

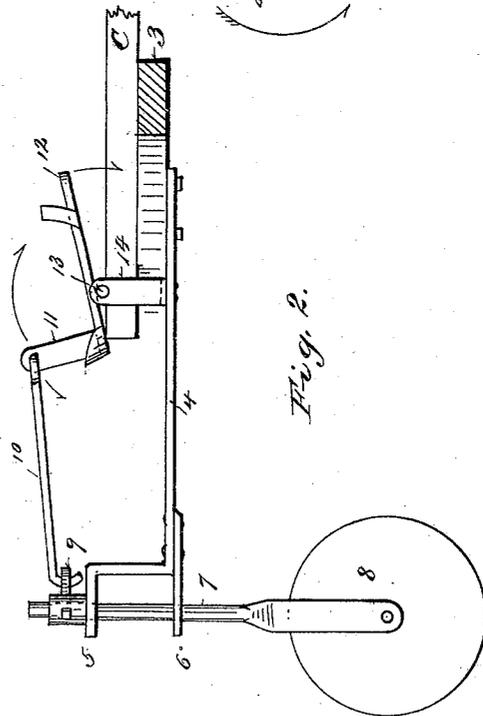
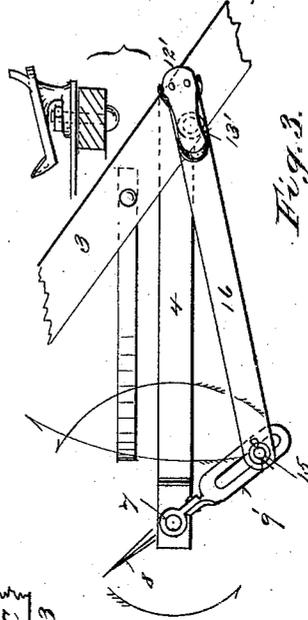
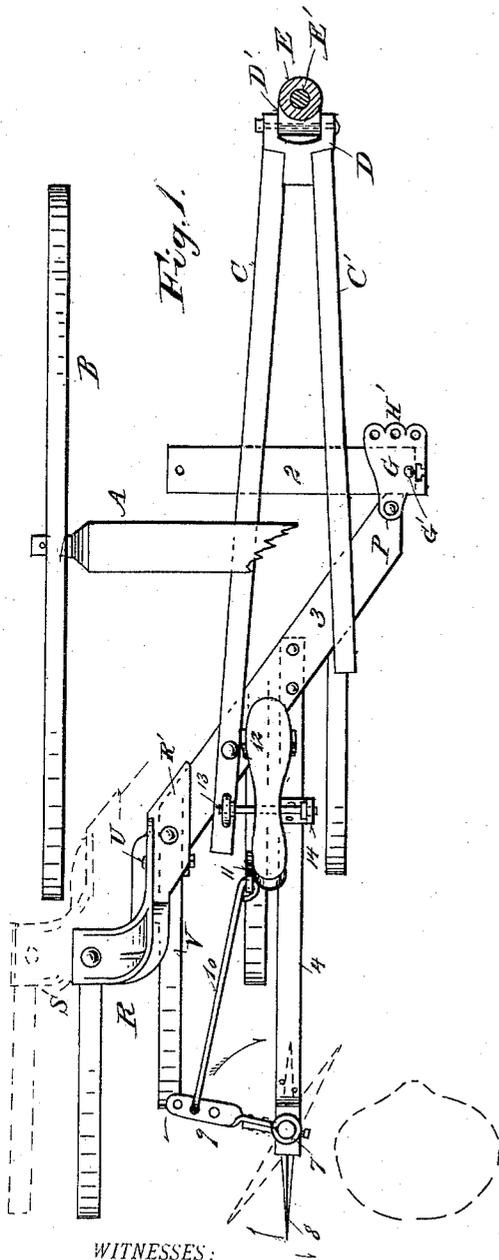
(No Model.)

3 Sheets—Sheet 1.

A. W. BUTT.
CULTIVATOR.

No. 445,847.

Patented Feb. 3, 1891.



