2 Sheets—Sheet 1.

D. UNTHANK.

Check-Row Corn-Planter.

No. 216,120. Patented June 3, 1879.

Fig. 2.

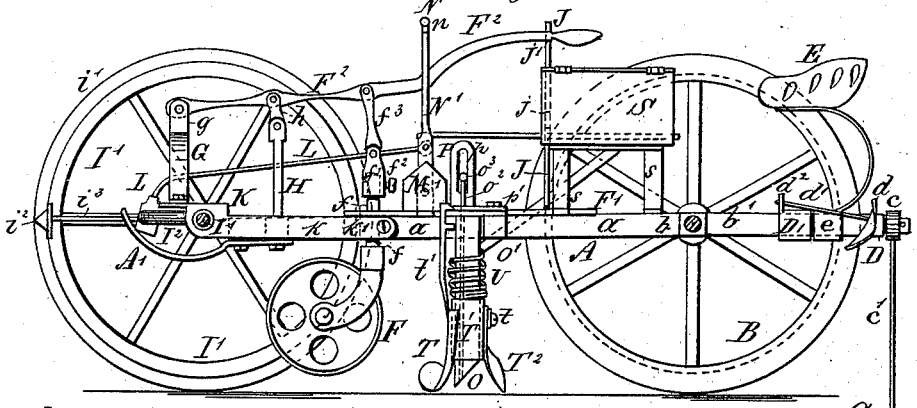
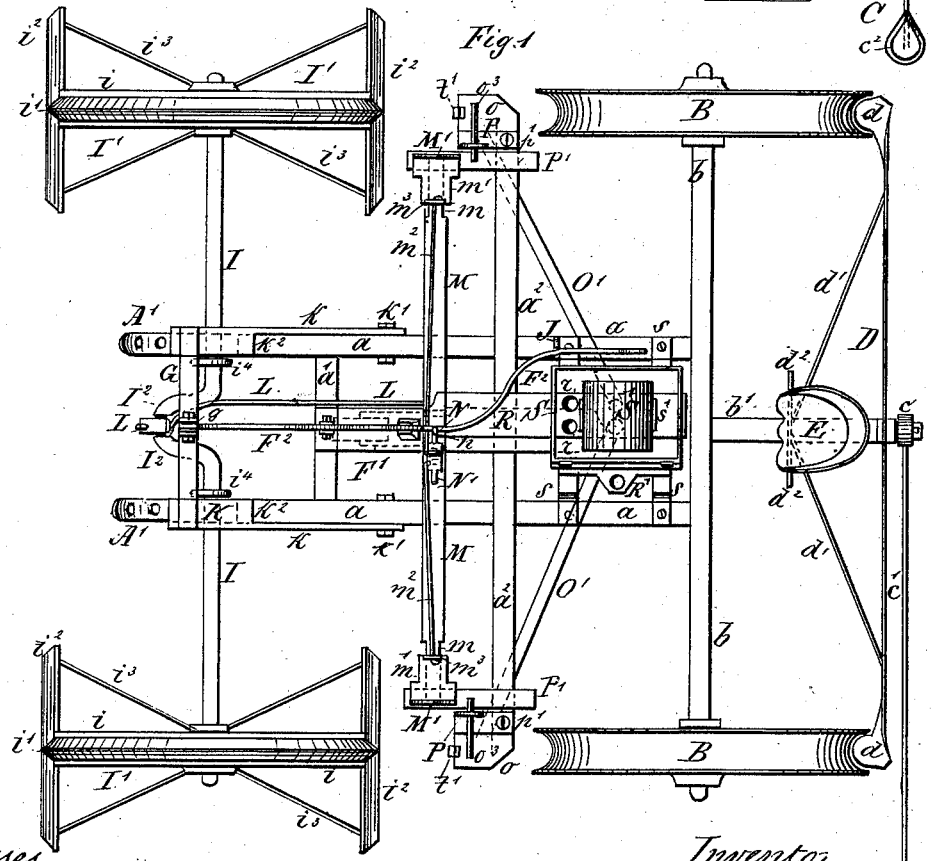


Fig. 1



Witnesses.
Henri Guillaume
Alf. E. Leonard

Inventor
Daniel Unthank
per Henry Orth
atty

2 Sheets—Sheet 2.

D. UNTHANK.

Check-Row Corn-Planter.

No. 216,120. Patented June 3, 1879.

