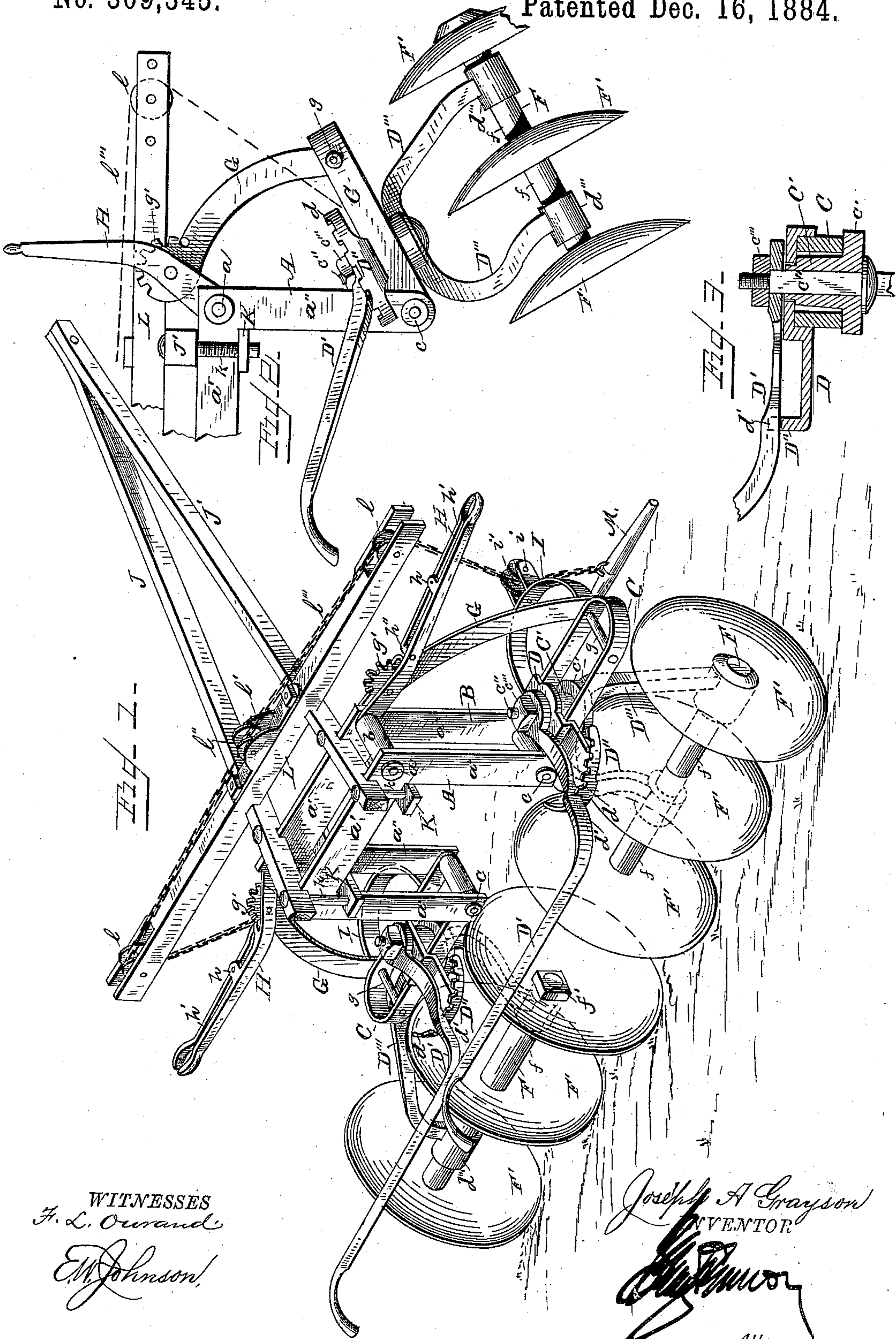


(No Model.)

