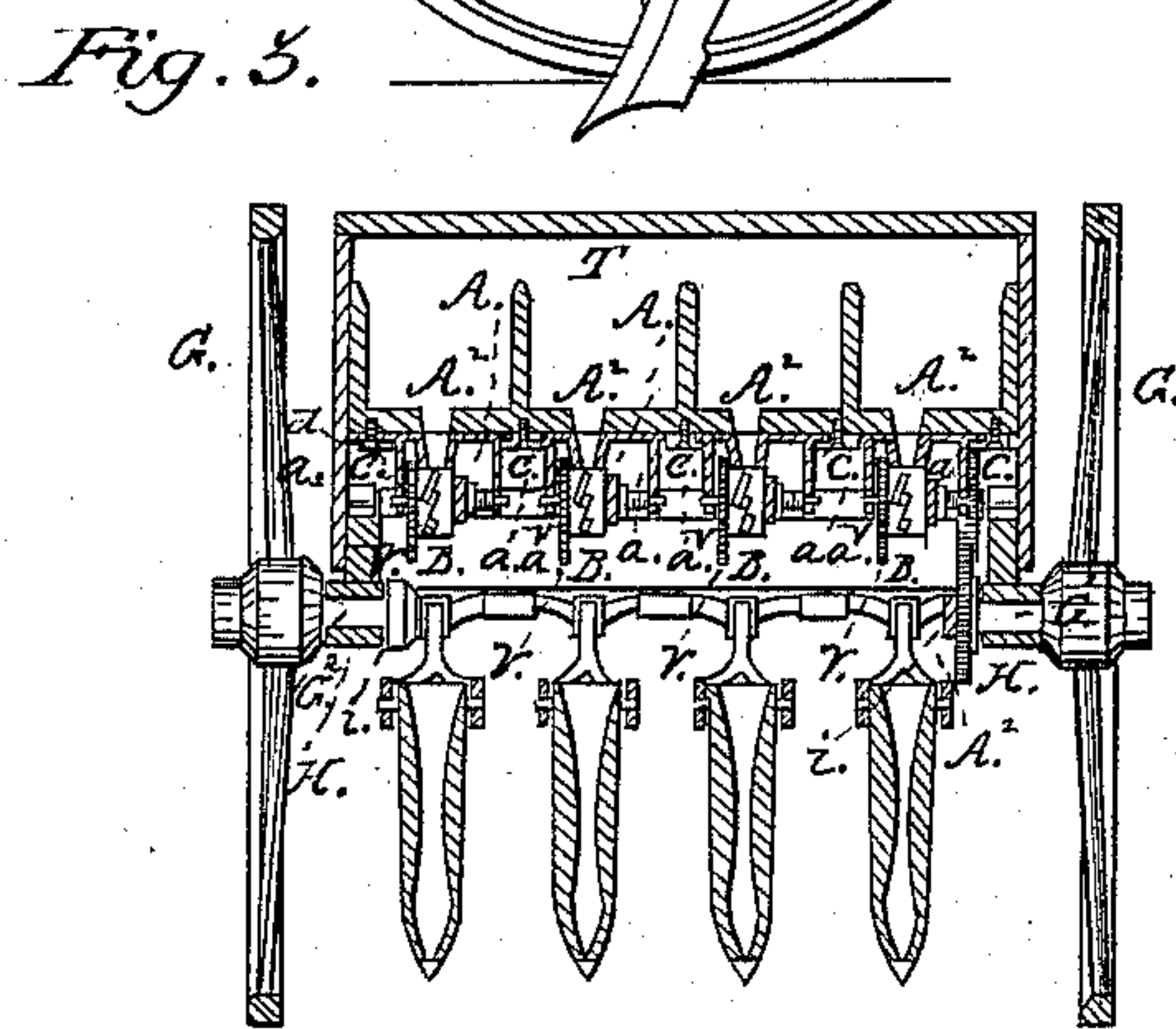
