

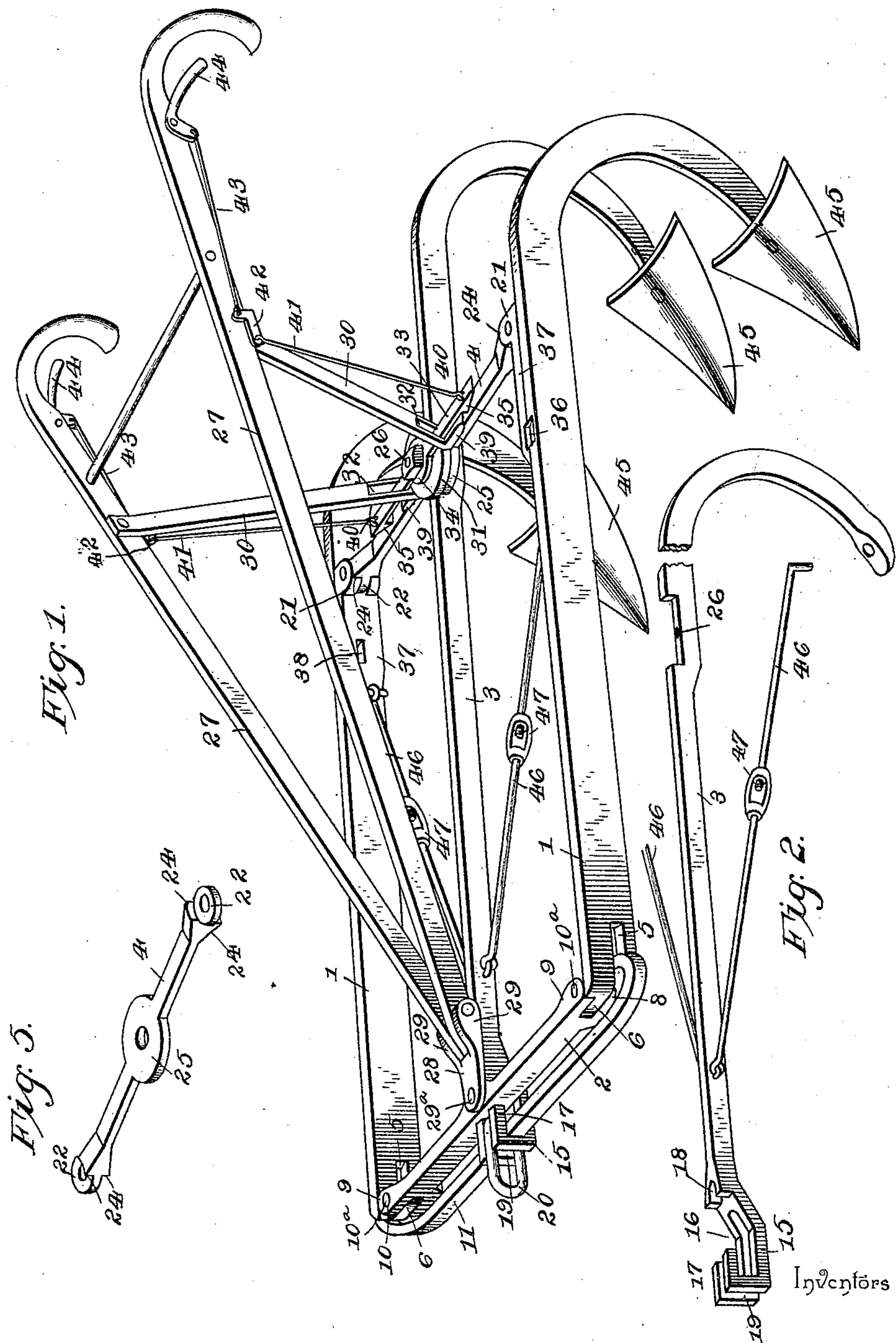
(No Model.)

2 Sheets—Sheet 1.

A. HAMILTON & W. E. MORRISON.
CULTIVATOR.

No. 529,381.

Patented Nov. 20, 1894.



