

Benjamin Saunders
Improved
SEED PLANTER

PATENTED JUL 4 1871

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Fig. 1.

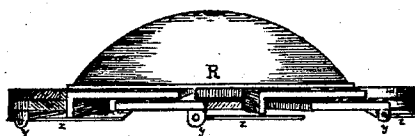
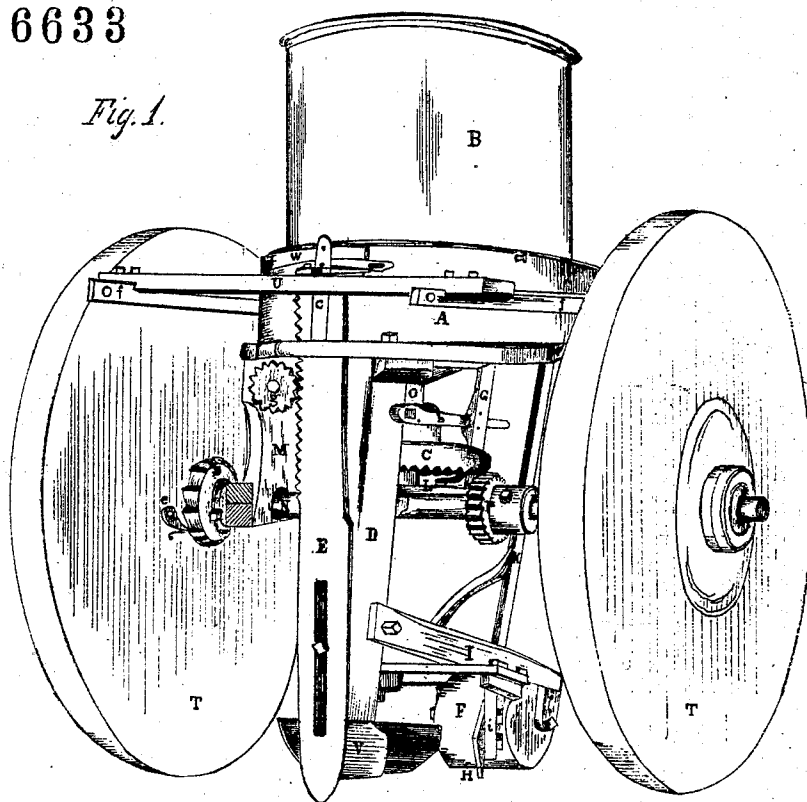


Fig. 3.

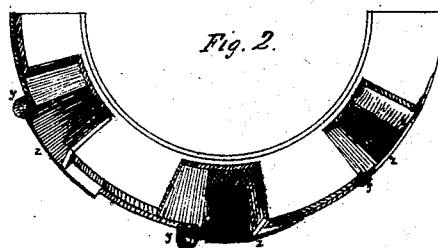


Fig. 2.