WITNESSES:

H. M. Clabed -
Warren Hull,

INVENTOR

A. W. Butt,
BY *H. P. Doolman,*
his ATTORNEY.

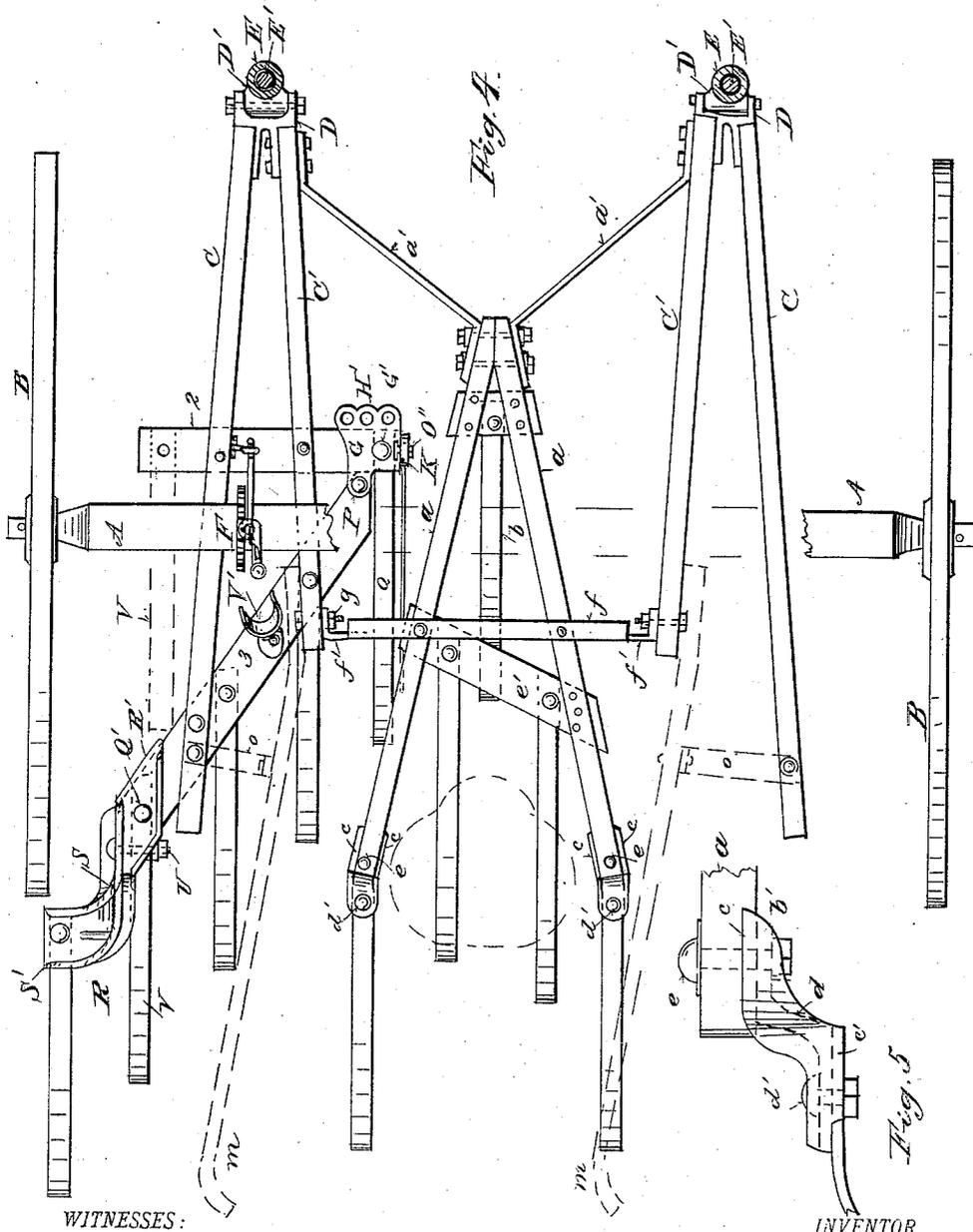
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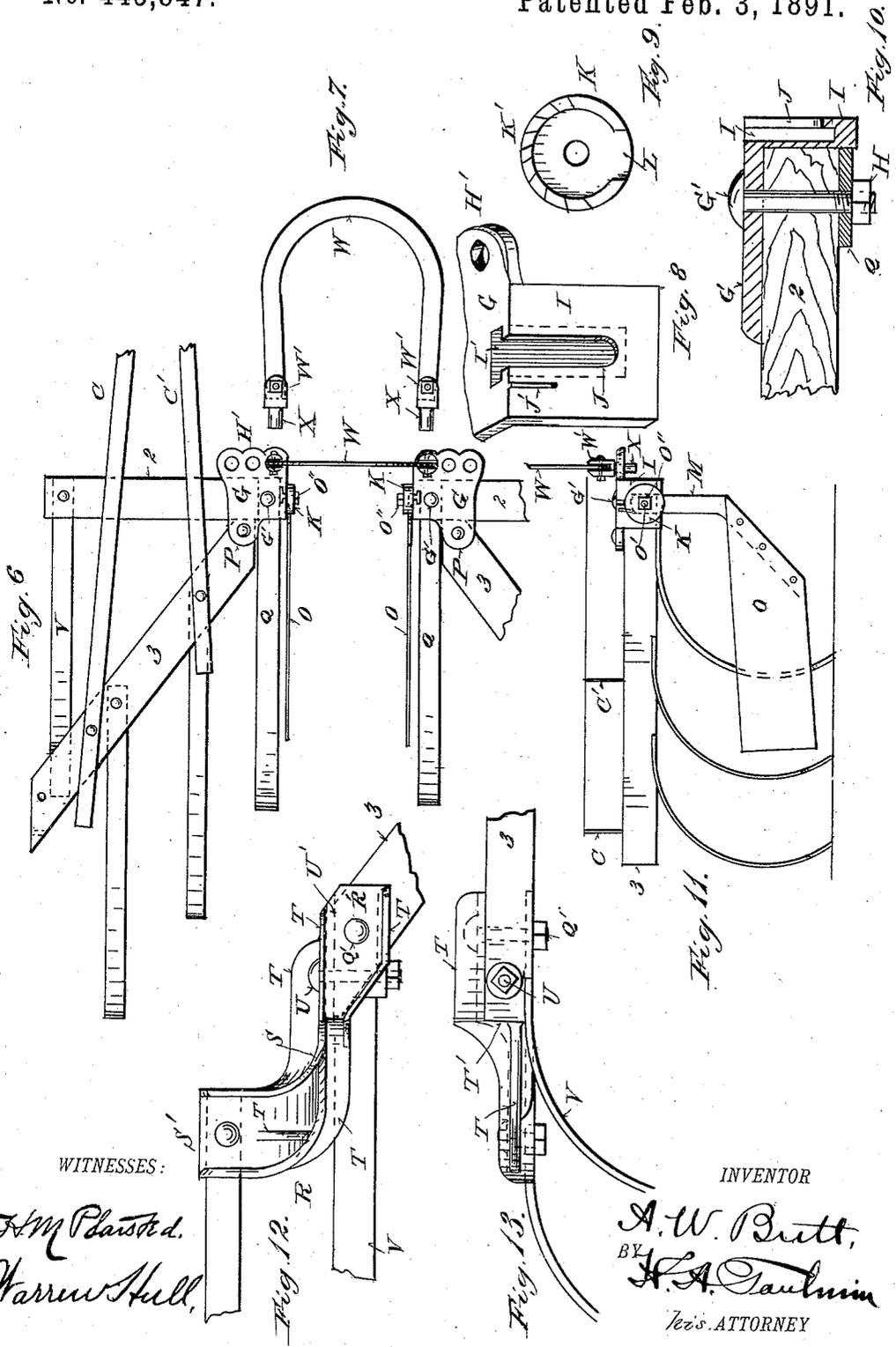
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3 Sheets—Sheet 3.