Witnesses
C. A. Ford.
J. B. Owens.

By their Attorneys.
Addison Hamilton,
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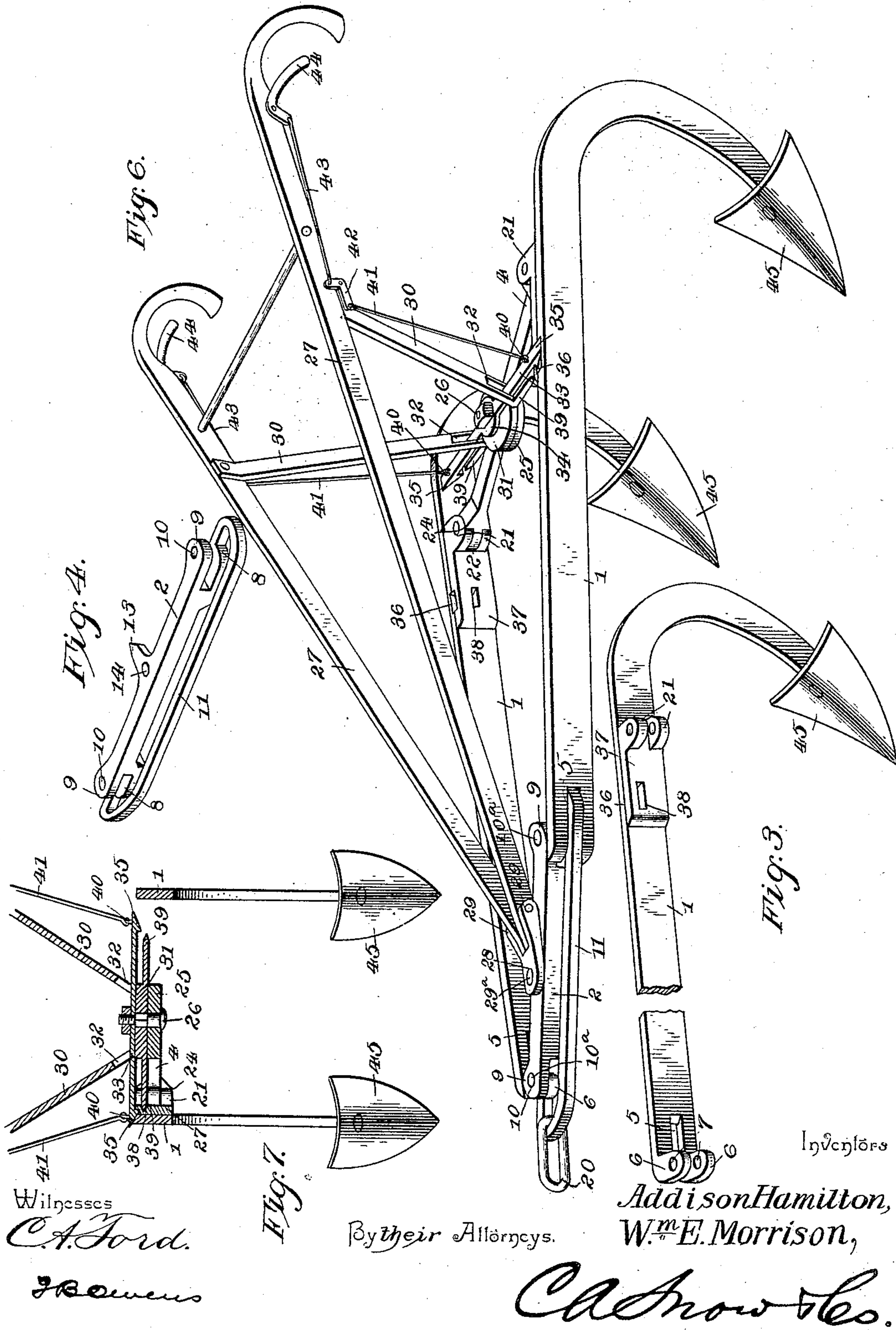
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UNITED STATES PATENT OFFICE.

