(No Model.)

2 Sheets—Sheet 1.

J. W. COOK.

POTATO DIGGER.

No. 277,461. Patented May 15, 1883.

FIG-1-

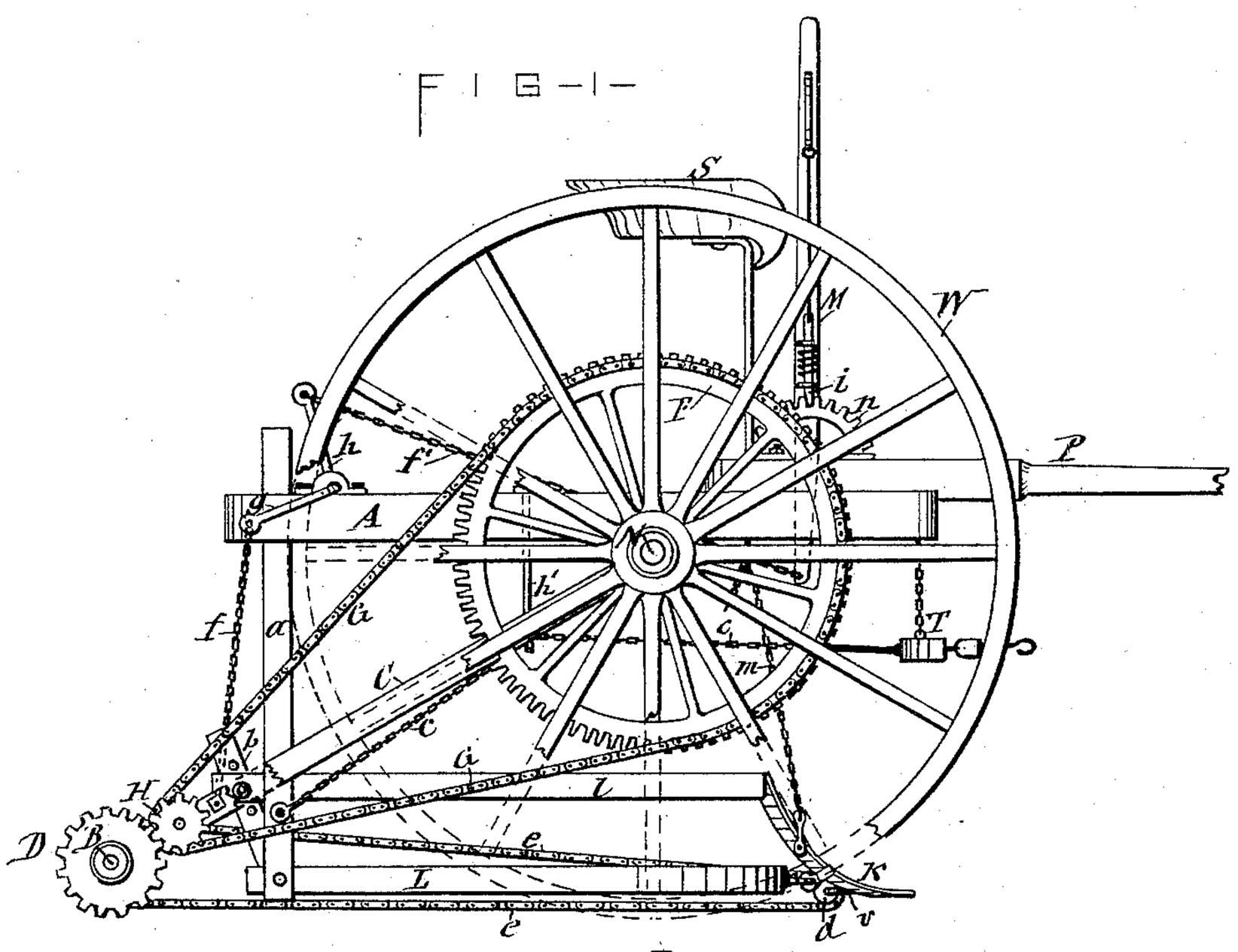
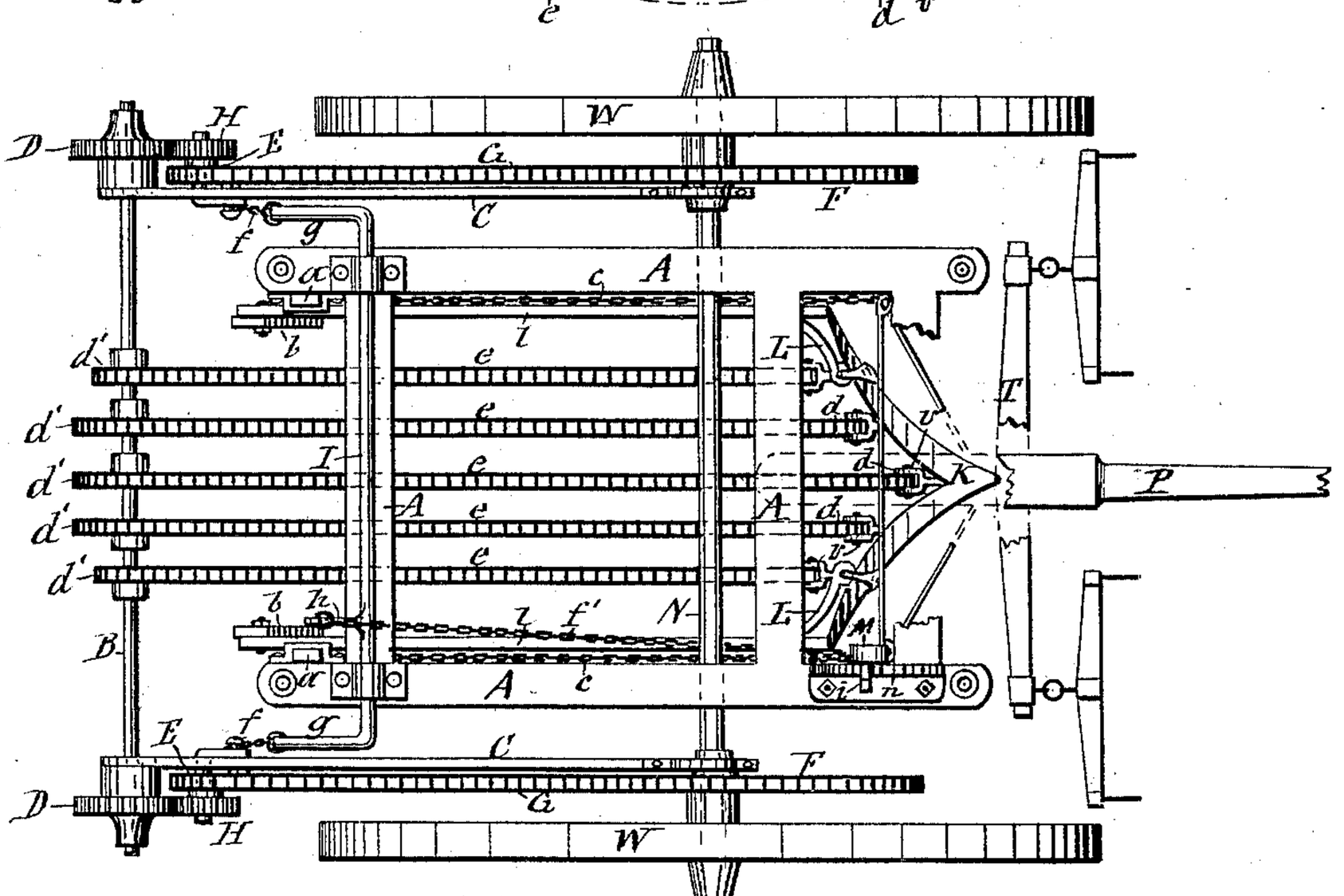


FIG-2-



WITNESSES—

Wm. E. Raymond Jr.

