(No Model.) 2 Sheets—Sheet 1.

A. T. DOWDEN.

POTATO HARVESTING MACHINE.

No. 357,119. Patented Feb. 1, 1887.

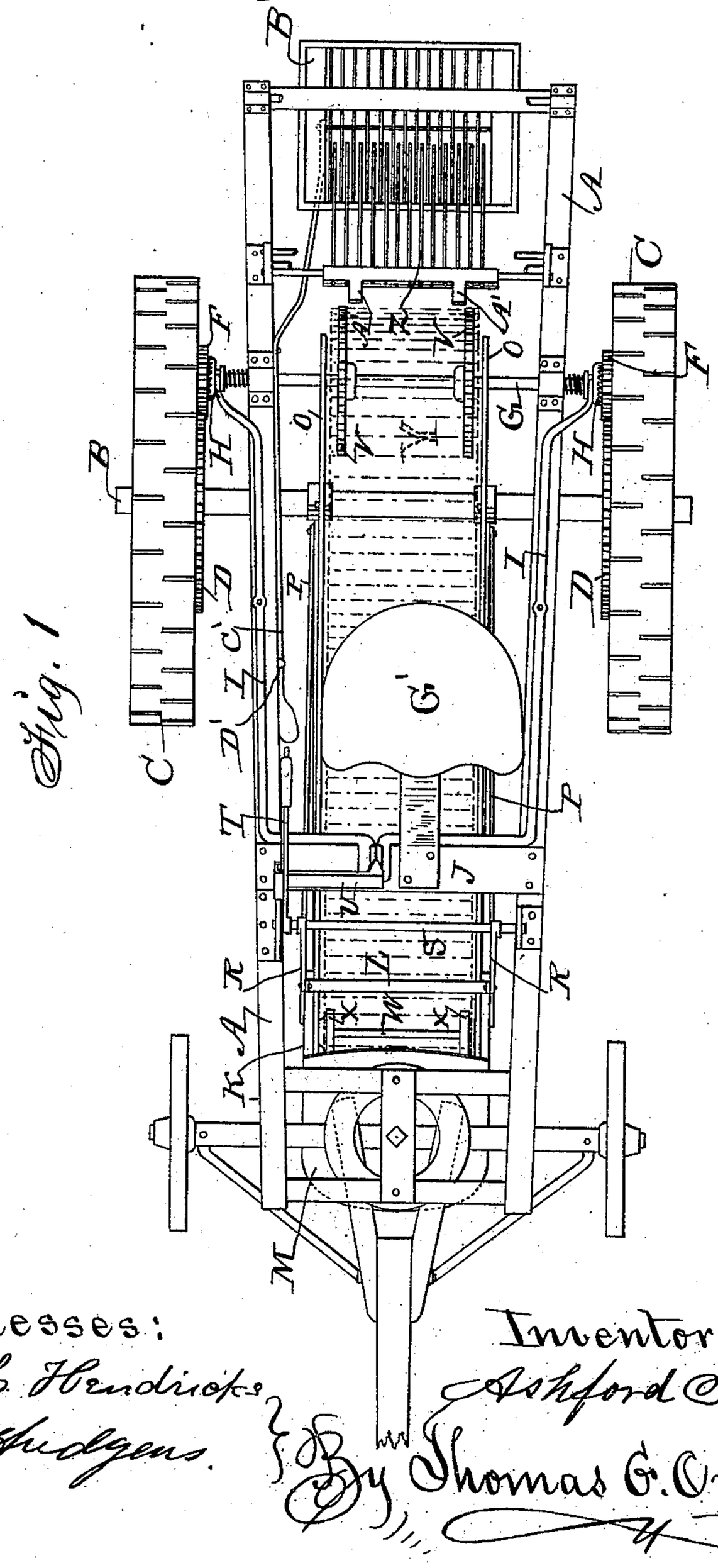

Fig. 1.

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Inventor:
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By Thomas G. Orwig, Atty.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4

