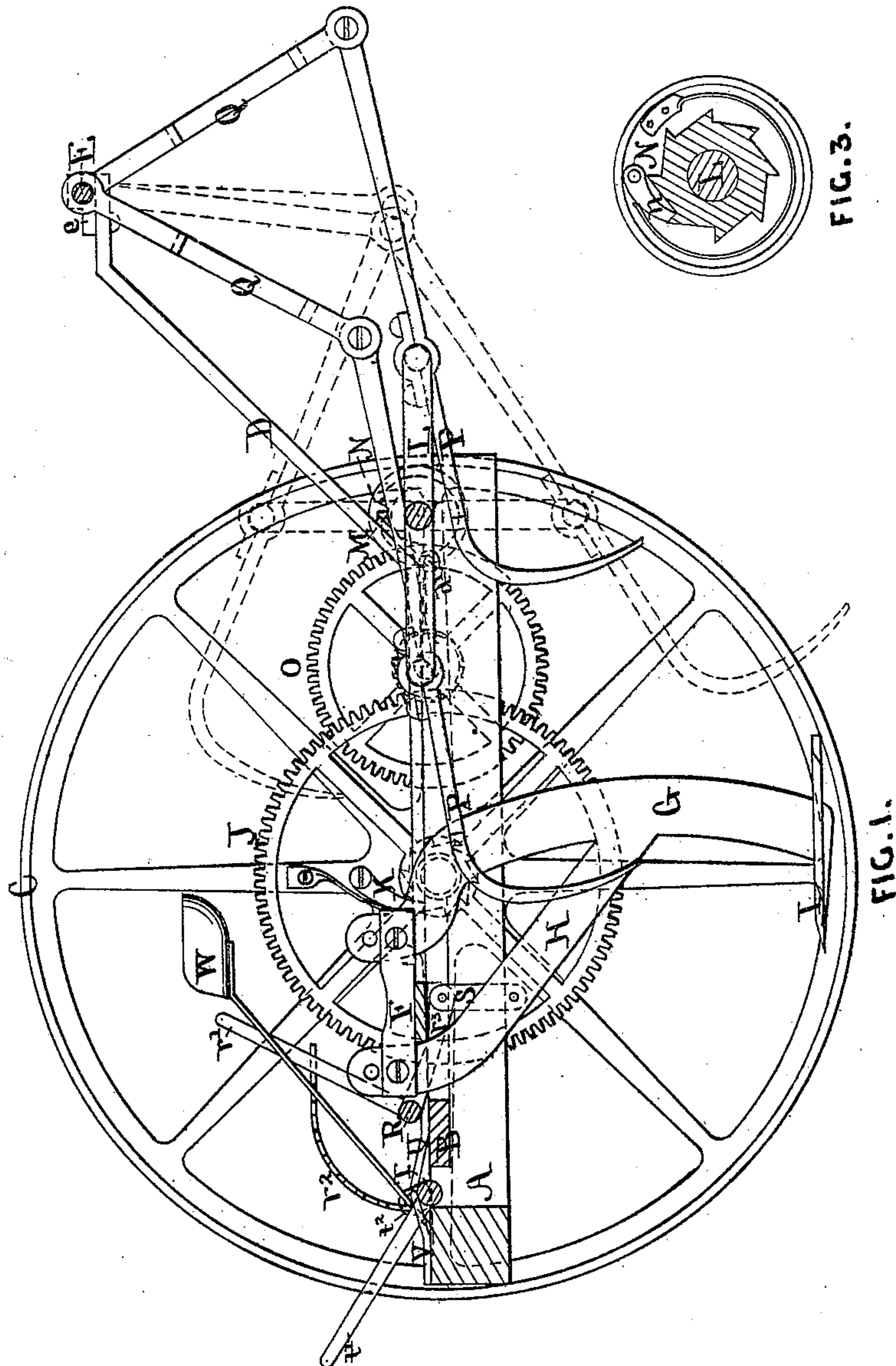


2 Sheets—Sheet 1.

W. I. HERRICK.
POTATO-DIGGER.

No. 179,452.

Patented July 4, 1876.



Witnesses.

