2 Sheets—Sheet 1.

C. E. PATRIC.
Seed-Planter.

No. 208,262. Patented Sept. 24, 1878.

Fig. 1.

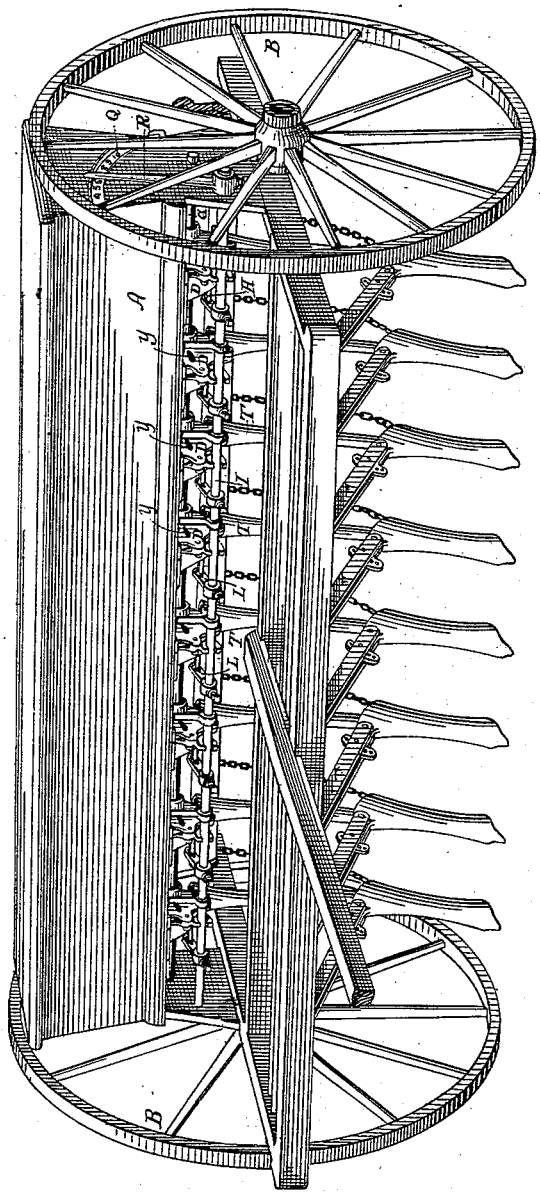
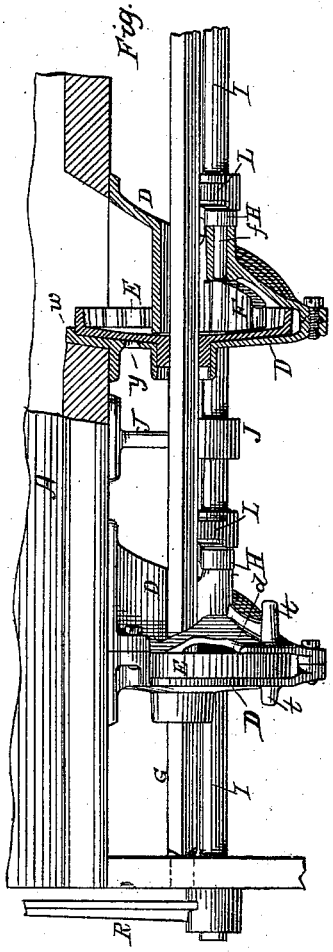


Fig. 6.



WITNESSES:
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D. P. Cowe

INVENTOR:
Chas. E. Patric
By his Atty R. D. Smith

2 Sheets—Sheet 2.

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Fig. 2.

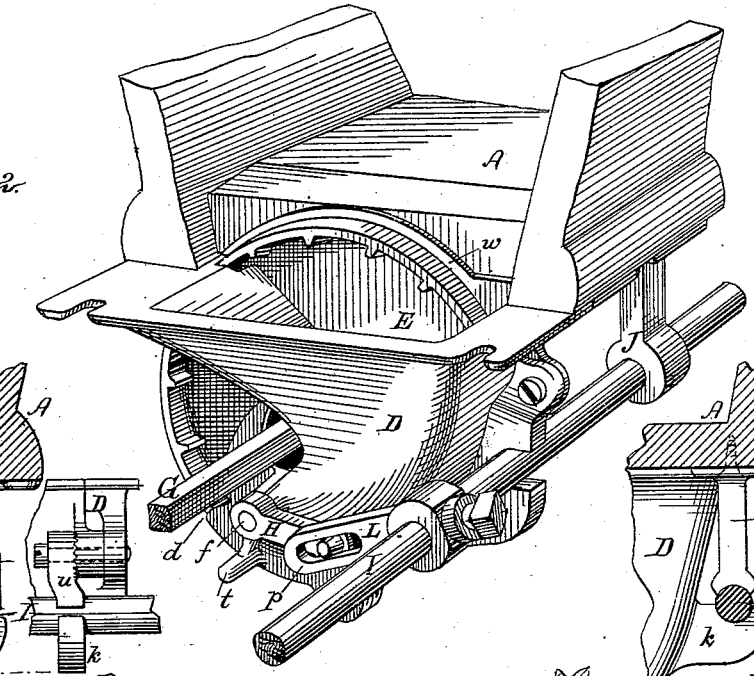


Fig. 4.

