

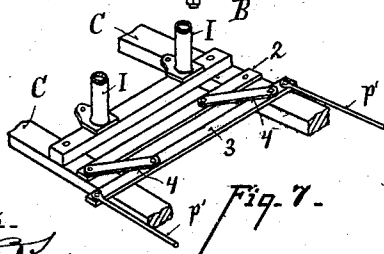
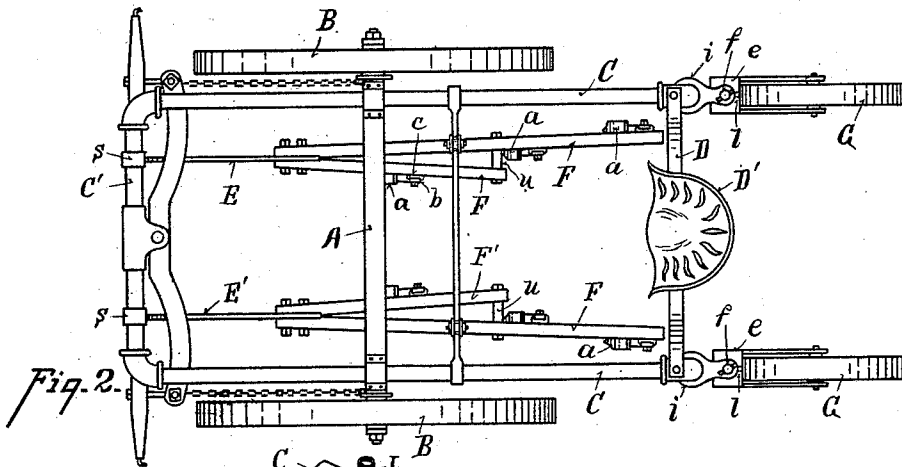
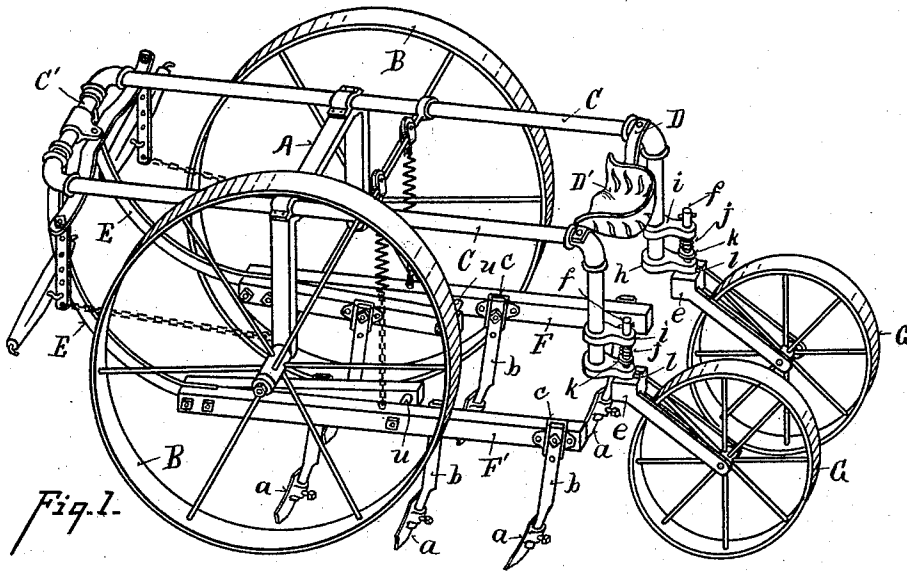
(No Model.)

2 Sheets—Sheet 1.

G. W. RIFE.
CULTIVATOR.

No. 578,658.

Patented Mar. 9, 1897.



Witnesses
C. W. Miles.
Oliver D. Fauser.

Inventor
Geo. H. Rife
by *Thos. Boyd*
Attorneys.

