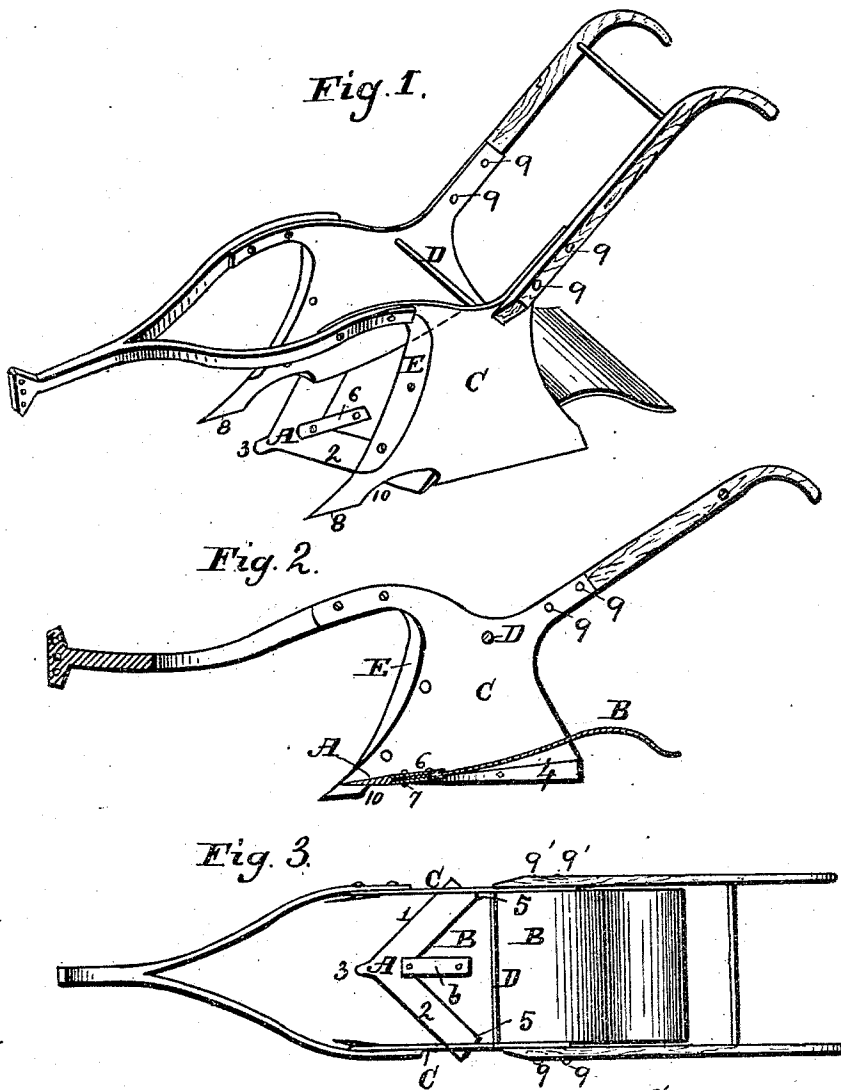


L. COCHRAN.  
 Potato Digger.

No. 109,111.

Patented Nov. 8, 1870.



Witnesses:  
*H. J. Arcton*  
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# United States Patent Office.

LEMUEL COCHRAN, OF PENN'S GROVE, NEW JERSEY.

Letters Patent No. 109,111, dated November 8, 1870.

## IMPROVEMENT IN POTATO-DIGGING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LEMUEL COCHRAN of Penn's Grove, in the county of Salem and State of New Jersey, have invented certain Improvements in Potato-digging Machines; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My improvements, while adapted for the digging of potatoes generally, or similar bulbous roots, are more especially designed for digging the sweet potato, sometimes called the Carolina potato, the vine of which trails more or less upon the ground, and fastens itself thereto by rootlets shooting out from its joints; and

They consist in a peculiar construction of its double-edged share, which is also made removable; in a certain combination of such a share with the land-sides; in a novel construction of the land-sides; in the employment of removable concave-edged vine-cutters; and in other details, hereinafter enumerated.

Figure 1 is a perspective view of a potato-digger, having my improvements embodied therein.

Figure 2 is a longitudinal vertical section of the same, through the center.

Figure 3 is a top view.

A represents the share, which is made with two inclined edges, 1 2, and with a central entering-tip, 3, projecting forward of these edges at their nearest point of convergence.

At the rear of these edges 1 and 2, but at a less distance apart from each other than the rear edges are from one another, are two parallel heels, 4, formed of the same piece of steel with the share, thus allowing the extreme rear part of the edges of the share to reach laterally some distance beyond the heels.

The heels, on their top sides, are made with an incline, as shown, being highest at the rearmost point, so as to afford a resting-bed or base for, and to give a forward and downward incline to that portion of the hoe-piece B which lies above and upon them.

This hoe-piece, upon and over which the loosened potatoes and the loosened soil which passes between the land-sides are borne during the operation of digging, is formed as shown in figs. 1 and 2, being pointed at its forward end so as to snugly fill the angular space between the inclined parts of the share, and with proper rebates, as shown at 5 5, in order that it may fill the space between the land-sides, and rest at its two straight sides upon the two heels.

