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Patented Mar. 5, 1901.

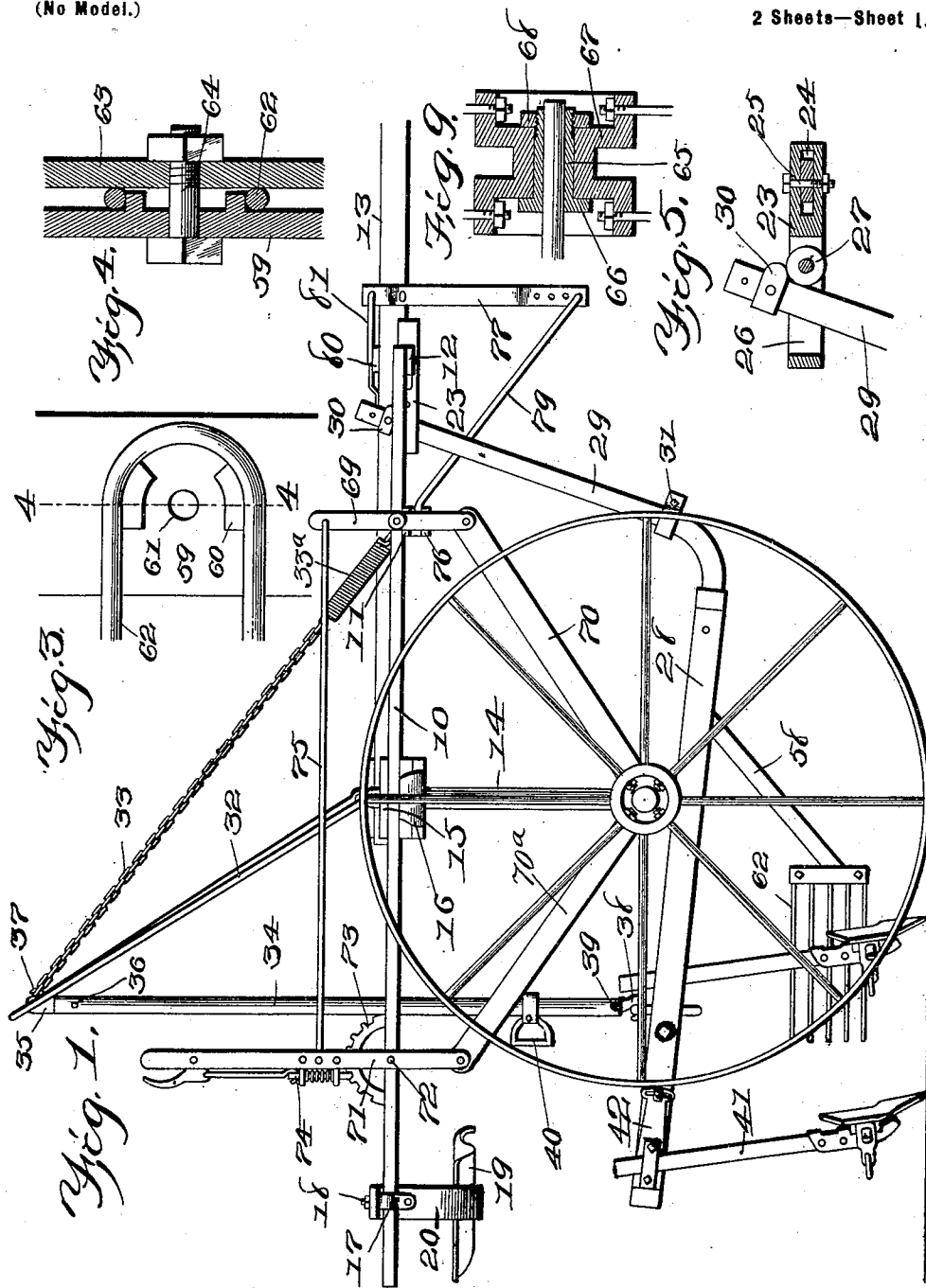
T. BRINKLEY & D. A. WETRICH.

RIDING CULTIVATOR.

(Application filed Oct. 30, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
R. E. Orwig,
F. C. Stuart

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by J. Ralph Orwig, Atty.

