

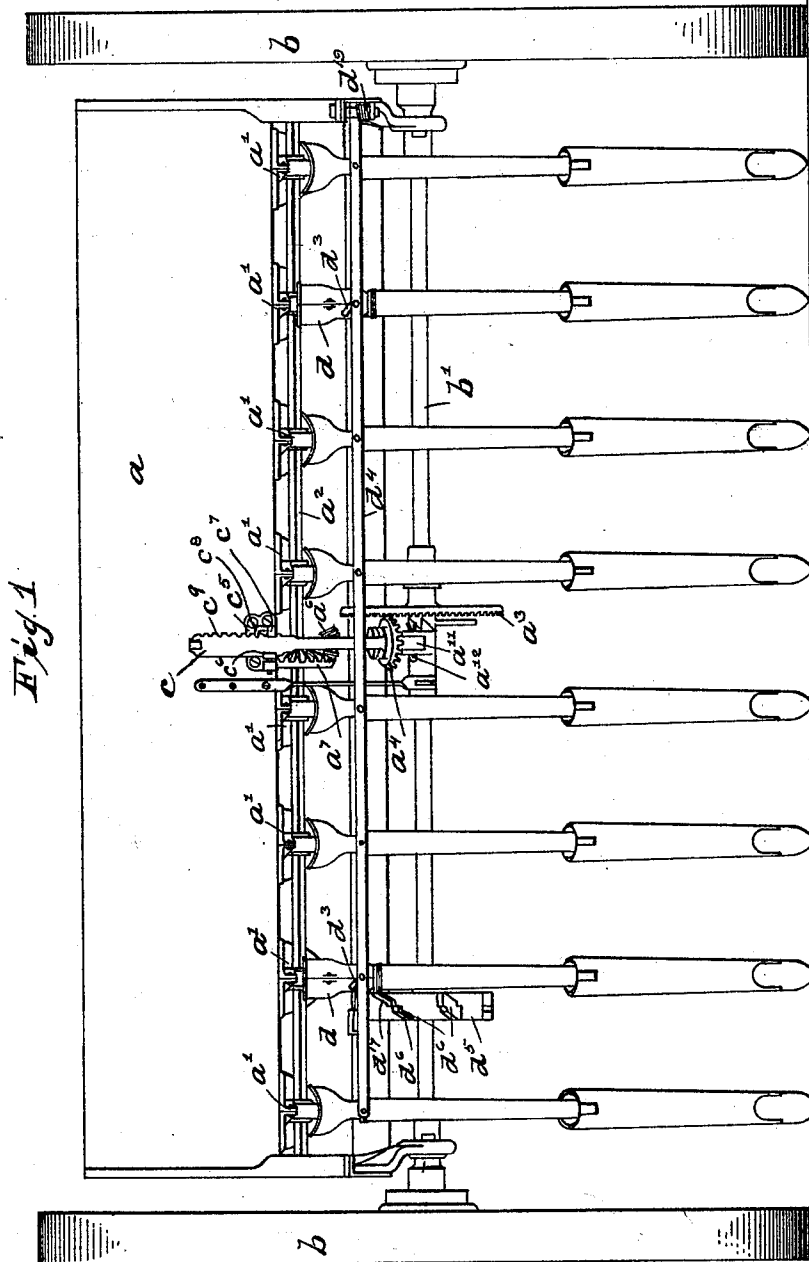
(No Model.)

3 Sheets—Sheet 1.

C. E. PATRIC.
SEEDING MACHINE.

No. 554,302.

Patented Feb. 11, 1896.



WITNESSES:

