

No. 737,010.

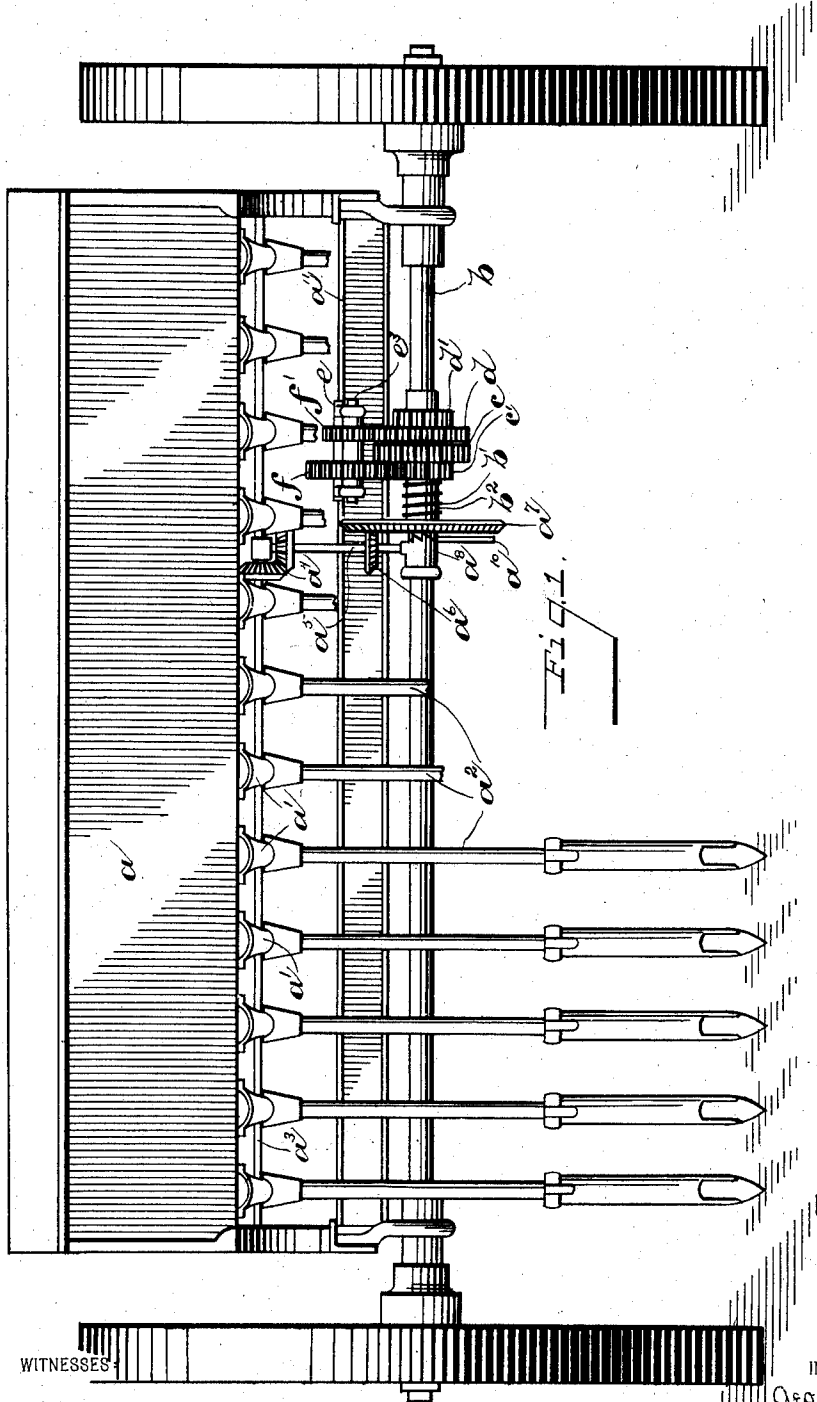
PATENTED AUG. 25, 1903.

