

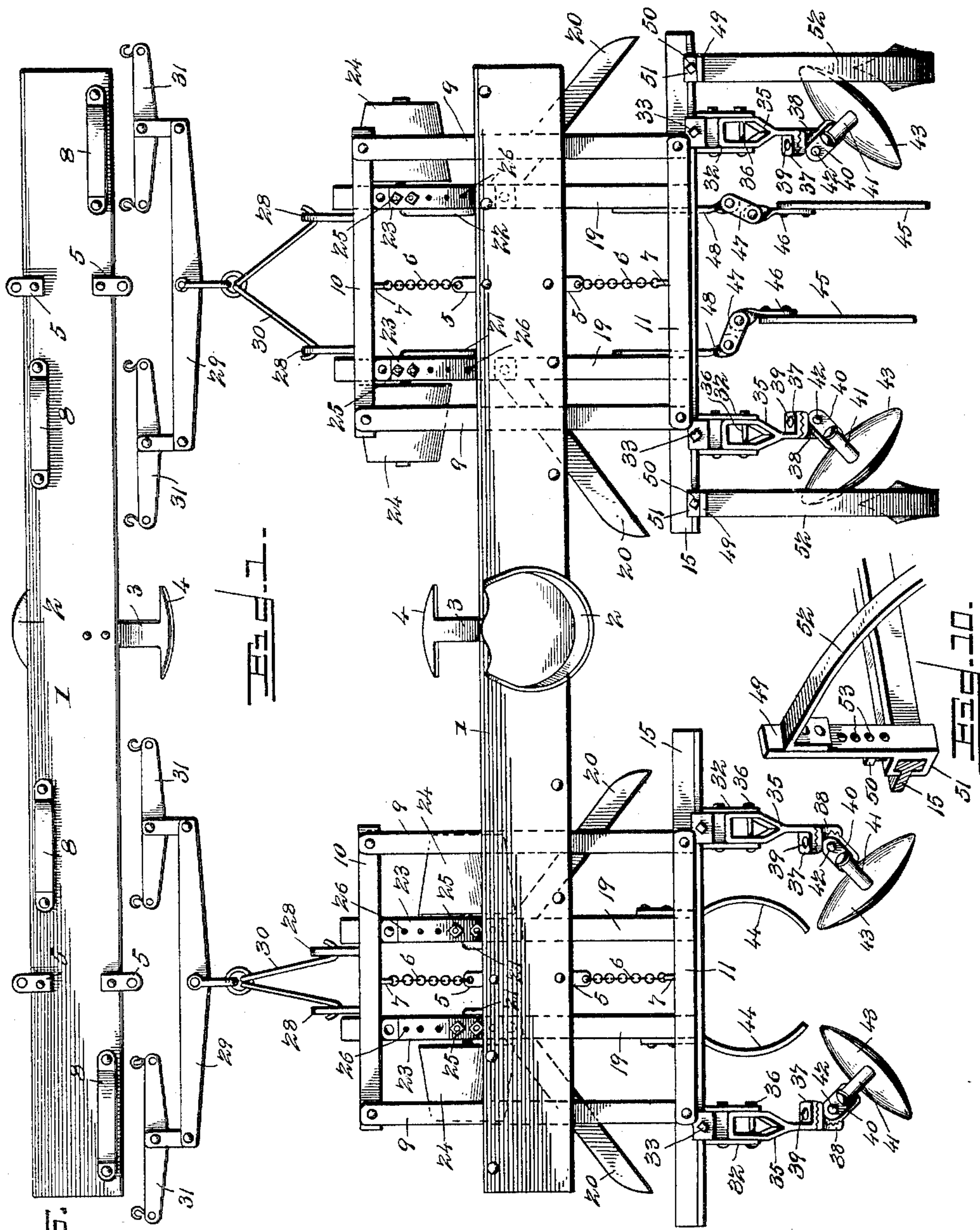
(No Model.)

2 Sheets—Sheet 1.

R. L. FARNSWORTH.  
CULTIVATOR.

No. 595,122.

Patented Dec. 7, 1897.



