

(No Model.)

3 Sheets—Sheet 1.

J. M. W. LONG.
CULTIVATOR.

No. 554,703.

Patented Feb. 18, 1896.

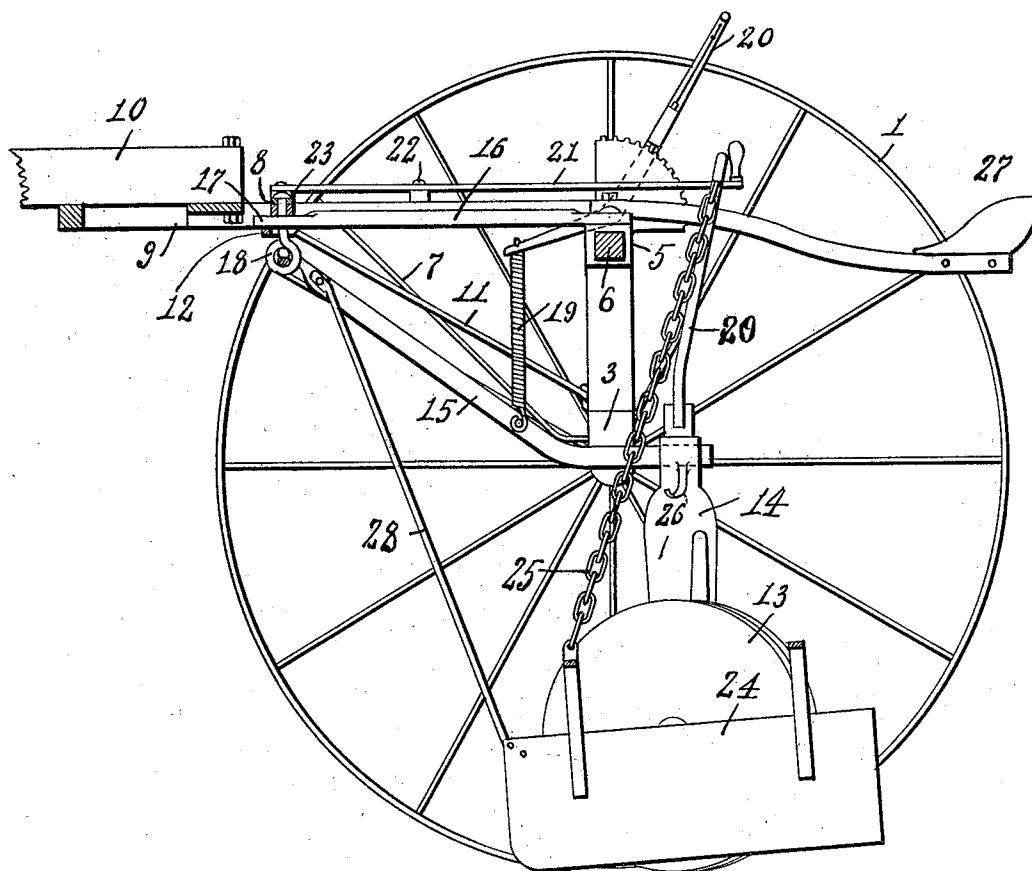


Fig. 1.

John M. W. Long

Inventor

by James W. See

Attorney

Witnesses:

E. R. Shipley.
M. S. Belden.

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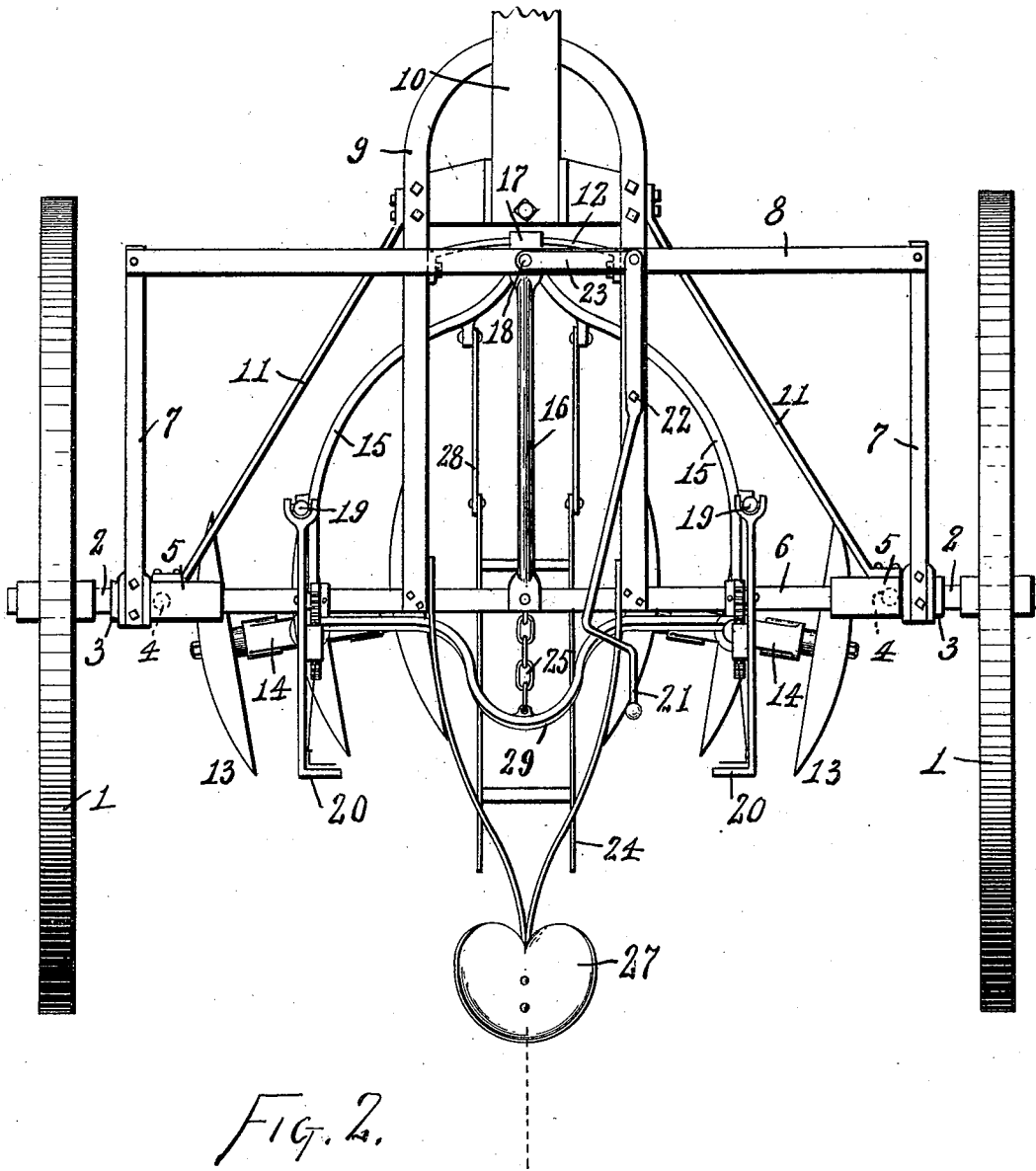


Fig. 2.

John M. W. Long

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E. R. Shipley
M. S. Belden

Inventor

by James W. See

Attorney

(No Model.)

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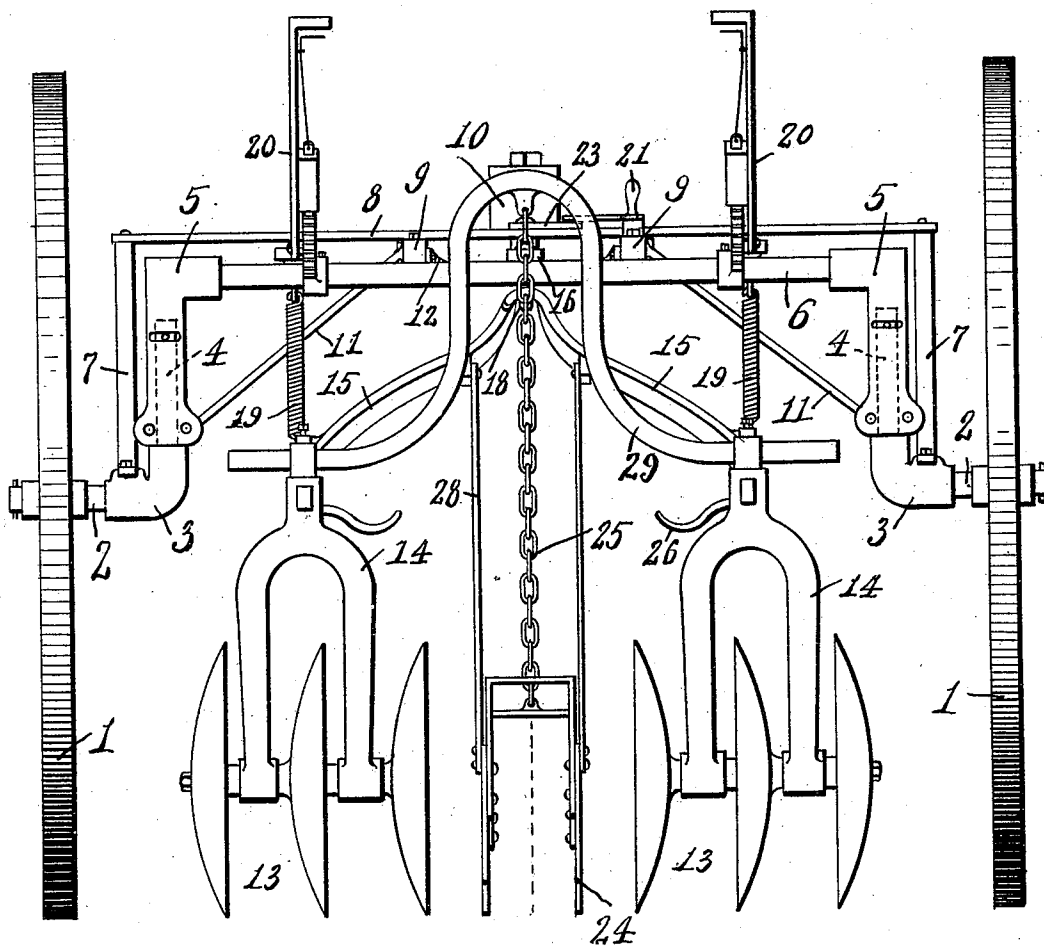


