

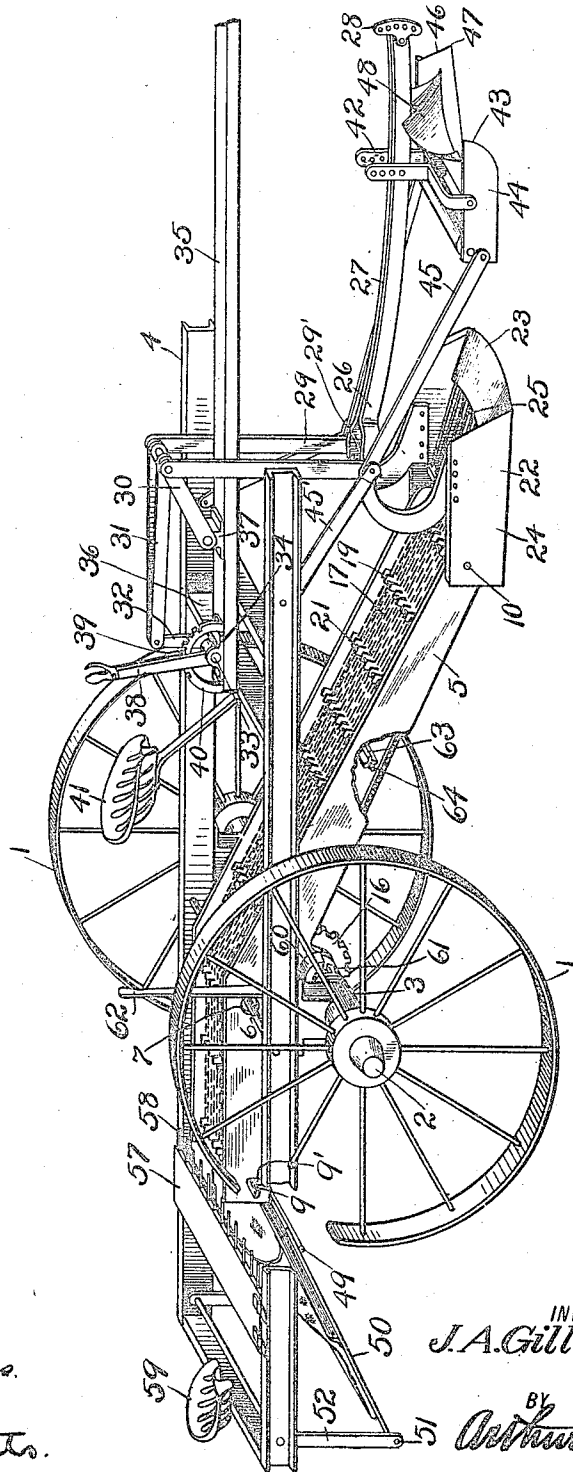
J. A. GILLIAM.
POTATO DIGGER.
APPLICATION FILED JUNE 4, 1912.

1,124,414.

Patented Jan. 12, 1915.

2 SHEETS—SHEET 1.

Fig. 1.



