

AVERY & LABERTEAUX.

Potato Digger.

No. 100,102.

Patented Feb. 22, 1870.

Fig. 1

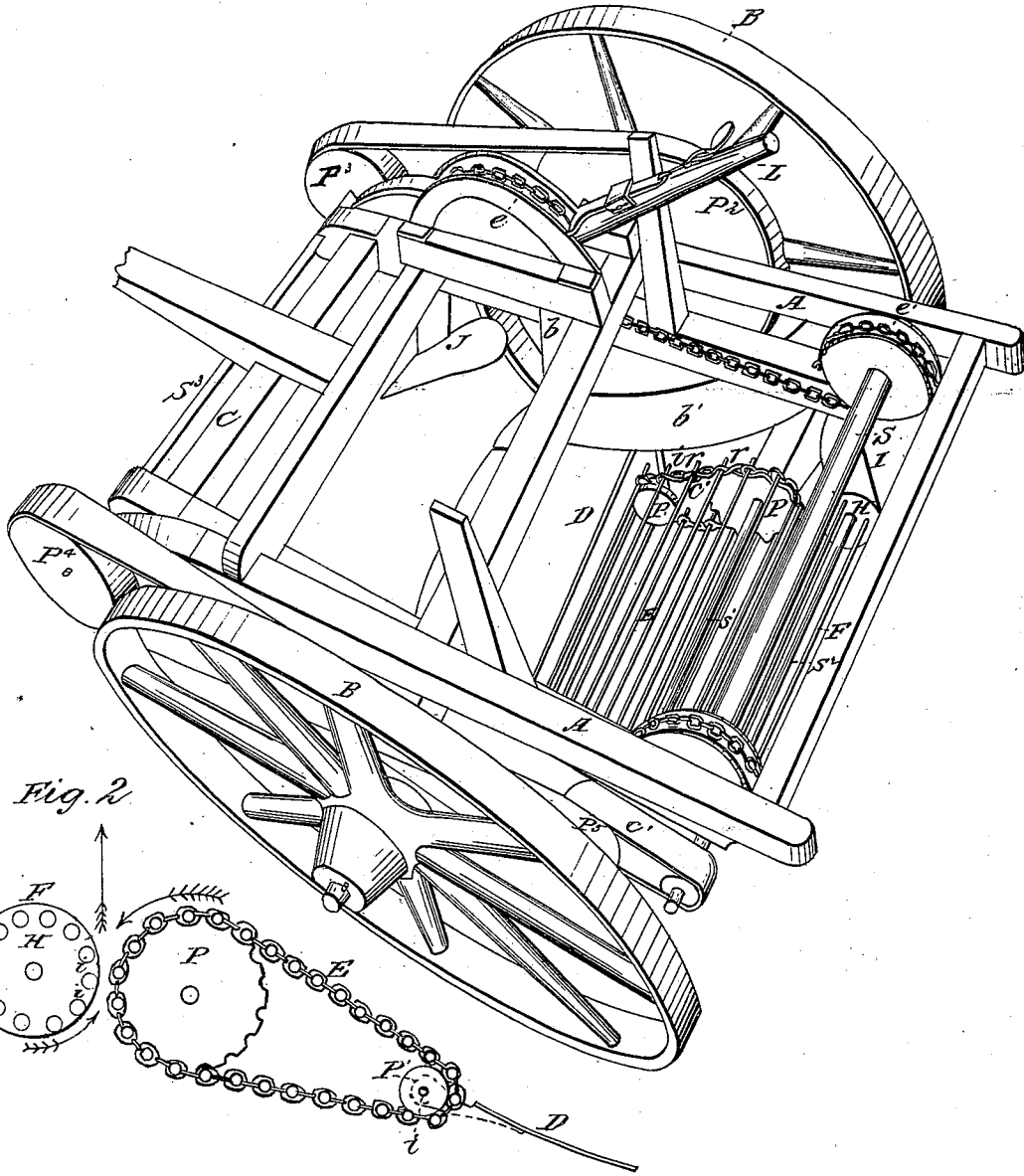
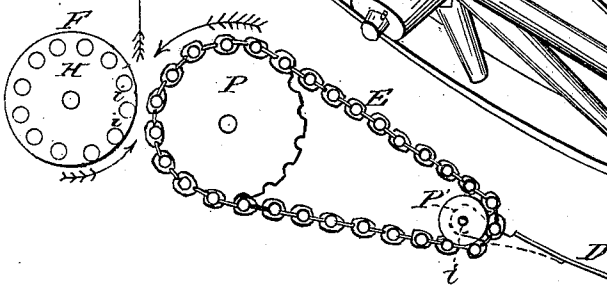


Fig. 2



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Letters Patent No. 100,102, dated February 22, 1870.

