

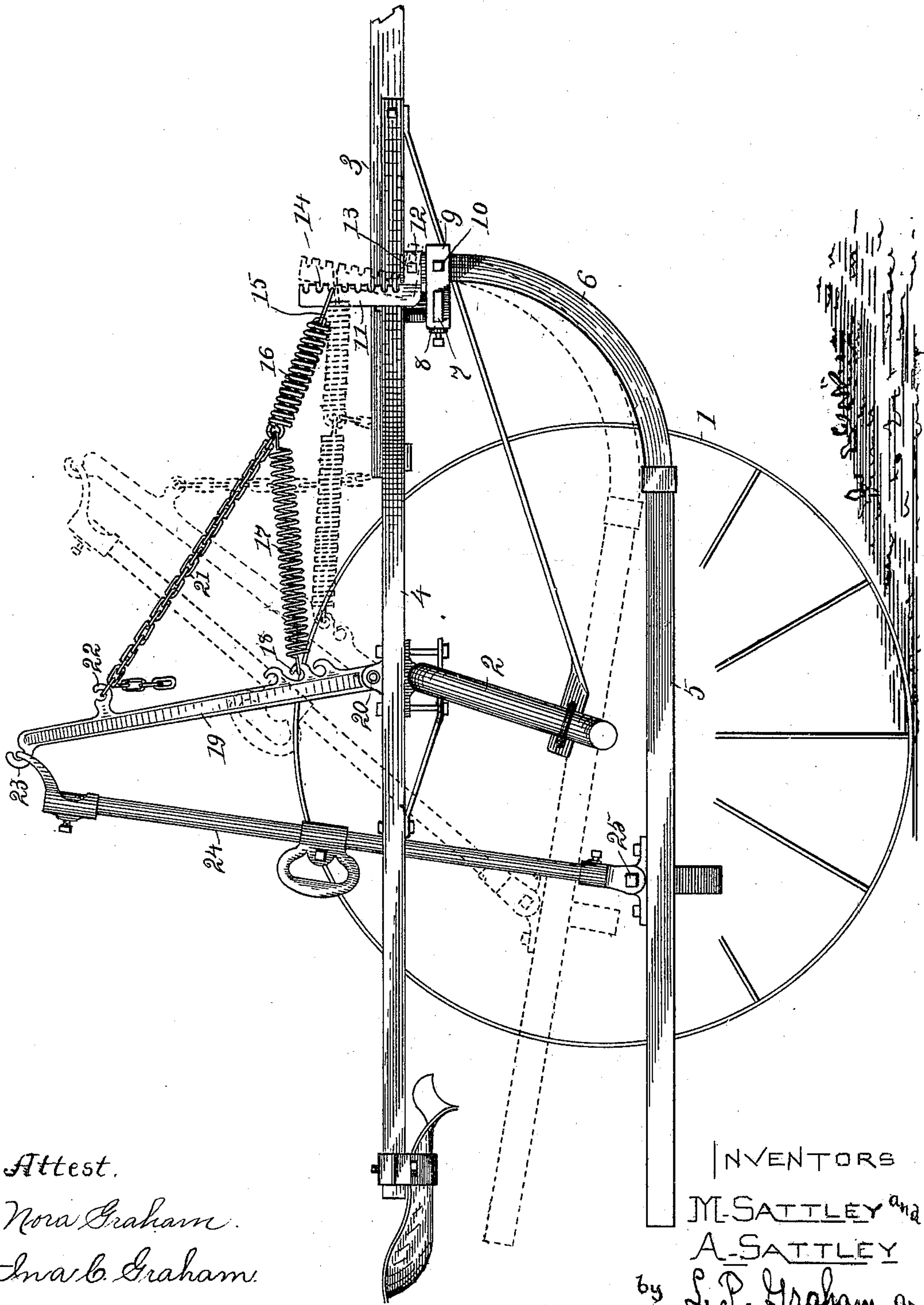
No. 628,857.

Patented July 11, 1899.

M. & A. SATTLEY.
CULTIVATOR.

(Application filed May 23, 1896.)

(No Model.)