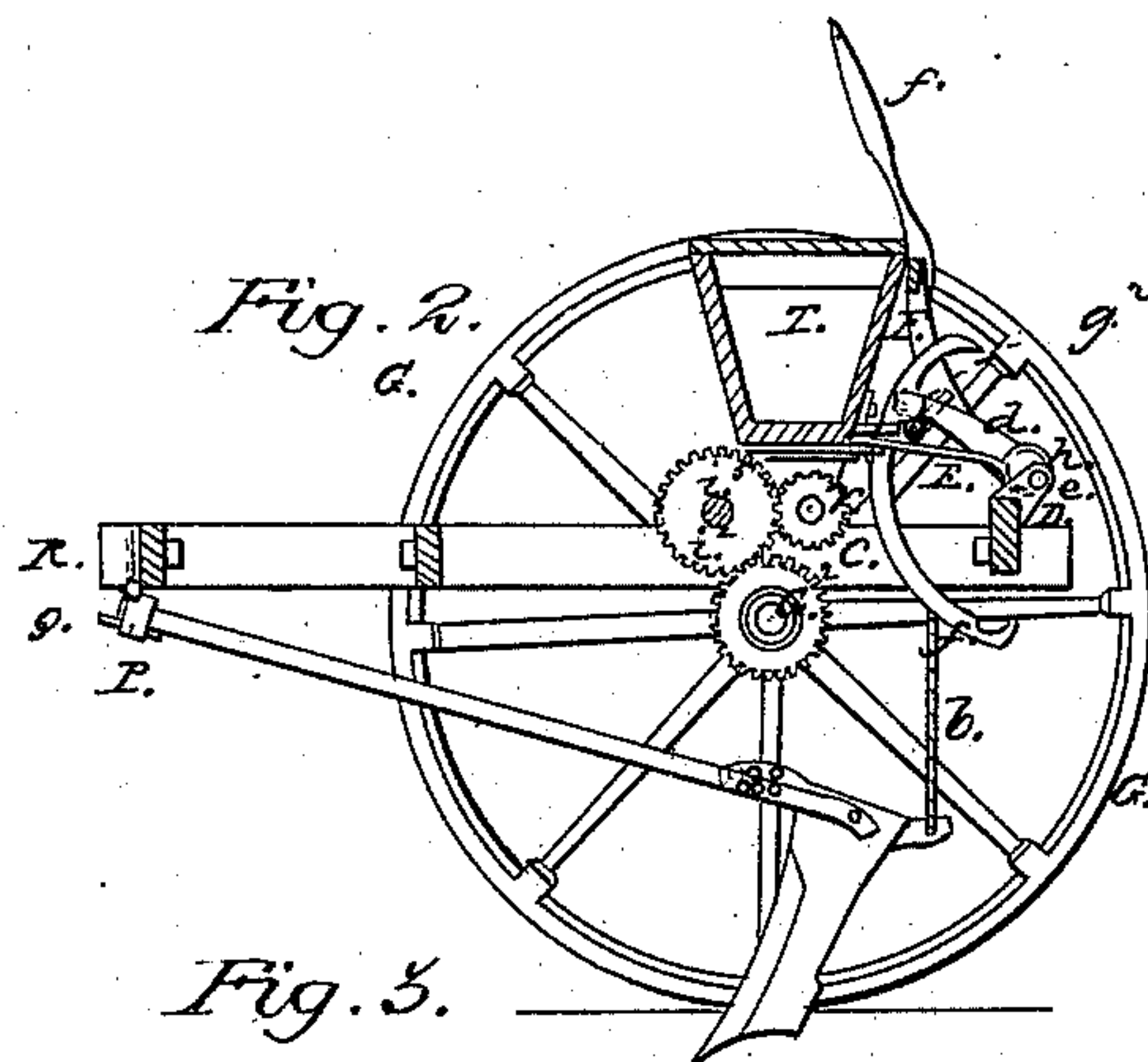