Fig. 5

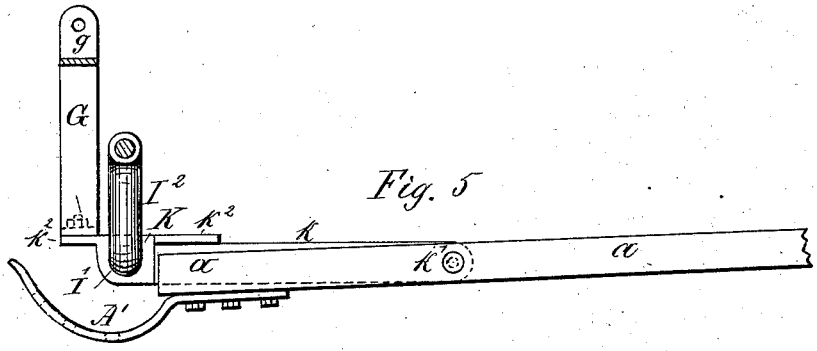


Fig. 4

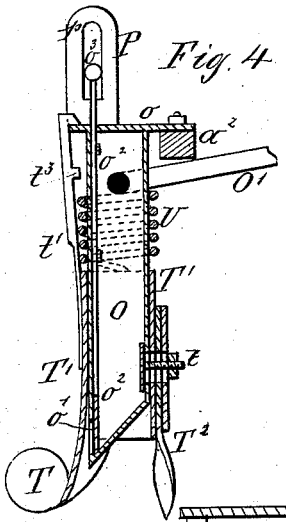


Fig. 7

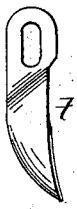


Fig. 3

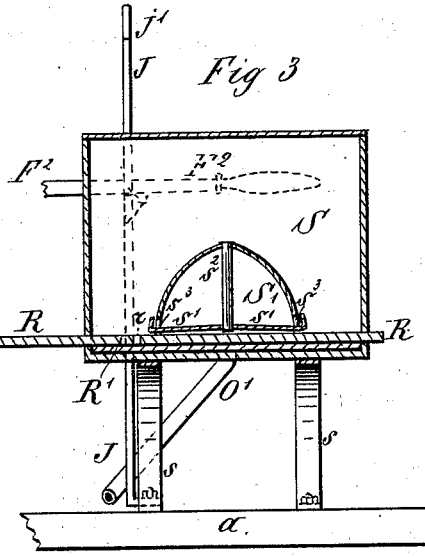
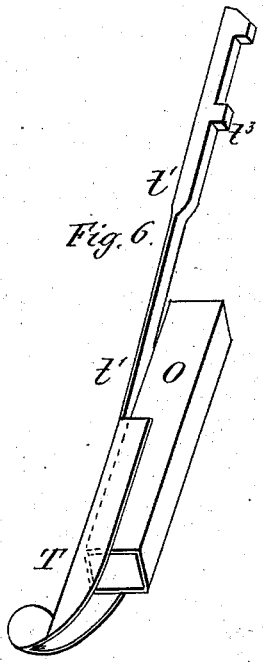


Fig. 6.



Witnesses.
Alf. L. Leonard
Henri Guillaume

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Daniel Unthank
per Henry Orth
atty.

UNITED STATES PATENT OFFICE.

DANIEL UNTHANK, OF SPICELAND, INDIANA.

IMPROVEMENT IN CHECK-ROW CORN-PLANTERS.

Specification forming part of Letters Patent No. **216,120**, dated June 3, 1879; application filed October 14, 1878.

To all whom it may concern:

Be it known that I, DANIEL UNTHANK, of Spiceland, Henry county, Indiana, have invented new and useful Improvements in Check-Row Corn-Planters, of which the following is a specification.

My invention relates to novel features of construction and arrangement of parts, whereby the mechanism of such machines is greatly simplified and rendered more efficient, as hereinafter fully described, and shown in the accompanying drawings, in which—

Figure 1 is a plan view, and Fig. 2 a side elevation, of a check-row corn-planter constructed according to my invention, one of the check-row wheels and one of the drive-wheels being removed in the latter figure. Fig. 3 is a vertical transverse section of the seed-box on a larger scale. Fig. 4 is a like view, also on a larger scale, of one of the dropping-spouts and its attachments, and Fig. 5 is a detached view, partly in section, showing the hinged connection of the main frame with the check-row wheel crank-axle. Figs. 6 and 7 are detail views.

