No. 612,439. Patented Oct. 18, 1898.

C. SCHOENEFELDT.

POTATO DIGGER.

(Application filed Aug. 30, 1897.)

(No Model.) 3 Sheets—Sheet 1.

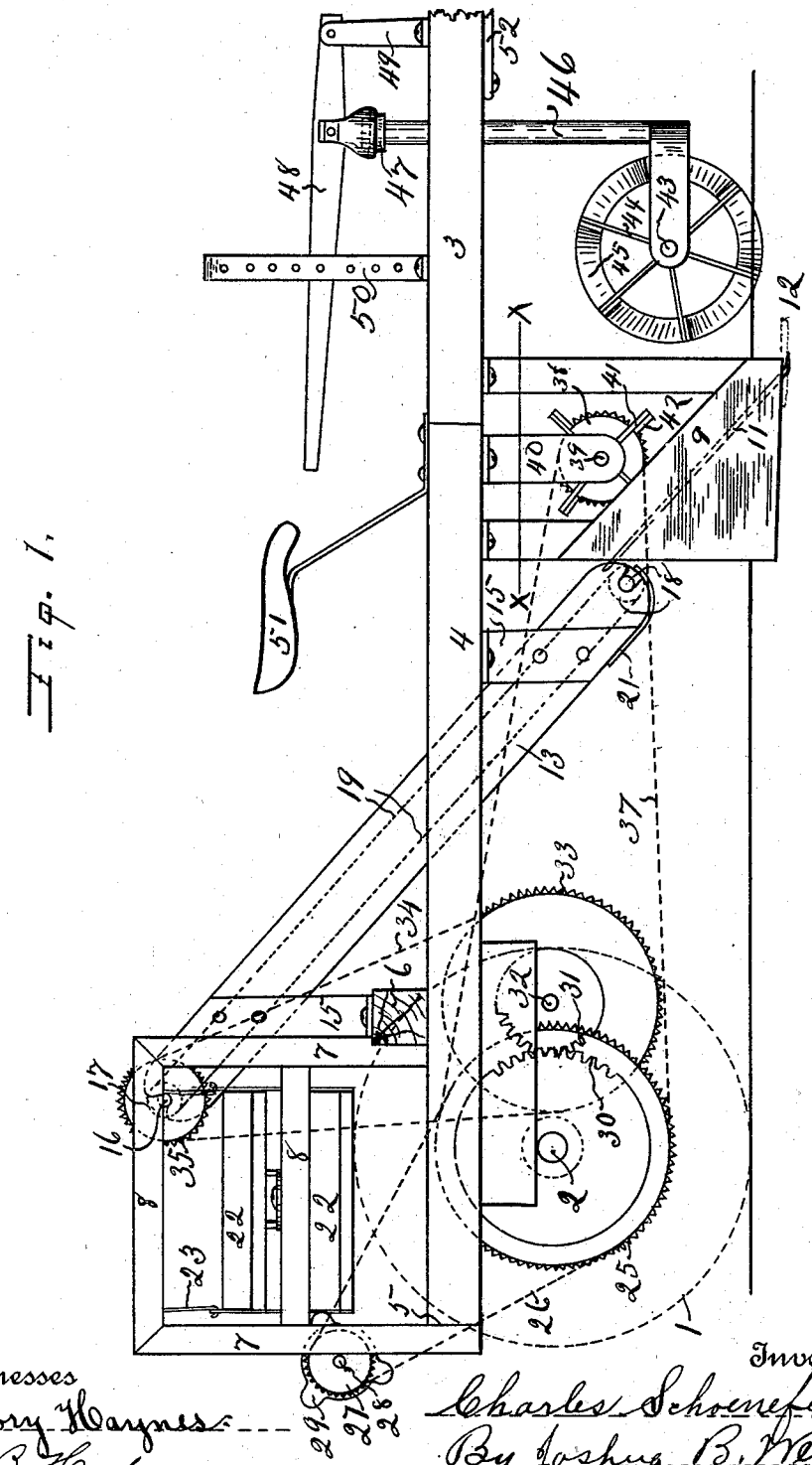


Fig. 1.

