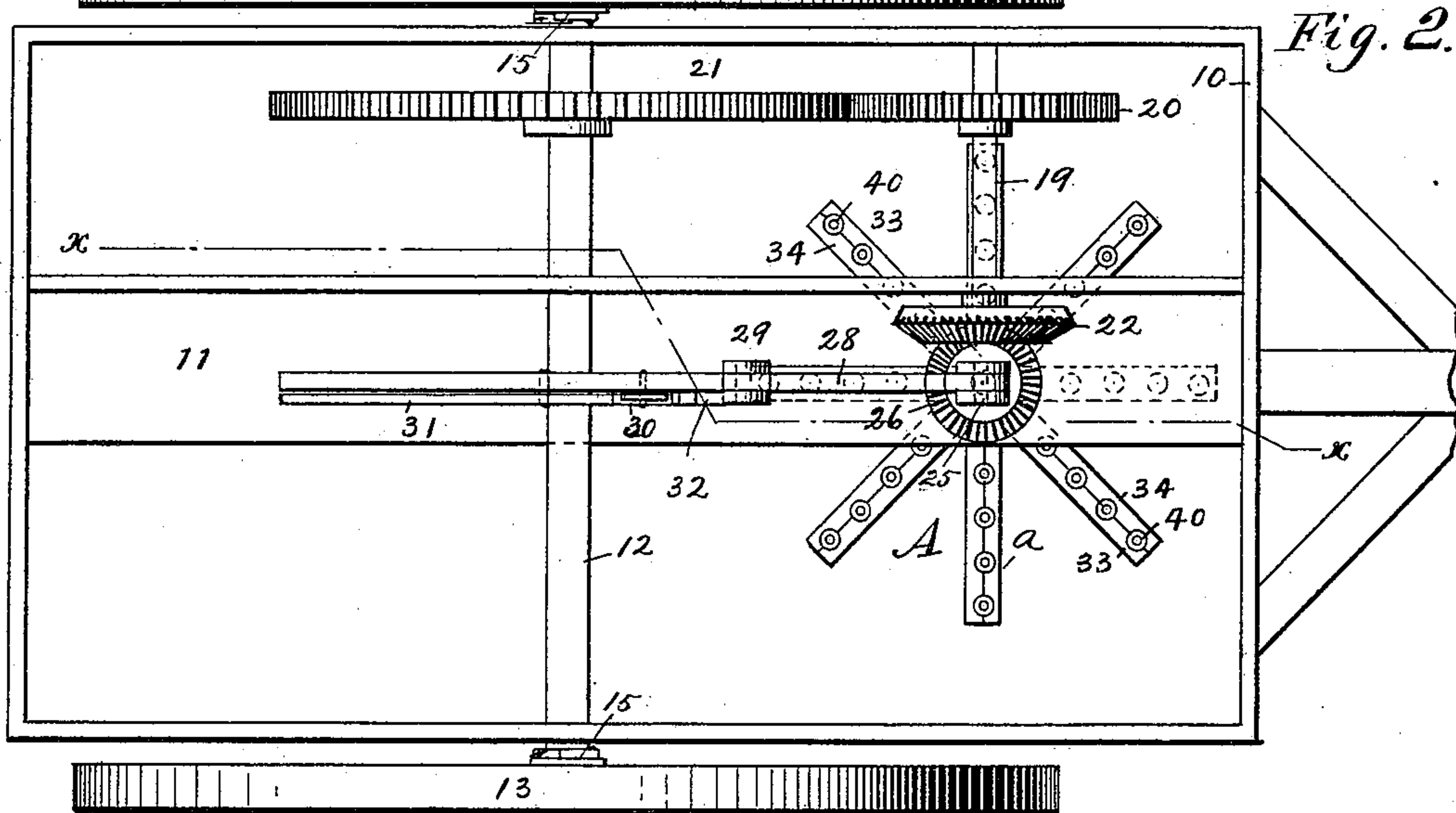
