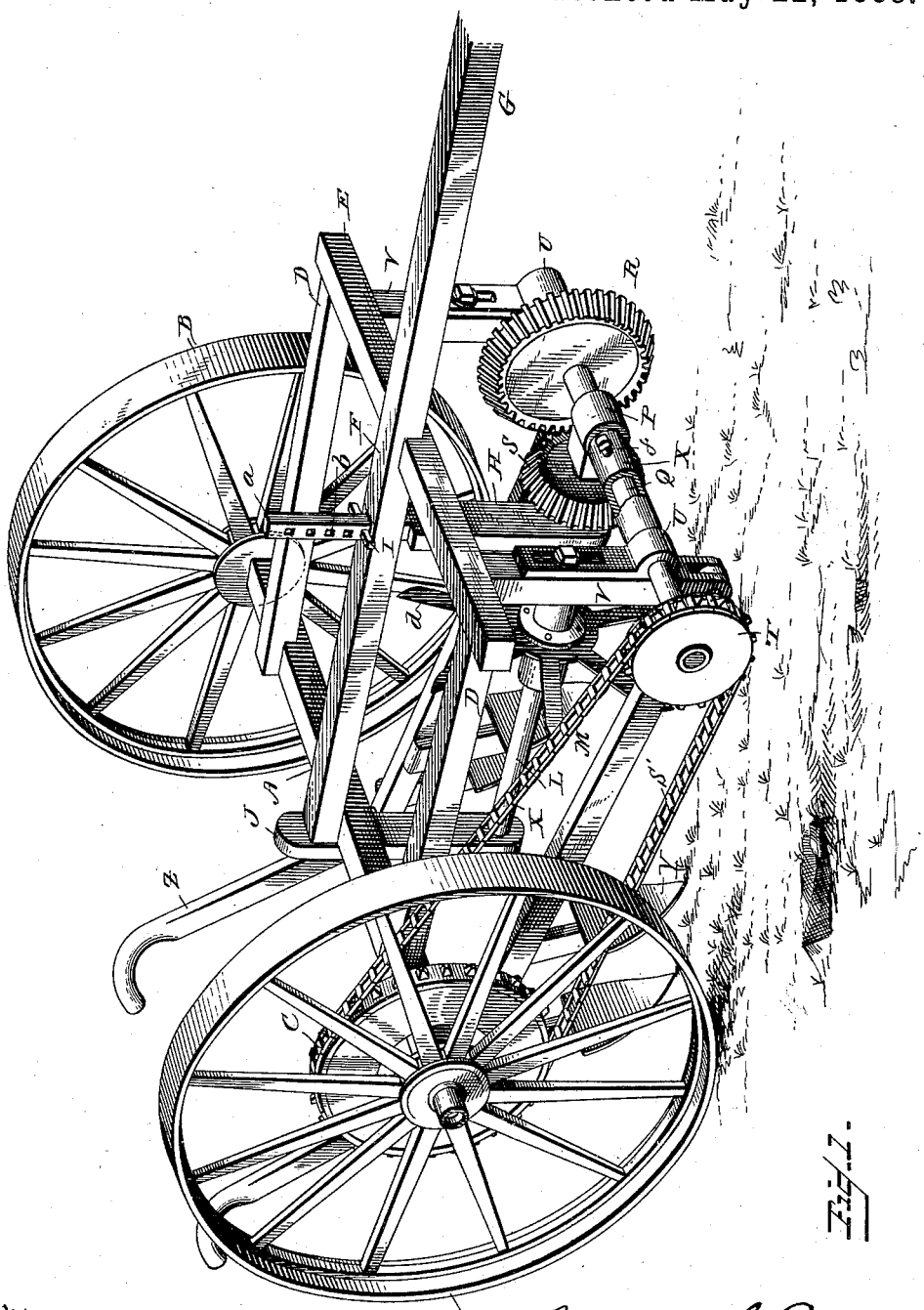

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

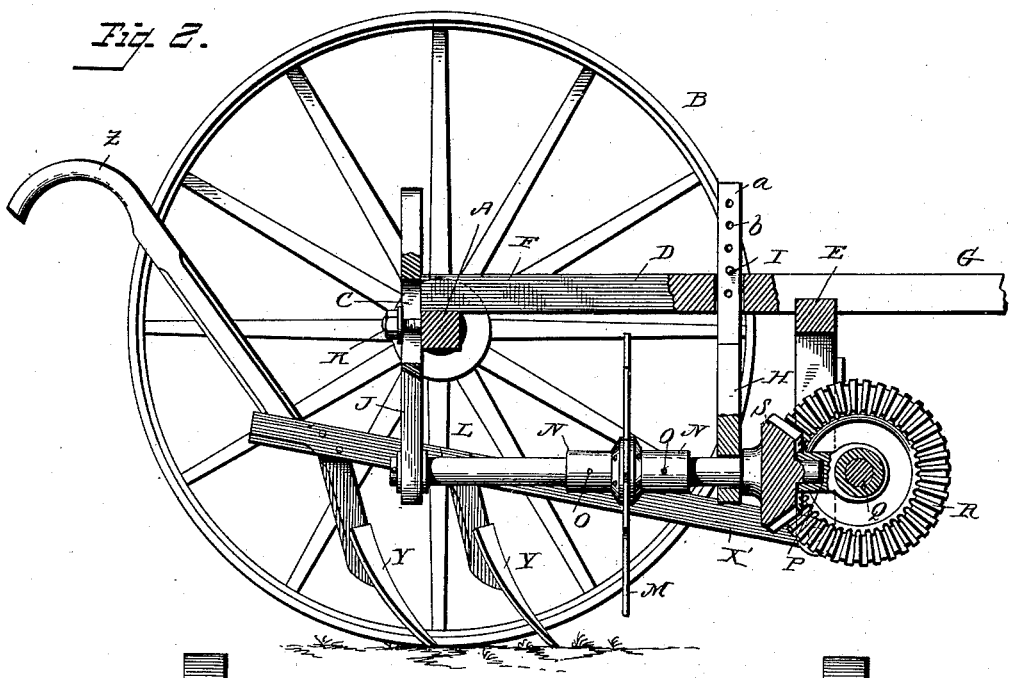
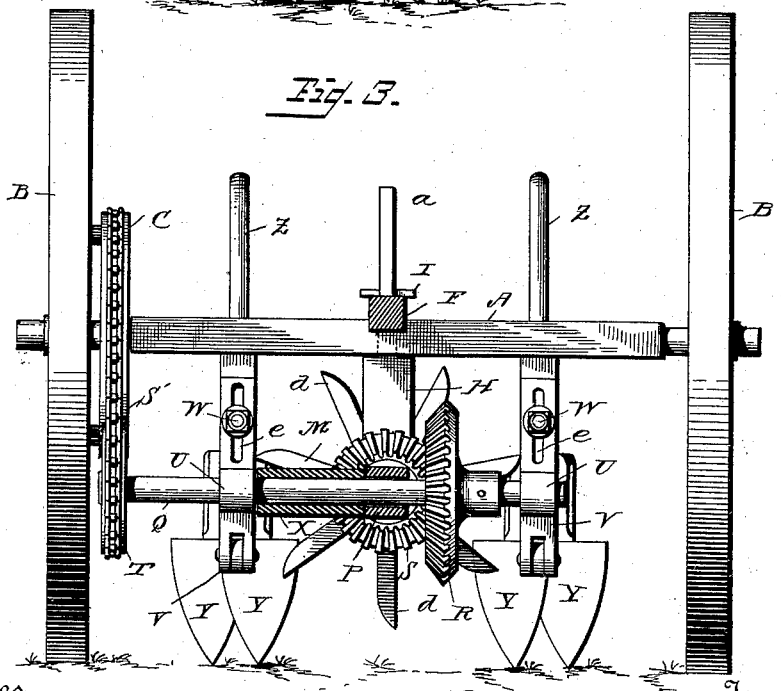


Fig. 3.



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UNITED STATES PATENT OFFICE.

LUCIUS SANDIFORD EVANS, OF ALVARADO, TEXAS.

COMBINED REVOLVING HARROW AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 383,286, dated May 22, 1888.

Application filed February 29, 1888. Serial No. 265,684. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS SANDIFORD EVANS, a citizen of the United States, residing at Alvarado, in the county of Johnson and State of Texas, have invented certain new and useful Improvements in a Combined Revolving Harrow and Cultivator; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 and figures of reference marked thereon, which form a part of this specification.

My invention relates to revolving harrows or harrows and cultivator combined, and has for its object to construct such a machine which will be adapted for use in cultivating cotton, corn, and other plants of a like nature, and which will be simple, strong, and efficient for the purpose intended.

With these objects in view the invention consists in the construction and the combination of parts, hereinafter particularly described, and then specifically defined by the claims, reference being had to the accompanying drawings, forming a part hereof.

