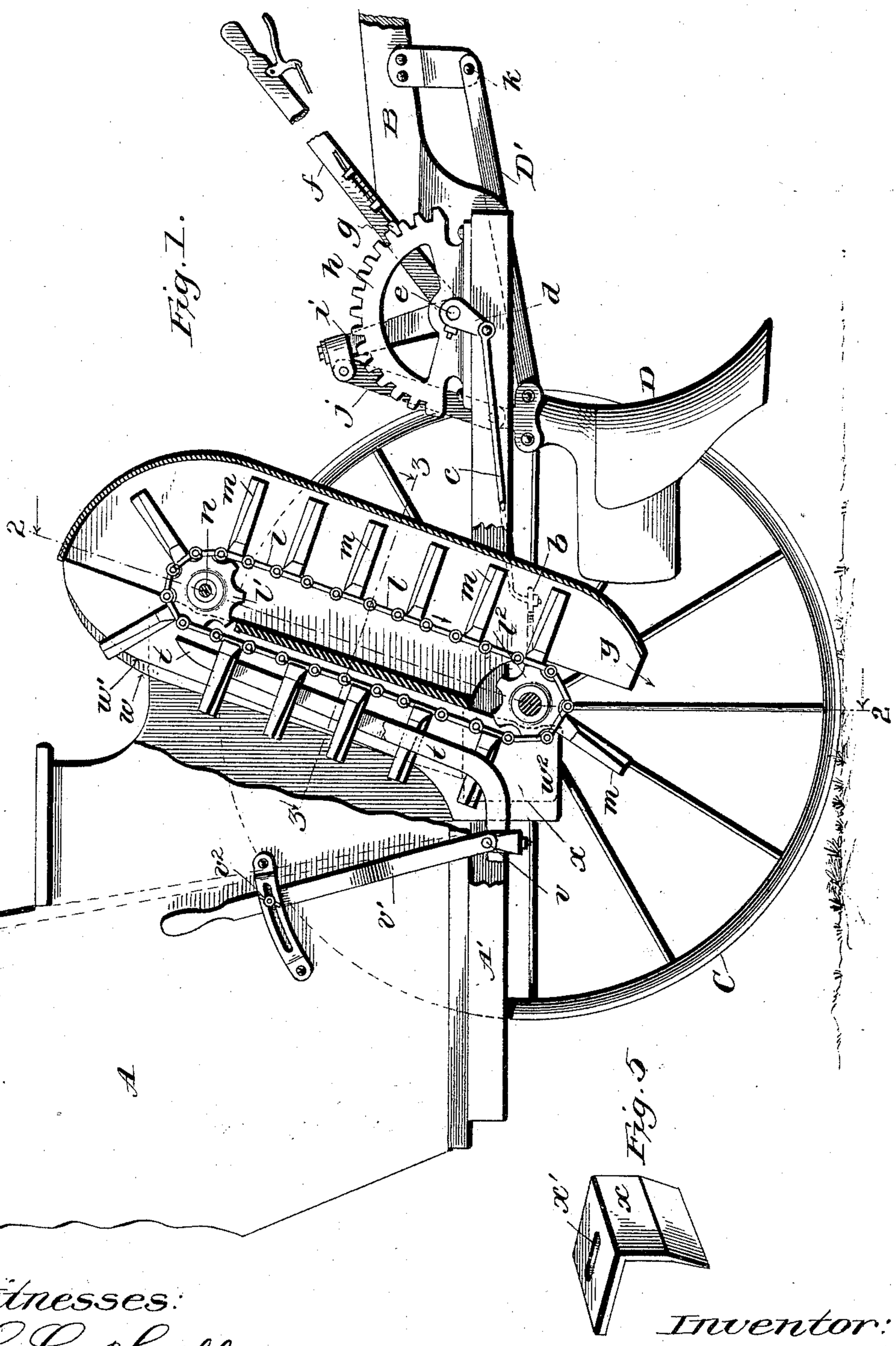
(No Model.) 3 Sheets—Sheet 1.