Attest.
Nora Graham.
Inw. b. Graham.

INVENTORS
M. SATTLEY and
A. SATTLEY
by L. P. Graham, atty.

UNITED STATES PATENT OFFICE.

MARSHALL SATTLEY AND ARCHIBALD SATTLEY, OF SPRINGFIELD, ILLINOIS, ASSIGNORS TO THE SATTLEY MANUFACTURING COMPANY, OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 628,857, dated July 11, 1899.

Application filed May 23, 1896. Serial No. 592,742. (No model.)

To all whom it may concern:

Be it known that we, MARSHALL SATTLEY and ARCHIBALD SATTLEY, of Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

This invention relates to that class of riding-cultivators in which the beams are supported at their rear ends by rods connected with rock-arms extended upward from the frames, and it resides in a special arrangement of springs and adjuncts thereof whereby assistance is given in the matter of controlling depth of penetration of the cultivating-shovels and in raising the beams preparatory to turning and the like. The nature of these operations is such that the controlling of the depth of cultivation requires rather strong resistance to foot-pressure acting through a rather small part of the swing of the rock-arms, while aid in raising the beams requires weaker resistance throughout all or nearly all the backward swing of the arms.

To attain the desired end, we connect springs with available parts of the cultivator in front of the rock-arms and extend chains or the like from such springs to the upper portions of the rock-arms, thus providing yielding resistance against foot-pressure on the beams at such times as resistance is needed. In addition to this we connect other springs in some suitable manner with some part of the cultivator in front of the arms and also connect them with the arms a short distance above the fulcrums thereof. The springs last mentioned resist the initial backward movement of the arms in the act of lowering the beams into operative positions, and their connections with the arms are so near the fulcrums thereof that they are not severely stretched when the beams are in their lowest positions. Their relation to the fulcrums of the arms is such that they may be strong enough to endure the wear and rough usage incident to cultivating without exerting too strong a pull, and they continually exert a somewhat weak resistance to the downward motion of the beams and, which is the same thing, the backward swing of the arms. Their function is to aid in raising the

beams and their equipments, and to properly effect such result their tension should be proportionate to the weight they are designed to aid in raising. They differ from the springs connected with the upper portions of the arms in that they weakly resist all or substantially all the backward swing of the arms, while the others more strongly resist further downward swing of the beams after the slack of the chains is taken up and are inoperative at other times.

While in the broadest sense of the invention it is a matter of some indifference in what particular manner the springs are connected with the cultivator, we have devised the plan of connecting the cushion-spring with some available part of the frame and connecting the lift-spring with the free end of the cushion-spring. This arrangement is the one we prefer, and we also prefer that the cushion-springs shall connect with the cultivator through upward extensions of the forward ends of the beams.

The various peculiarities of the invention are exemplified in the structure hereinafter described and the novel features are defined in the appended claims.

In the drawing forming part of this specification such parts of a cultivator as are needed to explain the invention are shown in side elevation, the beams being shown in one position in solid lines and in another position in dotted lines.

A cultivator-wheel is shown at 1. The arched axle is shown at 2, the tongue at 3, and the hound-like frame at 4. The beams have upward-curved forward extensions, as 6. A cross-bar 7 extends transversely at the forward end of the frame. It has brackets 8, the forward extensions 9 of which are slotted to receive the ends of curved bars 6, and bolts 10 extend through the brackets and the bars and act as pivots on which the bars swing as the beams are raised and lowered. A bar 11, having notches 14 in its front face, rises vertically from the upper end of each beam. Its lower end extends forward and is recessed to fit over the end of bar 6, and a set screw or bolt, as 13, fastens the parts together. A link 15 is slipped over bar 11 and made to engage one of the notches thereof. A cushion-

spring 16 is connected with the link. A chain 21 connects with the free end of the cushion-spring and extends upward and backward to hook 22 of rock-arm 19, and a lift-spring 17 connects with the cushion-spring and extends backward to hook 18 of the rock-arm. A hook 23 is formed on the upper end of the rock-arm, and a rod 24 swings from said hook and connects pivotally with the beam 5 at 25. The beams are to be supplied with any of the well-known shovels or blades, and both are to be equipped with a rock-arm, a connecting-rod, and a set of springs.