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INVENTOR
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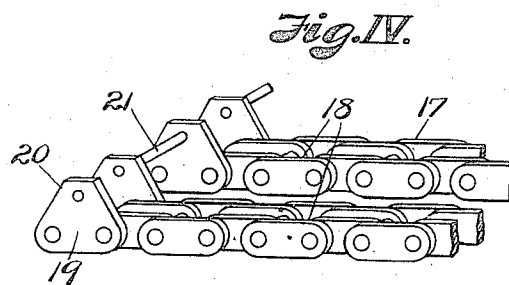
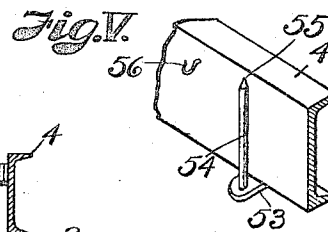
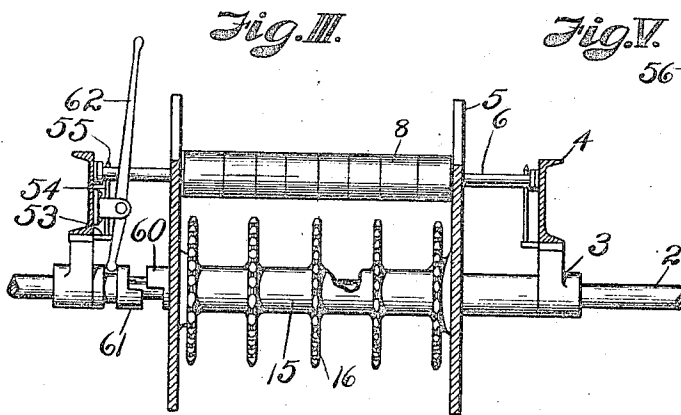
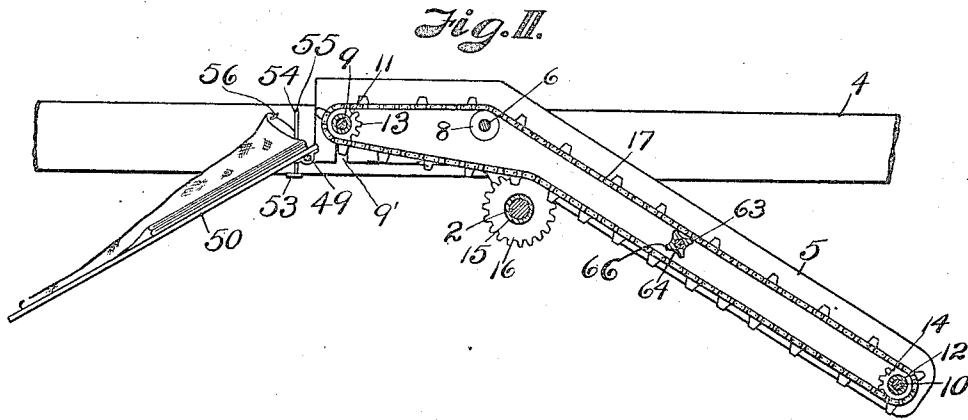
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN A. GILLIAM, OF LOWER BRULE, SOUTH DAKOTA.

POTATO-DIGGER.

1,124,414.

Specification of Letters Patent.

Patented Jan. 12, 1915.

Application filed June 4, 1912. Serial No. 701,551.

To all whom it may concern:

Be it known that I, JOHN A. GILLIAM, a citizen of the United States, residing at Lower Brule, in the county of Lyman and State of South Dakota, 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 letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a potato digger, and more particularly to an apparatus which may be drawn or propelled through a field and is constructed and adapted for cutting potato tops, digging potatoes from their hills and elevating same to a sacking position, so that the entire digging operation may be mechanically performed during the travel of the apparatus over a potato row.

It is also an object of my invention to provide the apparatus described with means for agitating the elevator for the purpose of separating dirt from the potatoes, and also to provide a suitable sack platform and means for holding sacks in open position thereon so that the potatoes may be delivered thereto from the elevator.

It is also an object of the invention to provide means for catching tops or brush to prevent same from entering the sacks and to mount such means on the digger frame, so that they will not interfere with the handling of the sacks and may be manipulated to throw the brush, or the like, from the frame.

In accomplishing these and other objects which will hereinafter be described, I have provided the improved details of structure set out in the following description and illustrated in the accompanying drawings, wherein:—

Figure I is a perspective view of a potato digger constructed according to my invention. Fig. II is a longitudinal vertical section of the elevator and sacker. Fig. III is a transverse vertical section of the frame and elevator guards showing the elevator clutch and sprockets. Fig. IV is an enlarged detailed view of a preferred form of elevator. Fig. V is an enlarged perspective

view of part of the frame, showing the sack hooks.

Referring more in detail to the parts:— 1 designates a pair of carrying wheels, which are connected by a fixed shaft 2, having bearings 3 upon which the frame 4 of the apparatus is mounted, said frame preferably consisting of angle iron side and end members, as shown. Loosely mounted on the shaft 2 within the frame 4 are the side boards, or guards, 5, having downwardly and forwardly projecting portions and horizontal rearwardly projecting portions co-extensive therewith.

