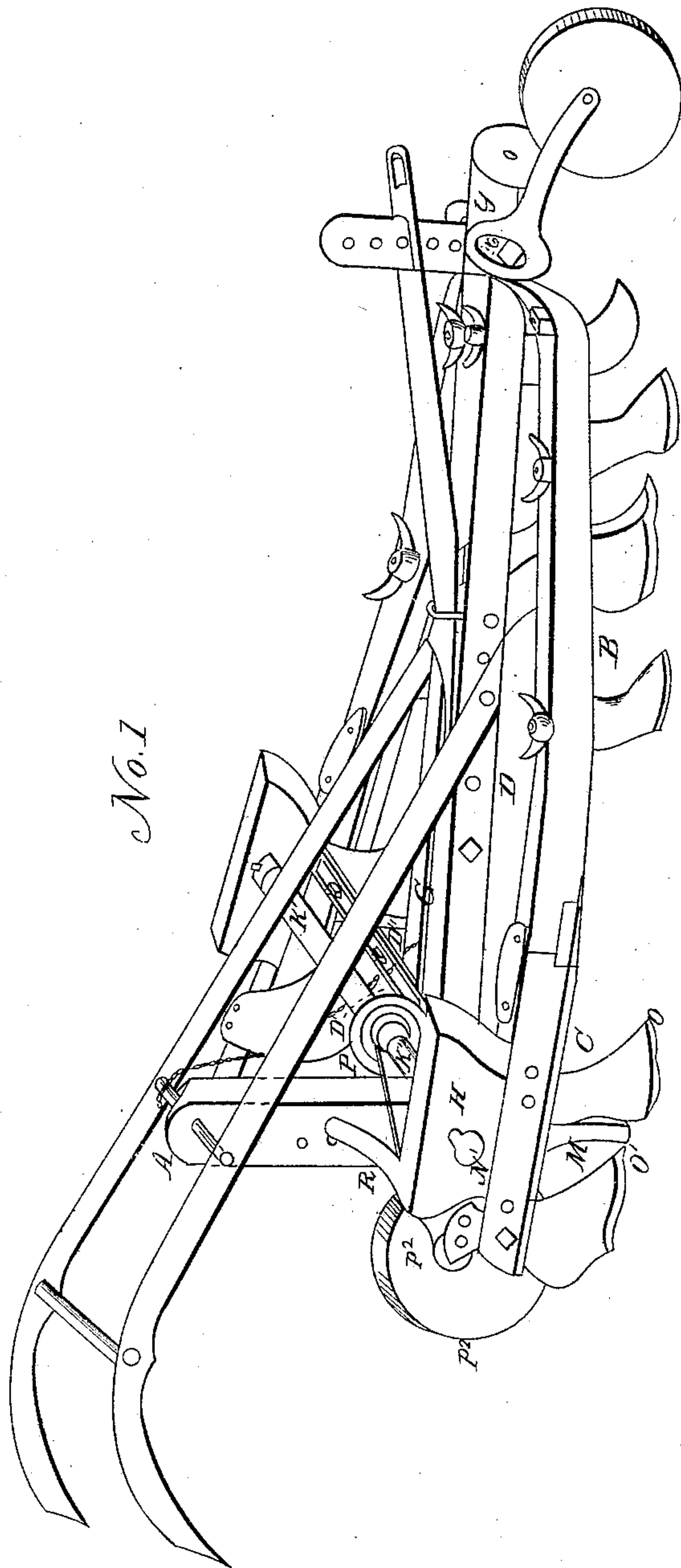


G. PHILLIPS.  
Seed-Planter.

3 Sheets—Sheet 1.

No. 10,236.

Patented Nov. 15, 1853.