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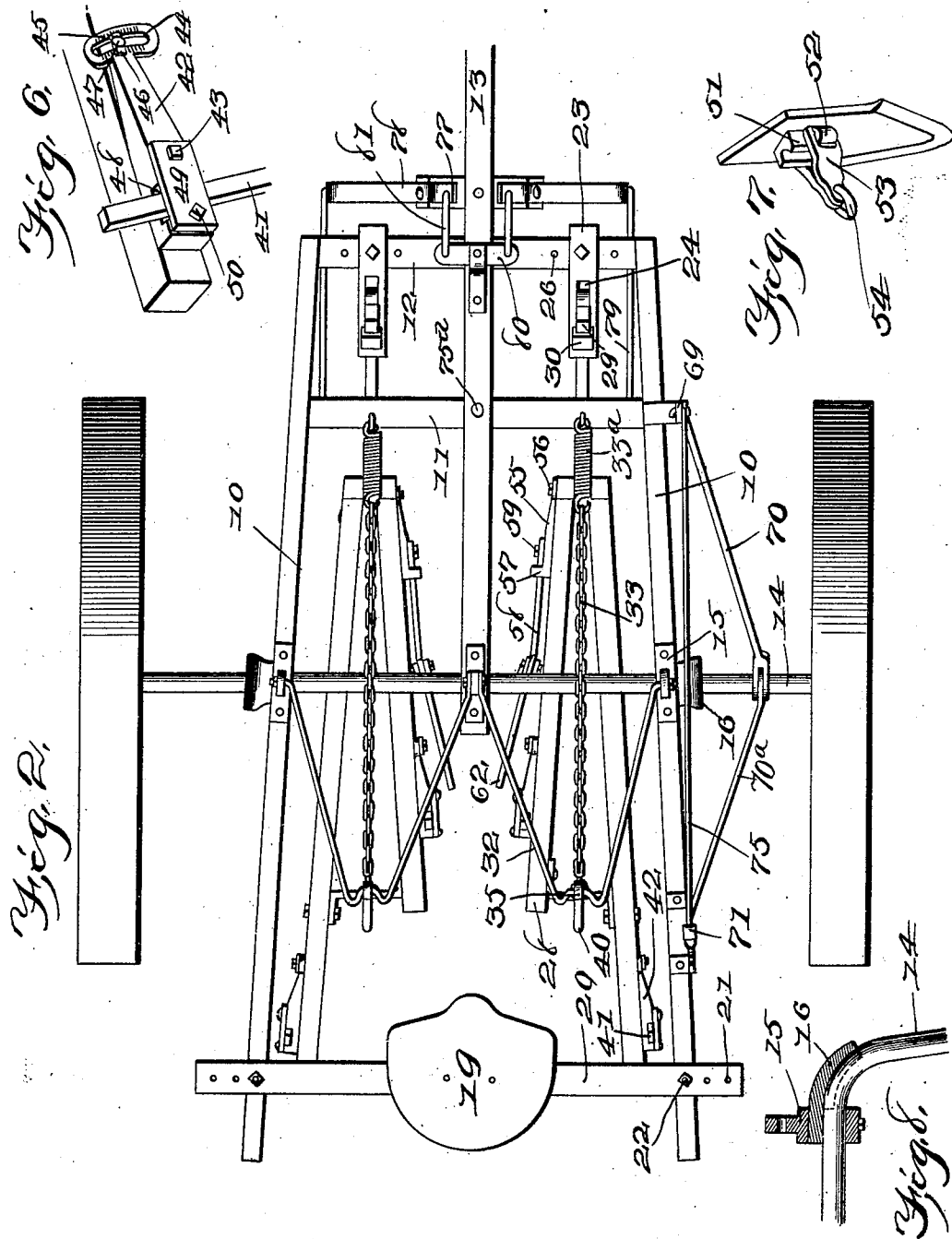
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UNITED STATES PATENT OFFICE.

THOMAS BRINKLEY AND DANIEL A. WETRICH, OF STUART, IOWA.

RIDING-CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 669,134, dated March 5, 1901.

Application filed October 30, 1899. Serial No. 735,211. (No model.)

To all whom it may concern:

Be it known that we, THOMAS BRINKLEY and DANIEL A. WETRICH, citizens of the United States, residing at Stuart, in the county of Guthrie and State of Iowa, have invented certain new and useful Improvements in Riding-Cultivators, of which the following is a specification.

Heretofore cultivators of this class have proved objectionable for the reason that the cultivator-beams being pivoted at their forward ends and capable of being raised only at their rear ends would when in their elevated position have the forward shovels of the cultivator so close to the ground as to engage and become entangled with stalks, weeds, &c., upon the ground-surface, the rear shovels, of course, being high enough to clear them.

