No. 885,093. PATENTED APR. 21, 1908.

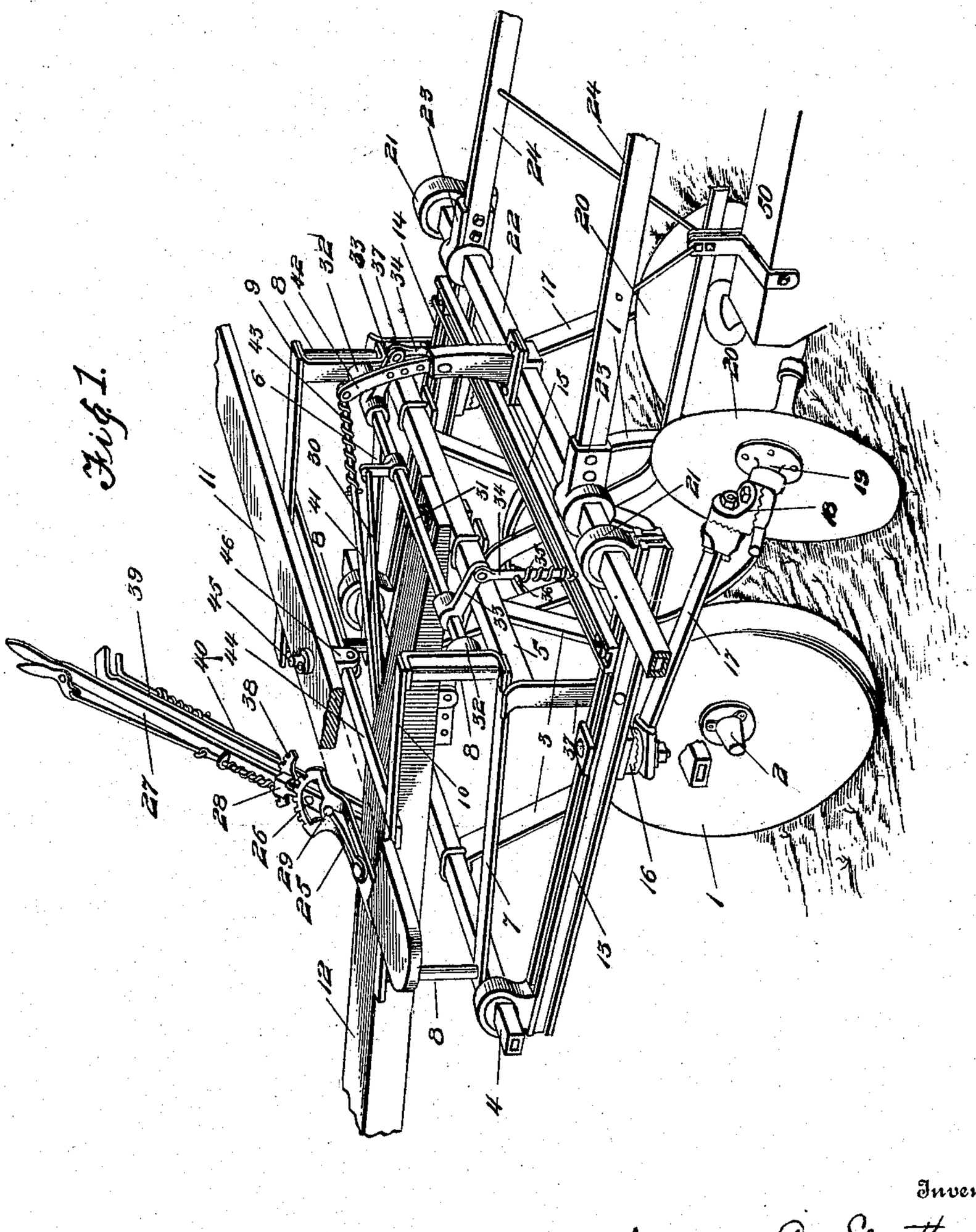
J. A. SMETHERS & W. ELLIOTT.

CULTIVATOR.

APPLICATION FILED JAN. 19, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

Fig. 3.

