

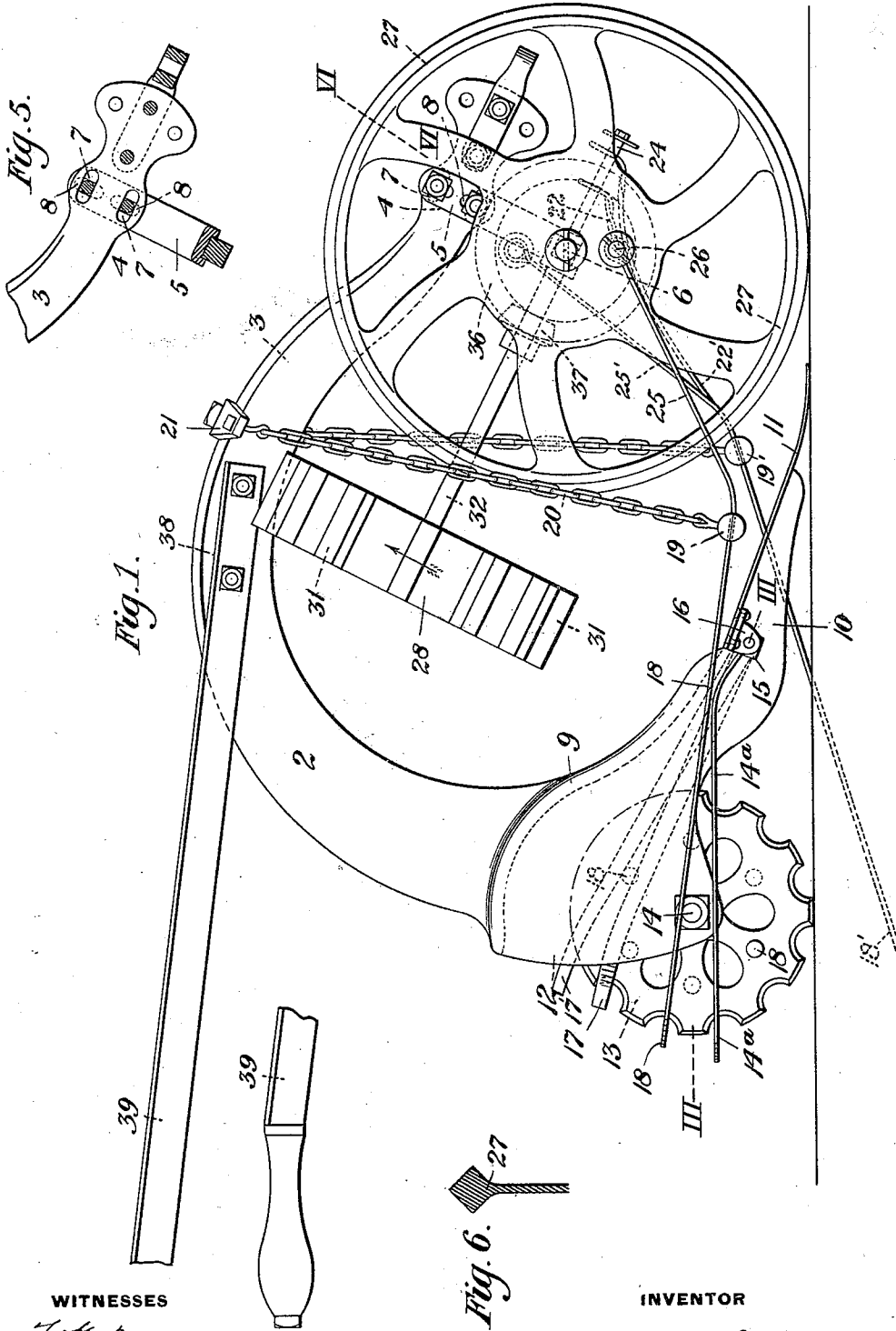
(No Model.)