G. P. OATES & C. E. PATRIC.
GRAIN DRILL.

APPLICATION FILED SEPT. 19, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

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INVENTORS

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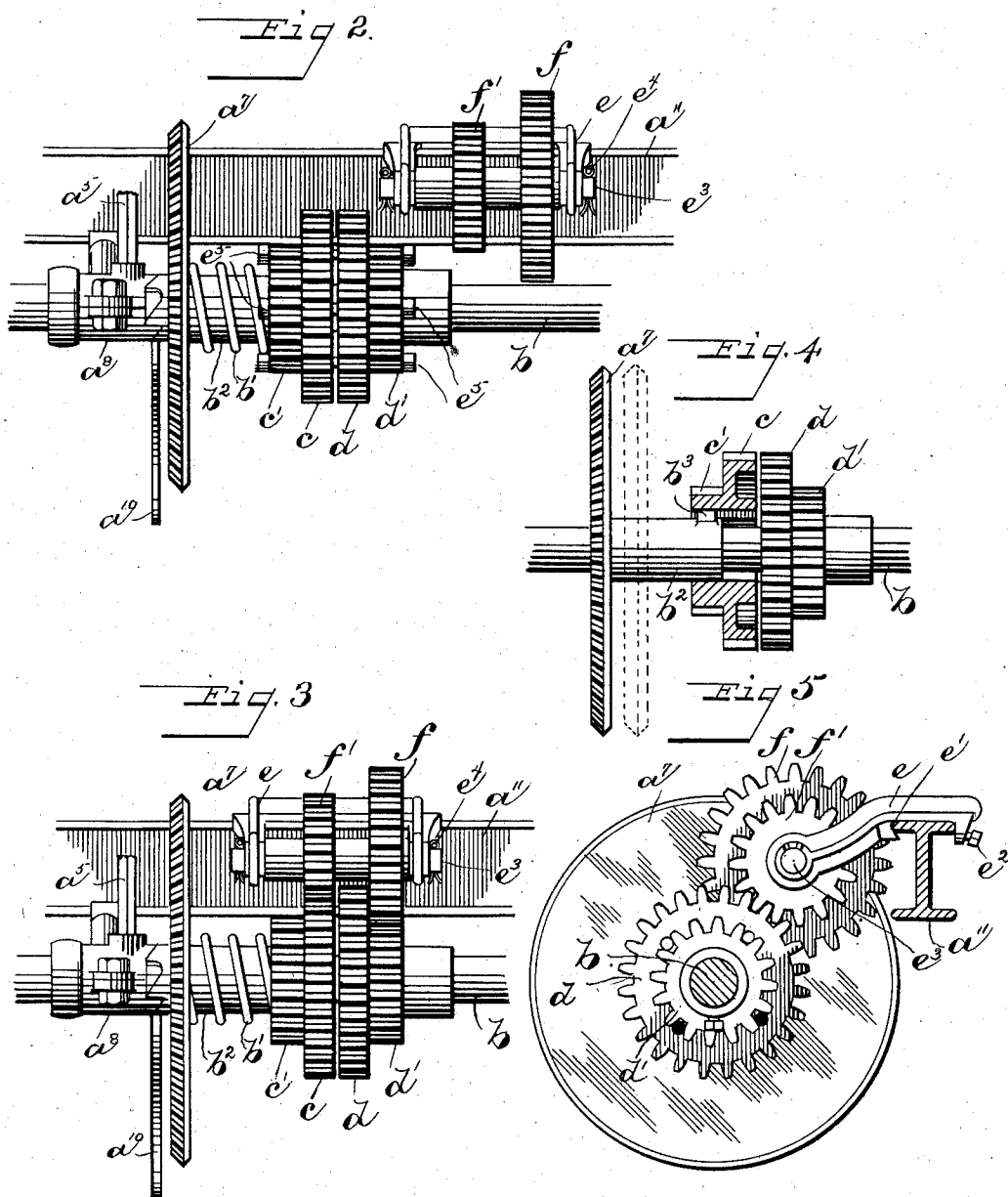
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WITNESSES:

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INVENTORS
Geo. B. Oates and
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UNITED STATES PATENT OFFICE.

GEORGE P. OATES AND CHARLES E. PATRIC, OF SPRINGFIELD, OHIO,
ASSIGNORS, BY MESNE ASSIGNMENTS, TO AMERICAN SEEDING MA-
CHINE COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION
OF NEW JERSEY.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 737,010, dated August 25, 1903.

Application filed September 19, 1902. Serial No. 124,064. (No model.)

To all whom it may concern:

Be it known that we, GEORGE P. OATES and CHARLES E. PATRIC, citizens 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.

Our invention relates to grain-drills, and more particularly to devices for changing the speed of the feed-distributors for said drills.

As is well known, the feed-distributors deliver a certain quantity of grain with each revolution, and various means have been employed to change the speed so as to give a greater or less distribution. The quantity of grain sown to the acre is subject to varying conditions, in some cases the demand being for a drill that will sow an exceedingly limited quantity of grain, while others require a large capacity. This difference has become very marked; and the object of our invention is to provide improved means to secure a wider range in the variation of the speed that will be simple and efficient in operation and give the best results.

Our invention consists of the constructions and combinations of parts hereinafter described, and set forth in the claims.

In the drawings, Figure 1 represents a grain-drill embodying our invention with the gears arranged to drive the disk wheel at a greater speed than the driving-shaft. Fig. 2 is a detail with the gears arranged to drive the disk wheel at the same speed as the driving-shaft. Fig. 3 is a detail with the gears arranged to drive the disk wheel at a less speed than the driving-shaft. Fig. 4 shows the disk-wheel sleeve splined to gears to permit of its lateral movement; and Fig. 5 is an end view of bracket and gears, showing attachment of bracket to frame.