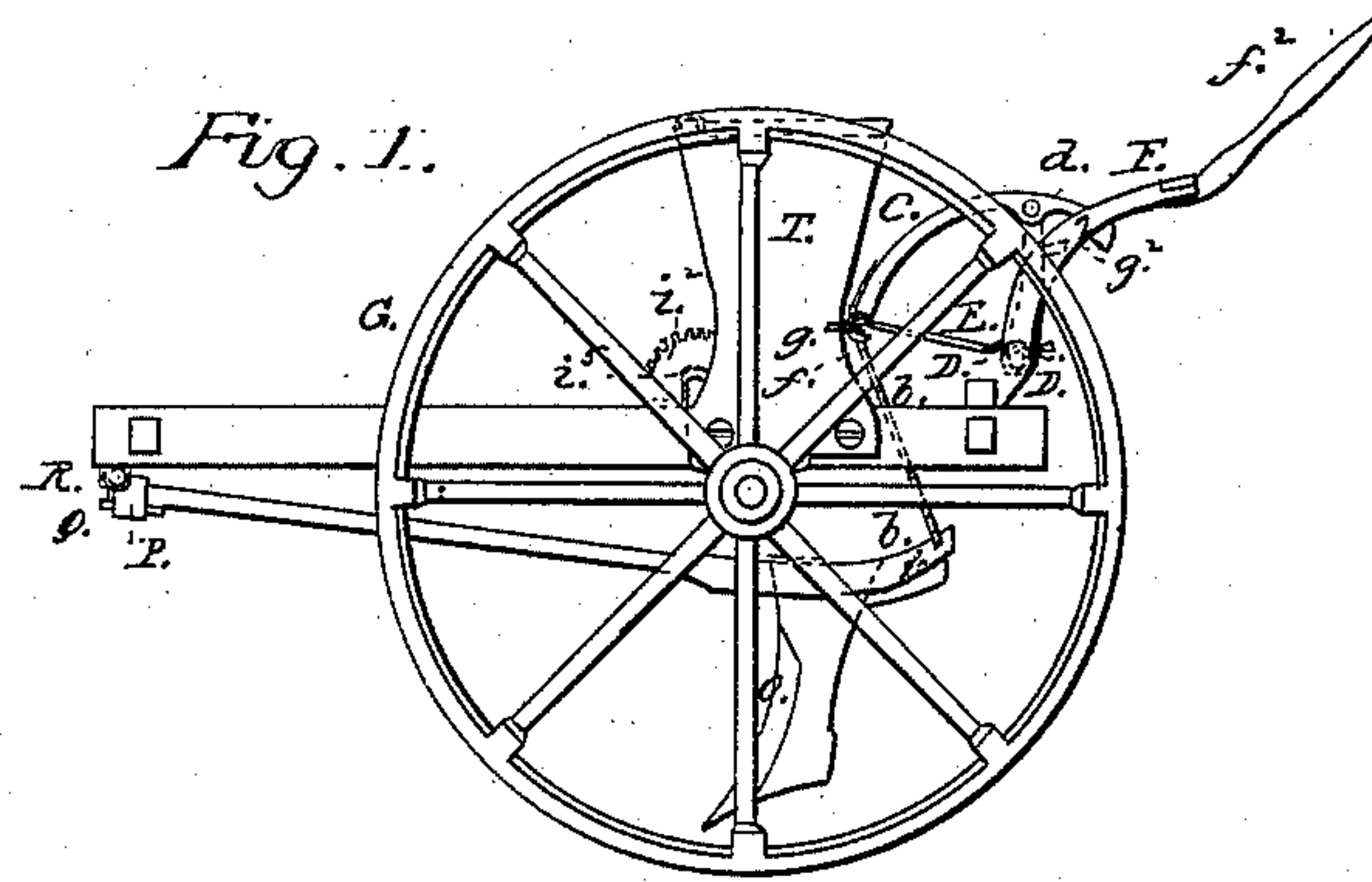