F. H. Gibbs

INVENTOR—

James W. Cook

per Duell, Lacey & Hay

his Attys

(No Model.)

2 Sheets—Sheet 2.

J. W. COOK.

POTATO DIGGER.

No. 277,461. Patented May 15, 1883.

FIG-3-

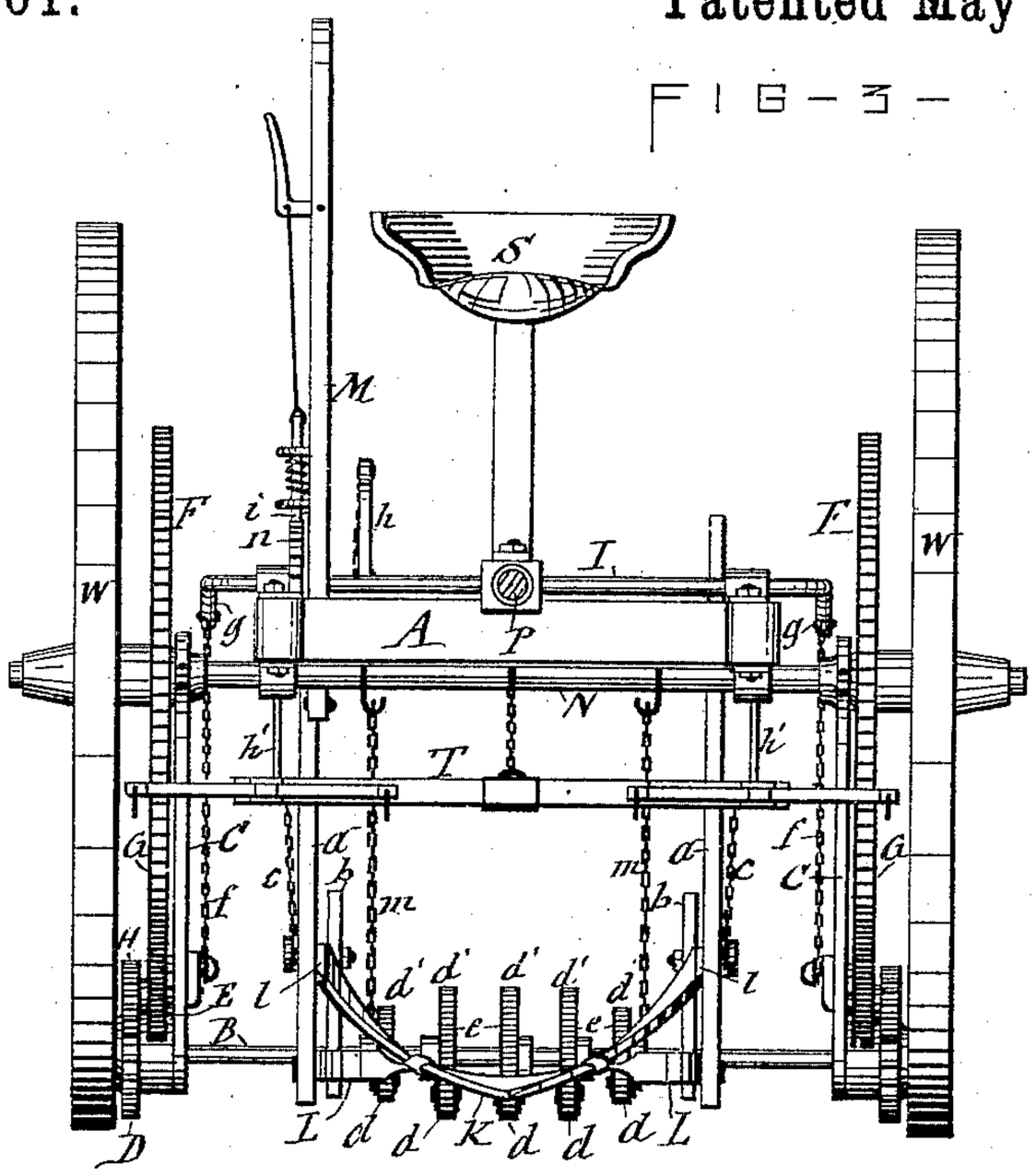
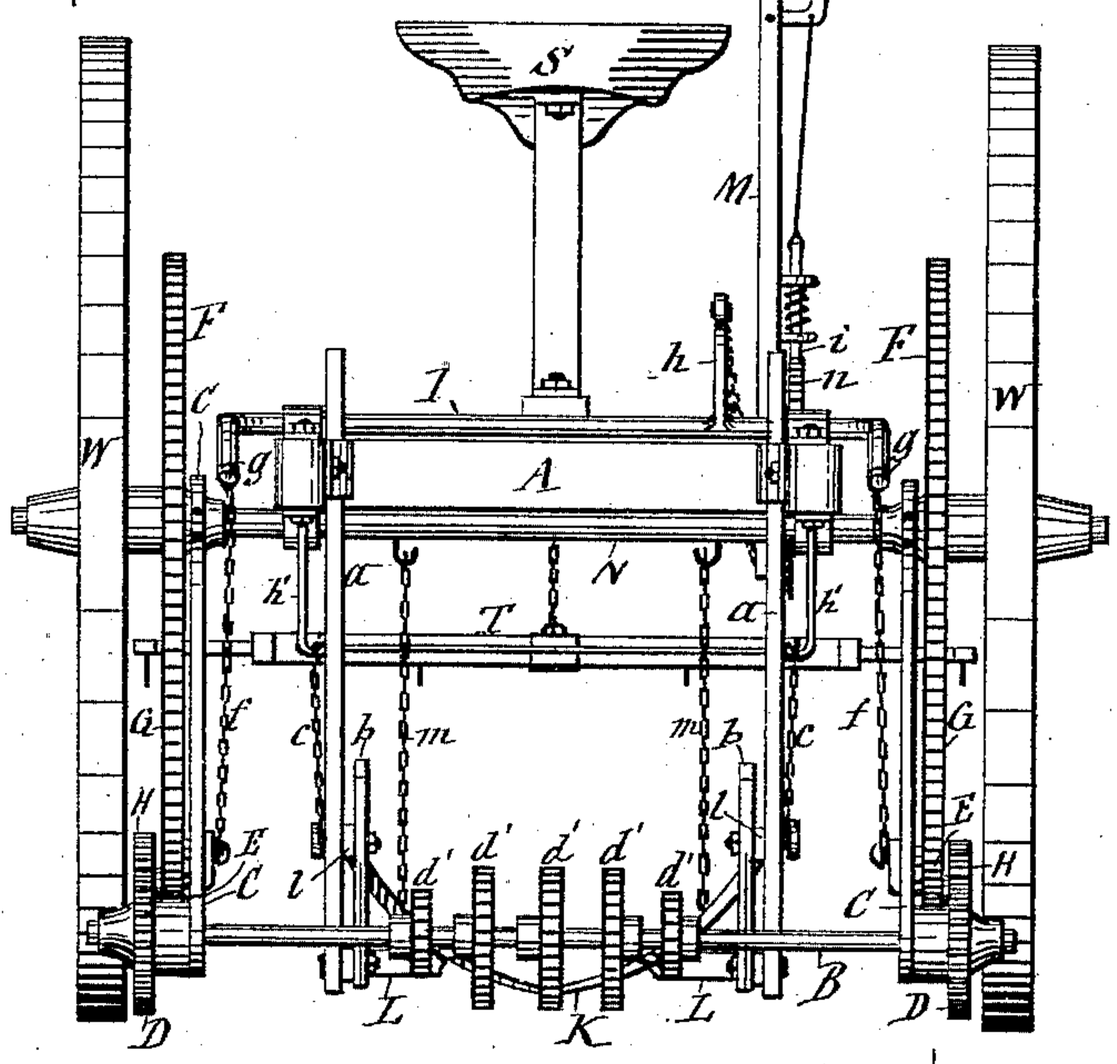


FIG-4-



WITNESSES—
Wm. E. Raymond.
T. H. Gibbs

INVENTOR—
James W. Cook
per Duell, Lass & Hay
his Attys

UNITED STATES PATENT OFFICE.

