

(No Model.)

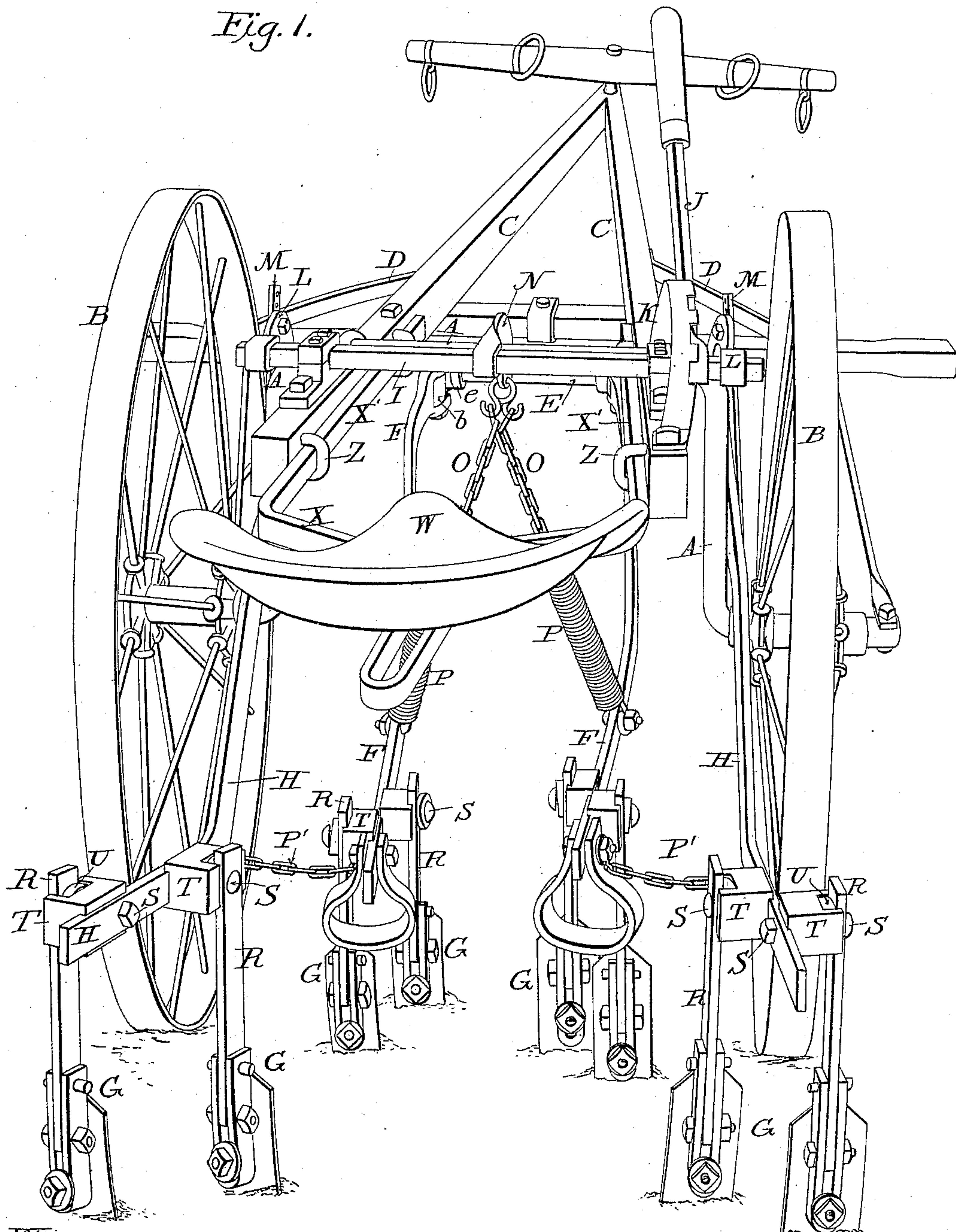
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A. G. POWERS.
CULTIVATOR.

No. 396,833.

Patented Jan. 29, 1889.

Fig. 1.



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Inventor:

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(No Model.)

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Fig. 2.