S. & M. PENNOCK.
Grain-Drill.

2 Sheets—Sheet 1.

No. 8,209

Patented July 8, 1851.



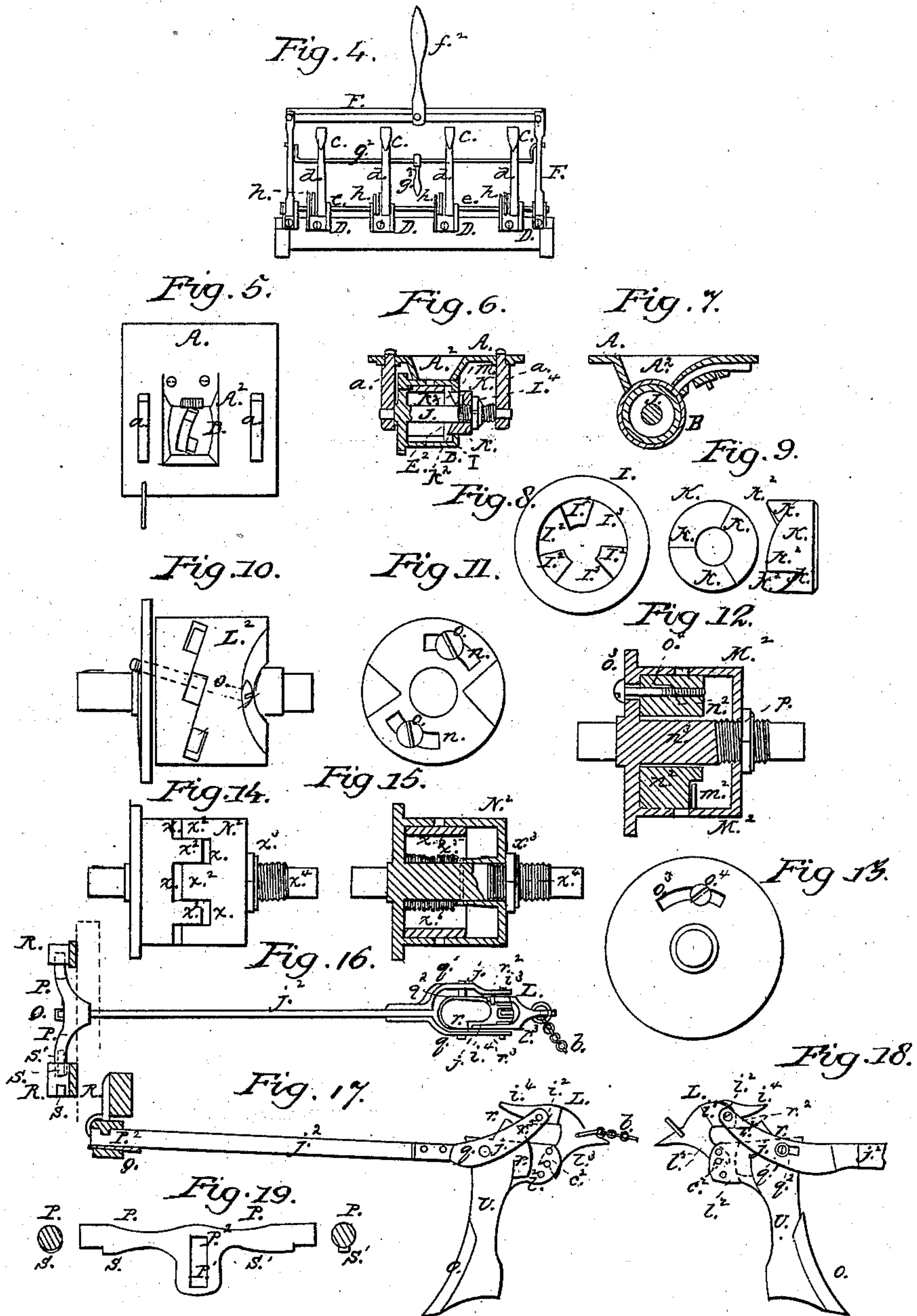
S. & M. PENNOCK.

2 Sheets—Sheet 2.

Grain-Drill.

No. 8,209

Patented July 8, 1851.



UNITED STATES PATENT OFFICE.

SAML. PENNOCK AND M. PENNOCK, OF KENNET SQUARE, PENNSYLVANIA.

IMPROVEMENT IN SEEDING-MACHINES.

Specification forming part of Letters Patent No. 8,209, dated July 8, 1851.

To all whom it may concern:

Be it known that we, SAMUEL PENNOCK and MORTON PENNOCK, of Kennet Square, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Seeding-Machines; and we do hereby declare the following to be a full and exact description of the construction and operation thereof, reference being had to the annexed drawings, making part of this specification.

