No. 688,679.

Patented Dec. 10, 1901.

C. H. PELTON.

SEED CUP FOR GRAIN DRILLS.

(Application filed Mar. 19, 1900.

(Model.)

Fig. 3.

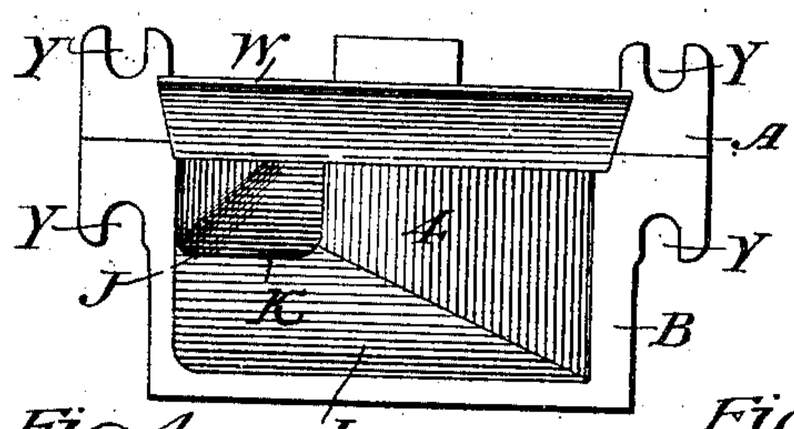


Fig. 7.

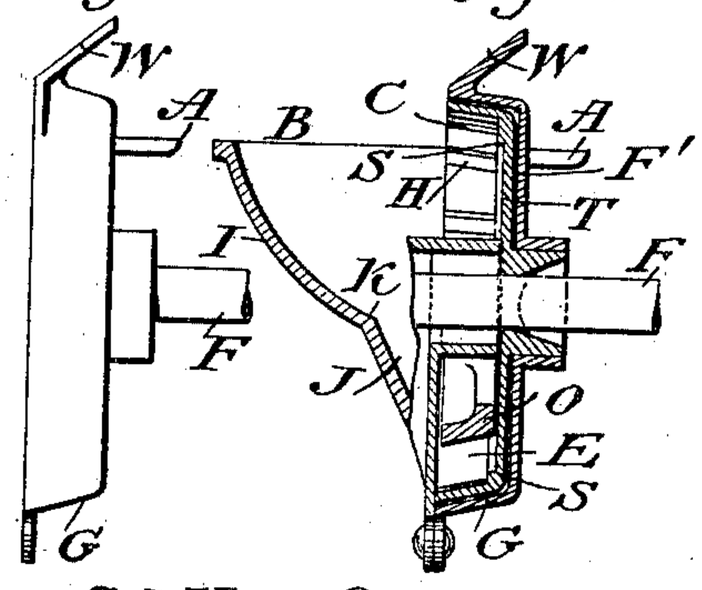


Fig. 4.

Fig. 5.

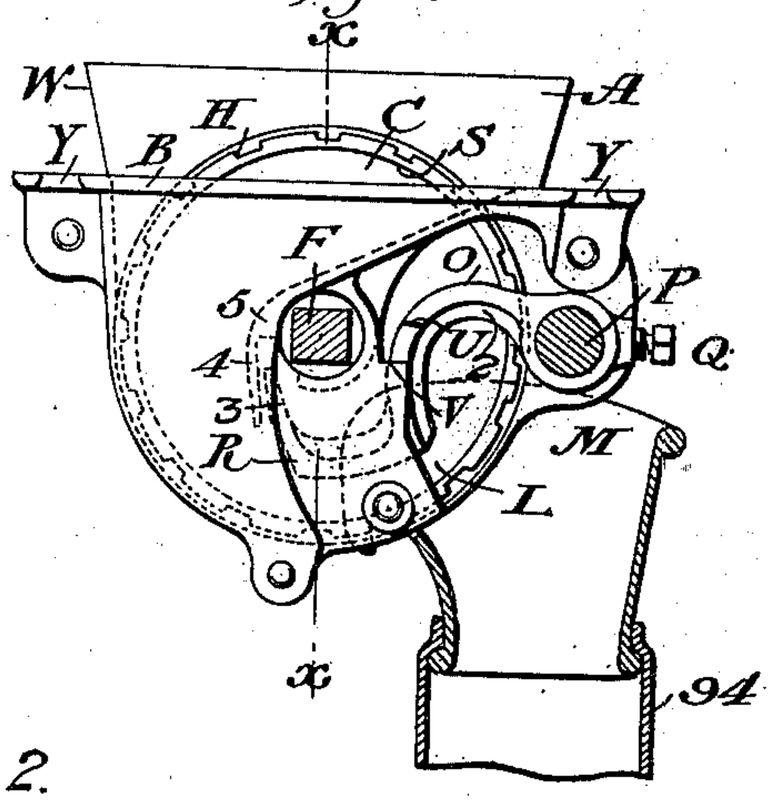


Fig. 6.