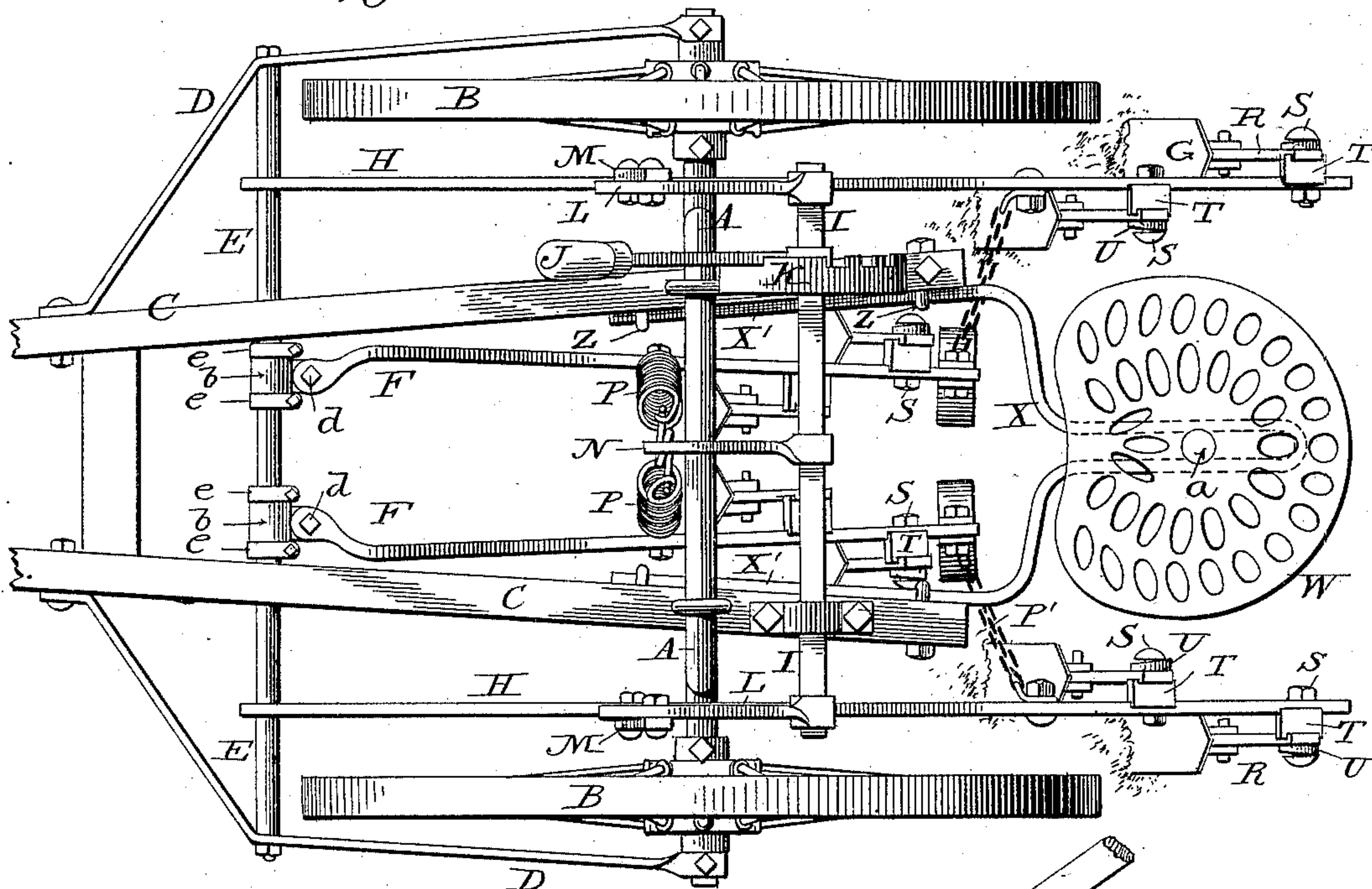