In the drawings, Figure 1 represents an elevation of the machine, the depositing-tubes being elevated. Fig. 2 is a vertical longitudinal section through the same, the depositing-tubes being lowered with their curved levers. Fig. 3 is a vertical transverse section of the machine through the hopper. Fig. 4 is a rear view, showing the eccentric for actuating the hopper-grates, the curved levers, and lever-frame. Fig. 5 is a plan of one of the hopper-grates. Fig. 6 is a vertical section of Fig. 5, showing the distributing-cylinder. Fig. 7 is a transverse section of Fig. 6. Fig. 8 is an end view of the cylindrical cap, showing inclined projections. Fig. 9 is a side and inside view of the inclined recessed washer, which fits the inclined projections of the cylindrical cap. Fig. 10 is a distributing-cylinder, showing a modification of the device for holding the cylindrical cap when adjusted to any size or form of seed-receptacle. Fig. 11 is an end view of Fig. 10. Fig. 12 is a longitudinal section of a distributing-cylinder, showing another modification of the device for holding the cylindrical cap. Fig. 13 is an end view of Fig. 12. Fig. 14 is a modification of the distributing-cylinder. Fig. 15 is a vertical section of the same. Fig. 16 is a plan of the drag-bar, with its depositing-tube, showing its connection with the front beam of the frame. Fig. 17 is a side elevation of Fig. 16, showing the position of the depositing-tube when forming the drill and the tri-form holding-lever. Fig. 18 is a view of the opposite side of the depositing-tube and a section of the drag-bar. Fig. 19 is a front view of the detachable double arm of the drag-bar.

Where the same letters of reference occur on the several figures they indicate the same parts.

This machine in its general construction and arrangement of parts is like our seeding-machine on which a patent was granted on the

12th day of March, 1841, and reissued on the 30th day of October, 1849.

The improvements which we now desire to have patented consist in the employment of sliding grates to which the distributing-cylinders are attached, and with which they are made to move back and forth in engaging with and disengaging the same from the propelling-shaft.

Our improvement likewise relates to the employment of short axles projecting from and forming part of the hubs of the propelling-wheels and turning in boxes secured to the side beams of the frame.

Our improvement further relates to placing a helical spring within the distributing-cylinder for expanding the cylindrical cap for increasing the size of the seed-receptacles when required.

Our improvement also consists in forming the bottoms of the seed receptacles or cells of the distributing-cylinders by the employment of a plain cylindrical ring placed within the same.

Likewise our improvement consists in certain arrangements and devices for adjusting and holding the oblique recessed cylindrical cap in connection with the oblique recesses of the cugged portion of the cylinder.

Our improvement likewise relates to suspending the depositing-tubes to projecting arms of the drag-bar in such a manner that the depositing-tubes shall be made to turn frontward during the backing of the machine to clear obstructions, or for any other purpose, thus dispensing with the necessity of raising the same, and also by which the depositing-tubes may be detached from the drag-bar with facility, when desired, by simply moving them frontward to nearly a horizontal line with the drag-bar, and giving them a slight lateral movement, which disengages the journal-pins from the drag-bar, and allows the depositing-tubes to be removed.

Our improvement also relates to the employment of a tri-form holding-lever attached to the projecting-arms of each drag-bar in such a manner that its hook-branch shall be made to fit over the wooden pin secured in the rear portion of the depositing-tube for holding it in its proper position during the operation of forming the drill and depositing the seed,

and also for allowing the attendant to disengage said triform holding-lever from the pin when an obstruction is visible, and thus allow the depositing-tube to turn rearward and clear itself of the obstruction, and the pin saved from being broken and the progress of the machine not interrupted, the triform holding-lever being made to assume its proper position with the pin when the depositing-tube shall have cleared the obstruction.

Our improvement likewise consists in effecting the frontward movement of the depositing-tube when it shall have been relieved from the obstruction by the action of triform lever upon a cam projecting from the upper portion of the depositing-tube.

Our improvement consists, finally, in the employment of a double detachable arm, in combination with the drag-bar by which it is suspended to the frame, and also by which said double arm may be detached with facility from the drag-bar and eyes or loops of the transverse beam of the frame.

The grates A, Figs. 3 and 5, to which the distributing-cylinders B are attached by hanging-arms *a a*, (secured to the grates by being dovetailed and keyed,) are confined to the bottom of the hopper T by grooved plate *c c*, Fig. 3, into which their edges fit, and are permitted to move back and forth when engaging the cog-wheel of the distributing-cylinder with or disengaging it from the propelling-shaft *i*³, thus keeping the distributing-cylinder in the same relative position with the opening A² in the grate, whether in or out of gear.

