

(No Model.)

3 Sheets—Sheet 1.

J. THEOBALD.
SPRING TOOTH CULTIVATOR.

No. 419,734.

Patented Jan. 21, 1890.

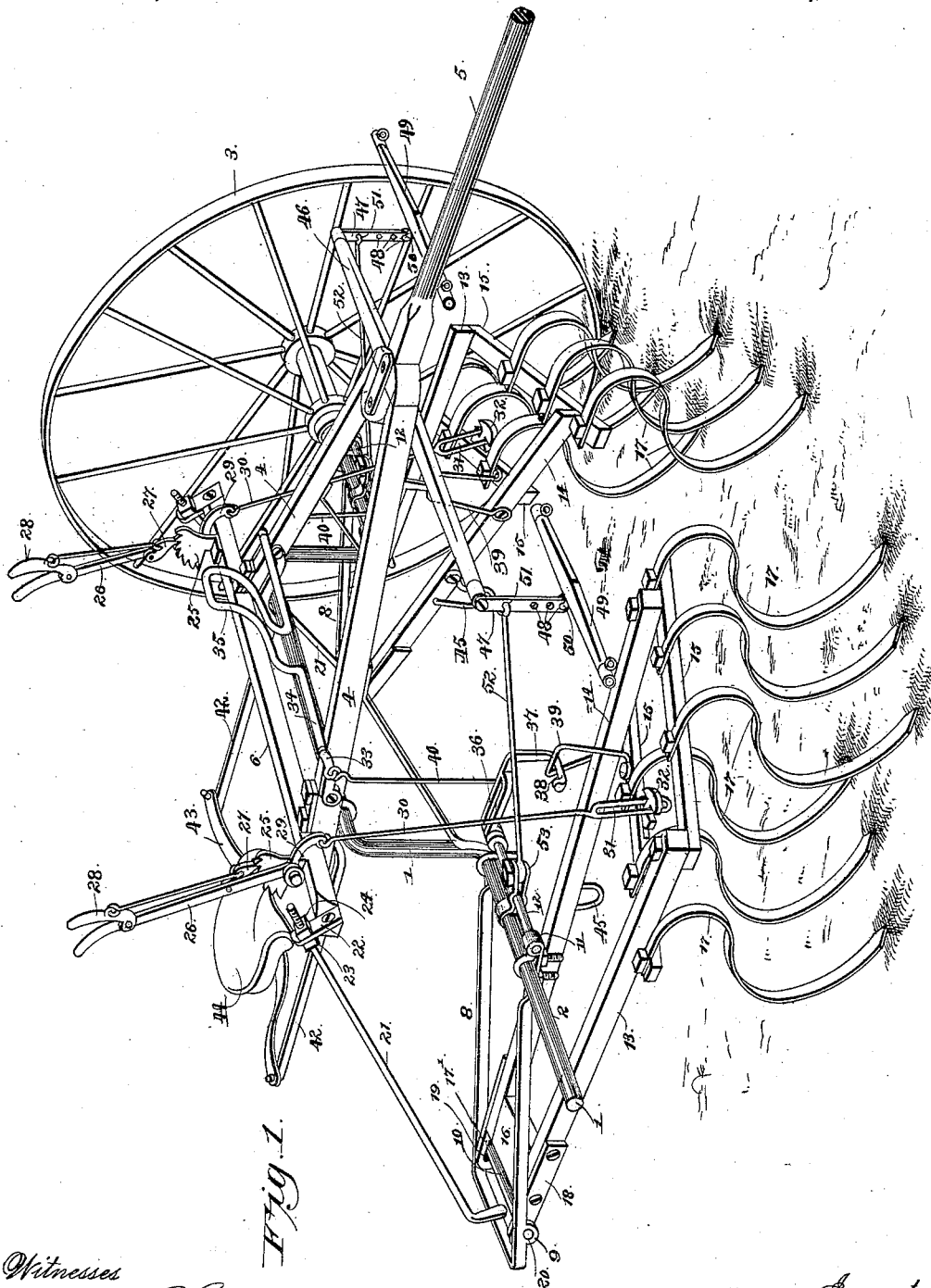


Fig. 1.