3 Sheets—Sheet 1.

G. WRAGG.
POTATO DIGGING MACHINE.

No. 508,460.

Patented Nov. 14, 1893.



WITNESSES

F. H. Melmer
C. M. Clarke

INVENTOR

George Wragg

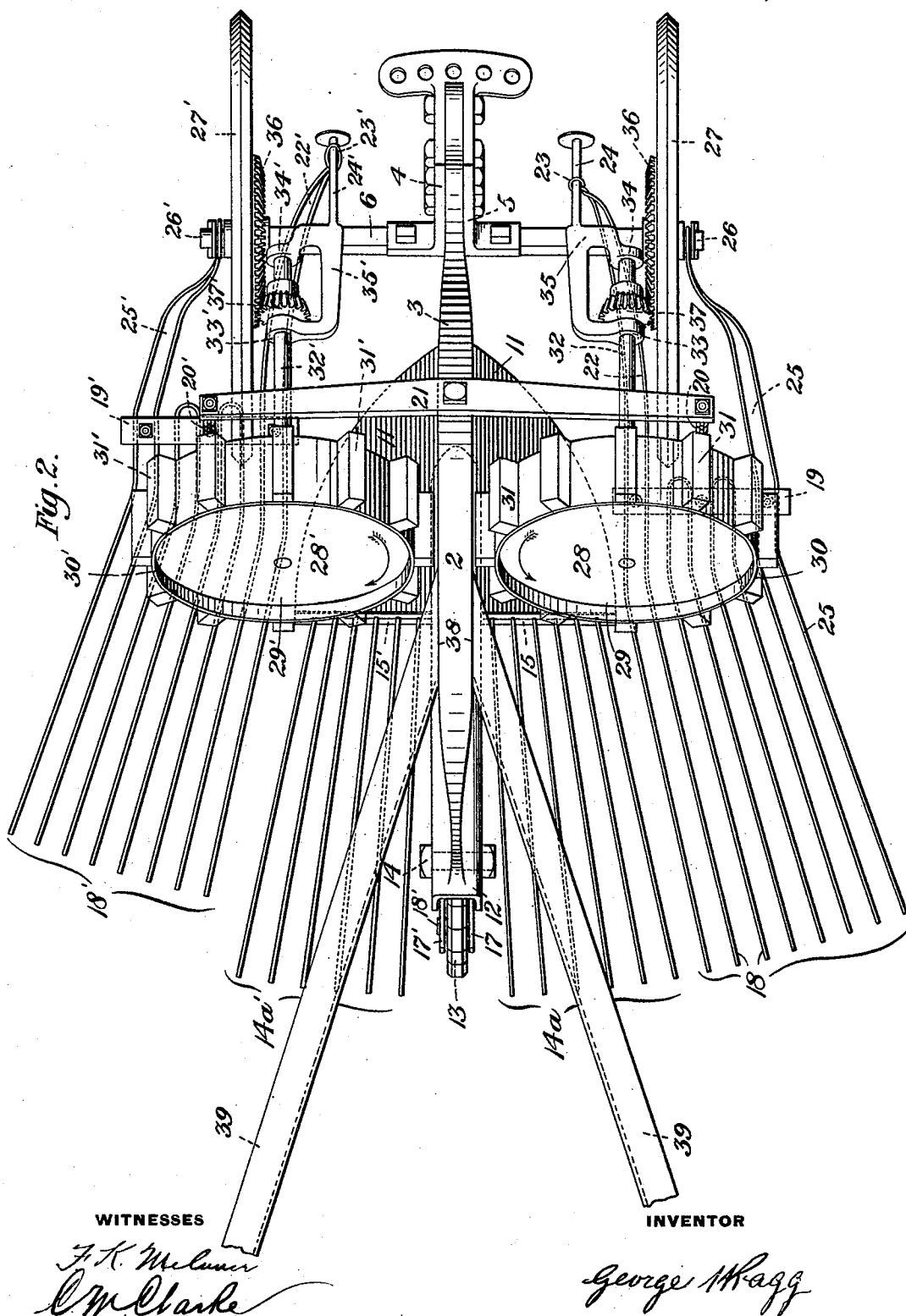
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Fig. 3.

