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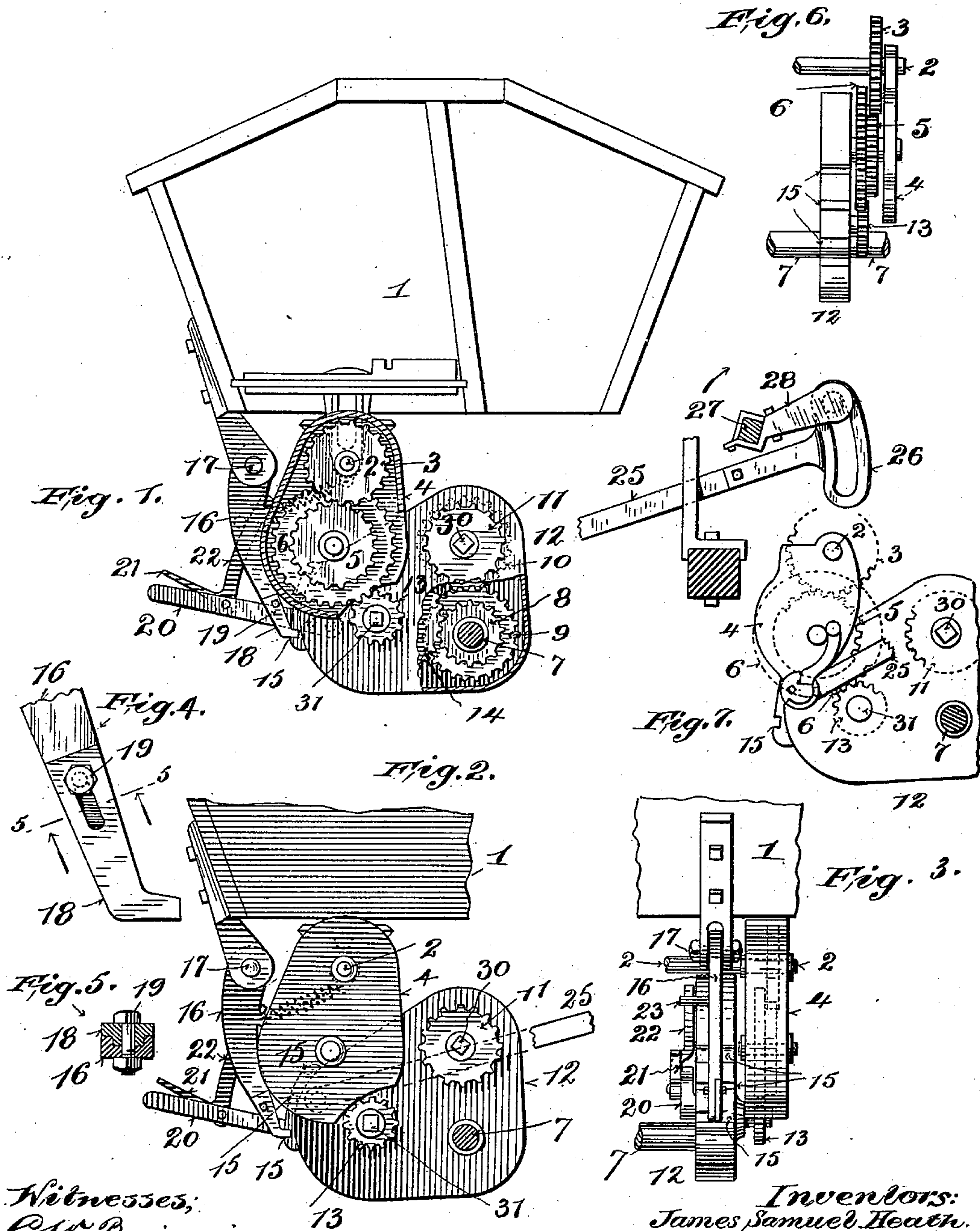
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SPEED MECHANISM.

(Application filed June 21, 1902.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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SPEED MECHANISM.

SPECIFICATION forming part of Letters Patent No. 710,271, dated September 30, 1902.

Application filed June 21, 1902. Serial No. 112,665. (No model.)

To all whom it may concern:

Be it known that we, JAMES SAMUEL HEATH, a British subject, and LAWRENCE HEATH and ERNEST BASEMAN, citizens of the United States, all residing at Macedon, in the county of Wayne and State of New York, have invented certain new and useful Improvements in Speed Mechanisms, of which the following is a specification.

Our invention relates to speed mechanisms, and more particularly to that class thereof employed upon seeding-machines or grain-drills in connection with devices for the distribution of seed, grain, or fertilizers.