C C are the curved levers, to the ends of which the triform holding-levers L of the depositing-tubes are attached by the usual chains, *b*, for elevating said depositing-tubes. These curved levers C are attached, by means of jointed arms *d d*, to a horizontal fulcrum-rod, *e*, secured to the rear transverse timber of the frame by boxes D, (one to each lever,) and are provided with notches *f f* at their lower ends, which catch over holding-plates *g*, projecting from the hopper, for sustaining the depositing-tubes when elevated.

The lower end of each jointed arm *d* of the curved levers C is provided with an eccentric, *h*, from which projects a connecting-rod, E, which unites the hopper-grate A with eccentric *h*, and thus the movement of the grate of the distributing-cylinder is effected by the eccentric simultaneously with the elevation or depression of the depositing-tube.

F is the lever-frame, having a handle, *f*², and connected to the fulcrum-rod *e*, and provided with a horizontal transverse turning crank-rod, *g*², secured in the arms of the lever-frame F in such a manner as to catch against the arms *d* when in the position seen in Fig. 2, and elevate the depositing-tubes, as seen in Fig. 1, and when said lever-frame is in the position seen in Fig. 2, the depositing-tubes may be depressed simultaneously by simply depressing the short handle *g*³, Fig. 4, which turns the crank-rod *g*² frontward against the ends of the

levers and disengages their notches *f* from the holding-plates *g*¹ of the hopper; or the depositing-tubes may be elevated or depressed separately, if required.

The supporting and propelling wheels G are provided with short axles G², projecting from and forming part of the hubs and turning in boxes H, secured to the under side of the side beams of the frame, and confined by nuts *i i* or otherwise, one of said short axles G² being provided with a pinion, H², which matches with one of the pinions *i*² on the propelling-shaft *i*³, for communicating motion thereto.

The seed receptacles or cells of the distributing-cylinders shown in Figs. 3, 6, 10, and 12 are the same as those in the distributing-cylinders of our patent of the 11th of February, 1851. The manner, however, of adjusting and holding the oblique cylindrical cap I is different and more effectual, and consists in providing its end with three or more projections, I¹, having their outward sides, I², made inclined or oblique, as shown in Fig. 8, corresponding in obliquity to the recesses of its periphery, and placing upon the longitudinal screw-shaft J a washer, K, having the same number of oblique recesses *k*, and corresponding in inclination to the projections I² of the cylindrical cap I, into which they fit, while the projections *k*² of the washer K fit the openings I³ between the projections I². The object of this is to form the bearing against the cylindrical adjustable cap I, at right angles to the bearing of the oblique recesses which form the seed-receptacles, so that when the oblique recesses of the cylindrical cap shall have been adjusted in relation to the adjacent recesses of the cogged portion of the cylinder, and the oblique recessed washer K clamped against the oblique projections I² by means of the clamp-nut I⁴ upon the screw-shaft J, the cylindrical cap will be held firm, and effectually prevented from slipping during the operation of the machine.

The oblique recessed washer K is prevented from turning in the direction of the cylindrical cap, when decreasing the size of the seed-receptacles, when clamping it against said cylindrical cap by means of a pin, *m*, Fig. 6, projecting from the screw-shaft J into one of the recesses *k* of said washer K, against which the shoulder or projection *k*² formed by said recess acts while clamping the cylindrical cap.

Figs. 10 and 11 represent another device for producing the pressure upon the oblique surfaces of the seed-receptacles of the distributing-cylinder, at right angles thereto, and consists in scalloping the end of the cylindrical cap L², and forming therein two segmental slots, *n n*, through which pass screw-bolts *o* at right angles to the oblique recesses or cells, and screw into the cogged portion of the cylinder, the segmental slots *n n* allowing the movement of the cylindrical cap L² when the screws *o* are unclamped in order to decrease or enlarge the size of the seed-receptacles. This device dispenses with the screw on the shaft, washer, and clamp-nut.

