(No Model.)

C. J. LILLOE.

CORN PLANTER.

No. 261,162. Patented July 18, 1882.

Fig. 1.

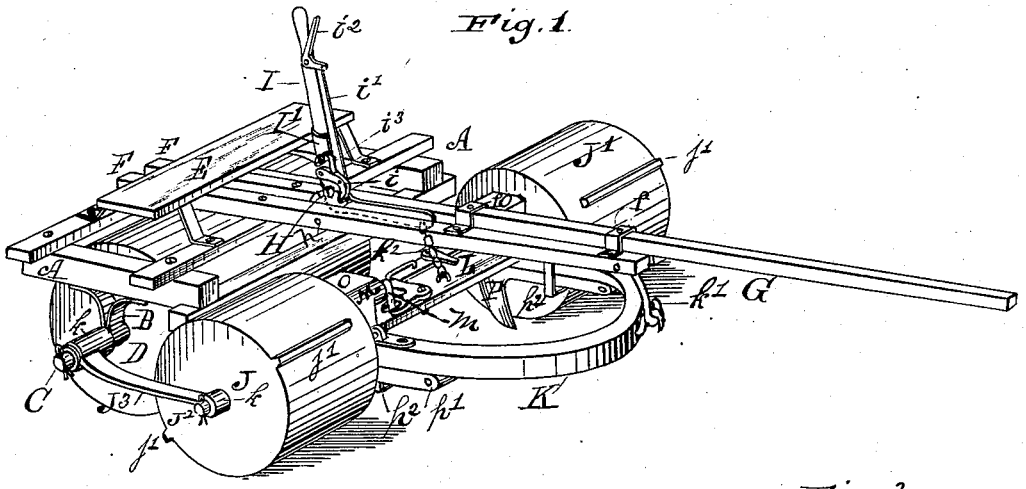


Fig. 2.

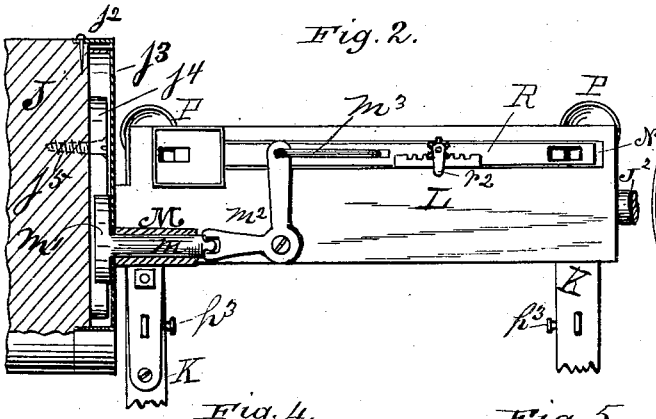


Fig. 3.

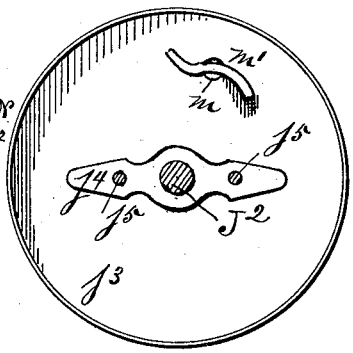


Fig. 4.

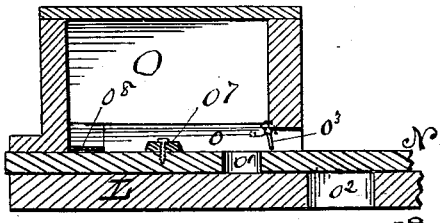


Fig. 5.

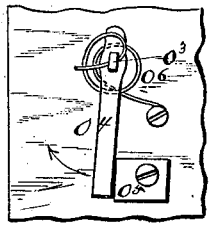


Fig. 6.

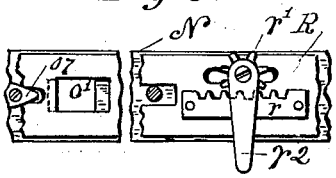
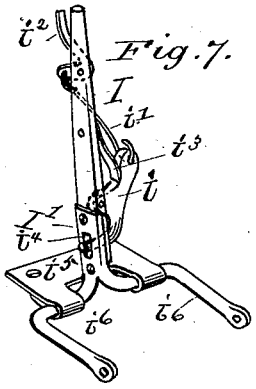


Fig. 7.