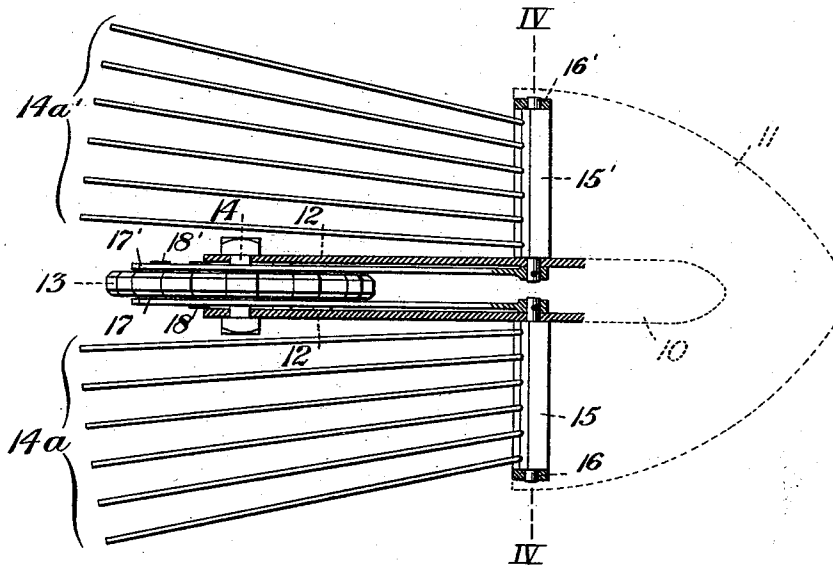
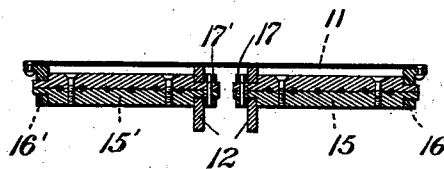


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE WRAGG, OF SHARPSBURG, PENNSYLVANIA.

POTATO-DIGGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 508,460, dated November 14, 1893.

Application filed April 8, 1893. Serial No. 469,526. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WRAGG, a citizen of the United States, residing at Sharpsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a new and useful Improvement in Potato-Digging Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1. is a view in side elevation of my improved machine. Fig. 2. is a plan view thereof. Fig. 3. is a horizontal sectional view on the line III III of Fig. 1. Fig. 4. is a vertical sectional view on the line IV IV of Fig. 3. Fig. 5. is a detail view of the adjustable connection between the axle and frame. Fig. 6. is a cross section of the wheel rim on line VI VI of Fig. 1.

Like numerals of reference refer to like parts throughout this specification.

My invention consists of an improved machine for digging potatoes, and it has for its object the accomplishment of such work in a more thorough, rapid and efficient manner than has been secured by the machines heretofore used for this purpose. It consists, broadly, in the several means hereinafter described, whose separate functions are performed for the purpose of throwing up the potatoes from the furrow, and then separating from them the earth and distributing them in an uninjured condition on the surface of the ground; together with the mechanism for removing the potato tops and weeds, and the means whereby these various parts are operated. In previous issues of Letters Patent of the United States to me granted May 19, 1885, No. 318,073, and October 25, 1887, No. 372,006, I have described and claimed machines for doing such work, but my present invention possesses many advantages not therein shown or claimed, and I desire to protect such in my present application.