H. W. EISENHART.

POTATO PLANTER.

No. 540,157. Patented May 28, 1895.



Witnesses:
L. C. Hills.
J. B. Keefer

Inventor:
Henry W. Eisenhart,
by Marcellus Bailey
his Atty.

(No Model.) 3 Sheets—Sheet 2.

H. W. EISENHART.

POTATO PLANTER.

No. 540,157. Patented May 28, 1895.

Fig. 2.

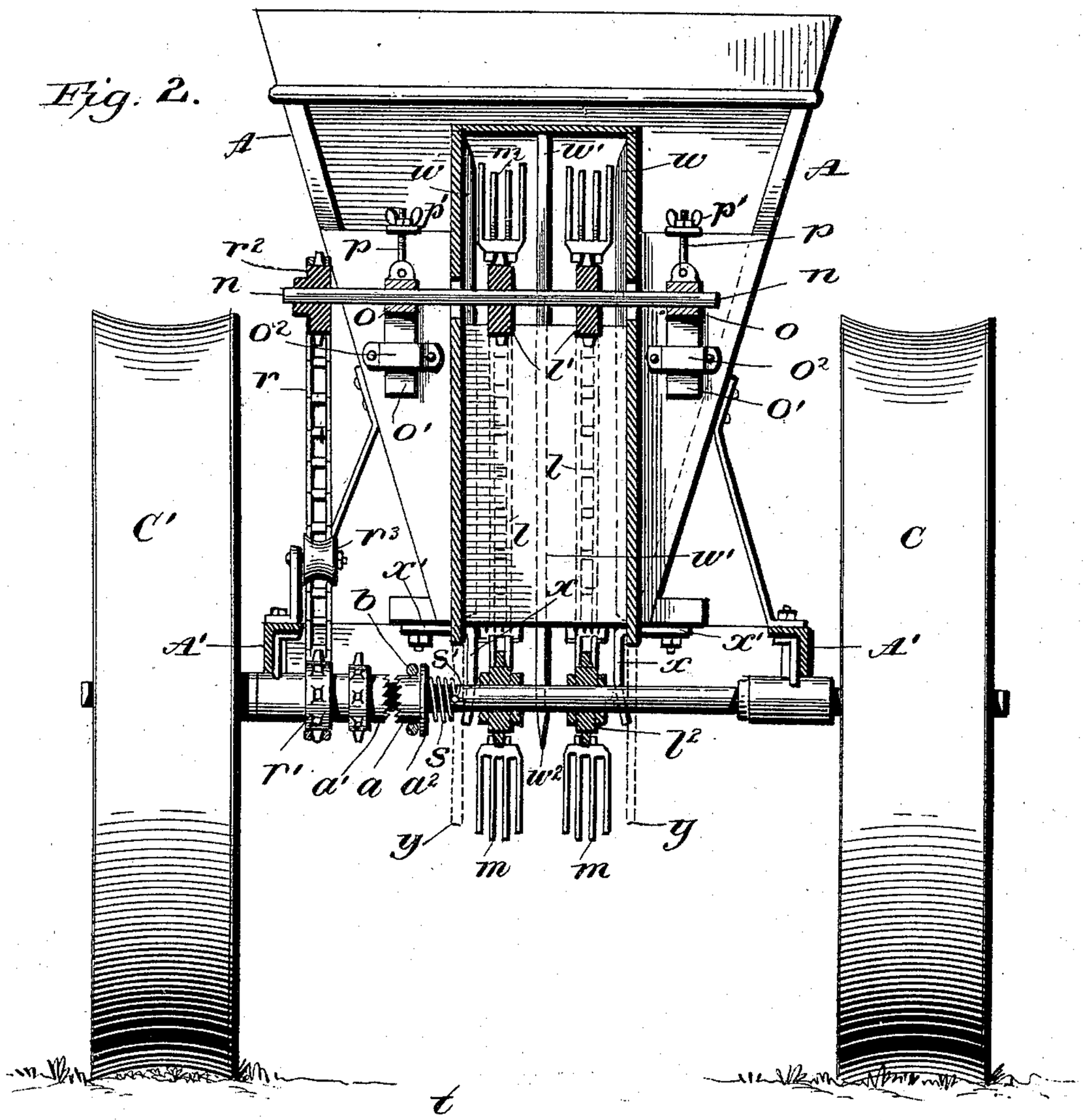
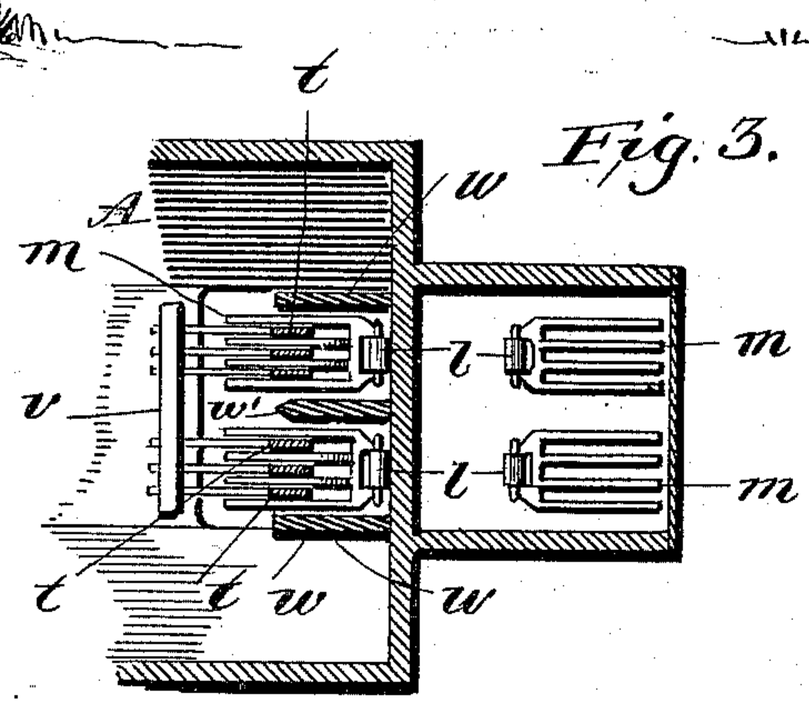