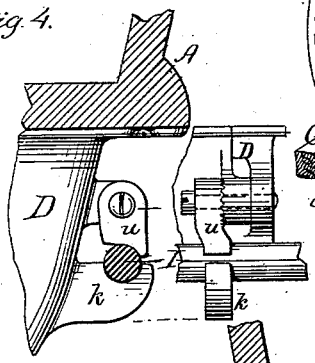


Fig. 5.

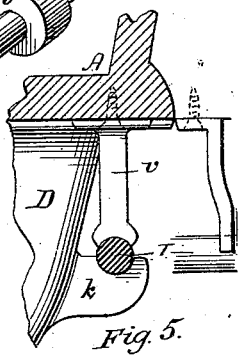
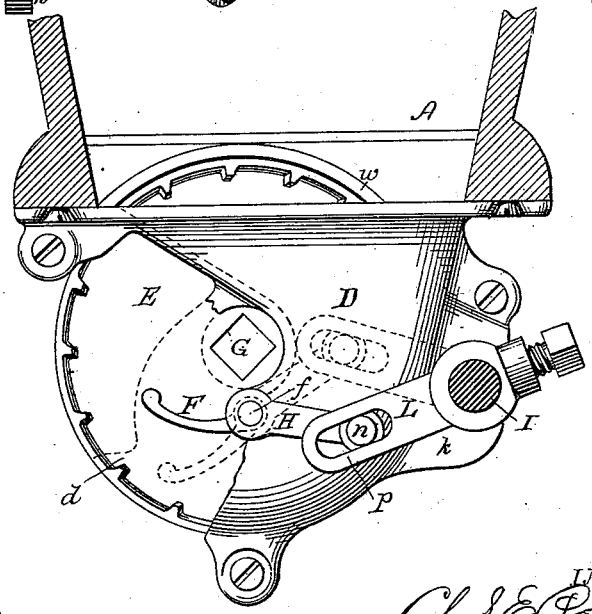


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES E. PATRIC, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN SEED-PLANTERS.

Specification forming part of Letters Patent No. **208,262**, dated September 24, 1878; application filed October 15, 1877.

To all whom it may concern:

Be it known that I, CHARLES E. PATRIC, of Springfield, in the county of Clarke and State of Ohio, have invented new and useful Improvements in Seed-Planters; and that the following is a full and exact description of the same.

This invention relates to that class of seed-distributers known as "force-feed seed-distributers," for improvements in which class Letters Patent were granted to me January 25, A. D. 1875, and reissued, No. 7,875, September 4, 1877; and it consists, first, in the special construction of the parts connecting the valve and rock-shaft, as shown; second, in the dishing form of the web of the distributer-wheel, to give a lateral enlargement to the seed-channel both ways as the valve is raised.

That others may fully understand my invention, I will particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 represents, in perspective, a seeding-machine fitted according to my invention. Fig. 2 represents, in perspective, one of my distributers, the frame of the hopper being broken away for the purpose of exposing the same. Fig. 3 is a side elevation of the same. Figs. 4 and 5 represent different methods of arranging the rock-shaft bearings, and Fig. 6 is a rear elevation and vertical section of two distributers in working position.

The seed-hopper A does not differ materially from those heretofore in use. It is mounted upon a suitable frame, provided with bearing and driving wheels B B, and may be provided with any or all the attachments for sowing grass-seed, fertilizers, &c., and with devices for lifting the hoes, surveyors, &c., which may be customary or desirable. These parts are all in common use and do not require here any further mention, because they are not concerned with the improvements described and covered by this patent.

D is the distributer-case, and E is the feed-wheel, having the usual peripheral flange projecting laterally, with transverse ribs on the inner periphery. The case D and its inclosed feed-wheel (shown in Figs. 2 and 3) is one of a series secured in line to the bottom of the feed-hopper A, as shown in Fig. 1. The members of said series being duplicates of each other the description of one of said cases and the parts connecting it with the rock-shaft, which is common to all of them, will suffice for all of said members.

The case D is cast in two parts, which are subsequently secured together by screws or rivets at two or more points around the edge. The wheel E may be entirely inclosed therein; but I prefer to expose the edge thereof, and thereby make the wheel more accessible if it becomes clogged by dirt accumulated between its sides and the case. The case D forms a hopper or chute with a constantly-diminishing cross-section, down which the grain flows to the interior of the wheel, whereby it is lifted and discharged over the open edge of said case at the point *d*, whence it falls into the chute T, which is attached to the projecting lugs *t t* of the case D, and through the usual drill-tube to the ground.