Witnesses

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Inventor

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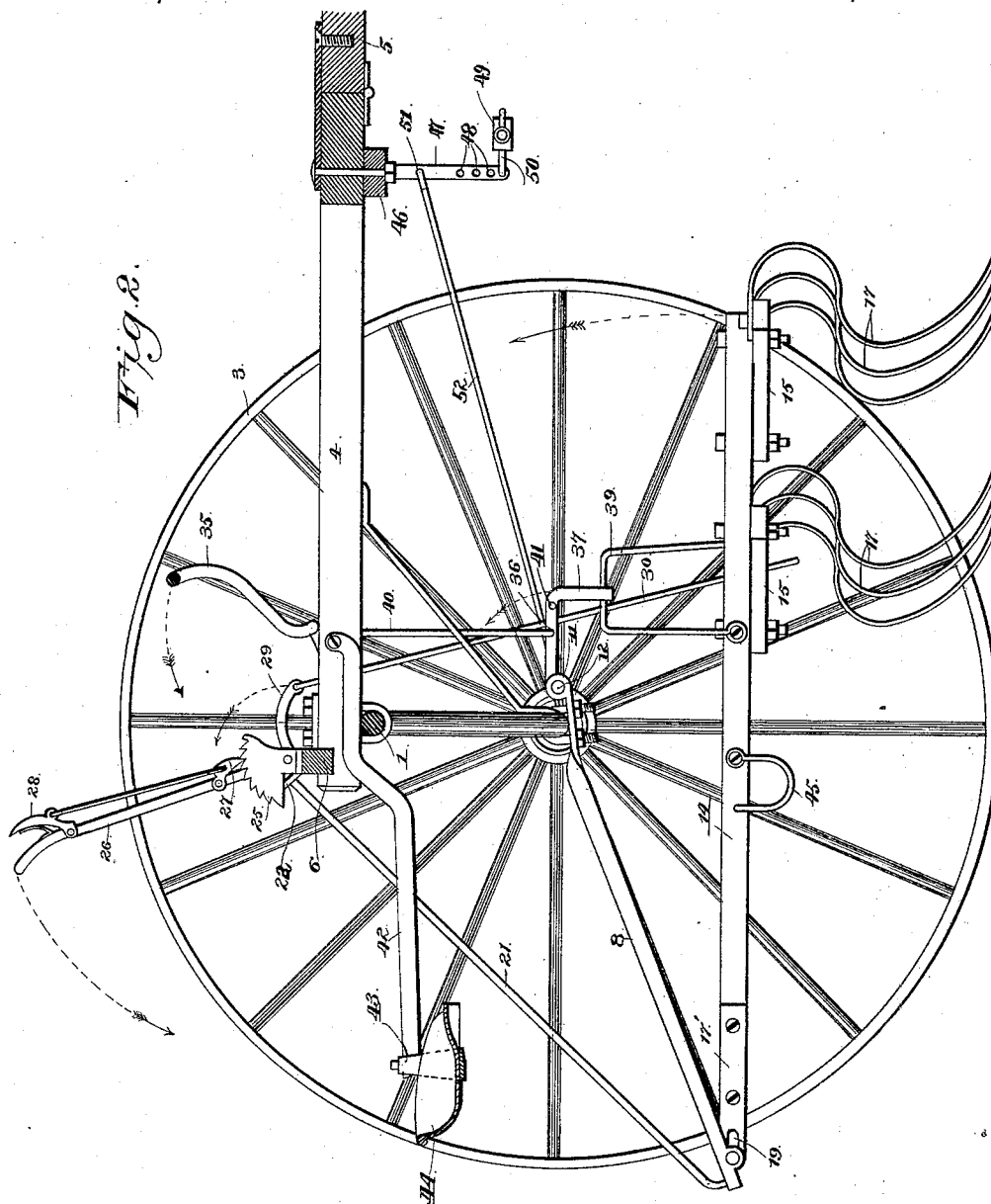