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UNITED STATES PATENT OFFICE.

CHRISTIAN J. LILLOE, OF BYRON, ASSIGNOR OF ONE-HALF TO LEWIS G. NELSON, OF KASSON, MINNESOTA.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 261,162, dated July 18, 1882.

Application filed March 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN J. LILLOE, a citizen of the United States of America, residing at Byron, in the county of Olmsted and State of Minnesota, have invented certain new and useful Improvements in Corn-Planters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to that class of machines which are adapted to automatically drop corn in equidistant hills and cover the same after having removed the earth, so that when deposited the corn shall be at a proper depth below the surface; and my invention consists in certain devices and combinations of devices hereinafter fully described, and specifically set forth in the claims.

Figure 1 is a perspective of a machine embodying my improvements. Fig. 2 is a plan of the feed-bar and its operating mechanism, a portion of which is shown in section. Fig. 3 is a side elevation of a portion of Fig. 2. Fig. 4 is an enlarged sectional view of a feed-box and slide. Fig. 5 is a side elevation of the spring and stop attached to the seed-box gate. Fig. 6 is a detail in plan of the feed-slide-adjusting mechanism, and Fig. 7 a perspective of a preferred form of sector-lever.

Like letters indicate like parts in all the figures.

A rectangular frame-work, A, is supported by suitable boxes, B, upon the shaft C of the rear roller, D, of the machine. Suitably secured to the frame A are the seat E and two longitudinal beams, F, united at the front by two straps or boxes, *f f*, which serve to receive and retain the tongue or pole G, to which a team is hitched by an evener and other usual means. Between the beams F, and within easy access from the seat, is located the toothed sector H, secured to one of the beams, and through both the beams and the sector passes a rod or bolt, *h*, which serves as the pivot of the sector-lever I, provided with a pawl, *i*, connected by a rod, *i'*, to a hand-lever, i^2, all of usual construction. In Fig. 7 I have illustrated a preferred arrangement of these devices, in that the pawl is re-enforced in a manner hereinafter described in connection with other advantages of such preferred construction.

The lever I is provided with a bell crank, I', adapted to rise and fall between the beams F.

In front of roller D are two marking-rolls, J J', mounted upon a shaft or axle, J^2, each end of which is connected to the rear shaft, C, by curved arms J^3, (one only of which is shown,) provided with suitable boxes, *k*, and retained from displacement by suitable means—for example, a washer and pin, as shown; or it may be by a washer and nut. The inner ends of rollers J J' are substantially in line with the outer ends of roller D, and the space between them is utilized by locating therein the seed feeding and dropping mechanism.

Between the rollers J J', and secured to axle or shaft J^2, is a curved frame, K, to which are attached the several devices constituting the seeding mechanism of the machine, and at its front central portion said frame is connected by a link or chain, *k'*, to the beams F, which, with the rigid curved arms J^3, retain the shaft J^2 in a position parallel to shaft C, but allow the former to be elevated or depressed vertically, as desired, by means of the chain k^2, attached to the bell-crank I' and to the platform L, which is secured to the frame K.

The rollers J and J' are provided with projecting marking-strips *j'*, extending longitudinally from near their inner ends to their outer ends and located a semi-circumference apart upon their peripheries. The roll J is provided at its inner end with a band, j^2, which projects inwardly over a cup, j^3, which is supported loosely on the shaft J^2, which passes centrally therethrough. To the roll J is also secured a double cam or cross-arm, j^4, through which the shaft J^2 passes, said cross-arm being secured by screws or bolts j^5.

In a bracket, M, secured to the frame K, is journaled the shaft of an oscillating bell-crank, *m*, provided at its inner end, within the cup j^3, with a double cam or cross-arm, *m'*,

and is connected to a horizontal bell-crank, m^2, pivotally secured on the platform L, and connected by a rod, m^3, pivotally to the feed-bar N, which is located beneath the seed-boxes O O, and acts to convey the seed into the hollow plows P, which are pivotally attached at p' to the frame K and held in line by loops, p^2, between the plow-point and the pivot, said loops being mortised into the frame and adapted to be adjusted to different heights by the set-screws or pins p^3. (See Fig. 2.) The seed-boxes O are provided with inclines o at the bottom of their inner sides, and plates o^6, of metal, lying closely upon the bar N. Diamond-shaped projections o^7 are secured upon and near the discharge-opening o' of the slide N. At the delivery end of the box O is an oscillating gate, o^3, closing normally an opening through the end of the box and over the slide or feed-bar N, said gate opening outwardly and held closed by a coiled spring, o^6, having one end thereof secured to the outside of the box and the other to the shaft of the gate, to which is secured the arm o^4, which strikes and rests normally against the stop o^5, as clearly shown in Fig. 5.