Figs. 12 and 13 represent another device for holding the cylindrical cap M^2 of the distributing-cylinder, and consists in providing the oblique recessed cylindrical cap M^2 with a pin, m^2 , projecting centerward therefrom, near its recessed periphery, into an opening formed in the inner cylinder, n^2 , which forms the bottoms of the seed-receptacles, and which is made solid except the bore for the screw-shaft n^3 . In the cogged portion of the cylinder is formed a segmental slot, o^3 , through which the shank of a clamp-screw, o^4 , passes into the inner solid cylinder, n^2 , and is for the purpose of clamping said inner cylinder to the cogged portion of the distributing-cylinder, and thus, by means of the pin m^2 , the cylindrical cap M^2 is prevented from turning in either direction when adjusted to any required sized receptacle and clamped by the clamp-nut p on the screw-shaft. When it is desired to increase or diminish the size of the seed-receptacles the clamp-nut p is turned to the left, and the holding-screw o^4 loosened, and the cylindrical cap turned in either direction with the inner cylinder, n^2 , and secured by the clamp-nut and holding-screw.

Figs. 14 and 15 represent distributing-cylinder with longitudinal parallel recesses x and projections x^2 in such a manner that they shall be made to fit within each other and form a double row of seed receptacles or cells, which may be increased or diminished in size by means of a clamp-nut, x^3 , on the screw-shaft x^4 and a helical spring, x^5 , placed within the cylinder and made to bear against said cylindrical cap N^2 , for expanding or moving the same outward to increase the size of the receptacles when the clamp-nut is unscrewed. Within the cylindrical cap is placed a cylindrical ring, x^6 , for forming the bottoms of the seed-receptacles.

The depositing-tubes represented in Figs. 17 and 18 are in form and construction the same as those described in our patent granted the 10th day of December, 1850, being provided with a reversible point, o , the improvement now claimed consisting in suspending the depositing-tubes U to the arms $j j$ of the drag-bar j^2 by means of two journal-pins, $q q'$, projecting from either side of the upper portion thereof in such a manner that the depositing-tubes shall be made to turn forward upon their journal-pins $q q'$ during the receding movement of the machine.

One of the journal-pins, q' , is provided with a cog, q^2 , which is made to fit an opening in the arm j of the drag-bar j^2 , when the depositing-tube shall be turned frontward to nearly a horizontal line, for the purpose of disengaging the same from the drag-bar, when desired, by imparting to the depositing-tube a lateral movement, when the cog q^2 will pass into the opening in the arm of the drag-bar, and thus disengage its opposite journal-pin, q , and permit the depositing-tube to be detached therefrom, one of the arms j of the drag-bar being bent outward for that purpose, as seen in Fig. 16.

L is the trifurcated holding-lever attached to the ends of the two upward-curved arms j

of the drag-bar by two pins, $i^2 i^2$, projecting from a long and short arm, $i^3 i^4$, of the trifurcated holding-lever, upon which it is permitted to turn when required.

l^3 is the central hook-shaped branch of the trifurcated lever L , projecting downward and inward between two ears, l^2 , which project rearward from the upper portion of the depositing-tube U , and provided with a series of holes into which a wooden pin, c^2 , is inserted, the end of said central branch, l^3 , being notched in such a manner and sustained in such a position as to catch over the wooden pin c^2 and hold the depositing-tube firmly in the required position during the operation of forming the drill, and at the same time allow the attendant to disengage it therefrom, when he shall discover a rock or other obstruction in the way, by simply laying hold of the curved lever C , to which it is attached by the chain b , and elevating it sufficiently to disengage the hook l^3 of the triform lever L from the pin c^2 , when it will be permitted to turn rearward and clear itself of the obstruction, and thus save the wooden pin from being broken and render the progress of the machine uninterrupted. Should, however, the obstruction be not discovered, it is designed that the wooden pin shall break rather than the trifurcated holding-lever or depositing-tube.