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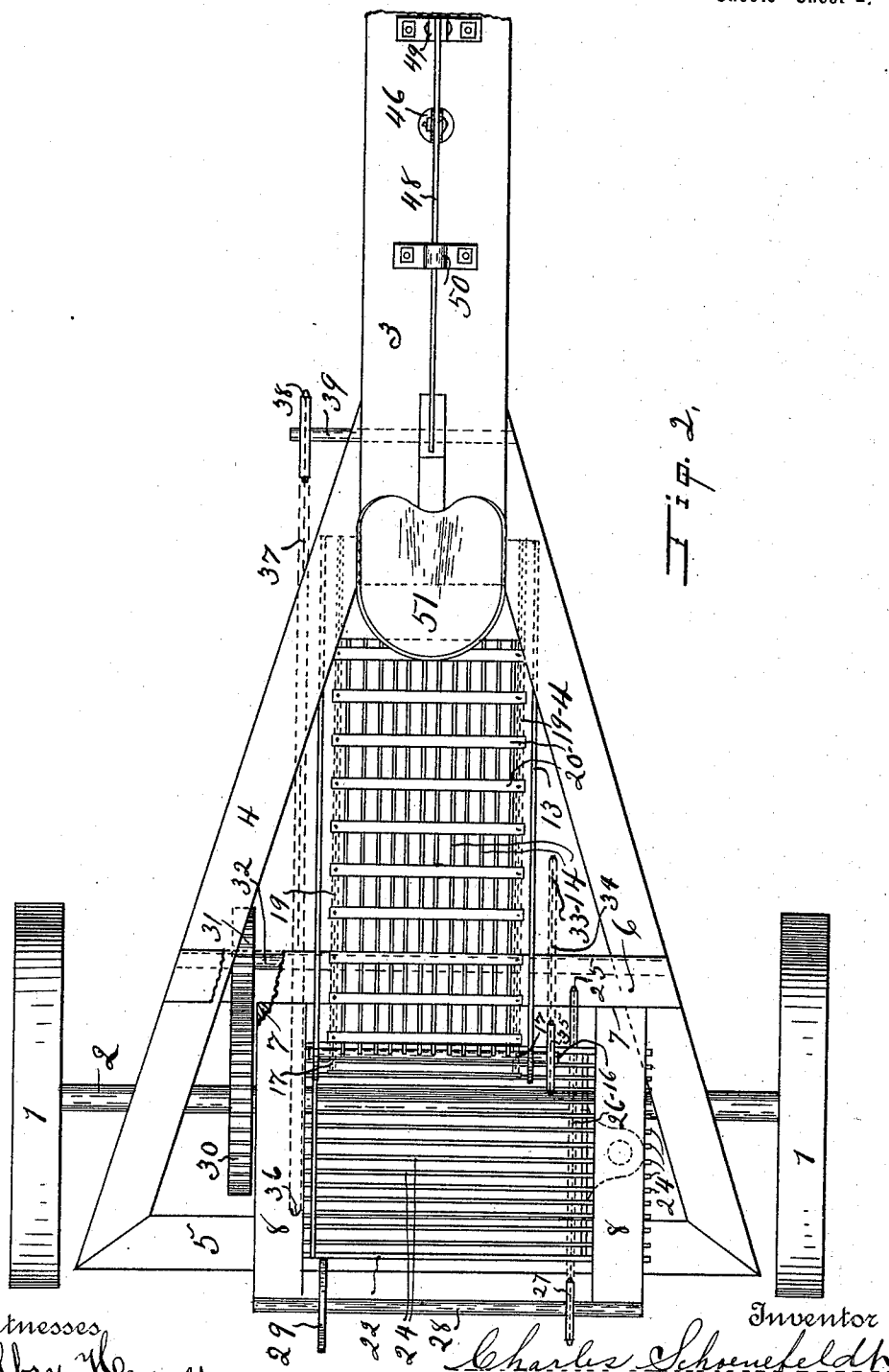


Fig. 2.

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Fig. 4.