Fig. 3.



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(No Model.) 3 Sheets—Sheet 3.

H. W. EISENHART.

POTATO PLANTER.

No. 540,157. Patented May 28, 1895.

Fig. 4.

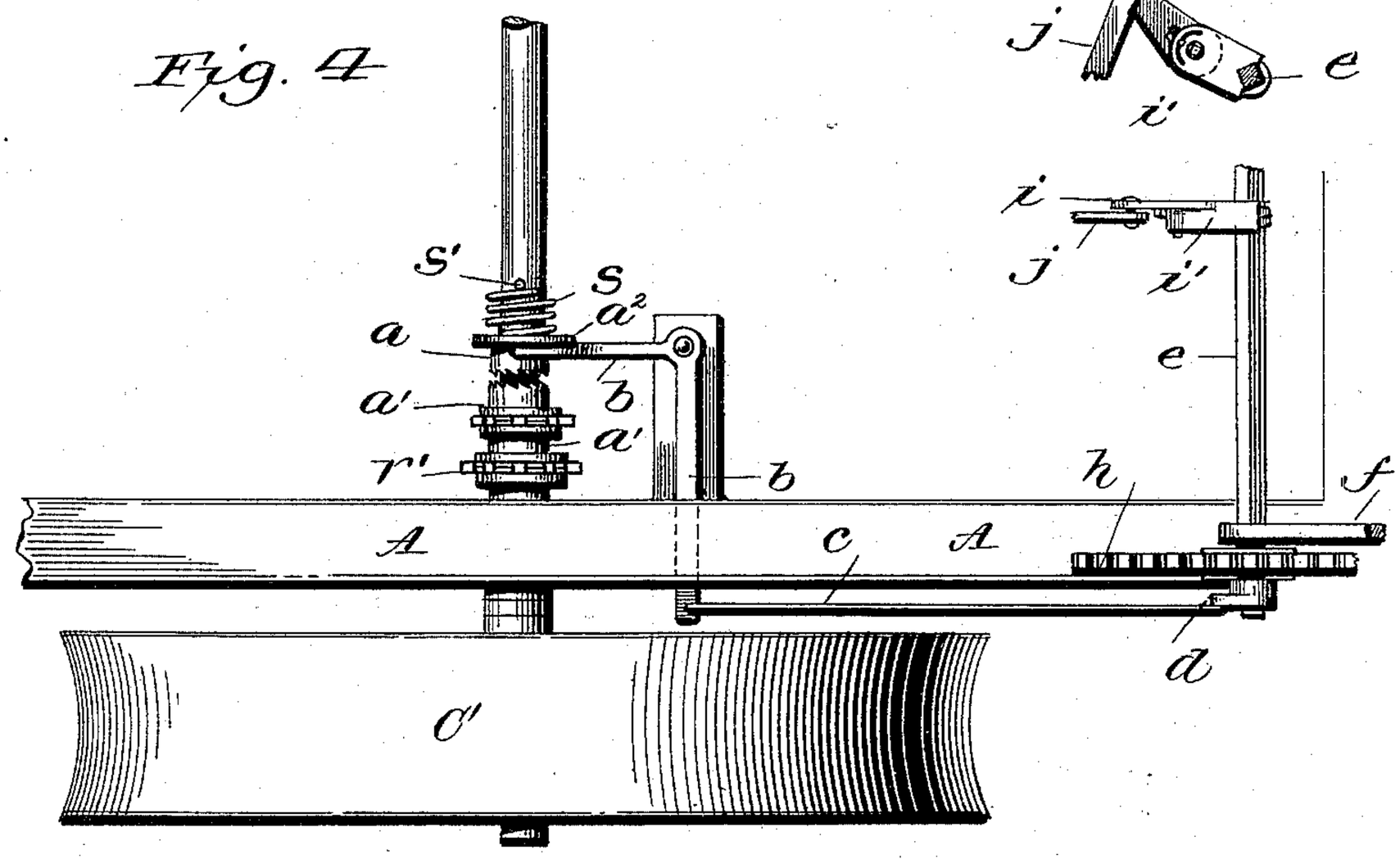


Fig. 6.

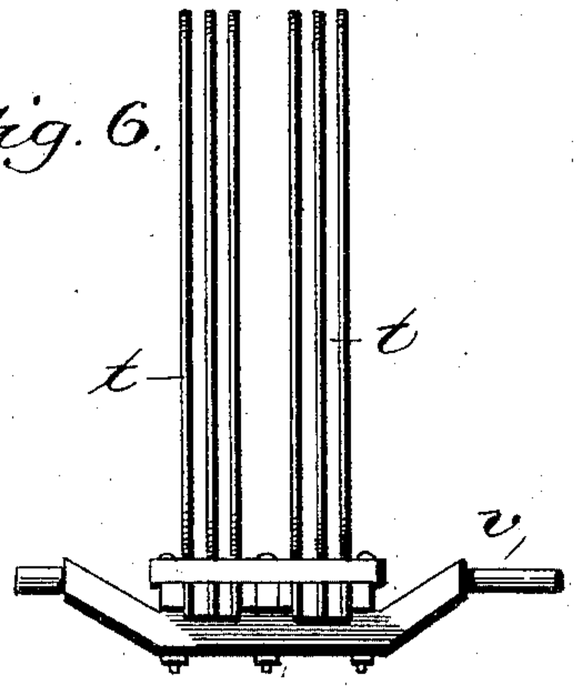


Fig. 7.