It is fastened only to the share by means of two central short straps, 6 and 7, one above and one beneath, the straps being made, preferably, flush with the share by being sunk into rebates or cavities pro-

vided therein. The forward ends of the straps are held to the share by a bolt and nut, the nut being on the under side, and the head of the bolt being countersunk. This provision allows the ready detachment of the share from the strap whenever it is desirable to remove the share from the implement, for the purpose of sharpening it or for any other purpose. The heels 4 of the share, for the purpose of such ready removal, are also secured to the land-sides by screw-bolts.

The rear part of the hoe-piece B, beyond the heels, is curved downward, to allow of a ready and free discharge therefrom of the potatoes and earth which have been worked, and this downward curve, (as well as the rearmost part of the land-sides,) is of such comparative short distance from the forward earth-entering parts, as will permit them to get themselves clear of each hill of potatoes when the apparatus is at work, as soon as possible, so as not to have too many hills under action and upon the hoe at the same time, thus avoiding any tendency to clog the machine, and compelling the attendant or driver to stop his work and the horse in order to clear it.

The under side of the share I so construct that its outer or earth-cutting edges shall be in a somewhat lower plane than any other part thereof, excepting its tip, which I make somewhat lower still than these edges, the tip being the lowest of all.

The land-side C I make of the form shown; that is, with pointed tips, 8 8, projecting farther forward than the tip of the share; and these tips I make of steel, their edges being sufficiently fine and sharp to work efficiently in cutting the soil; but I use no colters, one object of my invention being to dispense, as far as possible, with all unnecessary parts, and to construct my implement as simply as possible, and yet with full capacity to meet all the demands of an efficient and successful apparatus for the purpose in view.

These land-sides, as above stated, are firmly bolted to the share-heels; they are also secured to each other, as shown, by a cross-rod or rods D.

The handles of the implement are fastened, as seen at 9 9, to the land-sides.

The lower part of each land-side has a gap or opening cut therein, as seen at 10, which gap, at its most forward part, is considerably forward of that part of the share-edge which projects through said gap. The gap also extends considerably above the top surface of the share, thus leaving a clear open space or passage.

This opening is of great importance, as follows:

When the share meets with brier-roots, which are usually so tough and wiry that most plows or shares will not cut or break them, or with grass, or any

other roots or stubborn obstructions of kindred character, the edges of the share bear them off sidewise, and, if the openings 10 were not provided, such foreign material would be kept confined within the space between the land-sides, or be mixed with the potatoes being dug. The action of the share-edges projecting, as they do, through these openings, is not only to positively prevent such mixture, but also to prevent the accumulation, at the angle formed by the share, with the inner face of the land-side, of roots and rubbish of every description, which, without the opening to permit them freely to pass, would arrest first one and then another root or vine at such angle, and soon clog the apparatus, rendering frequent stoppages necessary to clear them away, and largely increasing the expenditure of power and labor and time.

The briers, &c., thus warded off and thrown to both sides, are left in the field in such positions as not to be at all in the way in working the next adjacent row of hills.

The object of placing the toes of the land-sides somewhat forward of the tip of the share, as well as a little below the plane of the same, is for the purpose of enabling such toes to raise up the potato-vines, and draw them tight across the front edges of the land-sides, and cut them before the share shall have fairly loosened the potatoes from the ground.

The steel cutting-knives E E are made slightly concave on the forward or cutting-edge, the lower part being in a plane somewhat forward or in advance of the upper part. The cutting-edge, at its top, I give a forward curve sufficient to insure a certain cutting-action at that point, and so that a vine which might ride up so high before being severed could not be caught by any blunt portion of the draft-rods. I prefer to have this curved top-part of the knife enter between the draft-rod and the land-side, as shown; and I removably attach the knives to the sides by bolts and nuts, so that they can be taken off, for sharpen-

ing or other cause, at any time. The draft-rods or pole may be fastened to the sides in any approved way. The land-sides I make of iron.

The whole implement will weigh only from seventy to seventy-five pounds, and there is nothing in it likely to get deranged or out of order. The cutting-knives should be made as sharp as a scythe.

It will be seen that I have no central vertical rod or bar of any description, as is common in many other diggers for Irish potatoes, as that would be in the way of the central stalk, from which hang all the sweet potatoes of each plant.

I claim—

1. The removable share A, constructed substantially as shown and described, that is, with a central tip, parallel-sided heels, and inclined edges, projecting laterally beyond the heels.

2. The combination of the double-edged share with the parallel land-sides C, when the tips of these sides project farther forward than the tip of the share, and also reach below its lowest plane, substantially as and for the purposes set forth.

3. In combination with land-sides having side openings, as shown, a double-edged share, whose edges, at the rear, project laterally beyond the land-sides, for the purpose set forth.

4. In combination with the share, the hoe bottom-piece D, constructed as described, removably attached to the share, and arranged to rest on the inclined upper sides of the heels 4 4 of the share, as shown and described.

5. In combination with the vine-lifting points 8 and 8, the concave-edged vine-cutters E E, located as shown, and removably attached to the land-sides.

LEMUEL COCHRAN.

Witnesses:

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