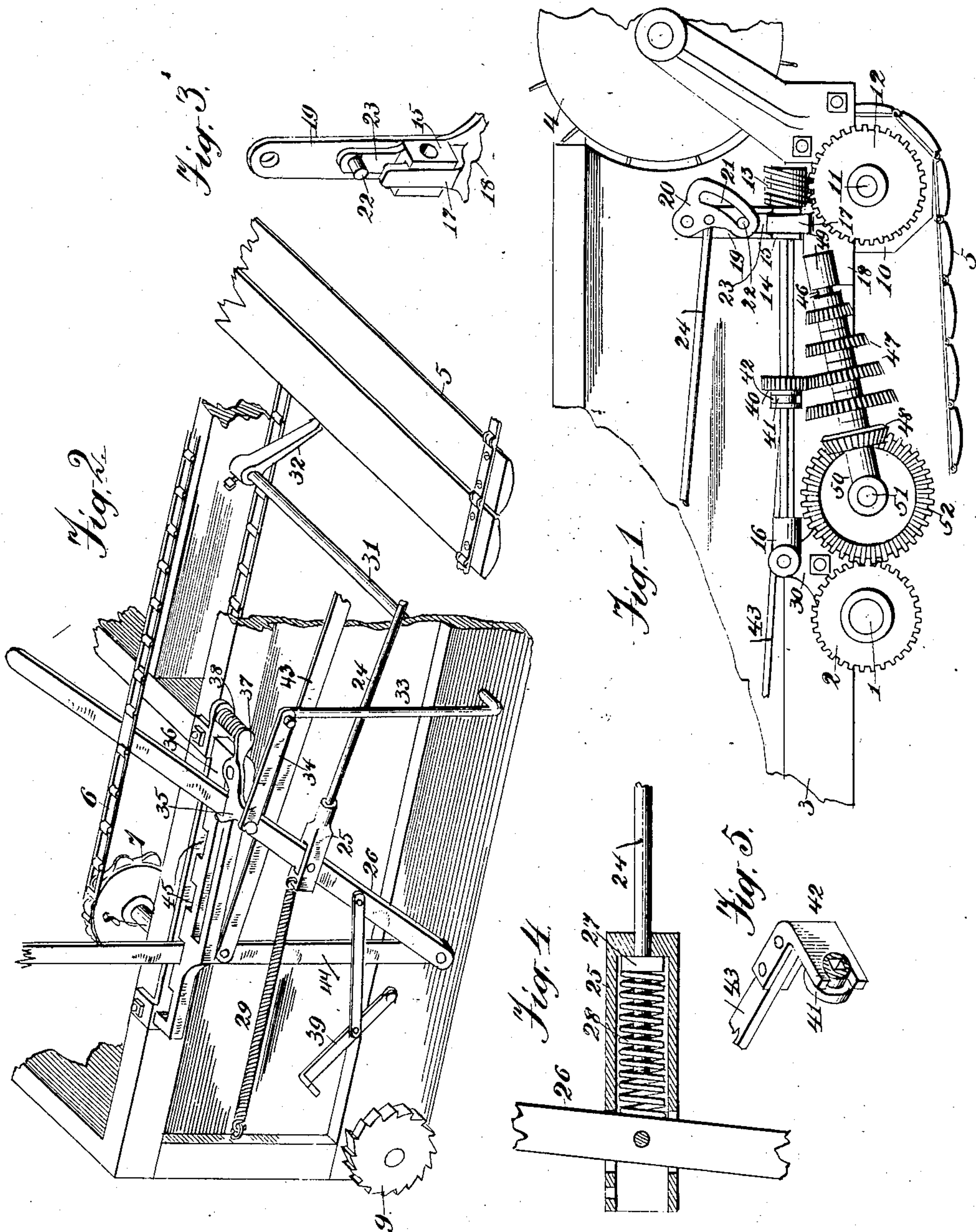


No. 810,449.

PATENTED JAN. 23, 1906.

C. W. WEST.  
MANURE SPREADER FEED MECHANISM.

APPLICATION FILED JAN. 3, 1905.



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# UNITED STATES PATENT OFFICE.

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## MANURE-SPREADER FEED MECHANISM.

No. 810,449.

Specification of Letters Patent.

Patented Jan. 23, 1906.

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*To all whom it may concern:*

Be it known that I, CHARLES W. WEST, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Manure-Spreader Feed Mechanism, of which the following is a specification.

This invention relates to manure-spreaders; and the object of the invention is to devise a simple, positive, and powerful feed mechanism for such machines so constructed as to give a perfectly uniform feed to the material with provision for varying the quantity at pleasure.

The invention also embodies improved mechanism for shifting, disengaging, and arresting the feed-gearing, all of which will appear by reference to the accompanying drawings, taken in connection with the specification and claims following.

In the drawings, to which reference has been made, Figure 1 is a fragmentary side view showing a part of the rear end of a manure-spreader and the feed-gearing communicating directly with the carrying-apron. Fig. 2 is a fragmentary view in perspective, showing a part of the apron connections and mechanism for arresting the action thereof and for shifting its feed-gearing. Fig. 3 shows one of the shaft-bearings in detail. Fig. 4 is a sectional view of the connection of one of the hand-levers with the feed-shift. Fig. 5 shows detail of the feed-pinion shift.