J. A. GRAYSON.  
CULTIVATOR.

No. 309,345.

Patented Dec. 16, 1884.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JOSEPH A. GRAYSON, OF HUTCHINSON, KANSAS.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 309,345, dated December 16, 1884.

Application filed June 14, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH A. GRAYSON, a citizen of the United States of America, residing at Hutchinson, in the county of Reno and State of Kansas, have invented certain new and useful Improvements in Cultivators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention is a cultivator; and it consists in the improved construction and combination of parts, hereinafter fully described and set forth, whereby a series of disks may be readily operated and adjusted to cover or throw the earth from the hills or pulverize the ground either in a vertical or inclined position.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of my improved cultivator, looking from the rear of the machine. Fig. 2 is a detail view illustrating in elevation one of the adjustments of the disks. Fig. 3 is a sectional detail.

The supporting-frame of the machine consists of two angle-plates, A B, which are bolted together by means of bolts *a*, which are embraced between the said plates by means of sleeves *b*. Each plate consists of a horizontal portion, *a'*, and vertical parallel side portions, *a''*.

At the lower end of each pair of vertical side portions, *a''*, are pivoted the inner ends of yoke-bars C, the said yoke-bars being pierced by the lower securing-bolts, *c*, of the central frame.

Between each yoke-bar C is located a nut, C', which is provided with a flange, *c'*, on its under side, which bears against the under side of the bars C, a bolt, *c''*, piercing the nut in an inverted position, as indicated in Fig. 3, so that the head of said bolt bears against the under side of the nut, while its upper threaded end is adapted to receive a clamp-nut, *c'''*, which holds a plate, D, and lever D' in position. The pivoted portion of the plate D is bent so as to embrace the bars of the yoke C, and thereby prevent the turning of the said plate upon the bolt *c''*. The plate D has a

rearward extension, D'', which is turned up and serrated at its edge, so as to present a serrated rack, *d*, adapted to engage the bladed portion *d'* of the lever D'. Two curved arms, D''' D''', depend integrally from the nut C', and the said arms are provided at their lower ends with loops *d'''*, through which passes a shaft, F. A series of concavo-convex disks, F', are secured upon the shaft F, and are maintained in proper relative position upon the same by means of a series of sleeves, *f*, arranged upon said shaft between the central disk, F', and the loops *d'''*. One end of the said shaft F is provided with an enlargement which bears against the adjacent face of the outer disk, F', while the other end of said shaft is screw-threaded to receive a nut, *f'*, thereby locking the said shaft and disks at the lower end of the arms. A bar, G, is pivotally connected at its lower end to a bolt, *g*, which spans the yoke-bar C at its outer portion, while the upper end of said bar G is enlarged to form a segmental rack, *g'*. A lever, H, is bifurcated at one end, so as to embrace the segmental rack *g'* of the bar G, the inner end of said lever H being fulcrumed upon one of the securing-bolts *a* of the frame. At one side of the lever H, and about midway thereof, is located a bracket, *h*, in which is centrally pivoted a supplemental lever, *h'*, the inner end of which is bent so as to form a hook, *h''*, which pierces the bifurcated portion of the lever H and engages the teeth of the segmental rack *g'*. A yoke-bar, I, is secured in a horizontal position on the front of each bar C, and said yoke-bar I carries centrally on its front face a bracket, *i*, in which is journaled a roller, *i'*. Two beams, J J', converge together at their front ends, at which point they are bolted together, and at their rear diverging ends are notched to embrace and rest upon the upper edges of the horizontal portions *a'* of the frame. Plates K are arranged beneath the horizontal portions *a'* of the frame, so as to receive bolts *k*, which pass through beams J J' and retain the same in position rigidly on the frame. A bar, L, is bolted transversely on the upper side of the beams J J' in advance of the frame, and is slotted at its end to receive a roller, *l*, while a bracket, *l'*, secured centrally upon the upper side of the said bar L, contains the third roller, *l''*. ▲



chain,  $l'''$ , passes over the said central roller and over the end roller,  $l$ , and over the rollers  $i'$ , and has suspended at each end a whiffletree,  $M$ .