Figure 1 is a perspective of the combined harrow and cultivator. Fig. 2 is a vertical section through the same, part being in elevation. Fig. 3 is a front elevation, parts being in section.

In the drawings, the letter A designates the axle on which are journaled the wheels B, one of which has the gear-wheel C, cast or otherwise attached thereto. Forward of the axle there is a frame composed of, say, the parallel bars D, attached at their rear ends to the axle and connected together at their front ends by the cross-bar E. A third longitudinal bar, F, parallel with the other two, and which may form part of the tongue G, is connected to the axle and to the front cross-bar, E. This bar F forms the support of the hanger H, which has a reduced end, *a*, passed through a slot in the bar F, and formed with a series of perforations, *b*, so that by passing a pin, I, through one or the other the hanger may be lifted or lowered to raise or lower the revolving harrow-tooth, as will hereinafter appear. Another hanger, J, depends from the axle A, and is adjustable up and down, say, by forming a slot, *c*, in its upper end and passing a nutted bolt, K, through the slot and the axle. By loosening the bolt the hanger can be adjusted, and by tightening the bolt the hanger will be held to its adjustment. These two hangers H and J carry the rotating shaft L of the revolving harrow or toothed blade M. The shaft revolves in the hangers, and has the harrow blade or knife M, which is formed with a series of flat cutting fingers or teeth, *d*, secured thereto by a sectional hub, N, to which the blade is secured by bolts O passed through the blade or the shank of its fingers and through the two sections of the hub. The hub in turn is keyed to the shaft so as to turn therewith.

The forward end of shaft L has its bearing in a box, P, which is formed with a recess in its end to receive the end of the shaft, and fits loosely, so as to oscillate on a shaft, Q, which carries a main bevel-wheel, R. The oscillation of the box P adjusts to the raising or lowering of the harrow or cutter-shaft when the harrow or cutter is raised or lowered to harrow shallow or deep, as desired, by raising or lowering the hangers H and J. The main bevel-wheel R meshes with a bevel-pinion, S, keyed to the shaft L, and through such means the harrow-shaft is rotated. The main bevel-wheel R derives its motion from the cog or gear wheel C through a chain belt, S′, which also passes around a cog or sprocket wheel, T, on the shaft Q. The shaft Q is journaled in the boxes U, adjustably secured to the hangers V, depending from the front cross-bar, E, the adjustment being effected by, say, bolts W passing through slots *e* in the boxes and through the hangers V. The adjustment allows the shaft and main bevel-wheel to be raised and lowered with the adjustment of the cutter-shaft L. A collar, X, is secured by a set-screw, *f*, or otherwise to the shaft Q, and serves to hold the box P against lateral movement in one direction, while the bearing of the bevel-pinion against the main bevel-wheel prevents its movement in the opposite direction.

To the lower ends of the hanger V there are hinged the bars or beams X′, which carry the cultivator-teeth Y. It will be observed that the teeth are arranged alternately on opposite sides of the cultivator-bars, so as to be out of

line with each other; also, that the bars are provided with handles Z, by which they can be raised or lowered to plow shallow or deep or not at all, as desired. They can also be readily detached by removing the connecting-bolts, if so desired. It will also be observed that the harrow or cutting blade is set in front of the harrow-teeth, so as to cut in advance of the teeth as the soil is thrown up.

The device is simple and inexpensive to manufacture, and can be applied to cultivator-frames already in use, and is very efficient for the purposes intended.

Having described my invention and set forth its merits, what I claim is—

1. The combination, with the frame, of the adjustable hangers, the shaft L, journaled in said hangers and provided with the revolving blade and bevel-pinion, the cross-shaft Q, carrying bevel-wheel R and journaled in the boxes U, the oscillating box P on the shaft Q and receiving the end of shaft L, and the drive-chain connecting the cog-wheel on shaft Q with the gear on the driving-wheel, substantially as described.

2. The combination, with the frame extending in front of the axle, of the adjustable hangers carrying the shaft L, provided with the harrow-blade and bevel-pinion, the cross-shaft Q, operated from the main drive-wheel, carrying the main bevel-wheel meshing with the pinion on the harrow-shaft, the oscillating box in which fits the end of the harrow-shaft, the hinged bars carrying the cultivating-teeth, and the hangers N, depending from the frame and serving both as the support for the forward ends of the cultivator-bars and for the journal-bearings of the cross-shaft Q, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

LUCIUS SANDIFORD EVANS.

Witnesses:
I. N. MERCER,
S. W. SEAMAN.