ADDISON HAMILTON AND WILLIAM EZRA MORRISON, OF RAVENSWOOD,
WEST VIRGINIA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 529,381, dated November 20, 1894.

Application filed April 16, 1894. Serial No. 507,732. (No model.)

To all whom it may concern:

Be it known that we, ADDISON HAMILTON and WILLIAM EZRA MORRISON, citizens of the United States, residing at Ravenswood, in the county of Jackson and State of West Virginia, have invented a new and useful Cultivator, of which the following is a specification.

The purpose of this invention is to produce a cultivator capable of having the number of its blades changed to suit the work to be done. This end is attained by a peculiar construction of the frame and blade beams, and such construction will be more fully described hereinafter and finally embodied in the claims.

In the drawings: Figure 1 represents a perspective view of our invention, showing it adjusted to form a three-blade cultivator; Fig. 2, a detail perspective of the central or main beam; Fig. 3, a similar view of the side beams; Fig. 4, a detail perspective of the front connecting bar; Fig. 5, a detail perspective of the rear brace; Fig. 6, a view showing the cultivator with the main beam removed and with the cultivator operating with two beams; Fig. 7, a section of the cultivator when in the position of Fig. 6 and taken longitudinally with the retaining pawls.

The cultivator frame consists of five principal parts; the side beams 1, front connecting-bar 2, the main or central beam 3, and the rear brace 4. The side beams 1 extend approximately parallel, and are formed at their forward ends with the horizontal slots 5, which extend a short distance into the beams. Formed at the forward ends of the beams 1, and projecting inwardly therefrom and one on either side of the slots 5, are the lugs 6, which are two for each beam, and provided with the vertically-aligned openings 7. These lugs are adapted to receive the tongues 8, of the front bar 2, which tongues are formed one at each end of the bar 2, and operate with a companion lug 9, formed one above each of the tongues 8. Formed in the tongues 8 and lugs 9, and vertically aligned in each pair, are the openings 10, which are adapted to register with the openings 7, and to permit the bolts 10^a to pass through the lugs 6 and 9 and the tongue 8, and thereby pivotally connect each end of the rod 2 to the front ends of the respective

side beams 1. Formed integral with the tongues 8, and projecting out in longitudinal alignment with the front bar 2, are the ends of the guide 11. These ends proceed longitudinally with the bar 2 for a distance which will place them slightly beyond the outer sides of the beams 1, and thence the guide curves forward and extends parallel with the rod, and in front thereof.

The guide 11 lies in the same plane as the tongues 8, and consequently below that of the bar 2, and is adapted for the reception of the link 20, whereby the cultivator is drawn. Formed in the center of the bar 2 and projecting rearwardly therefrom is the stud 13, which is provided with the vertical opening 14. The stud 13 is adapted to permit the connection of the main beam 3 to the bar 2, and said beam has its forward end formed with a vertically-enlarged portion 15, provided with a slot 16, extending from its upper side downwardly and forwardly, and running under the upper front part of the beam, so as to form the rearwardly-projecting tongue 17.

Communicating with the slot 16, and formed at the rearward extremity thereof, is the notch 18, which extends down into the beam for about one-half its true thickness. The forward end of the beam 3 is provided with a second slot 19, extending vertically therein, and at right angles to the slot 16. This slot 19 proceeds from the front extremity of the beam to a point just forward of the notch 18, and is adapted for the reception of the draft-link 20 of the guide 11. The manner of connecting these parts is shown in Fig. 1, and there it will be seen that the rear of slot 16 receives the bar 2 at the middle of the latter while the front extremity of the slot 16 contains the guide 11, the stud 13, on the bar fitting in the notch 18. By these means the two parts are connected and held rigidly, and by means of the slot 19 the draft-link 20 is held in the center of the bar 2, and the cultivator properly drawn. The rear ends of the beams 1 are connected to the brace 4, by means of the inwardly-extending and vertically-aligned lugs 21, centrally perforated and adapted for the reception of the circular enlargements 22, formed one at each end of the brace 4, a vertical bolt 23 being provided

for said ends and passed through each set of lugs 21 and enlargements 22, whereby the two parts are pivotally connected. Formed at each end of the brace 4, and one on each side thereof, are the two shoulders 24, adapted to bear against the circular edges of the lugs 21, and to serve to brace the several parts during the swinging thereof.

