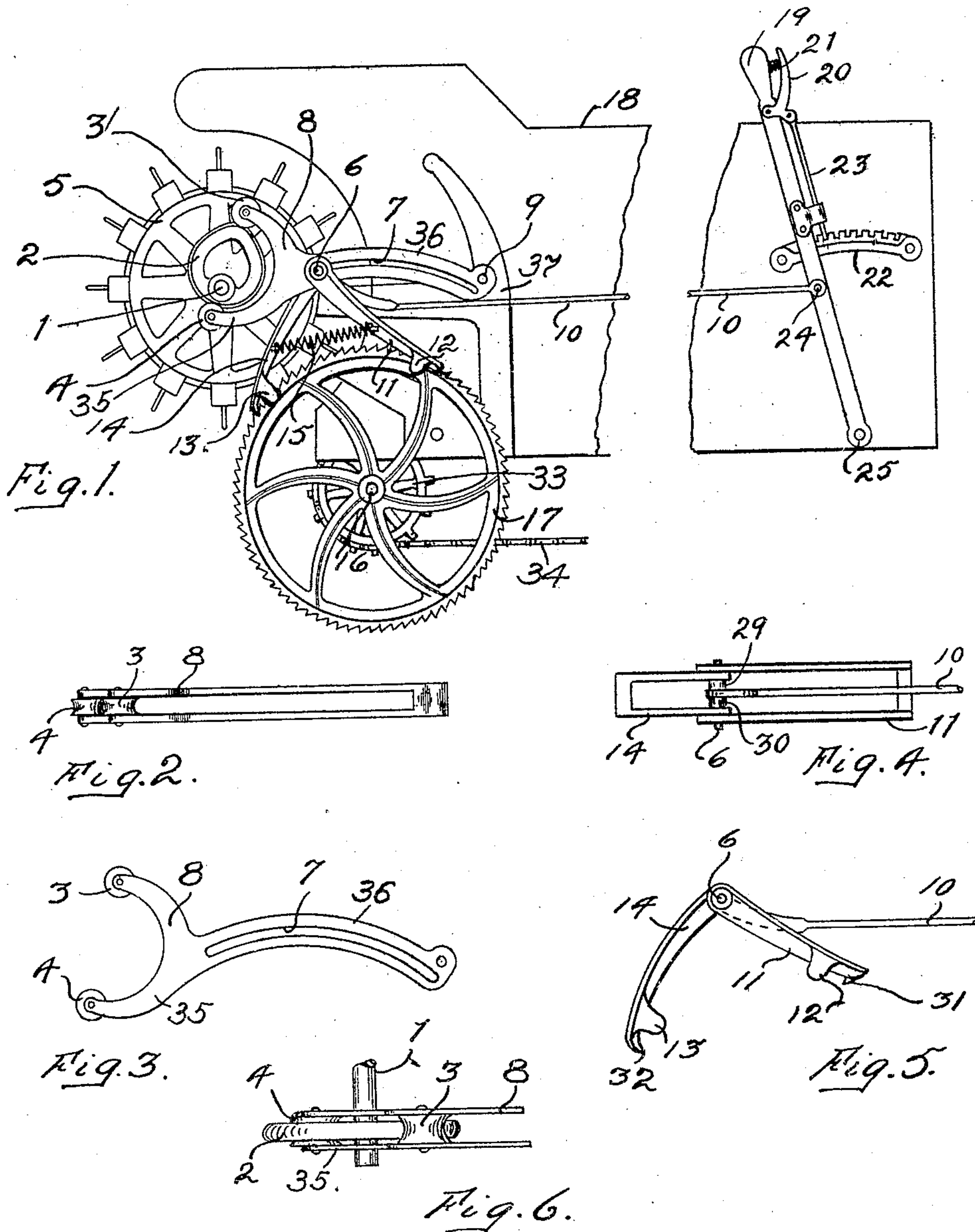


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FERTILIZER DISTRIBUTER.
APPLICATION FILED JULY 9, 1909.

955,132.

Patented Apr. 19, 1910.



WITNESSES:

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FERTILIZER-DISTRIBUTER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CLINTON C. BUTLER, a citizen of the United States of America, and a resident of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Fertilizer-Distributers, of which the following is a specification.

