

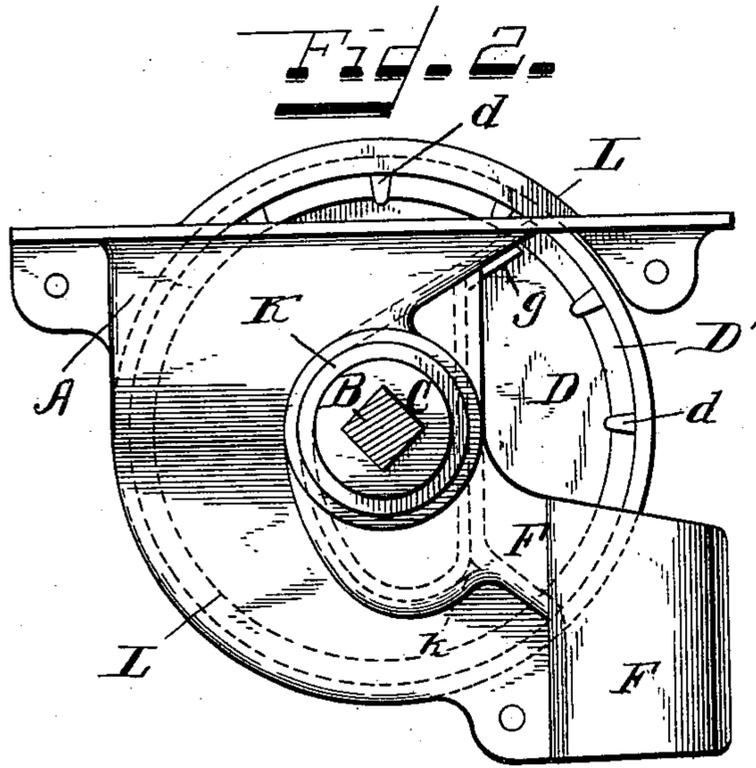
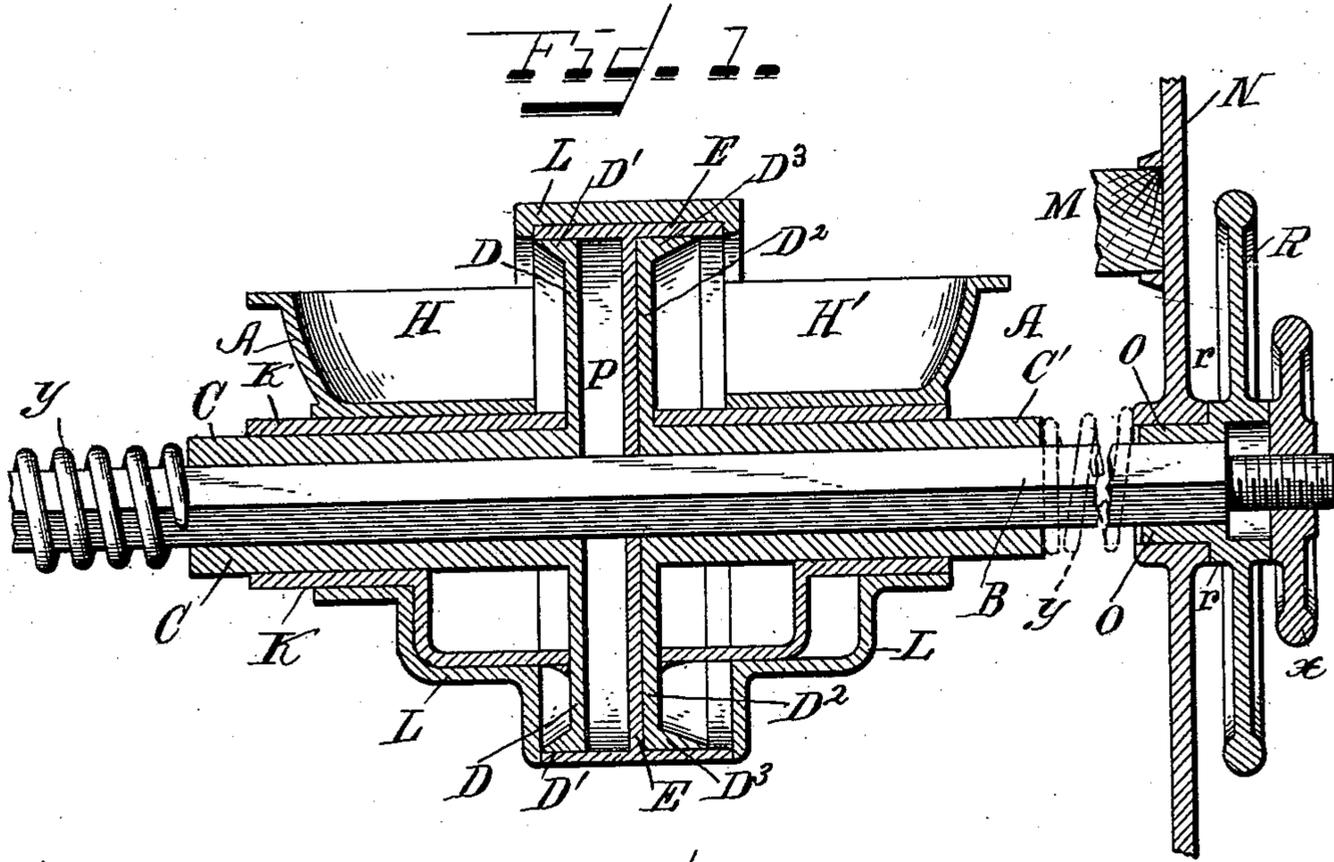
(Model.)

