No. 682,153. Patented Sept. 3, 1901.

J. E. SWONSON.

WIRELESS CHECK ROW CORN PLANTER.

(Application filed July 17, 1900.)

(No Model.) 3 Sheets—Sheet 1.

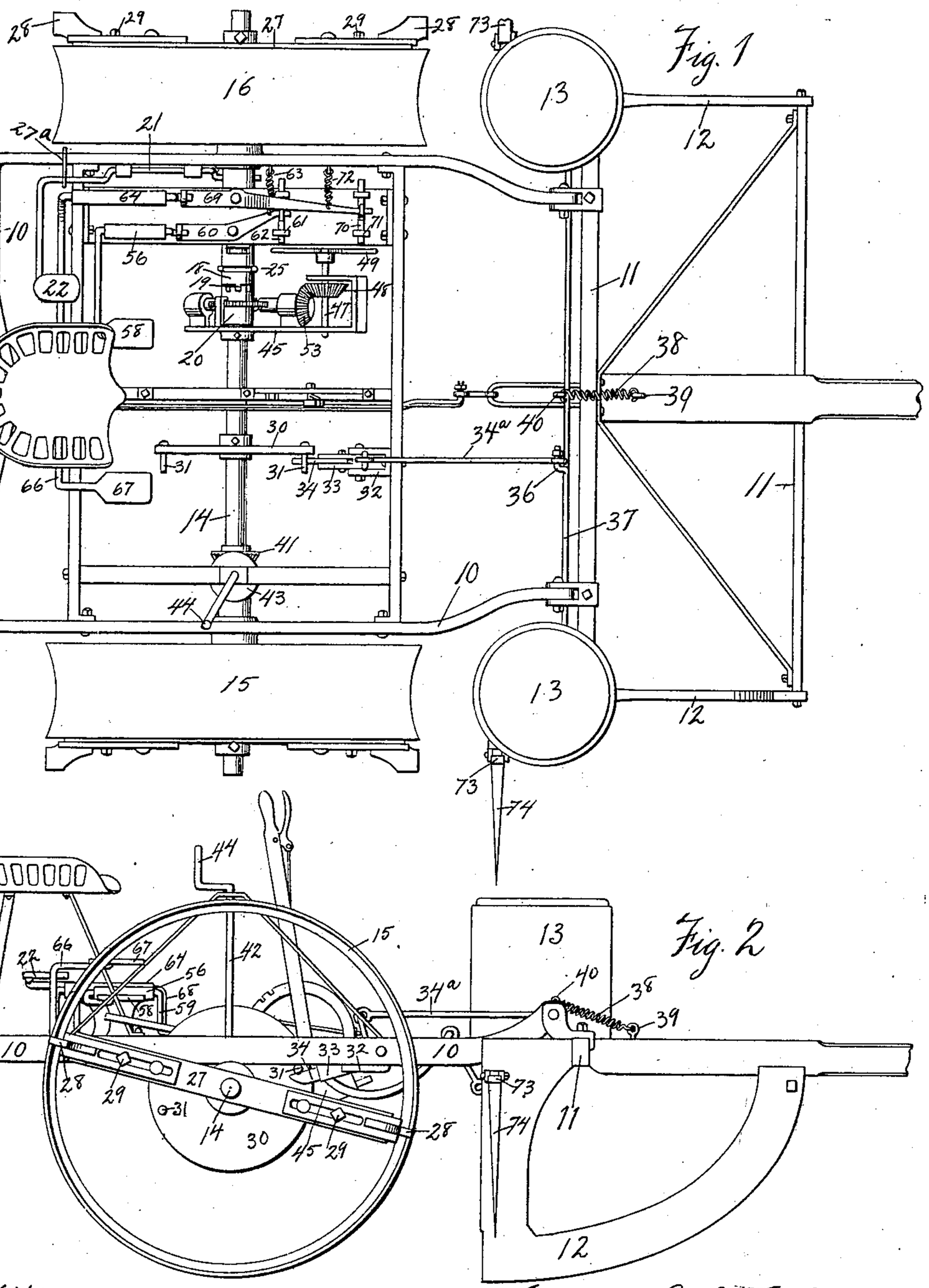

Fig. 1

Fig. 2

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Fig. 3

