No. 697,028

Patented Apr. 8, 1902.

J. W. SHIELDS.

BEET CULTIVATOR.

(Application filed Sept. 16, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

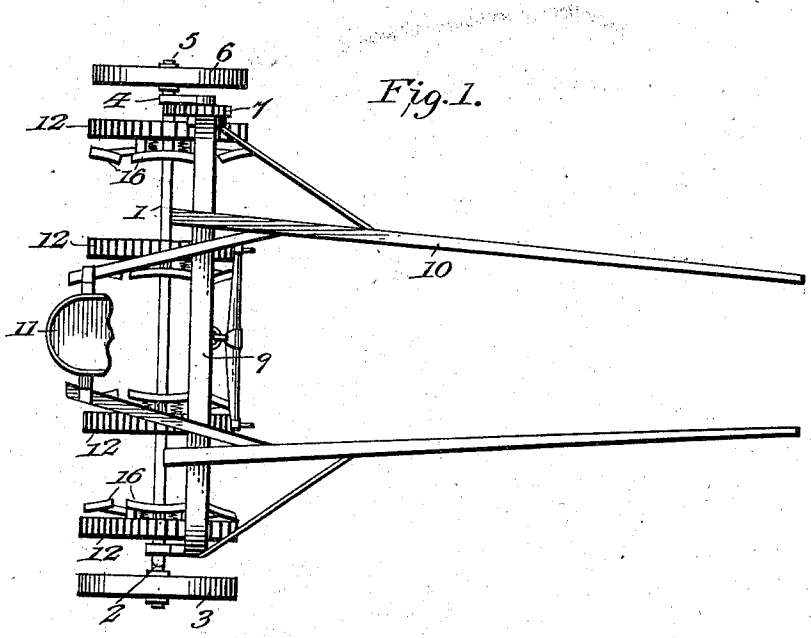


Fig. 2.

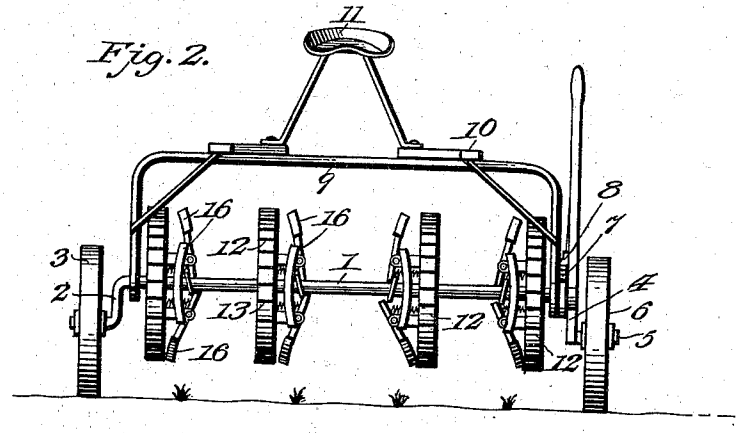
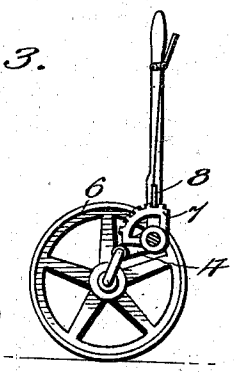


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 4.