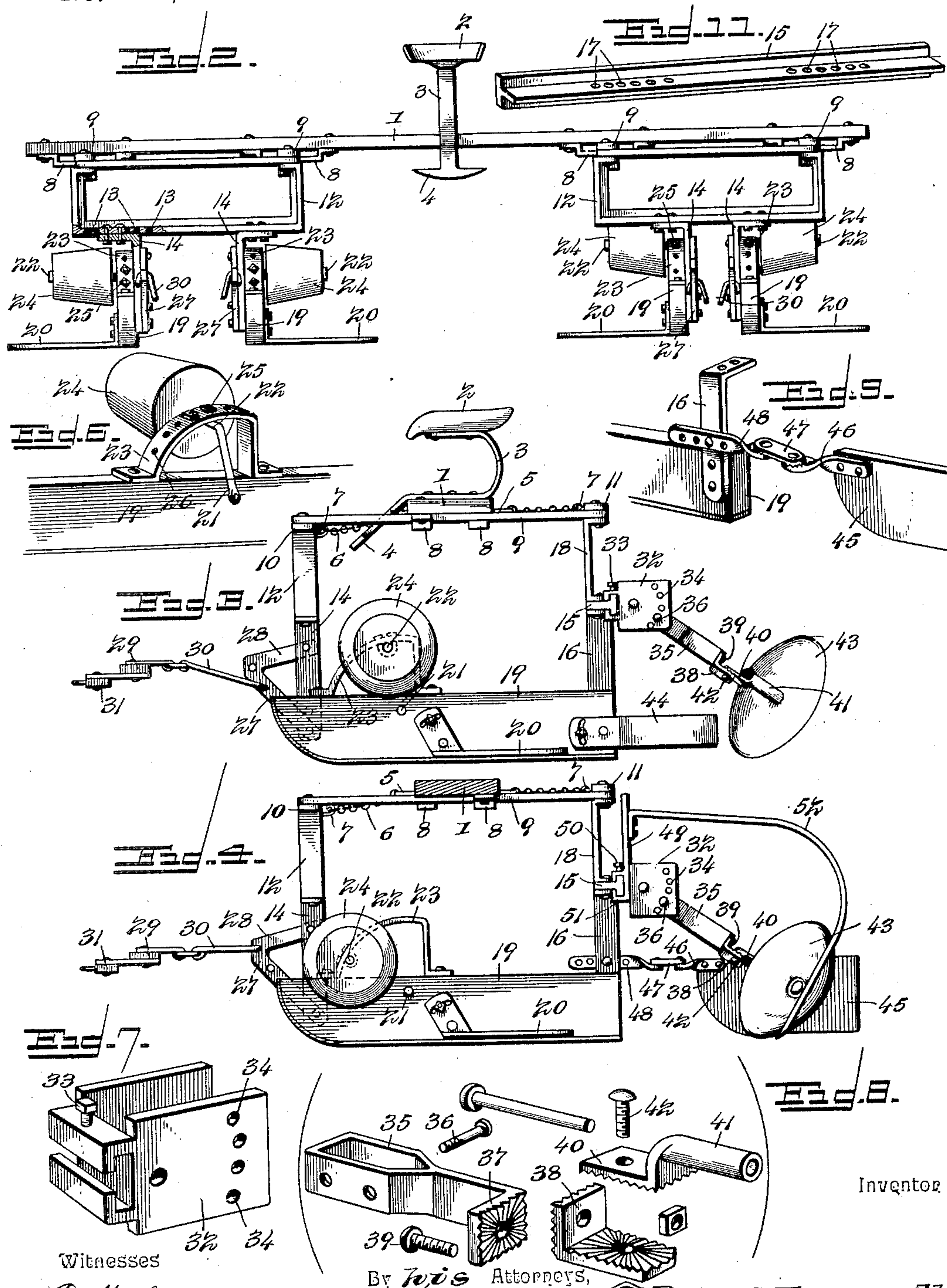
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By *his* Attorneys,

 *Ralph L. Farnsworth*

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# UNITED STATES PATENT OFFICE.

RALPH LESTER FARNSWORTH, OF PALMER, KANSAS.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 595,122, dated December 7, 1897.

Application filed October 12, 1896. Serial No. 608,628. (No model.)