The regulator-valve F is located in the seed-channel within the wheel E, and has its pivotal bearing in the plate of the case D, outside of the main shaft G, so that as said valve moves upon its pivot-bearing its free end will approach or recede from the peripheral flange of the distributer-wheel E. It may be adjusted in various positions to vary the capacity of the seed-channel and regulate the quantity of seed discharged by a given number of revolutions of the feed-wheel. The required adjustment of the valve is, as shown herein, effected by means of a rock-shaft bearing a slotted arm through the slot of which a pin projects, said pin being connected with the said valve, so as to move it and control it as said arm is moved by its rock-shaft.

It is evident this mode of construction and operation may be effected in various ways; but the way preferred by me is that which I show and will now describe, though I do not propose to limit myself thereto.

The valve F is mounted upon the spindle *f*, the axis whereof is parallel with the axis of the main shaft G, upon which all the wheels E of the series are mounted, and by which they are all rotated. The spindle *f* is provided on its outer end with a lever, H, whereby said spindle and the valve F may be rotated. The shaft

G takes motion from the wheels B B, either directly or through intermediate gears.

The rock-shaft I passes in front of all the distributers of the series, and is mounted in suitable bearings. These bearings may be arranged in various ways, some of which are shown in the drawings appended hereto—viz., the bearing may be in brackets J, secured to the bottom of the hopper A, between the distributers; but the bearing preferred is in bracket *k*, cast with the distributer-case, and secured by movable caps *u v*, as shown in Figs. 4 and 5, or in any other suitable way which will permit the ready removal of said shaft. It is not required that said bearings shall be so numerous as the distributers.

An arm, L, is mounted upon the rock-shaft I, and secured thereto adjustably by means of a set-screw or other suitable device. When the rock-shaft and other parts are all in place the several arms L may be then adjusted, and secured in position by tightening up the set-screw; and thereafter, if it becomes necessary to remove said rock-shaft for any purpose, it may be removed and replaced, being detached from the pivoted gates by an endwise movement, without disturbing any of said adjustments. At its outer end it is coupled with the arm H, so that as the rock-shaft is rotated said arm will be moved also, and the adjustment of the valve F will be changed correspondingly.

The coupling of the lever H and the arm L is effected by a pin in the one working in a corresponding slot in the other; and I find it advantageous to locate the pin *n* in the end of the arm H and make the slot *p* in the arm L, as shown. These parts should fit with reasonable snugness; and, if it is found to be desirable, the pin can be made conical, as shown in Fig. 2, or adjustable, or in other known ways, so that wear may be compensated for and undue lost motion prevented.

At the end or elsewhere upon the hopper A a dial, Q, may be placed, the graduations whereof will indicate the positions of the several regulator-valves F and the quantity of seed the feed-wheels will discharge per acre at any particular adjustment. An index-hand, R, is arranged to sweep over said dial, and said hand is coupled to the rock-shaft I, so as to receive motion therefrom, and when so moved to indicate upon the dial the positions of the several valves.

The wheel E is made slightly dishing, as shown in Fig. 6, and the lateral peripheral flange is made with an outward flare or inclination, so that the grain falls readily out at the edge when the point *d* is reached. The case D at the part *d* also is concave on the inner side, so that the channel for the passage of seed between the web of the wheel E and the side of the case D at the point *d* opposite to said wheel increases laterally as the valve F is moved away from the periphery of the wheel, and thereby said wheel is, without change of speed, enabled to deliver either large or small seed—say, from wheat to oats or corn. The upper edge of the case on the wheel side is extended upward above the level of the lower surface of the hopper-bottom, and has a flange or rib, *w*, which partly covers the edge of the wheel E. By this structure the wheel E is practically projected upward into the hopper A, and enabled to act as an agitator upon the grain at the bottom of the hopper to insure its free flow down into the distributer hopper or case D, the mouth of which is considerably wider and more open than heretofore, and the upward extension of the back plate, with its flange, completely covers the back of the wheel, and prevents the access of dirt, &c., if from shrinkage or other cause the iron case D and the wooden bottom of the hopper should separate behind the wheel. Radial openings *y* are made in the back plate of the case D for the purpose of exposing the back surface of the wheel E and permitting the removal of dirt or other obstructive matter which may find its way between the back of said wheel and the said back plate.

Having described my invention, what I claim as new is—

1. The vertical force-feed wheel E, having a lateral peripheral flange, and the regulator-valve F, located within said seed-channel, for the purpose set forth, and provided with an arm, H, attached to the outer end of the valve-spindle *f*, combined with the arm L, adjustably fixed upon the rock-shaft I, said arms H and L being coupled directly by means of the pin *n* and slot *p*, as described.

2. The distributer-wheel E, having a lateral peripheral flange, and made with its web concave or dishing within, combined with the case D, made concave in an opposite direction at the point of discharge *d*, and the pivoted valve F, substantially for the purpose set forth.

3. Combined with the rock-shaft I, provided with adjustable arms for actuating the separately-pivoted gages F, the open bearings *k*, cast with and a part of the seed-cup plate D, and the removable caps *u*, pivoted to said plate above the bearings *k*, and secured in position by tightening the pivot-screw, as shown.

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