S. C. THORNTON.

Wheel Cultivator.

No. 83,675. Patented Nov. 3, 1868.

Fig: 1.

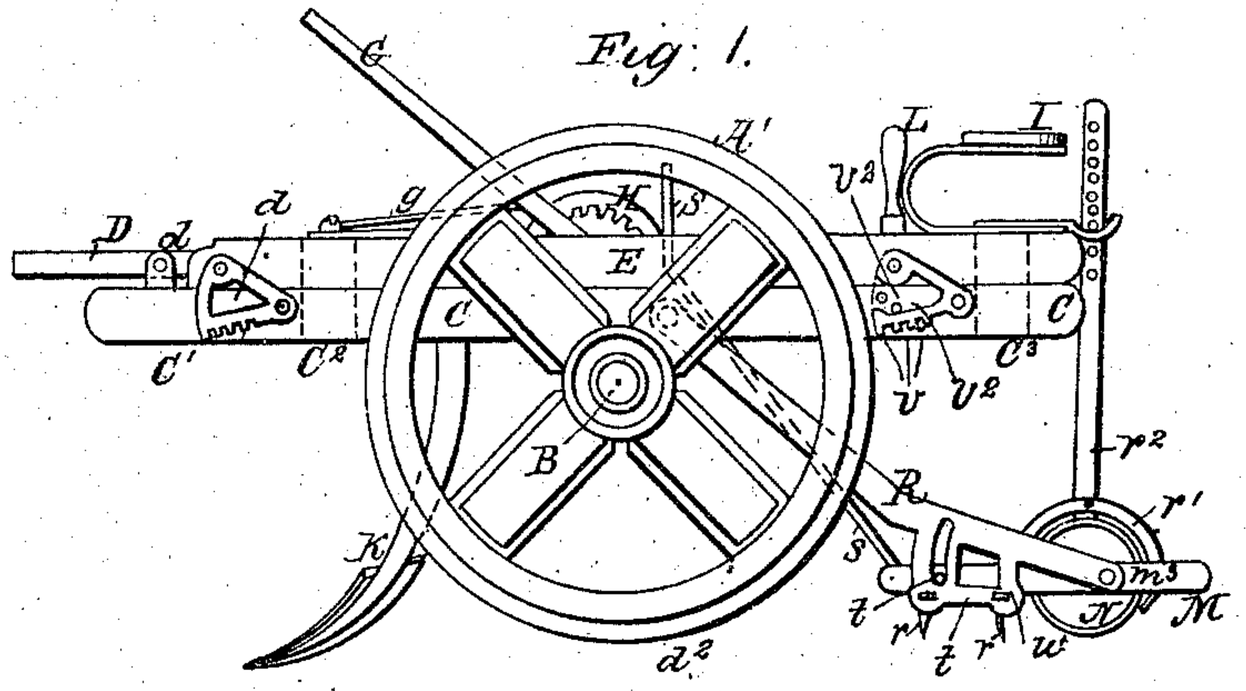


Fig: 2.