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CULTIVATOR.

No. 445,847.

Patented Feb. 3, 1891.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ADDISON W. BUTT, OF SPRINGFIELD, OHIO.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 445,847, dated February 3, 1891.

Application filed September 18, 1890. Serial No. 365,378. (No model.)

To all whom it may concern:

Be it known that I, ADDISON W. BUTT, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in straddle-row cultivators, being of the class known as "riding-cultivators," but capable of being converted into a walking-cultivator.

15 My improvements have reference to a leg-actuated steerer or deflector for the swinging frame of a cultivator; have reference to one form of mechanism for actuating said steerer by the leg of the rider; have reference to a 20 coupling-plate adapted to receive the yokes used to flexibly connect the two outer gangs of the machine; adapted to connect the inside tooth with a cross-beam of the gang-bars; adapted to secure, in connection with a nut 25 and a bolt, the guard or fender, and also preferably adapted to connect the oblique beam of the gang-bars with the cross-beam; have reference to arranging the cross-bar of the gang-beam to support one of the outer teeth of the gang, such tooth being removable from 30 the oblique bar to the cross-bar to change the relative disposition of the teeth; have reference to an improved attaching plate or casting for attaching the outer tooth to the oblique beam; have reference to an improved 35 attaching plate or casting for connecting the outer teeth of the intermediate gang with the gang-bar, all of which will be hereinafter more fully described, and pointed out in the 40 claims.

