(No Model.) 2 Sheets—Sheet 1.

A. N. NORRIS.

SEEDING MACHINE.

No. 385,724. Patented July 10, 1888.

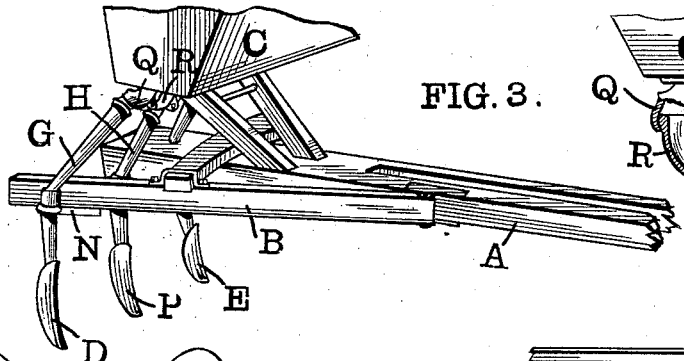

FIG. 3.

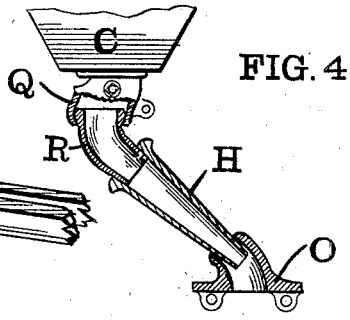

FIG. 4.

FIG. 5. C

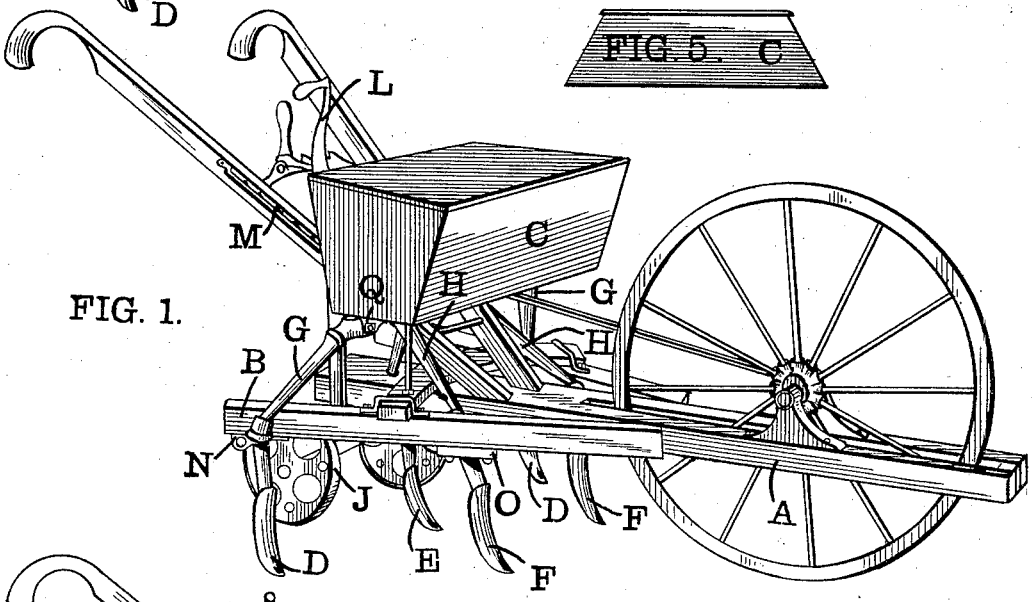

FIG. 1.

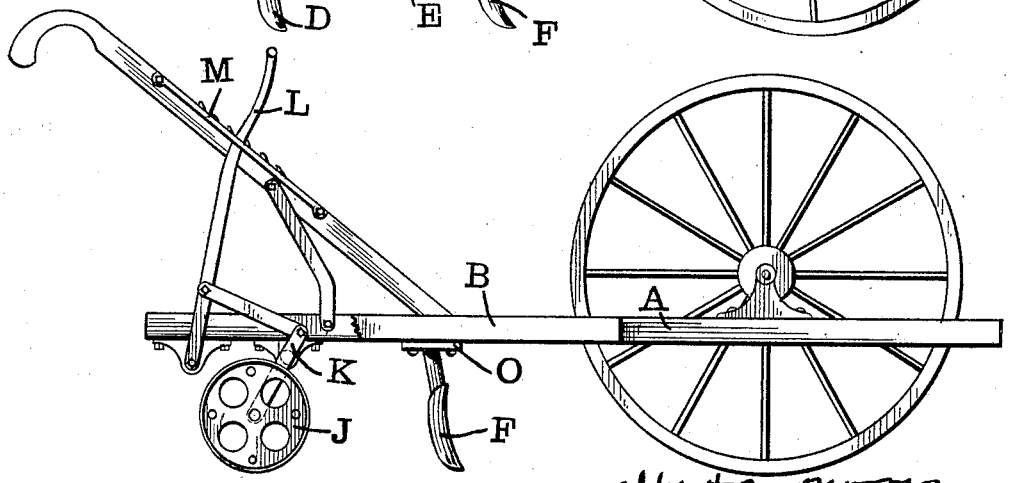

FIG. 2.