Similar letters of reference are employed in the above-described figures of drawings to indicate corresponding parts wherever such may occur.

A represents the main frame, composed of the longitudinal girts *a a* and the transverse brace a^1 and girt a^2. A′ represents the draft-bars, of curvilinear form, pivoted to the under side of the girts *a* at their forward end, and projecting forward and upward around the check-row-wheel axle.

The girts *a* are connected at their rear ends with the squared axle *b* of the main drive-wheels B. The periphery of these wheels is concave or grooved to adapt them to press the earth firmly upon the seed when planted and covered, the use of such wheels being well known in machines of this character, and may, therefore, be of any preferred or approved construction.

To the center of the axle *b* is connected a rearwardly-projecting arm, *b′*, square in form and rounded at its extremity, upon which rounded end is loosely mounted a marker, C, by means of a collar, *c*, to which the marker is connected by means of a rod, c^1. The marker C consists of a conical or ovoidal shaped plate, having a round base of increased weight, and tapering to a point, to keep the marker upon the ground, the edges being trimmed or beveled to form cutting-edges c^2, as shown in Fig. 2. The marker is loosely mounted upon bar *b′* to enable it to overcome obstructions.

Upon bar *b′*, and in front of the marker, is mounted rigidly the scraper-bar D, the extremities of which are formed into or may carry scrapers *d*, of such a configuration as to adapt them to be projected within the grooved periphery of the drive-wheels to remove any earth that may adhere therein.

The scraper-bar D is preferably made of metal and slightly elastic, and is braced by means of rods d^1, connected with a plate, d^2, secured to a sleeve, D′, mounted loosely upon bar *b′*. The plate d^2 is located in front of the driver's seat, and serves as a foot-rest and as a means to bring the scrapers *d* in position to remove the earth from within the grooves of wheels B, which is effected by the driver pushing the plate d^2 forward with his feet, thereby drawing the ends of the scraper-bar D, and with it the scrapers, into the grooves. When the forward pressure upon plate d^2 is removed the resiliency of the bar D will withdraw the scrapers *d* into their normal position, as will be readily understood.

E is the driver's-seat, of any usual construction. It is mounted upon a sleeve, *e*, which is loosely connected with the bar or arm *b′*, in rear of sleeve D′, and between the latter and the scraper-bar D. The seat E is so located as to bring the operating mechanism of the machine within reach of its occupant.

F is a caster-wheel, of usual construction. Its standard *f* projects through a bearing-plate, F^1, secured to the girts a^1 a^2. The upper end of standard *f* is adjustably secured within a socket, f^1, by means of a set-screw, f^2. Between the upper forked end of the socket f^1 is pivoted the lower end of a connecting-link, f^3, in whose upper forked end is pivoted a lever, F^2. The rear end of this lever is bent laterally to adapt it to project rearward at the

side of the seed-box, its rear end terminating in a lever-handle within reach of the driver. The forward end of lever F^2 is pivoted in a forked bearing, *g*, secured to the arched brace G, bolted to the bearings K of the main frame A.

The lever F^2 has its fulcrum upon a standard, H, and is connected therewith by a pivoted link, *h*, arranged like link f^3, thus providing pivotal connections for the lever with its fulcrum and the caster-wheel, in order to insure its proper working. The fulcrum-standard H is mounted upon the bearing-plate F^1 and the girt a^1 of the frame.

I represents the check-row-wheel axle, upon which are rigidly mounted the check-row wheels I^1. The periphery of these wheels is triangular, or more properly V-shaped, forming a tread, *i*, and a cutting or furrow edge, i^1. Each wheel I^1 carries two transverse arms, i^2, in configuration like the periphery of the wheels, the apex of the cutting-edge on such bars i^2 coinciding with that of the periphery of the wheels I^1, as shown in Figs. 1 and 2. These wheels not only serve to check the rows, but also to form the hill or hole within which the corn is dropped, and also mark the cross-rows, the arms being sufficiently extended laterally for the purpose. The arms or bars i^2 are secured to the wheels in any preferred manner, and are braced by means of rods i^3, secured to said arms and the hubs of the wheels.

The center of the axle I forms a crank, I^2, for a purpose hereinafter described, and upon opposite sides of this crank are hung the longitudinal girts *a* of the main frame in the following manner: K are bearing-blocks provided with a rearwardly-projecting plate, *k*, to which the forward ends of girts *a* are pivoted, as shown at k^1. The upper faces of blocks K form bearing surfaces or plates k^2, which support the arched brace G, and form abutments for the girts *a a*, said surfaces being extended rearwardly. (See Fig. 5.)

