

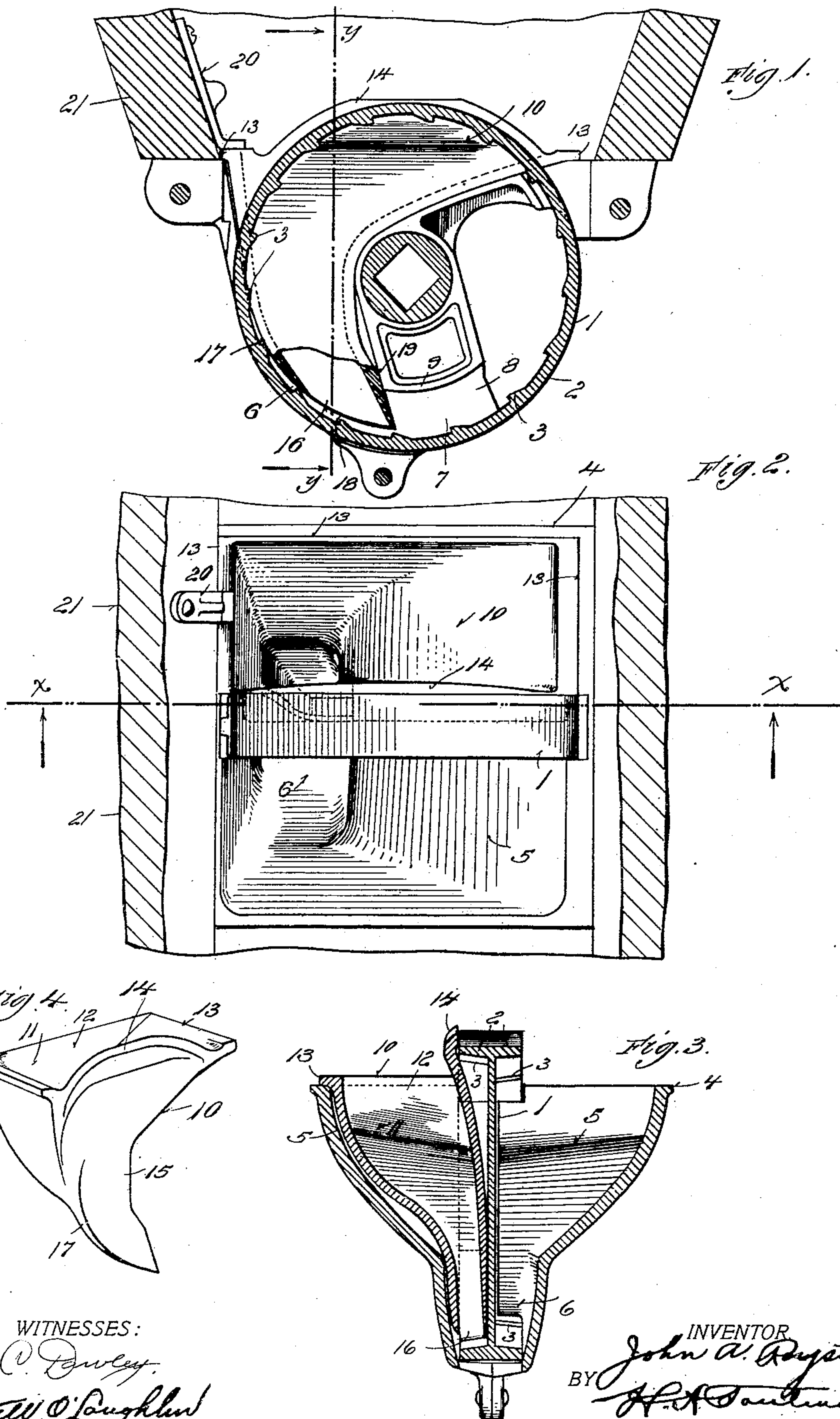
No. 711,003.

Patented Oct. 14, 1902.

J. A. ROYSTER.  
GRAIN DRILL.

(Application filed Aug. 2, 1902.)

(No Model.)



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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## GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 711,003, dated October 14, 1902.

Application filed August 2, 1902. Serial No. 118,047. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. ROYSTER, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, 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.

10 This invention relates to grain-drills, and has for its object to provide a simple and effective means for adapting such drills for use in sowing small grains, such as alfalfa-seed or the like.

