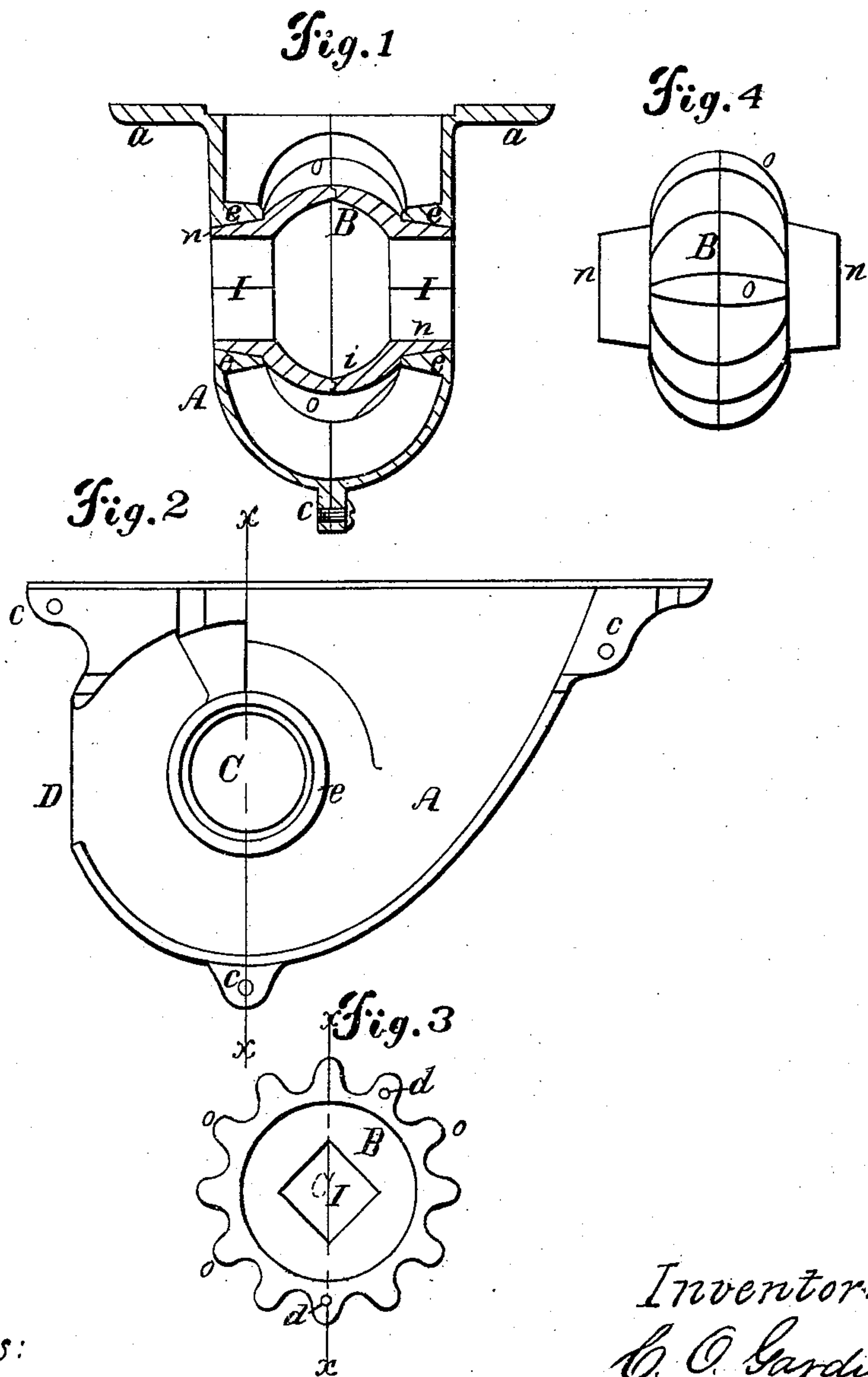


C. O. GARDINER.
Seed Dropper.

No. 82,822.

Patented Oct. 6, 1868.



Witnesses:
L. Hailer
J. F. Dodge

Inventor:
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by Dodge & Munn
his atty

United States Patent Office.