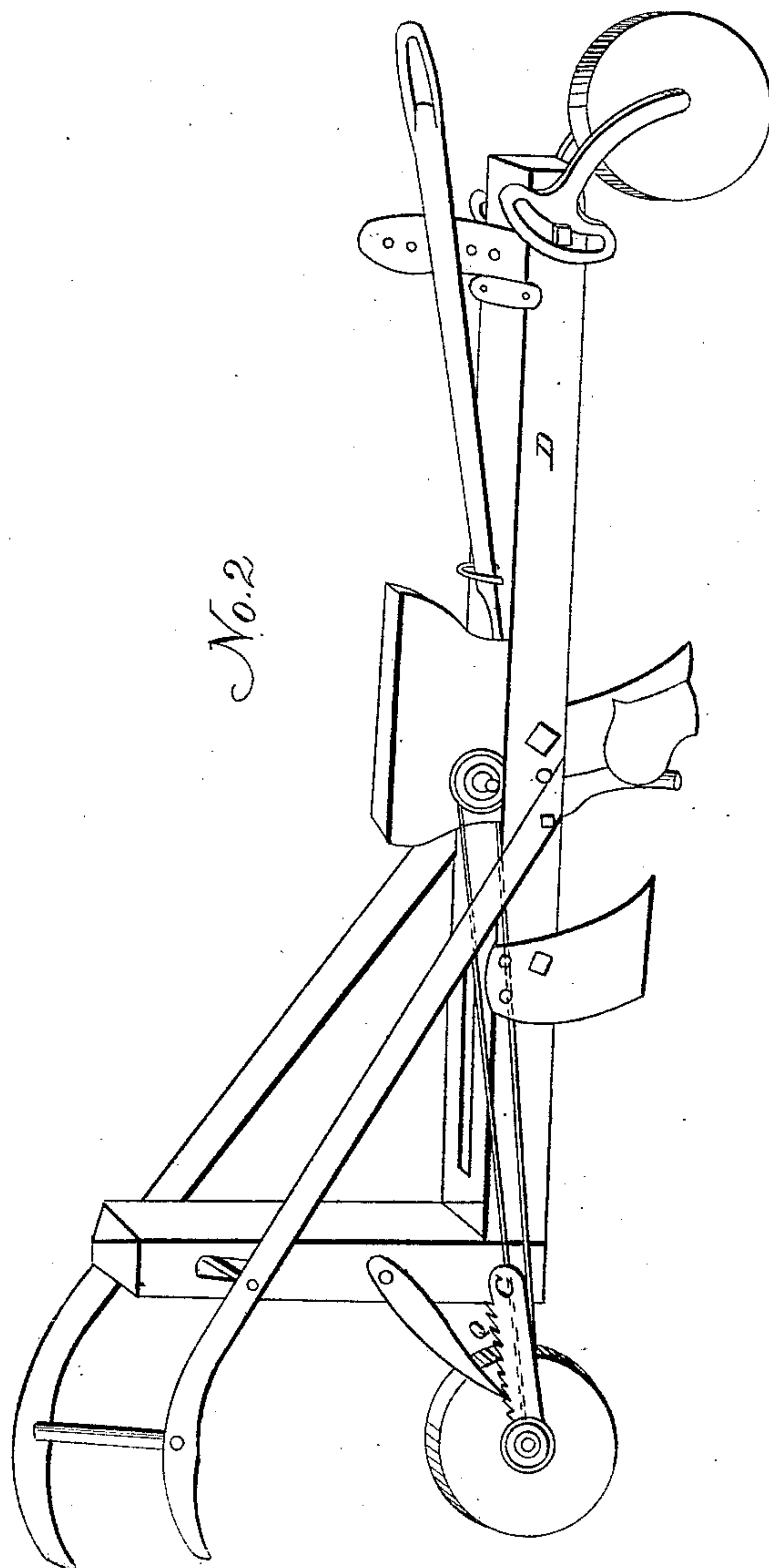


G. PHILLIPS.  
Seed-Planter.

3 Sheets—Sheet 2.

No. 10,236.

Patented Nov. 15, 1853.