In the accompanying drawings, forming a part of this specification, and on which like reference letters indicate corresponding parts, Figure 1 represents a plan view of the left-hand portion of my improved cultivator, portions of the axle being broken away for convenience and one form of the leg-actuated steerer; Fig. 2, a side view of the steerer and actuating mechanism; Fig. 3, a plan view of 45 another form of mechanism for working the steerer; Fig. 4, a plan view of my improved cultivator with a portion of one of the outer

gangs and of the axle broken away for convenience of illustration; Fig. 5, a detail side view of an intermediate gang-bar and the 55 tooth-attaching plate or casting; Fig. 6, a plan view of portions of the outer gangs and a connecting-yoke; Fig. 7, a view of the side of the connecting-yoke; Fig. 8, a detached perspective view of a portion of the coupling-plate; Fig. 9, an elevation of the inside of the 60 washer used to fasten the guard or fender; Fig. 10, a sectional view of the cross-beam and the coupling-plate; Fig. 11, a detail side elevation of a portion of one of the gangs; 65 and Figs. 12 and 13, a plan and an elevation in detail of the attaching plate for securing the outer tooth to the oblique bar of the main gangs.

The parts of the machine illustrated and 70 now about to be described, which are not otherwise mentioned, are to be of the usual or any approved type of construction.

An axle A is mounted in the wheels B, and to this axle, through an intermediate frame 75 and connecting device, are attached two outer or main gangs.

By the term "gangs" I mean the structure consisting of bars and beams and the attached 80 shovels or teeth. The outer gangs are composed of bars C C', which slightly diverge toward the rear and are connected at their forward ends with a plate D, carrying a bolt and having jaws to receive a coupling composed 85 of a tube D' and a tube E, through which latter tube passes a rod or bolt E', secured to the frame, (not shown,) whereby the gang is coupled to the wheel structure. An elevating mechanism for raising and lowering and sustaining the gang is shown at F, Fig. 4, which 90 I do not describe in detail, as it forms no part of my invention. A cross-beam 2 is secured to the bars C C', and another horizontal beam 3 is secured obliquely to the rear ends of the said bars C C', and to which the shovels or 95 teeth are conveniently attached. This forms the swinging frame or main gang of the cultivator on one side, and I will now describe one form of mechanism whereby said swinging frame may be deflected from one side to 100 the other of its draft-bolt E' when actuated by the leg of the rider.

To the under side of the oblique beam before mentioned is preferably attached by

bolts or otherwise a rearwardly-extending bar 4, bent up, as shown at 5 in Fig. 2, and having a projection 6, thus forming a bracket in which is mounted the stem 7 of a steerer or deflector 8, preferably in the form of a disk, as shown in Figs. 1 and 2, and mounted to run in the forked end of the said stem 7. Any other form of deflector may be used, if so desired. To the top 7 thus pivotally connected with the swinging frame is secured an arm 9, provided with holes at different distances from the stem, whereby the length of arm, and therefore the leverage over the said deflector, is varied by the position of the connecting-link 10, secured to an extension 11 or otherwise, forming part of a foot-piece 12, pivotally connected by a bar 13 to one of the beams C, for instance, and to a standard 14, preferably riveted to the piece 4, whereby the foot-piece is adapted to oscillate, as indicated by the arrows in Fig. 2, and operate the deflector by leverage connections therewith. Each gang may be supplied with one of these steering attachments and operated by the feet or legs of the rider seated to the rear, as indicated by the dotted position of the seat in Fig. 1. Fig. 3 shows a plan view of a modification of this leg-actuated steerer, in which the arm 9' is slotted to receive the pin-bolt 15, secured in the lever 16, pivoted at 13' to the oblique beam 3. The forward end of said lever 16 is provided with a casting 12' or otherwise adapted to receive the foot of the rider, whereby the said lever may be operated from side to side, and the deflector adjusted, as indicated by the arrows in Fig. 3. Any convenient form of steerer or actuating mechanism therefor may be used, as long as the movement of the rider's leg or foot causes the sidewise movement of the swinging frame or gang.