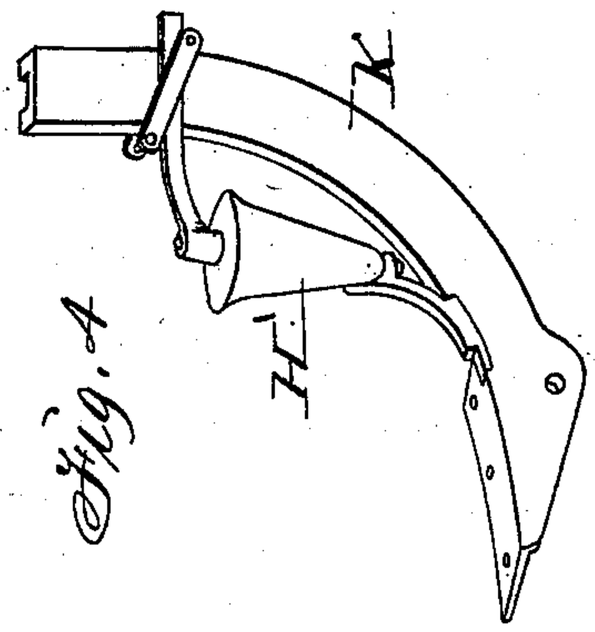


Fig. 3

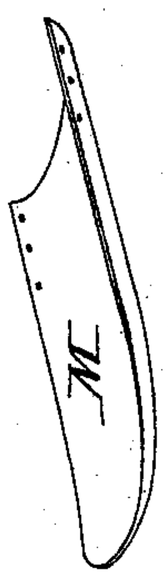
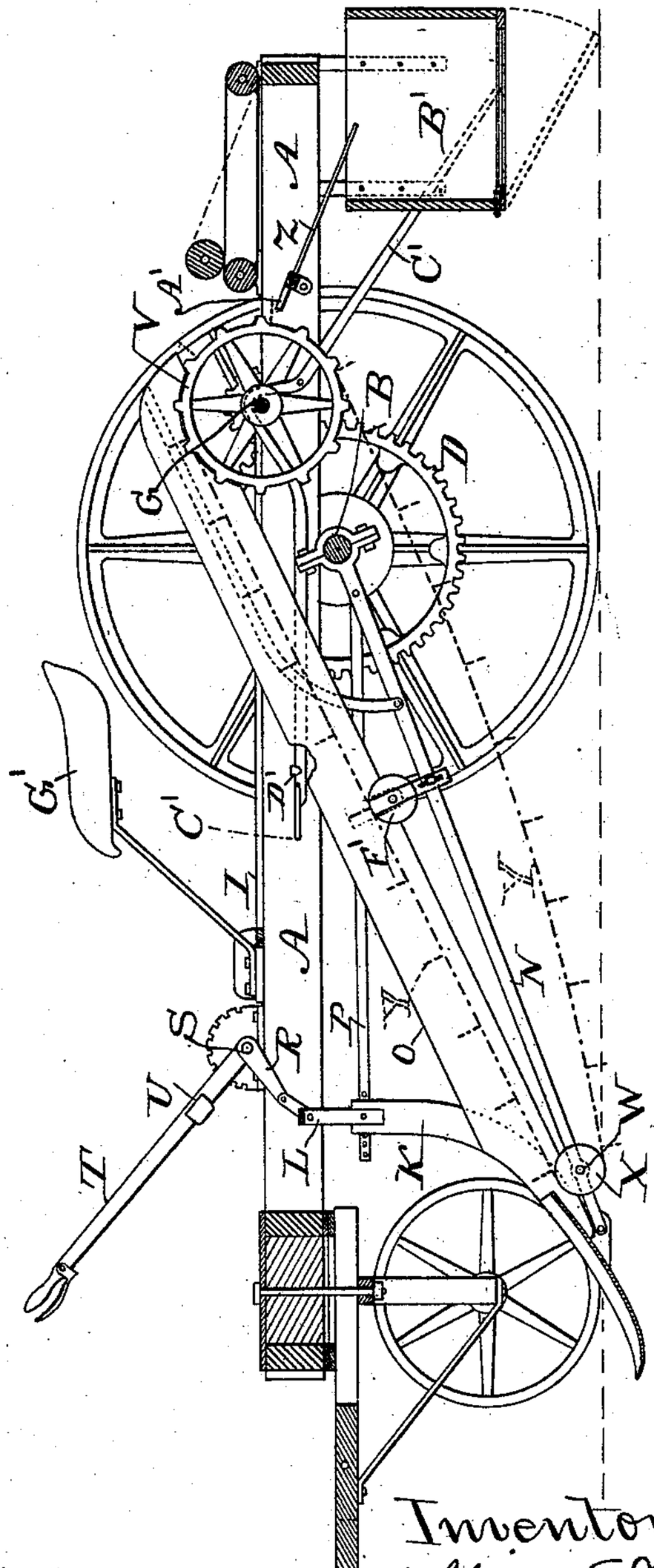


Fig. 2



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UNITED STATES PATENT OFFICE.

ASHFORD T. DOWDEN, OF PRAIRIE CITY, IOWA.

POTATO-HARVESTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 357,119, dated February 1, 1887.

Application filed August 17, 1885. Serial No. 174,563. (No model.)

To all whom it may concern:

Be it known that I, ASHFORD T. DOWDEN, a citizen of the United States of America, residing at Prairie City, in the county of Jasper and State of Iowa, have invented new and useful Improvements in Potato-Harvesting Machines, of which the following is a specification.

My invention relates to improvements in a potato-harvesting machine invented by me, and for which I have received Letters Patent of the United States numbered 316,015, and dated April 21, 1885; and it consists in the construction and combination of devices, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the machine; Fig. 2, a longitudinal section of same, and Figs. 3 and 4 are detailed views of the plow and plow-frame.

Similar letters refer to similar parts throughout the several views.