J. M. Gridley
Chas. J. Melch

INVENTOR

Charles E. Patric

BY

Paul N. Sherry

ATTORNEY

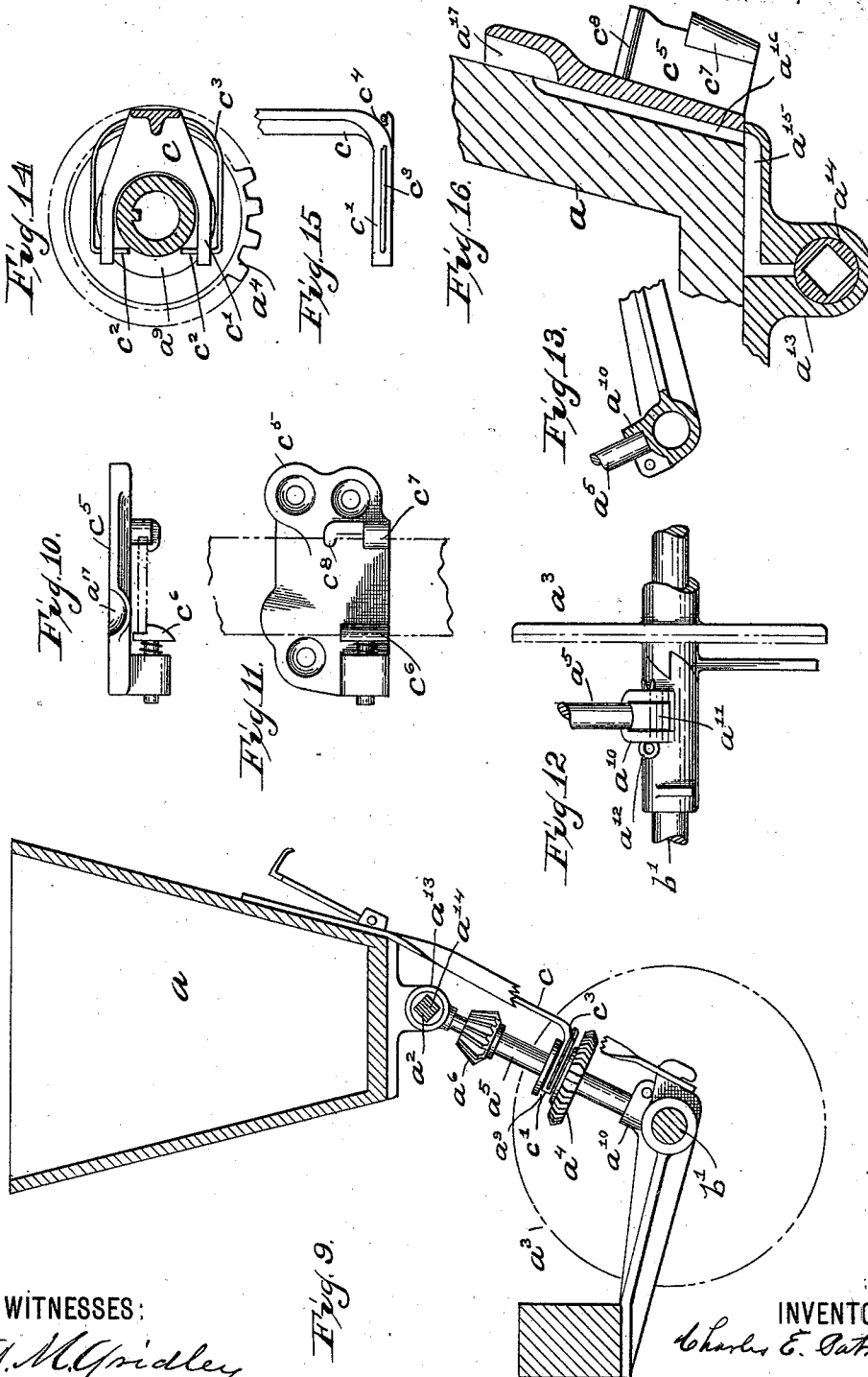
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UNITED STATES PATENT OFFICE.

CHARLES E. PATRIC, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE SUPERIOR
DRILL COMPANY, OF SAME PLACE.

SEEDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 554,302, dated February 11, 1896.

Application filed April 25, 1895. Serial No. 547,124. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. PATRIC, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Seeding-Machines, of which the following is a specification.

My invention relates to improvements in seeding-machines, and it especially relates to that class of seeding machinery known as "drills," in which the seed is delivered in a substantially continuous stream from the seed-hopper.

One of the objects of my invention is to provide novel means by which the seed distributed from the seed-hopper may be dropped at intervals to form hills.

A further object of my invention is to provide novel improvements on the constructions heretofore employed in machines of this character.

I attain these objects by the constructions shown in the accompanying drawings, in which—

Figure 1 is a rear elevation of a machine embodying my invention. Fig. 2 is a sectional elevation of a portion of the same. Fig. 3 is a plan view of the dropping mechanism in detail. Figs. 4, 5, and 6 are details of portions of the same. Figs. 7 and 8 are modifications of portions of the same. Figs. 9 to 16, inclusive, are detail views of the feed-driving mechanism and the devices for adjusting the same.

Like parts are represented by similar letters of reference in the several views.