The upper portion of one side of the depositing-tube is provided with a cam-shaped projection, r , as seen at Fig. 17, against which the long arm i^4 of the trifurcated lever L is made to act, when the depositing-tube U shall have been turned rearward from any cause, for the purpose of throwing it frontward in its proper position to allow the hook-branch l^3 of the triform lever to engage itself with the pin, the holes into which the pin is inserted being on a circle scribed from the journal-pin q of the depositing-tube, and the downward movement of the holding-lever L being governed by a pin, r^2 , Fig. 18, projecting from one of the arms of the drag-bar beneath which the end of the short arm i^3 of the holding-lever catches and sustains it in such a position that the notched end will be on the circle scribed from the center of the pin q , irrespective of the hole into which it is inserted, the relative angle of the depositing-tube with the drag-bar being governed by the position of the pin in either of the holes aforesaid.

The upward movement of the trifurcated holding-lever is governed by a pin, r^3 , projecting from the arm of the drag-bar, upon which the long or cam arm i^4 strikes on the ascent of the holding-lever, in disengaging it from the pin c^2 or elevating the depositing-tube, and thus prevent it from turning entirely over, which would cause the upper side of the long arm to catch behind the cam or projection r of the depositing-tube and prevent the proper action of the same.

The frontward end of each drag-bar is provided with a double arm, P , having a vertical oblong opening, P' , in its central portion, into

which fits the end of the drag-bar, which is recessed or notched in its upper edge to receive a tooth, P^2 , projecting from the upper side of the opening in the arm, and by means of a key or wedge, Q , driven into said opening beneath the end of the drag-bar, forms a complete lock thereto, and by which the drag-bar may be detached therefrom by simply withdrawing the key or wedge.

The ends of the double arm P are made round, and form the journals of the drag-bar when secured in the eyes or loops R , attached to the front transverse beam of the frame, and are provided with shoulders or projections S S' on their under sides, one of which is made to enter an opening, s , in one of the eyes or loops R , when said double arm P is turned half a revolution upward and frontward, by simply moving the double arm laterally with its projection S' into the opening s , and thus disengage the opposite end thereof from the eye or loop R and allow it to be detached therefrom.

It will thus be seen that nearly every section of this seeding-machine may be detached and put together with the greatest convenience and facility.

Having fully described the construction, use, and operation of our several improvements on the seeding-machine, what we claim therein as new, and desire to secure by Letters Patent, is—

1. The employment of the oblique recessed washer K , in combination with the cylindrical cap I , provided with inclined wings or projections L^2 , which match with the oblique recesses k of the washer K in such a manner that the pressure produced thereupon shall securely hold the cylindrical cap in the required position when adjusted to increase or diminish the size of the seed-receptacles.

2. Scalloping the end of the cylindrical cap L^2 of the distributing-cylinder, and using in connection therewith clamp-screws o for holding the cylindrical cap in the required position.

3. The employment of the pin m^2 , Fig. 12, or its equivalent, when used in connection

with a clamp-screw, o^4 , and interior cylindrical cap, M^2 , when properly adjusted to increase or diminish the size of the seed-receptacles.

4. Providing one of the journal-pins, q' , of each depositing-tube U with a cog, q^2 , which is made to fit an opening in the arm j of the drag-bar j^2 , when it shall be turned frontward, nearly horizontal, for the purpose of detaching the depositing-tube from the drag-bar j^2 with facility, as described, and shown in Fig. 18.

5. The employment of the trifurcated holding-lever L , in combination with the drag-bar j^2 and suspended depositing-tube U , for the purpose of holding the depositing-tube in its proper position during the operation of forming the drill and depositing the seed, and by which said trifurcated holding-lever L may be disengaged from the pin c^2 when an obstruction is visible and allow the depositing-tube to turn rearward when it shall have been struck, and thus save the pin c^2 from being broken, and this trifurcated holding-lever we claim, or its equivalent.

6. Causing the depositing-tube to assume its proper position after it shall have cleared the obstruction, by the action of the long arm i^4 of the trifurcated holding-lever L upon the cam or projection r of the depositing-tube, and this we claim as in the arrangement herein described and represented.

7. So combining a separate double arm, P , with the frontward end of each drag-bar j that it may be detached therefrom as well as from the eyes or loops R of the front transverse beam of the frame, as described in the specification, and shown in the drawings at Figs. 16, 17, and 19.

In testimony whereof we have hereunto signed our names before two subscribing witnesses.

SAMUEL PENNOCK.
MORTON PENNOCK.

Witnesses:

JOS. W. BARNARD,
ISAAC SMITH.