L. W. SIMMONS.

CULTIVATOR.

APPLICATION FILED JULY 24, 1915.

1,167,122. Patented Jan. 4, 1916.

Fig. 1.

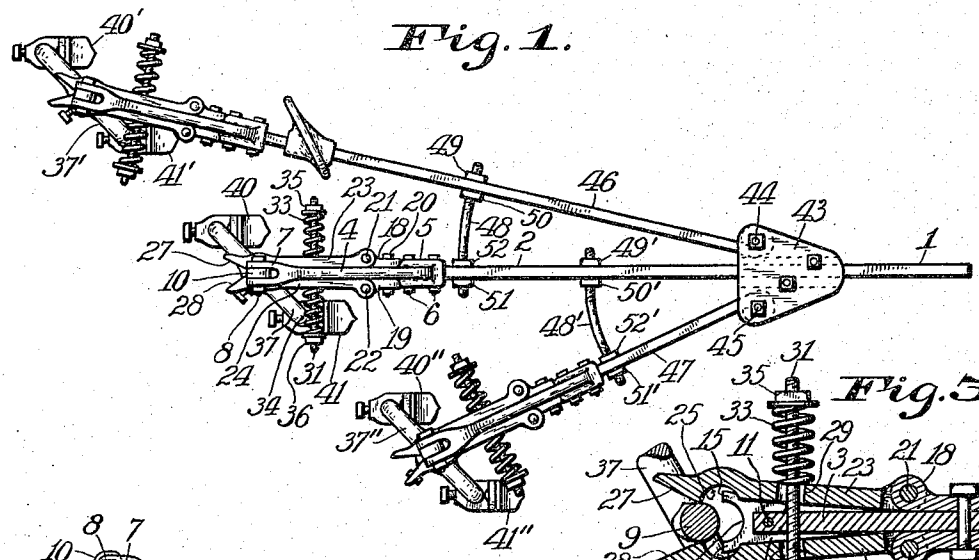


Fig. 3.

Fig. 2.

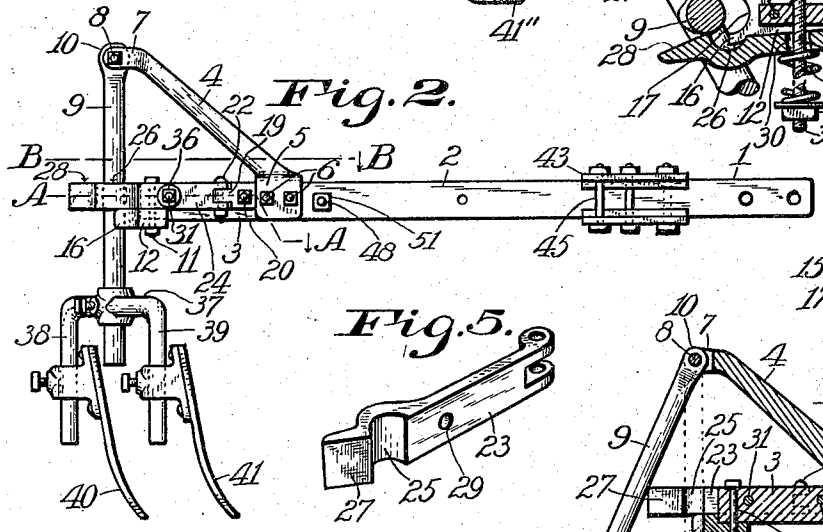


Fig. 4.

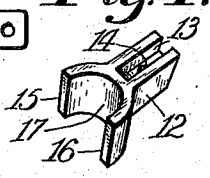


Fig. 5.

Fig. 7.