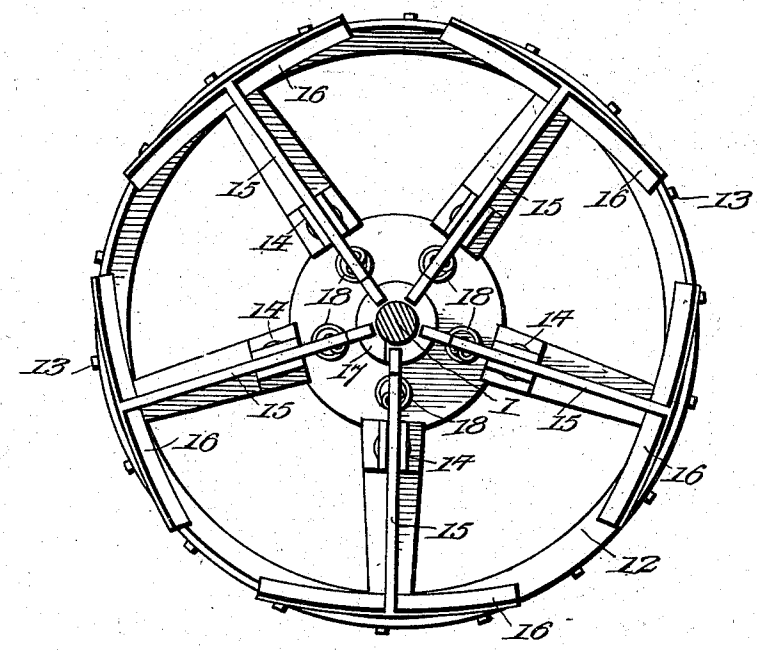
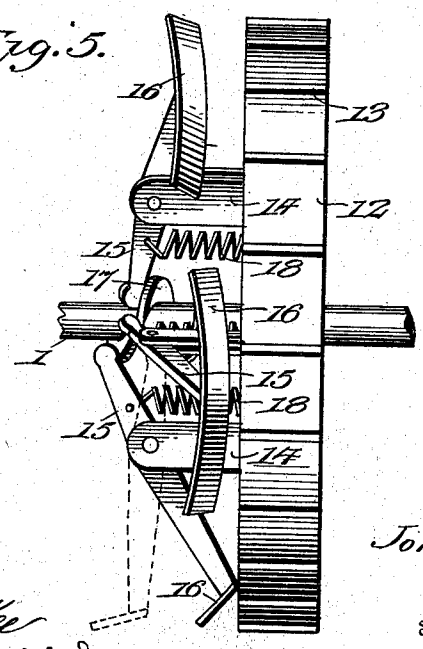


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN W. SHIELDS, OF GREENSBURG, INDIANA.

BEET-CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 697,028, dated April 8, 1902.

Application filed September 16, 1901. Serial No. 75,612. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SHIELDS, a citizen of the United States, residing at Greensburg, in the county of Decatur and State of Indiana, have invented new and useful Improvements in Beet-Cultivators, of which the following is a specification.

This invention relates to beet-cultivators; and the object thereof is to provide an improved device of the character described which will effectually thin out the beets, so as to arrange plants in even rows at predetermined distances apart.

Further objects, as well as the novel details of construction, will be clearly described hereinafter and illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of the cultivator. Fig. 2 is a front elevation of the same. Fig. 3 is a detail view of the adjusting-lever. Fig. 4 is a plan view of one of the cultivator-wheels, showing the knives attached; and Fig. 5 is an edge view of the same.

Referring now to the drawings by numerals of reference, 1 designates a shaft, on one end of which is a crank-shaft 2, carrying a suitable wheel 3. A bell-crank lever 4 is secured to the other end of the shaft 1, and at the lower end of said lever is a right-angularly-projecting axle 5, on which is secured a wheel 6, similar to the wheel 2. The lever 4 is pivotally carried by the shaft 1 and is adapted to engage the segmental rack 7 on said shaft through the medium of a pawl 8, whereby the angle of the cranks may be adjusted to lower or raise the knives, to be hereinafter more fully described.

9 designates an inverted-U-shaped brace, from which projects a forwardly-extending draft device 10. A seat 11 may be supported on said brace 9, if desired, said seat being desirable in case the cultivator is propelled by means other than manually.

Arranged at suitable intervals upon the shaft 1 are a plurality of wheels 12, which are adapted to rotate thereon and carry on their peripheries projecting ribs 13.

