

(No Model.)

2 Sheets—Sheet 1.

E. T. CURRY & C. M. SLINKER.
ROTARY HARROW.

No. 586,595.

Patented July 20, 1897.

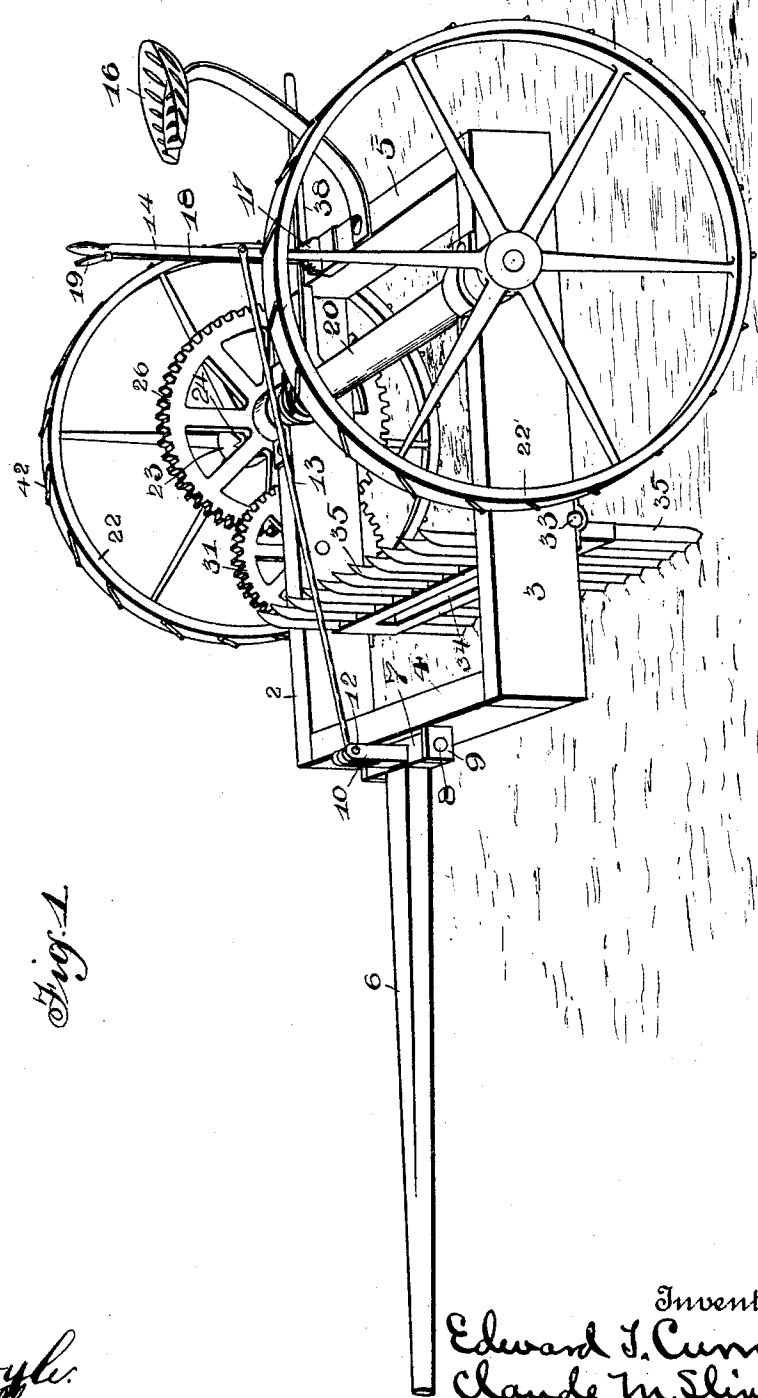


Fig. 1.