JAMES W. COOK, OF MORAVIA, NEW YORK, ASSIGNOR OF ONE-HALF TO ERASTUS E. BROWN, OF LINCOLN, NEBRASKA.

POTATO-DIGGER.

SPECIFICATION forming part of Letters Patent No. 277,461, dated May 15, 1883.

Application filed December 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. COOK, of Moravia, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Potato-Diggers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to that class of potato-diggers in which a concave scoop or digging-blade casts the earth and potatoes toward the center of the row and upon agitators or separators arranged at the rear of the scoop or digger proper.

My invention consists in certain peculiarities of the construction of the digger proper, and the combination therewith of endless drag-chains carried by sprocket-wheels back of the digger, and mechanism for transmitting motion to said sprocket-wheels, thereby rendering the machine more effective in its operation of digging and separating the potatoes from the earth.

The invention also consists in certain novel means for transmitting motion to the aforesaid sprocket-wheels and chains connected therewith; also, in novel means of adjustably suspending the digger and the separating mechanism from the sulky; and, furthermore, in applying the draft of the double-tree to the rear of the digger, and thus removing all obstruction from the front of the digger and pushing the same forward to its work, all as hereinafter more fully described, and specifically set forth in the claims.

The invention is fully illustrated in the annexed drawings, wherein Figure 1 is a side elevation of my improved potato-digger; Fig. 2, a plan view of the same with the seat removed to better illustrate the more essential parts of the machine; and Figs. 3 and 4 are front and rear end views, respectively, of the same.

Similar letters of reference indicate corresponding parts.

A represents the rectangular frame or body of a truck or sulky, mounted on the axle N, which is fixed to the traction-wheels W.

P denotes the pole or tongue, and S the driver's seat.

K is the cutting-blade of the digger, made V shape and concaved, so that the point of said digger is the lowest part thereof. The object of this peculiar shape of the digging-plate K is to gather the row toward the center and distribute the potatoes directly back of the digger upon the surface of said row. The V-shaped digger K is suspended from the sulky-frame A by chains *m*, and is arranged with its point facing forward and in line with the pole P, so as to enter with its lowest portion the center of the row to be dug. The upper ends of the described concave V-shaped digger K are provided with rearwardly-extended side bars, *l l*, which are supported at their extremities by the following instrumentalities:

To the rear portion of the sulky A, at opposite sides thereof, are adjustably connected two pendent bars, *a a*, to the lower extremity of each of which is connected a strut, *b*, which I term the "gage-iron," for the reason hereinafter explained, said gage-iron being provided with a series of holes at different points of its length. Through one of the holes passes a bolt which clamps the rear end of the side bars or digger-extensions, *l*, on the side of the gage-iron, as best seen in Fig. 1 of the drawings.

To the lower extremity of each of the bars *a* is also attached a push-bar, L, which is extended to the digging-blade K, and connected thereto at a point intermediately of the length of its two divergent arms, so as to sustain the same to better resist the strain incident to their being forced through the ground in the operation of digging potatoes.

c c are the draft-chains connected to the lower portion of the pendent bars *a a*, and passing over hooks *h'*, attached to the sulky-frame A, and thence to the double-tree T, the draft coming thus directly on the bars *a a*, which, by means of the push-bars L L, transmit the force to the cutting or digging blade K and compel the same to force its way through the ground, the depth of cut being regulated by lengthening or shortening the chains *m m* at the forward end and lowering or raising the bars *a a* at the rear end. The pitch of the digger is adjusted by fastening the rear end of the side bars or digger-extensions, *l l*, at a higher or lower point on the gage-iron *b*.

At the inner side of the hub of each of the traction-wheels a sprocket-wheel, F, is fastened on the axle N, and on the hub of the two sprocket-wheels are hung rearwardly-extended arms C C, on the free ends of which is journaled a cross-shaft, B, provided with a gear-wheel, D, at each end.