Rigidly mounted in the sides of frame 4, at or near the front of the horizontal portions of the guards 5 is a shaft 6, which projects through apertures 7 in said guards of considerably greater diameter than the shaft, in order to allow some freedom of movement between the parts, and mounted on the shaft, between the guards, are spools 8, which are adapted for free revoluble movement and for supporting the conveyer, presently described. Also mounted in the side members of the frame is a shaft 9, which extends through downwardly opening slots 9' in the guard members to allow said members to play thereover, and connecting the lower ends of the guards is a shaft 10; said shafts having sleeves 11—12 revolubly mounted thereon provided with sprocket wheels 13 and 14.

Revolubly mounted on the carrying wheel shaft 2, below the spool shaft 6, is a sleeve 15 which is provided with sprocket wheels 16, corresponding in number and arrangement with the sprocket wheels on the shafts 9 and 10.

Extending around the end sprocket wheels 13 and 14 and running over the spools and wheels 16 is a chain belt conveyer 17, preferably comprising a number of individual belts 18, composed of a double series of links having lipped links 19 at intervals throughout their lengths, the lips 20 of which project outwardly from the belts to serve as keepers against which potatoes may rest during the elevated travel of the conveyer.

The lips 20 of each belt are connected by pins 21, with the lips on the facing side of the adjacent belt the pins not only serving to connect the individual belts but also answer as keepers or stops for completing the slat-like construction of the conveyer. The

lips 20 on each side of each individual belt are not connected by the pins 21 in order that when the conveyer is run over the driving sprocket 16 on the carrying shaft the teeth of said sprocket may project between the lips into driving engagement with the belt links.

The shaft 10 which connects the lower forward ends of the conveyer guards projects from the sides thereof and carries a shovel 22, having a convex sharpened nose 23 which is adapted for plowing through the potato hills and gathering the potatoes between the shovel sides 24, a number of rake teeth 25 being fixed to the shovel nose and extending upwardly therefrom so as to deliver the potatoes onto the lower end of the conveyer.

The forward loose end of the shovel is fixed to the arms 26 of a beam 27 corresponding to the beam of an ordinary cultivator, the forward end of which is provided with a clevis 28.

Pivottally connected with the arms 26 are supporting links 29 which are in turn pivotally connected with a lever 30 having link connection 31 with a lever 32, on a shaft 33, which is revolubly mounted in a bearing 34, that is fixed on the top of a tongue 35 which extends forwardly of the frame 4 and is supported on the front cross member and on an intermediate cross member 36 of the angle iron frame.

The lever 30 is revolubly mounted in a bearing 37, also supported on the tongue 35 rearwardly of the hanger links 29, so that when the operator manipulates the lever 32 through the handle 38 the shovel 22 may be raised or lowered.

The handle 38 is provided with a latch 39 which is adapted for coöperation with a quadrant 40 to lock the lever in position to hold the shovel at a desired elevation.

A seat 41 is mounted on the frame cross-bar 36, rearwardly of the lever 32, so that an operator may ride on the machine in a convenient position for controlling the shovel and elevator and driving the horses when the digger is in operation.

Mounted on the beam 27, by hangers 42, is a brush cutter 43 comprising runners 44 which are braced by bars 45-45' from the carrying frame, and a forwardly projecting knife 46 having a central point 47 so that it may cut at both sides of the center; the brace members having pivotal mounting on the rod 29', which pivotally carries the supporting links 29, so that the runners may have free movement and the front end of the digger may be lifted without cramping the brace.

Mounted on the top of the knife is a curved board 48 which is adapted for moving the cut brush to the side of the row out of the way of the shovel and elevator.

The frame 4 extends rearwardly beyond the end of the conveyer, and fixed to the sides of the frame below the rear end of the conveyer is a rod 49 which carries a rearwardly and downwardly inclined sack supporting board 50, the lower end of which is mounted on a rod 51 that is suspended from the frame by hangers 52. Fixed on the side members of the frame, just back of the conveyer, are inwardly directed ears 53, having upwardly extending pins 54, provided with sharpened points 55. Mounted on the side members of the frame, back of the pins 54, and above the ears 53, are hooks 56, the pins and hooks being adapted for holding the mouth of the sack open in position for receiving potatoes from the conveyer. Hinged to one side of the frame is a board 57 having pins 58 extending forwardly from the front edge thereof and adapted for catching brush, or the like, which may be delivered from the conveyer, so as to prevent the entrance thereof into the open mouth of a sack. A seat 59 is mounted on the rear of the frame and adapted for carrying an operator in a convenient position for handling the sacks and manipulating the board 57.