Samuel R. Laerue
Henry A. Mackey

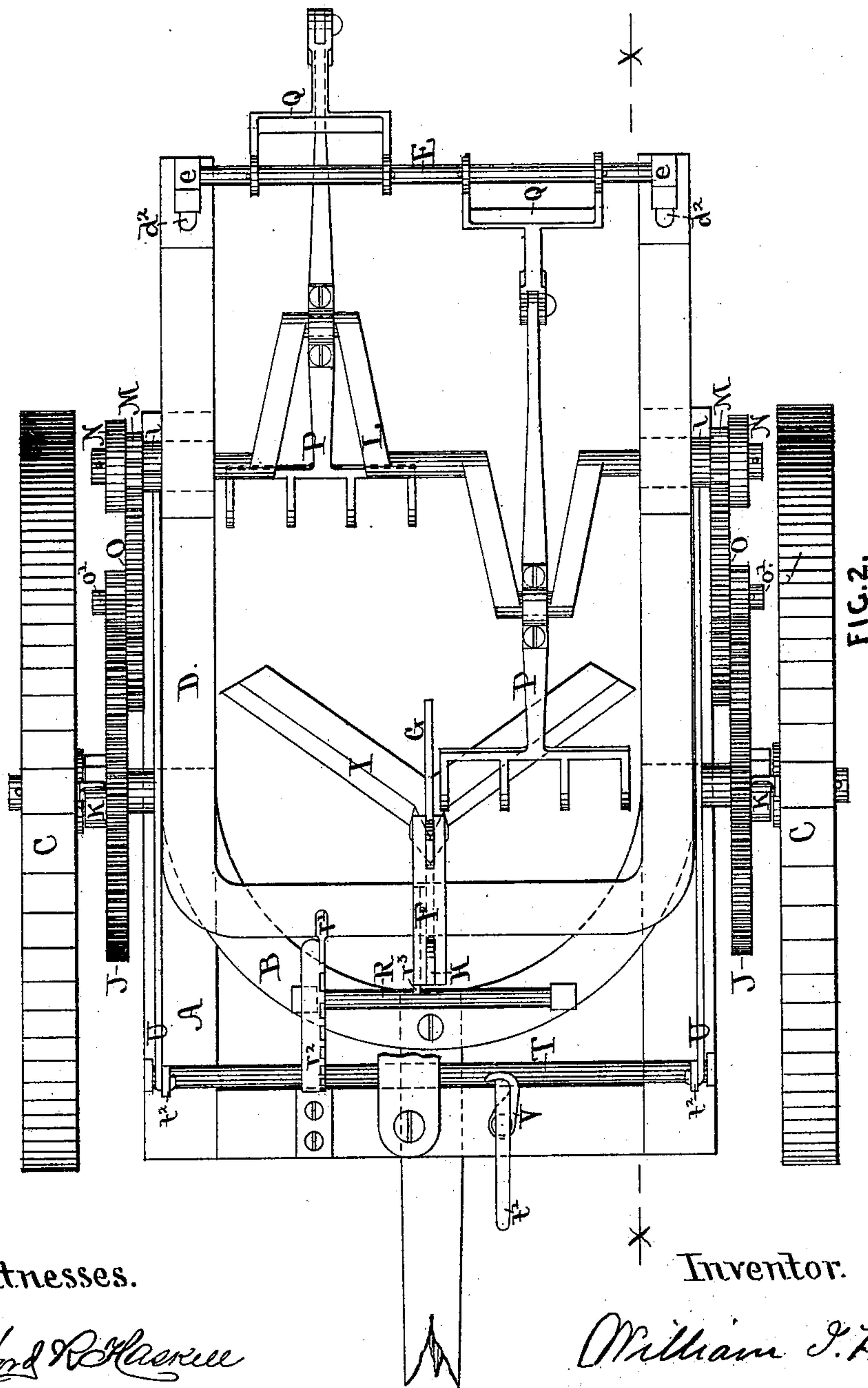
Inventor.

William I. Herrick.

W. I. HERRICK.
POTATO-DIGGER.

No. 179,452.

Patented July 4, 1876.



Witnesses.

Samuel R. Moore
Henry G. Haskell

Inventor.

William I. Herrick

UNITED STATES PATENT OFFICE.

WILLIAM I. HERRICK, OF SCHODACK LANDING, NEW YORK.

IMPROVEMENT IN POTATO-DIGGERS.

Specification forming part of Letters Patent No. **179,452**, dated July 4, 1876; application filed November 30, 1875.

To all whom it may concern:

Be it known that I, WILLIAM I. HERRICK, of Schodack Landing, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements on Potato-Diggers, of which the following is a full and exact description, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a longitudinal section at the line *x x*, and Fig. 2 a plan view.

My invention consists in constructing and combining the several parts of a potato-digger substantially in the manner herein shown and described.

The object of my invention is to mechanically open the hills in which the potatoes are grown, and thoroughly remove and separate the potatoes from the soil.

As shown in the drawing, A is the main frame-work of the machine, which may be made of any fit material, and in any form suitable for receiving the parts affixed thereto; B, the axle upon which the wheels C revolve, and which may, when desirable, constitute a part of the frame-work of the machine; D, a frame, hinged by the pivot *d*¹ to the main frame-work, and having its two posterior limbs deflecting upward, as shown in Fig. 1, for receiving the cross-bar E, the brackets *e* of which are secured to the ends of the frame D; F, a bar, fixed to the head of the frame D, provided with a slotted opening at each end, in one of which the colter G is secured, the other serving to secure the brace H of the colter; I, a plow, secured to the lower extremity of the colter G, for raising and opening the hills of potatoes. This plow is made in the form shown in Fig. 2, and is rendered adjustable in its position in relation to the frame D by a series of holes in the upper ends of the colter G and brace H; J, gear-wheels, revolving on the axles of the wheels C, provided with ratchet-wheels secured thereto and arranged in such manner that, when the machine is moved forward, the spring-pawls K will engage in the ratchet-wheels and impart to the gear-wheels J the same speed as the wheels C acquire. When the machine is moved backward the spring-pawls slip freely over the teeth of the ratchet-wheels, leaving