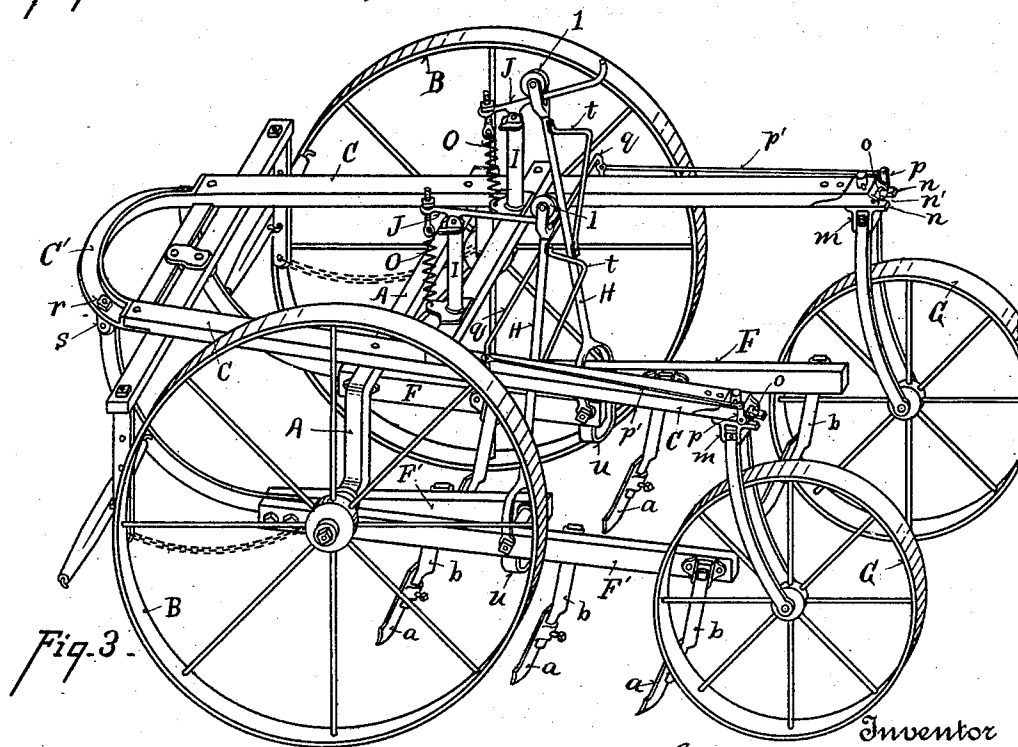
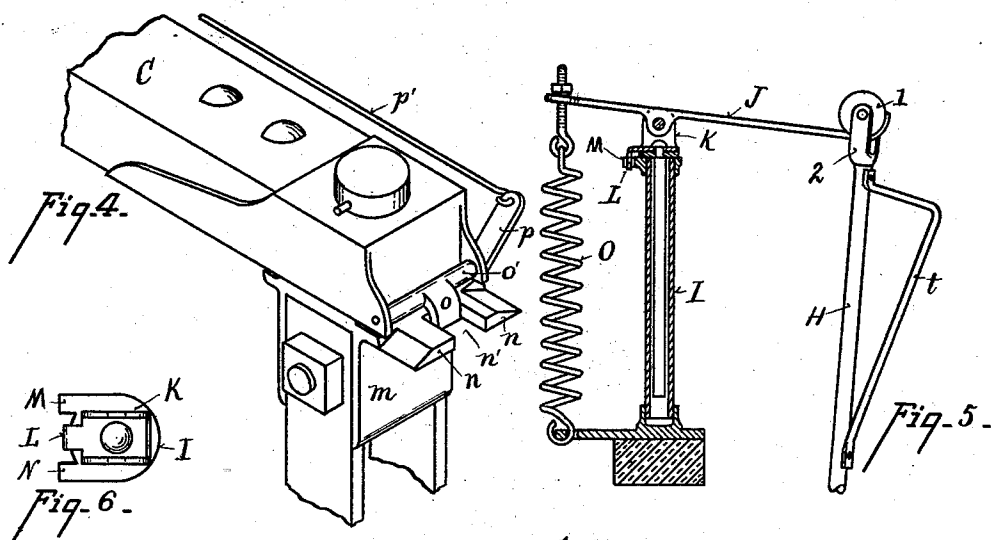
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2 Sheets—Sheet 2.

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C. W. Miles.

Oliver B. Kaiser.

Inventor

Geo. W. Rife

by Wood & Bond
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE W. RIFE, OF BOSTON, INDIANA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 578,658, dated March 9, 1897.

Application filed January 11, 1897. Serial No. 618,847. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. RIFE, residing at Boston, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

The object of my invention is to provide a cultivator which is principally supported upon a rigid axle and main ground-wheels and with the rear end which sustains the weight of the operator supported upon caster-wheels attached to the outside frame-pieces and substantially in line therewith, so as to track outside of the ground cultivated by the respective gangs of cultivator-teeth which straddle and work each side of the corn-row.