2 Sheets—Sheet 1.

H. C. HAM.
GRAIN DRILL.

No. 564,424.

Patented July 21, 1896.



Witnesses.

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(Model.)

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Fig. 3.

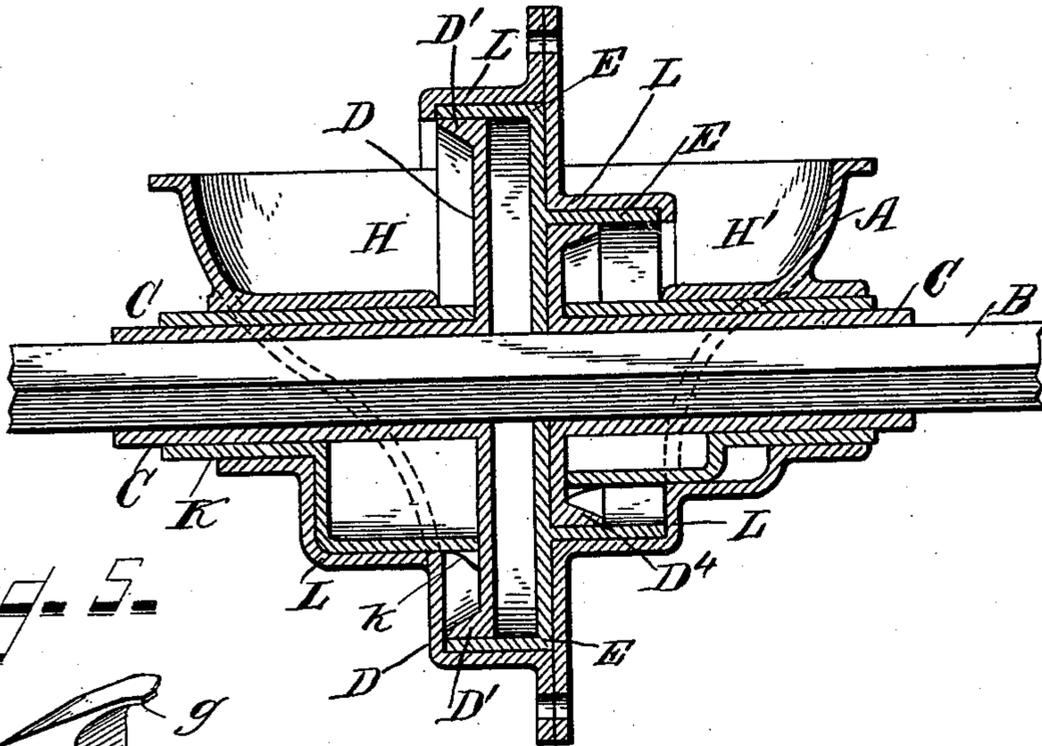


Fig. 5.