The objects of our invention are, first, to provide simple, strong, and easily-operated means whereby the entire cultivator-beams may be elevated to a degree higher than has been possible heretofore and to stand when in said elevated position in a substantially horizontal plane.

A further object is to provide improved means whereby the arched axle may be tilted in such a manner as to throw the weight of the machine and the person occupying the driver's seat thereof either forwardly or backwardly to thereby balance the weight of the machine.

A further object is to provide improved and simplified means for connecting the arched axle with the machine-frame, whereby the axle is prevented from moving longitudinally in the frame, and at the same time the axle may be tilted freely in a vertical plane.

A further object is to provide improved means for detachably and adjustably connecting the shovel-bearing arms with the cultivator-beams and for tilting said arms forwardly and backwardly.

A further object is to provide improved means for adjustably and detachably connecting the shovels with the shovel-bearing arms.

Our invention consists in the construction, arrangement, and combination of the various parts of the machine, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in our claims, and

illustrated in the accompanying drawings, in which—

Figure 1 shows a side elevation of the machine. Fig. 2 shows a plan of the same. Fig. 3 shows an enlarged detail illustrating the method of connecting the guard-bars with the support therefor. Fig. 4 shows a section through the line 44 of Fig. 3 with the clamping-plate in position thereon. Fig. 5 shows an enlarged detail sectional view illustrating the means for slidingly and pivotally connecting the forward end of the cultivator-beam with the machine-frame. Fig. 6 shows a detailed perspective illustrating the means for adjustably clamping the shovel-bearing arms to the beams. Fig. 7 shows in perspective one of the cultivator-shovels with the means thereon for attaching same to the shovel-bearing arms. Fig. 8 shows in detail the means for securing the arched axle to the machine-frame, and Fig. 9 is a detail sectional view illustrating the wheel-hub and the boxing therefor.

Referring to the accompanying drawings, we have used the reference-numeral 10 to indicate the side pieces of the machine-frame. Near the forward end thereof are the fixed cross-bars 11 and 12, the tongue 13 being fixed to these cross-bars.

The reference-numeral 14 indicates the arched axle of the construction ordinarily used in cultivators of this class. This axle is connected with the frame by passing through the boxings 15, which are detachably bolted to the side pieces 10. On each of these boxes is a guard 16 to project outwardly and downwardly, following the contour of the axles. The inner surfaces of these guards 16 are substantially flat, so that the axle may move in a vertical plane—that is, it may tilt forwardly and backwardly freely and yet the guards will prevent the axle from moving longitudinally with relation to the machine-frame no matter at what position the axle is tilted.

At the rear end of the machine-frame are two sliding clamps 17 on the side pieces 10 and having the upwardly-projecting bolts 18 thereon. The seat 19 is fixed to a cross-piece 20, which cross-piece is provided with the openings 21 in its ends, designed to admit the bolt 18, and nuts 22 are provided whereby the saddle-support may be secured in place.

The cultivator-beams on the opposite sides of the machine are identical in construction, so that only one will be hereinafter described.

We have provided a block (indicated by the reference-numeral 23) having a horizontal slot 24 therein to receive the cross-bar 12 of the machine-frame. A vertical opening intersects this transverse slot 24, and a bolt 25 is provided designed to pass through this opening and into one of a series of openings 26 in the said cross-bar 12, so that the said block may be adjustably connected with the said cross-bar 12 and be capable of a slight pivotal movement on the bolt 25. At its rear end the said block 23 is slotted vertically at 26, and near the forward end of this slot a roller 27 is mounted of a width to fill the slot.

The cultivator-beam (indicated by the reference-numeral 28) is of substantially the usual shape. At its forward end, however, is an extension 29, fixed to the beam and curved upwardly and forwardly and passing through the slot 26. An adjustable collar 30 is secured to the upper end of the said extension above the block 23, and a similar collar 31 is connected therewith near the lower end of said extension. These collars obviously limit the said extension within the slot 26, and the said roller 27 prevents excessive friction. An arched supporting-rod 32 is pivoted to the rear end of the tongue 13 and to the side 10 to project upwardly and rearwardly, and a chain 33 connects this central portion with the cross-piece 11 to prevent said arch from moving rearwardly beyond the limit permitted by the chain. A coil-spring 33^a in said chain permits a limited vertical movement of the beam.