*To all whom it may concern:*

Be it known that I, RALPH LESTER FARNSWORTH, a citizen of the United States, residing at Palmer, in the county of Washington and State of Kansas, have invented a new and useful Cultivator, of which the following is a specification.

The subject-matter of this invention is a cultivator especially designed for treating listed soil, the operating parts being combined with particular reference to their adjustment to meet every condition and requirement and to enable a series of cultivators to be coupled so as to adapt themselves to any inequalities or varying distance between the rows to be cultivated.

An essential feature of the invention is the provision of means whereby the draft is lightened and the earth pulverized and in the connections whereby the coupling-board is prevented from tipping when the driver is perched upon the seat applied thereto.

Other objects and advantages are contemplated and will readily suggest themselves to persons skilled in the use and construction of agricultural implements of this character as the details of the invention are thoroughly understood; and to this and other ends which pertain to the invention the improvement consists of the novel features and combinations of parts which hereinafter will be more particularly set forth, illustrated, and finally embodied in the claims.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a top plan view of a lister-cultivator for attaining the objects of this invention. Fig. 2 is a front view thereof. Fig. 3 is a side elevation showing the cultivator adjusted for its primary passage over the field. Fig. 4 is a side elevation of the cultivator as it will appear when rigged for passing over the field a second time. Fig. 5 is an inverted view of the coupling-board for connecting the cultivators in pairs or series. Fig. 6 is a detail view of the adjustable mountings for a roller. Fig. 7 is a detail view of

the bracket-casting, by means of which a cultivator-disk has adjustable connection with the frame. Fig. 8 is a detail view of the connections intermediate of a cultivator-disk and a bracket. Fig. 9 is a detail view of the adjustable connections between a fender and the frame. Fig. 10 is a detail view of the means whereby a cultivator-shovel operating in the rear of a cultivator-disk has adjustable connection with the frame. Fig. 11 is a detail view of a T-bar, showing the openings which admit of the hangers having adjustable connection therewith.

Corresponding and like parts are referred to in the following description and indicated in the several views of the accompanying drawings by the same reference-characters.

The cultivators are constructed substantially alike and provided in series, two being shown, and are connected by a coupling-board 1, upon which is centrally mounted the driver's seat 2, the latter being attached to the upper end of a spring-standard 3, which is secured to the coupling-board and projects in advance thereof and has a cross-piece 4 fastened thereto, forming a foot-rest. Plates 5 are attached to the opposite edges of the coupling-board, and draft-chains 6, connected at their inner ends thereto, have their outer ends engaged with hooks 7, applied to the front and rear bars of the cultivator-frame. Keepers 8, consisting of rods having their ends bent and secured to the coupling-board, are applied to the opposite edges of the said coupling-board and receive the longitudinal or side bars of the cultivator-frames and serve to hold the cultivators in proper position and prevent the tipping of the coupling-board by reason of their application thereto out of line.

As previously stated, the cultivators are constructed substantially alike. Hence a detailed description of one will be sufficient to a clear understanding of both. The frame is of rectangular outline in plan elevation, and comprises side bars 9 and front and rear bars 10 and 11, respectively, secured at their ends to the side bars in any substantial way. A bar 12, parallel with the front bar 10, has its end portions bent vertically, thence inward, and secured to the said bar 10, and is formed of angle-iron, and has a series of openings 13 at intervals in its length for the adjustable



connection therewith of standards 14. A T-bar 15 is secured to the lower ends of hangers 16, secured at their upper ends to the frame, and is provided at intervals in its length with openings 17 for adjustable connection therewith of standards 18. This T-bar is parallel with the bar 12 and about in the same plane therewith and has its end portions extending beyond the sides of the cultivator-frame. Runners 19 are secured to the lower ends of the standards 14 and 18 and are adapted to be separated or brought nearer together by reason of the adjustable connection of the standards with the bars 12 and 15 in the manner stated. Blades 20 are secured to the outer sides of the runners intermediate of their ends and incline rearwardly and outwardly in opposite directions and are intended to cut grass, weeds, and kindred objectionable growths. The front end of each blade is bent and is adapted to have pivotal connection with a runner and is provided with an arcuate slot to receive a fastening-bolt, by means of which the angular adjustment of the blade with the surface of the ground can be effected.