For purposes of illustration we have shown our invention as applied to the fertilizer-distributing mechanism; but it will be obvious that it could equally as well be applied to the seed or grain distributor, or, in fact, to any form of mechanism wherein change of speed is required.

Our invention consists in the construction and combination of parts now to be described in the specification and as finally pointed out in the claims.

Referring to the drawings, wherein the same parts are designated by the same characters of reference in all the views, Figure 1 shows the hopper of a seeding-machine or grain-drill with our invention applied thereto, certain of the parts, including the shifting strap, being broken away to show other parts more clearly. Fig. 2 is a side view of the speed mechanism. Fig. 3 is an end view thereof. Figs. 4 and 5 are details showing in side view and in section the adjusting means for the pivoted pawl; and Figs. 6 and 7 are details showing in end and side view, respectively, a modified and preferred form of frame or hanger for the upper gears.

The fertilizer-wheels and connected parts are attached to the hopper 1 and may be of any desired or preferred construction, being operated in the customary manner from the fertilizer or driven shaft 2. Fast upon the driven shaft 2 is the gear 3, inclosed within a frame or case 4, pivotally mounted upon the shaft 2, and which also contains and supports the double gear 5 6, mounted on its stud within the frame or case in such man-

ner that the smaller member 5 of the gear 5 6 meshes into the gear 3 upon the shaft 2, and whereby the required motion is imparted to the shaft 2 when the larger member 6 of the double gear 5 6 is actuated in the manner now to be described.

Motion is communicated from the driving shaft or axle 7 by means of a double gear 8 9, fast thereupon, which double gear meshes by means of the smaller member 8 into the gear 14, and by means of the larger member 9 into the gear 10, the gears 14 and 10 being mounted, respectively, by their studs 31 and 30 in a case or frame 12, which is pivotally mounted upon the axle 7 and surrounds and contains also the double gear 8 9 upon the axle 7. The studs 31 and 30 of the gears 14 and 10 project from the side of the case 12 sufficiently far to permit of the external gears 13 and 11, respectively, being secured thereto. These gears 13 and 11, by reason of the gearing described as contained within the case 12, are constantly driven at different rates of speed when the axle 7 is rotated, the gear 13 being the slow-speed gear and the gear 11 the high-speed gear. These gears are so positioned and located upon the outside of the case 12 that when the said case is pivotally turned about the axle 7 one or the other of them is caused to enter the case 4 and mesh with and operate the larger member 6 of the double gear 5 6, or when the case is given still another position to be both out of engagement therewith. Adjusting means for this purpose are provided in the notches 15, formed upon the edge of the case 12. These notches 15 are shown in the drawings as being three in number and as adapted to be engaged by the spring-actuated pawl 16, pivoted at 17 to the hopper. When the pawl 16 engages the lower notch 15, the gear 13 will mesh with the gear member 6, when in engagement with the upper notch 15 the gear 11 will mesh with the member 6, and when the pawl 16 is in engagement with the middle one of the notches 15 the gears 11 and 13 will be both of them out of engagement. In order to readily effect this adjustment of the case 12, we have provided a simple and efficient means for operating the pawl 16.

The handle 20 is rigidly attached to the case 12 and has pivoted to it a lever formed with a hand or operating piece 21 and a curved extension 22, which lies in proximity to the pawl 16 and passes under a pin 23, projecting therefrom in such manner that when the handpiece 21 is pressed by the operator the member 22 will disengage the pawl 16 from the notch 15 by reason of its engagement with the pin 23 on the said pawl. The case may be then shifted by the handle 20, so that the desired notch 15 will be brought into position to be engaged by the pawl 16, when the release of the handpiece 21 permits the spring-actuated pawl 16 to engage the notch, and the contact of the pin 23 thereon with the member 22 will restore the handpiece 21 to its original position. It is to be noted that the curved arm 22 is formed as in the arc of a circle having the axle 7 as its center, which arrangement insures the constant and uniform engagement of the curved arm 22 with the pin 23 upon the pawl 16 as the case 12 is adjusted about the axle 7. This arrangement of adjusting and locking mechanism is most simple and convenient in operation, and it will be seen that the location of the unlocking-lever 21 22 upon the shifting lever 20 of the case 12 permits the case to be entirely manipulated with one hand. The pawl is formed in two pieces 16 and 18, the two parts being joined by a dovetailed connection to insure rigidity and being provided with slots and a bolt 19 to permit of their necessary adjustment. (See Figs. 4 and 5.)