The numeral 34 indicates a metal tube having at its upper end the loop 35, designed to receive the arched rod 32 and pivotally connect said parts. This loop 35 is detachably and adjustably connected with the pipe 34 by means of the bolt 36. On the said loop 35 is a hook 37, to which the said chain 38 is attached. At the lower end of the tube 33 is a hook 38, detachably connected with the cultivator-beam and made adjustable by means of the bolt 39 therein. On the said tube 34 is an adjustable handle 40.

In use the operator seated upon the seat 19 controls the movements of the cultivator-beam laterally by his feet in the usual manner, and obviously the forward end of the cultivator-beam may swing laterally on account of the lateral movement of which the block 23 is capable. Then when it is desired to turn corners or when quitting work the operator grasps the handle 40 and raises it, thus obviously raising the rear end of the cultivator-beam. When the rear end thereof is raised to such a degree that the arched rod 32 passes beyond a vertical line, the said arched rod will obviously fold so as to lie on top of the frame, thus preventing the cultivator-beam from dropping. It is obvious,

further, that when the rear end of the cultivator-beam is elevated the extension 29 will slide upwardly upon the roller 27, and when the cultivator-beam is in its elevated position it will lie substantially parallel with the under surface of the cultivator-frame, thereby raising the forward shovels as high as the rear ones and securely holding them in place. They may obviously be lowered again by the operator grasping the handle 40, whereupon the forward end of the cultivator-beam will drop by gravity when the rear end is lowered, the upward movement of the said extension 29 being limited by the collar 31 and the downward movement by the collar 30.

To provide for adjustably connecting the shovel-bearing arms 41 with the cultivator-beams, we have provided the device 42, having a bolt 43 passing therethrough, whereby it is pivotally connected with the cultivator-beam. At the forward end of the device 42 is a segmental slot 44, the front surfaces around the slot being serrated at 45. A plate 46, having its under surface serrated to correspond with the surface 45, is placed on the bolt 47, which is passed through it and into the cultivator-beam, so that when it is desired to tilt the device 42 the bolt 47 is loosened, the device moved to the position desired, and the bolt again tightened, thus providing for tilting the shovel-bearing arms 41 forwardly and backwardly. In the rear end of the device 42 is a vertical groove 48 to receive the arm 41. A plate 49 is placed on the device 42 to cover said groove, and a bolt 50 is passed through the plate and into the device 42. Obviously when this bolt 50 is tightened the arm 41 is firmly clamped in the slot 48. It is obvious, further, that the said arm 41 may be set in any desired position, thus providing for a great nicety of adjustment. For connecting the shovels with the said arms 41 we have provided the blocks 51, secured to the rear surfaces of the shovels and having on their sides the hooks 52. Two curved bars 53 are provided, having slots to admit the said hooks 52 and each having an opening in its rear end. In connecting these shovels with the said arm the arm is passed between the rear end of the block 51 and the said bars 53, and then a pliable metal ring 54 is passed through the openings in the said bars 53 and the ends thereof bent rearwardly until the said bars firmly clamp the arm 41. We have provided a guard for protecting the rows of plants being cultivated, as follows:

A bar 55 is pivotally connected with the cultivator-beam by means of the bolt 56 and has a part 57 projected at right angles from the cultivator-beam, which part 57 is slotted to receive an arm 58, which is passed through said slot and connected with the bar 55 by means of the bolt 59. This arm 58 projects downwardly and rearwardly and is connected with a vertical portion 59, which is provided on one of its faces with a series of pairs of

lugs 60, and between each pair of lugs is an opening 61. A series of bars, doubled at their central portion, are provided to overlap the lugs 60, with their ends projecting straight rearwardly. These bars (indicated by the numeral 62) are clamped to the part 59 by means of a flat plate 63, which is connected therewith by means of the bolts 64, passed through the opening 61. Said bars 62 are somewhat thicker than the lugs 60. Hence the plate 63 rests directly against the set bars 62, thereby firmly clamping them in position.

Referring to Fig. 9 of the accompanying drawings, it will be seen that upon each end of the axle is a boxing 65, having a shoulder 66 at its inner end and screw-threaded at its outer end. The hub of the wheel 67 is placed upon this boxing 65 and is indicated by the numeral 67. A screw-threaded collar 68 is provided to screw upon the boxing 65, and thereby clamp the hub to the box, so that they will rotate in unison around the axle.

