(No Model.) 2 Sheets—Sheet 1.

M. M. RANNEY.

MACHINE FOR DIGGING CELERY.

No. 481,819. Patented Aug. 30, 1892.

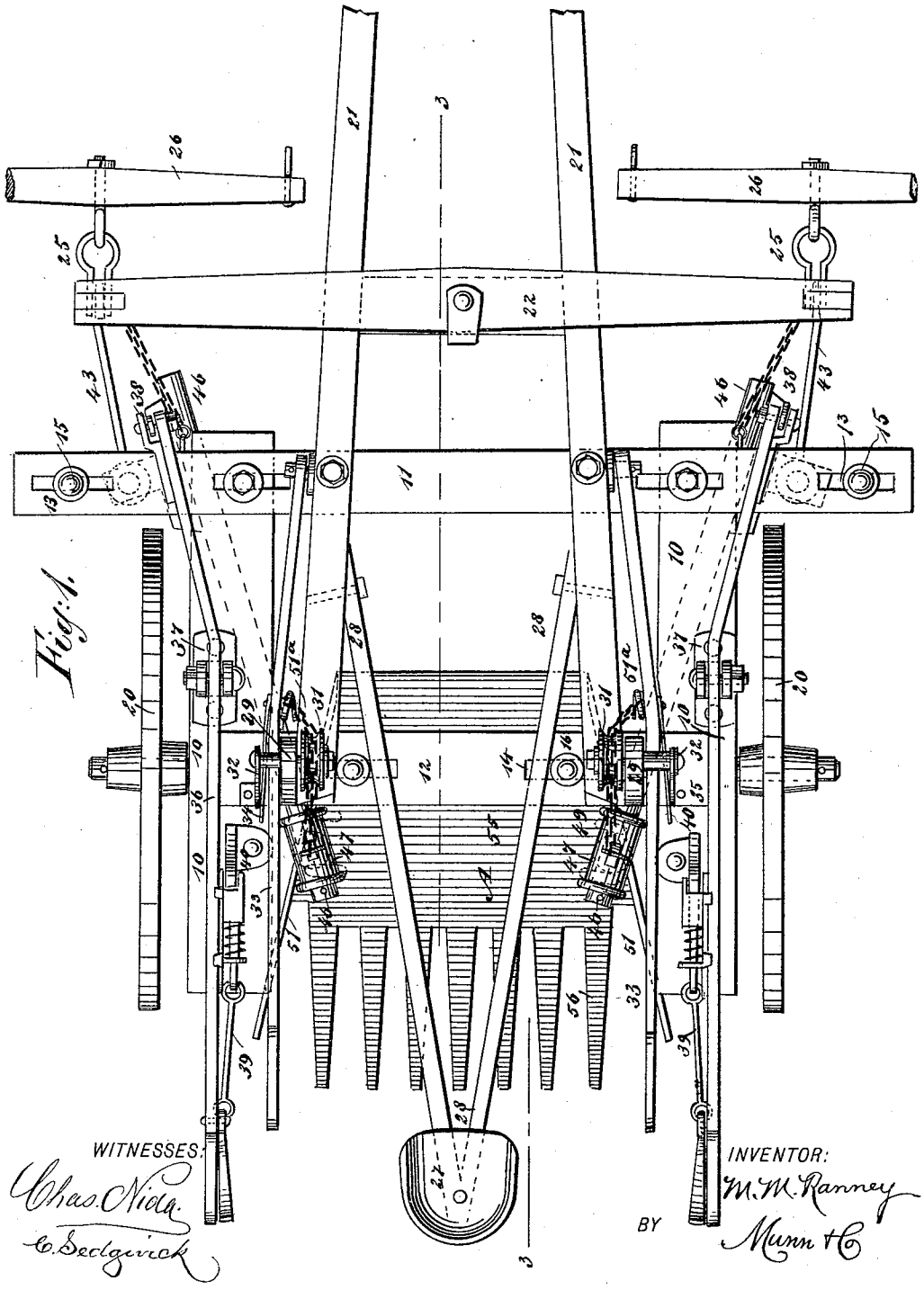

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig: 2.