To the frame A is fixed the axle B, upon which turn the drive-wheels C C, having the gear-wheels D D cast upon or fixed to them. The gear-wheels D D engage the pinions F F, which are loosely mounted on the shaft G. The clutches H H are feathered to the shaft G and are kept in contact with the pinions F F by spiral springs, as shown. These clutches are so constructed that when the machine advances the shaft G will revolve; but when it is moved backward the shaft G will remain stationary. These clutches may be thrown out of gear with the pinions F F by means of levers I I, which are forked at the ends to engage grooves on the clutches. They are pivoted to the frame and extend forward on top of it, as shown, being bent inward at right angles and turned up at the free ends over the cross-piece J.

K K are curved arms connected at the top by means of an arched iron brace, L. These arms are bolted at their lower ends to the plow or digger M. Two rods, N N, are attached to the axle B and pivoted to the arms K K. Two sheet-metal guards, O O, are fixed to the arms K K and to the rods N N, as shown. Pivoted to the rear ends of the rods N N are two braces, P P. At the forward ends of these braces is a series of perforations, by means of which they are attached to the arms K K.

It will be seen that the angle at which the plow enters the earth may be varied by this arrangement.

The arched brace L is flexibly connected to arms R R, attached to the shaft S. At one end of the shaft is a lever, T, which engages a toothed arc, as shown. Extending inward from this lever is an arm, U, having a wedge-shaped end, as shown. By means of this lever the plow is adjusted for different depths. When the lever is depressed as low as it can be, the wedge-shaped end of the arm U separates the upturned ends of the levers I I, thus disengaging the clutches H H.

V V are sprocket-wheels fixed to the shaft G. At the lower end of the plow-frame is a shaft, W, carrying pulleys X X. An endless carrier, Y, passes around these pulleys and the sprocket-wheels V V, being driven by the latter. This endless carrier is fully described and illustrated in the Letters Patent mentioned above.

Z is a grating composed of iron rods secured between two iron bars, as shown. The lower bar has lugs projecting downward, through which passes an iron rod, the ends of which are secured to the frame of the machine. This rod forms the pivot upon which the grating is free to turn.

A′ A′ are lugs projecting from the upper bar. When the carrier is in motion, the transverse cleats strike these lugs, thus giving the grating Z a vibratory motion. Below the grating is a box, B′, the bottom of which is a grating hinged at the forward end.

C′ is an iron lever on the inside of the frame. This lever is bent over the shaft G and pivoted to the frame, as shown. The lower end of the lever is pivoted to the hinged bottom of the box B′. The forward end of the lever is held by a hook, D′, secured to the frame. By depressing the end of the lever with the foot the lever is disengaged from the hook D′ and the hinged bottom of the box B′ falls, discharging the contents upon the ground.

Upon each of the metal rods N is secured one or more adjustable idlers, F′, which support the endless carrier Y. The driver's seat G′ is secured to the cross-piece J. On each of

the curved arms K is pivoted an idler, H′, These serve to throw off the vines, and also to prevent the escape of the potatoes. The shovel M is spoon-shaped, as shown, concaved on its top surface longitudinally and also transversely.

As the machine advances the potatoes, earth, and vines are scooped up by the shovel M and deposited upon the endless carrier Y, a part of the vines being thrown off by the idlers H′. As the carrier ascends the greater portion of the earth drops through it, and the vines are seized by the endless rollers at the rear of the machine. These rollers are fully described in the Letters Patent mentioned above. The potatoes and remaining earth are thrown upon the vibrating grating Z, where the remainder of the earth is shaken through.

The potatoes fall from the grating into the box B′. When the box is filled, the driver disengages the lever C′ from the hook D′, allowing the bottom of the box to fall and discharge the potatoes upon the ground.

I am aware that a suspended screen in a potato-digger has been vibrated by means of a tappet-wheel; but my manner of combining an endless carrier with a plow and a screen to elevate potatoes from the plow to the screen, and also to vibrate the screen, is novel and advantageous.

I am also aware that idlers or rotating clearers have been combined with a plow-beam to be carried in advance of the plow to direct vines away from the plow; but my manner of combining idlers direct with the opposite sides of a plow to facilitate the elevation of vines with the ground and potatoes over the center of the plow is novel and advantageous in that the vines are delivered in rear of the plow.

I claim as my invention and desire to secure by Letters Patent—

1. The frame composed of the arms K and cross-piece L, carrying a plow, M, in combination with a carriage-frame, A, axle B, rods N, braces P, and a rock-shaft, S, having cranks or arms R, for the purposes stated.

2. The combination of the pivoted grate Z, having lugs A′, a plow and an endless carrier having transverse cleats to engage the said lugs, substantially as and for the purposes set forth.

3. The combination of the lever T, having an arm, U, and a wedge extending at right angles from the end of said arm, the rock-shaft S, having arms R, the elbow-shaped levers I, carrying clutches H, the shaft G, having fixed gear-wheels E, and the traction-wheels C, having fixed gear-wheels D, substantially as shown and described, for the purpose of simultaneously elevating a plow and arresting the motion of an endless carrier.

ASHFORD T. DOWDEN.

Witnesses:
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