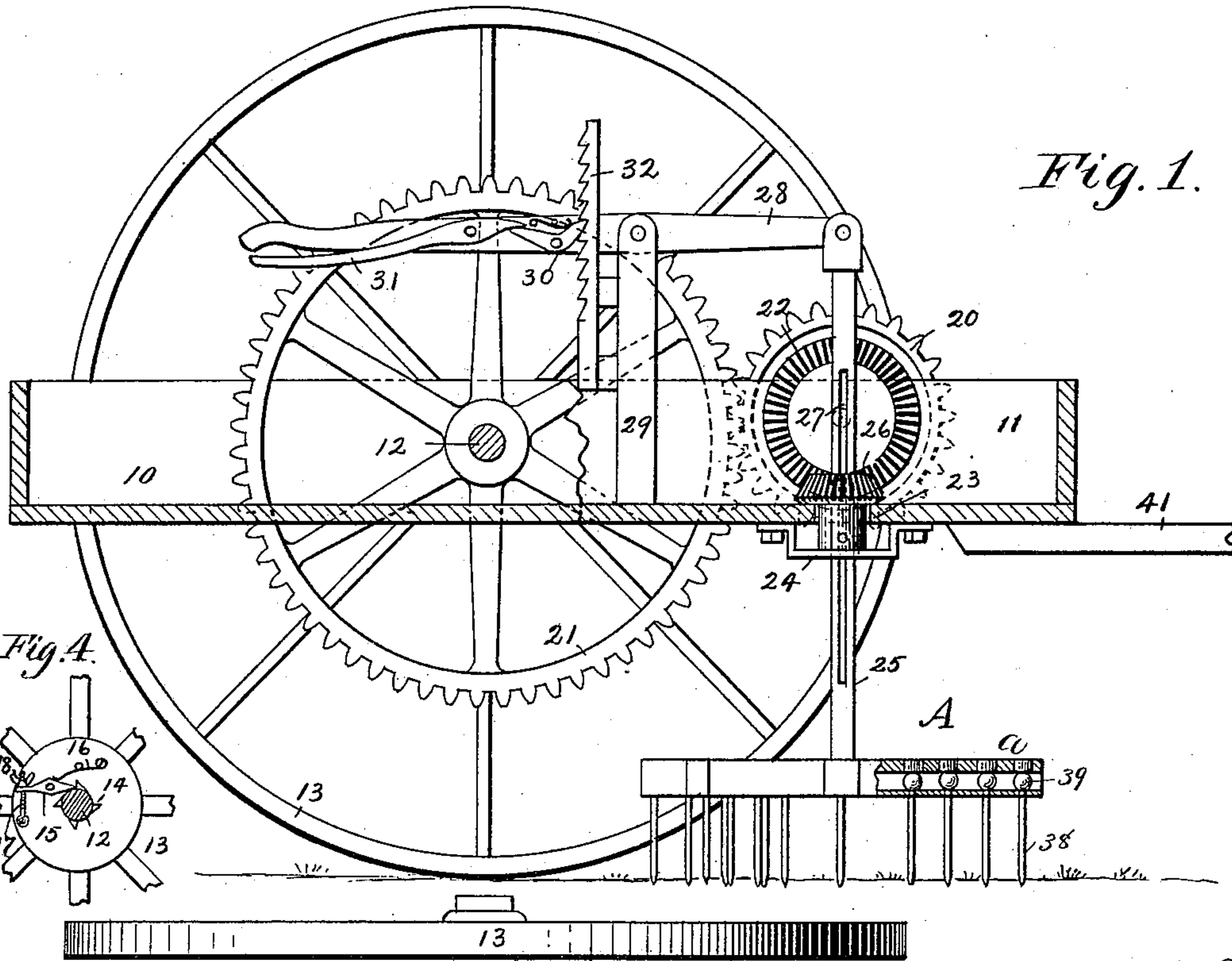