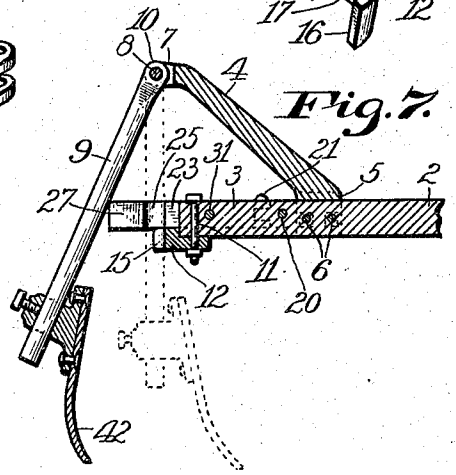
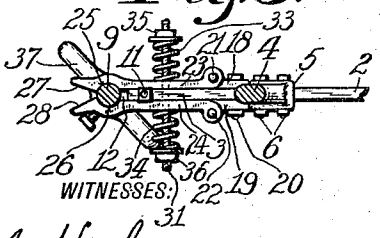


Fig. 6.



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CULTIVATOR.

1,167,122. Specification of Letters Patent. Patented Jan. 4, 1916.

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To all whom it may concern:

Be it known that I, LEROY W. SIMMONS, a citizen of the United States, residing at Broad Ripple, in the county of Marion and State of Indiana, have invented a new and useful Cultivator, of which the following is a specification, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

This invention relates to the plow type of cultivator which has plows or shovels designed to break up the soil in cultivating operations, the invention having reference more particularly to the beams and standards of cultivating machines such as those of the riding-cultivator type.

The invention relates more particularly to improvements of the gang cultivator described in Letters Patent of the United States No. 1,107,856, granted to me August 18, 1914.

An object of the invention is to provide an improved beam and standard construction that shall obviate the trouble and annoyance entailed by the "break" devices hitherto provided for preventing injury to parts of the cultivator in case the plows or shovels catch on roots or other obstructions in the ground.

Another object is to provide a simple, reliable and durable beam-break structure which shall permit the operator to immediately readjust the parts of the structure so as to be normal and proceed with the work without delay and loss of time following each break of the connections between the shovels and the beam.

A further object is to provide improved means for connecting the shovel to the beam of a cultivator, which shall permit of adjustment to vary the degree of resistance to the breaking of the joint connections, in order to adapt the cultivator to various conditions of ground to be cultivated.

A still further object is to provide improved means for connecting the shovel standards described in the above-mentioned Letters Patent to a draft beam so as to be reliable and powerful while permitting the shovels to drag over unyielding obstructions without injury to any of the parts of the structure.

With the above-mentioned and other objects in view, the invention consists in an improved cultivator beam including the standard thereof and comprising means for pivotally connecting the standard to the beam, and also means for yieldingly securing the standard to the beam, so that the standard may swing back and again be automatically clutched by the beam; and the invention consists further in the novel parts, and the combinations and arrangements of parts, as hereinafter particularly described and further defined in the accompanying claims.

Referring to the drawings,—Figure 1 is a top plan of a cultivator gang constructed substantially in accordance with the invention; Fig. 2 is a side elevation of the main beam and the shovels of the gang; Fig. 3 is a fragmentary section approximately on the line A—A on Fig. 2 with the standard in changed position; Fig. 4 is a perspective view of one of the parts of the beam; Fig. 5 is a perspective view of one of the movable clutch parts of the beam as preferably constructed; Fig. 6 is a sectional plan on the line B B on Fig. 2; and, Fig. 7 is a vertical central section of the improved beam and its standard carrying a single shovel approximately in the position resulting from engagement with an obstruction.

In the different figures of the drawings, similar reference characters indicate corresponding elements or features of construction herein referred to.

