

(No Model.)

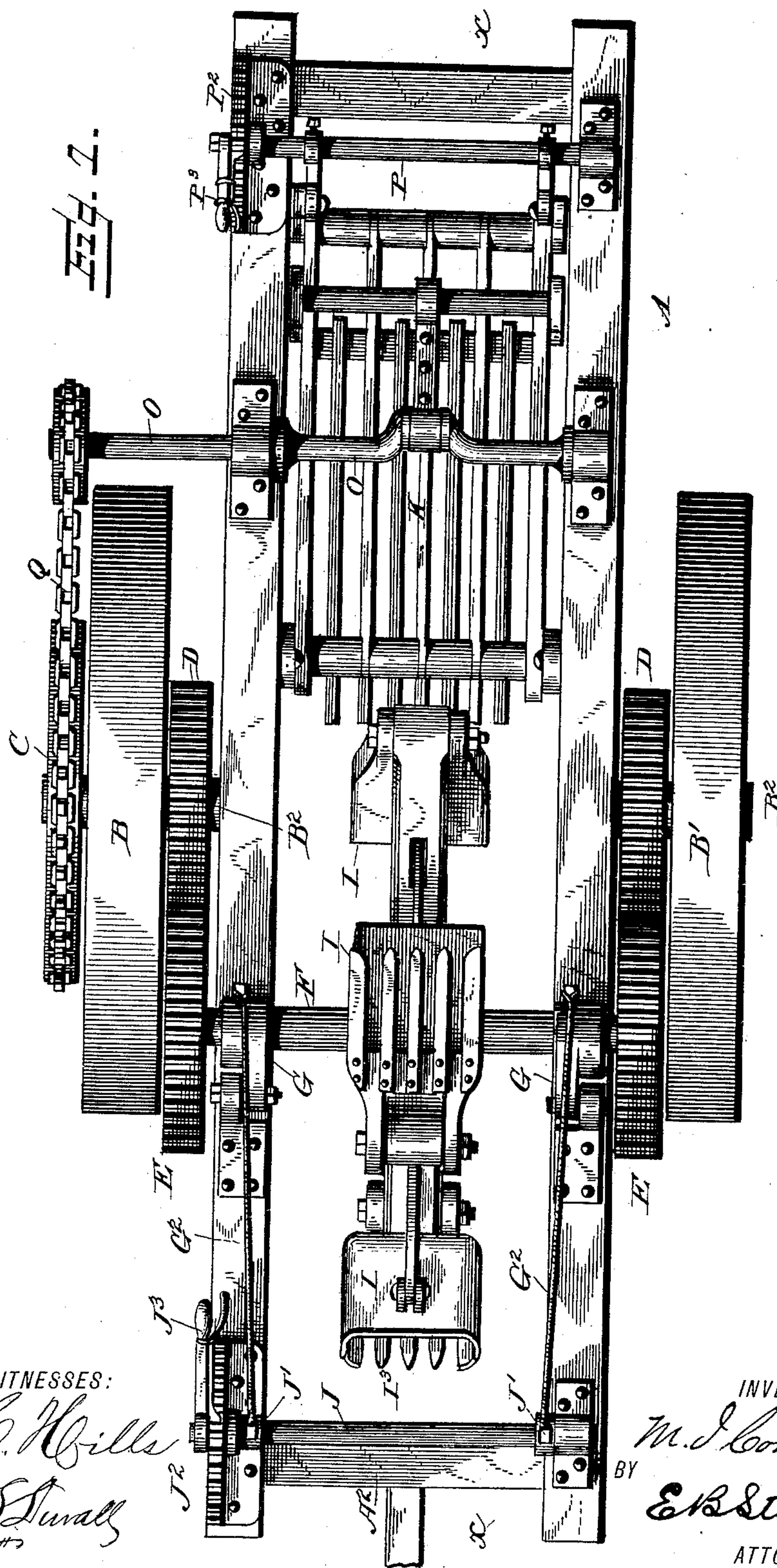
3 Sheets—Sheet 1.