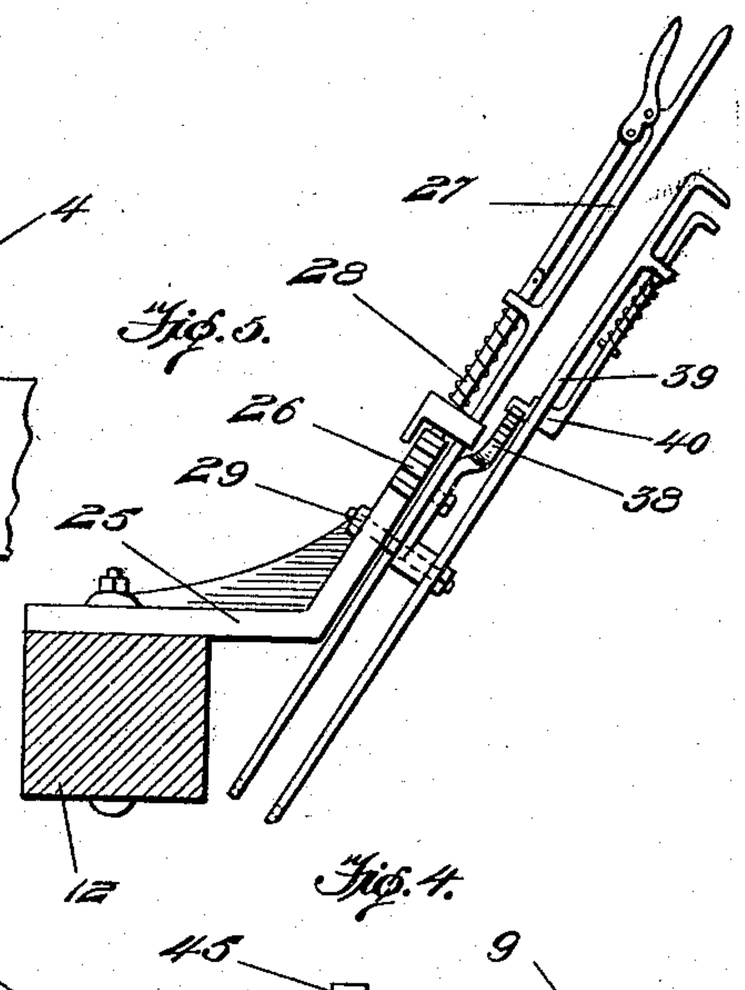
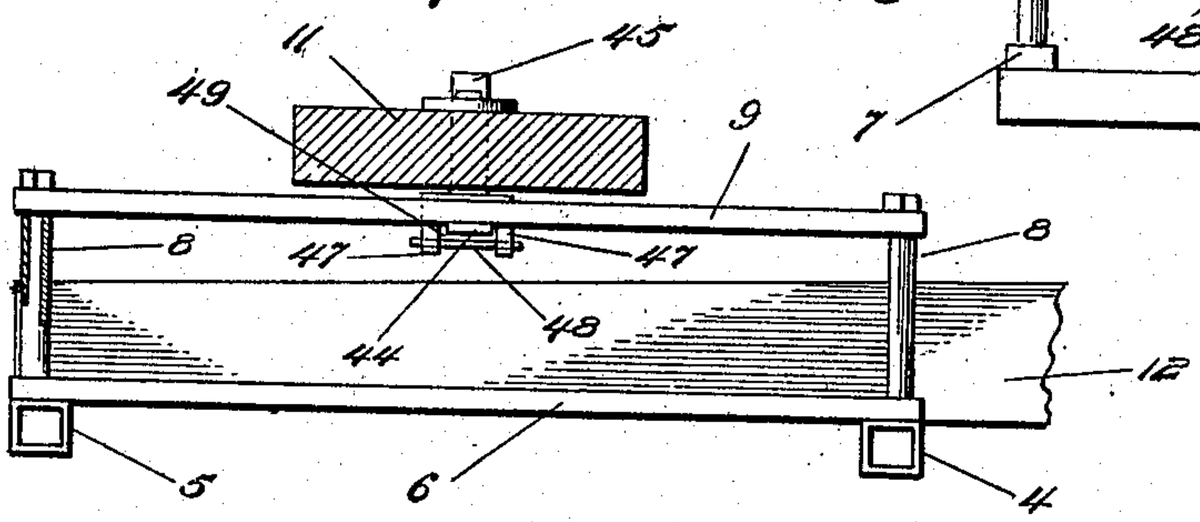


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES A. SMETHERS AND WILLIAM ELLIOTT, OF BEATRICE, NEBRASKA, ASSIGNORS TO DEMPSTER MILL MANUFACTURING COMPANY, OF BEATRICE, NEBRASKA.

CULTIVATOR.

No. 885,093. Specification of Letters Patent. Patented April 21, 1908.

Application filed January 19, 1907. Serial No. 353,128.

To all whom it may concern:

Be it known that we, JAMES A. SMETHERS and WILLIAM ELLIOTT, citizens of the United States, residing at Beatrice, in the county of Gage and State of Nebraska, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

Our invention relates to two-row cultivators of the class in which two sections or gangs of shovels, disks, or other cultivating appliances are employed; said gangs being connected by a seat-plank in such a manner that they may be adjusted thereon to travel at any desired distance apart, according to the requirements of the work to be done. In this cultivator the sets of shovels are carried by supports separate from and independent of those of the disks, and the special object of the present invention is to provide means of elevating and lowering the disks and shovels, either simultaneously, or separately and independently of each other. We also provide new and improved means for supporting and adjusting the seat-plank; also other improvements, as hereinafter set forth.