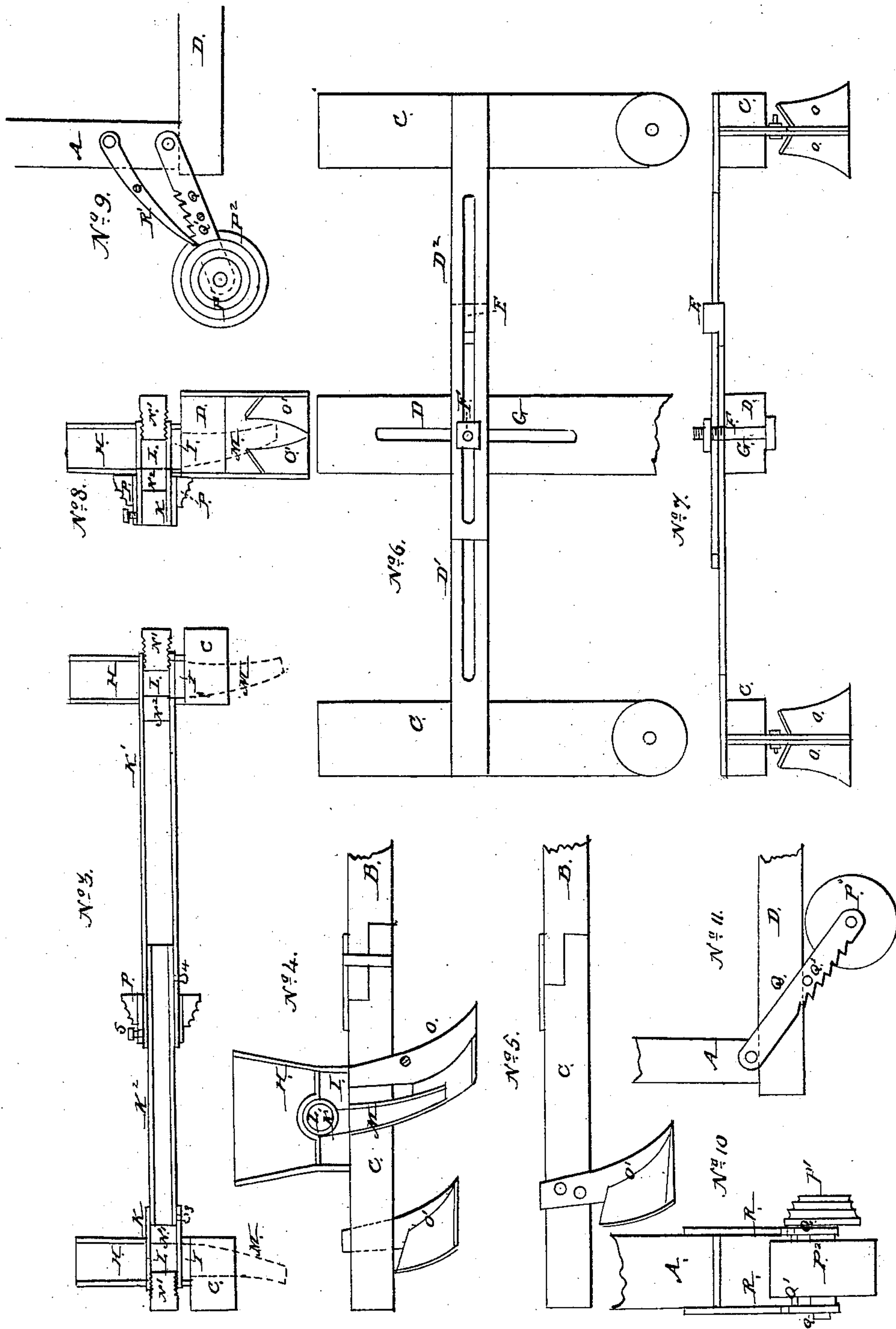


G. PHILLIPS.  
Seed-Planter.

3 Sheets—Sheet 3.

No. 10,236.