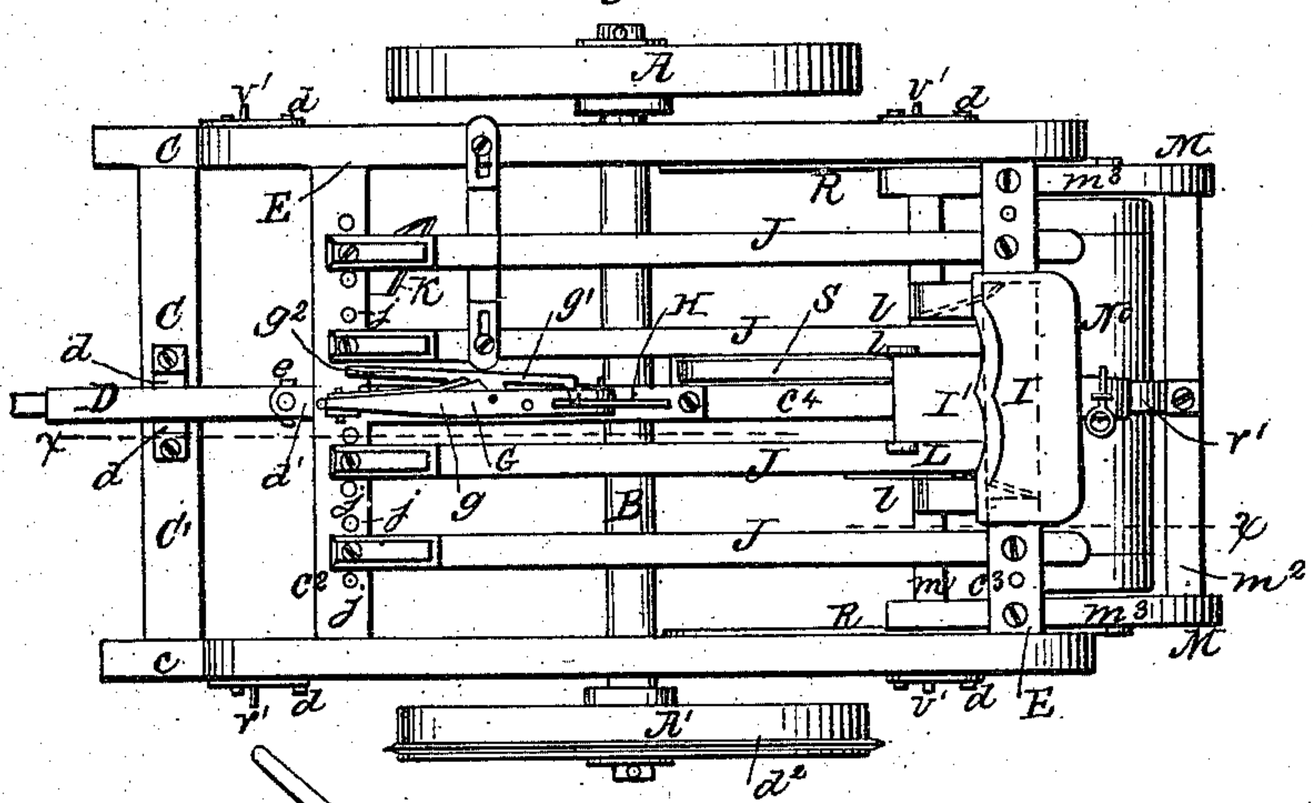
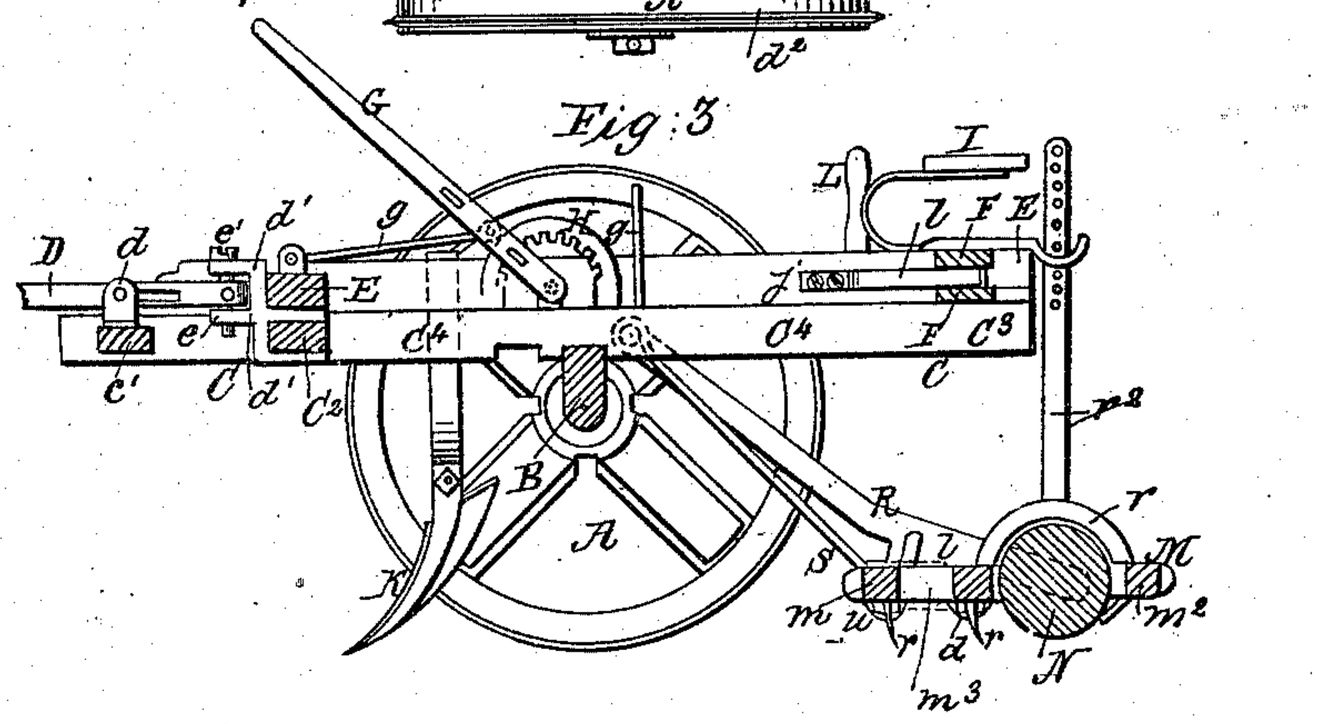