Crank-axles 21 have pivotal connection at their lower ends with the runners, and their spindles 22 project beyond the sides of the runners and across the path of bracket-segments 23 and are supplied with rollers 24, and these crank-axles are adapted to turn on their pivotal connection with the runners, so as to raise and lower the spindles and the rollers 24 mounted thereon and are held in an adjusted position by means of the bracket-segments and suitable fastenings cooperating therewith, which, as shown, consist of hooked bolts 25 and a series of openings 26, formed in the bracket-segments. The rollers 24 are frusto-conical and are placed with their larger bases adjacent to the runners and with their smaller bases outward, thereby the better serving to centralize the cultivator between the rows being cultivated. These rollers serve to crush clods and lumps and to pulverize the earth and at the same time to lighten the draft, as they relieve the runners of the greater part of the load or may be adjusted so as to carry the entire load if found of advantage.

Bars 27 are attached at their lower ends to the front ends of the runners 19 and incline forwardly and upwardly and are strengthened by braces 28, which have connection with the upper ends of the bars 27 and extend rearwardly and have connection with the standards 14. The doubletree 29 has adjustable connection by means of hounds 30 with the inclined bars 27, the rear ends of the hounds being hooked and adapted to engage with one of a series of openings formed in the inclined bars 27. Singletrees 31 are connected in the usual way to the ends of the doubletree, and the horses for drawing the implement over the field are hitched thereto in the usual manner.

Bracket-castings 32 are slidably mounted

upon the end portions of the T-bar 15, and their front end is shaped so as to embrace the flanges or cross-head of the bar, and these castings are secured in place by any suitable fastening, such as a binding-screw 33. The rear portion of each casting 32 consists of parallel wings or members having a vertical series of openings 34, and an arm 35, having pivotal connection with the front end of the wings and fitting between the latter, is adapted to be adjusted and is secured in an adjusted position by a pin 36, passing through corresponding openings 34 and openings in the separated parts of the arm. The rear end of the arm 35 is bent, as shown at 37, and an L-coupling 38 has adjustable connection therewith by means of a bolt 39, passing through corresponding openings in a member of the L-coupling and the bent end 37. The meeting faces of the parts 37 and 38 are serrated, toothed, or otherwise roughened to secure positive engagement when the parts are clamped by means of the bolt 39. A plate 40, having a bearing-sleeve 41, has adjustable connection with the L-coupling 38 by means of a bolt 42 passing through coincident openings in the parts 40 and 38, and the said parts have their meeting faces toothed or serrated to prevent slipping when clamped by means of the bolt.

A cultivator-disk 43 is journaled in the bearing-sleeve 41 and is capable of vertical adjustment by reason of the adjustable connection of the arm 35 with the bracket-casting 32, and its angular adjustment with respect to the line of draft can be changed by shifting the position of the plate 40 with respect to the coupling 38, and said cultivator-disk can be adjusted toward and from the vertical by reason of the adjustable connection of the coupling 38 with the arm 35, thereby making provision for varying the pitch of the cultivator-disk to cause it to cut under more or less or operate in a vertical plane.

Blades 44 are secured to the rear ends of the runners and curve outwardly between their ends and are designed to loosen the crust and throw sufficient earth toward the plants to cover the weeds, and these blades are capable of vertical adjustment, their front ends being slotted to receive a bolt or other fastening by means of which they are held in an adjusted position. These blades are only used when the cultivator is passed over the field for the first time and are left off when the implement is drawn over the field a second time.

When the cultivator is passed over the field a second time, the runners are spread or separated to a greater distance than is necessary for the first treatment, and fenders and covering-shovels are applied, the former to protect the plants from injury and the latter to loosen the earth sufficiently so it will absorb moisture and admit of the air penetrating the soil for the better growth of the plants.