Amos Edwards
Edward P. Magoun

Benj. Saunders

Fig 4

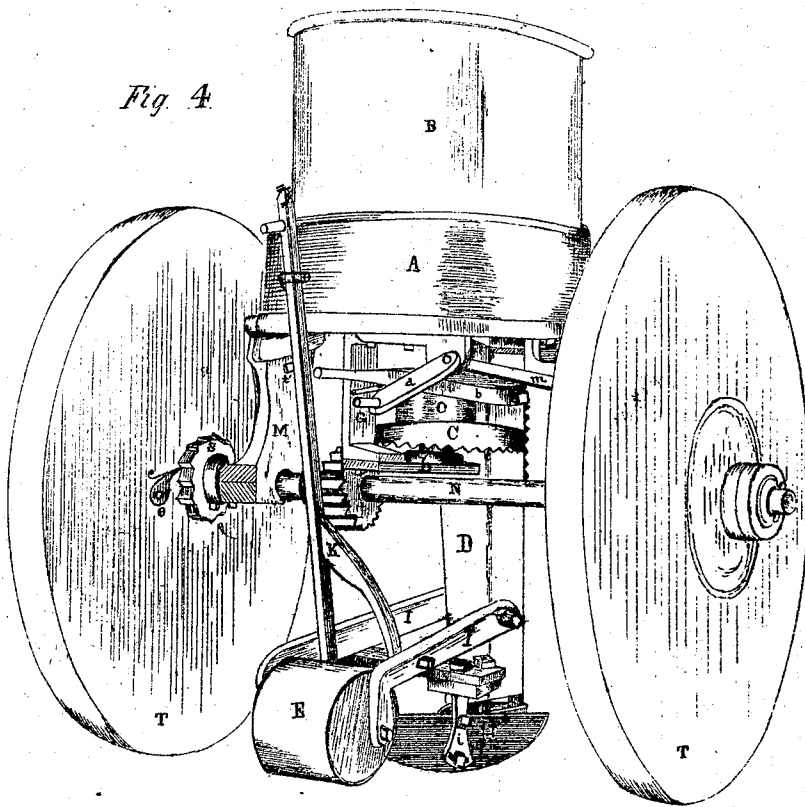


Fig 5

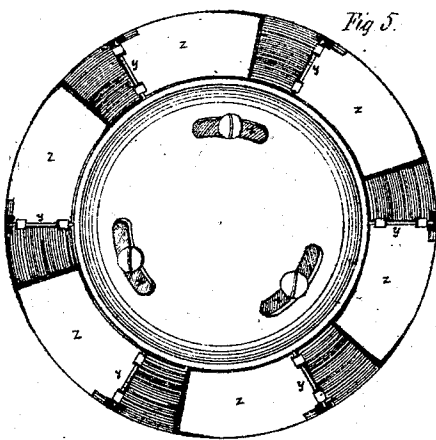
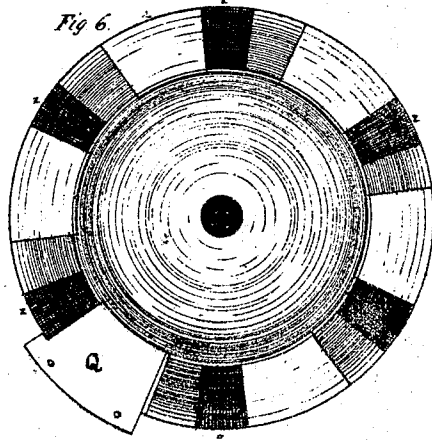


Fig 6



Samuel Edwards
Edward P. Magoun

Benj. Saunders

Fig. 7.

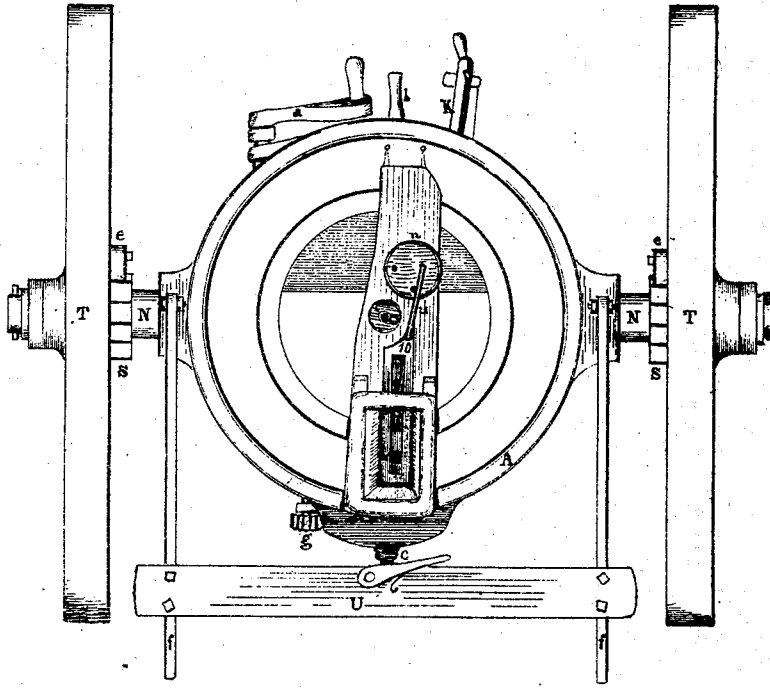


Fig. 8.