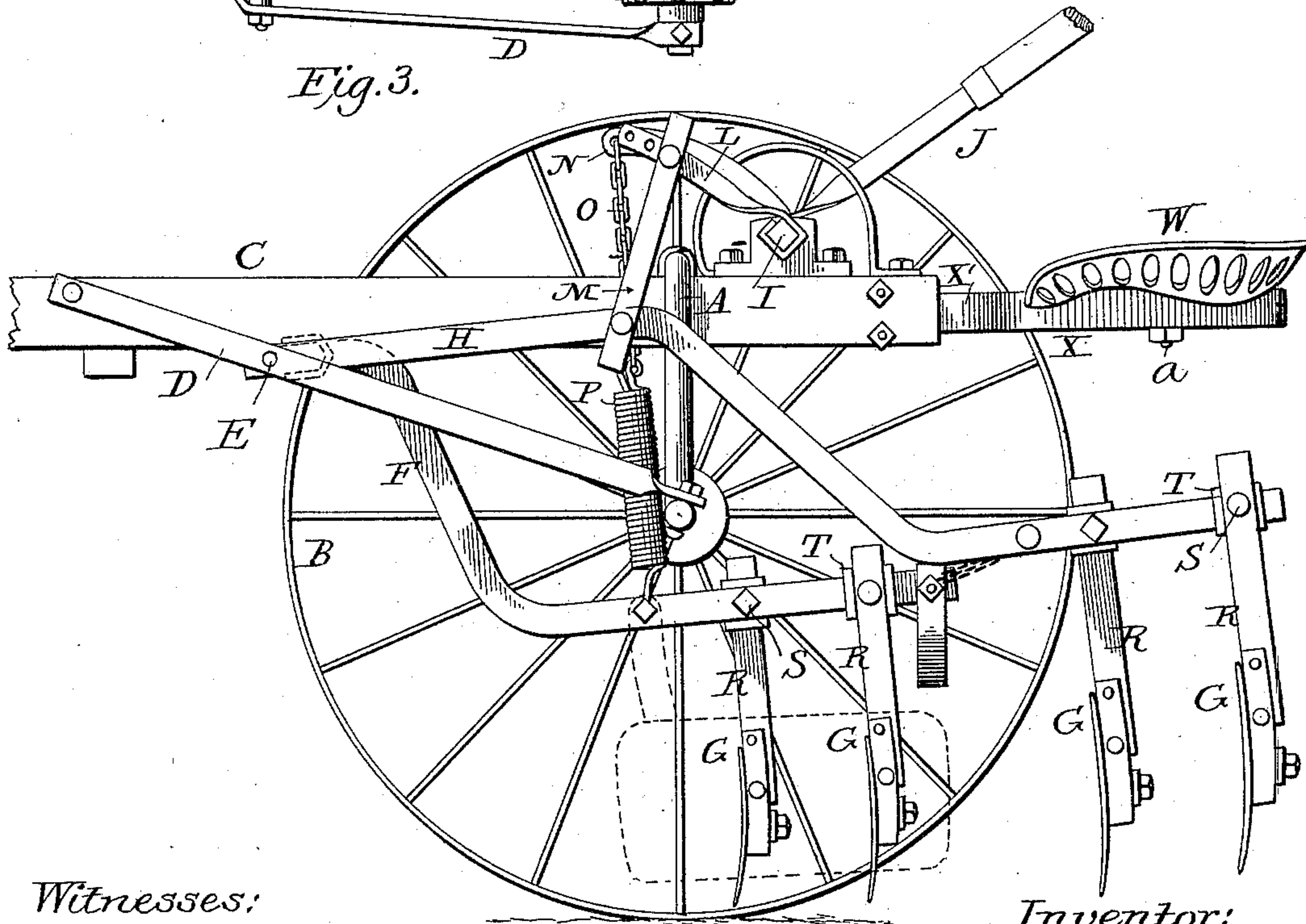