We have provided improved means for tilting the axle, so as to shift the weight of the machine, as follows: The numeral 69 indicates a lever pivoted to the side piece 10 of the frame. To its lower end a brace 70 is pivoted, which projects downwardly and rearwardly to the axle, and a like brace 70^a is connected with the axle and pivoted to the lower end of the lever 71. This lever 71 is fulcrumed at 72 to the frame 10. A segmental rack 73 is fixed to the frame 10 adjacent to the said lever, and a spring-actuated pawl 74, connected with the lever, provides means whereby the lever may be set to any desirable position with relation to the rack. A link 75 connects the lever 71 with the lever 69. It is now obvious that when the lever 71 is moved the brace 70 will draw the axle forwardly and rearwardly with relation to the machine-frame, thus throwing the weight of the machine either forwardly or backwardly.

Mounted beneath the cross-bar 11 and connected therewith by means of a bolt 75^a is an evener 76. Upon the tongue 13, in advance of the cross-bar 12, is a bracket 77, and fulcrumed to this bracket 77 are two levers 78, the inner ends of which extend substantially in horizontal planes, while the outer ends thereof are bent downwardly. Links 79 are provided for connecting the said outer ends of the lever 78 with the outer ends of the evener-bar 76, and mounted on top of the tongue 13 in the rear of the brackets 77 is a lever 80, having links 81 to connect its ends with the inner ends of the lever 78, thus providing an improved draft-equalizer especially adapted for cultivators.

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

1. In a cultivator, the combination of a suitable frame, supporting-wheels therefor, a cultivator-beam, an extension at the forward end

thereof, sliding and pivotally connected with the machine-frame, means for raising the rear end of the cultivator-beam, and for holding it in an elevated position, substantially as, and for the purposes stated.

2. In a cultivator, the combination of a cultivator-frame, supporting-wheels therefor, a cultivator-beam, an extension on the forward end thereof, means for pivotally and slidingly connecting said extension with the cultivator-frame, an arched rod pivotally mounted on top of the frame, a limiting-chain connected with the cultivator-frame with the said arched rod, and means for connecting the rear end of the cultivator-beam with the central portion of the said arched frame, substantially as, and for the purposes stated.

3. In a cultivator, the combination of a cultivator-frame, supporting-wheels therefor, a block 23 pivotally connected with the cultivator-frame, and having a slot 26 at its rear end, a roller 27 in the said slot, a cultivator-beam, an extension on the forward end thereof to pass upwardly through said slot, two collars adjustably connected with said extension, the one above, the other below the said slot, and means for raising and lowering the rear end of the said cultivator-beam, substantially as and for the purposes stated.

4. In a cultivator, the combination of a cultivator-frame, supporting-wheels therefor, a block 23 pivotally connected with the cultivator-frame, and having a slot 26 at its rear end, a roller 27 in the said slot, a cultivator-beam, an extension on the forward end thereof to pass upwardly through said slot, two collars adjustably connected with said extension, one above, the other below the said slot, and means for raising and lowering said beam, an arched rod pivotally mounted to the cultivator-frame, a limiting-chain connected therewith and with the cultivator-frame, a tube adjustably connected with the said arched rod, and with the beam, and a handle on said tube, substantially as, and for the purposes stated.

5. In a cultivator, the combination of a frame, an arched axle pivotally connected with the frame, supporting-wheels on the axle, a lever 69 pivoted to the frame, a brace 70 pivoted to said lever, and pivotally connected with the axle, a brace 70^a, pivoted to the axle, a lever 71 fulcrumed to the frame and pivoted to the said brace 70^a, a segmental rack on the frame adjacent to the lever, a spring-actuated pawl connected with the lever to engage the said rack, and the link 75 connecting the said levers substantially as, and for the purposes stated.

6. In a cultivator, means for adjustably connecting the shovel-bearing arms with the cultivator-beam, comprising in combination a block 42, having an opening 48 therein to receive the shovel-bearing arm, a plate 49 on the block 42 to cover the opening 48, a bolt

43 passed through said plate through the block
42 into the cultivator-beam to thereby aid in
connecting the plate 49 with the block 42 and
to pivot the block 42 to the cultivator-beam,
5 a bolt 50, to connect the bolt 49 with the block
42, and a bolt 47 to pass through the segmen-
tal slot 44 into the beam whereby the block
42 may be clamped to the beam in any desir-

able position, substantially as, and for the
purposes stated.

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