From what has been said above it will be seen that by depressing the lever F^2 and bringing the rear end thereof into notch *j* of standard J the caster-wheel standard and caster-wheel are also depressed in rear of the fulcrum of lever F^2, while the end of the lever in front of the fulcrum is raised, and with it the arched brace G, bearing-blocks K, crank-axle I, and check-row wheels I^1, raising the latter from off the ground. A reverse movement of lever F^2 brought into notch *j'* of standard J depresses the check-row wheels and raises the caster-wheel, as will be readily understood. When the check-row wheels are raised from the ground the main frame A remains in its normal position, owing to the hinged or pivotal connection between the latter and the axle I. To prevent lateral displacement of the main frame upon axle I, I employ the stop-collars i^4.

L is a pitman-rod, connected at one end with the crank I^2 of axle I, and at the other end with a standard, *l*, Fig. 3, which supports the forward end of the seed-slide.

The standard *l* is mounted upon a reciprocating bar, M, whose outer ends are reduced in diameter, as shown at *m*. Upon these reduced ends of the bar are mounted the cam-plates M', which actuate the seed-valves or plungers contained within the dropping-spouts. These cam-plates consist of a triangular plate secured to a sleeve or equivalent device, m^1, to adapt them to slide laterally upon the reduced ends of bar M when it is desired to withdraw them from their path. This is effected by means of connecting-rods m^2, secured to a two-part spring-lever, N N', at one end, and at the other to perforated ears m^3 formed upon the sleeves of the cam-plates.

The upper end of lever N forms a catch, *n*, within which lever N' engages. Thus when the driver presses the levers N N' together the rods m^2 withdraw the cam-plates M' from their path.

This mechanism is chiefly employed to arrest the delivery of corn from the dropper-spouts when the machine is turning to commence planting new rows to avoid the raising of the check-row wheels.

Instead of connecting the sliding bar M with the seed-slide, it is obvious that both the bar and slide may be separately connected with the crank-axle I by means of two pitman-rods, though I prefer the arrangement shown as more simple.

O O are the dropper-spouts, secured at their upper ends to a plate, *o*, supported from the girts a^2 of the main frame. At a point below said plate *o* the spouts O are connected with the delivery hose or tubes O', through which the corn is conducted from the seed-box. The lower end of spouts O is closed and forms an inclined bottom, the delivery-port o^1 being in front of the spouts at the lower end of the inclined bottom, as shown by Fig. 4.

Within each spout O is arranged a plunger or seed-valve, o^2, adapted to close the delivery-port o^1. The upper end of this valve or plunger is connected with a pin, o^3, that moves in and is guided by a slot, *p*, in the standards P, formed either upon the plate *o* or upon a separate plate, *p'*, secured to girt a^2. The pins o^3 project through the slots *p* within the path of the cam-plates M' when the latter are not withdrawn. The cam-plates and the ends of their supporting-bar slide upon ways or plates P', secured to girt a^2 of the main frame A.

It will be seen by this arrangement that the revolution of the check-row wheels, through the crank-axle I and pitman L, will reciprocate the sliding bar M, and with it the cam-plates M', horizontally, while the latter will impart a vertically-reciprocating motion to the pins o^3 to reciprocate the seed-valves vertically within the dropper-spouts to alternately

open and close the delivery-ports of said spouts to drop the seeds regularly at intervals regulated and timed by the check-row wheels.

The arrangement and gearing are such as to cause the seed to be dropped whenever the check-row arms reach the ground to form the hill, or at each half-revolution of said wheels; and as the seed-slide R is also connected with the slide-bar M through standard *l*, it is evident that the delivery of the seed from the seed-box S must coincide with that from the dropper-spout, except when such delivery from the latter is purposely arrested, as above stated.

T represents a furrow-tooth secured upon a sleeve, T^1, loosely mounted upon the lower end of the dropper-spouts O. The rear end of the sleeve is slotted, and may be adjusted vertically upon the spout by means of a slot formed in the rear end of the latter and a set-screw, *t*. The furrow-tooth T has a circular nose or front, and expands rearwardly into a shovel-plow, as shown in detached view in perspective. It serves to remove any earth which may have fallen back into the furrow and hill made by the check-row wheels, and also to slightly widen and deepen said furrow.