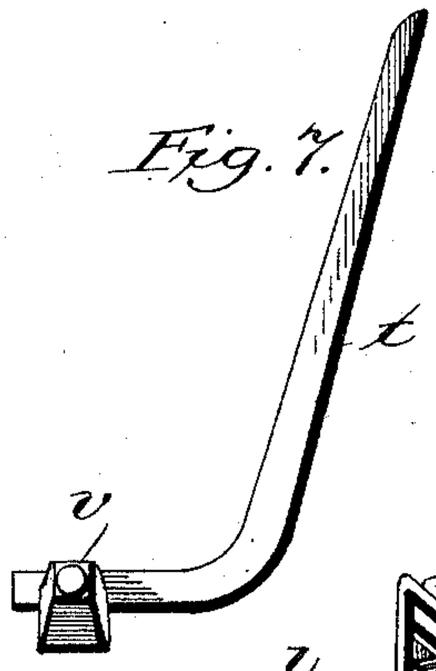
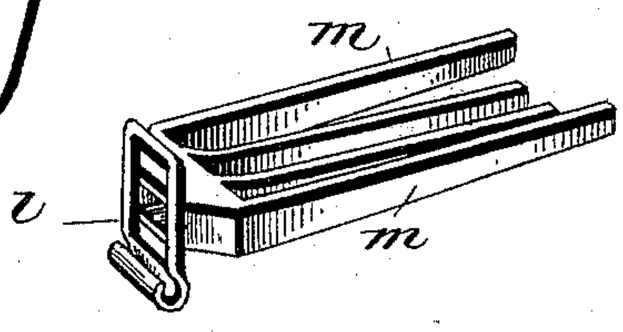


Fig. 8.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY W. EISENHART, OF YORK, PENNSYLVANIA, ASSIGNOR TO THE A. B. FARQUHAR COMPANY, LIMITED, OF SAME PLACE.

POTATO-PLANTER.

SPECIFICATION forming part of Letters Patent No. 540,157, dated May 28, 1895.

Application filed March 5, 1895. Serial No. 540,576. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. EISENHART, a citizen of the United States, and a resident of the city and county of York, in the State of Pennsylvania, have invented certain new and useful Improvements in Potato-Planters, of which the following is a specification.

My invention has to do mainly with the devices for taking up the seed potatoes from the hopper and distributing them; and it also relates to the means whereby the parts are thrown into and out of connection with the driving axle.

I will first describe my improvements by reference to the drawings accompanying and forming part of this specification, and will then point out specifically in the claims those features in which I now believe my invention to be comprised.

In the accompanying drawings, Figure 1 is a sectional side elevation of so much of a potato-planter as needed for the purpose of explanation. Fig. 2 is a section, partly in elevation, on line 2 2, Fig. 1. Fig. 3 is a horizontal section through the lower part of the front portion of the hopper, omitting the lower sprocket-wheels for the feed-chains. Fig. 4 is a plan view illustrative of the connections between the clutch and the lever *f*, and at the right-hand upper corner of this figure is a side elevation of the spring-pressure arm for the hoe. Fig. 5 is a perspective view of one of the side guides below the bottom of the hopper. Fig. 6 is a rear elevation, and Fig. 7 is a side elevation, of the feed-regulating bars and their supporting rock-shaft or axle. Fig. 8 is a perspective view of one set of lifting-fingers.

