

Webster & Powers.

Potato Digger.

N^o 89,099.

Patented Apr. 20, 1869.

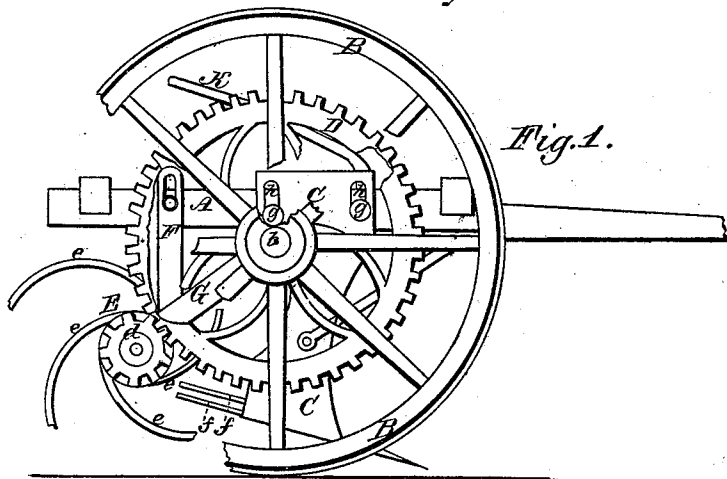


Fig. 1.

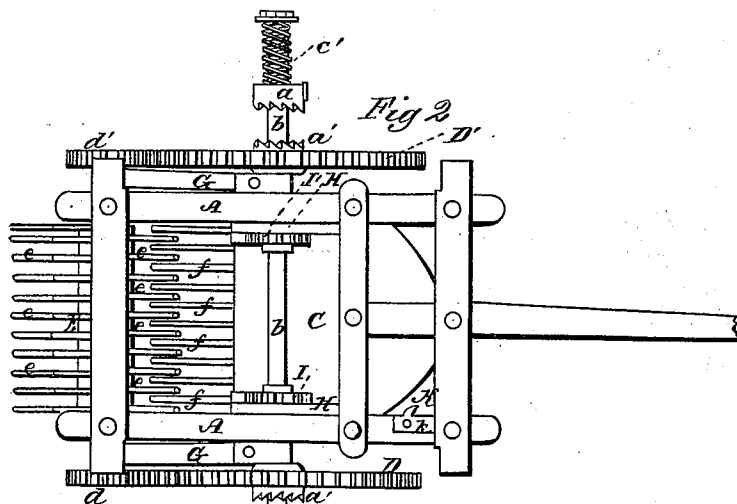


Fig 2

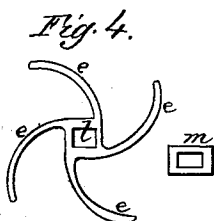


Fig. 4.

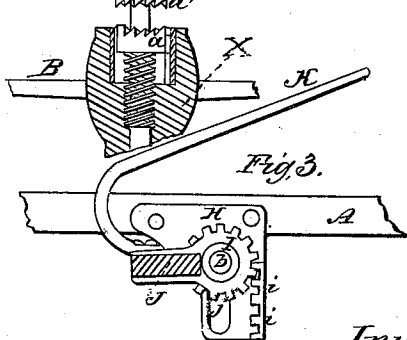


Fig 3.

Witnesses.

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HIRAM WEBSTER AND CYRUS POWERS, OF EAST PEMBROKE,
NEW YORK.

Letters Patent No. 89,099, dated April 20, 1869.

IMPROVEMENT IN POTATO-DIGGER.

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

To all whom it may concern:

Be it known that we, HIRAM WEBSTER and CYRUS POWERS, both of East Pembroke, in the county of Genesee, and State of New York, have invented a certain new and useful Improvement in Potato-Diggers; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation with a portion broken away.

Figure 2 is a plan.

Figure 3 shows the lever and its appliances for raising and lowering the digger.

Figure 4 shows construction of rake-teeth and washer.

Like letters of reference indicate corresponding parts in all the figures.

Our invention consists in the special arrangement of the machine, as hereinafter described, whereby the same is adjustable higher or lower, and the rake and scoop are made changeable to any angle or position.

Also in the construction of the revolving rake itself.

In the drawings—

A A indicates the frame, and B B, the driving-wheels.

Inside the wheel-hubs X, are fitted ratchet-couplings *a a'*, thrown out by springs *c c*, so as to engage with similar couplings, *a a'*, which form the hubs of spur-wheels D D', and rigidly connected with the axle *b*.

As the wheels run forward the teeth engage, but when they are backed the couplings disengage by slipping off.

A special feature of novelty is involved in this arrangement, by the location of the springs *c c*, and the sliding couplings *a a'*, within the hubs of the wheels, by which means no extra space is lost; and also those parts are protected in the best manner from the vines, which could not be the case were they exposed, as in ordinary couplings, such as harvesters have.

The spur-wheels D D' engage with pinions *d d'*, on the ends of the shaft of the revolving rake E.