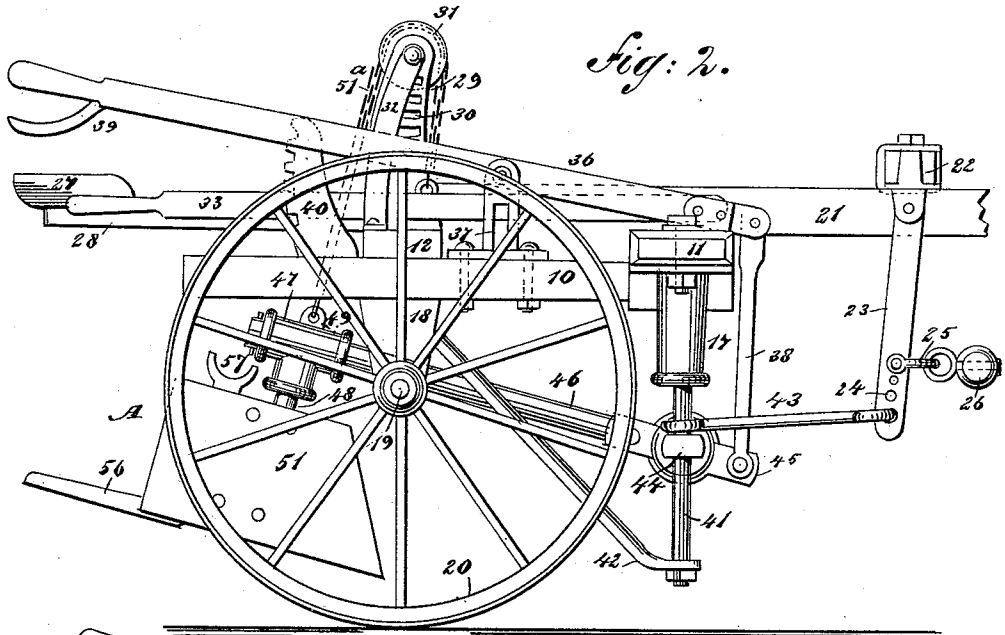
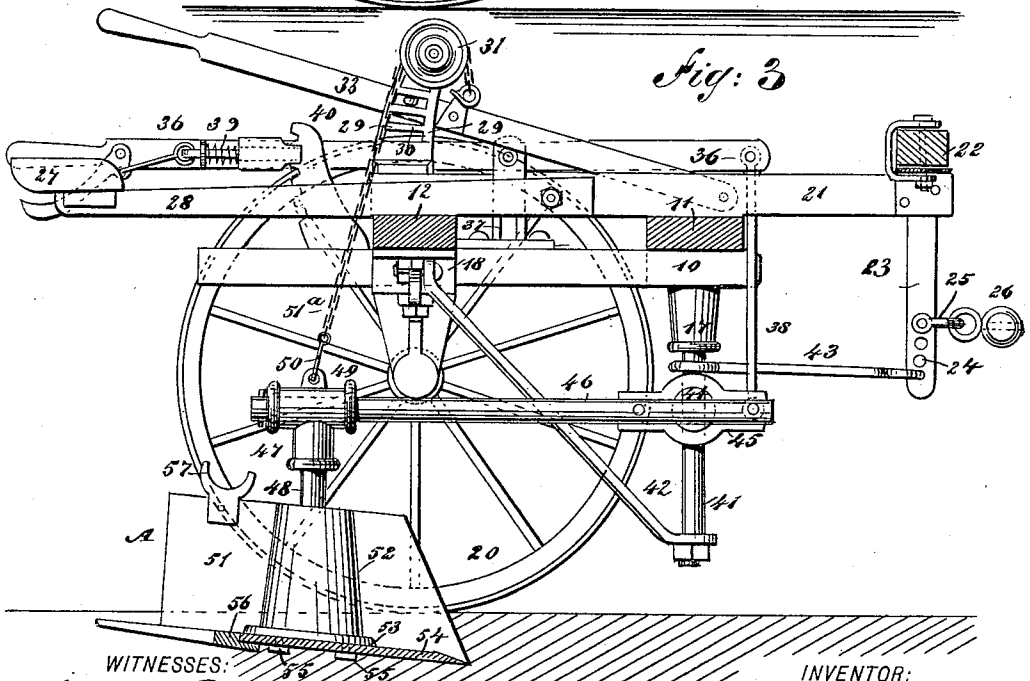


Fig: 3



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UNITED STATES PATENT OFFICE.

MAURICE M. RANNEY, OF COMSTOCK, MICHIGAN.

MACHINE FOR DIGGING CELERY.

SPECIFICATION forming part of Letters Patent No. 481,819, dated August 30, 1892.

Application filed March 2, 1892. Serial No. 423,499. (No model.)

To all whom it may concern:

Be it known that I, MAURICE M. RANNEY, of Comstock, in the county of Kalamazoo and State of Michigan, have invented a new and Improved Machine for Digging Celery, of which the following is a full, clear, and exact description.

My invention relates to a machine for digging celery, and has for its object to provide a machine of simple and economic construction, the shovel whereof is capable of being given any desired draft and lowered to any depth for cutting the roots.

Another object of the invention is to so construct the shovel that the sides or mold-boards may be adjusted upon the bottom to take any thickness of dirt required from the sides of the celery being dug.