Another object of my invention is to provide means for locking said caster-wheels against lateral movement.

Another object of my invention is to provide means for simultaneously releasing the locks of both caster-wheels by the act of raising either one of the gang-plows.

Another object of my invention is to provide improved means for operating the gang-teeth.

The features of my invention will be more fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my cultivator. Fig. 2 is a top plan view of Fig. 1. Fig. 3 is a perspective view of a modification of Fig. 1, showing all of my improvements. Fig. 4 is a detailed view of the caster-wheel support shown in Fig. 3. Fig. 5 is a sectional elevation of the gang-plow support. Fig. 6 is a top plan view of the standard forming the main support of the gang-beams. Fig. 7 is a perspective view of the releasing mechanism for the caster-wheel lock, being a modification of that shown in Fig. 3.

A represents the ordinary arch axle; B, the ground-wheels, which straddle the corn-row; C C, the frame-pieces, which are shown in Fig. 1 as made of gas-pipe.

C' represents the front end frame-piece.

D represents the rear cross, upon which seat D' is located.

E E represent the draft-irons, which are hinged upon the front end frame by means of horizontal and vertical hinge-bolts *r s*, so that

the gang-beams may have both vertical and lateral movement.

F F represent the beams which support the gangs of cultivator-teeth.

a a represent the cultivator-teeth, attached to the shanks *b*, which in turn are secured to the beams by shank *c*.

G G represent caster-wheels which are respectively secured to the side beams of the frame.

In Fig. 1 the frame-pieces are shown as extended downward, and the caster-wheels are attached to the pendent ends of said frame-pieces. In Fig. 3 the caster-forks are shown as extending upward and attached to the rear end of the frame-pieces, and the seat and cross-piece are omitted. In both Figs. 1 and 3 the caster-wheels are hung so as to track outside of the path of cultivation of the gang of cultivator-teeth and centrally between the corn-rows, thereby not interfering materially with that part of the ground which is cultivated. In both forms the caster-wheels are held rigidly in position during the time of cultivation; but when it is desired to turn the cultivator means are provided for releasing the locks which hold the caster-wheels, so that both wheels will be simultaneously released and allowed to turn on their swivels.

The method of simultaneously locking and releasing the caster-wheels in Fig. 1 is as follows: *e* represents the head of the caster-wheel fork. *f* represents the king-bolt, which is secured to said head and journals in ears *h i*, attached to the side frame-pieces. *j* represents a coil-spring the lower end of which seats against the collar *k*, which is rigidly attached to the king-bolt, and the upper end against the upper ear *i*. The head *e* is provided with a lug or rib *l*, and the lower end *h* has a corresponding groove. When the operator is in his seat D', his weight depresses the frame and brings the ears *h* down upon the heads *e* and holds the lug *l* in engagement with the grooves in the ears, and the weight of the operator is supported upon the caster-wheels. This at the same time compresses the springs *j*. When the driver rises out of his seat, the frame rises and releases the locks, and the caster-wheels are free to turn upon their swivel-points. In order, however, that the driver may release the locks by rais-

ing one of the gang-plows, which is sometimes desirable, I have provided the instrumentalities shown in Fig. 3. The forks of the caster-wheels are each provided with heads *m*, having flanges *n* projecting rearward therefrom. *n'* represents notches in said flanges. *o* represents a latch secured to latch-pivot *o'*. Lugs *n* are beveled on their outer sides, so as to cause the latch to automatically rise when the caster-wheel forks are turned from a lateral to a lineal position. *p* represents crank-arms secured to said pivots. *p'* represents connecting-rods hinged at one end to each of said cranks and at the forward end to a bail *q*, which spans the cultivator-frame and in the path of the raising-handles of the gang-plow. The ends of said bail are pivoted to the side frames C.