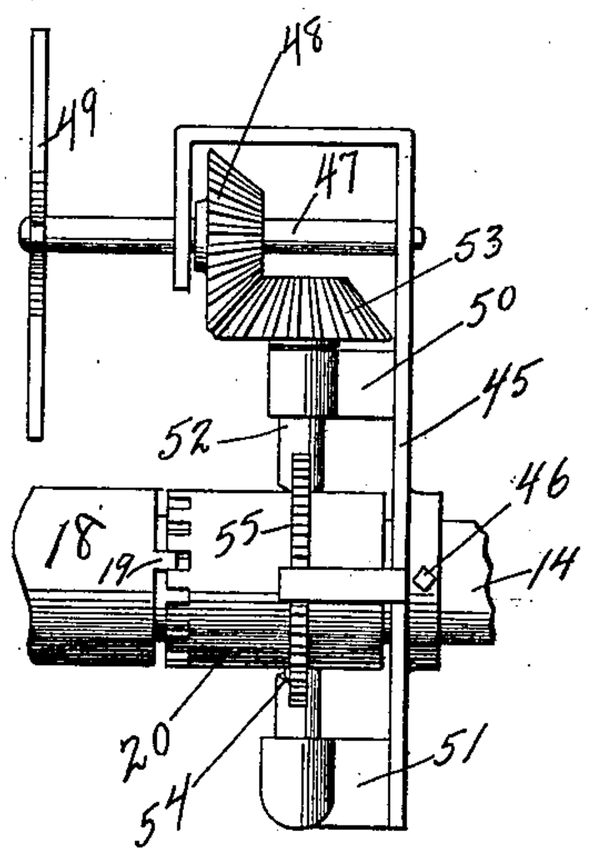

Fig. 4

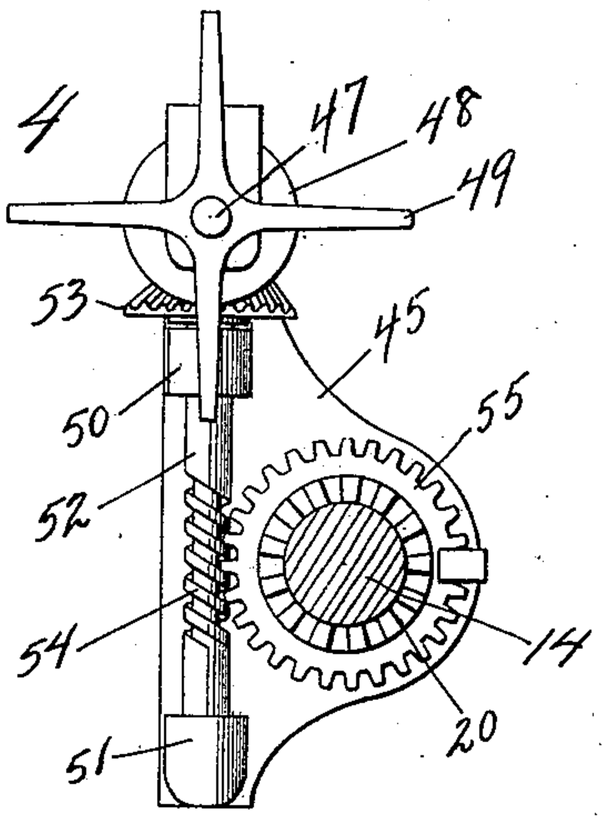

Fig. 5

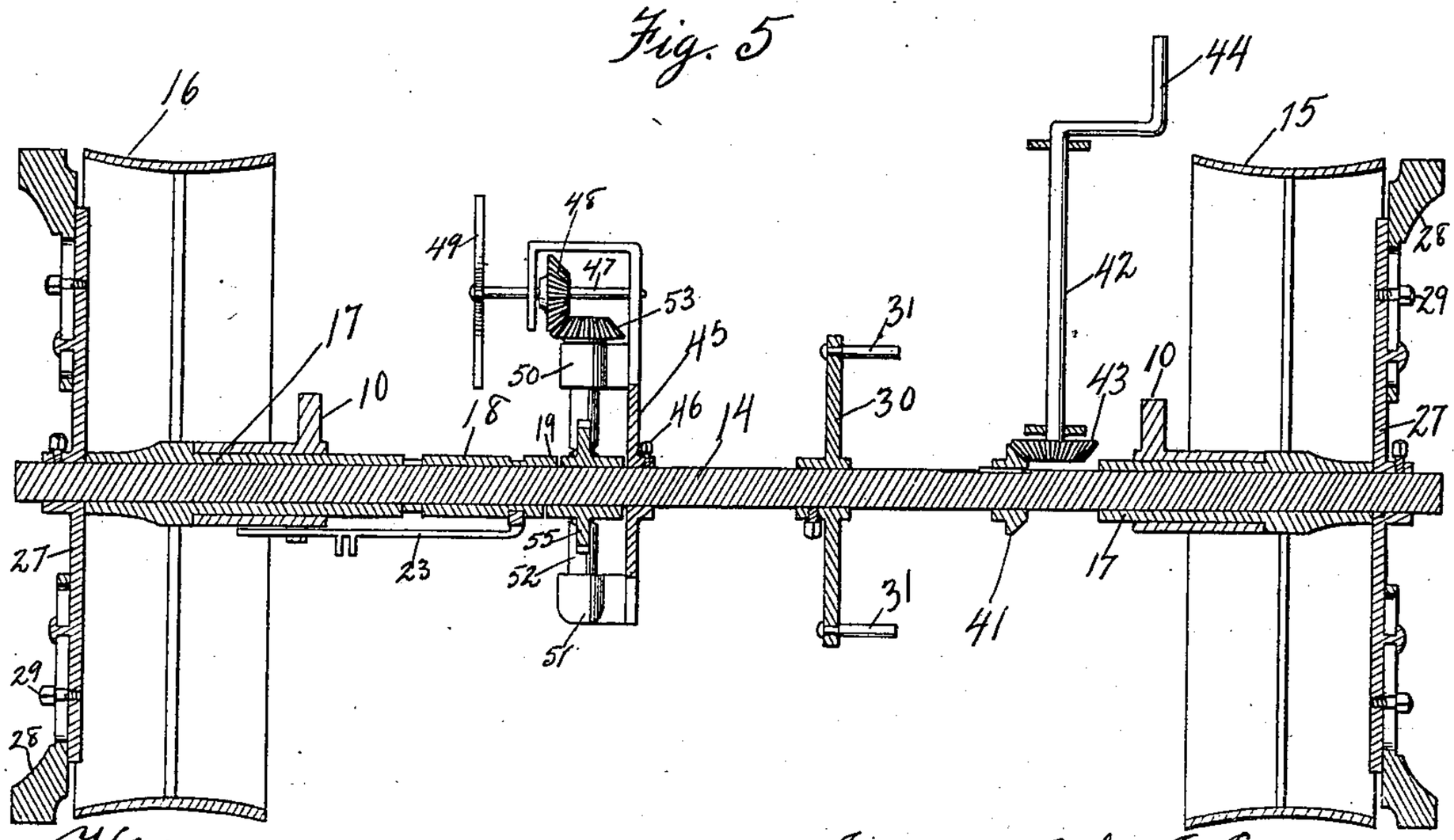