The brace 4 is provided at its middle with a circular and horizontal plate or enlargement 25, centrally perforated and adapted to be seated in the depression 26 of the beam 3.

26 indicates a vertical bolt which passes through the opening in plate 25 and serves to pivotally connect the brace 4 and beam 3. The handles of the cultivator consist of two diagonally-extending bars 27, provided at their forward ends with the plate 28, rigidly fixed thereto by the lugs 29, and projecting forwardly and horizontally therefrom. This plate 28 is provided with a vertical opening which is adapted for the reception of the bolt 29^a, passing through the opening 14, of bar 2, whereby the handle-bars 27 and rod are pivotally connected to each other. The rear and upper ends of the bars 27 are supported or braced by the arms 30, which are two in number and formed integral with the horizontal plate 31. This plate is adapted to lie upon the enlargement 25 of the brace 4, and to be securely held in place by the bolt 26 aforesaid. Thus it will be seen that the bars 27 are pivotally connected to the cultivator frame at two points.

Formed in the arms 30, and in transverse alignment with each other, are the vertical slots 32, in which the free ends of the pawl-plate 33 are arranged. The pawl-plate 33 consists of a spring plate provided with the central main portion 34, and downwardly projecting hooked ends 35, the main portion 34 being centrally perforated and arranged to lie flush with the plate 31 of the arms 30, and to be rigidly secured in place by the bolt 26. The hooked ends 35 are adapted to respectively engage the notches 36, formed in the plate 37, which are formed integral with the lugs 21, and rigidly secured to each inner and rear edge of the beams 1. Formed in the plates 37, directly under each of the notches 36, are the openings 38, which are respectively adapted for the reception of the lateral studs 39, formed in the plate 31. This engagement, however, together with the engagement of the ends 35 and notches 36, does not occur until the parts are adjusted to form a two-blade cultivator, and this will be more fully described hereinafter.

Secured to each end of the pawl 33, and projecting upwardly therefrom, are the eyes 40, to which the rods 41 are pivotally connected. The rods 41 are two in number, one for each pawl, and extend up parallel with the arms 30 until the bars 27 are reached. Here the rods 41 are connected to the lower arm of the bell-crank lever 42, while the remaining or upper arms are similarly connected to the

rods 43, proceeding parallel with the bars 27 and out of the ends thereof, where they are connected to the hand-levers 44, of the handle-pieces of the bars 27. By these means the pawls 33 may be raised or lowered according to the requirements of the occasion, and for a purpose that will be hereinafter described.

45 indicates the plows or blades of my cultivator, and these are one for each beam 1 and 3, and are secured to their rear ends and project downwardly to engage the ground, as ordinarily. Secured to the forward end of the beam 3, and on each side thereof, are the rods 46 which extend rearwardly and outwardly to the beams 1, to which they are secured. Interposed between the ends of the rods 46 are the turn-buckles 47, whereby the rods may be tightened at will. By means of these rods the frame is further braced and its complete rigidity insured.

Fig. 1 illustrates the position which our invention assumes when being used as a three-blade or plow cultivator, and when so adjusted the parts will be held rigidly, owing to the connection between the rod 2 and the beam 3, together with that of the brace 4 and beam 3. When so arranged the device may be used as an ordinary cultivator. It may be drawn by the link 20 and guided by the handles 27.

Now, supposing that it is desired to use our invention as a two plow or blade cultivator. The bolt 26 should be removed, so as to allow the beam 3 to be disengaged from the brace 4, after which the bolt is replaced in order that the arms 30 and the pawl 33 be held in place. When the beam 3 has been disengaged from the brace 4, it should be swung downwardly, thereby moving the notch 18 out of the stud 13, and allowing the slot 16 to be disengaged from the guide 11, and thereby completely disengage the beam 3 from the remainder of the frame. This will release the link 20 and allow it free movement on the guide 11. The rods 46 should next be removed, and to accomplish this the fastenings between them and the beams 1 and 3 are made of a removable character.