Fig. 3.



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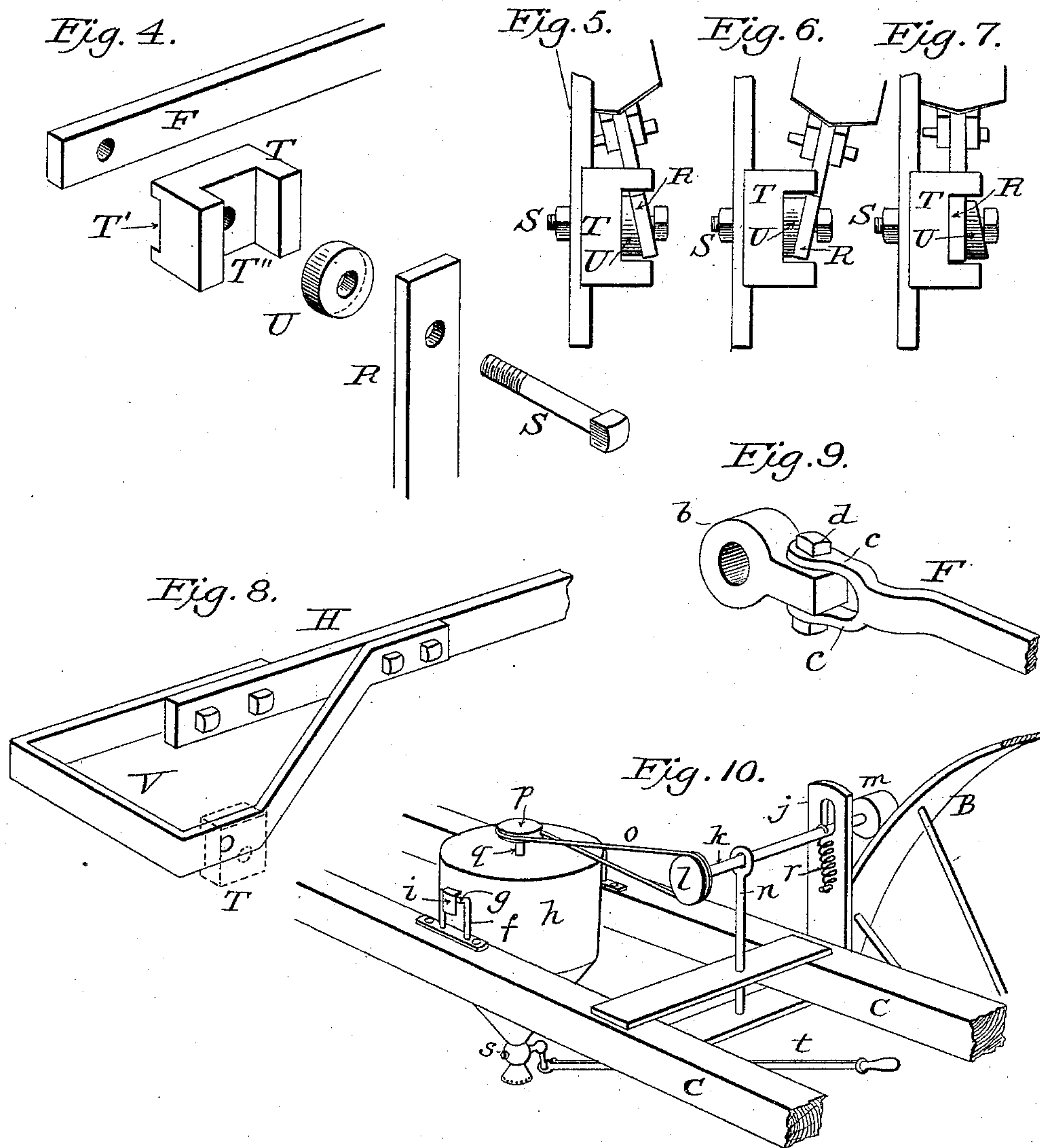
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3 Sheets—Sheet 3.

A. G. POWERS.
CULTIVATOR.

No. 396,833.

Patented Jan. 29, 1889.



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UNITED STATES PATENT OFFICE.

ADELBERT G. POWERS, OF BILLSBOROUGH, NEW YORK.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 396,833, dated January 29, 1889.

Application filed September 28, 1888. Serial No. 286,650. (No model.)

To all whom it may concern:

Be it known that I, ADELBERT G. POWERS, of Billsborough, in the county of Ontario and State of New York, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

My invention relates to cultivators, and has reference more particularly to that class which are mounted upon wheels, though various features of the invention may be applied to other styles of machines.

In the drawings, Figure 1 is a perspective view of my improved cultivator; Fig. 2, a top plan view; Fig. 3, a side view with one of the wheels removed; Figs. 4, 5, 6, and 7, detail views illustrating the construction of the tooth-standard-attaching device; Fig. 8, a perspective view of the extra tooth frame or attachment. Fig. 9 shows the drag-bar coupling. Fig. 10 shows a section of the pole with the tank mounted upon it.

A indicates a cranked axle; B B, the wheels carried thereby or mounted thereupon, and C C the poles secured to the arched portion of the axle and connected at their forward ends.

D D are braces secured at one end to the ends of the axle and at the other end to the poles C C, the said braces being also adapted to aid in supporting the draw-bar E, extending transversely across the machine parallel with the axis. The draw-bar is further supported in perforated lugs secured to the under side of the poles. Pivotaly connected with suitable blocks, b, mounted upon said draw-bar E, between the poles C C, are two bars, F F, each of said drag-bars being adapted and arranged to rise and fall, and in thus rising and falling to swing from the draw-bar as a center. These drag-bars are each provided with one or more teeth, G, which are secured to the drag-bar by means hereinafter described. Secured to the draw-bar, near its outer ends, is a second set of drag-bars, H H, which are provided with teeth G, the said bars H H extending in rear of the bars F F, as clearly shown in Figs. 1, 2, and 3.

