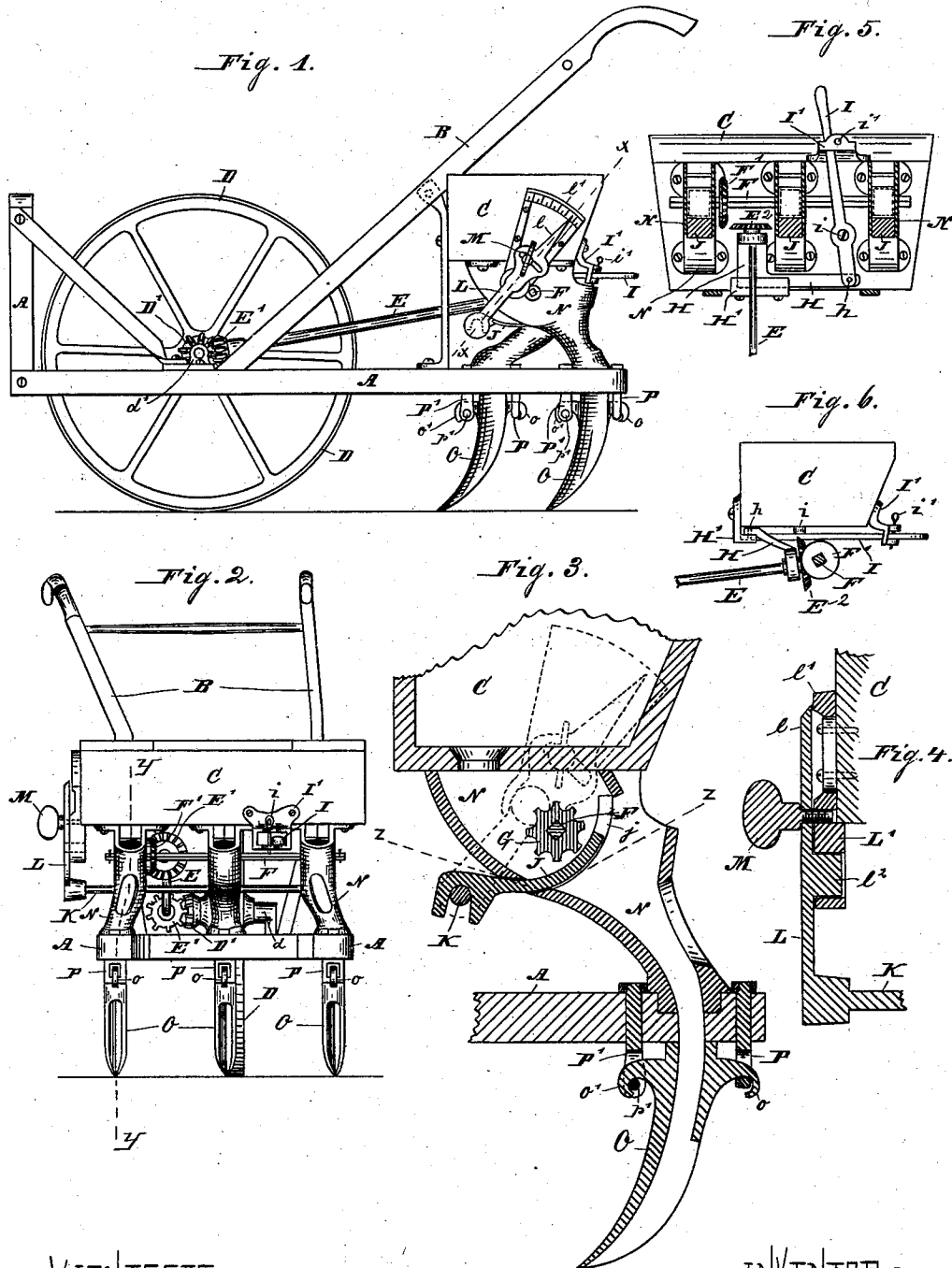


(Model.)

A. N. NORRIS.
GRAIN DRILL.

No. 260,042.

Patented June 27, 1882.



WITNESSES:

James B. Luzzius.
R. P. Daggett.

INVENTOR:

Albert N. Norris,
per C. Bradford,
his Attorney.

UNITED STATES PATENT OFFICE.

ALBERT N. NORRIS, OF RUSHVILLE, INDIANA.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 260,042, dated June 27, 1882.

Application filed September 8, 1881. (Model.)

To all whom it may concern :

Be it known that I, ALBERT N. NORRIS, of the town of Rushville, county of Rush, and State of Indiana, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification.

My said invention consists in an improved form of the slide or cut-off, whereby the amount of seed which shall pass through the machine at each revolution of the feed-wheel is determined, and of the means of operating the same; also, of an improved method of attaching the teeth of the drill to the frame-work thereof; and, further, in certain details of construction, all as will hereinafter be more specifically set forth.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a side elevation of a grain-drill embodying my invention; Fig. 2, a rear elevation of the same; Fig. 3, a vertical section of one tooth and adjacent parts on the dotted line *yy*; Fig. 4, a detail section on the dotted line *xx*; Fig. 5, an under side plan of the seed-box and the mechanism adjacent thereto, as seen when looking upwardly from the dotted line *zz*; and Fig. 6, an elevation of the same, the other parts being omitted.