It has become common to furnish grain-drills adapted to sow various kinds of small grain and seeds, such as wheat, oats, barley, peas, beans, &c.; but it has generally been the custom to sow these different seeds in a continuous manner from a number of feeding devices or distributors arranged at the bottom of a feed-hopper. For sowing peas, beans, and similar seed it is desirable to provide means by which they can be distributed in hills instead of continuously in rows.

In the accompanying drawings, *a* represents the feed-hopper of an ordinary grain-drill.

b b are the carrying-wheels on the axle *b'*, on which said wheels are supported and which turns with said wheels.

At the bottom of the seed-hopper *a* are distributors *a'*, which may be of any usual construction and adapted to be driven by a feed-shaft *a²*, which receives its motion from the axle *b'* through the medium of a disk-wheel *a³*, meshing with an adjustable pinion *a⁴*, slidingly mounted on a shaft *a⁵*, and carrying a pinion *a⁶*, which meshes with a beveled gear *a⁷* on the feed-shaft, this construction being well known and set forth in my former patent, No. 267,985, dated November 21, 1882.

The speed of the feed-shaft *a²* is varied by shifting the pinion *a⁴* on the shaft *a⁵* to cause said pinion to engage with the disk-wheel *a³* at a point nearer to or farther from the center of said disk-wheel. To accomplish this adjustment I employ a sliding lever *c*, having a bifurcated projection *c'* at its lower end to embrace the hub of the pinion *a⁴*, which is provided with a groove *a⁹* to receive the forks of said bifurcated projection. To provide for holding the bifurcated projection in position on the hub of said pinion, I perforate the outer ends of the forks of said projection and insert through the same the projecting ends *c²* of a spring *c³*, which is preferably formed of a single piece of metal and extends around the lever *c* and is supported in a notch *c⁴* formed therein, the construction being such that the spring keeps the projection *c²* in contact with the hub at a point beyond its center so as to hold the forked lever in position, but enabling the same to be readily removed by withdrawing the ends *c²* *c²* through the openings in the ends of the bifurcated piece *c'*.

The upper end of the lever *c* slides in a bearing *c⁵*, which is provided on one side with a spring-actuated guide-plate *c⁶* to bear on one side of said lever, and at the other with a guide *c⁷*, having a projection *c⁸* adapted to engage in suitable notches *c⁹* on the side of the lever and thus hold it in different positions of adjustment, the spring-guide *c⁶* permitting a lateral movement of the lever *c* to allow it to be disengaged from the projection *c⁸* when it is desired to adjust the same. I have also provided means for removably securing the pinion-shaft *a⁵*. This shaft *a⁵* is seated at its lower end in a bearing *a¹⁰*, preferably formed on one of the bearing-boxes of the main axle *b'*. This bearing *a¹⁰* is formed

open on one side, and in said opening is placed a removable block a^{11} , held in its normal position by a spring key or cotter a^{12} . By removing said key and block the shaft may be moved laterally to disengage it from its bearing a^{10} and be entirely removed and replaced, as desired.

The feed-shaft a^2 is preferably square in cross-section. It is provided with a central bearing a^{13} , in which is journaled a sleeve a^{14} , which fits on said square shaft. This sleeve may be formed on the hub of the gear a^7 . To provide for lubricating this bearing I construct a channel a^{15} in the top of said bearing, which connects with a passage a^{16} formed under the bearing-support c^5 , and at the top of said bearing-support I provide a cup a^{17} , into which oil may be placed and find its way through the passages a^{15} and a^{16} to the bearing a^{13} .

For each of the distributors there is provided the usual tube butt or case, into which the grain is discharged and by which it is conveyed to the shoes or hoes in the usual manner. To provide for dropping at intervals the seed so distributed I construct these tube-butts d with pivoted valves d' , each adapted when closed to stand across said tube-butt and rest in contact with a shoulder d^2 . (See Figs. 4 and 5.) One of the trunnions of this valve is provided with a crank d^3 , to which is connected a longitudinal bar d^4 , which extends across the machine below the hopper and connects with all, or as many as is desired, of the cranks d^3 of said valves.

Upon the main axle b' I place a cam-wheel d^5 , having cam projections d^6 adapted to engage with a projection d^7 on a pivoted lever d^8 , the outer end of which is connected by a link d^9 to the longitudinal bar d^4 , the connection being preferably made to the nearest valve-crank d^3 , as shown in Fig. 3. As the shaft revolves, these cam projections, contacting with the pivoted lever, cause the bar to be moved longitudinally, so as to open and close the valves.