Fig. 2.

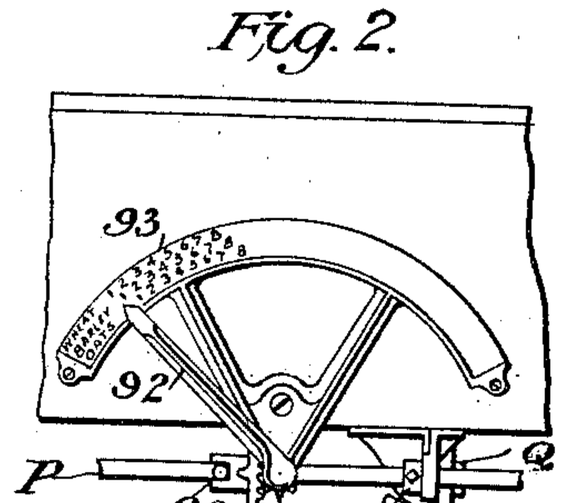
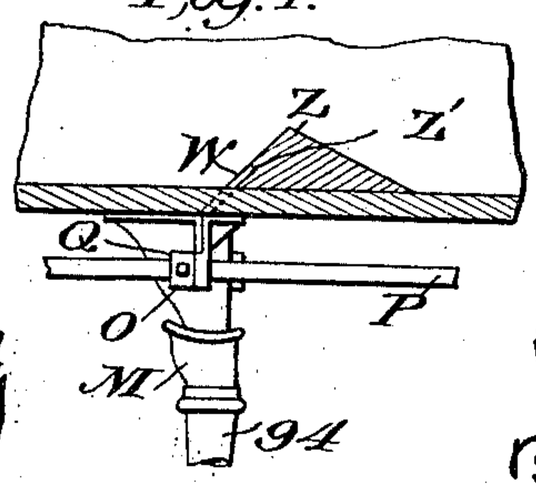


Fig. 1.



Witnesses:

Nick O'Loughlin

Irvine Miller

Inventor:

Charles H. Pelton,

By H. A. Toulmin.

atty.

UNITED STATES PATENT OFFICE.

CHARLES H. PELTON, OF SPRINGFIELD, OHIO.

SEED-CUP FOR GRAIN-DRILLS.

SPECIFICATION forming part of Letters Patent No. 688,679, dated December 10, 1901.

Application filed March 19, 1900. Serial No. 9,175. (Model.)

To all whom it may concern:

Be it known that I, CHARLES H. PELTON, 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 Grain-Drills, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in grain-drills.

The general objects of my invention are to provide a feed-cup with a device for varying the throat of such cup, such device being so constructed that it leaves the same-shaped opening between it and the feed-wheel no matter whether sowing a large or small quantity of grain, such feed-wheel also having an annular flange, against which the throat-varying device may come in contact instead of engaging with the teeth in the interior of the feed-wheel, such feed-cup also being so constructed that the grain is held back from the discharge-opening to such an extent that there is no crowding of the grain through the discharge-opening to crack the grain, yet at the same time allowing the grain to pass into feeding position with sufficient rapidity to insure its proper sowing, such throat-opening device being so located that a long narrow pocket back of the inner end of such opening device is avoided.

My invention also relates to details of construction and arrangement hereinafter appearing, and particularly pointed out in the claims.

In the accompanying drawings, on which like reference characters indicate corresponding parts, Figure 1 is a detail section of a portion of the grain-hopper, showing a flange of one of the seed-cups projecting within the hopper, together with a grain-delivery spout; Fig. 2, a detail view of a portion of the grain-hopper gage for indicating the amount of grain being sown and a portion of one of the grain-feed cups with a grain-delivery spout connected therewith; Fig. 3, a detail plan view of one of my improved feed-cups; Fig. 4, a sectional view of the same on the line *x x* of Fig. 5 with a portion of one side broken away; Fig. 5, a side elevation of one of the seed-cups and showing a portion of a seed-spout attached thereto in section; Fig. 6, a detail perspective view of the gate for regulating the grain-discharge opening, and Fig. 7 is a side view of Fig. 5 with the side B of the cup removed.