In said drawings, the portions marked A represent the frame-work of the machine; B, the handles thereto; C, the seed-box; D, the ground or driving wheel; E, a shaft through which power is communicated from said driving-wheel to the feed mechanism; F, a transversely-running shaft, on which are located the feed-wheels; G, said feed-wheels; H, a sliding bearing, in which the rear end of the shaft E rests; I, a lever by which said sliding bearing is operated and the gear-wheels on the shafts E and F thrown into or out of engagement; J, slides or cut-offs to regulate the discharge of the seed; K, a bar connecting said cut-offs; L, a lever whereby said bar and said cut-offs are operated; M, a thumb-screw by which said lever is secured in place; N, the seed-cup and its shank; O, the teeth, and P P' the hangers by which said teeth are secured to the frame-work and in proper position.

The frame-work A, handles B, and seed-box C are similar to the corresponding parts of common drills and need no special description.

The driving-wheel D is mounted on an axle, which rests in bearings *d d'* on the frame-work A, one of which, *d'*, has a supplemental bearing upon the proper side, in which the end of the shaft E rests.

Upon the shaft or axle of the wheel D, and rigidly attached thereto or to the hub of the wheel, or forming an integral part of the latter, is the gear-wheel D', which engages with a similar gear-wheel, E', on the shaft E. The shaft E is mounted in the bearing *d'* at one end and in the sliding bearing H at the other. It carries the gear-wheels E' and E², which engage respectively with the gear-wheels D' and F'. The shaft F passes through the feed-cups N and bears upon it the feed-wheels G. It is also provided with the gear-wheel F', by which, when it is in engagement with the wheel E², said shaft is driven.

The feed-wheels G are not of novel construction. They are notched on their faces, as is common, are journaled in bearings in the sides of the cups N, and are driven by the shaft F. They raise the seed from the bottom of the cup N and discharge it over the inner end of the slide J in such quantities as the opening at that point will permit.

The sliding bearing H carries the shaft E at one end, and is attached to the lever I at the other. It moves in the groove provided for its reception in the lug H', and holds the wheel E² into or out of engagement with the wheel F', according to its position.

The lever I is pivoted to the bottom of the seed-chamber by the pivot *i*. It is connected to the sliding bearing H by the joint *h*, and operates to force said bearing back and forth, and thereby forces the wheel E² into or out of engagement with the wheel F', and thus causes the feeding mechanism to be operated or to withhold it from being operated. It is secured in the desired position by the pin *i'*, which passes down through the keeper I' for said lever.

The slides J move in grooves *j* in the sides of the seed-cup N in close proximity to the feed-wheel G. They are moved by the rod or bar K to occupy a position more or less advanced past said feed-wheel, and thus leave a greater or less space above its inner edge, through which the seed shall pass on its way to the ground, and thus regulate the quantity of seed

which shall be discharged at each revolution of the wheels. It will be observed that the slide passes under instead of over the feed-wheel, and the wheel simply lifts the seed over the edge of the slide. The rod K passes through a hole or between projections upon the outer ends of the slides, and when moved forces them back and forth, as it is desired to increase or diminish the flow of seed.

The lever L is pivoted to the bearing L' by the pivot P, and is secured thereto by the thumb-screw M. It operates the rod K and determines its position. By means of an indicator-plate, I', on the part L' and a pointer, I, on the lever L, the position is determined with accuracy. The thumb-screw M, when the lever L is brought to the desired position, is screwed down against said lever, and holds it there rigidly and securely.

Each of the seed-cups N serves to inclose the feed-wheel G, and the slide J forms a conduit for the seed from the box O to the tooth O, and together they constitute the means of supporting said box C. As will be observed, they are so formed as to convey the seed at such angles as will reach the different teeth of the machine, although the latter are not directly under the seed-box.

The teeth or plows O are simply hollow shares, through and behind which the seed falls. They are made removable by means of the construction of the wings thereof, and the hangers P P', by which they are secured to the frame A. In attaching the tooth the wing o is first hooked into the opening in the hanger P. The tooth is then swung around until the other wing o' passes up into the slot in the hanger P' and the pin p' is inserted in the holes therein, which completes the attachment.

The hangers P P' will be understood at once from the drawings and the incidental description above.

The operation of my invention is as follows: The wheel D, through the gear D' E', turns the shaft E, which in turn, through the gear E' F',

turns the shaft F and the feed-wheels G thereon. The grain which comes down into the seed-cups N from the seed-box C is taken up by these feed-wheels and discharged over the edges of the slides J in such quantities as the position of the latter will allow, whence it goes down through the shanks of the seed-cups and of the teeth O, and is planted in the usual manner.

When it is desired that the machine should not plant, as when being driven to or from the field, or from one field to another, the shaft F and the feed-wheels thereon are rendered motionless by the disengagement of the gear E' F' through a manipulation of the lever I and sliding bearing H. When it is desired that the feed should be faster or slower the thumb-screw M is loosened, the lever L moved to the desired point, which moves the rod K and the slides J, and the thumb-screws are again tightened up.

When it is desired to ship these machines it is desirable to remove the teeth, so that they will not deface each other. This is done by simply taking out the pins p' and unhooking the wings of the teeth from the hangers P. The teeth can then be placed in the seed-box C, or elsewhere where they cannot mar the other parts.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of the devices as herein described, consisting of the hopper C, seed-cups N, curved seed-slides J, moving in a corresponding groove, j, shaft or bar K, seed-wheels G, sliding bearing H, lever I, shafts E and F, and thumb-screw M, all constructed and arranged as specified.

In witness whereof I have hereunto set my hand and seal, at Rushville, Indiana, this 2d day of September, A. D. 1881.

ALBERT N. NORRIS. [L. S.]

In presence of—

J. H. MUIRE,

JOHN WALLACE.