M. I. CONDERMAN.

POTATO DIGGER.

No. 341,454.

Patented May 11, 1886.



WITNESSES:

L. C. Mills
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INVENTOR

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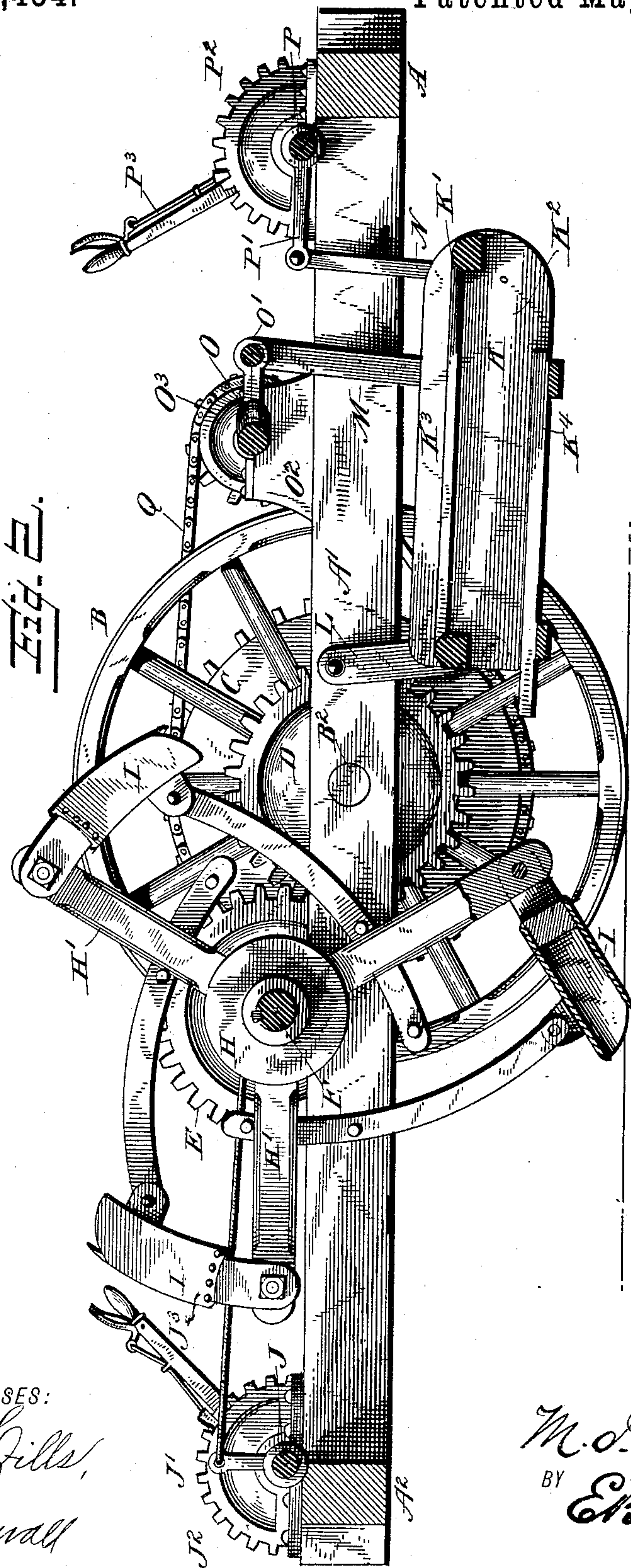
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WITNESSES:

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3 Sheets—Sheet 3.