In the accompanying drawings Figure 1 is a general perspective view of the left hand side of one of the two sections or gangs of the cultivator; it being understood that the parts shown are duplicated on the opposite side of the machine. Fig. 2 is a top plan view of our device for supporting and adjusting the seat-plank. Fig. 3 is a side elevation of the same. Fig. 4 is a rear elevation of the same, partly in section. Fig. 5 is a detail elevation, partly in vertical section, of the bracket, lever and ratchet device for raising the disks and shovels.

The machine is preferably supported on furrow-wheels 1, having stub-axles 2, mounted on trusses 3 depending from the main frame. Said main or stationary frame consists essentially of front and rear sills 4 5 and cross-bars 6 7. Upon each corner of said frame is erected a post 8, which posts are connected at the top by crossbars 9 10, which serve as supports for the seat-plank 11. The tongues 12 are secured to the front and rear sills 4 5.

The adjustable frames consist essentially of side-bars 13 14, hinged at their front ends to the sill 4, and bolted near their rear ends to a transverse channel-bar 15. On the side-bars 13 14 are adjustably mounted, by means of clutch-joints 16, the disk-arms 17, extending downwardly and rearwardly, and terminating in the adjustable clutch-boxes 13, which serve as journals for the disk-shafts 19, carrying the disks 20. On the rear ends of side-bars 13 14 are located bearing-blocks 21, in which is journaled a rock-shaft 22, to which are rigidly secured, by means of sockets 23, shovel-beams 24, carrying the shovels, not shown. Preferably on the tongues 12, in each section of the machine are secured rigid brackets 25, having their upper portions inclined inwardly toward the driver's seat. The upper or inclined portion of each of said brackets carries a notched segment 26; and a main hand-lever 27, provided with the usual catch 28, is pivoted to the bracket at 29. To the bottom of lever 27 is attached a link 30, connected to a rock-shaft 31, mounted in bearings 32 on each side the frame. At each end of said rock-shaft 31 is a crank-arm 33, from which depends a link 34, which links pass through channel-bar 15, or are so connected thereto as to lift said bar and the adjustable frame, the disks, etc., when lever 27 is operated. The links 34 are provided with coiled springs 35, interposed between bar 15 and a pin 36 on said links so as to permit the adjustable frame, with the disks, to rise automatically when obstacles or inequalities of ground are met with in operating the machine.

On or near the rear corners of the adjustable frame are erected vertical guide-plates 37, which bear against side-bars 6 7, or other members of the main frame, and serve as guides for the adjustable frame in its upward and downward movements. The rock-shaft 22, which carries the shovel-beams 24, being hinged to the adjustable frame at 21, as described, we also provide means for partially rotating said shaft and elevating the shovels independently of the position of the adjustable frame. For this purpose a segment 38 is bolted to the main hand lever 27 (see Fig. 5), and a secondary hand lever 39 is pivoted on brackets 25 at 29, and provided with a catch 40 adapted to engage segment 38. To the foot of lever 39 is linked a rod 41 extending to an upright arm 42 bolted to rock-shaft 22. Rod 41 passes through an eyebolt in the upper end of arm 42, and is so formed as to engage the eye of said bolt and actuate the rock-shaft and thus lift the shovels when le-

ver 39 is operated, while at the same time permitting the shovels to rise, against the stress of a spring 43, on rod 41, when meeting obstacles or inequalities of ground.

The devices described provide for the elevating of the disks without elevating the shovels, or for elevating the shovels independent of the position of the hinged frame and disks; or for the elevation of the disks and shovels simultaneously. The first mentioned movement, that of elevating the disks without elevating the shovels, is effected by pulling main lever 27 rearwardly, while at the same time secondary lever 39 is held out of engagement with segment 38: the shovels are elevated independently of the position of the hinged frame and disks by the operation of lever 39, lever 27 remaining stationary; while to elevate both the disks and shovels simultaneously lever 27 is pulled back while lever 39 is held in engagement with segment 38, which causes both said levers, with their connections, to move in unison. The inward inclination of the brackets 25 causes the levers 27 39 to also incline inward toward the driver's seat, for his greater convenience.

The seat-plank 11 rests upon the elevated cross-bars 9 10 of the main frame in each section of the machine. Between said cross-bars, and parallel with and beneath the plank, when in normal position, extends a transverse guide-bar 44 (Figs. 2, 3, 4). Said plank is provided at each end with a swivel-bolt 45, which passes loosely through the plank and is held in position by a washer and cotter-pin, or other device, on the upper side of the plank. The lower end of said bolt, beneath the plank, has a head 46, provided with ears 47 and a pin 48 passing through said ears and the space 49, between said ears and said pin, is adapted to receive the guide-bar 44; thus permitting the longitudinal movement of the plank on its supports, when desired, while its general position is still maintained by the action of bolts 45 and guide-bars 44.