(No Model.)

W. H. WAGGONER.  
ROTARY CULTIVATOR.

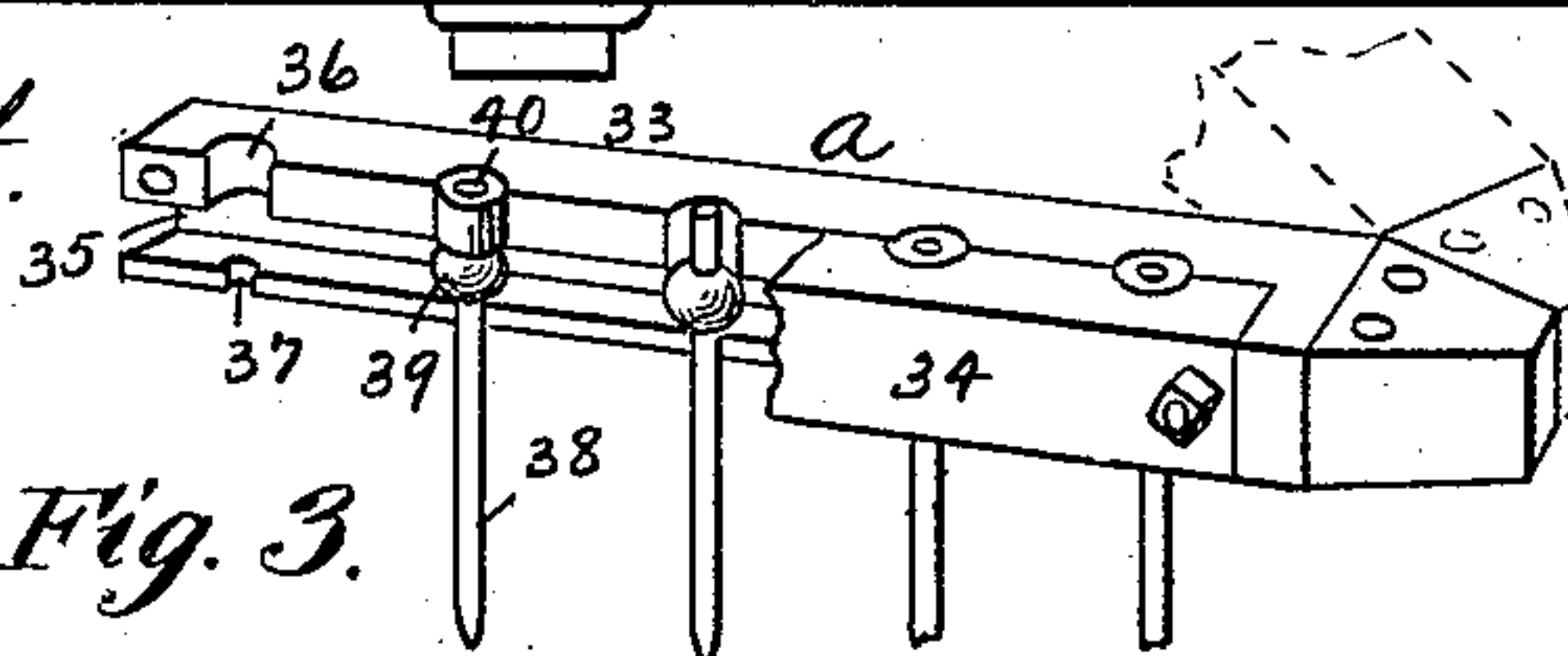
No. 467,068.

Patented Jan. 12, 1892.



WITNESSES:  
*J. B. Thebrath.*  
*C. Sedgwick*

*Fig. 3.*



INVENTOR:

*W. H. Waggoner*

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ATTORNEYS



# UNITED STATES PATENT OFFICE

WILLIAM H. WAGGONER, OF PATTERSON, LOUISIANA.

## ROTARY CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 467,068, dated January 12, 1892.

Application filed January 3, 1891. Serial No. 376,577. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. WAGGONER, of Patterson, in the parish of St. Mary's and State of Louisiana, have invented a new and useful Improvement in Cultivators, of which the following is a full, clear, and exact description.

My invention relates to a cultivator especially adapted for working sugar-cane and similar plants; and the object of the invention is to provide an implement of simple, durable, and economic construction having a rotary hoe comprising series of teeth, the upper ends whereof are elastically secured, whereby when the teeth come in contact with the cane-stalks they will yield sufficiently to prevent injury thereto.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal section through the implement, taken practically on the line *xx* of Fig. 2. Fig. 2 is a plan view of the implement. Fig. 3 is a detail view of one of the arms of a hoe in perspective and partly broken away, and Fig. 4 is a detail view illustrating the ratchet connection of the supporting-wheels with the axle of the implement.

The frame 10 of the machine is preferably made in skeleton form and of rectangular contour, being braced longitudinally at the center by an angle-beam 11. The character of the brace-beam may, however, be changed if in practice it be found desirable. In the sides of the frame the axle 12 is journaled, and upon each projecting end of the axle a supporting-wheel 13 is loosely mounted. The axle adjacent to the hub of each supporting-wheel is provided with a series of circularly-arranged spurs 14, forming ratchet-surfaces, which ratchet-surfaces are engaged by dogs 15, pivoted at or near their centers upon the inner faces of the hubs of the wheels, as shown in Fig. 4. The dogs are normally held in contact with the ratchet-surfaces by means of

springs 16, secured to the hub, and the dogs may be held out of engagement with the ratchet-surfaces at any time as may be desired—as, for instance, in taking the machine to or from the field—by means of bolts 17, which are pivoted at their lower ends to the hubs of the wheel, the said bolts being passed upward through one of the extremities of the dogs and provided at their upper projecting ends with wing-nuts 18 or their equivalents. Parallel with the axle 12, between it and the front of the frame, a transverse shaft 19 is journaled in the vertical member of the brace-beam 11 and in one of the sides of the frame, as is best shown in Fig. 2. Upon the shaft 19, between its bearings, a pinion 20 is rigidly secured, which meshes with the spur-gear 21, rigidly secured to the axle 12.