Fig. 3.

John M. W. Long

Inventor

by James M. See

Attorney

Witnesses:

E. P. Shipley.
M. S. Belden.

UNITED STATES PATENT OFFICE.

JOHN M. W. LONG, OF HAMILTON, OHIO, ASSIGNOR TO THE LONG & ALLSTATTER COMPANY, OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 554,703, dated February 18, 1896.

Application filed November 25, 1895. Serial No. 569,984. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. W. LONG, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

This invention pertains to improvements in riding-cultivators; and the invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of a cultivator embodying my improvements; Fig. 2, a plan of the same, and Fig. 3 a rear elevation of the same with the seat omitted.

In the drawings, 1 indicates the wheels; 2, the stub-axes therefor; 3, upwardly-turned inner portions of these stub-axes; 4, a vertical journal formed on the upwardly-turned portion of each stub-axle; 5, bearings for the journals 4; 6, a bar rigidly connecting the two bearings 5 and forming with the bearings and stub-axes the arch of the cultivator; 7, arms with their rear ends rigidly connected with the stub-axes 2, their forward ends inclining upwardly to above the level of arch-bar 6; 8, a link extending across between and pivoted to the forward ends of arms 7; 9, a tongue-frame rigidly secured to arch-bar 6 and extending forwardly therefrom and forwardly beyond link 8; 10, the tongue rigidly secured to tongue-frame 9, and 11 braces having their rear ends rigidly secured at the bases of bearings 5 and having their forward ends inclining inwardly and upwardly to rigid points of attachment on the forward portion of tongue-frame 9.

The tongue, tongue-frame, arch-bar 6, and bearings 5 together form the rigid frame of the cultivator. To this frame the axles are united by the journals 4, which journals have a limited capacity for turning, thus forming a "crazy-wheel" cultivator. Arms 7 and link 8 connect the two stub-axes and cause the two wheels, in swiveling, to maintain relatively parallel positions. A lever arrangement, to be later described, is provided for swiveling the wheels.

Proceeding with the drawings, 12 indicates a guide-bar extending across the tongue-frame 10 at the forward portion of the tongue-

frame; 13, the cultivating-tools, (illustrated in the exemplification as being formed of disk gangs, two gangs of three disks each, the pair of gangs being disposed below the arch-bar and in position to straddle the corn-row;) 14, a supporting-fork for each disk gang, the same projecting upwardly from the disk-axes; 15, a pair of drag-bars, one for each disk gang, the rear ends of these drag-bars being rigidly attached to the forks 14, while their forward ends are formed into eyes or hooks to engage an eyebolt, the forward ends of the two drag-bars being converged and elevated to a common point; 16, a radius-bar with its rear end pivoted at the center of length of arch-bar 6 and with its forward end projecting over and resting upon guide-bar 12; 17, the forward end of radius-bar 16, resting upon the guide-bar; 18, an eyebolt carried by the forward end of radius-bar 16 and engaged by the forward ends of drag-bars 15, the shank of this eyebolt pivotally uniting the forward end of radius-bar 16 with the center of link 8; 19, supporting-springs with their lower ends attached to the drag-bars 15 forward of the gangs; 20, adjusting-levers mounted upon arch-bar 6 and connected with the upper ends of spring 19 and provided with detents to hold the levers in adjusted positions; 21, a lever having a handle at its rear end in position to be conveniently reached by the driver riding upon the seat of the implement; 22, the vertical pivot of this lever supported by the tongue-frame; 23, a link pivoted to the forward end of lever 21 and to connecting-bar 8; 24, a double fender suspended below the arch-bar and between the gangs, and formed to straddle the corn-row; 25, a chain having its lower end attached to this fender and serving to sustain the fender at desired height; 26, foot-rests on the forks of the gangs; 27, the driver's seat, disposed to the rear of the arch-bar and supported by a bracket secured to the tongue-frame and arch-bar; 28, drag-rods for the fender, having their lower ends rigidly secured to the fender and having their upper forward ends pivoted to the drag-bars 15 of the gangs, and 29 an arched stretcher-bar disposed to the rear of arch-bar 6 and connected at its outer lower ends adjustably with forks 14 of the gangs so