## IMPROVEMENT IN POTATO-CULTIVATOR AND DIGGER.

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

We, WILLIAM J. AVERY and TUNIS LABERTEAUX, both of the township of Marshall, in the county of Calhoun, and State of Michigan, have invented certain Improvements in Machines for Digging and Cultivating Potatoes, of which the following is a specification.

Our invention consists in the combination and arrangement of the principal parts of the machine, as hereinafter described.

Figure 1 of the annexed drawings represents our improved machine in perspective.

Figure 2 is a side elevation, showing the relative positions of the exhuming-scoop and dirt-screen.

A is the frame, carrying the two traction-wheels, B. C is a frame adjustable inside of A, by being pivoted to it at the front end.

The inside frame C carries the plows and digging mechanism, and is raised and lowered by means of the cam-headed lever L, the grooved pulley-shaft S, and chain connections C, the arrangement and operation of which are too well known to require any detailed description.

D is the exhuming-scoop, being a thinish metal plate of suitable length and width, which may be slightly concave on the upper side, and convex on the penetrating or front edge.

It is fastened rigidly to the frame C, and at a suitable distance below it, by means of vertical and angle braces *b* and *b'*, the latter being generally made sufficiently deep to act as side guards or ledges, to prevent lateral spilling.

The belt-screen is shown at E. Its office is to carry up the dirt and potatoes lifted by the scoop D, and deliver them to the picker, minus the loose dirt screened through in the passage.

The screen-belt is composed of iron rods *r*, the ends of which are secured at proper distances apart in the links of chains C, said rods being geared, as it were, in notches in the two driving-pulleys P, hung on shaft S<sup>1</sup>.

As the endless screen must run clear of the ground surface of the excavation, we hang the screen forward on pulleys P<sup>1</sup>, which are considerably smaller than the hind pulleys P, and do not employ a through shaft, but hang said pulleys on studs *i*, the tangs of which are bent and fastened either to the scoop itself or to the angle braces supporting it. This leaves an unobstructed space at the front end of the belt, not liable to be choked up with stones or dirt.

The cylindrical picker-screen is seen at E. It is formed like the belt, of iron rods *r*, secured at the ends to two heads, H, hung to a shaft, S<sup>2</sup>, which shaft, as well as the hind shaft of the belt-screen, runs in

bearings formed in hangers I secured to the frame C. The screen-belt and cylinder may be driven by belts, as shown, or by chain-gear, which is better.

A main driving-pulley, P<sup>2</sup>, on one of the traction-wheels, gives motion to pulley P<sup>3</sup>, on shaft S<sup>3</sup>, at the extreme formed end of the frame C.

An increased and reversed motion is communicated from the pulley P<sup>3</sup>, on the opposite end of shaft S<sup>3</sup>, to a double overhanging pulley, P<sup>4</sup>, on the driving-shaft of the belt-screen, by means of a crossed belt or chain, or by intermediate cogged gear, if desirable.

From the double pulley last mentioned a belt or chain, C', gives a further increased motion to the cylinder-screen; and the hinder end of the belt-screen and cylinder-screen are so hung in relation to each other, that the potatoes and remaining clods of earth, as they are carried over by the descending rods of the belt, are caught by the ascending rods of the revolving cylinder, and thrown up tangentially, (see arrows,) so as to thoroughly separate the dirt from the potatoes, and leave them on top, that they may be picked by hand in a clean condition from the vines.

The function of the right and left plows, only one of which is seen, at J, is to make a furrow in each side of the row in advance of the scoop, and so plow away to the right and left all the hilled-up ground, weeds, vines, &c., out of the way of the advancing machine.

Should the plows in passing along trench upon the line occasionally, no harm is done, for the mold-boards are so set as to leave all potatoes on top of the ground that may be separated by the plows.

The angle of inclination with the ground of the scoop and belt-sieve should be as low as practicable, to effect the delivery of the dirt and potatoes, as the team draws the scoop (let down on starting) along under the potatoes in the row; and we find it best to cross-excavate a few rows at each end of the field, in the first place, so that the team and machine may have a better chance to enter and leave the rows properly.

When the potatoes are growing, the scoop and screens may be readily detached from the frame C, and the front plows adjusted so as to bill up and otherwise cultivate the ground between the rows, and with slight additions and modifications the combined frames might be used for general purposes of cultivation.

The place of the screen-picker may be supplied by a wooden winged shaft to catch and throw upward the potatoes and vines, but we consider the rod arrangement the best, as it operates more effectually to break up the clods carried over on the belt-screen, thereby leaving the dug ground in a better condi-

tion, and enables us to shorten and make more compact the whole screening mechanism, and separate the dirt completely from the potatoes.

We claim as our invention—

The combination and arrangement of the right and left plows J J, the scoop D, endless belt-screen E, and cylinder picker-screen F, and the devices for raising and lowering the frame C, with its attachments,

said frame C being hung within the frame A, all constructed and operating substantially as described.

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