C. O. GARDINER, OF SPRINGFIELD, OHIO, ASSIGNOR TO J. H. THOMAS AND
P. P. MAST, OF SAME PLACE.

Letters Patent No. 82,822, dated October 6, 1868.

IMPROVEMENT IN GRAIN-DRILLS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, C. O. GARDINER, of Springfield, in the county of Clark, and State of Ohio, have invented certain new and useful Improvements in Grain-Drills; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention consists in certain improvements in the construction of the feeding-cylinders and cups used in grain-drills, as hereinafter explained.

Figure 1 is a transverse vertical section, taken on the line *x-x* of fig. 2.

Figure 2 is a longitudinal vertical section of the cup, and

Figure 3 is a vertical section through the centre of the feeding-cylinder used in the cup, and

Figure 4 a view of it detached.

My invention relates to that class of seeding-machines in which the grain passes from a hopper into cups underneath, and from which it is fed out by means of a small rotating cylinder located in each cup, there being a cup and cylinder placed under each opening in the hopper, of which there may be any desired number.

My improved cup consists of a thin shell of cast iron, cast in two parts, one of which is represented by A, fig. 2, the same being a side view looking against its inner face. These parts are cast with projections, *c*, at their inner edge, through which holes are made to receive a screw or rivet, as shown in fig. 1, these screws thus serving to unite the two parts of the shell or cup firmly together. The form of the cup longitudinally is represented clearly in fig. 2, and its form transversely by fig. 1. This cup is provided with lateral flanges, *a*, at its upper edge, by which it is secured to the hopper. It is also formed with a hole, C, through each side, as shown in fig. 2, and around this hole, on the inner face of the shell, on each side, is a projecting rim, *e*, as shown in figs. 1 and 2. The shell is open at the top, and has a circular opening, D, at its rear end, as shown in fig. 2.

The cylinder B is formed with radially-projecting ribs or teeth, *o*, on its periphery, they being rounded on their outer edges, as represented in fig. 3, and extending in an oval or circular outline from one side to the other, as shown in fig. 4. This cylinder is cast in two halves, united by short pins, *i*, projecting from the face of one half, and fitting into corresponding holes, *d*, in the adjoining face of the other half, the parts being shown united in fig. 1.

On each end, the cylinder B is provided with a hub, *n*, of proper size to fit in the holes C in the sides of the cup A, the cylinder being hollow, and having a square hole, I, extending through the hub on each side longitudinally, as represented in figs. 1 and 3, to permit a shaft to be passed through them, and by which they are to be rotated.

It will be observed that when the cup A and cylinder B are thus constructed and placed together, as represented in fig. 1, there will be a considerable space left between the inner faces of the cup or shell A and the ends of the ribs *o* on the cylinder, the special object of which is to prevent the grain from being crushed between them, as is apt to be the case in machines of this class, as ordinarily constructed.

A series of these cups, with their cylinders in, is secured to the under side of the hopper, and a square rod is inserted through the entire series of cylinders, the rod being connected, by any suitable gearing, with one of the wheels of the machine, which thereby causes all the cylinders to rotate with uniformity, thus feeding the grain out at the rear opening, D, in a continuous and regular stream, the circular form of the ribs *o* and the circular opening D causing the grain to be delivered in an even stream, and thus effectually preventing "bunching," as it is termed, or delivering the grain in successive bunches or heaps.

It is obvious that these cups and cylinders may be used to feed the grain upon a scattering-board for

broad-cast seeding, or into drill-tubes for seeding in drills. The flow of the seed is to be regulated by a slide or gate in the hopper-bottom.

By this method of constructing the cups and cylinders, I am enabled to make a seeding-machine that operates in a most perfect and satisfactory manner.

Having thus described my invention, what I claim, is—

1. The cup A, formed substantially as described, with the inwardly-projecting flanges *e* on the inner face of its sides, as set forth.

2. In combination with the cup A, the cylinder B, so constructed as to leave a space between its ribs *o* and the sides of the cup, to prevent the crushing of the grain, as described.

C. O. GARDINER.

Witnesses:

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GEO. B. GILLETT.