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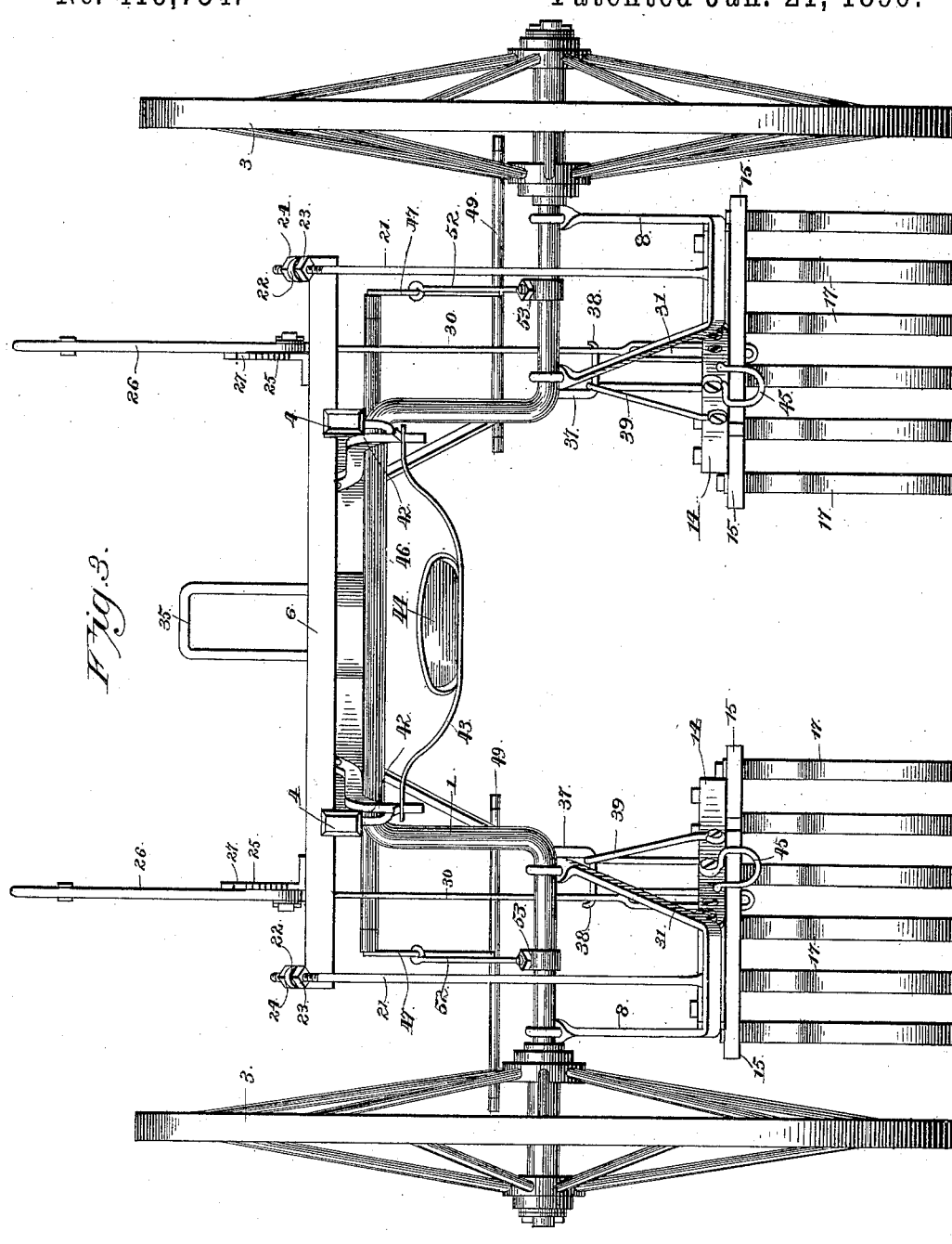
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UNITED STATES PATENT OFFICE.