The cam-wheel d^5 I preferably make sectional, the rim which carries the projections being formed of two parts d^{10} d^{11} , and the hub which carries the rim being also made of two parts d^{12} d^{13} . The hub parts are formed with perforated lugs d^{14} , through which are adapted to pass clamping-bolts, by means of which the hub may be clamped onto the axle. The hub parts are also further provided with a flange d^{15} , perforated to receive bolts d^{16} , by means of which the rim-sections are secured to said hub-sections, the dividing lines between the respective parts being placed at right angles to each other, thus securing a strong construction and at the same time making it possible to remove or replace the cam-wheel. This cam-wheel is preferably provided with two rows of cam projections—that is to say, the cam-wheel has auxiliary projections d^{17} , which are placed at a different distance apart from the projections d^6 , the construction being

such that the cam-wheel may be reversed so as to bring either of said projections into operative position and thus furnish the means for changing the interval at which the valves are operated. If further changes are desired, they may be secured by placing different rims on the hub-sections having different numbers of cam projections.

In Figs. 7 and 8 I have shown a modification in which the cam projections d^6 are placed in concentric rows on the side of a cam-wheel and the projection d^7 is adjustably mounted in a slotted opening d^{18} formed in the pivoted lever d^8 , so that by adjusting said projection to or from the center of said cam-wheel the proper variation in the intervals at which the valves are operated may be secured. A spring d^{19} , connected to the longitudinal bar d^4 , is preferably provided to close the valves, the cam projections being relied upon simply to open the valves, said valves being immediately closed by the spring as soon as the cam projection has passed the projection on the pivoted lever.

By the above construction it will be seen that I have provided a seeding-machine of very simple construction, which is capable of being readily adjusted to plant the seed either in hills or in continuous rows. The hill-dropping devices are made so as to be removed, if desired, and they can thus be used in the nature of an attachment to machines which are already in use.

Having thus described my invention, I claim—

1. In a seeding-machine, the combination with a series of distributors, a series of conduits, one for each distributor, arranged adjacent thereto and having downwardly-opening valves which close against a shoulder or projection as described, trunnions for said valves, one of which is provided with a crank-arm, a longitudinally-moving bar connected to all of said crank-arms, a cam-wheel, a vibrating lever contacting with said cam-wheel, and a connection from said vibrating lever to said longitudinally-moving bar, substantially as specified.

2. The combination with the main axle, and distributors connected to said axle, conduits adjacent to said distributors, and a pivoted valve in each of said conduits, a connection from each of said valves to the cam-wheel, said cam-wheel being provided with a detachable reversible rim having a different series of projections thereon, substantially as specified.

3. The combination with a seed-hopper and the distributors, a variable driving-gear for said distributors, valved conduits leading from said distributors, a cam-wheel driven independently of the variable feed-driving mechanism, and a connection from said cam to the valves in said conduits, substantially as specified.

4. The combination with the main axle, and a feed-shaft, distributors on said feed-shaft, a

variable connection from said axle to said feed-shaft, valved conduits leading from said distributors, a cam-wheel driven from said main axle, and a connection from said cam-wheel to the valves in said conduits, substantially as specified.

5 5. The combination, in a seeding-machine, with the feed-hopper and distributors, feed-driving mechanism consisting in part of variable-speed devices, valved conduits leading from said distributors, operating mechanism for opening and closing said valves, and means, substantially as described, for varying the intervals for opening and closing said conduits independent of the variation of the speed in said feed-driving mechanism, substantially as specified.

10 6. The combination with the distributors, a feed-shaft, and main axle, a disk-wheel on said axle, an adjustable pinion forming part of the driving connection of said feed-shaft, a forked lever to engage said pinion, and

spring-actuated projections in said forked lever to hold the same on said pinion, substantially as specified.

25 7. The combination with an adjustable pinion having a grooved hub as described, a bifurcated lever to engage in said grooved hub having perforated forks, and spring projections extending through said forks, the spring projections being formed integral with the spring which is supported on said lever, substantially as specified.

30 8. The combination with a disk-wheel and its adjustable pinion, a supporting-shaft for said pinion, a bearing-seat for said shaft having a removable side, substantially as specified.

In testimony whereof I have hereunto set my hand this 23d day of April, A. D. 1895.

CHARLES E. PATRIC.

Witnesses:

OLIVER H. MILLER,
CHAS. I. WELCH.