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Fig. 7

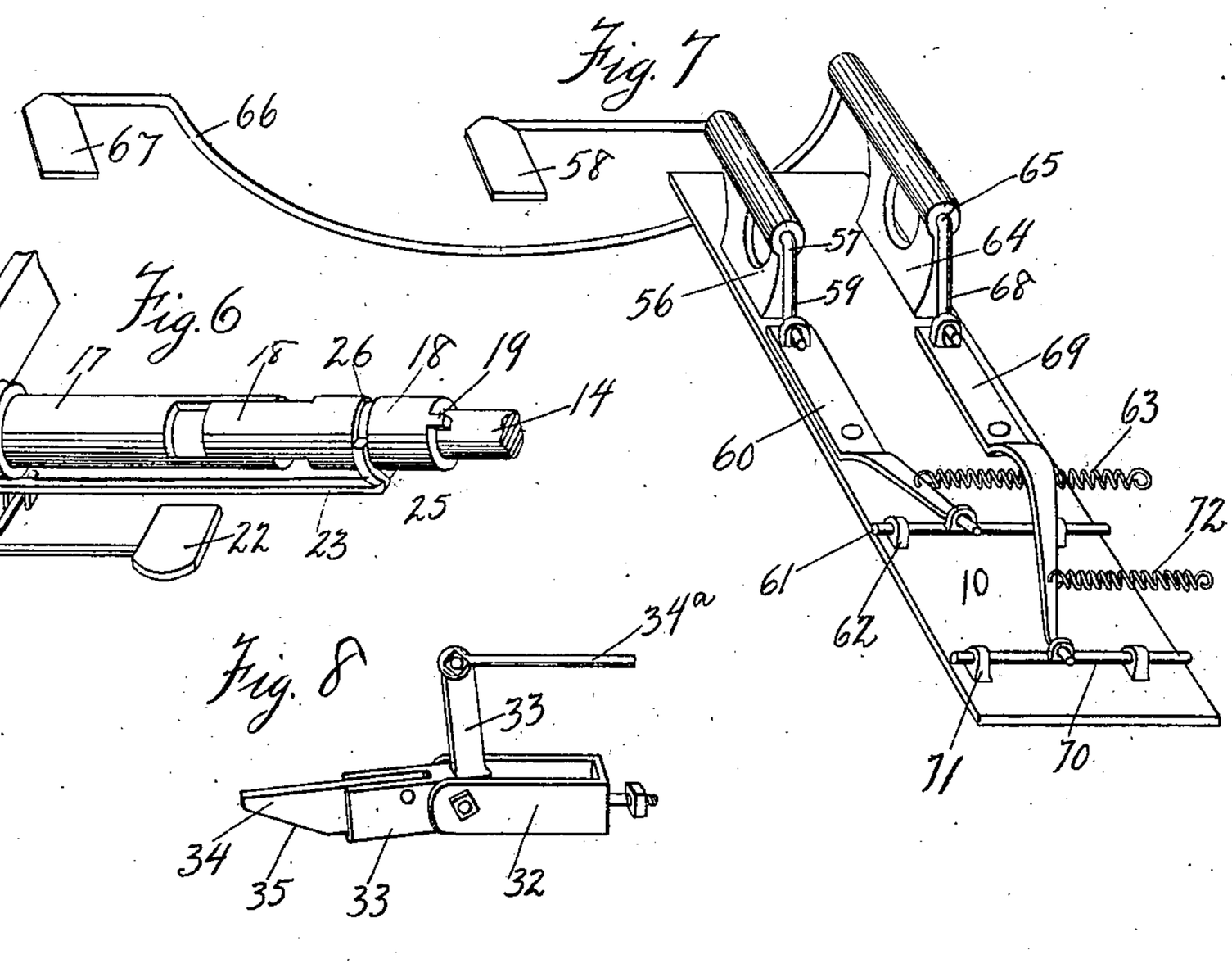
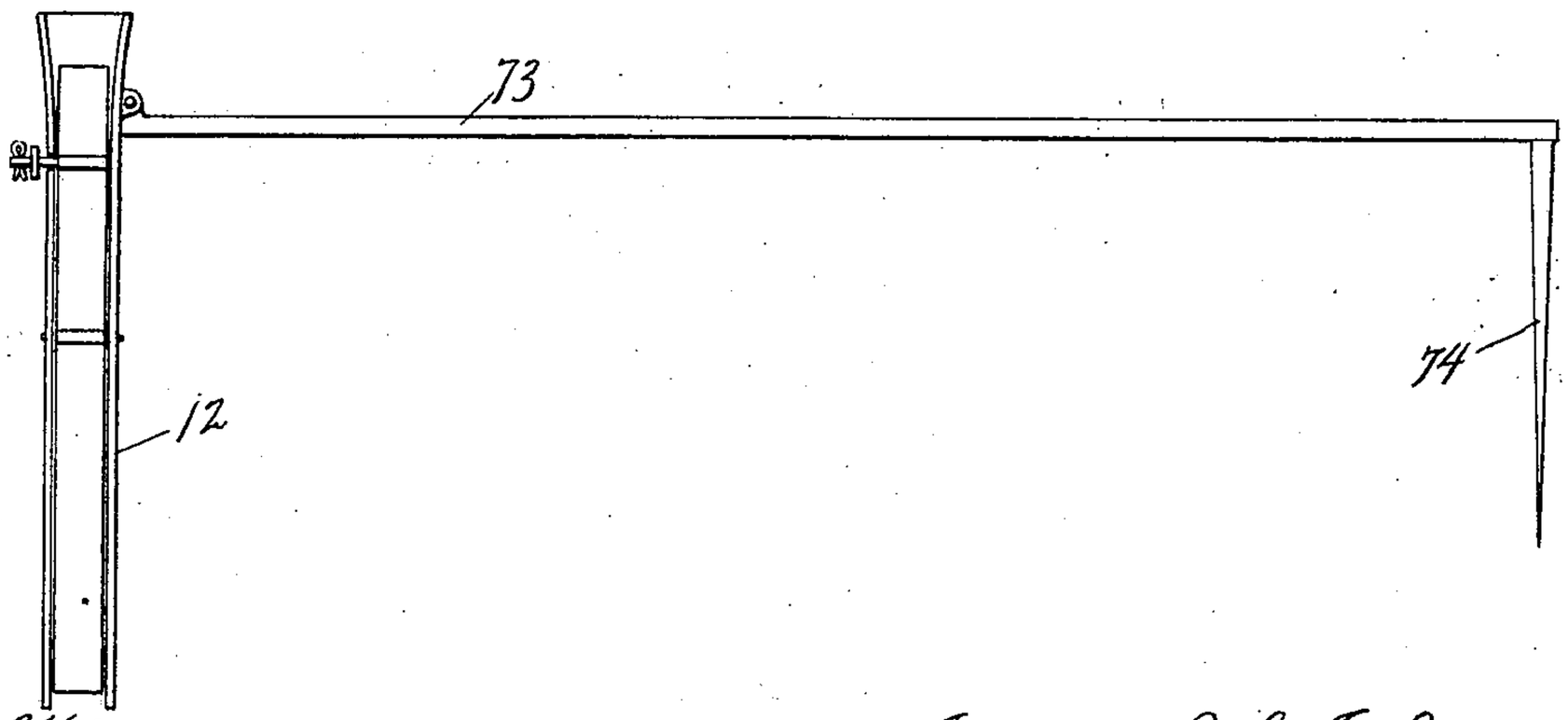