JOHN THEOBALD, OF ARCHBOLD, OHIO.

SPRING-TOOTH CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 419,734, dated January 21, 1890.

Application filed April 2, 1889. Serial No. 305,707. (No model.)

To all whom it may concern:

Be it known that I, JOHN THEOBALD, a citizen of the United States, residing at Archbold, in the county of Fulton and State of Ohio, have invented a new and useful Spring-Tooth Cultivator, of which the following is a specification.

This invention relates to spring-tooth cultivators; and it has for its object to provide a machine of this class which shall be simple in construction, durable, and easily operated, in which the spring-teeth shall be attached to the front ends of the gang-frames, so as to be continually in sight of the operator, in which the said gang-frames may be conveniently adjusted and operated, and in which the rear or pivoted ends of said gang-frames may likewise be conveniently adjusted.

With these ends in view the invention consists in the improved construction, combination, and arrangement of parts which will be hereinafter described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a cultivator embodying my improvements. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a rear view.

The same figures refer to the same parts in all the figures.

1 designates the arched axle of my improved cultivator, the ends of which have the spindles 2, on which the transporting-wheels 3 are mounted. The arched portion of the axle is suitably clipped or attached to the under side of the hounds 4, which converge in a forward direction, and to the front ends of which the tongue 5 is attached. The rear ends of the hounds are connected by a cross-bar 6, which is suitably secured upon the upper sides of said frames.

Suitably clipped or secured to the axle 1, between the spindles 2 and the vertical portions 7 of the arch of said axle, are the rearwardly-extending U-shaped metallic frames 8, the inner legs of which may be somewhat longer than the outer legs, so that the said frames shall project outwardly as well as rearwardly from the axle. The rear ends of the side bars of said frames are provided with ears or lugs 9, forming bearings for the transverse bolts or rods 10, upon which the gang-

frames are pivoted, as will be presently more fully described. The front ends of the side bars of said frames are extended slightly in front of the axle and are bent or twisted so as to form bearings 11, in which the transverse bolts 12 are secured in front of and parallel to the axle.

Each of the gang-frames consists of the rearwardly-converging side bars or beams 13 and 14, which are connected at their front ends by cross-bars 15 and at their rear ends by blocks 16. The spring-teeth 17, which are of ordinary construction, are suitably attached by means of clips or bolts to the cross-bars at the front ends of the gang-frames. To the side beams of the latter, at the rear ends of the same, are secured the rearwardly-extending straps 17' and 18, the former of which are provided with longitudinal slots 19, while the latter are provided with perforations 20, by means of which the said gang-frames are mounted pivotally upon the transverse rods or bolts 10 at the rear ends of the frames 8. It will thus be seen that the said gang-frames, while mounted pivotally in such a manner that their front ends are capable of moving freely vertically, are also enabled to rock or oscillate laterally upon the supporting-rods 10, the extent of such rocking motion being limited by the length of the slot 19.

To the rear ends of the frames 8 are suitably attached the rear ends of the forwardly and upwardly extending inclined rods 21, the front ends of which are screw-threaded, as shown, and passed through perforated brackets 22, attached to the ends of the cross-bar 6, mounted upon the hound-frame. The rods 21 are provided with adjusting-nuts 23 24, arranged in rear and in front of the brackets 22, and by means of which the said rods may be adjusted so as to raise and lower the rear ends of the supporting-frames 8 to any desired point of adjustment. It is obvious that the front ends of said frames must be clipped or attached to the axle in such a manner as to admit of this movement.

For the purpose of adjusting the gang-frames so as to cause the spring-teeth to work to any desired depth in the ground, I provide the following mechanism, which is applied independently to each of the gang-frames:

25 25 are segmental racks, which are suit-

ably secured to the upper side of the cross-bar 6, near the ends of the same, so that one of the said racks shall be located about centrally over each of the gang-frames.

5 To the sides of the rack-plates 25 and concentrically with the toothed peripheries thereof are pivoted the levers 26, which are provided with spring-pawls 27, engaging the teeth of the said segmental plates, and adapted
10 to be released by means of suitable handles 28, so as to permit the levers to be properly adjusted. The levers 26 are provided with forwardly-extending arms 29, to the front ends of which are connected the pivoted rods
15 30, the lower ends of which are provided with longitudinal slots 31.

The cross-bars 15 near the front ends of the gang-frames are provided with horizontal T-shaped plates 32, suitably attached
20 thereto and working in the slots 31 of the rods 30, to which the said gang-frames are in this manner connected. It will be seen that by this construction the front ends of the gang-frames may easily be lowered by means
25 of the levers 26, so as to work in the ground at any desired depth. When thus adjusted for operation, the T-shaped plates 32 of the gang-frames working in the slots 31 will permit the said gang-frames to move upwardly
30 so as to ride over any obstruction in the ground. When it is desired to raise the gang-frames so as to lift the spring-teeth out of the ground for transportation, this may be easily effected by depressing the rear ends of
35 the levers 26.