The hopper A, its supporting frame A′ and draft tongue B and appliances are mounted on and carried by the axle on which are the two wheels C C′, the former fast, and the latter loose, on the axle. Loose on the axle is one member *a′* of a ratchet clutch. The other member *a* is splined on and revolves with the axle, and is movable to and from the loose member *a′*, being pressed toward and into engagement with the latter by a spiral spring *s* encircling the axle and confined between the sliding clutch member *a* on the one side and a fixed flange or abutment *s′* on the axle on the other side. The sliding member *a* has on it a collar a^2, against the outer face of which bears the forked end of an angle lever shipper *b*, which at its elbow is pivoted to a suitable part of the frame, and has its outer end connected, by a connecting rod *c*, to a crank *d* on the end of a cross-shaft *e*, supported in proper bearings in the front of the frame. Upon the shaft is fixed the lever *f*, provided with a spring pressed locking dog *g*, to engage the usual notched sector or quadrant *h* on the frame. Upon the shaft *e* at about its middle is fixed a crank or radial arm *i*, to the outer end of which is pinned one end of a connecting bar *j*, the other end of which is attached to the hoe or opener D—the latter being affixed to bars D′ which extend forward and diagonally upward and are joined to the under side of the tongue B by a horizontal hinge joint *k*. The arm *i* forms part of a spring pressure attachment *i′* which is fast on the shaft *e*, this spring pressure attachment being constructed substantially as set forth in Galloway's patent, No. 432,664, of July 22, 1890, or in my Patent No. 495,404, of April 11, 1893, whereby any desired spring pressure can be put upon the opener D by rotating the shaft *e* through the agency of the lever *f*. It is for this reason that the shipping lever *b* is arranged to actuate the clutch member *a* only in unlocking direction. By moving the main lever *f* in one direction, the clutch members will be disengaged and positively held apart, thus bringing the operating gearing to rest, while at the same time the opener D will be lifted clear of the ground. Movement of the main lever in the opposite direction will lower the opener D and will also permit the clutch member *a*, by its spring, to be pressed into engagement with the other clutch member *a′*; while at the same time the lever *f*, after the engagement of the two clutch members, will be entirely free to be moved farther in the same direction so as to put upon the lowered opener D, through the agency of the arm *i* and attachment *i′*, whatever spring pressure may be desired.

The device for lifting and distributing the potatoes consists of an endless chain or belt *l* armed at proper intervals apart with lifting fingers *m*. I have shown two such devices

placed side by side; and this is the preferred arrangement, although one, or more than two, of them can be employed if desired. The belt or chain consists of a sprocket chain, which has the lifting fingers rigidly secured to it, and which passes up on the inside and down upon the outside of the front wall of the hopper A (the bottom of which is open) passing over the top and under the bottom of this wall of the hopper. At the bottom the chain is mounted upon a sprocket wheel l^2 loose on the axle. At the top the chain passes around and engages a sprocket wheel l' fast on a cross shaft n mounted horizontally in bearings o, on the front of the hopper. These end bearings o have each a tongue o' below, which tongue passes through a guide o^2 on the hopper in which it can move up and down; and above, the bearing is engaged by the stem of an adjusting bolt p which passes through a bearing for it on the hopper and is provided with an adjusting nut p'. By means of these bolts the lifting chain or belt can be tightened as desired. The shaft n is the chain driving shaft and for this purpose is connected by gearing to the axle. The connection in the present instance is made by a sprocket chain r which passes below around a sprocket wheel r' affixed to the loose clutch member a' and above around a sprocket wheel r^2 on the outer end of shaft n. At a point intermediate of these sprocket wheels, is a tightening spool r^3 adjustable upon the frame for the purpose of taking up any slack in the chain r.