For the purpose of clearly describing the invention one gang of a cultivator constructed in accordance with the invention is illustrated, the gang comprising a main beam bar consisting of a forward portion 1, a main or body portion 2, and a rear portion 3, the forward portion being adapted to be connected to a sulky or a draft appliance, as is customary, so that the beam shall be drawn forward in approximately horizontal position and if carried to permit the rear end of the beam to be elevated while the machine is moved idly from place to place. The beam comprises a hinge member 4 that is rigidly secured to the bar of which the beam proper is composed, the member preferably having a jaw 5 which embraces the bar and is secured thereto by means of bolts or similar devices 6. The member extends upward from the rear portion 3 and has a hinge jaw 7 on its upper end that is provided with a hinge pin 8. A standard 9 is provided which has a hinge member 10 that

is connected to the pin 8, so that the standard may swing toward or from the rear end portion 3 which is provided with a bolt 11 whereby a beam part 12 is secured to the portion 3, said part having a recess 13 into which the end of the portion 3 extends, and a bolt hole 14, Fig. 4, through which the bolt 11 extends. The beam part 12 has laterally and rearwardly extending wings 15 and 16 thereon that are curved on their inner sides, and together with the rear end of the part 12 constitute a semi-circular seat 17 to receive and guide the standard 9. The beam includes also two hinge members 18 and 19 that are secured to opposite sides respectively of the beam bar rearward of the jaw 5, a securing bolt 20 being suitably used for the purpose. The hinge members are provided with vertical hinge pins 21 and 22 respectively to which two draft bars 23 and 24 are respectively connected so as to normally extend against the rear portion 3 of the beam proper. The standard 9 has a cylindrical portion that is normally in position against the seat 17, and the draft bars have semi-circular recesses 25 and 26 in their inner sides that receive and embrace the opposite sides respectively of the standard and constituting lugs for normally drawing the standard forward with the beam. Rearward of the recesses the draft bars have divergently extending guide faces 27 and 28 respectively to be engaged by the standard when the latter is swung forward to its normal position and enable the standard to force the draft bars apart so that the standard may pass to its seat to be embraced by the draft bars. The draft bars have apertures 29 and 30, respectively, through which extends a rod 31 that is connected to the rear portion 3 of the beam bar, the rod preferably having screw threads 32 throughout its length and being screwed into the bar so as to be fixed thereto and practically form two adjusting screws on opposite sides respectively of the beam bar and on which tension springs 33 and 34 are placed so as to bear against the draft bars 23 and 24 respectively, the tension of the springs being adjusted by means of nuts 35 and 36 placed on the end portions of the rod 31 at the outer ends of the springs. The tension of the springs may be regulated so as to retain the standard 9 in connection with the rear end of the beam with greater or less force, as may be desired.

Preferably each standard is equipped, as described in said Letters Patent, with a yoke 37 which has two stems or standard portions 38 and 39 to which two shovels 40 and 41 are respectively connected so as to be adjustable rotatively, the yoke being adjustable rotatively on the standard 9, thus affording advantages when close cultivation is desired, but in some cases a single cultivator shovel 42 may be adjustably connected directly to the standard 9, as illustrated in Fig. 7.

Near the forward portion 1 a head 43 is secured to the beam and has pivots 44 and 45 to which auxiliary beams 46 and 47 are connected. The beam 46 is adjustably connected with the main beam, preferably by means of a tie-rod 48 adjustably connected to the beam 46 by means of nuts 49 and 50 and to the main beam by means of nuts 51 and 52, a similar tie-rod 48′ being connected to the main beam 47 by means of nuts 49′ and 50′ and to the beam 46 by means of nuts 51′ and 52′, the nuts being screwed onto the rods and arranged in pairs so as to engage opposite sides of the beams. The auxiliary beams are equipped with cultivator implements like the main beam and constructed identically as above described, so that a yoke 37′ having shovels 40′ and 41′ is connected to the beam 46, and a yoke 37″ having shovels 40″ and 41″ connected thereto is connected with the beam 47 according to the improved construction above described, therefore requiring no further explanation.

It should be understood that the form of the cultivator shovels and the means for connecting them to the standard 9 may be variously modified without affecting the structure and mode of operation of the devices for practically connecting the cultivator implements to the beams of the machine.