For the purpose of adjusting the gang-frames simultaneously and independently of the levers 26, I provide the crank-arms 33 33, pivoted to the outer sides of the hounds 4 and
40 connected above the said hounds by a cross-bar 34, which is bent at the center so as to form a handle 35, by means of which it may be manipulated so as to operate the said cranks simultaneously. Upon the inner ends
45 of the bolts 12, at the front ends of the supporting-frames 8, are mounted the arms 36, the front ends of which are provided with downwardly-extending arms 37, the lower ends of which are bent outwardly, so as to
50 form brackets or stirrups 38. To the upper sides of the gang-frames are secured the upwardly-extending bails 39, which rest upon the stirrups 38, thus supporting the front
55 ends of the gang-frames upon the said stirrups. The arms 36, which are pivoted to the rods 12, as stated, are connected with the outer ends of the crank-arms 33 by means of pivoted rods 40, the lower ends of which are
60 adjustable in perforations 41 in the arms 36, so as to enable the extent to which the arms 36 are operated to be properly regulated. It will be seen that by means of the operating-handle 35 the cross-bar 34 may be thrown in
65 a forward and downward direction, thus lowering the outer ends of the cranks 33 and by the intermediate mechanism lowering the front ends of the gang-frames, while by mov-

ing the said cross-bar in the opposite direction the said gang-frames will be raised. This motion, it will be seen, is independent of the
70 adjusting-levers 26 and their attachments, and is permitted by reason of the T-shaped base 32 working in the slots 31 of the adjusting-rods 30.

42 42 designate a pair of bars secured to
75 the inner sides of the hounds, and extending rearwardly over the axle upon which they rest. The rear ends of the bars 42 are connected by an elastic cross-bar 43, upon which a seat 44 for the driver is suitably secured.
80 Foot-rests 45 for the driver are secured to the inner side bars of the gang-frames. It will be seen that when the device is in operation the driver may by pressure of his feet throw the gang-frames laterally in an outward direction to an extent limited by the length of
85 the slot 19 in the plate 17' of the gang-frames. This enables him to dodge any hill of corn in the path of the cultivator, which, but for this movement, might be injured or uprooted
90 by the spring-teeth. When the outward pressure upon the gang-frames is released, the said frames will automatically reassume their normal position, owing to the resistance to the passage of the spring-teeth through the
95 soil.

46 designates the doubletree, which is attached pivotally to the underside of the tongue, and the ends of which are provided with downwardly-extending pivoted arms, which are
100 capable of swinging or moving longitudinally. The lower ends of said arms, which are designated by 47, are provided with series of perforations 48, to any one of which the single-trees 49 may be attached by means of clips
105 or eyebolts 50. The said arms 47 are provided about midway of their length with perforations 51, to which are attached the rearwardly-extending rods 52, the rear ends of which are suitably bolted or otherwise
110 attached to clips or plates 53, attached to and encircling the axle between the ends of the supporting-frames 8, and also encircling the rods 12 at the front ends of said supporting-frames. It will be seen that by this construction
115 the draft will be direct upon the axle and will be perfectly equalized, thus overcoming all weight or strain in a downward direction upon the teeth when at work.

From the foregoing description, taken in
120 connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood.

The construction is simple and inexpensive, and is such as to admit of the adjustment of
125 the gang-frames simultaneously as well as independently of each other. The gang-frames may thus be adjusted to work at different depths, and when the end of the row is reached they may be simultaneously raised out of the
130 ground while the machine is being turned. The spring-teeth, being attached at the front ends of the gang-frames, are always in sight of the operator, who is thus enabled to adjust

them properly whenever adjustment shall be necessary. The draft, furthermore, is so arranged as to be perfectly equalized and to throw no unnecessary weight or strain upon the team.