In the drawings, 2 is the main frame of the machine, having a forwardly extending center portion 3 adjustably secured at 4 to the upright bracket 5, rigidly bolted to the square axle 6. By means of the longitudinal slots 7 in the frame 3 and the vertical slots 8 in the upright bracket 5, it will be seen that the an-

gle between these parts may be varied at will, resulting in a different relative position of the parts secured to the frame or body portion 2 and those carried by the axle 6. Thus it will be seen that the plow-share may be raised or lowered at will, and its relation to the forward part of the machine changed; as, when in use, it is lowered below the surface of the ground sufficiently to throw up the potatoes without cutting them, and when not in use, may be raised so as to clear the surface. The position of the wheels for removing the tops may be controlled in a like manner.

The forward end of the frame 3 is provided with the usual clevis for the attachment of single or double-trees. The frame 2 has a downwardly projecting body portion 9 provided with an under forward extension 10 to which is bolted the plow-share 11 of ordinary construction. In the back, and forming a part of the portion 9, the frame terminates in the two-sided box 12, embracing the traction wheel 13 which has its bearings on the bolt 14, passing from side to side of the box 12. The sifting rods 14^a project rearwardly from and are rigidly secured to the bar 15 pivotally secured at the outer end to the bearings 16, attached to the lower edge of the plow-share 11, and at their inner ends having a bearing in the frame of each side of the box 12. Keyed, or otherwise secured to the inner end of the bars 15, are the arms 17, extending back within the cavity of the box 12 and resting on the studs or pins 18, projecting from the sides of the traction wheel 13. I have shown three of these pins on each side and they are preferably arranged intermittently, for, as it will be seen that by its rotary motion the wheel will impart a reciprocating motion to the arms 17, causing them to rise and fall with a jarring action, such motion will be more uniform, and the energy of the wheel 13 more evenly distributed by such arrangement. It is obvious that the reciprocating motion of the arms 17 will be imparted to the bars 15, and through them to the sifting rods 14, giving the action desired.

As shown in the drawings, the periphery of the wheel 13 is provided with projections, thus insuring a more perfect traction on the ground. Secondary sets of sifting rods 18 are

located at either side of the rods 14, and are for the further sifting of the earth after being thrown up from the furrow. The rods are composed of a series of pairs, clamped between the upper and lower halves of a bar 19, provided with grooves cut in their inner faces, which receive and firmly embrace the rods, which being formed of double lengths, bent into U-shape, are thereby much stiffer and stronger than single rods. The bar 19 is supported by a chain 20, depending from a projecting cross bar 21 secured to the main frame as shown. The inner pair, 22, of the sifting rods 18, are carried forward and formed into an oblong eye, 23, which has a bearing and is designed to slide on the forwardly projecting pin 24, formed integral with the shaft bearing 35 hereinafter referred to. The outer pair 25 of the sifting rods 18, are likewise carried forward and terminate in an eye which embraces the crank pin 26, secured to the wheel 27, so that by the rotation of the wheel 27, due to the forward travel of the machine, a rotary motion will be given to the forward extending ends of the sifting rods 25, and by reason of the interposition of the bar 19, supported by the chain 20, this motion will be converted into an undulatory one, causing the rear ends of the rods 18 to describe an ellipse, and giving a very perfect sifting action. The extended rods 22, riding forward and back on the pins 24, will to some extent control the action of the rods 18, and their flexibility will permit them to bend without interfering with their action.

The wheels 27 are located at the extremity of the axle 6, and serve to sustain the weight of the forward part of the machine. As shown in Fig. 6 the rims are square in cross section, presenting a wedge face above and below, thereby allowing the wheel to have a much freer and cleaner action when passing through soft earth, as it will be seen that the tendency of earth to attach itself to a wheel of this form is thereby reduced to a minimum.