The oblique beam 3 carries a coupling-plate at its inner end. This plate is composed of a top part G, which fits upon the beam 2 and is secured by a bolt G' and a nut H. The top part of the plate projects over the beam and has a number of openings therein, as shown at H', to receive the yoke, presently to be described. This plate has a vertical part I, which fits against the inner end of the beam 2 and is provided with a vertical recess I' and a slot J of less width than the recess and open at its upper end, whereby a bolt and a bolt-head may be fitted into the slot and recess, the difference in the size of the slot and recess preventing the bolt from drawing out. A rib J' is fashioned on the face of the part I, and a washer K is provided with indentations K' after the manner of ratchet-teeth or otherwise, which engage with the rib and prevent the washer from turning. The washer is recessed on its inner face and the edge is cut away at L, to receive the standard M of a suitable guard or fender O. The bolt O', which is secured in the coupling-plate G, passes through the standard M and the washer K and receives the nut O''. In this manner

the guard or fender O is firmly held to the gang by means of the bolt O'. This plate is by preference further provided with a lug P, to which is bolted the forward end of the oblique beam 3 of the gang. The bolt Q' also serves to carry a tooth Q, Fig. 4, by which the inner tooth of the gang is connected with the plate and hence with the beam 2.

The bolt Q' serves to connect one of the outer teeth of the gang with the oblique beam 3, as also an attaching plate or casting R with the oblique beam. This plate or casting carries the outer tooth of the gang. Such plate consists of a forward part R', adapted to fit upon the oblique beam, and having a hole to receive the bolt Q' of an intermediate part or shank S and an outer and rear part S', with which the outer tooth of the gang connects. This plate has strengthening-ribs T and is curved or bent so that it will not interfere with the wheel when the gang is swung outward, but will carry the outer tooth to or beyond the line of the wheel and to the rear of it, as suggested in Fig. 1. This plate is also shouldered, as seen at T' in Fig. 13, the shoulder being against the rear end of the oblique beam 3, while one of the strengthening-ribs extends down against the outside of the end portion of the oblique beam, as seen at the dotted line U' in Fig. 12. A bolt U passes through this rib as also through the rear end of the beam 3 to additionally secure the casting to such beam. This plate or casting is removable from the beam 3, and the tooth V is transferable from its connection with the said beam to the cross-beam 2, the outer end of which is adapted to support such tooth and has an opening to receive a bolt for this purpose. In this way two teeth may be removed from the outer end of the oblique beam 3, which are the rear teeth of the gang, and these teeth may be so set up as to come in line with the teeth carried by the inner end of the beams 2. Thus a four-toothed gang will be provided, as shown in Fig. 6, instead of a five-toothed gang, as in Fig. 1, and thus, also, the position of the teeth will be changed with respect to each other so as to facilitate clearing themselves of accumulations under certain conditions and their observation by the operator.

The gang and the coupling and the attaching plates so far as described are double in the machine, there being one at each side. Therefore when both of the gangs are changed as regards their teeth in the manner just described the machine will carry two less teeth by its outer gangs. If desired, the steering attachment hereinbefore described may be dispensed with, and the oblique beam 3 may be provided with a stirrup V' for the driver's foot, so that he may manipulate the gang sidewise while sitting on a seat (shown in dotted lines) carried by the machine.

It is sometimes desired to connect the outer gangs, so that they will swing together. This is done by a yoke W, having clips W' piv-

oted to its ends, and the clips having pintles X, adapted to fit into the openings H' in the coupling-plates G. The distance which the gangs shall stand apart is determined by the holes in which the pintles are put. An intermediate gang is sometimes used. I have shown such a gang in Fig. 4, the same consisting of diverging bars *a*, suitably connected together at their forward ends and having draft-straps *a'*, which may be secured to the bars C' of the outer gangs. The forward end of the inner gang carries a tooth *b*, while the rear ends of the bars *a* carry their teeth by means of attaching plates. These plates consist of an upper forward part *b'*, having at either side ribs *c*, between which fits the bar *a*. The plates further consist of a lower part *c'*, connected by an intermediate part *d*, while the ribs *c* preferably extend down along the edges of the intermediate and lower parts, as shown in Fig. 5. To the lower part is secured a tooth, as already suggested, by a bolt *d'*. Bolts *e* secure the plates to the bars *a*. An oblique beam *e'* is also carried by the intermediate gang-bars, and to such beam are secured other teeth, as shown in Fig. 4.