H H represent handles attached to the respective gang-beams F F. These handles are pivotally supported upon a standard I by means of an arm J, pivoted thereto and preferably upon a swiveling bracket K, which swiveling bracket is provided with a downwardly-projecting tongue L, which plays between lugs M N, as shown in Fig. 6, thereby allowing a considerable lateral motion of said handles to swing the gang-beams to and from the corn-rows and yet preventing too wide a range of movement. The forward ends of said pivoted arms J are counterpoised by a contractile spring O. The object of this spring is to assist in raising the gang-beams and to assist in holding them normally in a raised position. In order that the handles H may move freely on the pivot-arms, they are provided with grooved antifriction-wheels 1, supported in swivel-forks 2. These wheels are always in line with arm J in any lateral angle and are adapted to travel up nearer the pivotal point than the point of attachment of the tension-spring O, so that when the handles are moved to their innermost position, as shown in Fig. 3, the weight of the springs will hold up the beam and thereby hold the cultivator-teeth out of the ground. The rear ends of said levers are bent upward sufficient to prevent the antifriction-rollers from running off when the beams are depressed. The bail *q* being within the path of the movement of the handles H when they are raised is turned on its pivot, thereby pulling the cranks *p* forward and raising the latches *o* out of engagement with the notches *n'*, releasing the locks of both caster-wheels simultaneously in the act of raising either one of the gang-beams. When both beams are lowered, the latches *o* drop back into position and lock the caster-wheels in position for work. The said latches will adjust themselves independently to notches when the casters line up with the main frame. They may be provided with springs or weights to secure their positive movement.

In the drawings shown in Fig. 7, instead of employing a rocking bail to simultaneously move both connecting-rods and latches, I have

shown a parallel-rule movement, in which 2 represents the stationary portion, and 3 the moving parallel member hinged to the stationary member by means of links 4. This is one of the equivalents which may be applied in lieu of the bail. The handles H are shown as provided with loops *t*, so as to render them convenient to take hold of when it is desired to manipulate the plow-beams. In the form shown in Fig. 1 the gang-beams are supported by tension-springs which normally lift the teeth out of the soil, the teeth being forced into the ground and guided by the feet of the operator resting in stirrups *u*.

It is obvious that steps may be provided for the operator to rest his feet upon when he does not desire to rest them upon the gang-beams, but these parts are of the usual construction.

The form of construction shown in Fig. 3 is the preferred form of connecting the caster-wheels to the frame and of operating the latches which lock the same in position; but I do not wish to limit myself to this form of construction except where the same are made elements of a claim.

I believe I am the first to employ a cultivator without a stiff tongue, employing ground-wheels to support the principal weight and caster-wheels to support the weight of the operator, with locking devices under the control of the operator and with the caster-wheels attached to the frame so as to straddle the corn-row and travel outside of the path of cultivation of the respective gangs.

Having described my invention, I claim—

1. A cultivator having a main frame supported partly upon ground-wheels, a seat attached to said frame supported by caster-wheels, locking mechanism applied to said caster-wheels which are under the control of the operator, and means for simultaneously operating the locks of both caster-wheels, gangs of cultivator-teeth hinged to the frame and operating inside of the tread of the caster-wheels, substantially as specified.

2. A tongueless cultivator having a main frame supported partly upon ground-wheels and partly upon caster-wheels swiveled on the main frame, locking mechanism applied to said caster-wheels, gang-beams carrying cultivator-teeth, hinged to the main frame and working inside of the tread of the caster-wheels, handles connected to said gang-beams, a member lying in the path of the movement of said handles and connected to both sets of caster-wheel locking mechanisms, whereby they are simultaneously operated to release the lock by the raising of one of said beam-handles, substantially as specified.

3. In a tongueless cultivator the frame of which is supported partly upon ground-wheels and the rear end upon caster-wheels swiveled to the sides of the main frame and at the rear thereof, gang-beams carrying cultivator-teeth hinged to the main frame and working inside of the tread of said caster-wheels, spring-controlled locks connected to the swivels of each

caster-wheel and means for simultaneously operating said locks for releasing and securing them and under the control of the operator, substantially as specified.

5 4. In a cultivator employing a main frame supported upon wheels, gang-beams carrying cultivator-teeth and connected to the main frame by laterally and vertically moving hinges, lifting-handles hinged to said gang-
10 beams at one end and supported upon a swiveling lever and springs connected to said swiveling lever for regulating the movement thereof, substantially as specified.

5. In a cultivator employing gang-beams

having a main frame supported upon ground- 15
wheels, in combination with handles H hinged to said gang-beams, a swiveling lever supported upon a standard, springs attached to and controlling said swiveling lever, and anti-
friction-wheels pivoted to said handles and 20
traveling upon said swiveling lever, substantially as specified.

In testimony whereof I have hereunto set my hand.

GEO. W. RIFE.

Witnesses:

N. S. LAMAR,

WILLIAM A. BOND.