M. I. CONDERMAN.

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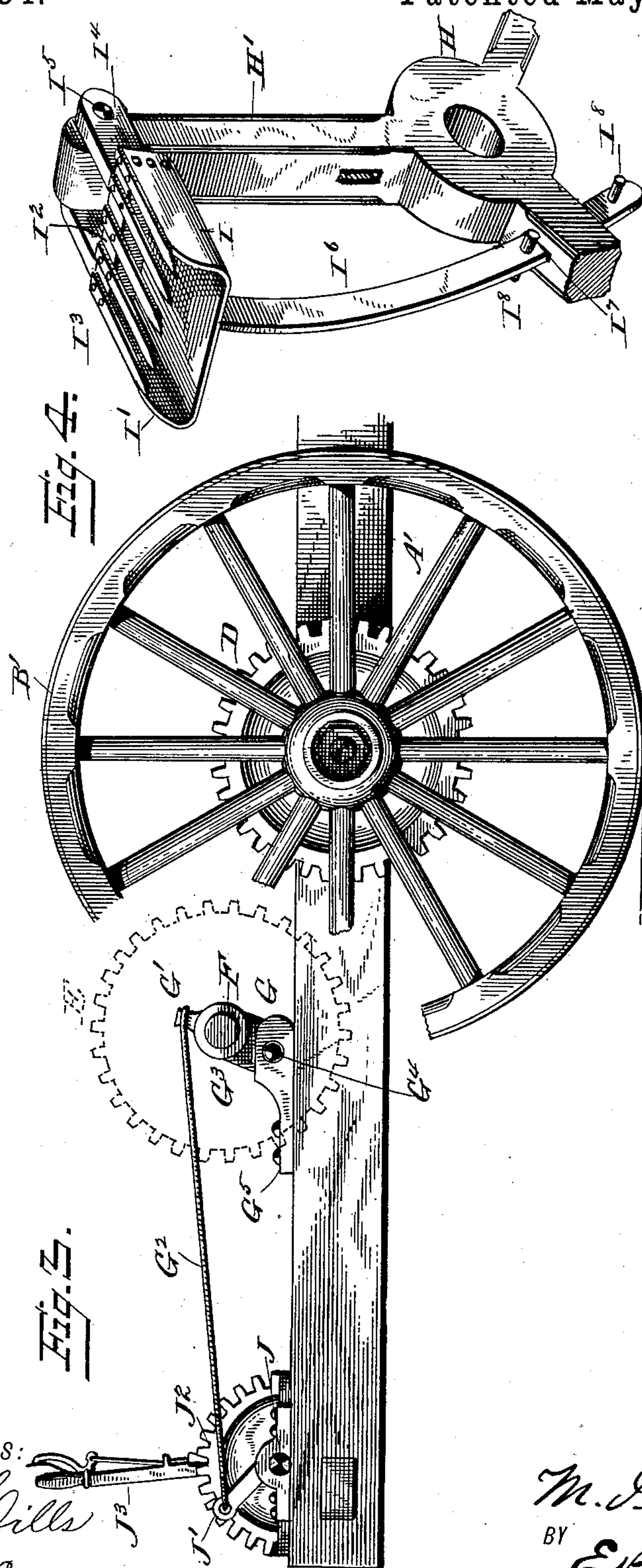


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

MARTIN I. CONDERMAN, OF HORNELLSVILLE, NEW YORK.

POTATO-DIGGER.

SPECIFICATION forming part of Letters Patent No. 341,454, dated May 11, 1886.

Application filed October 5, 1885. Serial No. 179,000. (No model.)

To all whom it may concern:

Be it known that I, MARTIN I. CONDERMAN, a citizen of the United States, residing at Hornellsville, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Potato-Diggers, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to potato-diggers of that class in which a series of arms provided at their ends with scoops or diggers (said arms being actuated by gearing mounted upon the driving-wheel shaft) are employed, the object
15 being to provide an apparatus that shall remove the potatoes from the hills, drop them into a rocking screen, where the dirt will be removed by agitation, and which shall be cheap, simple, durable, and effective.