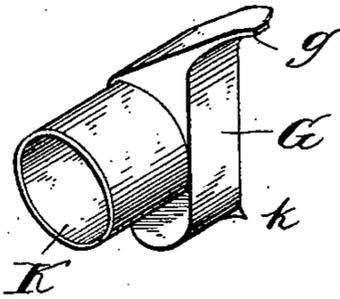
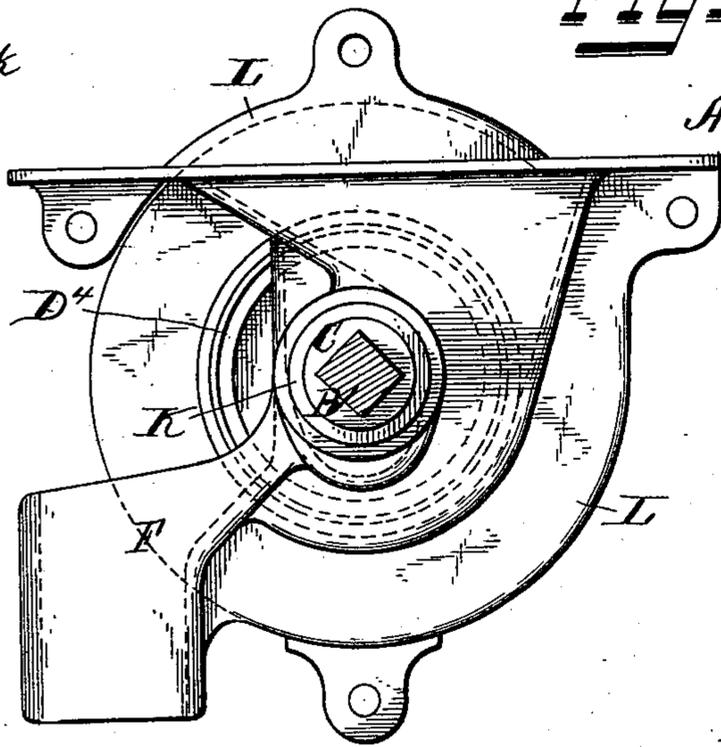


Fig. 4.



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UNITED STATES PATENT OFFICE.

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GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 564,424, dated July 21, 1896.

Application filed February 29, 1896. Serial No. 581,310. (Model.)

To all whom it may concern:

Be it known that I, HENRY C. HAM, a citizen of the United States, residing at Liberty, in the county of Union and State of Indiana, have invented a certain new and useful Improvement in Grain-Drills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to that class of implements in which grain is conducted from the hopper to the delivery spout or tube by means of a feed-wheel that rotates within the seed cup or box; and it relates particularly to those rotary droppers in which provision is made for increasing and diminishing the rate of feed or delivery without change of speed by moving the feeding devices laterally within the cup or case, so as to expose a greater or less carrying-surface and a feed-passage of corresponding size.

It consists in a double feed cup or case having shaft-bearings in its sides and feed-wheels provided with longitudinal rims or flanges, which feed-wheels slide longitudinally in their casing to increase or diminish the feed, said feed-wheels in the same double cup differing in size and capacity, so that the same drill, or the same series of cups, may be adjusted to feed any variety of grain in any desired quantity.

In the accompanying drawings, Figure 1 is a vertical section of my double-rim feed with their revolving casing in which both feed-wheels are of the same diameter but different depth for different-sized grain. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section of a modified form of the double-rim feed with the feed-wheels and their revolving casings of different diameters. Fig. 4 is a side elevation of the same. Fig. 5 is a perspective view of the cut-off.

A is the seed-cup at the bottom of the hopper.

B is a square shaft which revolves. Around this shaft is a sleeve C, which also revolves with the shaft. Cast integral with the sleeve C is a rim or flanged wheel D. This wheel is made solid with a peripheral beveled flange D'. The wheel D is incased in a boxing E, preferably made skeleton form for lightness.

This casing E is fitted directly on the shaft B and revolves with it, but does not move longitudinally with the shaft as the wheel D does. The grain feeds into the seed-cup at the bottom of the hopper at H and falls against the face of the seed-wheel D. The beveled flange D' is provided with lugs, as shown at *d*. These lugs, together with the friction of the face of the revolving wheel D, carry the grain to the outlet F, where it is discharged into the tube in the usual way. The beveled flange causes the grain to flow away from the face of the wheel into the discharge and makes the discharge constant and regular.