I will now describe my device for removing the plant tops and weeds, which I consider an important feature of my invention. 28, 28' are wheels, which for the purpose of lightness, are constructed of a wood center 29, surrounded by a band of sheet metal 30, and having secured to their periphery blocks 31, square in cross section as shown, and extending across the face. These wheels are secured to the ends of, and are supported by the short shafts 32, which have bearings at 33 and 34 in the casting 35. The wheels 28 rotate, when the machine is in action, in the direction of the arrow by reason of the bevel wheel 36 cast integral with the wheels 27, meshing into the bevel wheel 37, keyed to the shaft 32. Attached to the main frame at 38 are the handle bars 39 of the usual construction.

As the parts of each side of my machine are the same, I have indicated such parts as are in duplicate by the prime mark attached to the numerals of reference on the drawings.

The operation of the machine is as follows: While in action, the plow-share, which should be set sufficiently deep to prevent the possibility of cutting the potatoes, throws them up and onto the sifting bars, which, by reason of their flexibility and action already described will thoroughly detach any earth left clinging to them, and they will be delivered in a clean and uninjured condition on the surface of the ground, ready to be gathered up. The action of the wheels 28 which is quite rapid, owing to the relative proportions of the bevel gears employed, will throw aside the tops and weeds previous to the sifting operation, thereby leaving it free and unimpeded.

The advantages of my invention will be appreciated by those skilled in the art. It is capable of performing the work required in a much more thorough and efficient manner than machines of a like character heretofore used, and its capacity is much greater.

Having described my invention, what I desire to claim and secure by Letters Patent is—

1. A potato digging machine composed of a main frame or body portion provided with a plow share, the frame being rigidly secured to a forward carriage mounted on supporting wheels and furnished with harness attaching mechanism, and provided with a housing at the back carrying a traction wheel arranged in the manner and for the purpose described, the entire frame composing a rigid and inflexible structure, as set forth.

2. A potato digging machine composed of a main frame or body portion provided with a plow share attached to a lower forward extension thereof and having mounted in a housing in the back portion a traction wheel designed to impart motion to a series of sifting rods through intervening arms secured to the inner ends of shafts carrying said rods, substantially as set forth.

3. A potato digging machine composed of a main frame or body portion, provided with a plow-share and having mounted in its back portion a traction wheel designed to impart motion to a series of sifting rods; and secondary sets of sifting rods, located substantially on the same horizontal plane as the first but outside thereof, secured in a bar which is supported by a chain, depending from a cross arm attached to the main frame; one pair of which rods, on each side, extend forward and are secured to a crank-pin in the wheel of the forward carriage, substantially as shown and described.

4. In a potato digging machine composed of a main frame or body portion provided with a plow-share and automatically controlled sifting rods, and a forward carriage mounted on supporting wheels; an adjustable connection therewith consisting of an upwardly extending post secured to the axle of the carriage having slots at right angles to similar slots in the forward neck of the main

frame, through which pass bolts, by which the parts may be adjustably secured, substantially for the purpose described.

5 5. In a potato digging machine, a pair of wheels for removing tops and weeds, mounted on the ends of shafts carried in bearings secured to the carriage axle and rotated by bevel gears integral with or secured to the carriage wheels.

10 6. In a potato digging machine provided with a plow-share, a pair of wheels for removing tops or weeds, provided in their periphery with bars or strips; mounted on the ends of shafts revolving in opposite directions, having bearings secured to the axle and provided
15 with bevel wheels in mesh with similar wheels integral with or secured to the carriage wheels, substantially as shown and described.

7. In a potato digging machine composed

of a main frame or body portion provided 20 with a plow-share; and a forward carriage supported on wheels, a pair of wheels for removing tops or weeds, located above the plow-share, mounted on the ends of shafts carried in bearings secured to the axle, and designed 25 to be revolved in opposite directions by suitable gearing, said wheels being adjustable in their relation to the plow-share by means of an adjustable connection, between the main frame and the carriage, substantially as shown 30 and described.

In testimony whereof I have hereunto set my hand this 20th day of March, 1893.

GEORGE WRAGG.

Witnesses:

F. K. McCANCE,
C. M. CLARKE.