Upon the removal of the beam 3 and braces 46, the rigidity of the frame is dispensed with and it will be possible to swing the bar 2 on the front of the handle-bars 27, and the brace 4 on the arms 30, thereby causing the device to assume the position of Fig. 6. This position will not change the position of the pawl 33, so that one of its ends will be located to engage one of the notches 36 of the side beams 1, which operation is allowed to take place, thereby locking the parts immovably in the changed position. It will be seen that the bar 2 is free to swing on the bolt which attaches it to the handle-bars, and that the slots 5, of the side beams will be capable of receiving the extended end of the guide 11, which has been thrown rearwardly.

When the changed position of the cultivator has been assumed, the link 20 will be free to move, and will be forced, when the draft

is applied thereto, to move up to the forward end of the guide, where it will remain during the operation of the cultivator under these conditions.

5 It will be understood that the purpose of swinging the beams 1 out of vertical alignment is to place the requisite plow-blade in front, so that the rear blade will always be nearest to the plowed ground. It will also be
10 understood that adjustment of these blades may be readily changed by operating the rods or levers to raise the proper pawl, thus permitting the disposition of the blades to be changed.

15 Having described the invention, what is claimed is—

1. A cultivator comprising the combination of a front connecting bar, a side beam pivoted to each end thereof and provided with
20 cultivator blades, a brace at the rear ends of the side beams and extending from one to the other and pivotally connected to each, and a removable central beam rigidly connected to the middle of the front bar and to the mid-
25 dle of the brace, whereby upon removing the central beam the side beams may be swung on their pivotal connection with the front bar and thereby moved out of transverse alignment, substantially as described.

30 2. A cultivator comprising the combination of two side beams, a bar extending from one to another, a central beam removably secured to the cultivator and operating to hold the parts rigidly, a pawl secured to the bar and
35 adapted to engage one of the side beams, and cultivator plows or blades secured to the central beam and to the side beams, the central beam being adapted to be removed so as to allow the side beams to swing out of lateral
40 alignment, and the pawl being adapted to engage with one of the side beams when in this position, whereby they are held rigidly, substantially as described.

3. A cultivator comprising the combination
45 of two side beams, a front bar pivotally connected to their front ends and having a guide extending parallel with the bar and adapted for the reception of the draft appliance, a brace pivotally connected to the side beams,
50 a central beam extending from the brace to

the bar and operating to hold the parts rigid, and cultivator plows connected to the central beam and to the side beams, the central beam being capable of removal, whereby the side beams may be moved out of vertical align- 55
ment, and whereby the draft apparatus may adjust itself along the length of the guide, substantially as described.

4. A cultivator comprising the combination of two side beams, a front bar pivotally con- 60
nected thereto, and having a guide extending parallel therewith, the guide being adapted to receive the draft apparatus, a brace pivotally connected to the side beams, a central beam extending longitudinally from the bar 65
to the brace and connected thereto so as to hold the parts rigid, the forward end of the central beam being slotted so as to embrace the draft apparatus and hold it stationary on the guide, and cultivator plows or blades se- 70
cured to the side beams and to the central beam, the central beam being capable of removal, whereby the side beams are allowed to swing out of transverse alignment, substan-
tially as described. 75

5. A cultivator comprising the combination of two side beams, a bar pivotally connected to the side beams, a brace pivotally connected to the side beams and extending from one to the other, a central beam extending from the 80
bar to the brace and secured to each and operating to hold the parts rigid, the central beam being capable of removal, whereby the side beams may be moved out of transverse alignment, a pawl-plate secured to the brace 85
and having two ends capable of engaging respectively the side beams when they are moved out of transverse alignment, whereby the side beams are held rigid when so moved, and cultivator plows or blades secured to the 90
central and side beams, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

ADDISON HAMILTON.

WILLIAM EZRA MORRISON.

Witnesses:

J. F. COORT,

B. F. WEST.