The inner end of the shaft 19 projects over the horizontal member of the brace bar or beam 11 and has secured thereto a bevel or miter gear 22. In front of the bevel or miter gear 22 an opening 23 is produced in the horizontal member of the brace 11, and beneath the opening 23 a yoke 24 is rigidly attached to the said brace. Through the opening in the yoke and the opening 23 a vertical shaft 25 is upwardly projected, which shaft passes through the hub of the bevel-pinion 26, which pinion meshes with the bevel-gear 22 of the shaft 19. The hub of the bevel-gear 26 is held to turn in the opening 23 and has a bearing at its lower end upon the yoke 24. The shaft 25 is provided with a longitudinal key-slot 27, and the hub of the bevel-pinion 26 is provided with a key extending into said slot, whereby the shaft 25 may be vertically adjusted, and is rotated through the medium of the said pinion engaging with the gear 22 of the shaft 19.

The shaft 25 is raised and lowered through the medium of a lever 28, which lever is fulcrumed upon a standard 29, secured to the brace 11, the forward end of the lever being pivotally attached to the upper end of the perpendicular shaft. Upon the lever, at the rear of its fulcrum, a spring-pressed pawl 30 is pivoted, and likewise an auxiliary thumb-lever 31, having an engagement with the upper surface of the rear end of the pawl, the said pawl being adapted at its opposite end



for engagement with the teeth of a vertical rack 32, which rack is likewise secured to the brace-beam 11, as is best shown in Fig. 1.

The shaft 25 is the hoe-shaft, the hoe A being secured to its lower end. The hoe consists of a series of arms *a*, radiating from a common center, each of the arms being constructed in two longitudinal sections 33 and 34, as is best illustrated in Fig. 3. Each section at its inner edge is provided with a longitudinal channel 35, and in the upper edge of the said inner faces of the sections semicircular recesses 36 are produced, while in the lower edges vertically-aligning and smaller recesses 37 are formed. The recesses and the channel 35 in the sections correspond in location. Each arm is provided with a series of teeth 38, the said teeth being round in cross-section and pointed at their lower ends, and each tooth is provided near its upper end with a collar 39. In the recesses 36 of one section rubber sockets 40 are placed, and the upper ends of the teeth are introduced into said sockets, the collars being located in the channel 35. The surfaces of the teeth below the collars fit loosely in the lower recesses 37. The other section is then bolted to place in any suitable or approved manner and the construction of the arm is completed.

It will be observed that by placing the upper ends of the teeth in the rubber sockets 40 the lower ends may be swung in any direction desired to a limited extent, the lower recesses 37 being sufficiently large to admit of the movement of the teeth; and it is further obvious that when the teeth are freed from any obstruction in their path they will automatically return to their normal upright position. The frame is provided with a tongue 41, attached to the forward end thereof, whereby the implement is drawn.

In operation as the implement is drawn forward by reason of the gear connection of the hoe-shaft 25 with the axle 12 the hoe is given a rotary motion, and in the event that the teeth should come in contact with the cane-

stalks the teeth will yield, and likewise the stalks, which are very pliable, thus avoiding any injury to the cane in the process of cultivation. The implement is exceedingly light, durable, simple, and economic in construction.

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

1. In a rotary cultivator, an arm formed of parallel sections having recesses in their adjacent faces, forming a series of vertical apertures larger at their upper ends, rubber sockets fitted in said larger ends, and teeth having their upper ends mounted in said sockets, substantially as set forth.

2. The combination, with the rectangular open frame 10, having a longitudinal angle-brace 11, provided with an opening 23, the axle 12, the drive-wheels, and the spur-wheel 21, of the short shaft 19, having a gear 20 meshing with said wheel and a bevel-gear 22 on its inner end, the bracket 24 under the opening 23, the bevel-gear 26, having a hub extending through said opening and resting on the bracket, the vertical grooved shaft 25, extending down through the bevel-gear 26, the lever 28, pivoted between its ends and suspending the said vertical shaft, a rack and latch for adjusting said lever, and the cultivator on the lower end of the vertical shaft, substantially as set forth.

3. In an implement of the character described, a hoe or cultivator consisting of a series of arms, each of which arms comprises two sections, each section having a longitudinal channel produced in its inner face and a series of upper and lower recesses, the upper recesses being larger than the lower ones, elastic sockets inserted in the upper recesses, and teeth provided with collars and extending in the channels of the sections, the upper ends of the teeth being secured in the sockets, as and for the purpose specified.

WILLIAM H. WAGGONER.

Witnesses:

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T. P. BOURDIER.