The outer drag-bars, H H, pass between the upright portion of the cranked or arched axle and the wheels; and from this arrangement it will be observed that a machine much narrower than those now in use is obtainable

without any reduction in the working capacity of the machine. This is particularly desirable in a machine for cultivating potatoes and other crops planted close together.

I indicates a rock-shaft journaled in bearings on the upper face of the poles or tongue and provided with a handle, J, which latter is adapted to engage with a notched arc, K, secured to the tongue or poles, as shown in Figs. 1, 2, and 3. This handle may be provided with a pawl to engage the arc, or the handle may be so made as to spring into the notches.

At or near each end of the shaft I is an arm, L, connected by a link, M, with the outer drag-bars, H, while at about the middle of the shaft is an arm, N, connected by chains or suitable connections, O, with springs P, which are in turn connected with the inner drag-bars, F. Of course as the rock-shaft is turned forward or backward the drag-bars will be lowered or raised, as is well understood, the shaft being held in its different positions by the handle engaging the arc.

The springs P tend to draw the inner drag-bars toward each other, the inward movements of said drag-bars being limited by short chains P', connecting their ends with the outer drag-bars. By this means the inner drag-bars may be adjusted to any desired width of row, and while the springs constantly draw the drag-bars toward each other the short chains limit their inward movement. This arrangement makes the guiding of the cultivator automatic, except when the driver, meeting with some obstruction, is required to spread the inner drag-bars apart.

Each tooth G is provided with a standard, R, perforated at its upper end to receive a bolt, S, which passes through the drag-bar, a block, T, and a washer, U, as shown in Figs. 1, 2, 4, 5, 6, and 7.

The block T is provided with a seat, T', on its rear face to receive the drag-bar, and with a seat, T'', on its front face at right angles to the drag-bar, to receive the washer U and the tooth-standard.

Washer or plate U is made beveling or tapering, as shown, and when placed with its flat face against the block, as shown in Fig. 5, it will cause the tooth to incline to the left. When the flat face of the washer is in con-

tact with the standard, as in Fig. 6, the tooth and standard will incline to the right; but when the standard is placed within the seat T' and the washer placed on the outer face of the standard, as in Fig. 7, no inclination or pitch will be given to the tooth. This construction is simple and cheap and permits of varied adjustments of the tooth without danger of exceeding certain limits, and at the same time requiring the use of but a single bolt. In order to adapt the machine to other uses than that for which it is primarily intended, it is necessary to provide additional teeth or teeth set farther apart, and to secure this result I provide the frame V. (Shown in Fig. 8.) This frame is made of band-iron, and is approximately triangular in form, the frame being flattened and perforated at the apex, and having its ends embracing opposite faces of and bolted to the rear end of the outer drag-bar. This frame is provided with a block, T, and attendant parts, as shown in dotted lines in Fig. 8.

Secured to the inner drag-bars are guards or fenders, (shown in dotted lines in Fig. 3,) which prevent injury to the plants, the said guards being secured in position by the bolt attaching the spring to the drag-bar.

W indicates the seat mounted upon a support or standard, X, as shown, the said support having two arms, X' X', which lie flat against the inner faces of the poles at their rear ends and pass through the eyes or staples Z, secured to the poles or tongue. Immediately beneath the seat the arms are brought closer together, so as to form a U-shaped support for the seat, the latter being adjustable upon the arms and held in place by a bolt, a, Figs. 2 and 3.

As before stated, the inner drag-bars are pivotally secured to blocks b, (represented in Figs. 2, 3, and 9,) which will be advisably made in the form of a casting, with a hole to receive the draw-bar E, and with a perforated lug to fit between the separated ends or ears c of the drag-bars F, the latter being secured to the blocks by means of a bolt, d. Collars e on opposite sides of the blocks are applied to the draw-bar to prevent any movement of the blocks upon the latter.

Mounted upon the pole C are brackets f f, which have a cross-bar, g, which will advisably be curved on the arc of a circle to conform to a tank, h, containing paris-green and water in solution, (or any other suitable material in solution.) Upon the sides of the tank are arms or hooks i, which hook over or engage the cross-bars g, thus suspending the tank between tongues, as shown in Figs. 2 and 3.