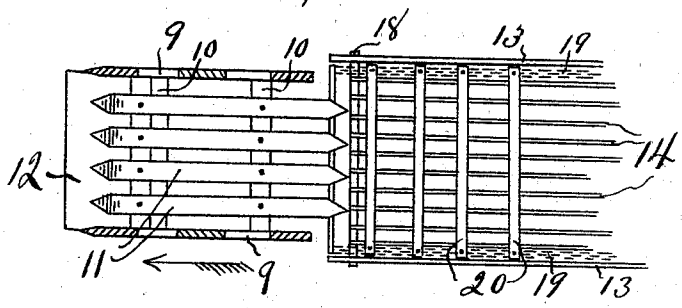
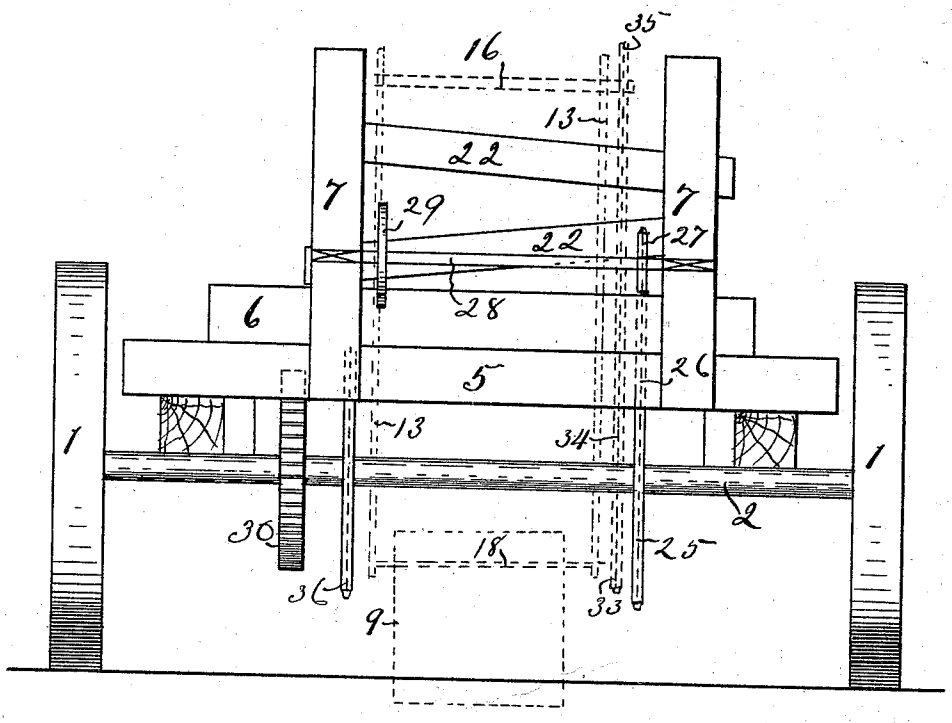


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES SCHOENEFELDT, OF STOCKTON, CALIFORNIA.

POTATO-DIGGER.

SPECIFICATION forming part of Letters Patent No. 612,439, dated October 18, 1898.

Application filed August 30, 1897. Serial No. 649,932. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SCHOENEFELDT, a citizen of Germany, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Potato-Diggers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to certain improvements in potato-diggers such as will effectually unearth, separate, and deposit potatoes in sacks; and the same consists in a Y-shaped frame having suitable driving-wheels mounted thereunder, a digger or shovel suitably attached to such frame, near the front end of the same, an elevator located at the rear of the said digger, suitable grates located under the upper end of the said elevator, suitable means for shaking the grates, and such other devices and combination of devices as will more fully appear in this specification and be specifically pointed out in the claims hereunto annexed, reference being had to the accompanying drawings for a more complete comprehension of the same, in which—

Figure 1 is a right-hand side elevation of my improved potato-digger. Fig. 2 is a top view of the same. Fig. 3 is a rear end elevation. Fig. 4 is a detached horizontal section through line X X, Fig. 1, showing the digger in position with relation to the lower end of the elevator.

Similar figures of reference indicate corresponding parts in the several views.

1 represents the driving-wheels, which are journaled on and rigidly attached to a driving-axle 2, which is journaled on the under side of a Y-shaped frame composed of the front main beam 3, to either side of which is attached a beam 4, which beams 4 diverge from the rear end of such beam 3 at an angle toward the rear or driving wheels 1, where such beams 4 are tied by a cross-beam 5.

A cross-beam 6 is suitably located in front of the axle 2, and to such beam 6 and the tie-beam 5 a frame composed of the posts 7 and the cross-bars 8 is rigidly attached.

A digger or shovel composed of the sides 9, attached together by the stay-bars 10 and having the grate-bars 11 mounted on such stay-bars 10, is rigidly attached to the beam 3 at a suitable point thereon. The grate-bars 11 are pointed and curved at their lower ends for the purpose of enabling the same to cut the ground easily and at the same time to prevent the same from entering the ground too deep. Should the soil be of a light or soft nature, I employ a shoe 12, which I attach to the bottom of the sides 9.

An elevator 13, having its bottom composed of grate-rods 14, is rigidly mounted, with its lower end immediately in the rear of the digger or shovel, on the frame-beams 4 and 6 on brackets 15. A shaft 16, having suitable sprocket-wheels 17, is journaled at the top end of the said elevator 13, and a roller 18 is journaled at the lower end of the same. Elevator chain belts 19, having slats 20 attached thereto, are adapted to engage with such roller 18 and sprocket-wheels 17. For the protection of the slats 20 a shield 21 is rigidly attached to the under side of the lower end of the elevator 13. The elevator is adapted to deposit the potatoes into two shaking grates or separators 22, which are hinged or suspended in the frame 7 8 by means of rods 23. Such grates 22 are provided with rods 24, located longitudinally therein. The rods 24 in the upper grate are arranged so as to allow the smaller potatoes to drop through into the lower grate, which deposits such potatoes into any receptacle desired, while the larger potatoes are deposited from the upper grate into another receptacle at hand.