This shaft is provided with four (4) or more rows of inwardly-curved teeth, *e e e e*, forming the revolving rake.

These teeth will be made of wrought or malleable iron, the four teeth in one piece (see fig. 4.) with a square eye, *l*, in the centre, to receive the square shaft, and which revolves the rake.

Washers, *m*, will be placed on the shaft, between each set of teeth, and a single nut, at the end, will serve to securely hold and fasten them all on.

A special advantage in this construction is, that these teeth start from the edge, and not from the centre, as is usual in revolving rakes that I am acquainted with. By thus placing them, there is less strain on

them, and it allows me to form them with a less curve, which makes them, in consequence, stronger and stiffer. If they were not thus placed, they would, in revolving, throw dirt, &c., and potatoes forward, instead of backward, as desired.

In connection with this revolving rake, the digger C has formed on its rear end a number of projecting teeth, *f f f*, between which the teeth *e e e* of the rake E revolve.

The digger is thus made a self-cleaner, and thereby possesses a great advantage, for, as the shovel scoops up the hills, it takes in matted dirt, weeds, and stones, as well as potatoes. By the continued forward action of the machine, these are forced back over the projecting teeth *f f f*, through which the loose dirt falls. Then the revolving teeth *e e e e* come through the interstices, tear apart the dirt, &c., and catch and throw out backward, over the revolving shaft, the stones and potatoes. It thus never gets clogged.

We are aware that it is common to employ a revolving rake for striking into the soil and throwing out the potatoes.

Aside from its peculiar construction, ours performs only a secondary part, by acting with the scoop C and its teeth *f f f*, which it cleans, keeps from clogging, and throws out backward the potatoes, as before stated.

The digger C is fastened to the sides of the main frame, outside, by screws or bolts *g g'*, passing through slots *h h*, so arranged that the pitch of the digger can be regulated.

The revolving rake is also held, and set higher or lower, by slotted supports F F, one arranged on each side of frame A, the lower ends fastened to arms G G, which support the shaft of the rake.

The upper ends of these arms are made with loops, arranged and supported around the axle *b*, which revolves through them.

The special feature of novelty we here claim is, the relation, adaptation, and adjustment of the parts C and E, through the medium of the devices *g h* and G F.

In different soils, and under different circumstances, it will not only be necessary to adjust the pitch of the digger and the height of the rake, as before described, but also to adjust the two parts relatively to each other. For instance, if the potato-tops are green, and the tubers cling, it may be necessary to raise the rake higher above the digger than otherwise, so as to subject them to greater agitation in being elevated and thrown over. It may also be necessary to adjust them nearer together or further apart.

This arrangement of the parts *g h*, G F, combined with the digger and rake, allows such adjustment, and we believe this arrangement to be new and original with ourselves.

For raising and lowering the digger, two plates, H H', provided with cog-bars *i i* (see fig. 3,) are attached,

one on each side, inside the main frame A. Each has a slot, *j*, through which the main axle *b* passes.

Two pinions, I I', (one on each side,) resting loosely around the axle *b*, engage the cogs *i i* of the bearings H H'.

These pinions are connected by extensions or arms, and are connected from side to side by a piece of wood or iron, J, acting as bearing for a bent lever, K. This lever is attached to this connecting-piece J on the right-hand side. It is then bent over, and comes up within reach of the driver's hand, the driver's seat being over the axle.

Figs. 1 and 3 show the position of the digger when lowered, and fig. 2 when raised, the lever K standing perpendicularly, and engaged in bearing or notch *k*.

By this arrangement, great leverage is obtained, and the whole machine is raised or lowered by the right hand. It is an important attachment, as it allows the driver to raise the digger and run over stones, stumps, &c., which would otherwise, from concussion, &c., greatly injure the machine.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The arrangement, with the inter-matching rake E and digger O, of the bolts and slots *g h*, and the bars and braces F G, said devices serving to adjust

the said rake and digger relatively with each other, in the manner and for the purpose specified.

2. In combination with the above, the arrangement of the cog-bars *i i*, pinions I I', slots *j j*, connecting-piece J, and lever K, the whole operating in the manner and for the purpose specified.

3. The construction of the revolving rake, forming four teeth, *e e e e*, on one piece, each tooth projecting from the square, and not the centre, and having square eye *l*, for the reception of the square shaft, with washers *m m* between each series of teeth, arranged and constructed as herein set forth.

4. The machine, as a whole, consisting of the digger C, adjustable by bolts and slots *g h*, the rake E, adjustable by bars and braces F G, the cog-bars *i i*, pinions I, slots *j j*, connecting-piece J, and lever K, the whole operating as described, and for the purpose set forth.

In witness whereof, we have hereunto signed our names, in the presence of two subscribing witnesses.

HIRAM WEBSTER.
CYRUS POWERS.

Witnesses:

J. R. DRAKE,
ALBERT HAIGHT.