Fig: 3.



Witnesses
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STERLING C. THORNTON, OF MACOMB, TEXAS.

Letters Patent No. 83,675, *dated November* 3, 1868.

IMPROVEMENT IN COMBINED CULTIVATOR, PLOW, HARROW, AND ROLLER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, STERLING C. THORNTON, of Macomb, in the county of Grayson, and State of Texas, have invented a new and improved Combined Cultivator, Plow, Harrow, and Roller; 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 accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view.

Figure 2 is a top view.

Figure 3 is a longitudinal vertical section through line *x x* of fig. 2.

The object of this invention is to combine and arrange a cultivator, plow, harrow, and roller, with draught-wheels, axle, draught-pole, and an adjustable supporting-frame, in such a manner that the several parts can be used together or independently, in a more convenient manner than heretofore, and so as to save time, expense, and labor. Besides the general purpose of the invention, there are several improvements, designed to effect specific purposes, such as the adjusting of the plows and the draught-pole, and the cleaning of the harrow.

In the drawings, A A′ are the draught-wheels; B, the axle; C, a fixed horizontal frame, attached to the axle, having two side pieces, *c c*, a centre-piece, c^4, and three cross-pieces, c^1 c^2 c^3; D, the draught-pole, pivoted to the forward cross-piece c^1 by means of a bolt and vertical lugs, *a*, and having its rear end projecting between two horizontal lugs, a^1 a^1, attached to the second cross-piece c^2.

A round hole is made, from side to side, through the rear end of the draught-pole, and a round bolt, *e*, neatly fits into the hole, extending through the pole. A vertical screw-rod or bolt, *e′*, extends down through the lugs a^1 a^1, and through the draught-pole, screwing through the bolt *e*.

By means of this arrangement, the rear end of the tongue can be depressed or raised at pleasure, and fixed in any required position, by simply screwing the bolt *e′* one way or the other.

Supported on the fixed frame C, by means of four parallel-ruler joints, *d d*, is an adjustable frame, E, which supports the plow, the cultivator-plows, the harrow, and the roller. It is raised or lowered by means of a lever, G, pivoted to the centre-piece c^4, and connected with the frame E by a rod, *g*. The lever may be set at any desired elevation, by means of a vertical semicircular rack, H, and a spring-catch lever, *g′*. The parallel-ruler joints *d d* may also be used to hold the frame E in any required position, by making them in the triangular shape shown in fig. 1, notching their under edge, as seen at *v v*, and using, in connection with them, a pin, *v′*, and a series of holes, v^2 v^2 v^2, in the side piece *c*.

The seat I is supported upon the rear end of the frame E, and the driver's feet rest upon a small platform, I′, attached to the rear end of the centre-piece c^4 of the fixed frame.