The sleeve 15 which is revolubly mounted on the main wheel shaft has a clutch head 60 adapted for engagement by a head 61 which is splined on the shaft and adapted for actuation by a lever 62, so that the sleeve may be operatively connected with, or disconnected from, the shaft when the conveyer is to be used or is to be rendered idle.

In order to more thoroughly separate dirt from the potatoes, I provide a beater 63, comprising a bar which is revolubly mounted on a shaft 64 carried by the conveyer guards 5 between the upper and lower paths of the conveyer, and provided with lips 66 which are adapted for engagement with the conveyer on its upward travel to beat against the under face thereof, in order to jar the potatoes during their travel and separate the dirt therefrom, so that the dirt may fall through the conveyer onto the ground before the potatoes reach the sacking position.

When the apparatus is constructed and assembled as described, and provided with suitable motive power, it may be drawn through a field so that the carrying wheels will travel at opposite sides of a row of potatoes with the brush cutter traveling low over the potato hills.

It is apparent that when the apparatus is in motion the knife 46 will cut the tops from the potato vines and throw same to the side of the row and that when the shovel is at proper elevation it will be drawn through the relatively loose dirt in the hills and gather the potatoes with their roots, part of the dirt from the hills and parts of the

stalks between the shovel boards, where they are forwarded up over the rake 25 onto the conveyer.

When the potatoes, with the dirt and stalks, reach the conveyer and are carried upwardly thereby, the relatively rough travel of the vehicle, aided by the beater 63, will jar the potatoes so that they separate from the dirt and roots and by the time they reach the end of the conveyer they are relatively clean and will pass between the pins 58 into the open mouth of a sack which is supported on the board 50 and held in open position by the pins 54 and hooks 56, the vine stalks, or any other brush or trash which has been carried up with the potatoes being caught on top of the pins and on the board instead of entering the sacks with the potatoes.

When a sack has been filled the operator lifts the board to throw the trash to the side of the frame and expose the sack, which may be unhooked from the frame, tied and allowed to slide down the inclined board to leave the machine and expose the succeeding sack.

In practice I propose to carry a number of sacks at the upper end of the board with their lower portions hooked on the pins 54, so that when a full sack is released a succeeding sack may be unfolded and secured to the hooks 56 without loss of time, so that potatoes from the continuously moving conveyer will not be lost.

It will be seen that the running gear used with the digger is the same as that of an ordinary cultivator, so that, when desired, the digger may be removed and a cultivator applied thereto, although such use has not been illustrated in the drawings.

Having thus described my invention, what I claim as new therein and desire to secure by Letters-Patent is:—

1. In a device of the character described, the combination with a vertical frame comprising spaced side members, of running gear comprising an axle, spaced conveyer guards pivotally mounted on the axle,

sprocket wheels fixed on the axle, idle rollers mounted on the frame and conveyer guards, at opposite ends of said guards, a conveyer mounted on the rollers in operative relation to the sprocket wheels, and a spacing roller engaged by the conveyer and having a shaft extending through said guard members and engaged by the conveyer.

2. In a device of the character described, the combination with spaced frame members and an axle, of spaced conveyer guards pivotally mounted on the axle, a roller mounted on the frame members at one end of the guards, a roller mounted on the opposite ends of said guards, a conveyer running over said rollers, driving sprocket wheels on said axle in operative engagement with the conveyer, and a spacing roller between said guards having a shaft mounted in said frame above the axle, for the purpose set forth.

3. In a device of the character described, the combination with an axle and ground wheels, a frame mounted on said axle, a shaft mounted in said frame and having idle sprocket wheels, a second shaft mounted in said frame above said axle and having a spacing roller, of spaced conveyer guards pivotally mounted on said axle lying on each side of said spacing roller, and having arcuate slots at one end for receiving said first shaft and side apertures to permit of movement with respect to said second shaft, an idle shaft extending between the opposite ends of said guard members, sprocket wheels on said shaft, sprocket wheels rigidly mounted on said axle, and a conveyer belt adapted for travel over the sprocket wheels at each end of the conveyer guards, over the spacing roller and said axle sprocket wheels, for the purpose set forth.

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

JOHN A. GILLIAM.

Witnesses:

B. W. WITHERSPOON,
S. K. SMITH.