Mounted upon the tongue C, near one of the wheels B, is an upright, j, slotted at its upper end to receive a shaft, k, carrying at one end a grooved wheel, l, and at the other end a friction-wheel, m, to bear upon wheel B, the said shaft being supported at its inner end by an

upright standard or support, n, having an eye at its upper end, as shown in Fig. 10. A belt or cord, o, passes about the wheel l and about a similar wheel, p, on the upper end of a stirrer-shaft, q, projecting through the top of the tank h, the lower end of the shaft being supported in suitable bearings within the tank and provided with fingers or agitators. A coiled spring, r, holds the shaft k down, so that its wheel m will bear at all times against the wheel B, but permits said shaft to rise slightly when the wheel B becomes covered with dirt. The tank is provided at its lower end with a valve, s, from the stem or arm of which a rod, t, extends to within reach of the operator, and the tank will also advisably be provided with a rose or spray, by means of which the solution will be sprinkled over the plants. Of course, as the machine is drawn along, motion will be imparted to the agitator within the tank, thereby stirring up and mixing the paris-green and water, or equivalent material therein contained.

It is possible that the block T might be omitted, but with not so good results as where it is used.

In Fig. 1 the apparatus for distributing paris-green is omitted to show other features of the invention; but its position will be readily understood upon reference to Fig. 10.

I am aware that wheeled cultivators have been provided with arched axles and with drag-bars mounted between the upright portions of the axle and between said upright portions and the wheels, and that cultivators have been provided with draw-bars, and to these features, separately considered, I make no claim.

Having thus described my invention, what I claim is—

1. In a cultivator, the combination, with the wheeled frame having an arched axle and a draw-bar, of two series of drag-bars, one series mounted upon the draw-bar between the upright portions of the axle and adapted to swing vertically and laterally, and the other series mounted upon the drag-bar and extending between the wheels and the upright portions of the axle and adapted to swing vertically, all substantially as shown.

2. In a cultivator, the combination, with a frame and a draw-bar, of two drag-bars pivotally connected with the latter, a rock-shaft located above each drag-bar, and coiled springs connecting the drag-bars with the rock-shaft and adapted to draw the drag-bars equally toward each other, all substantially as shown.

3. In a cultivator, the combination, with a frame and a draw-bar, of two drag-bars, a rock-shaft provided with an arm above and midway between the drag-bars, and springs connecting each drag-bar with the arm.

4. In a cultivator, the combination, with the wheeled frame, of the drag-bars, the rock-shaft, springs connecting the rock-shaft with

each of the drag-bars and adapted to draw them toward each other, and stirrups mounted upon the drag-bars.

5 5. In combination with a drag-bar having a hole or perforation, a tooth-standard having a similar hole or opening and adapted to be applied to the side face of the drag-bar, a perforated beveled plate or washer adapted to be applied to either face of the standard, and
10 a bolt passing through the bar, standard, and washer, all substantially as shown, whereby the standard may be inclined relatively to the line of draft when desired.

15 6. In combination with a drag-bar, a block having a recess in its front and rear faces, a tapering or beveled plate or washer, a tooth-standard, and a bolt passing through all of said parts.

20 7. In combination with a drag-bar, a block recessed to fit thereon, a tapering or beveled plate or washer fitting into a recess in the outer face of the block, a tooth-standard, also mounted within the outer recess, and a bolt passing through all of said parts.

25 8. In a cultivator, the combination, with the frame, of brackets secured thereto, a tank provided with hooks on its side to engage the bracket, a valved outlet, and means for opening and closing said delivery-valve.

30 9. In a cultivator, the combination, with

the wheeled frame, of a tank mounted thereon and provided with a stirrer, a yielding friction-wheel adapted to bear upon one of the driving-wheels, and connections between the friction-wheel and stirrer.

35 10. In a cultivator, the combination, with the wheeled frame, of a tank mounted thereon, a stirrer provided with a grooved wheel at its upper end, a shaft mounted upon the frame provided at one end with a friction-wheel and
40 at the other end with a grooved wheel, yielding support for the shaft, and a belt passing about the grooved wheels.

45 11. In a cultivator, the combination, with the wheeled frame, of a tank mounted thereon and provided with a stirrer having a grooved wheel at its upper end, an upright mounted upon the frame and provided with a slot, a second upright, a shaft mounted in the up-
50 rights and provided at one end with a friction-wheel and at the other end with a grooved wheel, a belt passing about the grooved wheels, and spring adapted to hold the shaft to its seat.

In witness whereof I hereunto set my hand 55 in the presence of two witnesses.

ADELBERT G. POWERS.

Witnesses:

F. C. DE MUN,

WILLIAM MENSCH.