The bars 11 extend above the pivots 9 of bars 6, and they swing backward as the beams descend and forward as they ascend. This peculiarity is utilized in adjusting the tension of the springs, as the farther from the fulcrum the connections are made the less the springs will be stretched, and the opposite. In addition to this provision the tension of the cushion-spring may be varied by catching different links of the chain over hook 22, and the force of the lift-spring may be increased or diminished by connecting it farther from or nearer to the fulcrum of the rock-arm.

In the position shown in broken lines in the drawing the cushion-spring is entirely contracted and the lift-spring nearly so. As the rock-arm is thrown backward the lift-spring is stretched until the slack of the chain is taken up, after which further backward motion of the rock-arm is resisted by the cushion-spring, and the tension of the lift-spring does not materially increase.

By setting bar 11 back of the front surface of the upper end of bar 6 more space is left for the swing of the hitch-tree; but in other regards the result would be the same if the bar 6 were extended upward and provided with notches, as 14.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a riding-cultivator having the rear ends of its beams sustained by rods connected with upward-extending rock-arms, cushion-springs connected with the cultivator in front of the rock-arms, chains or the like connecting the cushion-springs with upper portions of the rock-arms, and substantially horizontal lift-springs connected with the cultivator in front of the rock-arms and with the lower portions of the rock-arms, substantially as set forth.

2. In a riding-cultivator having the rear ends of its beams sustained by rods connected with upward-extending rock-arms, cushion-springs connected with available parts of the cultivator in front of the rock-arms, lift-springs connected with the cushion-springs and with lower portions of the rock-arms, and chains, or the like, connecting the cushion-springs with upper portions of the rock-arms, substantially as set forth.

3. In a riding-cultivator having the rear ends of its beams sustained by rods connecting with upward-extending rock-arms, extensions of the beams rising above the pivots thereof, and springs connecting such extensions with the rock-arms, substantially as set forth.

4. In a riding-cultivator having the rear ends of its beams sustained by rods connecting with upward-extending rock-arms, extensions of the beams rising above the pivots thereof, springs connecting such extensions with the upper portions of the rock-arms in a manner to resist extreme downward throw of the beams, and other springs connecting such extensions with lower portions of the rock-arms in a manner to resist substantially all backward throw of the rock-arms.

5. In a riding-cultivator, the combination of beams 5 having upward extensions 6 pivoted at 9, notched bars 11 connected with the upper ends of bars 6 and extended upward therefrom, rock-arms 19 supporting the beams through rods 24, springs 16 connecting with bars 11, chain 21 connecting spring 16 with hook 22 of the rock-arms, and springs 17 connecting springs 16 with hook 18 of the rock-arms, substantially as set forth.

6. In a cultivator, the combination of a main frame, a wheel-axle, shovel-beams swung from the frame at their forward ends, rock-arms pivotally connected with the frame and extended upward therefrom, rods connecting the beams with the swinging ends of the rock-arms, and substantially horizontal lift-springs connected with the rock-arms near the pivots thereof and exerting forward pull thereon, substantially as set forth.

7. In a cultivator, the combination with an upward-extended rock-arm to raise and lower the beam, of an approximately horizontally acting lift-spring hitched to the arm near the pivot thereof.

8. In a cultivator, the combination with an upward-extended rock-arm to raise and lower the beam, of an approximately horizontally acting lift-spring hitched to the arm near the pivot thereof and a cushion-spring hitched to the arm near its swinging end.

9. In a cultivator, the combination with a rock-arm to raise and lower the beam, of an approximately horizontal spring, or line of springs, hitched to the arm near the pivot thereof and a flexible connection hitched to the spring, or line of springs, between the ends thereof and connecting with the swinging end of the arm.

In testimony whereof we sign our names in the presence of witnesses.

MARSHALL SATTLEY.
ARCHIBALD SATTLEY.

Witnesses:

CLINTON L. CONKLING,
CHAS. E. CROSBY.