It is another object of the invention to improve upon the construction of the celery-hiller for which Letters Patent were issued to me May 20, 1890, No. 428,352, providing a means whereby the mold-boards in the hiller may be removed and a shovel for digging purposes be substituted therefor.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the implement. Fig. 2 is a side elevation, and Fig. 3 is a central longitudinal section taken practically on the line 3 3 of Fig. 1.

The body of the implement shown in the drawings and to be hereinafter described and the arrangement of the levers whereby the digging-shovel is raised and lowered are similar in all respects to the construction shown in the patent for a machine for hilling celery granted to me May 20, 1890, No. 428,352, and therefore the description of these portions of the implement will be brief and will be stated prior to describing the construction of the shovel and the manner in which it is manipulated.

The frame of the implement consists of two parallel side beams 10, adjustably connected by a forward cross-bar 11, and a second cross-bar 12, located near the center of the side beams. The front cross-bar extends some distance beyond the outer edges of the side beams, and both the cross-bars are adjustable upon the side beams through the medium of slots 13, produced in the front cross-bar, and similar slots 14 in the intermediate cross-bar, and bolts (designated, respectively, as 15 and 16) passed through the front and the intermediate cross-bars and through brackets 17 and pedestals 18, the brackets being attached to the forward ends of the side beams and extending out beyond said side beams to a bearing against the under extending portions of the front cross-bar. The pedestals 18 are likewise secured to the under faces of the side beams 10, and the upper portions of the pedestals are preferably carried upward so that they engage with the inner faces of the side beams and the under face of the intermediate cross-bar. Thus the set screws or bolts 15 of the front cross-bar pass down into the brackets 17, while the set screws or bolts 16 of the intermediate cross-bar enter the upper portions of the pedestals. The adjustment of the frame is made in order that the implement may be accommodated to different widths of rows.

Each pedestal 18 is provided with a spud-axle 19, upon which the supporting-wheels 20 are loosely mounted, and the tongue 21, which in practice is practically V-shaped, is secured at its inner end, which is its wider end, to both of the cross-bars 11 and 12.

An evener 22 is pivoted upon a plate attached to the members of the tongue in front of the forward cross-bar, and this evener is provided at its extremities with pivotally-attached downwardly-extending links 23, provided at their lower ends with apertures 24, in order that through the medium of clevises 25 the singletrees 26 may be adjustably secured to the links.

The seat 27 is supported by the outer contracted end of a V-brace 28, the said brace being attached at its inner ends to the tongue over the main frame of the implement.

Posts 29 are secured upon the intermediate cross-bar, one near each end thereof. These posts are somewhat segmental in construction and are provided with a series of open-

ings 30, produced transversely therein. Each post at its upper end upon its inner side is provided with a pulley 31 and an extension at said end beyond its outer side, and to said extensions of the posts the upper ends of guide-bars 32 are secured, the lower ends of said bars being attached to the intermediate cross-bar, as shown in Fig. 2. Thus a space is created between the guide-bars 32 and the posts 29, and through these spaces levers 33 are carried, the levers being pivoted at their inner ends, preferably to the outer faces of the members of the tongue just above the forward cross-bar, and the handle ends of the levers terminate a convenient distance from the driver's seat. The levers 33 are kept braced against the slotted or apertured sides of the posts through the medium of springs 34, and upon the faces of the levers opposite the slotted portions of the posts projections are formed, adapted to enter the slots 30. Thus when the levers are pressed outward away from the posts against the tension of the springs 34 the studs upon the levers are carried out of the slots 30 in the posts in which they may have been entered and the levers may be readily moved up or down, and when the levers are released the springs force them immediately in engagement with the slotted faces of the posts and cause the studs to enter the most convenient slot. A second set of levers—two in number and designated as 35 and 36—is also employed. These levers are fulcrumed at or near their centers upon standards 37, extending upward from the side beams 10 of the frame. The forward ends of the levers 35 and 36 extend beyond the front edge of the front cross-bar 11, and the said levers are pivotally and adjustably attached at their forward ends to links 38, as shown in Fig. 2, adapted to extend vertically downward, for a purpose to be hereinafter set forth. The handles of the levers 35 and 36 are at their rear ends and may be reached conveniently by the driver, and at their handle ends these levers are provided with thumb-latches 39, of any approved construction, adapted for engagement with racks 40.

From each forward bracket 17 a standard 41 is downwardly projected, and these standards are supported by braces 42, secured to their lower ends and also to the pedestals 18 of the frame. The links 23 of the evener 22 are likewise connected with the standards 41 by means of rods 43 or their equivalents, so that the links 23 may be held in more or less of a vertical position.