the gear-wheels J motionless; L, a double-cranked shaft, having its bearings in the sliding boxes *l*, and provided with the loose pinions M, having ratchet-wheels secured thereto. The disks N are secured to the ends of the shaft L, and are provided with the spring-pawls *n*, (shown in Fig. 3,) which engage in the ratchet-wheels of the pinions M (when these pinions are turned in the right direction) and give motion to the shaft L. O are intermediate gear-wheels revolving on the studs *o*¹ for producing and imparting an accelerated speed to the shaft L. P are the rakes, each one of them being provided with a series of bent teeth, arranged, in a single line, transversely to the path of the machine and to the bar or handle of the rake, the form of them being closely similar to that of the common garden-rake. The space occupied by the toothed ends of these rakes is nearly equal to the width of the machine inside of the frame A. They are arranged to penetrate the earth at each side of the colter G in such manner that, however rapidly they may be driven, the teeth cannot enter the same perforations a second time during a single transit of the machine. The rear ends of them are suspended by means of swinging forked links Q to the cross-bar E, and they are connected, without any intermediate device, directly to the wrist-pins of the cranks of the shaft L, whereby a positive motion is imparted to them for forcing the teeth into the soil, at each revolution of the shaft, to the full depth of penetration to which the machine is adjusted. By suspending the rakes by the links Q, and imparting motion to them by the cranks, as above described, the points of their teeth are moved in an oval direction, the major diameter of the oval being nearly vertical. These rakes should be so arranged that the points of their teeth will pass in their downward stroke a little in advance of the point of intersection of the colter G and brace H. By doing this the rakes catch the vines gathered by the colter, and by their rearward stroke remove them therefrom, and by passing them out of the way preventing the machine from becoming clogged by an accumulation of the vines, thereby entirely remedying a common defect in potato-diggers. By means of the slotted

openings d^2 , the position of the cross-bar E can be adjusted in or out, so as to change the penetration of the rake-teeth in relation to the depth of the furrow cut by the plow I; R, a tumbling-shaft, operated by the hand lever r^1 , held in any required position by the notches of the quadrant r^2 , and provided with an arm, r^3 , which is connected by the link S to the brace H. By means of this combination the frame D, by turning on the pivots d^1 , can be raised or lowered so as to simultaneously adjust the plow I and rakes P to penetrate the soil to any required depth, or, if necessary, it will raise them so that they will be carried entirely clear from the ground. In effecting this it will readily be seen that, as the plow I is raised, the opposite end of the frame D is depressed, forcing down the rear ends of the rakes P, the opposite or toothed ends of the rakes being thereby correspondingly raised, and in a like manner the teeth of the rakes drop down as the plow is lowered; T, a tumbling-shaft, operated by the hand-lever t^1 , and provided with the arms t^2 , which are connected by the rods U to the sliding boxes l for moving the pinions M in and out of gear with the wheels O. When in gear the lever t^1 is secured in its place by the catch V. W is a seat for the driver, placed within easy reach of the levers r^1 and t^1 .

As the machine is drawn forward, the wheels C, through the gear-wheels J, O and M, impart a rapid motion to the shaft L, by the cranks of which the toothed rakes P are moved at a corresponding speed, the teeth of which are driven into the soil that has been raised and broken by the colter G and plow I, in such manner as to greatly facilitate the penetration of the teeth of the rakes. By

giving to the rakes P the motion herein described, the potatoes are drawn out backward and to the surface of the ground, the return strokes of the rakes being made so as to pass freely clear of the tops of the hills.

Any unequal speed of the wheels C, produced in turning curves, is provided for by the ratchet-wheels secured to the pinions M, and their spring-pawls n , which permit the shaft L to turn at full speed, while either of the pinions is at rest or turning slowly.

When it is desirable to stop the reciprocations of the rakes, it is effected by turning the tumbling-shaft T by the lever t^1 . By this means the sliding boxes l are moved rearward, carrying the pinions M out of gear with their driving-wheels O.

I do not claim, as my invention, the rakes of potato-diggers, having a series of teeth arranged in either straight or staggering lines along the length of a bar running parallel to the path of the machine; neither do I claim them of any construction differing from the specific form herein shown and described; but

I claim as my invention—

1. The combination, with the plow, of a potato-digger, and two or more toothed rakes co-operating therewith to separate and remove the potatoes from the soil, of a colter for cutting and separating the ground as it is raised and delivered over the surface of the plow.

2. The combination, with the colter G, of the toothed rakes P, co-operating therewith to remove the potato-vines, in the manner and for the purpose herein specified.

WILLIAM I. HERRICK.

Witnesses:

SANFORD R. HASKELL,
HENRY C. HASKELL.