Patented Nov. 15, 1853.





# UNITED STATES PATENT OFFICE.

GEORGE PHILLIPS, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN SEED-PLANTING CULTIVATORS.

Specification forming part of Letters Patent No. 10,236, dated November 15, 1853.

*To all whom it may concern:*

Be it known that I, GEORGE PHILLIPS, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Cultivators and Corn and Seed Planters, called the "Expansion Corn and Seed Planter, Hoe, Harrow, and Cultivator-Plow," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure No. 1 is a perspective view of the machine as employed to form and plant two rows. Fig. No. 2 is a perspective view of the machine as designed to form and plant a single row. Fig. No. 3 is a section through the centers of the tubes or hollow shafts and hoppers. Fig. No. 4 is a section of one of the jointed side beams with hopper attached. Fig. No. 5 is a side elevation of the same with a cultivating-plow attached. Fig. No. 6 is a top or bird's-eye view of the side and center draft-beams with the slotted bars attached. Fig. No. 7 is a transverse section of the same with the double plows attached. Fig. No. 8 is a transverse section of the center draft-beam with the hopper, tube or shaft, and pulleys as attached when the machine is used to plant a single row, together with the plows as used for filling the furrows and covering the grain. Fig. No. 9 is a side elevation of the driving or draft wheel and its attachments, showing its relation to the center beam when used in the capacities named. Fig. No. 10 is an elevation of the same viewed from the back part. Fig. No. 11 is a side elevation of the same, showing its position when used as a pivot-wheel.

Similar letters in the several figures refer to corresponding parts.

The nature of my invention and improvements consist in so constructing, combining, and adapting the several parts of the planter, harrow, and cultivator-plow as to enable them to be separated or attached at the will of the operator and to perform either of the functions for which they are designed in a more effective manner than heretofore, and also in attaching to the upright post, at the back part of the center or draft beam, a graduating and driving wheel capable of being either used for those purposes, or as a pivot-wheel to turn the machine on when it is desired to do so for any purpose.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and the manner of operating the same.

When the several parts of the machine are put together to adapt it to form two furrows and plant two rows the frame somewhat resembles in form the ordinary harrow or cultivator, and consists of a center draft-beam, D, with jointed beams B connected to the center beam on either side of the front end by means of bolts upon which they move, and extending outward and backward from the same to near the rear, where they are jointed to additional beams C, arranged parallel to the center beam, and connected together by slotted bars D' D<sup>2</sup>, secured to the beams at right angles to the same, one above the other, and kept in this relation to each other by means of a stud, E, secured to the end of the lower bar, D, and passing through the slot in the upper one, D<sup>2</sup>, and a bolt, F, passing through a longitudinal slot, G, in the center beam, D, and through the slots of both bars D' D<sup>2</sup>, and provided with a head below and a nut above, so as to enable the beams C to be moved nearer to or farther from the center beam to conform with the distance apart of the rows over which it is designed to bring the beams C, and secured at the desired distance, and at the same time preserve their parallel position with the center beam. The joints where the beams B C are connected together, and the joints connecting the beams B to the center beam, may be made in the usual or most approved manner, and those in front are capable of being separated at the will of the operator, so as to adapt the machine to operate for a single row.

On top of the beams C are secured movable hoppers H for receiving the grain to be planted, in which hoppers are placed rectangular blocks I, exactly fitting in and forming the bottoms of the same, and serving as rests for the ends of horizontal tubes or hollow shafts K K', passing loosely through openings in the hoppers H at right angles with the line of draft, and held in their places by iron straps or otherwise. One of these shafts, K', extends more than half-way across the machine, while the other, K, projects but a short distance beyond the inside of the hopper, into which it passes, and the two are connected together, when the beams C are set the required distance apart, by means of an additional tube or shaft, K<sup>2</sup>, exactly and loosely



fitting within the ends of the same, and clamped by set-screws 3 4 in such a manner as to enable the beams C to be either nearer to or farther from each other, as desired, the tube or hollow shaft K being secured by the set-screw 3 to one end of the smaller one, K<sup>2</sup>, and the tube or shaft K' slipping over the opposite end of said smaller shaft or tube K<sup>2</sup>, and the two last-mentioned ones, K' K<sup>2</sup>, being secured together at the proper relative position by the set-screw 4, and thus made to revolve together.