Fig. 6

Fig. 8

Fig. 9



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UNITED STATES PATENT OFFICE.

JOHN E. SWONSON, OF BOONE, IOWA, ASSIGNOR OF ONE-HALF TO JOHN A. JOHNSON, OF STRATFORD, IOWA.

WIRELESS CHECK-ROW CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 682,153, dated September 3, 1901.

Application filed July 17, 1900. Serial No. 23,969. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. SWONSON, a citizen of the United States, residing at Boone, in the county of Boone and State of Iowa, have invented certain new and useful Improvements in Wireless Check-Row Corn-Planters, of which the following is a specification.

This invention relates to that class of check-row corn-planters in which the spacing is regulated by the traction or supporting wheels of the machine. In machines of this class it is well known that on account of irregularities in the ground-surface and from other causes the hills of one row of corn will not accurately aline with the hills of the previously-planted row unless some means are provided for lengthening or shortening the distance between the hills of corn being planted.

My object in this invention is to provide simple, durable, and easily-actuated means whereby the spaces between the hills being planted may be changed so as to be greater or less than the predetermined spaces as they would be regulated by the traction or supporting wheels, and, further, in this connection to provide means for this purpose, which may be easily actuated by the operator without stopping the machine or interfering with its operation in any manner.

A further object is to provide means whereby the dropping mechanism may be easily and quickly thrown out of gear, so that the dropping operation is stopped when turning corners, &c.

A further object is to provide simple, durable, and easily-operated means whereby the markers which designate the points on the ground-surface where the succeeding hill of corn will be planted may be placed in position to accurately aline with the hills of corn on a previously-planted row, so that when starting a row a proper alinement may be had without the use of wire.