In the present arrangement there are four lifting fingers m in each set. They are placed at equal intervals apart and pass up between regulating bars or fingers t, by means of which the quantity or number of seeding potatoes or slices thereof taken up by each set of fingers can be determined to a nicety. These regulating bars or fingers are fixed by their lower ends upon a horizontal rock-shaft v placed upon and crosswise of the under side of the hopper, back of the opening in its bottom through which the lifting fingers pass. The lower ends of the bars extend forward horizontally, or nearly so, across the opening in the bottom of the hopper to near the front wall thereof, and at this point they have a bend so as to extend up substantially parallel with the line of movement of the acting face of the lifting chain, alternating with the lifting fingers. The rock shaft v is actuated by an adjusting lever v' fixed to it, and provided with suitable means for holding it in adjusted position—as for example by a clamping screw v^2 in a guide in which the lever is allowed the limited play which is sufficient for all purposes of adjustment. By rotating the shaft v the regulating fingers can be set so as to increase or diminish at pleasure the working length of the lifting fingers—or in other words the distance which those fingers can protrude into the hopper beyond the regulating bars—and thus to determine the feed. The lifting chain and fingers within the hopper move between side walls or partitions. In this instance, inasmuch as there are two sets of chains and fingers—side by side—there are three side walls or partitions w w, and w'—the middle one w' being common to the two sets. This partition w' extends down through and below the bottom opening in the hopper and has its lower end beveled to an edge as at w^2, to prevent the ascending lifting fingers from bringing up against it. This beveled portion of the central partition serves as a guide for the two chains in conjunction with the two flaring side guide pieces x placed on the exterior opposite side edges of opening in the bottom of the hopper, and adjustably held thereto by a slot and set screw arrangement x' which will permit them to be set at the proper distance from their respective chains. The partitions above and down upon the outside of the front wall of the hopper are continued in the form of a trunk or hood y which incloses the chains and fingers, and which is open at the bottom for the discharge of the potatoes. By this hood the potatoes are prevented from falling from the fingers until they get to the bottom of the hood, and their discharge is thus made certain and uniform.

The feeding mechanism thus organized and arranged is at once simple, compact and very efficient. It is most accurate in its action, durable, and not liable to get out of order.

Having described my improvements and the best way now known to me of carrying the same into effect, what I claim herein as new and of my own invention is as follows:

1. The combination with the driving axle, the potato feeding devices, the gearing for operating the same, the spring closed two part clutch for imparting movement to said gearing from said axle, and the hoe or opener, of the cross shaft e, the operating lever f, the crank d on said shaft connected by rod c to the clutch shipping lever whereby the said shipping lever is positively actuated from the operating lever f in unlocking direction only, and the spring pressure attachment i' mounted on shaft e and having its crank arm i connected to the hoe or opener as and for the purposes shown and described.

2. The combination, substantially as set forth, of a hopper having an open bottom; a feed chain or belt with lifting fingers attached passing up through the bottom and along the inside of the front wall of the hopper and down on the outside of said wall; wheels on which said chain is mounted and actuating gearing therefor; regulating fingers or bars extending up through the bottom of the hopper in substantial parallelism with the feed chain and alternating with, and arranged to enter the spaces between, the lifting fingers, a rock shaft on which said regulating bars are mounted and adjusting means connected to said rock shaft, substantially as and for the purposes hereinbefore set forth.

3. In combination with the open bottomed

hopper the feed chain and its attached lifting fingers, of the regulating bars extending horizontally or nearly so across the bottom of the hopper to near the feed chain, and at this point having a bend so as to extend up substantially parallel with the acting face of the feed chain alternating with and entering the spaces between the lifting fingers thereon, a rock shaft upon which said bars are mounted, and an operating lever therefor whereby said bars may be adjusted to increase or diminish at pleasure the working length of the lifting fingers, substantially as set forth.

4. In combination with the feed chain and lifting fingers carried by the same, and the regulating bars alternating with said fingers, the hopper provided with an opening in its bottom through which the chain and regulating bars pass up into the hopper, and downwardly projecting guides adjustably affixed to the under side of the hopper on each side of the bottom opening therein, substantially as and for the purposes hereinbefore set forth.

5. In combination, the hopper; the two feed chains and lifting fingers carried by the same placed side by side and passing up on the inside and down on the outside of the hopper; the chain supporting wheels and actuating gearing therefor; the partitions *w w'*; the adjustable side guides *x;* and the trunk or hood *y*—under the arrangement and for joint operation as hereinbefore set forth.

6. In combination with the feed chain and its attached lifting fingers and the open bottomed hopper, the regulating bars mounted upon a rock-shaft on the bottom of the hopper and provided with horizontal portions which extend as a grating across the open bottom of the hopper, and with upwardly bent portions which extend up along the acting face of the feed chain and in the spaces between the lifting fingers, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 28th day of February, 1895.

HENRY W. EISENHART.

Witnesses:
W. D. SOUDER,
J. H. STALLMAN.