The usual fenders 50, for protecting the plants, are located between the shovels and are propelled by draw-bars 51 connected to the tongues or other fixed parts of the machine.

We claim as our invention and desire to secure by Letters Patent:

1. In a cultivator, the combination of the main frame, an adjustable frame hinged to the main frame, cultivating means carried by said adjustable frame, a rockshaft journaled on the adjustable frame, cultivating means carried by said rockshaft, a main lever pivotally mounted on a fixed part and adapted to elevate the adjustable frame, with the cultivating means carried thereby, a secondary lever having a common pivotal point with said main lever and adapted to rotate said rockshaft and elevate the cultivators carried thereby relatively to the adjustable frame, and means for locking said levers together, so that the movements of the main lever will operate both sets of cultivators simultaneously, substantially as set forth.

2. In a cultivator, a main frame, an adjustable frame hinged to said main frame, cultivating means carried by said adjustable frame, a rock-shaft mounted in bearings in said adjustable frame, cultivating means carried by said rock-shaft, a bracket rigidly mounted on a fixed part, a main lever pivoted to said bracket and adapted to elevate said adjustable frame, and a secondary lever, also pivoted to said bracket adapted to rotate said rock-shaft and elevate the cultivators carried thereby, substantially as set forth.

3. In a cultivator, a main frame, an adjustable frame hinged to said main frame, cultivating means carried by said adjustable frame, a rockshaft journaled in said adjustable frame, cultivating means carried by said rockshaft, a bracket rigidly mounted on a fixed part, a main lever pivoted on said bracket and adapted to elevate or lower said adjustable frame, a secondary lever, also pivoted to said bracket adapted to rotate said rockshaft to elevate or lower the cultivators carried thereby, and means for locking said levers together so that the movement of the main lever shall operate both said sets of cultivators simultaneously, substantially as set forth.

4. In a cultivator-section, a main frame, an adjustable frame hinged to said main frame, guide-plates mounted on said hinged frame and adapted to bear against fixed parts of the main frame when the hinged frame is elevated, cultivating devices carried by said hinged frame, a transverse rock-shaft journaled on said hinged frame, cultivating devices carried by said rock-shaft, a main lever fulcrumed on a fixed part for elevating said hinged frame, and a secondary lever for rotating said rock-shaft, substantially as set forth.

5. In a cultivator comprising two sections or gangs adjustably connected by a seat-plank, the combination of the main frames, the plank, cross-bars elevated above said frames and transversely to the plank, to support said plank, intermediate guide-bars connecting said cross-bars and parallel with the plank, bolts passing loosely through said plank and having recessed heads beneath the plank adapted to engage said guide-bars to hold the plank thereto while permitting longitudinal movement of said plank, substantially as set forth.

6. In a cultivator, the combination of the main frame, a swinging frame on the main frame provided with cultivating appliances thereon movable in the operation of the swinging frame to and from the ground, and

means yieldingly connected with the cultivating appliances for moving the cultivator appliances to and from the ground independent of the swinging frame and yieldingly holding the cultivating appliances in the lowermost position.

7. In a cultivator, the combination of a traveling frame, a swinging frame on the traveling frame, two sets of cultivating appliances on the swinging frame movable to and from the ground, a lever for moving one set of cultivating appliances independent of the swinging frame and other set of cultivating appliances to and from the ground, and yielding means connecting the lever with the cultivating appliances for yieldingly holding the cultivating appliances in the lowermost position.

8. In a cultivator, the combination of a plurality of cultivator gangs, each mounted on traveling means, a spreader member connecting said gangs, two sets of cultivating appliances on each gang movable to and from the ground independent of the traveling means, and means on each gang for operating one set of cultivating appliances to and from the ground independent of the other set of cultivating appliances thereon.

9. In a cultivator, the combination of a plurality of cultivator gangs, and a spreader member connecting the cultivator gangs, each of said cultivator gangs comprising a main frame, a swinging frame mounted on the main frame, two sets of cultivating appliances mounted on the swinging frame, and means for operating one set of cultivating appliances independent of the other set of cultivating appliances.

10. In a cultivator, the combination of the main frame, an adjustable frame hinged in the main frame, cultivating means carried by said adjustable frame, a rock-shaft journaled on said adjustable frame, cultivating means carried by said rock-shaft, yielding means for rotating said rock-shaft and elevating the cultivators carried thereby relatively to the adjustable frame, and means for elevating the adjustable frame with the cultivator means carried thereby and by said rock-shaft simultaneously.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES A. SMETHERS.
WILLIAM ELLIOTT.

Witnesses:
H. L. DEMPSTER,
R. H. YALE.