A further object is to provide an improved folding indicator to stand in position directly above the previously-planted hills of corn, whereby the position of said hills may be accurately determined by an operator upon the machine.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a top or plan view of the complete machine. Fig. 2 shows a side elevation of the same. Fig. 3 shows an enlarged detail view, in rear elevation, of a portion of the mechanism for regulating the distance between the hills of corn in a row. Fig. 4 shows a side elevation of the same mechanism. Fig. 5 shows a transverse sectional view through the main axle of the machine to illustrate the manner of connection of the various mechanisms therewith. Fig. 6 shows an enlarged detail perspective view to illustrate the means for throwing the drive-wheel out of engagement with the main axle. Fig. 7 shows an enlarged detail perspective view of the means for operating the slide-bolts by which the spacing mechanism is controlled. Fig. 8 shows an enlarged detail perspective view illustrating the device for actuating the dropping mechanism, and Fig. 9 shows a rear elevation of one of the runners and one of the indicators applied thereto in position ready for use.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the main or wheel frame of the machine. Pivoted to the front of the main or wheel frame is an auxiliary or runner frame 11, carrying the furrow-opener or runners 12, and above the runners are the seedboxes 13. These parts are all of the ordinary construction.

The reference-numeral 14 indicates the axle or shaft of the machine. On one end of this axle a wheel 15 is rotatably mounted, and upon the other end of the axle the spacing-wheel 16 is rotatably mounted and provided with a notched collar 17 on its hub, which collar is designed to mesh with a sliding clutch 18 on the axle. On the opposite end of the sliding clutch 18 is a tooth 19, and a notched sleeve 20 is loosely mounted upon the axle 14, adjacent to the said clutch 18, to be engaged by the tooth 19. Hence it is obvious that when the tooth 19 of the collar 18 is in

engagement with the sleeve 20 the axle 14 is rotated in unison with the spacing-wheel 16.

The means for controlling the collar comprises a crank-shaft 21, mounted in the machine-frame 10 and having a treadle 22 fixed to one end, while the other end is connected with a slide 23, mounted in bearings 24 on the machine-frame. On one end of the slide 23 is a semicircular rim 25 to enter an annular groove 26 in the collar 18. By this means it is obvious that the spacing-wheel 16 is connected for rotation with the axle 14 when the treadle 22 is elevated, and is disconnected, so that the wheel 16 may freely rotate, when the said treadle 22 is lowered. A spring 27ª is provided for normally elevating the treadle 22.

On each end of the axle 14, beyond the wheels 15 and 16, I have fixed markers. These markers each comprise a cross-head 27, fixed to the axle, and a marker-blade 28, connected with the cross-head, so as to be adjustable longitudinally thereof, by means of set-screws 29. The device for actuating the corn-dropping mechanism is also fixed to the axle 14 and is so arranged that the corn will be dropped at the point where one of the marker-blades engages the ground. This mechanism comprises a disk 30, fixed to the axle 14 and having the pins 31 projecting therefrom at points diametrically opposite on the disk. Fixed to a cross-bar on the wheel-frame is a support 32, and pivoted in said support is a bell-crank lever 33. Pivoted within one end of the lever 33 is a trip device 34, capable of moving upwardly within the lever 33, but not downwardly. The under surface of the trip device is beveled at 35. This trip device is placed in the path of the pins 31, and when the disk 30 is turning in a forward direction the pins 31 will engage the trip device 34 and force it downwardly, thereby actuating the dropping mechanism, as will be hereinafter made clear. When, however, the disk 30 is rotated backwardly, the pins 31 will bear against the inclined surface 35 of the trip device and the trip device will be elevated without actuating the dropping mechanism. Furthermore, the trip device 34 may, if desired, be turned upwardly to stand in a vertical position out of the path of the pins 31. On the opposite end of the lever 33 is secured a rod 34ª, connected with an arm 36 on the rod 37, which rod controls the seed-dropping mechanism, which is not shown and which is of the ordinary construction. The rod 37, operating the dropping mechanism, is returned by means of the contractile coil-spring 38, one end of which is fixed to the tongue at 39 and the other end to an arm 40 on the shaft 37.