15 To this end my invention consists in certain novel features which I will now proceed to describe and will then particularly point out in the claims.

20 In the accompanying drawings, Figure 1 is a vertical sectional view taken on the line  $xx$  of Fig. 2 and looking in the direction of the arrows, the end of the auxiliary cup being broken away to show the construction. Fig. 2 is a plan view of a portion of a grain-drill having my invention applied thereto. Fig. 3 is a sectional view taken on the line  $yy$  of Fig. 1 and looking in the direction of the arrows, and Fig. 4 is a perspective view of the auxiliary seed-cup detached.

30 My invention relates more particularly to that class of grain-drills now in universal use, in which the grain-distributing devices comprise a vertical distributing or feed wheel 1, having at its margin an annular lateral flange 2, provided with ribs or starts 3, and a cup or casing 4, having a hopper-like body 5, fitting against the side of the wheel and having a downward and rearward extension 6, forming a tapering discharge-throat, closed at one side by the wheel and terminating in a measuring-channel 7, restricted laterally by the web or body of the wheel on one side and by a side plate 8 of the cup on the other, the flange of the wheel forming the bottom of the measuring-channel and the top being formed by a projection 9 of the casing or cup. These several parts may be varied in construction, and the particular form shown is chosen for purposes of illustration only to indicate the general type of device to which my invention is applicable. In drills of this class, when it

has been attempted to use them for the sowing of alfalfa and other small seed, it has been found that their use is impracticable for the reason that too large an amount of the seed passes through the distributing devices, and for the further reason that the smaller seeds tend to clog and pack between the cup or casing and the feed-wheel and create so much friction as to preclude the successful operation of the drill. I overcome these objections by the employment of an auxiliary seed-cup, which fits within the main seed cup or casing, its mouth overlying and closing the mouth of the main cup or casing and the walls of its body conforming to the space within the main cup or casing and between it and the feed-wheel, forming a laterally-closed conduit, which receives the small grain from the main hopper of the drill and discharges it directly upon the flange of the feed-wheel, said auxiliary cup conforming in a general way to the shape of the space inclosed by the main cup or casing and those parts of the feed-wheel lying adjacent to its open side. In the accompanying drawings this auxiliary cup is indicated as a whole by the reference-numeral 10, its upper part having a hopper-shaped body 11, having a receiving-mouth 12, surrounded on three sides by a flange 13, which rests upon the edge of the receiving-mouth of the main cup or casing, so as to support the auxiliary cup in position in the main cup and prevent any of the seed from entering said main cup when the auxiliary cup is in position. An upstanding flange 14 on the fourth side of the mouth of the auxiliary cup adjacent to the feed-wheel closes the space between the main cup and feed-wheel on that side and prevents the seed from passing down between the auxiliary cup and the feed-wheel. The lower portion of the auxiliary cup forms a tapering conduit 15, closed on all four sides, as is the upper or hopper-shaped body portion of the auxiliary cup, and deflected laterally, as shown in Fig. 3, so that the lower end of said conduit lies in the space between the body of the feed-wheel and the lower part of the main cup or casing. The discharge-mouth of the auxiliary cup, which is indicated at 16, opens directly downward immediately above the



flange 2 of the feed-wheel, the margins of said opening lying in immediate proximity to the said flange, but sufficiently distant therefrom, of course, to permit the ribs 3 to pass freely. The upper front portion of the lower part of the auxiliary cup (indicated at 17) has a curvature struck from the axis of revolution of the feed-wheel as a center, but the lower portion thereof from a point slightly in advance of the discharge-mouth to the lower rear terminal point of the auxiliary cup is curved from a different center, as indicated at 18, so that a rearwardly-increasing clearance-space is formed between the outlet end of the cup and the flange of the feed-wheel to insure a proper discharge of the seed without clogging or binding. The rear wall 19 of the lower end of the auxiliary cup abuts against the front of the projection 9 of the main cup or casing, as shown in Fig. 1, so that in conjunction with the bearing of the flanges of the mouth of the auxiliary cup on the top of the main cup or casing said auxiliary cup will be firmly seated in position, and when thus seated a single turn-button or latch 20, pivoted to the inner face of one of the walls of the main hopper 21, may be turned down, as shown, so as to bear upon the upper edge of the auxiliary cup, and thus hold the latter firmly in position in the main cup. Thus in practice each auxiliary cup may be dropped into place in the main cup and held in position by the latch or turn-button and may be as readily removed when desired.