At the parts of the shafts or tubes K K' within the hoppers H are formed perforations or cavities L for receiving the required quantity of grain from the hoppers to be dropped into tubes M immediately below and in front of the same during their revolutions, the size of the receptacles or cavities L in the tubes or shafts for the grain being regulated by means of plugs or screws N', inserted in female screws in the outer ends of the same, as shown in Fig. No. 3, the ends of said screws forming the outer ends of said receptacles or cavities L, while the inner ends of the same are formed by plugs N<sup>2</sup>, fixed permanently in the tubes or shafts.

Immediately in front of the tubes with which the cavities or perforations L in the tubes or shafts communicated during their revolutions are ranged right and left plows, O, or the usual drill-teeth, as may be desired, for forming furrows for the reception of the grain from said tubes, which plows or drill-teeth are secured to the beams C, and immediately behind the same are secured other plows, O', or teeth, arranged in such relation to the furrow formed as to fill the same, and thus cover the grain deposited in their passage by the same.

The tubes or hollow shafts K K' K<sup>2</sup> receive their motion together by a band passing around a series of pulleys, P, of different diameters formed in one piece and secured to a tube surrounding loosely the tube or shaft K', near its inner end, which pulleys are secured to the same at any desired point by a set-screw, and correspond with another series of pulleys, P', secured on the shaft of the graduating-wheel P<sup>2</sup>, at the rear of the machine, to which they are geared by the band passing around the corresponding pulley of each set. This driving and graduating wheel P<sup>2</sup> is inclosed between two notched bars, Q, attached by a bolt, upon which they move, to the upright post A at the rear end of the center or draft beam, and extending backward and downward from the same when the machine is in progress, and having openings at their opposite end, through which the shaft of the said wheel passes. They are connected together by means of a rod or bolt, Q', and can be set to any desired angle, so as to elevate or depress the rear end of the machine, and with it the plows or drills, by means of pawls R, connected together by a bar or bolt passing through the upright post at the rear of the center or draft beam. This driving-wheel P<sup>2</sup> can, moreover, be drawn under the center or draft beam, so as to cause the bar or bolt Q', connecting

the notched bars together, to rest against the under surface of the same, as represented in Fig. No. 11, by simply raising the rear end of the machine to the proper height to clear the segment of the circle upon which it moves, and drawing on a cord attached to the cross-bar or bolt Q', and passing through a slot in the center or draft beam, and extending to the handles or other point readily accessible to the operator to turn the machine on said wheel as a pivot by depressing the handles and raising the entire machine clear of the ground, on the principle of a lever of which the wheel forms the fulcrum.

The front part of the machine is elevated and depressed to correspond with the rear end of the same by means of another graduating-wheel whose shaft passes through openings in the end of two graduating-levers secured to the front part of the center or draft beam by a bolt, upon which they move as a fulcrum, and having curved slots Y at their rear ends, through which and the beam passes a bolt, Z, by which said levers are secured at any desired inclination, so as to regulate the height of the front part of the beam D from the surface of the ground over which it passes, and consequently, in connection with the rear wheel, P<sup>2</sup>, the depth of the furrows formed.

The furrows for the reception of the corn, seed, or other grain may be either formed by the usual-shaped drill-teeth or by double plows O, having the mold-board, landside, share, and colter cast in one piece, such as represented in Figs. Nos. 4 and 7.