I have provided means whereby the markers may be rotated independently of the traction-wheel, as follows: Keyed to the shaft 14 is a beveled gear-wheel 41, and supported above said bevel gear-wheel in bearings is a shaft 42, having a bevel gear-wheel 43 on its lower end, meshed with the wheel 41. On top of the shaft 42 is a crank 44, and when it is desired to rotate the markers independently of the wheels the treadle 22 is first depressed to throw the wheel 16 out of engagement with the axle 14. Then the axle may be freely rotated and the markers placed in any desirable position with relation to the wheel. In use the operator brings the machine to the desired position for starting a row and then places his foot upon the treadle 22 to release the connection between the axle and the wheel 16, and then by a manipulation of the crank 44 turns the marker to a position in alinement with the previously-planted row of corn. Then the treadle 22 is released, and obviously when the machine is advanced the planting will continue at regular intervals.

As before stated, the irregularities in the ground-surface and sliding of the wheels and other causes will prevent accurate check-rowing, and I have provided means whereby the inaccuracies may be corrected by the operator without stopping the machine, as follows: On the central portion of the axle 14 a frame 45 is fixed by means of the set-screw 46. In the outer end portion of this frame 45 I have rotatably mounted a shaft 47, and fixed to the shaft 47 is a beveled gear-wheel 48. I have also fixed to the shaft 47 a series of radial arms 49 for purposes hereinafter made clear. On opposite sides of the center of the axle 14 I have fixed two bearings 50 and 51, and rotatably mounted in these bearings is a shaft 52. On one end of the shaft 52 is a bevel gear-wheel 53, meshed with the bevel gear-wheel 48. On the central portion of the shaft 52 I have formed a worm 54. This worm is designed to mesh with a pinion 55, which pinion is fixed to the sleeve 20. The sleeve 20 is normally connected with the traction-wheel 16, so as to rotate in unison therewith. However, the axle 14 may be made to rotate either faster or slower than the sleeve 20 or the traction-wheel 16 through the instrumentality of the mechanism illustrated in Figs. 3 and 4 when said mechanism is actuated by the device illustrated in Fig. 7. Mounted upon the machine-frame is a bearing 56, and in this bearing is a crank-shaft 57. On the rear end of the crank-shaft 57 is a treadle 58, and on the forward end is a crank-arm 59, connected with a lever 60, which is pivoted to the machine-frame. At the forward end of the lever 60 is a sliding bolt 61, to which the lever 60 is connected. This bolt slides in the supports 62 in a direction transversely of the machine-frame, and a contractile coil-spring 63 is attached to the forward end of the lever 60 and to a portion of the machine-frame to normally hold the bolt 61 to the outer limit of its movement. As clearly shown in Fig. 1 of the drawings, this bolt is in position out of the path of the arms 49, but when extended it will lie in the path of the arms 49, and hence upon each complete revolution of the shaft 14 and frame 45 the arms 49 will be engaged by the bolt 61 and

turned, thus turning the axle 14 and causing the marker to move with relation to the traction-wheels. I have provided a similar device for moving the markers in the opposite direction with relation to the traction-wheels, as follows: Mounted upon the machine-frame adjacent to the shaft 57 is a support 64, carrying a shaft 65. On one end of the shaft 65 is the crank-arm 66, bearing a treadle 67, and on its other end is a crank-arm 68, connected with the rear end of a lever 69, which lever is pivoted to machine-frame. The forward end of the lever 69 is connected with a slide-bolt 70, mounted in the supports 71, to move in a plane parallel with the slide-bolt 61 and to stand on the opposite side of the path of the shaft 47, so as to engage the opposite sides of the arms 49. A contractile coil-spring 72 is provided for normally holding the bolt 70 in its position out of engagement with the arms 49.

On the outer side of each runner I have hinged an arm 73, and this hinged arm has at its outer end a downwardly-projecting indicator 74. The length of the arm 73 corresponds with the distance between two rows of corn, and when in use the operator upon the machine may determine when the machine is planting in exact check-rows by observing when the indicator is directly above a hill on the row previously planted and the marker 28 is in engagement with the ground-surface.