Near one end of the driving-shaft 2 a sprocket-wheel 25 is rigidly attached, which wheel 25 is adapted to engage with a sprocket-chain 26, which engages with a sprocket-wheel 27, which is rigidly attached to and near one end of a shaft 28, which is journaled on the side of the posts 7. A tappet-wheel 29 is rigidly located on the other end of the shaft 28 and is adapted to engage with the side of one of the grates 22 for the purpose of imparting a vibratory motion to said grates.

A cog-wheel 30 is rigidly attached to the

shaft 2 at any suitable point and is adapted to engage with a pinion 31, which is rigidly attached to a shaft 32, which is journaled in front of the driving-shaft 2 on the beams 4 and adapted to carry a sprocket-wheel 33, which engages with a sprocket-chain 34, which engages with a sprocket-wheel 35, which is rigidly attached to one end of the shaft 16.

Near the cog-wheel 30 on the driving-shaft 2 a sprocket-wheel 36 is rigidly attached, which sprocket-wheel engages with a sprocket-chain 37, which engages with a sprocket-wheel 38, rigidly attached to a shaft 39, which is journaled in pendent brackets 40, which are rigidly attached to the under side of the beam 3 at a point immediately above the digger or shovel. Such shaft 39 is adapted to carry a beater or pulverizer, which is composed of the arms 41 and slats 42, such beater being for the double purpose of pulverizing the hardened chunks of earth and assisting in the elevation of the potatoes into the elevator.

A weed-cutter, composed of the shaft 43, the arms 44, attached thereto, and the winding knife-blades 45, rigidly attached to such arms 44, is located immediately in front of the digger. The shaft 43 is journaled in a swivel-standard 46, which is located at or near the front end of the frame-beam 3, and such standard 46 is provided with suitable collars 47 at its top end, with which collars a lever 48 is adapted to engage, such lever 48 being fulcrumed on a standard 49, suitably located on the frame. A graduated lever-adjuster 50 is adapted to engage with the free end of the lever 48 for the purpose of adjusting the weed-cutter to any depth desired.

51 represents a seat of ordinary construction located in front of the elevator on the main frame. 52 is the draft-iron.

The mode of operating my improved potato-digger is as follows: Suitable motive power having been applied, the weed-cutter 43 44 45 is adjusted vertically, so as to cut the weeds and at the same time pass over the potatoes without cutting the same. The digger or shovel 9 10 11 12 is then allowed to enter the ground at a depth sufficient to uproot the potatoes, whereupon such potatoes are pressed upward on the grate-bars 11 and when at the proper distance are caught by the beater or pulverizer 39 41 42 and they are elevated into the elevator, and at the same time the soil is pulverized, whereupon the same falls between the grate-bars out of the way. Should any soil still stick to the potatoes, the same is removed in the shakers 22 after having been elevated and deposited therein by the elevators 13. A vibrating motion is given to the shaking-grates 22 by the tappet-wheel 29, which engages with the side of one of such grates. The potatoes are deposited from the grates, which are constructed so as to grade the same, into any receptacle desired.

I am aware that potato-diggers have been constructed which dig, elevate, and deposit potatoes into a receptacle prepared therefor and that feature I do not claim broadly; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The herein-described potato-harvesting machine comprising the main frame, a shaft 2 journaled in the main frame adjacent to the rear end thereof, a digger or shovel fixedly connected to the main frame adjacent to the forward end thereof, the endless elevator having its lower end arranged below the upper end of the digger or shovel so as to receive therefrom, the shaft 39 journaled in the main frame above the digger or shovel and carrying the beater or soil-pulverizer, the vibratory grates fixedly connected together and arranged one above the other and loosely hung in the main frame below the upper end of the elevator, the shaft 28 journaled in the main frame and carrying a tappet-wheel engaging one of the grates, gearing intermediate of the shaft 2 and the shaft 39, gearing intermediate of the shaft 2 and the endless elevator, and gearing intermediate of said shaft 2 and the shaft 28, all substantially as and for the purpose set forth.

2. In a potato-harvester, the combination of a main frame, a shaft 2 journaled therein and carrying traveling wheels, the vibratory grates fixedly connected together and loosely hung in the main frame, the shaft 28 journaled in the main frame and carrying a tappet-wheel engaging one of the grates, and gearing intermediate of the shaft 2 and the shaft 28, substantially as specified.

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

CHARLES SCHOENEFELDT.

Witnesses:
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J. B. WEBSTER.