While I am aware that it is old to provide grain-drills with seed-cups having variable throats, still in all of such constructions there has been more or less objection for the reason that at times the grain would be cracked, particularly when sowing small quantities, or the discharge-throat immediately back of the discharge-opening would become clogged with grain, and generally both of these faults were present. With my construction of seed-cup I am enabled to overcome such objection, first, by reason of the location and peculiar shape of the cut-off device itself, and, second, by reason of the peculiar formation of the interior of the grain-passage in the seed-cup, whereby the grain feeds down in the seed-cup at one angle in the upper portion of the seed-cup and at a greater angle in the lower portion of the seed-cup, so that the grain is fed more slowly in such upper portion and more rapidly in such lower portion in the seed-cup.

With these general objects in view I will proceed to describe in detail my improved seed-cup and point out the advantages in my construction over what has heretofore been patented.

In Figs. 3 and 4 it will be seen that the seed-cup is formed in two parts—namely, A and B—such parts fitting together in such a manner that a wheel C may be placed between them, such wheel constituting a seed-feed wheel, which acts to feed the grain from the cup through the discharge-opening, as shown at L. This wheel is mounted upon a feed-shaft F, preferably square, and which passes through all of the seed-cups in the same manner in which it passes through the seed-cup illustrated in Fig. 5. The feed-wheel has a flange projecting from one side, as shown at G, on the inner periphery of which is mounted a number of feed-ribs H.

From Figs. 4 and 5 it will be seen that the seed-receptacle in the portion B has two distinct slopes downward, the first slope (indicated at I) being much more gradual than the

second slope, (indicated at J,) there being a sharp line of division between the two, as indicated at K. This construction retards the seed in the upper portion of the seed-cup, while when the seed passes the division-point K it descends with greater rapidity, and the action of the feed-ribs on the interior of the feed-wheel C carries such seed forward through the discharge-opening at L, from whence the seed passes into the seed-spout mouth M and thence into a furrow formed by one of the furrow-opening devices of the drill.

In order that the discharge-opening L may be closed more or less, so as to regulate the amount of grain sown, I provide a closer or gate O, rigidly mounted upon a gate-operating shaft P by means of a set-screw Q. It will be observed that the shaft P is in a horizontal plane with the feed-wheel shaft F. Consequently as the gate is raised and lowered in the seed-cup it will travel nearly straight up and down, so that a short pocket is formed back of the inner end R of the gate, thereby preventing an accumulation of grain and also preventing its being cracked or broken. The side of the gate adjacent to the flange C, which is slightly inclined outward, is also inclined in like manner, so that the discharge-passage E between the flange of the feed-wheel and the side of the gate adjacent thereto has its respective sides parallel to each other, thereby permitting the grain to readily pass through without crowding it into a three-cornered opening, as is usually the case in this class of feed-cups.

An annular shoulder S is formed between the flange C and the body portion of the feed-wheel. This shoulder is raised slightly above the feed-ribs H, so that as the gate O is operated to decrease the size of the discharge-opening E, before it can engage with the feed-ribs H it will rest upon the annular shoulder. Should the shoulder wear after long usage sufficiently to permit the gate to drop low enough to engage with the feed-ribs, I provide a stop U, which comes in contact with an extension or shoulder V, formed on the portion B of the cup. Thus when the shaft P is operated to swing the gates O in each of the feed-cups there is no danger of such gates engaging with the feed-ribs. The set-screw Q in the gate O permits such gate to be set independently of the operation of the shaft P. This is of great practical importance when putting the machine together, as each of the gates for the seed-cups may be properly adjusted so that they will all operate to give the same-sized seed-discharge opening when the gate-shaft is partially turned. Another feature of my improved seed-cup is that the portion A of the cup has an upward extension W, which is longer along its upper edge than along its edge adjoining the seed-cup. This extension also acts as a guide for the grain into the hopper and at the same time assists in holding the seed-cup in its proper position and until the seed-cup may be secured to the under side of the hopper X by inserting suitable holding devices, such as screws, in the notches Y. Between each of the seed-cups is placed a raised bridge piece or block Z, the flange W in each of said cups fitting snugly against one side of one of the bridge-pieces adjacent thereto, there being a shoulder Z′ against which the upper edge of said flange abuts, as shown in Fig. 1. It will also be observed that the gate has a large curved portion therein, as shown at 2, such curved portion giving more space for the grain passing out of the discharge-opening without stopping or interrupting it. Thus with my improved seed-cup I am enabled to retard the grain in the upper portion of the seed-cup, while that in the lower portion is accelerated, due to the abrupt change of angle in the side B of the seed-cup, and at the same time by pivoting my gate substantially in line or even slightly under the line of the seed-cup-operating shaft I prevent the formation of a long narrow wedge-shaped pocket immediately back of the end of the gate, while the portion of the gate adjacent to the flange of the feed-wheel is parallel to such feed-wheel flange. By extending the guide-flange W above the feed-wheel into the hopper and against the shoulder Z′ a smooth surface is presented to the seed as it runs into the seed-cup, and at the same time the seed-cup is maintained in its proper position with respect to the hopper.