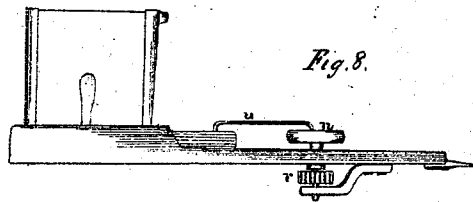


Fig. 9.

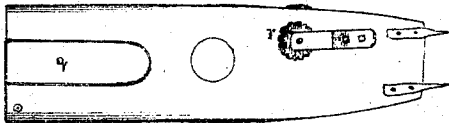


Fig. 10.



Fig. 11.



Samuel Edwards
Edward F. Maynard

Benj. Tammes

UNITED STATES PATENT OFFICE.

BENJAMIN SAUNDERS, OF CLAVERACK, NEW YORK.

IMPROVEMENT IN SEED-PLANTERS.

Specification forming part of Letters Patent No. 116,633, dated July 4, 1871.

To all whom it may concern:

Be it known that I, BENJAMIN SAUNDERS, of the town of Claverack, in the county of Columbia and State of New York, have invented certain Improvements in Seed-Planters, of which the following is a specification:

My invention consists in the combination of a potato-dropping wheel and a small-seed-dropping device, each so constructed as to measure and to drop its seeds in hills or in drills, with a general mechanism for operating them, respectively, by means of its connection with the wheels and axle which support and carry the machine; and also in combining and arranging with the above a conducting-spout, a furrower, coverers, and roller, so that by their conjoint operation the planting is completed as fast as the machine advances.

Figure 1 is a front perspective elevation looking from the right-hand side. Fig. 2 is a perspective top view of one-half of the potato-measuring-and-dropping wheel. Fig. 3 is an edge view of the same. Fig. 4 is a rear perspective elevation of the planter looking also from the right-hand side. (The two perspective elevations, Figs. 1 and 4, are taken on the same diagonal line, though from opposite sides of the machine and looking in opposite directions.) Fig. 5 is a plan view of the bottom or lower side of the potato-measuring-and-dropping wheel. Fig. 6 is a plan view of the top or upper side of the same. Fig. 7 is a bird's-eye or top view of the machine when converted into a small-seed planter. Fig. 8 is a side elevation of the small-seed-planting attachment separate from the machine. Fig. 9 is a bottom view of same. Fig. 10 is a top view of the small-seed slide and dropper. Fig. 11, the intermediate cog-wheel to be placed on the vertical revolving standard for operating the reciprocating small-seed slide and dropper.

Like letters on the drawing indicate like parts.

A is a circular frame or curb, in which the potato-wheel revolves. C is the main driving-wheel, which operates both the revolving and reciprocating seed-droppers. D is the spout, which conducts the seed down to the ground. E is the adjustable marker or furrower in front of spout D, slotted so as to be raised and lowered as required, and provided with a broad-headed bolt to keep it against the spout, and with wings at the bottom to keep the furrow open until the