In practical use the operator while planting the first row of corn in a field need not manipulate the spacing mechanism and the hills of corn will be automatically placed at equidistant points throughout the row. Then when the end of the row of corn is reached he applies his foot upon the treadle 22, thereby releasing the wheel from the axle, so that it may run free without actuating the dropping mechanism. Then when the planter is in position to start the next row of corn the markers are placed in position in engagement with the ground-surface and in alinement with the last row previously planted by means of the crank 44. When this is done, the treadle 22 is released and the planting continued. The operator then by watching the indicator 74 and the marker may determine whether or not the hills of corn being planted are in exact alinement with the hills previously planted in the first row. If it is seen that they are not in exact alinement, he may by depressing either of the treadles 58 or 67 cause the axle to move either faster or slower than the wheels, thereby making the spaces between the hills longer or shorter, until exact check-rows are again obtained. The other features of the planter operate in the ordinary manner, and hence a detailed description thereof is deemed unnecessary. Furthermore, the usual reversible row-marker may be attached to the pivot 75 to rest in the supports 76 at the rear of the machine.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In a check-row corn-planter the combination of a machine-frame, supporting-wheels therefor, one or more spacing or marking wheels, a single, independent gearing device permanently connecting the supporting-wheels to the spacing and marking wheels whereby they normally operate in unison, means whereby the said gearing device may be automatically operated during the advance of the machine to turn the spacing and marking wheels either faster or slower than the supporting-wheels, manually-operated means for controlling said automatic means, and seed-dropping mechanism actuated from the spacing and marking wheels.

2. In a check-row corn-planter the combination of a machine-frame, supporting-wheels therefor, one or more spacing and marking wheels, a gearing member connected with the supporting-wheels, a coacting gearing member connected with the spacing and marking wheels; said gearing members being permanently meshed with each other, means whereby the gearing device connected with the supporting-wheels may be automatically actuated during the advance of the machine to move the spacing and marking wheels either faster or slower than the supporting-wheels, manually-operated means for controlling said automatic means and seed-dropping mechanism actuated from the spacing and marking wheels.

3. In a check-row corn-planter, the combination of a rotatable axle, means for actuating seed-dropping mechanism from said axle, a spacing-wheel rotatably mounted on said axle, a worm gear-wheel connected with one of the spacing-wheels, a frame fixed to the axle, a shaft mounted on the frame, having a worm thereon, meshed with said gear-wheel and manually-operated means on the machine-frame for actuating said shaft in either direction, whereby motion is transmitted from the spacing-wheel to the axle, which motion may vary with relation to that of the spacing-wheel, as determined by the direction of the rotation of said shaft, for the purposes stated.

4. In a check-row corn-planter, the combination of a rotatable axle, seed-dropping mechanism, means for actuating the seed-dropping mechanism from the axle, supporting-wheels rotatably mounted on the axle, a frame fixed to the axle, a shaft in said frame parallel with the axle, a wheel having radial arms on said shaft, a second shaft in said frame, having a worm thereon, means for gearing the two shafts together, a rotatable sleeve on the axle, a pinion on said sleeve, meshed with said worm, a releasable clutch device for connecting the spacing-wheel and said sleeve, and two sliding bars on the machine-frame, capable of being projected into the path of said wheel having radial arms on opposite sides of its shaft, foot-levers ful-

crumed to the machine-frame and connected with the said side bars, whereby they may be operated, and springs for normally withdrawing the side bars.

5. In a check-row corn-planter, the combination of a rotatable axle, seed-dropping mechanism, means for actuating the seed-dropping mechanisms from the axle, supporting-wheels rotatably mounted on the axle, a frame fixed to the axle, a shaft in said frame, parallel with the axle, a wheel having radial arms on said shaft, a second shaft in said frame, having a worm thereon, means for gearing the two shafts together, a rotatable sleeve on the axle, a pinion on said sleeve, meshed with said worm, means for connecting the sleeve with one of the supporting-wheels, and two sliding bars on the machine-frame, capable of being projected into the path of said wheel having radial arms, on opposite sides of its shaft, foot-levers fulcrumed to the machine-frame and connected with the said slide-bars, whereby they may be operated, and springs for normally withdrawing the slide-bars.

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