To the rear of sleeve T^1 is adjustably secured a covering-plow, T^2, formed of two separate shovels, t^2 t^2, secured to the sleeve by means of the set-screw *t*, as shown by Fig. 7.

By this construction the shovels may be set to throw any desired amount of earth upon the corn—that is to say, to hill it up, as desired—the earth being afterward pressed upon the seed by the grooved wheels B, as already stated.

The sleeve is held upon the spout by means of a spring-lever, t^1, whose upper end engages with the plate *o*, but free to move vertically. This vertical movement is limited by a stop, t^3, formed on said lever.

U is a coiled spring, the upper end being connected with spout O, and the lower end bearing upon sleeve T^1, to hold the latter and the furrow and covering-teeth to their work, but forming a yielding bearing, which permits the sleeve to be pushed upward in case the rounded nose of the furrow-tooth comes in contact with a stone or other hard substance. The shape of said nose also facilitates the overcoming of such obstructions, as will be readily understood.

S is the seed-box, located centrally of the machine within reach of the driver in his seat. It is supported from the girts *a* by means of a suitable frame, *s*, and is connected with the dropper-spouts by means of the hose or tubes O′, so as to deliver the corn to both spouts simultaneously.

The seed-box S is provided with an arch, S′, secured transversely in the bottom of said box.

s^1 is a rubber or metallic spring-plate secured to a central post, s^2, and located immediately over the slide R. The ends of the plate s^1 are free to move vertically within certain limits in the recesses s^3, formed in opposite sides of the arch S′, as shown by Fig. 3. The object of this construction is to prevent the overfeeding of the seed to the delivery-tube O′ and spouts O, the capacity of the seed-cups *r* being such as to contain only the usual number of kernels to be dropped into a hill.

When turning in a field to commence planting a new row the delivery of seed from the dropper-spouts is cut off by means of lever N N′, as above described, without raising the check-row wheels; hence the delivery of corn from the seed-box to the tubes O′ is not cut off, seed being delivered to the spouts O while the machine is turning, said seed accumulating within the dropper-spouts. Now, were the delivery-ports of said spouts arranged to deliver a certain number of seeds only at each half-revolution of the check-row wheels, said seed would finally fill the spouts O and choke them up; and if the ports were of such a capacity as to deliver a greater number of kernels than the number required, a waste of seed would be the result.

To avoid both defects, I employ a cut-off slide, R′, adapted to close the cups *r* of the seed-slide R by pushing said cut-off under the slide, (see Fig. 3,) so that the delivery of seed from the spouts and the seed-box may be cut off simultaneously.

Having now described my invention, what I claim is—

1. The combination, with the dropper-spouts O and their seed-valves o^2, of the sliding bar M and cam-plates M′, operated from the check-row-wheel axle, substantially as described, for the purpose specified.

2. The combination, with the sliding bar M and cam-plates M′, of the rods m^2 and lever N N′, substantially as described, for the purpose specified.

3. The check-row wheels I^1, crank-shaft I, pitman-rod L, sliding bar M, cam-plates M′, dropping-spouts O, and the seed-valves o^2, all combined, constructed, and operating substantially as described, for the purpose specified.

4. The combination of the dropping-spout, the plate *o*, the sleeve T^1, the furrow-tooth T, and covering-plow T^2 with the coiled spring U, lever t^1, and its catch and stop, to permit the sleeve and its attachments to yield vertically and to limit this vertical motion, substantially as shown and described, for the purpose specified.

5. In a corn-planter, the combination, with the grooved drive-wheels and the foot-rest for the driver, of an elastic or yielding scraper-bar adapted to be operated from said foot-rest to project the scrapers within the grooves of the wheels, as shown and described.

6. The combination of the main frame and drive-wheels, the arched brace G, fulcrum standard H, caster-wheel F, and pivoted bear-

ings K with the crank-axle I, check-row wheels I^1, lever F^2, and the connections of said lever with the standard H and caster-wheel, substantially as described, and operating as and for the purpose specified.

7. The combination, with the lever F^2, the fulcrum-standard H, the brace G, and the standard *f* of the caster-wheel F, of the pivoted links f^3 and *h*, arranged and operating substantially as described, for the purpose set forth.

In witness that I claim the foregoing I have hereunto set my hand this 28th day of September, 1878.

DANIEL UNTHANK.

Witnesses:
JOHN F. ROBBINS,
A. C. LINDEMUTH.