The machine to which these improvements apply is of a familiar type and need not be very particularly described. It is shown without the running-gear; but the numeral 1 designates the rear axle, on which is supposed to be mounted a pair of traction-wheels suitably connected to the axle so as to turn it or at least turn the spur-gear 2, mounted thereon. 3 is the body or box, provided at the rear with the usual distributing-cylinder 4 and at the bottom with a movable apron 5 to carry back the material and supply it to said cylinder or "beater," as it is commonly called. The ends of this apron connect by a link-belt 6, passing over a sprocket 7 on a shaft 8, to which is also connected a ratchet 9, the purpose of which will be explained presently.

At the rear the apron passes over suitable polygonal wheels 10 on a shaft 11, by the revolution of which the apron is moved forward or backward. To this shaft is secured

a worm-gear 12. Above it is a worm 13 on a shaft 14, running in bearings 15 and 16. The bearing 15 rests in a seat 17, formed on a casting 18, attached to the side of the machine-body, and is adapted to slide up and down a limited distance therein. An arm of this casting 19 extends upwardly, and to it is pivoted a cam 20, engaging by a slot 21 with a stud 22 on an arm 23 of the bearing 15. The cam connects with a rod 24, extending forward to near the front end of the machine. This end of the rod enters a coupling 25, to which is pivoted a hand-lever 26. At a little distance from the end of the rod is a nut or shoulder 27, and between this and the lever is a coil-spring 28. To the front end of the coupling is attached a tension-spring 29, fastened at its other end to the machine. The bearing 16, as will be seen, is pivoted to a casting 30, so that the shaft may be tilted upwardly to disengage the worm and its gear. These parts are made to engage by throwing back the hand-lever, as shown in Fig. 2. This may be done while the machine is in motion, as the spring 28 yields if the points of the teeth strike, but forces the parts into engagement as soon as the worm has turned forward a little.

It is desirable that the feed should be automatically disengaged as soon as the apron reaches the rearward limit of its movement. The device for this purpose is shown in Fig. 2. Extending inwardly to the middle of the machine is a cranked shaft 31, provided near the inner end with an arm 32, depending in the path of the apron as it moves forwardly at the under side. The crank-arm 33 connects by a link 34 with a latch 35, pivoted to the lever-guide 36 and adapted to lock the lever in its backward position. The latch is provided with a tail 37 to take a pressure-spring 38, which serves to hold it in locking position.

It will now be seen that as soon as the lower part of the apron shall have advanced a little more than is shown in Fig. 2 the latch will be drawn back and the released lever will be drawn instantly forward by the spring 29, thus separating the feed-worm and its gear. The same movement of the lever drops a pawl 39 into engagement with the ratchet 9, and thus prevents the apron from moving toward the rear at the upper side whenever the feed is disengaged, but at the same time allows it to be drawn back to position to take a new load by any suitable mechanism.



The worm-shaft is provided with a pinion 40, free to slide on the shaft, which is preferably square. The pinion has a grooved hub 41 to take a fork 42 at the end of a rod 43, connecting at the other end with a hand-lever 44, which engages any of the notches 45 in the guide-casting above referred to. By this means the pinion may be shifted to any desired position on its shaft by the operator while on his seat at the front end of the machine.

Below the worm-shaft is a diagonal shaft 46, carrying a series of graduated gears 47 and a bevel-pinion 48. The shaft has a bearing 49, forming a part of the casting 18, and another bearing 50, mounted on a stud 51, on which is mounted revolubly a compound spur and bevel gear 52, meshing with the drive-gear 2 and the pinion 48, respectively. As will be seen, the meshing points of the gears 47 are in a line parallel with the worm-shaft, so that the pinion thereon will engage any one of them when slid to proper position. By this means the feed of the machine may be increased or diminished at will. To change from one speed to another, the operator first throws the worm out of mesh with its gear, and then by the other hand-lever shifts the worm-pinion to engagement with any desired gear on the diagonal shaft.

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

1. In a manure-spreader, the combination of a feed-apron, driving-gearing therefor, a cam adapted to engage and disengage said gearing a shift-rod connecting with said cam, a lever connecting directly with said rod, a spring attached to the forward end of said rod and tending to pull it in a disengaging direction with respect to said gearing, a guide for the lever, a latch pivoted on said guide, and adapted to hold the lever in retracted position, a shaft with a crank linked to said latch and an arm depending in the path of the apron as it moves forwardly on

the under side, whereby the feed-gearing is automatically disengaged as the apron reaches the extreme unloading position.

2. In a manure-spreader, the combination of a feed-apron, driving-gearing therefor, a hand-lever at one side of the machine a guide therefor, a latch mounted on the guide-casting to engage the lever when retracted mechanism for disengaging the feed-gearing, a rod connecting the same with the hand-lever, a tension-spring connecting with the front end of said rod, mechanism for disengaging the latch as the apron reaches the unloading limit of its movement, a shaft rotated by the movement of the apron through the medium of a sprocket-wheel, a ratchet on said shaft, a pawl to engage the same, and a link connecting said pawl with said hand-lever, substantially as and for the purpose set forth.

3. In a manure-spreader and combined with its feed-apron, a feed-drive therefor embracing a traction-wheel, a spur-gear connecting therewith, a spur and bevel gear engaging the same, a bevel-pinion engaging said bevel-gear, an inclined shaft for said pinion, a series of differential gears mounted on said shaft at right angles thereto, a shaft in line with the faces of said differential gears on one side, a pivoted bearing for one end thereof and a sliding bearing for the other end, a guide for said sliding bearing, a spur-pinion mounted to slide on the pivoted shaft, a lever and a connection for the same with said spur-pinion, a cam for raising and depressing the tilting shaft, a hand-lever connecting therewith, a worm at one end of said shaft and a worm-gear engaging the same, an apron-driving sprocket and a shaft therefor taking said worm.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. WEST.

Witnesses:

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