I have already suggested that the intermediate gang may be omitted. Its omission or its addition will give the machine five teeth less or five teeth more, as the case may be. A cross-piece *f* has brackets *f'*, which are adapted to be secured by the bolts *g* to the rear end of the gang-bars C' to complete the connection of the intermediate gang. When the intermediate gang is used, the swinging or main gangs are braced in their adjusted positions and are prevented from swinging, since all the gangs are bolted together and form one rigid frame. The whole frame thus connected may, however, be raised and lowered by the elevating devices at F. The plate or casting R admits of setting the wheel in and out, yet without bringing the beam 3 and the wheel in contact with each other.

In Fig. 4 steering-handles are shown in dotted lines at *m*, and they may be braced to the outer gangs by braces *o* (indicated by the dotted lines) and mounted on the bars C by the same bolts, securing the latter to the oblique beams 3. The forward ends of said handles may be secured to the bars C' by bolts through the same holes by which the bracket *f'* of the center gang was secured. Thus it will be seen that slight changes would adapt the riding-cultivator to be used as a walking-cultivator, and that the changes from one style to the other, as well as in regard to the number of teeth and the position of the same, may be readily made without radical changes in the component parts thereof.

In this specification the term "leg" is intended to include foot also.

In an application filed by me August 16, 1890, Serial No. 362,153, I have laid claim broadly to the steerer herein shown.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. In a riding-cultivator, the combination, with a gang-beam and a steerer therefor, of an operating mechanism for said steerer, consisting of a foot-piece pivoted to said beam, and intermediate connections between the foot-piece and said steerer, whereby the foot will act only on the steerer through said foot-piece and its connections to deflect the beam to one side or the other.

2. In a riding-cultivator, the combination, with a gang-beam and a steerer therefor, of an operating mechanism for said steerer, consisting of a foot-piece pivoted on an axis between its ends to said beam and having an extension on one end, and a link-connection between said extension and said steerer, whereby the oscillation of the foot-piece will actuate said steerer to cause the deflection of said beam.

3. The combination, with a gang carrying a beam, of a coupling-plate G, secured to the beam and having openings for a yoke, a recess and a slot, a bolt fitted to such recess and slot, a nut and washer for the bolt, and a guard or fender having a shank fitted to the bolt and into the washer and held by the nut.

4. The combination, with a gang having a cross-beam and an oblique beam, of a coupling-plate G, secured to the cross-beam, having openings to receive a yoke, and a lug adapted to lap over the oblique beam, and a bolt to secure said lug to said beam.

5. The combination, with a coupling-plate G, having a vertical part provided with a slot and a recess, of a bolt fitted to the slot with its head in the recess, a washer fitted to the bolt and having a raised edge on the inner face, and a slot in said edge and a guard or fender whose shank is fitted into said slot and over said bolt.

6. In a gang composed of bars, a cross-beam and an oblique beam, teeth secured to said beams, the cross-beam having an opening near its outer end, and one of the outer teeth of the oblique beam being detachable and adapted to be connected to the outer end of the said cross-beam.

7. An attaching-plate for a gang-bar, consisting of an upper forward part *b'*, adapted to embrace said bar, a lower part *c'*, and an intermediate part *d*, having ribs, the said part *c'* being deflected into the line of draft and adapted to receive a tooth secured thereto.

8. A plate or casting R, adapted to be mounted on a gang-beam adjacent to the carrying-wheel, and consisting of an inner part adapted to embrace and be secured to said beam, and an outer rearwardly-projecting part adapted to carry a tooth, whereby the end of the gang-beam and teeth thereon may be swung outward to the side and rear of said wheel without interfering therewith.

9. A plate or casting R, forming an extension to a beam carrying cultivator-teeth, and

consisting of a forward part adapted to be fastened together, with a tooth to the rear outer end of said beam adjacent to the carrying-wheel, of a rearward outwardly-extending part adapted to receive and hold the outer tooth of the series, and of a middle part curved inward to give play to said wheel during the outward swing of said gang, whereby the rear teeth may be swung out approximately in line with and to the rear of the carrying-wheel.

In testimony whereof I affix my signature in presence of two witnesses.

ADDISON W. BUTT.

Witnesses:

OLIVER H. MILLER,
WARREN HULL.