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by James W. See.
Attorney.

(No Model.) 2 Sheets—Sheet 2.

A. N. NORRIS.

SEEDING MACHINE.

No. 385,724. Patented July 10, 1888.

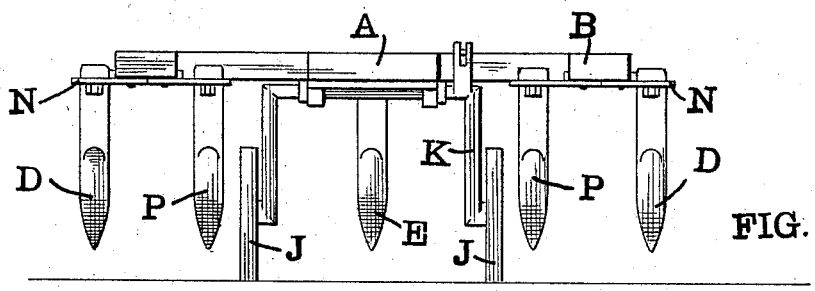

FIG. 6.

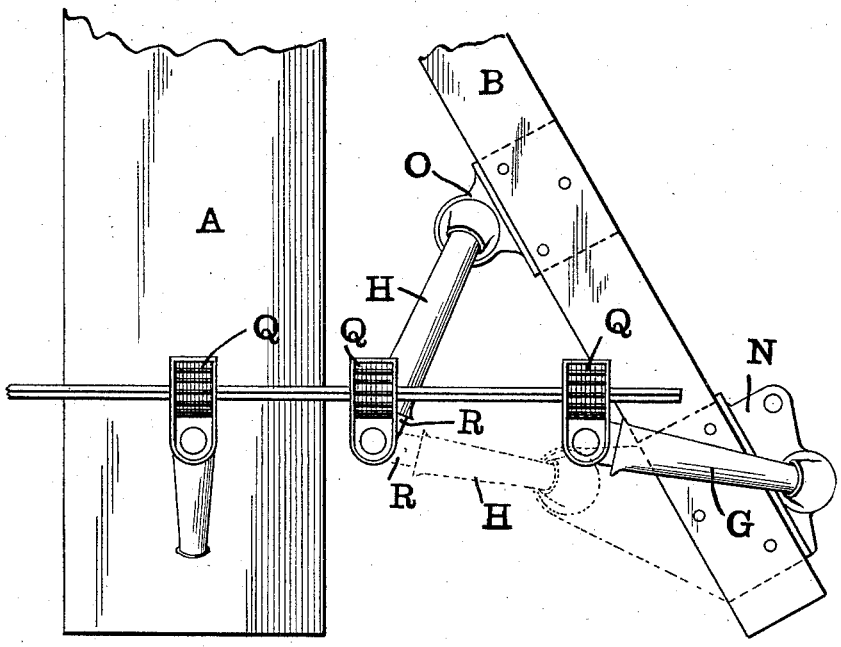

FIG. 7.

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UNITED STATES PATENT OFFICE.

ALBERT N. NORRIS, OF RUSHVILLE, INDIANA, ASSIGNOR TO THE STAR DRILL COMPANY, OF SAME PLACE.

SEEDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 385,724, dated July 10, 1888.

Application filed February 25, 1888. Serial No. 265,322. (No model.)

To all whom it may concern:

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

This invention pertains to improvements in that class of seeding-machines ordinarily spoken of as "one-horse grain-drills," and the improvements relate to details of construction, as hereinafter pointed out in the claims.

My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of a grain-drill, illustrating my improvements, the hoes being arranged in zigzag order; Fig. 2, a side elevation of the same with many parts omitted; Fig. 3, a perspective view of portions of the machine, illustrating the arrangement of the hoes in a straight line; Fig. 4, an end view of a portion of the seed-box, showing in section one of the seed-conducting devices leading to the hoe-shanks; Fig. 5, a front elevation of the seed-box; Fig. 6, a rear elevation of the frame parts, with hoes and rear wheels attached; and Fig. 7, a plan showing frame portions at the rear of the machine and the arrangement of seed-conducting devices.