By referring particularly to Fig. 5 it will be observed that the inner end of the gate O is curved, as shown at 3, and extends above the lower edge of the curved wall 4 of the feed-cup. A shoulder 5 is formed in the rear of the curved wall 4 and acts as a stop to limit the upward movement of the gate, while its downward movement is limited by the annular shoulder S, as above described. Thus all grain is prevented from ever getting in behind the inner end of the gate.

The gate-operating shaft P (see Figs. 2 and 5) carries a gear 89, which is fixedly mounted upon such shaft by means of a set-screw 90. This gear engages with a segment 91, formed on the lower end of the pointer 92. This pointer indicates the position of the gate O in the seed-cups, so that the seed-cups sow the specified amount of grain, such specified amount of grain being indicated on a scale 93, secured to the rear side of the hopper X. To the lower end of each seed-cup is attached a seed-spout 94, which in practice projects within the upper end of the corresponding furrow-opening device, so that the grain is delivered down into the furrow in the usual manner.

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

1. In a grain-drill, a seed-cup, a feed-wheel rotatably mounted therein, said cup having

its wall opposite said wheel extending downward toward said wheel at two angles, its upper portion at a greater angle than its lower portion, and means to rotate said wheel, all substantially as shown and described.

2. In a grain-drill, a seed-cup having a feed-wheel mounted therein, a flange projecting from one side of said feed-wheel having feed-ribs on the interior of said flange, the wall of said cup opposite said feed-wheel extending downward and toward said feed-wheel at two angles, the upper portion of said side having a greater angle than the lower portion, whereby the grain is held in the upper portion in the seed-cup and is more rapidly discharged in the lower portion of said seed-cup, and a device for varying the throat-opening for said seed-cup, all substantially as shown and described.

3. In a grain-drill, the combination with a seed-cup, a feed-wheel rotatably mounted therein, a feed-shaft extending through said cup and wheel for rotating said wheel, a flange projecting from one side of said feed-wheel and flaring outward, feed-ribs on the interior of said flange, a gate-shaft mounted in substantially the same horizontal plane as said feed-shaft, a gate secured thereon and projecting within said feed-wheel and having its edge adjacent to the flange of said feed-wheel parallel therewith, said seed-cup having its side opposite said feed-wheel extending toward said wheel in two angles, the upper portion of said side being at a greater angle than the lower portion, whereby the grain is retarded in the upper portion and accelerated in the lower portion, all substantially as shown and described.

4. In a grain-drill, the combination with a seed-cup formed in two parts having a grain-discharge opening therein, a feed-wheel rotatably mounted within said seed-cup for feeding grain through said discharge-opening, a gate for closing said discharge-opening more or less, the sides of said discharge-opening being in the form of a parallelogram, a flanged projection extending upward from one of said parts within said hopper, said flanged projection acting as a guide for directing the grain into said seed-cup and also acting to hold said seed-cup within a grain-hopper, all substantially as shown and described.

5. In a grain-drill, the combination with a seed-cup formed in two parts, one of which has a flange tapering upward and outward therefrom and having the upper edge of said flange longer than its lower edge where it joins said cup, and the other part of said cup having a face opposite said feed-wheel formed in two angles, the upper portion of said side being at a greater angle to said wheel than the lower portion of said side, whereby the grain will be retarded in the upper portion of the seed-cup and accelerated in its lower portion, all substantially as shown and described.

6. In a seed-cup, the combination, with the cup proper having at one side thereof a rearward projection or shoulder, of a rotatable wheel having an inclined flange extending from one side thereof and provided with feed-ribs on the interior of said flange, an annular shoulder formed on the body of said feed-wheel inward from said flange at a less distance from the center of the wheel than the tops of the feed-ribs, a gate-operating shaft and a gate extending within the feed-wheel and in the plane of said shoulder so as to contact therewith before engaging with the feed-ribs, said gate having a shoulder or projection to engage with the shoulder or projection on the cup-body to prevent contact of the gate with the feed-ribs when the annular shoulder becomes worn, substantially as described.

7. A seed-cup constructed in two parts, one part whereof is provided at the rear with a rearwardly-extending shoulder or projection formed on the upper edge of one side of the rear portion thereof, a feed-wheel rotatably mounted in said cup, and a gate projecting within said feed-wheel and having a shoulder adapted to engage with the shoulder or projection on the side of the seed-cup member, substantially as described.

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

CHARLES H. PELTON.

Witnesses:
B. B. ESTERLINE,
W. M. MCNAIR.