It will be observed that by the employment of an auxiliary cup such as I have described the fine seed are prevented from crowding or packing against the feed-wheel between its body portion and the body of the main cup or casing, so that the excessive friction arising from this cause is obviated, the fine seed being delivered directly upon the flange of the feed-wheel and having contact with said wheel at that point only. The conduit formed by the auxiliary cup and the discharge-opening of said cup are so proportioned that excessive flow of the small seed is prevented by the restrictions which their dimensions impose upon it, and the feed may be varied and regulated exactly as in the case of wheat or large grain by varying the speed of rotation of the distributing-wheels, for which purpose numerous well-known mechanisms are available.

The distributing devices of grain-drills of different makes vary in size and shape, and it will be of course understood that my auxiliary cup may be correspondingly varied to adapt it for use with the different styles of distributing devices in connection with which it may be desired to employ it. Moreover, it is obvious that various modifications in the details of construction may be made without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise de-

tails hereinbefore described, and shown in the accompanying drawings.

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

1. The combination, with a grain-distributor comprising a vertical feed-wheel and a main cup therefor, of a removable auxiliary cup fitting within the main cup and constituting a laterally-closed conduit adapted to receive the seed from the seedbox and deliver the same with a restricted flow directly to the feed-wheel, substantially as described.

2. The combination, with a grain-distributor comprising a vertical feed-wheel provided with a peripheral annular flange, and a main cup therefor, one side whereof is closed by said wheel, of a removable auxiliary cup fitting within the main cup, constituting a laterally-closed conduit adapted to receive the seed from the seedbox and having a discharge-outlet at its lower end to deliver the seed with a restricted flow directly upon the flange of the feed-wheel, substantially as described.

3. The combination, with a grain-distributor comprising a vertical feed-wheel having an annular marginal flange, and a main cup, one side whereof is closed by the wheel, of a removable auxiliary cup fitting within the main cup, its mouth overlying and closing the mouth of the main cup, its lower portion being downwardly contracted and laterally deflected and provided with a discharge-mouth immediately above the flange of the feed-wheel, said auxiliary cup constituting a laterally-closed conduit, whereby the seed is prevented from coming into contact with the main cup or feed-wheel prior to its delivery upon the flange of the latter, substantially as described.

4. The combination, with a grain-distributor comprising a vertical feed-wheel having an annular marginal flange, and a main cup therefor, one side of which is closed by the feed-wheel, said distributor being provided with a measuring-channel formed between the lower portions of the cup and wheel, of a removable auxiliary cup fitting within the main cup and having a downwardly-contracted portion provided with a discharge-outlet immediately above the flange of the feed-wheel and in front of the measuring-channel, said auxiliary cup constituting a laterally-closed conduit which prevents the seed from coming into contact with the main cup or feed-wheel prior to its delivery upon the flange of said wheel, substantially as described.

5. The combination, with a seedbox, and a distributor comprising a vertical feed-wheel extending up into the seedbox and having an annular marginal flange, and a main cup for said feed-wheel, closed thereby at one side, of a removable auxiliary cup fitting within the main cup, its mouth provided with outwardly-extending flanges on three sides to rest upon the edges of the mouth of the main



cup, and with an upstanding flange on the remaining side to cut off the seed from the upper part of the feed-wheel, said auxiliary cup constituting a laterally-closed conduit adapted to receive the seed from the seedbox, and having a downward contracted portion provided with a discharge-mouth located immediately above the flange of the feed-wheel, substantially as described.

6. The combination, with a distributor comprising a vertical feed-wheel, and a main cup therefor having a bearing for the feed-wheel, and a projection below said bearing, of a removable auxiliary cup fitting within the main cup and provided at its upper end with flanges to rest upon the main cup, its lower end abutting against the projection of the main cup, and a latch pivoted on the main hopper and adapted to engage the upper edge of the aux-

iliary cup to hold the same in position, substantially as described.

7. The combination, with a grain-distributor comprising a vertical feed-wheel having an annular marginal flange, and a main cup therefor, of a removable auxiliary cup fitting within the main cup and having its lower portion contracted and provided with a downwardly-directed discharge-opening immediately above the flange of the feed-wheel, the lower end of said auxiliary cup diverging rearwardly from said flange to form a clearance-space, substantially as described.

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

JOHN A. ROYSTER.

Witnesses:

AL H. KUNKLE,  
IRVINE MILLER.