As far as has been described, the implement is the same as that referred to as having been patented to me. The improvements consist in the following additions: Upon the standards 41 bolts 44 are located, capable of vertical movement upon said standards, and upon the inner ends of the bolts bearing-blocks 45 are pivotally secured—that is to say, the bearing-blocks are capable of revolving around the bolts, and each bearing-block is connected at its outer end with one of the links 38, attached to the forward ends of the levers 35 and 36, as shown in Figs. 2 and 3. Upon the inner face of each bearing-block the forward end of a rod 46 is rigidly secured. These rods are located somewhat horizontally, extend rearward, and converge more or less at their rear ends, and upon the rear extremities of the rods 46 couplings 47 are secured, usually somewhat T-shaped in general contour, their lower or shank portions terminating in posts or pins 48, and upon the upper surface of each coupling an eye 49 or the equivalent thereof is formed, adapted to receive hooks 50, connected with chains 51^a, which chains are carried upward over the pulleys 31, carried by the posts 29, and said chains are secured in any suitable or approved manner to the levers 33 forward of the posts, as is best shown in Figs. 1, 2, and 3. Thus by the manipulation of the levers 33 the rods 46 at their rear ends may be raised or lowered, and the forward ends of the rods may likewise be raised or lowered independently of their rear ends through the medium of the levers 35 and 36 and their link connection with the bearing-blocks 45.

The rear ends of the rods 46 are adapted as supports for a shovel A, by means of which the celery is to be dug. This shovel consists of two side pieces or mold-boards 51, the forward ends of which are beveled downward and are sharpened, forming cutting-edges. These mold-boards are so located that they converge at their forward ends and diverge at their rear ends, and each mold-board upon its its inner face has attached thereto a block 52, which extends practically from the top of the mold-board to the bottom, and each block at its lower end is provided with a horizontal flange 53, the flanges of the blocks extending in direction of each other, and in the upper portions of these blocks 52 sockets are formed for the reception of the pin or post sections of the couplings 47 of the rods 46, the attachment being effected in any suitable or approved manner. Thus the rods 46 are made to support the mold-boards.

In addition to the mold-boards 51, the shovel consists of its main or bottom section 54. This section consists of a plate the forward edge of which is a cutting-edge, and the plate extends from the forward edge of the mold-board back of the flanges of the mold-board blocks 52. The said plate is adjustably attached to said blocks by producing slots in the plate and passing bolts 55 through the slots up into the flanges of the block. This adjustment is provided for in order that the mold-boards may be carried far apart or may be brought close together to regulate the amount of earth that shall be taken up with the celery-roots.

The bottom of the shovel, in addition to the plate 54, consists of a series of fingers 56, attached to or constituting an integral portion

of the rear edge of the plate and extending, preferably, beyond the rear edges of the mold-boards. The mold-boards are usually provided with attached stirrups 57 to receive the feet of the occupant of the seat, so that said occupant can keep the shovel down to the cutting position.

It is evident that by the adjustment of the supporting-rods 46 of the shovel at their forward ends any desired draft may be given to the shovel, and that the depth at which the shovel shall travel is readily controlled by the manipulation of the levers 33, connected with the rear ends of the supporting-bars.

It will be readily observed that the implement above described may be used for hilling purposes as well as for digging, and when used in the former capacity it will be simply necessary to remove the shovel, the rods 46, and blocks 45 and connect with the levers and the standards 41 mold-boards suitably shaped for throwing the earth inward.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a machine for digging celery, a shovel comprising mold-boards having socket-blocks on their inner surfaces, said blocks being provided with flanges at their lower ends, and a bottom plate having a cutting-edge and adjustably secured to the flanges of the said blocks, substantially as described.

2. In a machine for digging celery, a shovel consisting of mold-boards having socket-blocks on their inner surfaces, said blocks having flanges at their lower ends, a slotted bottom plate having its front end sharpened to form a cutting-edge and provided with teeth projecting from the rear edge, and bolts passed through the slots of the bottom plate into the flanges of the said blocks, substantially as described.

3. In an implement for digging celery, the combination, with a wheeled frame, standards projected down from the forward portion of the frame, rods capable of sliding and turning upon the standards at their forward ends, levers connected with the forward ends of the rods, and levers connected with the rear ends of the rods, of a shovel connected with the rear portions of the rods, the said shovel being given its draft by the manipulation of the rods at their forward ends and regulated as to depth by the manipulation of the rods at their rear ends, substantially as and for the purpose set forth.

4. In an implement for digging celery, the combination, with a frame, standards projected downward from the forward portion of the frame, bearing-blocks capable of sliding upon and turning on the standards, and rods connected at their forward ends to the bearing-blocks, being carried in converging directions rearward, of levers connected with the bearing-blocks, whereby they may be raised and lowered, a second set of levers connected with the rear ends of the rods attached to the bearing-blocks, and a shovel removably attached to the rear ends of the rods, said shovel comprising a bottom plate, and mold-boards located at the side edges of the plate and laterally adjustable thereon, substantially as and for the purpose set forth.

MAURICE M. RANNEY.

Witnesses:
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O. B. RANNEY.