J J are the plow-beams, jointed to the forward cross-bar of frame E, and each one having on its rear end a tenon, that projects into a slot in the rear cross-bar of said frame, thereby giving the rear end of each beam a little lateral "play." The forward ends of the plow-beams may be adjusted laterally by a pin and holes, *j j*. Their rear ends may also be fixed in any required position by the same device, if necessary.

The two middle beams have short standards L L, projecting upward on each side of the driver's knee, so that, as he sits in his seat, he can, by a movement of his leg, guide the plows attached to such beams.

Springs *l l* return the beams to their place, when the obstacle has been passed by the plows. All the beams might, if preferred, be connected with the two middle ones by suitable connecting-rods, or a cross-bar, so that all the plows could be guided at will and with great convenience.

Instead of attaching cultivator-plows to the several plow-beams, a common "barring-off" plow, K, might be attached, being connected with two or three of the beams by means of bifurcated or trifurcated standard *k*, properly braced before and behind, and made adjustable, if necessary, by slots and set-screws, or other convenient equivalents therefor.

When such a plow is employed, the left wheel A′ should have a sharp-edged flange, a^2, to cut into the ground, and prevent the carriage from sliding sideways by the action of the plow.

M is a frame, composed of three cross-pieces, *m* m^1 m^2, and two end pieces, m^3 m^3, and supporting the roller N and the harrow-teeth *r r*, the latter being fixed to the forward cross-bar *m*. This frame is drawn along behind the machine by arms R R, jointed at their forward end to the fixed frame, and at their rear end to the sides of the end pieces m^3 m^3. The frame M is thus pivoted to the rear end of the arms, and can be rocked vertically on its pivots, so as to lift the harrow-teeth out of the ground when necessary.

A lever, S, extends from cross-bar *m* up to a point near the driver's seat, by which he can rock the frame when he desires.

An arched piece, r^1, extends over the middle of the roller, from bar m^1 to bar m^2, and from its top a jointed rod, r^2, extends up past the rear edge of the driver's seat, within his reach. By means of a pin and holes in the upper part of this rod, the frame M may be fixed at the proper distance from frame E to operate the harrow and roller to the best advantage.

The roller may be made in one, two, three, or more pieces, as desired, and any form of roller may be employed.

A slotted lug, *t*, is cast on the under side of each arm R R, and a headed pin, *t′*, extends through the

slot into the frame, limiting the rocking of the latter to the length of the slot.

From the under edge of the lug *t*, on one side, iron bars *u u'* extend across to the under side of the lug on the opposite arm. One of these bars *u* is directly beneath the bar *m*, and the teeth *r r* pass through it. When the frame M is rocked, the teeth *r r* are drawn up through the under bar, which effectually cleans them from all grass, trash, &c., that may be adhering to them.

Having thus described my invention,

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

1. The combination and arrangement of the fixed frame C, movable frame E, parallel-ruler joints *d d d d*, lever G, rod *g*, rack H, and spring-catch lever *g'*, the whole being constructed to operate in the manner and for the purposes set forth.

2. The joint-plates *d d*, when constructed in the triangular shape described and shown, and provided with notches *v v* in their under edge, and used in connection with the pin v^1, and series of holes v^2 v^2 v^2 in the fixed frame, for the purpose of adjusting the depth to which the plows, &c., can work.

3. The pivot *a*, in combination with the lugs a^1 a^1 and bolts *e* and *e'*, passing through the rear end of the draught-pole, the whole being constructed to operate in the manner and for the purpose specified.

4. The use of the standards L L, in combination with the springs *l l*, and middle beams J J, for the purposes and operating in the manner described.

5. The rocking frame M, when pivoted to the drag-bars or arms R R, as described, and provided with the lever *s* and adjusting-bar r^2, by which the whole frame can be raised or depressed at pleasure, in combination with the cleaning-device *u u*, when made to operate substantially as described.

6. The described method of attaching the tooth or plow K to the frame of the machine, namely, the employment of a bifurcated standard, so constructed as to brace the tooth laterally, and, if necessary, provided also with braces, to brace it longitudinally with the machine, substantially as shown and specified.

S. C. THORNTON.

Witnesses:

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