Like parts are represented by similar letters of reference in the several views.

In the accompanying drawings, a represents the hopper; a' , the feed-distributors; a'' , delivery-conduits; a^3 , feed-shaft; a^4 , pair of bevel-gears; a^5 , shaft with pinion a^6 , slidingly mount-

ed on said shaft to mesh with different concentric rows of cogs in a disk wheel a^7 in a well-known manner. A support a^8 for the shaft a^3 , attached to the bed-rail of the frame, is journaled on the axle or driving-shaft b . To change the pinion a^6 from one concentric set of cogs to the other, the disk wheel is thrown out of mesh by a lever a^{10} , and a retracting-spring b' throws it into mesh again. The disk wheel is rigidly attached to or formed integrally with a sleeve b^2 , journaled on the shaft b . On said sleeve we slidingly mount, by a spline b^3 , two spur-gears c and c' of different diameters and preferably formed integral, as shown, and adjacent to said gears we rigidly mount on the shaft b two spur-gears d and d' , likewise of different diameters and preferably formed integral. On a cross-beam a^{11} of the machine we mount a bracket e , which may be attached to said beam or other support in any suitable manner; but we preferably form it with a groove, one side e' of which is inclined and the other side straight, with a set-screw e^2 therein, so that when the edge of the beam is within the groove the incline upon the one side and the set-screw upon the other will hold it firmly in place. Within the bracket e upon the shaft e^3 we journal two spur-gears f and f' of different diameters, preferably formed on a single hub extending between the side frames of said bracket, and the shaft e^3 extends through said side frames and is held in place by cotters e^4 . By removing one of the cotters the shaft can be withdrawn from the bracket and the position of the gears reversed on said shaft and the shaft be again fixed in position and the cotter replaced. The gears f and f' are so spaced apart that when in one position, as shown in Fig. 1, the large gear f will mesh with the small gear c' and the small gear f' will mesh with the large gear d , whereby the disk wheel and its connection will be driven at a greater speed than the axle or driving-shaft; but when the gears f and f' are turned about end for end on the shaft e^3 , so that they are in the position shown in Fig. 3, the large gear f will mesh with the small gear d' and the small

gear f' will mesh with the large gear c , and the disk wheel, with its connections, will be driven at a less speed than the axle or driving-shaft. If desired, the bracket e may be moved to one side, as shown in Fig. 2, and the gears on the axle and sleeve rigidly connected, as by the bolts e^5 , by which arrangement the disk and its connections will be driven at the same speed as the axle or driving-shaft.

It will be seen that in combination with the variation in speed given by the disk wheel and its pinion we have provided means for giving two additional speeds over and above the speeds obtained by the disk wheel and its pinions.

The large gears c , d , and f , as well as the small gears c' , d' , and f' , we preferably form of like diameters; but the sizes of the respective gears may be changed without departing from the spirit of our invention.

It is obvious that our improved devices may be applied to the various well-known forms of distributors and their driving mechanisms and may also be used in connection with fertilizer-drills.

Having thus described our invention, we claim—

1. In a seeding-machine, feed-distributors, a main driving-shaft, driving mechanism for driving said distributors comprising a variable-speed mechanism, and auxiliary variable-speed mechanism between said driving-shaft and distributor-driving mechanism, said auxiliary mechanism adapted to be thrown in and out of operative position, and means to directly connect said shaft and distributor-driving mechanism when said auxiliary mech-

anism is thrown out of gear, substantially as specified.

2. In a seeding-machine, a frame, a driving-shaft, a feed-shaft and a series of distributor-wheels thereon, a loose sleeve on said driving-shaft having driving connections with said feed-shaft, a bracket on said frame and a counter-shaft journaled therein, a train of gears comprising a large and a small gear of substantially like proportions on said driving-shaft, sleeve and counter-shaft, and means to reverse the position of the gears on said counter-shaft, substantially as specified.

3. In a seeding-machine, a frame, a driving-shaft and feed-shaft and a series of distributor-wheels thereon, a sleeve journaled on said driving-shaft, variable-speed mechanism comprising a disk wheel on said sleeve with connections to said feed-shaft, a bracket on said frame and a counter-shaft journaled therein, a train of gears comprising a large and a small gear of substantially like proportions on said driving-shaft, sleeve and counter-shaft, the counter-shaft gears adapted to be reversed in position as described, and means for throwing said counter-shaft gears out of operative position and connecting said driving-shaft directly with said sleeve, substantially as specified.

In testimony whereof we have hereunto set our hands this 16th day of September, A. D. 1902.

GEORGE P. OATES.
CHARLES E. PATRIC.

Witnesses:

JOHN P. FRANK,
CHAS. I. WELCH.