In practical use the beams are drawn forward, as is customary, and in case a shovel is forced into contact with a root or other obstruction in its path the obstruction may in some cases be forced aside or cast up from the soil, but when too large or too securely fixed in the ground to be dislodged by the shovel without liability to cause injury to parts of the cultivator the standard 9 is caused to swing on its hinge pin as the beam is drawn forward, the shovel being dragged over the top of the obstruction, after which the operator lifts the gang clear of the ground and with one foot kicks the standard 9 back to its normal position and then lowers the beams and proceeds with the operations. During the movement of the cultivator in normal operation the fingers 15 and 16 prevent the standard from being strained laterally and becoming released from the clutch of the draft bars.

Having thus described the invention, what is claimed as new is—

1. A cultivator beam having an open seat on its rear end and also a pivot supported substantially above the rear end, a standard connected to the pivot and normally extending against the seat, and a draft device mounted on the beam to elastically swing horizontally and provided with a lug nor-

mally engaging and removably holding the standard to the seat.

2. A cultivator beam having an upward extending hinge member, a standard hinged to the hinge member above the plane of the beam, two draft bars separately connected to opposite sides respectively of the beam and yieldingly drawn each toward the other, the bars having lugs normally engaging and detachably connecting a portion of the standard to the rear end of the beam.

3. A cultivator including a beam having two coöperating draft bars hinged to the rearward portion thereof, each draft bar having a recess therein, means for yieldingly holding the draft bars substantially together, a standard hingedly connected with the beam above the draft bars and removably embraced in the recesses of the draft bars, and a cultivator implement carried by the standard.

4. A cultivator including a beam having two laterally movable draft devices normally drawn yieldingly each toward the other, the beam having also a seat between the draft devices, a standard hingedly connected with the beam and normally in contact with the seat, the standard being normally engaged by the draft devices and thereby retained in normal position but permitted to be forced therefrom, and a cultivator implement carried by the standard.

5. A cultivator including a beam bar having an upward extending hinge member thereon, two hinge members secured to opposite sides respectively of the bar and having each an upright hinge pin, a standard hingedly connected to the upward extending hinge member, two draft bars connected to the hinge pins respectively and constructed for engaging and yieldingly holding the standard to the beam bar, and a cultivator implement carried by the standard.

6. A cultivator including a beam having a hinge member and also two laterally movable draft devices, each device being yieldingly drawn toward the other and having a lug on the inner side thereof and an outward extending guide face rearward of the lug, a standard hinged to the hinge member and normally detachably engaged by the lugs, the standard being adapted to engage the guide faces to force the draft devices apart and become engaged by the lugs, and a cultivator implement carried by the standard.

7. A cultivator including a beam bar having a standard-seat on the rear end thereof, a hinge member secured to the bar and extending upward, a standard hinged to the hinge member above the standard-seat and normally in contact with the standard-seat, two draft bars hinged to opposite sides respectively of the beam bar and having each a lug normally engaging the standard, adjusting screws connected to the beam bar and extending through the draft bars respectively, each screw having a nut thereon, two springs on the screws and under tension between the draft bars and the nuts respectively, the springs yieldingly holding the lugs in engagement with the standard, and a cultivator implement carried by the standard.

8. In a cultivator, the combination of a beam having a standard seat on its rear end and a seat guide on one side of the standard seat, a draft bar mounted on the beam for elastical horizontal movement and having a lug thereon normally supported by the bar behind the standard seat, the draft bar having also a guide thereon rearward of the lug and extending outwardly in the direction from the seat guide, a hinge arm rigidly secured to the beam and extending upward substantially above the standard seat, and a standard hinged to the upper portion of the hinge arm and normally extending removably between the seat guide and the draft bar and held by said lug to said seat.

9. In a cultivator, the combination of a beam having a hinge pin supported thereon and also a standard seat at a distance from the hinge pin, said seat having guide wings on its opposite vertical sides respectively, the beam having also two horizontally movable draft devices, one of the devices being yieldingly drawn toward the other and constructed for engaging a standard transversely of the standard, said draft devices having outwardly extending guide faces to be engaged by the standard, and a cultivator standard connected to the hinge pin and removably extending between the draft devices and the standard seat and yieldingly held by the devices to the seat.

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

LEROY W. SIMMONS.

Witnesses:
E. T. SILVIUS,
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