In Figs. 6 and 7 we have shown a simple and preferred modification of the frame 4, which consists in this instance of a single hanger with the double gear 5 6 journaled thereto. This frame or hanger is simpler, cheaper, and lighter than the double case and, moreover, permits the studs 30 and 31 on the case 12 to be made shorter, as no provision is necessary for the farther wall of the double case. Means are also provided whereby the upper frame or case 4, with its contained gears, may be swung out of operative position at certain times, as when the hoes, disks, or shoes are raised, so as to stop the delivery of the fertilizer. An arm 28 is fast upon the rock-shaft 27 and is provided with a stud which engages in a slot in the piece 26 upon one end of the link or strap 25, the other end of which is connected in any suitable manner to the pivoted case 4, as indicated by dotted lines in Fig. 2. When the rock-shaft 27 is turned in the direction of the arrow, so as to raise the hoes, &c., in the manner well understood, the arm 28 is moved downwardly, and by reason of the engagement of its stud with the slotted piece 26 the link 25 is moved longitudinally in such manner as to swing the case 4 about the shaft 2 and to disengage the gear member 6 therein from the operating-gear upon the case 12. When the hoes, &c., are returned to their operative position, the rock-shaft 27

will be moved in the opposite direction and the case 4 restored to its normal position.

Our invention affords a simple and convenient form of speed mechanism that is both efficient and durable and one in which the necessary adjustments can be made with the utmost ease.

Having thus described our invention, its construction, and mode of operation, what we claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a speed mechanism, a driven shaft and a gear thereon, a frame or case supported on the driven shaft and gearing therein connected to the gear on the driven shaft, combined with a driving-shaft, a second frame or case pivotally mounted thereon, a double gear within the case and fast upon the driving-shaft, other gears within the case gearing into the double gear, and gears on the outside of the case connected to the driving-gears therein, and means for moving the case so that any one of the outside gears may be engaged with the gearing in the first-mentioned frame or case.

2. In a speed mechanism, a driven shaft and a gear thereon, a frame or case supported on the shaft and gearing therein which meshes into the gear on the driven shaft, combined with a driving-shaft, a frame or case pivotally mounted thereon, a double gear fast upon the driving-shaft within the case, and other gears located within the case and meshing into the double gear and provided with studs projecting through the case, outside gears upon the studs, and means for moving the frame or case so that any one of the outside gears may be engaged with the gearing in the first-mentioned frame or case.

3. In a speed mechanism, a driven shaft and a gear thereon, a frame or case supported upon the shaft and gearing therein which meshes into the gear on the driven shaft, combined with a driving-shaft, a second case or frame pivotally mounted thereon, a double gear upon the driving-shaft and within the case, other gears within the case meshing into the double gear, gears on the outside of the case connected to the driven gears within, and means for adjusting the case so that any one of the outside gears may be engaged with the gearing in the first-mentioned frame or case, and further means for locking the second frame or case in its adjusted position.

4. In a speed mechanism, a driven shaft and a gear thereon, a frame or case pivotally mounted on said shaft and gearing therein which meshes into the gear on the driven shaft, combined with a driving-shaft, a second case or frame pivotally mounted thereon, a double gear upon the driving-shaft and within the case, other gears within the case gearing into the double gear, gears on the outside of the case connected to the driven gears within, means for adjusting the case so that any one of the outside gears may be engaged with the gearing in the first-mentioned frame or case,

and suitably-actuated means whereby the first-mentioned frame or case may be moved from its operative position.

5 In a speed mechanism, a driven shaft and gearing connected therewith, combined with a driving-shaft and a movable case or frame thereon, gearing actuated by the driving-shaft and carried by the case, a pawl pivoted to the frame to lock the case in its operative and in-
10 operative positions, and means connected to the case controlling the pawl.

6. In a speed mechanism, a driven shaft and suitable gearing connected thereto, combined with a driving-shaft, a movable case or frame
15 thereon, and gears connected to the driving-shaft and mounted in the case, a pawl pivoted to the frame to lock the case in its operative and inoperative positions, a handle connected to the case whereby the latter may be shifted,
20 and a pivoted lever attached to the handle and acting to control the movements of the pawl.

7. In a speed mechanism, a driven shaft and suitable gearing connected thereto, combined with a driving-shaft, a movable case or frame
25 thereon, gears connected to the driving-shaft and mounted in the case, the case being formed with three notches, and a spring-actuated pawl pivoted to the frame to engage the several notches whereby the case may be
30 held in two operative and one inoperative positions, a handle attached to the case to permit of its adjustment, and a pivoted lever attached to the handle to control the movements of the pawl. 35

In testimony whereof we have hereunto signed our names in the presence of two subscribing witnesses.

JAMES SAMUEL HEATH.
LAWRENCE HEATH.
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Witnesses:

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