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Inventors:
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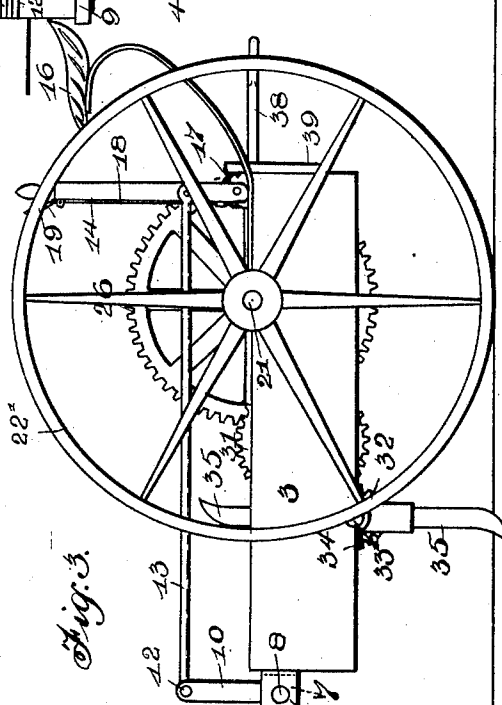
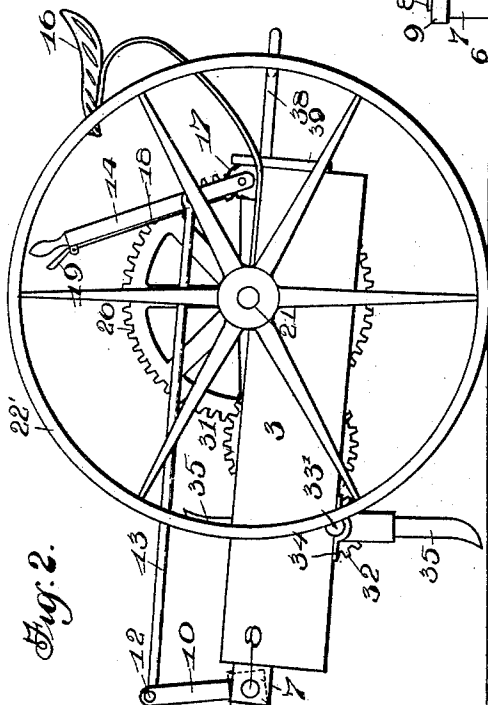
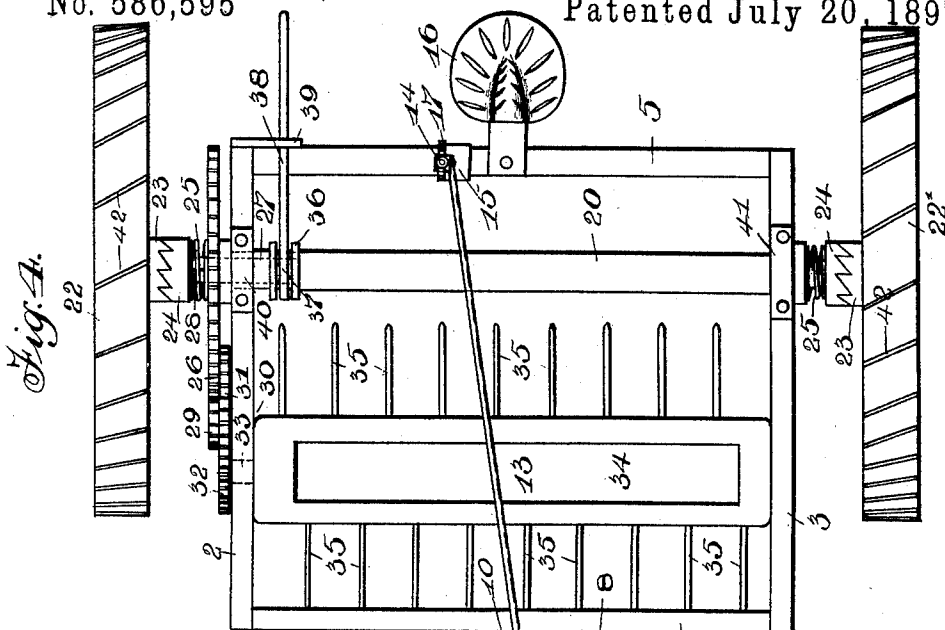
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2 Sheets—Sheet 2.

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W. F. Doyle
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UNITED STATES PATENT OFFICE.

EDWARD T. CURRY AND CLAUDE M. SLINKER, OF PIERCE, KENTUCKY.

ROTARY HARROW.

SPECIFICATION forming part of Letters Patent No. 586,595, dated July 20, 1897.

Application filed July 14, 1896. Serial No. 599,105. (No model.)

To all whom it may concern:

Be it known that we, EDWARD T. CURRY and CLAUDE M. SLINKER, citizens of the United States, residing at Pierce, in the county of Green and State of Kentucky, have invented certain new and useful Improvements in Rotary Harrows; and we 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.

Our invention has relation to rotary harrows, and the object is to provide a simple and effective machine for thoroughly disintegrating the soil after it has been plowed; and to this end the novelty consists in the construction, combination, and arrangement of the same, as will be hereinafter more fully described, and particularly pointed out in the claim.

In the accompanying drawings the same figures of reference indicate the same parts of the invention.

Figure 1 is a perspective view of our improved rotary harrow. Fig. 2 is a side elevation showing the machine adjusted so that the teeth will clear the ground. Fig. 3 is a similar view showing the machine adjusted so that the points of the teeth are below the level of the ground, and Fig. 4 is a top plan view of the harrow.

2 3 are the sides, and 4 and 5 the front and rear cross-pieces, which comprise the frame of the machine.

6 is the tongue, and it is rigidly secured to a cross-bar 7, provided with journals 8 8, pivoted in bearings 9 9, secured to the front cross-bar 4.