seed is deposited. F is the roller for pressing the earth close down upon the seed after the coverers H H have covered it by returning the ground into the furrows. G is a drop-standard or support, attached to bottom of frame A at its upper end, and to a horizontal brace and supporter, L, at its lower end. The standard G supports the horizontal brace or step L, on which the vertical shaft of the main driving-wheel IC rests; it also answers as a support and fastening for the forked lever b, and, together with brace L, steadies and supports the spout D. I I are braces or arms for supporting the roller F. They vibrate on bolts which attach them to opposite sides of spout D, and are fastened to the coverer-frame J, which carries the coverers H H, so that the coverers and rollers rise and fall together. K is a forked handle, attached to the vibrating arms I I, by which the coverers and roller are lowered to or raised from their work, as required. This handle is held in its upright position by a hook or L attached to frame A, and when not in use is elevated so that the pin t on its side may rest on this hook or L. The coverers will then be quite above and out of the way of the ground. The forked lever b, which spans the driving-gear wheel C, its prongs resting in a groove or channel which surrounds it, is employed to raise and lower the wheel C, and thus to stop the dropping and planting process at pleasure. M M (see Figs. 1 and 4) are two standards for supporting the machine, and rest on the main axle N. O is the upright shaft of the driving cog-wheel C, and actuates both the potato-wheel R and the small-seed-planting attachment. The cog-wheel P on shaft N is employed to drive the gear-wheel C, and is provided with collar and set-screw, so as to be adjusted to engage either of the concentric circles of cogs on the bottom or face of the driving-wheel C. By this means the spaces between the hills or droppings of seed are varied, as required. Q is a plate attached to frame A, having a knife or cutting-edge, which will split or cut the potatoes down level with the tops of the chambers, and thus strike the measure of each as it passes under it, allowing only the quantity required to be deposited at a place. R (see Figs. 2, 3, 5, and 6) is the measuring-wheel and dropper for potatoes, and is formed by the combination of two circular plates or disks having alternate spaces or in-

cisions cut out of their edges, the lower one being adjustable by means of the slots *x x x* and set-screws, so as to make the chambers formed by the union, in part or in whole, of the spaces cut out of both the disks of such size as to contain the exact measure or quantity of seed required to be dropped in each place. These chambers are provided with trap-door or drop-wing bottoms *z z z*, &c., respectively hinged at *y y y*, &c., so that, as the wheel revolves, and these bottoms pass over the open mouth of spout D, they drop in regular succession, discharging the contents of the chambers into the spout, and thence it falls directly into the furrow prepared for it by the marker E. These drop-wings are kept in place by resting on the bottom of frame or curb A, except when they reach the open spout D, where, having no support, (as the spout passes up through this bottom,) they drop down and discharge their contents, as above described, and are immediately restored to their places as the wheel revolves by their coming in contact with the edge of the aperture leading into the spout. This wheel R constitutes a revolving bottom for the receiver B, which, by keeping the potatoes constantly in motion, facilitates the filling of the measuring-apertures. S S are ratchet-wheels fastened to axle N, adjoining the supporting-wheels T T, which are provided with pawls *e e* attached to the wheels, so that when going forward the pawls engage the ratchets, and thus revolve the axle or shaft N and operate the drop-pers and all other parts of the machine connected therewith; but when moving backward, the pawls not engaging the ratchets, the wheels T T revolve without revolving the axle or shaft N. U is a cross-bar for confining the thill-bars or braces *f f*, and is provided with a spring-catch or pin, which, being inserted in holes at different elevations in the standard *c*, regulates the height of the thills and fixes them in any position required to accommodate the size of the horse employed. V V are wings at the bottom of marker E to prevent the ground from falling back into the furrow until after the seed is deposited. The marker E has cogs on the edge and a pinion, *g*, working into them, for the purpose of raising and lowering it to make the furrow shallow or deep, as required. This pinion is operated by means of a shaft extending across to the rear of the machine, just under the base or bottom of frame A, which shaft is supported by brackets fastened to this bottom, and is provided with a crank, *a*, at the rear end, by which it is easily operated by the driver. This crank-shaft and pinion, and consequently the marker E, are thus fixed in any position, or relieved, at the pleasure of the driver, by means of a wire spring-catch or set combined with the crank, which is operated with the same hand that operates the crank. This catch, having a spiral spring embedded in the crank, behind the part of the wire which penetrates it, is thrown into a mortised, notched, or cogged wheel on the shaft, just behind the pinion, by the hand that grasps the handle, and thus holds the pinion from turning, or releases it, at the pleasure of the driver. The marker E is confined in its ver-