In the drawings, A indicates the usual central frame-piece employed in this class of machines; B, the expansible side wings articulated to the central frame-piece and arranged to operate in the usual manner; C, the seed-box disposed across the machine and supported by the frame, but having its bottom extending the full limit of the width of the machine and having its top much shorter than its bottom, as seen in Fig. 5; D, the usual outside seed-hoes secured at the rear ends of the wings; E, the central seed-hoe disposed in line with the hoes D and secured near the rear of the central frame-piece; F, in Figs. 1 and 2, the intermediate seed-hoes set forward of the hoes previously referred to and secured to the wings; G, seed-conductors leading from the outer seed-cups, attached, as usual, below the seed-box to the shanks of the seed-hoes D; H, similar seed-conductors leading from the usual intermediate seed-cups under the seed-box to the shanks of the intermediate hoes; J, a pair of wheels disposed under the rear end of the central frame; K, a skeleton lever pivoted to the under side of the rear end of the central frame-piece and projecting downward to and forming the axle-studs for the wheels J; L, a hand-lever pivoted at its lower end to the central frame-piece and linked to the lever K and projecting upward to the rear of the seed-box; M, a ratchet secured to one of the usual handles and adapted to be engaged by the hand-lever L, and serving in maintaining the hand-lever in adjusted position; N, shank-plates secured beneath the rear ends of the wings B and serving as the means for attaching the hoe-shanks to the wings, these plates projecting outside and inside the wings and presenting the upper ends of the hoe shanks to the conductors below the level of the top of the wings; O, similar shank-plates for the intermediate hoes, these plates projecting inwardly, so as to present the upper ends of their hoe-shanks within the wings; P, the intermediate hoes when the same are arranged in line with the other hoes; Q, the seed-cups secured below the seed-box and having the usual seed-wheels arranged to be driven in the usual manner from the forward wheel of the machine; and R, tubular elbows articulated to the intermediate seed-cups and to the upper ends of the seed-conductors H, and forming the upper portions of these conductors.

The seed-box having a greater length at its base than at its top causes the center of gravity of the mass of seed within it to be disposed much lower down than usual, thus rendering the machine much more manageable and securing greater steadiness of action, and at the same time the bevels at the ends permit the machine to pass more readily through corn partly blown down.

The wheels J at the rear end of the machine serve to prevent the usual side tipping, by which the machine works deeper upon one side than upon the other, and they also serve in maintaining uniformly a proper depth of operation for the hoes. By manipulating the hand lever L the rear end of the frame-work may be raised or lowered with reference to the

wheels J, whereby the depth at which the hoes act may be adjusted, and the adjusted position of the hand-lever is maintained by the ratchet M.

The intermediate hoes may be secured forward of the other hoes, as seen in Fig. 1, or they may be secured at the rear ends of the wings, and thus be brought into a straight line with the other hoes, as indicated in Fig. 3. The implement may thus at pleasure be made into a zigzag drill or a straight-line drill, as required by the nature of the soil being worked. To accomplish this the intermediate hoes are attached to the forward shank-plates, O, or to the inward extensions of the shank-plates N, as desired, Fig. 7 clearly illustrating the arrangement.

The seed-conductors G, by which the seed is led to the outside hoes, require only the capacity for the articulate movement usually required in grain-drills with expanding wings, and hence these conductors may be constructed as usual. The intermediate conductors, however, require, in addition to the capacity for such articulate movement as is called for by the expansion movement of the wings, a capacity for connecting alternately with the intermediate hoe-shanks, whether the same be set in zigzag position or in straight-line position. I secure the desired results by means of the tubular elbows R, which have a universal or ball-and-socket movement in their seed-cups. The lower ends of all the seed-conductors are arranged to have a telescopic motion in the nozzles of the shank-plates forming the upper ends of the tubular hoe-shanks, whereby the length of the seed-conductors will accommodate itself to the movements of the parts. The intermediate conductors, by means of the elbows R, accommodate themselves to all of the movements of the intermediate hoe-shanks as the wings are expanded, and as the hoe-shanks are moved to the forward or rear position upon the wings.

I claim as my invention—

1. The combination, substantially as set forth, of central frame-piece, A, side pieces, B, articulated thereto, skeleton lever K, pivoted to the under side of the rear of the central frame-piece and projecting downwardly at each side thereof and terminating in axle-studs, wheels J on said studs, hand-lever L, linked to said skeleton lever, and ratchet M, engaged by said hand-lever.

2. The combination, substantially as set forth, of central frame-piece, A, central seed-hoe, E, at the rear thereof, expansible wing-pieces B, articulated to the frame-piece and provided with outside seed hoes, P, in line with said central seed-hoe, shank-plates N, attached to said wing-pieces and projecting to both sides thereof, shank-plates O, projecting inwardly from said wing-pieces forward of the plates N, pivoted seed-conductors H, adapted to engage alternately the plates N and O, and intermediate hoes adapted alternately for engagement at plates N and O.

ALBERT N. NORRIS.

Witnesses:
J. W. SEE,
W. A. SEWARD.