The fenders 45 have plates 46 attached to



and extending forward from their front ends, the projecting portion of the plates being given a quarter-twist to bring it into an approximately horizontal position. A coupling 5 47 has adjustable connection with the front end of each plate 46 and with the rear end of a bar 48, and the meeting faces of these parts are serrated, roughened, or otherwise constructed to prevent slipping when the parts 10 are clamped together by means of the fastening-bolts. The bars 48 have adjustable connection with the standards 18, whereby the fenders may be caused to run to a greater or less distance in the rear of the runners. The 15 coupling 47 admits of each fender being adjusted laterally to any required degree and yet run parallel with the direction of movement of the implement. A stake 49 is slidably mounted upon each end of the T-bar 15 20 and is held in place by suitable means, as a binding-screw 50, the latter operating through a lip of a clip 51, attached to or formed with the lower end of the stake. A cultivator-shovel 52, bent at its front end and adjustably secured to a stake 49 by means of a bolt 25 passing through an opening in the bent end of the standard and through one of a series of openings 53 formed in the stake 49, is provided for loosening the earth in the rear of 30 the cultivator-disk for the purpose set forth. The cultivator-disks for the second cultivation are adjusted so as to throw the loose earth toward the plants, whereas for the first cultivation the disks are arranged to throw 35 the earth away from the plants, and the shovels 52 are provided solely for the purpose of loosening the earth in the rear of the cultivator-disks to prevent the baking of the land and for the purposes set forth.

40 Having thus described the invention, what is claimed as new is—

1. In a lister-cultivator, the combination with runners supporting the frame and the operating parts attached thereto, of frusto-conical rollers applied directly to the runners 45 with their smaller bases outward and their larger bases adjacent to the runners for centralizing the cultivator between rows, lightening its draft and crushing clods, and means for adjusting the rollers vertically with respect to the runners and securing them in an adjusted position, substantially as specified.

2. In a lister-cultivator, the combination with runners supporting the frame and the 55 operating parts carried thereby, of crank-axles having pivotal connection at one end with the runners at a point between their ends, frusto-conical rollers mounted upon the spindles of the crank-axles and adapted to centralize and lighten the draft of the machine 60 and crush clods, and means applied to the runners for securing the crank-axles near their spindle or outer ends in an adjusted position, whereby the relative elevation of the 65 rollers with respect to the runners may be regulated, substantially as and for the purpose set forth.

3. In a lister-cultivator, the combination with runners, of crank-axles having pivotal connection with the runners, rollers mounted 70 upon the spindles of the crank-axles, bracket-segments secured to the runners, and means for positively securing the spindles of the crank-axles in an adjusted position, substantially as and for the purpose set forth. 75

4. In a cultivator, the combination with runners, standards secured at their lower ends to the runners, a bar connecting the upper ends of the standards, bars secured at their 80 lower ends to the standards and inclining forwardly and upwardly, and having a series of openings in their length, and braces connecting the upper ends of the inclined bars with the upper ends of the standards, of a draft-bar, and hounds having their rear ends 85 hooked and adapted to make adjustable connection with the aforesaid inclined bars, substantially as and for the purpose set forth.

5. In a cultivator, the combination of the frame having a T-bar connected therewith, a 90 bracket-casting slidably mounted upon the cross-head of the T-bar and provided with means for securing it in an adjusted position, and an arm bearing a cultivating device and having adjustable connection with the 95 bracket-casting, substantially as and for the purpose set forth.

6. In a cultivator, the combination with an arm, of a coupling having adjustable connection with the arm, and a plate bearing a part 100 to travel upon the ground and having adjustable connection with the said coupling, substantially as and for the purpose set forth.

7. In a cultivator, the combination of the frame, a bracket-casting having adjustable 105 connection with the frame, an arm vertically adjustable with respect to the bracket-casting, a coupling having adjustable connection with the arm, and a plate bearing a cultivating device and having adjustable connection 110 with the coupling, substantially in the manner and for the purpose set forth.

8. In a cultivator, the combination of an arm, a coupling having adjustable connection with the arm, a plate having adjustable connection 115 at one end with the coupling and provided at its opposite end with a bearing-sleeve, and a cultivating-disk mounted in the bearing-sleeve, substantially as set forth.

9. In combination, a series of cultivators, 120 a coupling-board for connecting the cultivators, and draft-chains interposed between the coupling-board and connecting it with the front and rear portions of the cultivator-frame, substantially as set forth. 125

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

RALPH LESTER FARNSWORTH.

Witnesses:

SAMUEL STINE,  
F. M. SNELL.