G, Fig. 5, and shown in Fig. 2 at *g*, is a cut-off, cast on the sleeve K, which does not revolve, but moves longitudinally with the wheel D, the wing *g* always resting against the face of the wheel D and preventing the grain from flowing out over and in front of the shaft.

k is a lug or teat to more effectually close the opening in sowing very small grain.

L L is a casing inclosing the feed-wheels, &c., and forming part of the seed-cup. To vary the feed, the wheel D is moved with the shaft to or from the casing E.

In Fig. 1 the wheel D is shown adjusted to feed the smaller quantity of grain. By moving it to the right toward the casing E, into the open space P, the capacity will be increased and more grain sown. The casing E revolves, but does not move longitudinally, the shaft B sliding through it.

It is very important in a double-rim feed to change the feed without changing the speed of the shaft, as such a change of speed of shaft is inaccurate, difficult, and involves liability of breaking the parts employed in making the change.

For the purpose of further enlarging the capacity of the feed, so that the same feed may be adjusted to be used for any kind of grain from the smallest to the largest, I provide a second cup, (only one to be used at the same time,) which differs from the one just described in that it faces the other way into the cup H' and backs up against the same, revolving case E, and the wheel itself D² is made deeper, the beveled flanges D³ extending farther from the face of the wheel

and increasing the capacity. When it is desired to sow large grain, like oats, the side of the cup H is closed and H' open and the grain fed to the deeper wheel D². To vary the quantity, it is adjusted longitudinally. In Fig. 3 I have shown the same construction, except that the wheel D⁴ and its casing are made smaller in diameter, so as to be used with very small grain or very small quantity. In use any convenient form of lid is used to close the cup or side of the cup not in use and prevent any grain flowing from the hopper into it. By means of these double-rim feed-wheels with varying size of wheels and casing I am able with one machine to adjust the feed to every possible variety or size of grain, as well as vary the quantity, without changing the speed of the feed-shaft. I have shown, of course, only one feed, but any desired number are placed in one hopper.

The arrangement for adjusting the shaft B longitudinally is shown in Fig. 1. M is part of the wooden hopper, to which the end N, preferably of metal, is rigidly secured. O is a sleeve revolving in an opening in the end of the hopper N, and cast solid with this sleeve O is the hand-wheel R, with a shoulder r bearing against the end of the hopper. On the end of the shaft is the adjusting hand-nut X, screw-threaded on the end of the shaft. At the end of the shaft B is a spring Y, holding the shaft firmly against the shoulder at r, and the shaft is adjusted longitudinally by the nut X. The spring Y holds the nut X firmly against the shoulder, and I prefer to place it on the shaft between the sleeve C' and the end of shaft and bearing against the end of the hopper, as shown in broken lines. It keeps a constant tension, and the shaft is adjusted longitudinally by the hand-nut X. If it is desired to change the feed, that is, move the shaft longitudinally while the hopper is full of grain, the movement would crack or crush the grain. To obviate this,

the hand-wheel R is turned backward, turning the feed-wheels back and emptying the cups, pushing the grain back into the hopper, and allowing the feed-wheels to be moved freely to the right or left.

In operation the shaft, sleeve, and hand wheel and nut X all revolve, relieving all friction between them, and the sleeve revolves freely in the bearings on the end of the hopper.

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

1. In a grain-drill, two rimmed or flanged feed-wheels of different size, with revolving casings, said feed-wheels capable of being moved longitudinally for the purpose described, but the casings not movable longitudinally on the shaft, substantially as shown and described.

2. In a grain-drill, the combination with a feed-cup of two rimmed or flanged feed-wheels of different size, both in depth and diameter, with revolving casings, substantially as shown and described.

3. In a grain-drill, the shaft B, provided with the sleeve O, having shoulder r, and hand-wheel R, said sleeve and wheel being cast in one piece, the hand-wheel R revolving with the shaft and seed-wheels, substantially as shown and described.

4. In a grain-drill, the shaft B, provided with the spring Y and the hand-nut and shouldered sleeve O, having its bearings in the end of the hopper, substantially as shown and described.

5. In a grain-drill, the combination with a feed-cup of two beveled flanged seed-wheels, on a revolving shaft and the hand-wheel on the same shaft, and revolving with it, substantially as shown and described.

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