On the outside of the arm C, and at a proper distance from the shaft B, is pivoted a small sprocket-wheel, E, having fixed to its side a pinion, H, which meshes in the gear D of the shaft B.

G G are the driving-chains, extended around the sprocket-wheels E and F, and receiving motion from the axle N, which is fixed to both the traction-wheel W and sprocket-wheel F, said motion being transmitted to the shaft B by the medium of the gears D and H.

On the central portion of the shaft B are firmly secured a series of sprocket-wheels, *d' d'*, and a corresponding number of smaller sprocket-wheels, *d d*, are connected with the rear of the cutting or digging blade K by means of clevises *u*, fastened to said blade, and having pivoted in their bifurcated free end the said sprocket-wheels *d d* in a vertical position.

e e are endless chains applied to the two series of sprocket-wheels *d d'*. The motion of the shaft B, with its sprocket-wheels *d' d'*, being reversed from that of the traction-wheels W by the intervention of the transmitting-pinion H, causes the lower half of the endless chains *e* to move forward and the upper half of the same rearward. The result of this arrangement is that when the machine is in operation the concave digging-blade breaks up the row to be dug without spreading or casting the same sidewise. The chains *e e*, moving through the loosened or broken-up row directly back of the digger-blade, rake out the bottom of the row and carry all coarse substances—such as vines, weeds, potatoes, &c.—back over the wheels *d' d'* and deposit said substances on the surface of the row. The shaft B, with its sprocket-wheels and gears, is adjustably supported by a crank-shaft, I, which is extended across the top of the sulky-frame A, and provided at opposite ends with an arm, *g*, which is connected with the rear end of the arm C, on which the shaft B is journaled, another arm, *h*, projecting from the crank-shaft I by means of a chain, *f'*, connected with the lower end of a lever, M, which is fulcrumed on a suitable bearing secured to the sulky, and stands in a convenient position near the driver's seat, said lever being provided with the usual dog, *i*, which engages with a semicircular rack, *n*, and serves to hold the lever in its desired position. By throwing the upper or free end of the lever M rearward the chains *f f'* and crank-shaft I are caused to lift the rear end of the arms C, together with the shaft B and sprocket-wheels *d' d'*, connected therewith.

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

1. In combination with the sulky, the digger K, suspended therefrom, and provided with the sprocket-wheels *d* and side bars, *l*, the suspended bars *a*, adjustably connected to the sulky, and supporting the free end of the side bars, *l*, by gage-irons *b*, the rearwardly-extended arms C, adjustably supported at their free end, the shaft B, journaled on said arms, and provided with sprocket-wheels *d' d'*, endless chains *e*, connecting the sprocket-wheels *d d'*, and mechanism for transmitting motion from the traction-wheel to the shaft B, substantially as set forth and shown.

2. In combination with the sulky, the digger K, suspended therefrom, and provided with the rearwardly-extended side bars, *l l*, the bars *a*, suspended from the rear portion of the sulky and supporting the free end of the side bars, *l*, the push-bars L, extended from the foot of bars *a* to the digger K, and the draft-chains *c*, extended from the bars *a* forward and connected with the double-tree, the whole constructed, combined, and operating to apply the power from the rear of the digger, substantially as specified and shown.

3. In combination with the sulky and the digger K, provided with sprocket-wheels *d*, the rearwardly-extended arms C, hung on the axle of the sulky, the shaft B, journaled on the free end of arms C, and provided with sprocket-wheels *d'* and with gears D, the sprocket-wheel E, journaled on arm C, and provided with the pinion H, the sprocket-wheel F, secured to the axle of the sulky, the chain G, connecting sprocket-wheels F and E, and the chains *e*, connecting sprocket-wheels *d d'*, all combined and operating as shown and set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 2d day of December, 1882.

JAMES W. COOK. [L. S.]

Witnesses:
JAMES CARPENTER,
C. H. DUELL.