tical position by its upper end passing through a slot or mortise in a projection of the bottom of frame A, and is provided with a friction-roller on the side opposite to the pinion *g*. The thill-bars *f f* are hinged to the base of frame A, extended for this purpose directly over the standards M M. The roller F revolves on center-bolts, which pass through holes in the drop-ends of arms I I. The coverers H H are attached by nut-bolts to hangers *i i*, which are themselves bolted one to each end of the cross-bar J. To make them adjustable on the hangers *i i*, and also on the cross-bar J, the hangers are spread at bottom sufficiently to accommodate a slot through which the lower bolts pass, so that the coverers can be moved or vibrated on the upper bolts as a pivot or center to the extent of the slots below, and be fixed firmly at any point by the nuts on the lower bolts, and are provided with triangular head pieces having slots through one of the sides, so that the coverers can be swung toward or from each other, the standard-bolts being used as a center or pivot, and be fixed at any point by the nuts on the bolts which pass through the slots. The ratchet-wheels S S are provided with collars and set-screws, by which they are firmly fixed to the driving-shaft N. The knife-drop W is useful in providing access to the knife-plate Q to remove any obstruction that may occur at the knife without removing the potatoes contained in the receiver B.

When it is desired to convert the machine into a small-seed planter the potato-wheel R is removed. This is easily done by removing the nut on top of standard or vertical shaft O; then remove the knife-drop W, which is directly behind thill-standard *c*, first withdrawing the pins or screws that hold the knife-plate Q in place; then remove the knife-plate, after which the wheel R can be lifted from the standard O. This being done, then place the intermediate cog-wheel, Fig. 11, on the revolving standard O and key it, or let the shaft in that part where the wheel is to remain be of any shape but round, the hole in the wheel being of corresponding shape, so as not to turn on the shaft; next place the small-seed measurer and dropper, Fig. 8, across the rim of frame A, as shown in Fig. 7, the two pins at the small end of the dropper-bottom (see Fig. 9) being inserted in holes provided for them in the inside of circular case or frame A, and having an aperture near the middle to admit the standard O, all being relatively arranged so that cog-wheel, Fig. 11, will match and work into the pinion *r*, and thereby give to the slide and dropper, Fig. 10, at bottom of seed-box, a reciprocating motion by means of the crank-wheel *n* and connecting-rod *u*. In the middle of slide, Fig. 10, is a grooved slot or channel, in which is fitted a tongued measuring-slide for regulating the quantity of seed to be dropped in a place. The front half of this channel being mortised quite through the slide, Fig. 10, the seeds drop into the space V, and when the slide is shoved forward it carries the seeds in it under the cut-off *s* in the bottom of seed-box, (see Fig. 7,) which strikes off all above it and allows only the quan-

tity contained in the space V to be pushed or carried forward into the aperture *g* in the slide-piece in the bottom, which being directly over spout D the seed drops down through this spout into the furrow made for it by the marker E, and is covered and rolled in the same manner as for potatoes. Slide-pieces with different-sized apertures may be used in the bottom of the small-seed dropper, according to the size of the seed and the quantity to be deposited in a place. If the hole in this slide be placed in the middle of the slot or opening through slide, Fig. 10, so that the flow of seed into it is not cut off, the planting will be continuous, as in drills. Potatoes may also be planted in drills by this machine by removing the trap-door or drop-wing bottoms *z z z*, &c., and reducing the size of the chambers and sliding the cog-wheel P on shaft N, so that it shall engage a smaller circle of cogs (of which there are three or more) on the bottom of wheel C, thus increasing the speed or revolution of wheel R.

The operation of this machine has been so fully

explained in describing the construction and uses of the several parts that it would be surplusage to repeat it.

What I claim as my invention is—

1. The combined potato and small-seed planter herein described, when the two devices for measuring and dropping are constructed as set forth, and are made detachable and adapted to be operated within the circular frame or curb A by means of and in combination with vertical shaft O, wheel C, pinion P, axle N, and wheels T T, substantially in the manner and for the purposes described.

2. Curb or frame A with its detachable measuring-and-dropping devices, arranged and operated as above described, in combination with spout D, marker E, coverers H H, and roller F, substantially as and for the purposes herein set forth.

BENJ. SAUNDERS.

Witnesses:

SAMUEL EDWARDS,
EDWARD P. MAGOUN.