20 The invention consists in certain features of construction hereinafter set forth, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a top plan view, and Fig. 2 a substantially central
25 longitudinal section taken on the line X X of Fig. 1, of a potato-digger constructed in accordance with my invention. Fig. 3 is a skeleton view in side elevation, certain parts being-
30 removed, illustrating the manner of throwing the diggers or scoops into and out of operation. Fig. 4 is a detail in perspective showing the scoop.

A represents an oblong frame, it being constructed with the side beams, A', and cross-
35 beams or tie-bars A².

Mounted upon a suitable axle, B², at each side of the machine, is a ground-wheel, B B'. Upon either or both of the wheels (in this instance on the wheel B, or, if desired, it may
40 be fixed to the axle B²,) is a sprocket-wheel, C, and interposed between the driving or ground wheels B B', at each side of the machine and the side beams, A', is mounted a gear-wheel, D, which meshes with and operates a second similar gear, E, mounted upon
45 an axle, F, said axle being mounted in hinged bearings G, affixed to the side beam, A', at a suitable distance in front of the wheel B².

Rigidly mounted upon the axle F, at the
50 center thereof, is a hub, H, radiating from which is a series (in this instance three) of

arms, H', rigidly secured thereto. The end of each of the arms H' is provided with a scoop, I, which is preferably formed with the top and side pieces, I', the back portion, I²,
55 bottom or screen portion, I³, and the rearwardly-extending connecting-arms I⁴, which are loosely pivoted to the arm H', as at I⁵. From the top of the scoop there extends a projecting curved adjusting rod or bar, I⁶, which
60 passes through a slot, I⁷, in the preceding arm, H', and by which means the scoop may be set and retained at different angles by stops or pins I⁷ I⁸. When the scoops are below the axis of the shaft F, they fall by gravity, so
65 that the outer pin, I⁸, is brought into contact with the arm H', and by the same means, when the scoops are above said axis, the opposite pin, I⁸, is brought against the arm. Therefore in taking a load the free end of the scoop en-
70 ters the ground, and in delivering a load said free end is depressed. At the front end of the machine there is mounted in suitable bearings an oscillating rock-shaft, J, near each end of which is a rock-arm, J', a segment,
75 J², and a handle, J³, having a spring-actuated bolt or pawl attached thereto, these devices being provided for oscillating said shaft. Extending from the rock-arm J' to a swinging bearing, G, are chains or rods G².
80 As before stated, said axle is mounted in a swinging or movable bearing, G. This bearing consists of the bearing proper, G², which is movable or adapted to swing back and forth upon the pivots G⁴ in the fixed portion or
85 bracket G⁵. This completes the construction of the front portion of the apparatus, and it now remains to describe the construction of the rear end.

Below the frame, and at the rear end of the
90 machine, is hung an oscillating shaker or screen, K, which is divided into two compartments, K' K², by means of screen-like partitions K³ K⁴, the partition K⁴ being composed of strips or slats set nearer together than are
95 the slats in the upper partition, K³. The partition is hung in position by means of pivoted hangers L, M, and N, the hangers L being pivoted to the beams A', the hanger M to an arm, O', extending from a crank-shaft, O, which is
100 mounted in suitable bearings, O², upon the frame-work A, and the hanger N being piv-

oted to a rock-arm, P', extending from a rock-shaft, P, mounted in bearings at the end of the machine.

Mounted upon the crank-shaft O is a sprocket-wheel, O', of much less diameter than the sprocket-wheel C, to which it is connected by means of a chain, Q.

At one end of the rock-shaft P is fixed a segment, P², and a spring-actuated operating-handle, P³, similar to the handle J³, at the opposite end of the machine.