14 designates a plurality of concentrically-arranged bifurcated lugs or projections, which are secured near the hub of the wheel, and the lug or projection carries a pivoted lever 15, on one end of which is a laterally-disposed knife 16, while the other end of the lever, which terminates at a point adjacent the shaft, is adapted to engage a cam-rib 17, which is adapted to retract the knives laterally until the free ends of the levers pass the end of the cam, when the knives are projected in a lateral plane through the medium of coil-springs 18. These knives are arranged so that they will be projected toward the beet independently and successively as they reach a point opposite the vegetable, the cam being arranged so as to permit the escape of the free end of the lever at this point. As soon as the beet has been cut the free end of the lever will begin to engage the cam, and the knife will be retracted toward the wheel. By operating the lever 4 on the segmental rack 7 knives may be raised, so as to throw them out of operation when transporting the machine or when the end of the row is reached. The adjustment of the knives will be governed according to the height of the beets to be operated upon.

This invention is particularly applicable for use in cultivating beets. It could also be used as a cotton-chopper. When used for this purpose only, two or three of the wheels will be arranged on the shafts, according to the number of rows to be operated upon at the time, and the operation of the knives will be substantially the same as when used as a beet-cultivator.

While I have described the exact details of construction shown in the preferred form of my device, I do not limit myself to the exact details of construction shown, but reserve the right to make such slight changes and alterations as would properly come within the scope of the claims without departing from the spirit thereof.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a beet-cultivator, the combination with a shaft, traction-wheels on either end thereof, a plurality of intermediate wheels, projections carried by said wheels, a knife pivoted to each projection, a spring for projecting the knife laterally from the wheel, and means for retracting it.

2. In a beet-cultivator, the combination with a shaft, traction-wheels on either end

thereof, a plurality of intermediate wheels, projections carried by said wheels, a knife pivoted to each projection, a spring for projecting the knife laterally from the wheel, and a cam-rib on the shaft for retracting the knives toward the wheel and out of engagement with the beets.

3. In a beet-cultivator, the combination with a frame, traction-wheels carried thereby, a shaft laterally disposed on said frame, a plurality of parallel wheels arranged on said shaft, a plurality of concentrically-arranged bifurcated projections carried by each wheel, a lever pivoted between each projection, a knife carried by each lever and arranged opposite the periphery of the wheels, the free ends of said levers being positioned near the shaft, a spring between the projections and shaft for projecting the knives laterally away from the wheel, and a cam-rib on the axle for retracting the knives toward the wheel.

4. In a beet-cultivator, the combination with a shaft having traction-wheels thereon; of intermediate wheels on said shaft, and pivot-knives upon each intermediate wheel, said knives being adapted to be projected and retracted laterally in relation to their wheels.

5. In a beet-cultivator, the combination with a shaft and traction-wheels carried thereby; of intermediate wheels on said shaft, knives pivoted on said intermediate wheels and means for independently and successively projecting and retracting said knives laterally in relation to their wheels.

6. In a beet-cultivator, the combination with a shaft; of a wheel thereon, retractible knives pivoted to the sides of, and carried by, said wheel, and means for projecting the knives laterally from the wheel.

7. In a beet-cultivator, the combination with a shaft having traction-wheels thereon; of intermediate wheels on said shaft, a plurality of concentrically-arranged knives pivoted on the intermediate wheels, means on the shaft for retracting the knives toward their wheels, and means for successively and independently projecting the knives laterally from their wheels.

8. In a beet-cultivator, the combination with a non-revoluble shaft; of a wheel loosely mounted thereon and adapted to receive motion through contact with the ground, pivoted knives carried by said wheel, resilient controlling means for projecting the knives laterally away from the wheel and a cam upon the shaft for retracting the knives.

9. In a beet-cultivator, the combination with a shaft; of a plurality of pivoted rotating knives arranged concentrically with relation to the shaft, means for successively and independently projecting the knives at right angles to the direction of travel of the cultivator, and means for retracting said knives during the rotation thereof.

10. In a beet-cultivator, the combination with a frame; of a crank-shaped axle thereon having traction-wheels at the ends thereof, intermediate wheels upon said axle adapted to be lowered into contact with the ground, a plurality of pivoted knives secured to the side of each intermediate wheel, resilient controlling means for projecting the knives laterally from the wheels, and fixed cams upon the axle for retracting said knives.

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

JOHN W. SHIELDS.

Witnesses:
JAMES W. REED,
FLORA REDINGTON.