10 is a U-shaped bracket secured to the cross-bar 7, and it is provided with a bolt 12, to which is pivoted one end of a pitman 13, extending to a hand-lever 14, the lower end of which is pivoted to a shoe 15 on the rear cross-brace 5 on the right and within reach of the driver's seat 16. This shoe 15 is formed with a segmental toothed rack 17, which engages the lower end of a sliding bar 18 on the lever 14, the upper end being provided with a hand-grip knee 19, by means of which the bar 18 may be operated to engage the teeth on the segmental rack and raise or lower the front end of the machine by varying the in-

clination of the tongue with reference to the frame, as shown in Figs. 2 and 3.

The main axle 20 is provided with journals 21, on which are mounted the carrying-wheels 22 22', and each of the inner faces of their hubs is formed with internal clutch-teeth 23, which engage a similar clutch-sleeve 24, rotating with and sliding on the axle 20. These clutch-sleeves 24 are each provided with a spiral spring 25, which serves to keep said clutch-sleeve in engagement with the clutch-teeth 23 on the hub of the wheel, so that as the machine travels over the ground the wheels at all times rotate the axle 20, and when turning to the right or the left the pivot-wheel for the time being does not travel as fast as the outside one. Therefore the spiral spring on the pivot-wheel allows the clutch to slip to compensate for the difference in speed of the two wheels.

26 is the main gear-wheel, and it is secured to the outer end of a sleeve 27, sliding on the square portion 28 of the axle 20, and by means of this construction the said sleeve and its gear-wheel always rotate with the axle, and through its longitudinal sliding movement the wheel can be thrown into and out of gear with the pinion 29, located on a counter-shaft 30, secured to the side piece 2 of the frame. This pinion is fast to a gear-wheel 31, which meshes with a pinion 32, rigidly secured to the journal 33 of the tooth-frame 34, it being provided at its opposite end with a similar journal 33', both journals and frame working in boxes 34 34, secured to the side pieces 2 and 3.

The tooth-frame 34 is provided on its opposite parallel sides with a series of similar-shaped removable teeth 35, and it will be seen that as the machine is drawn along over the ground the wheels turn the axle to operate the gear-wheels and pinions and rotate the tooth-frame carrying the teeth 35, and their action on the plowed ground is such as to give a draw-cut to the clods, at the same time harrowing them and effectually breaking up and disintegrating the clods, leaving the soil in a finely-pulverized state; and by reference to the top plan view in Fig. 4 it will be seen that the teeth on one parallel side are located between the planes of the teeth on the opposite side to more effectually break up the soil.

The sliding sleeve 27, which throws the gear-wheel 26 in and out of gear with the pinion 29, is provided at its inner end with an annular rectangular recess 36, which is engaged by the forked end 37 of a hand-lever 38, fulcrumed in a bracket 39, secured to the rear cross-piece 5, and by means of which the sleeve is longitudinally moved on the axle to gear and ungear the machine. It will thus be seen that the wheels and axle are always rotating when the harrow is in operation, and in turning to the right the wheel 22 becomes the pivot-wheel and its clutch slips, while the wheel 22' sweeps around the circle and its clutch drives the axle and train of gearing, whereas when the machine turns to the left the wheel 22' becomes the pivot-wheel and its clutch slips, while the wheel 22 swings around and its clutch drives the gearing and operates the tooth-frame 34.

If the lever 38 is moved to throw the gear-wheel 26 out of line with the pinion 29, as in the case when the machine is traveling from place to place or along the road, the tooth-frame 34 does not revolve, but the axle and the wheels of course do, and the clutches on each wheel operate exactly as above mentioned, as if the machine was in gear.

39 is a notched plate secured to the rear cross-piece 5, and it engages the handle of the lever 38 to hold the same in a locked position when the gear-wheel 26 is either in or out of gear.

40 is the box secured to the side piece 2, in which the sleeve 27 on the axle rotates, and a

similar box 41 is secured to the other side piece 3 for the other end of the axle to rotate in.

The tires of the carrying-wheels 22 22' are provided with "climbers" or spurs 42 to facilitate traction on the ground.

Although we have specifically described the construction and relative arrangement of the several elements of our invention, we do not desire to be confined to the same, as such changes or modifications may be made as clearly fall within the scope of our invention without departing from the spirit thereof.

Having thus fully described our invention, what we claim as new and useful, and desire to secure by Letters Patent of the United States, is—

In a rotary harrow, comprising the frame 2, 3, 4, 5, carrying the hinged tongue 6, pitman 13 and hand-lever 14, and the axle 20 provided with clutch-sleeves 24, springs 25, and the carrying-wheels 22 22' having integral clutch-teeth 23, in combination with the sliding sleeve 27, its operating-lever 38, and attached gear-wheel 26, the pinion 29, gear-wheel 31, and pinion 32 rigidly secured to one end of the tooth-frame 34, journaled in the side pieces 2 and 3, substantially as and for the purpose set forth.

In testimony whereof we hereunto affix our signatures in presence of two witnesses.

EDWARD T. CURRY.
CLAUDE M. SLINKER.

Witnesses:

J. B. MARTIN,
E. D. YOUNG.