5 The operation of the device is as follows: When the machine is used as a pulverizer, the parts occupy the relative positions illustrated by Fig. 1. Should it be desired to only use one of the disks  $F'$ , to operate on either side of  
10 the hill or row of corn, the lever  $h'$  is pressed on its pivot so as to disengage its bent end  $h''$  from the segmental rack  $g'$ , and the lever  $H$  is then elevated on its pivot, thereby lifting the outer end of the yoke-bar  $C$ , so that  
15 the disks suspended from said yoke-bar occupy an inclined position approximating that illustrated in Fig. 2, in which position the inner disk of each series will operate to throw the earth toward each other, and thereby cover  
20 the corn. To change the angle of each series of disks it is only necessary to disengage the lever  $D'$  from the segmental rack  $d$  and move said lever along said rack, thereby partially revolving the bolts  $e''$  and nut  $C'$  in their bearings in the yoke-bar  $C$ , so as to turn the inner  
25 disk forward or rearward and the outer disk vice versa. By providing the draft attachment in the form of a chain and pulleys, as herein described, an equal draft-pull may be  
30 maintained independent of the position or adjustment of either of the series of disks. By removing the clamp-nut  $C'$ , lever  $D'$ , and plate  $D$ , each series of disks and their nut and bolt bearings may be revolved with respect to the  
35 yoke-bar  $C$ , so that said disks  $F'$  can operate to throw the dirt outwardly toward the side of the machine.

I claim—

40 1. The combination, in a combined cultivator and clod-crusher, of a supporting-frame, a yoke-bar pivoted at one end to the lower portion of the supporting-frame, a series of disks connected to a swivel-bolt secured and bearing in the yoke-bar, devices for elevating said  
45 yoke-frame on its pivot and for locking the same in such adjusted position, a lever connected to the swivel-bolt to rotate the same, and means for locking said lever in any posi-

tion in which it may be moved to rotate said bolt, substantially as set forth.

50 2. The combination, in a combined cultivator and clod-crusher, of a supporting-frame, a yoke-bar pivotally secured at one end to the lower portion of said frame, a series of disks secured to a swivel-bolt bearing in said yoke-bar and adapted to be removed therefrom and readjusted to reverse the position of the disks,  
55 and a lever for effecting a partial rotation of said swivel-bolt in its bearings, substantially as and for the purpose set forth.

60 3. The combination, in a combined cultivator and clod-crusher, of a supporting-frame having the vertically-depending parallel side portions, a yoke-bar pivoted at one end to the lower end of each of said portions, a series of  
65 disks connected to a swivel-bolt secured and bearing in each yoke-bar, devices for elevating said yoke-bars independent of each other, and a lever connected to each swivel-bolt to rotate the same independent of the other bolt,  
70 substantially as set forth.

80 4. The combination, in a combined cultivator and clod-crusher, of a supporting-frame, a yoke-bar pivoted at one end to the lower portion of the supporting-frame, a series of disks connected to a swivel-bearing secured in said  
75 yoke-bar, a segmental ratchet-plate clamped rigidly on the upper side of said yoke-bar, and a lever for rotating the swivel-bearing, substantially as set forth.

85 5. The combination, in a combined cultivator and clod-crusher, of a supporting-frame consisting of two parallel bars provided with depending side portions connected by bolts having the disk devices pivoted thereon, a  
90 draft-tongue notched at its rear under side to engage the upper edges of said bars, and a plate,  $K$ , arranged on the under side of said bars to engage the lower ends of bolts piercing the draft-tongue, substantially as set forth.

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

JOSEPH A. GRAYSON.

Witnesses:

ED RICKSECKER,

W. E. BURNS.