To the upper surface of the bar N is secured a thin metal plate, R, slotted for the passage therethrough of the connecting-rod m^3, the fastenings of the projections o^7, and for the screw or pivot of the pinioned lever r^2, the pinion r' meshing with a rack, r, secured to the plate R. At the discharge-opening o' in the bar N the plate R is correspondingly perforated, and the metal removed to form said perforation is bent downwardly into the said discharge-opening, so that as the plate is moved by the pinioned lever and rack said bent portion moves back and forth in said discharge-opening and contracts or expands the same, as clearly indicated by dotted lines in Fig. 6.

The bell-crank lever I′ in Fig. 7 is provided with two arms, i^6, for connection to two chains, k^2, and is secured by a plate, i^5, to the top of beams F, and is perforated at i^4 for the passage therethrough and through the lever I of the pawl i, which is pivoted to the side of lever I, and the rod i' extends diagonally to the hand-lever i^2, as shown. By this construction the strain upon the pawl is removed from a direct action on its pivot, as in Fig. 1, and is taken by the sides of the perforation i^4 in the lever I′, and the hand-lever i^2 is pressed by the palm of the hand instead of being drawn by the fingers, as is the case in the arrangement illustrated in Fig. 1.

The operation of my invention is as follows: By means of the lever I the rollers J J′ may be raised from the ground, and when thus raised they and the attached seeding mechanism are inoperative, so that the machine is in condition for travel to and from the field and in turning to commence the planting of additional rows.

When depressed, and during the rotation of rollers J J′, the ridges j' mark lines in the soil at right angles to the rows being planted in the furrows made by the plows. The cam or cross-arm j^4 strikes first one end and quickly thereafter the other end of the cam m' of the bell-crank m, and reciprocates the feed-bar N within the boxes O, the projections o^7 tending to divide the compressed kernels in the bottom and prevent wedging the same in the lower part of the box, and the gate o^3 yieldingly scrapes off the surplus kernels over those in the opening o' of the bar, so that uniformity of feed is facilitated; but should the kernels be so compressed or presented by the presence of foreign substances of larger size than the kernels or than the opening o', then such surplus or foreign substance is discharged through the gate, and a clogging of the openings in the feed-bar and platform is avoided.

It is readily seen that the opening o' is adapted by the plate R and its accessories to be reduced or enlarged to regulate the feed, as desired, and when dropped the rear rolls pass over the ground, covering the seed. At the end of a row a return is made at such a distance from the previously last planted row as will bring the outer end of the front roll so that the ridges j' shall register with the marks previously made by them. In this manner the rows are planted equidistant and parallel. The cup j^3 and band j^2 protect the inclosed mechanism from dust and dirt.

Having described my invention and its operation, what I claim as new, and desire to secure by Letters Patent, is—

1. In a corn-planter, the combination of the frame A, beams F F, curved arms J^3, having boxes k, the curved frame K, the shafts C J^2, link k', and lever I I′, whereby the rollers J J′ are supported outside of the roller D, and are held parallel to the same and adapted to be raised and lowered, substantially as shown and described.

2. The combination of the roller J, provided with the cross-arm j^4, and the bell-crank m, provided with the cam m', substantially as shown and described.

3. The combination of roller J, provided with band j^2, the bell-crank m, cam m', and cup j^3, substantially as shown and described.

4. The combination of roller J, arm j^4, bell-crank m, cam m', bracket M, bell-crank m^2, rod m^3, and feed-bar N, substantially as shown and described.

5. The combination of frame K, platform L, plows P, loops p^2, pins p^3, boxes O, slide N, plate R, bell-cranks m m^2, cams m' j^4, and roll J, substantially as shown and described.

6. The combination of the bar N, rod m^3, and projection o^7 with plate R, provided with rack-bar r and slotted for the pivot of pinion r', and projection o^7, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTIAN J. LILLOE.

Witnesses:
P. H. PERRY,
C. M. G. NELSON.