In case the plows are used, they will be connected together by a bolt passing through the upper portion of the colter and secured by bolts to the beams C, immediately in advance of the lower end of the tube M, through which the grain descends, either in slots formed in the beams or on the sides of the same, the tubes M being bent to terminate immediately in the rear of the said double plow thus formed. When the machine is employed as a cultivator to work two rows these same plows are detached or separated and secured to the beams C on either side, so as to loosen and throw the earth against the two rows between which the machine passes. These plows may also be employed to fill the furrows and cover the grain as it is deposited by securing them on the sides of the beams in reverse order, one in advance of the other, with their mold-boards toward each other, as represented in Figs. Nos. 4 and 8; or the usual coverers may be secured to the beams for this purpose.

In operating with the machine constructed as above the side beams, C, are moved either nearer to or farther from the center beam, D, to conform with the width of the rows to be formed, by unscrewing the set-screw 4 and the nut of the bolt F, so as to allow the end of the smaller shaft K<sup>2</sup> to slide within the tube or shaft K', and the slotted bars D' D<sup>2</sup> to move one over the other and the bolt F, which, in connection with the stud E, guides and keeps



them in their proper parallel position with each other in their transverse movement to move either back or forth in the slot of the center or draft beam, D, thus keeping said side beams always parallel. The set-screw 4 and nut F are then fastened and the tube of pulleys P secured by its set-screw 5 on the tube or shaft K', over which it moves immediately in front of the pulleys P' on the driving and graduating wheel P<sup>2</sup> shaft, said wheel P<sup>2</sup> and the front wheel being previously set at the required point to give the desired depth of furrow. The machine upon being moved forward will form two furrows in its progress, and at every revolution of the tubes or shafts K K' K<sup>2</sup> (deriving their motion through the band around the pulleys P P' on the tube or shaft K' and driving-wheel shaft) a quantity of grain commensurate with the size of the apertures or cavities L will be dropped into the furrows and covered by the plows o' or coverers in the rear. After the machine has reached the point at which it is desired to terminate the rows the operator raises the rear end of the machine, and by means of the cord or by a sudden jerk draws or forces the driving-wheel P<sup>2</sup> under the center or draft beam and raises the machine clear of the ground and turns it on said wheel, and after replacing it to its original position proceeds to form and plant two additional return-rows at the proper distance from those formed immediately previous.

In case it is desired to convert the machine into a harrow, all the superfluous parts are removed to adapt it for the purpose.

When it is desired to plant but one row at a time the side beams, B C, slotted bars D' D<sup>2</sup>, and tubes or shafts K K' K<sup>2</sup> are detached, and one set of the double plows o and coverers o' and the hopper H', having the short tube or shaft K, are secured in the proper relation to each other to the center or draft beam and the

tube of pulleys P secured on the projecting portion of said tube or shaft K and geared by the band to the pulleys P' of the driving and graduating wheel, as represented in Fig. No. 8.

The graduating driving-wheel, with its attachments, may be applied to the ordinarily-constructed or other plow for the purpose of regulating the depth of furrow and enabling it to be turned with facility upon the same principle as it is employed in the machine before described, in which case the proportions of the parts will be altered to adapt it to the size and form of the plow to which they are applied.

Having thus fully described my invention, what I claim therein as new is—

1. The arrangement and combination of the side pieces, B and C, slotted beam D, and slotted bars D' D'', and the hollow sectional axle or shaft K, K', and K'', for the purpose of allowing the expansion and contraction of the side pieces, in the manner and for the purpose set forth.

2. Attaching the driving and graduating wheel to the back part of the machine by means of the notched bars Q, secured to the upright post of the center or draft beam by a bolt, upon which they move, and suspending above the same polls, which enter the notches, thus enabling said wheel to perform its functions of regulating the height of the back part of the machine and driving the distributing-shafts, and to be drawn or thrown under the center or draft beam to form a pivot-wheel upon which the machine can be raised from the ground and turned, in the manner and for the purpose specified.

GEO. PHILLIPS.

Witnesses:

JACOB C. RIEGHTER,  
JACOB S. ROBERTS.