Having thus described my invention, I claim—

1. In a cultivator, the combination of the arched axle, the hound-frame mounted upon the same, the cross-bar mounted in the rear ends of the hounds, the supporting-frames mounted upon the axle and extending rearwardly from the same, the forwardly and upwardly extending adjusting-rods attached to the rear ends of the supporting-frames, the perforated brackets for the reception of the front ends of the adjusting-rods, and the adjusting-nuts upon the latter, substantially as herein described, and for the purpose set forth.

2. In a cultivator, the combination of the arched axle, the rearwardly-extending supporting-frames, the gang-frames mounted pivotally at the rear ends of the latter, and the spring-teeth secured at the front ends of the gang-frames, substantially as and for the purpose set forth.

3. In a cultivator, the combination of the arched axle, the rearwardly-extending supporting-frames, the adjusting-rods for the vertical adjustment of the rear ends of said supporting-frames, and the gang-frames connected pivotally at the rear ends of the supporting-frames, substantially as set forth.

4. In a cultivator, the combination of the axle, the supporting-frames mounted upon and extending rearwardly from said axle, the transverse rods at the rear ends of said supporting-frames and the gang-frames mounted pivotally upon said rods by means of plates or brackets, the outer ones of which are provided with perforations and the inner ones with longitudinal slots for adjustment upon the said rods or bolts, substantially as and for the purpose herein set forth.

5. In a cultivator, the gang-frames mounted pivotally upon transverse supporting-rods by means of plates or brackets attached to the rear ends of the side bars of said gang-frames, the inner plates or brackets being longitudinally slotted, so as to permit a lateral rocking motion of the said gang-frames upon their supporting-rods, substantially as and for the purpose set forth.

6. In a cultivator, the combination of the arched axle, the hound-frame mounted upon the same, the transverse cross-bar at the rear end of the hound-frame, the adjusting-levers pivoted to segmental toothed plates upon the said cross-bar and having forwardly-extending arms, the connecting-rods extending downwardly from the front ends of said arms and having vertical slots at their lower ends, the supporting-frames extending rearwardly from the axle, the gang-frames mounted pivotally at the rear ends of the supporting-frames,

and the T-shaped plates attached to the gang-frames and working in the vertical slots of the connecting-rods, substantially as and for the purpose herein set forth.

7. In a cultivator, the combination of the arched axle, the hound-frame mounted upon the same, the crank-arms pivoted to the outer sides of the hounds, the cross-bar connecting said crank-arms and provided with a suitable operating-handle, the supporting-frames extending rearwardly from the axle, the transverse rods at the front ends of said supporting-frames, the arms mounted pivotally upon said rods and having downwardly-extending stirrups, rods connecting said arms with the pivoted crank-arms, and the gang-frames mounted pivotally at the rear ends of the supporting-frames and having upwardly-extending bails riding upon the said stirrups, substantially as and for the said purpose herein shown and described.

8. The combination of the gang-frames having the T-shaped plates and the upwardly-extending bails, the adjusting-levers, the connecting-rods having vertical slots at their lower ends in which the said T-shaped plates are vertically movable, the pivoted arms having stirrups to support the upwardly-extending bails of the gang-frames, and mechanism for operating the said arms simultaneously, substantially as herein described.

9. In a cultivator, the combination of the axle, the supporting-frames, the gang-frames mounted pivotally at the rear ends of said supporting-frames in such a manner as to be capable of rocking laterally, the pivoted arms having downwardly-extending stirrups engaging bails which extend upwardly from the gang-frames, mechanism for operating the said pivoted arms simultaneously, and foot-rests or brackets upon the inner sides of the gang-frames, substantially as herein described, and for the purpose set forth.

10. The combination of the arched axle, the rearwardly-extending supporting-frames, the gang-frames mounted pivotally at the rear ends of the supporting-frames, mechanism for adjusting said gang-frames, the hound-frame mounted upon the axle and having the forwardly-extending tongue, the doubletree attached pivotally to the under side of the tongue, the downwardly-extending arms attached pivotally to the ends of the doubletree, the clips or brackets encircling the axles and the transverse rods at the front ends of the supporting-frames, and the rods connecting the said clips with the pivoted arms at the ends of the doubletree, substantially as and for the purpose set forth.

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

JOHN THEOBALD.

Witnesses:

GEO. WHITEHORNE,
JACOB GILBERT.