The operation of my invention is as follows: As the wheels B B' revolve the gear D is also revolved, which in turn revolves the gear E and its shaft F, which carries the diggers. The digging mechanism may be thrown into and out of operation by means of the handle J³, as clearly shown in Figs. 2 and 3, the former showing it in and the latter out of operative position—that is to say, by pushing the handle J³ to the front, which may be done by releasing the spring-actuated holding-bolt, the rock-shaft J will be turned and draw upon the chain or rope G², which will swing the gear E forward out of mesh with the gear D, and thus render said digger inoperative. As the digger-arms H', carrying the scoops I, are caused to revolve by the before-described gearing the scoops enter the hills under the potatoes and lift the same out of the ground, which are carried around until said scoops arrive immediately over the shaft F, when their contents are dropped into the shaker K. In the meantime, however, a considerable portion of the soil scooped up with the potatoes is sifted through the open bottom I³ of the scoop I. The shaker K receives motion from the crank-shaft O, which is rotated by the sprockets O' C and connecting-chain Q. As before stated, the shaker is provided with two bottoms or partitions. (Indicated by K³ K⁴, respectively.) The strips of the bottom or partition K³ are set much wider apart than those of the partition K⁴, so that as the potatoes are first received from the scoops they fall upon the partition or screen K³, where the soil is removed by agitation and causes it to drop to the ground, and also causes the small or medium size potatoes to drop through the screen K³ into the compartment K², where the cleaning process is continued.

From the above it will be seen that the potatoes, after being dug from the ground, are cleaned and then assorted into two compartments, the larger ones remaining in the upper compartment, and the smaller ones in the lower compartment. When these compartments become filled, they may be easily emptied by throwing the handle P³ forward, which operation turns the shaft P, lowering the arm P', and this in turn lowers the rear end of the screen by means of the hanger N. Now, it will be noticed that the rear end of the partition K³ extends beyond the rear end of the partition K⁴, so that when these ends are

tilted down there will be formed two piles of potatoes, composed, respectively, of small and large size. If desired, however, the screens may be continuously depressed at their ends, so as to continuously deliver the potatoes from the shaker as the machine is moving.

The sprocket-wheels C and O' are so timed and proportioned that the screen or shaker is oscillated and brought directly under the scoops at the time they deliver their contents, and are removed from the path of the scoops, so as not to be an obstruction to a continuous rotation of the scoops.

Having thus fully described my invention and its operation, what I claim is—

1. In a potato-digger, a series of scoops pivotally mounted upon revolving arms, in combination with movable connecting-rods for limiting the oscillations of the scoops upon their pivots, substantially as specified.

2. In a potato-digger, a series of scoops pivotally mounted on revolving arms, and pivotally connected at their free ends with an adjacent arm, substantially as specified.

3. In a potato-digger, in combination with a series of scoops mounted upon revolving arms, a shaking screen and mechanism, substantially as described, for reciprocating the screen into and out of the path of the scoops, substantially as specified.

4. In a potato-digger, revolving scoops mounted upon a shaft mounted in swinging bearings, in combination with mechanism, substantially as described, for raising said bearings, substantially as specified.

5. In a potato-digger, the combination, with the revoluble arms H', of scoops I, having arms I⁴, pivoted, as at I⁵, connecting-rods I⁶, having stops I⁸, substantially as specified.

6. In a potato-digger, the scoops I, comprising the imperforate portion I', the slats I³, the arms I⁴, in combination with the slotted arms H', and connecting-rods I⁶, substantially as specified.

7. In a potato-digger, the combination of the ground-wheels B B', the sprockets C and O', the chain Q, crank-shaft O, connecting-rod O', screen K, hangers L and M, with the shaft F, scoops I, rods I⁶, and gears D E, substantially as specified.

8. In a potato-digger, the combination of the shaker or screen K, the hanger L, pivoted to the frame-work and to the shaker, the crank M, rigidly secured to the shaker and pivotally connected with the crank-shaft, and the hanger N, pivoted to the shaker and to the rock-arm P', whereby the shaker may be agitated whether elevated or depressed.

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

MARTIN I. CONDERMAN.

Witnesses:

CHARLES W. STEVENS,
CHARLES J. PATTEN.