that the gangs may be adjusted any distance apart and rigidly held in position of adjustment.

Referring to Fig. 2, in which all the parts are symmetrically disposed, if the driver moves the handle of lever 21 to the right he will move link 8 to the left, thus swiveling arms 7 and both of the main wheels 1 to an angle, the two wheels remaining parallel with each other. The shank of eyebolt 18 forms a vertical pivot uniting radius-bar 16 to link 8 and also uniting link 23 to link 8. As link 8 moves endwise, under the influence of lever 21, it carries eyebolt 18 with it, thus swinging the forward ends of drag-bars 15 to a position central with reference to the main wheels 1 in such angular position as they may occupy after adjustment. The side-swiveling of the forward ends of the drag-bars 15 turns the gangs to adapt them to the changing path of the implement as lever 21 is operated. Guide-bar 12 resists the downward draft of drag-bars 15. The gang structure receives an adjustable degree of support from springs 19, and the two gangs may rise and fall independently, the articulate connection of drag-bars 15 with eyebolt 18 forming in effect a horizontal pivot on which the entire gang structure may oscillate, the gang structure being also capable, as a whole, of side motion between the wheels under the influence of the driver's feet upon rests 26.

It is to be observed that the draft strains of the gangs are met by radius-bar 16, acting, in the exemplification, under compression, and that when the forward ends of drag-bars 15 are swerved sidewise by the use of lever 21 the frictional resistance to such motion, as imposed by the strains of the draft, is simply the friction of pivots. In the exemplification the fixed end of the radius-bar is pivoted directly to arch-bar 6; but an equivalent point of attachment may be found at any other point on the main frame of the implement, so long as that point is in the same line of draft with the pivot-point at the free end of the radius-bar.

I claim as my invention—

1. In a cultivator, the combination, substantially as set forth, of a wheeled frame, a radius-bar pivoted thereto and disposed with its length in the line of draft of the implement, a pair of cultivating-tools disposed be-

low said frame between the wheels thereof and arranged to straddle a corn-row, drag-bars projecting forwardly from said cultivating-tool, a pivot articulately connecting the forward ends of said drag-bars to the free end of said radius-bar, and a lever for shifting the free end of said radius-bar.

2. In a cultivator, the combination, substantially as set forth, of a rigid frame, stub-axles vertically journaled thereto, wheels on the stub-axles, arms projecting rigidly forward from the stub-axles, a link connecting said arms, a lever for shifting said link and arms, a pair of cultivating-tools disposed below the rear portion of said frame between said wheels and arranged to straddle a corn-row, drag-bars projecting forwardly from said cultivating-tools and upwardly to a common point at the center of length of said link, and an articulate connection between said link and the forward ends of said drag-bars.

3. In a cultivator, the combination, substantially as set forth, of a rigid frame, stub-axles vertically journaled thereto, wheels on said stub-axles, arms projecting forward from said stub-axles, a radius-bar parallel with said arms and having one of its ends pivoted to said frame, a link pivoted to the forward ends of said arms and to the free end of said radius-bar, a lever for shifting said link endwise, a pair of disk gangs arranged to straddle a corn-row, and drag-bars projecting forwardly from each disk gang into articulate connection with the pivot uniting the free end of said radius-bar to said link.

4. In a cultivator, the combination, substantially as set forth, of a rigid frame, stub-axles vertically journaled thereto, wheels on said stub-axles, arms projecting forward from said stub-axles, a link connecting the forward ends of said arms, a pair of disk gangs arranged to straddle a corn-row, drag-bars projecting forwardly from said disk gangs, supporting-springs with their lower ends attached to said drag-bars, adjusting-levers carried by said frame and connected with the upper ends of said springs, a lever for shifting said link, and an articulate connection between said link and the forward ends of said drag-bars.

JOHN M. W. LONG.

Witnesses:

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E. A. BELDEN.