My invention relates to improvements in fertilizer distributers, and the object of my improvement is to provide suitable mechanism for driving the conveyer-apron with included and connected means for varying the rate of speed of said apron as desired and for bringing it to a full stop. This object I have accomplished by the mechanism which is hereinafter fully described and claimed, and which is illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of my improved mechanism for driving and regulating the speed of movement of the apron of a fertilizer distributer, parts of the distributer box and sprocket-chain being broken away. Fig. 2 is an upper plan view of the swinging pawl-carrying lever. Fig. 3 is a side elevation of said pawl-carrying lever. Fig. 4 is an upper plan view of the driving-pawls, and connected rear end of the connecting-rod, with the pawl-carrying lever removed. Fig. 5 is a side elevation of the parts shown in Fig. 4. Fig. 6 is an enlarged upper plan detail of the rear end of the pawl-carrying lever, its anti-friction rollers and the contacting driving-cam wheel.

Similar characters of reference designate corresponding parts throughout the several views.

Within the distributer-box 18 is contained a conveyer-apron 34 mounted on a sprocket-chain which is driven by the sprocket-wheel 33 on the apron-shaft 16. A ratchet-wheel 17 is mounted on the right-hand end of said apron-shaft. A distributer-drum 5 is mounted on a rotatable shaft 1 at one end of the box 18, and on the right-hand end of said shaft 1 is mounted a cam-wheel 2.

The cam-wheel 2 is of heart-shape and its driving-edge is convex to engage the concave driven edges of the anti-friction rollers 3 and 4, this method of contacting said edges preventing sidewise displacement. The swinging-lever 36 is pivoted at its forward end on a stud pin 9 projected laterally from the

bracket 37. This swinging-lever is formed of a line joining the pivot-pin 9 and the axis ends but otherwise spaced apart, and the rear ends of said bars are bifurcated to form upper and lower members or arms 8 and 35 respectively, the anti-friction rollers 3 and 4 being pivotally mounted in the interspaces between the ends of the side-bars forming said arms, and said rollers are so located with reference to the cam-wheel 2 that their axes are in the same straight line passing through the axis of said cam-wheel. The side-bars of said lever 36 are provided with transverse aligned slots 7, the arc on which the slots are struck being taken on a radius of which the axis of the ratchet-wheel 17 is the center. The said slots extend rearward a sufficient distance, but their forward ends are immediately and slightly forward of a line joining the pivot-pin 9 and the axis of the ratchet-wheel 17. A pintle 6 passes transversely through the slots 7, with ends projecting from each side of the lever 36 a sufficient distance to permit of the pivotal mounting thereon of the upper ends of the pawls 11 and 14. The rear end of a connecting-rod 10 is pivoted on the middle part of said pintle, while on each side of said rod a small anti-friction roller (shown at 29 and 30) is seated in the slot 7 in the side-bar on each side.

The forward end of the connecting-rod 10 is pivoted at 24 to the hand-lever 19, the latter having a pivotal connection at one end at 25 to the distributer-box 18. The hand-lever 19 is provided with the usual finger-piece 20 controlled by a coiled spring 21, a connecting-rod 23 moving through a slideway to have its lower end engage roots of teeth on the rack-bar 22.

The pushing-pawl 14 and the pulling pawl 11 have detents 32 and 31 respectively to engage roots of teeth on the ratchet-wheel 17. Each of said pawls is bifurcated to form spaced-apart arms adapted to override the teeth of said ratchet-wheel when in their down position, and said pawls are furnished with pairs of separated ears 13 and 12 respectively near their detents, to overlap the toothed circumference of said ratchet-wheel to prevent sidewise displacement of the pawls. The pawls 11 and 14 are of equal length, which insures equality in action upon said ratchet-wheel. A coiled tension-spring 15 is connected between the intermediate

parts of said pawls, and tends to yieldingly keep the detents of the pawls in working contact with the ratchet-wheel teeth.

The distributor-drum shaft 1 is rotated by means of any suitable source of power, while the cam-wheel swings the lever 36, and the pawls 11 and 14 pull and push upon the teeth of the ratchet-wheel 17 to rotate it at a desired rate of speed, and concurrently rotate the shaft 16, and sprocket-wheel 33 to drive the apron 34. The position of the pintle 6 in the curved slot 7 is determined by the adjusted position of the hand-lever 19 relative to the teeth of the rack-bar 22. When said hand-lever is adjusted to the rearmost limit of its swing, the pintle 6 is pushed along said slot to the rear end thereof, as shown in Fig. 1, and in this location of said pintle, the lever 36 in its oscillation affords the maximum throw to the pawls 11 and 14. The throw of said pawls may be diminished by adjusting said hand-lever forward as desired, but when the pintle 6 is located in the forward end of the slot 7 in the lever 36, it is in the straight line joining the stud-pin 9 and the axis of the wheel 17 and lies so near to said stud-pin that there is little if any movement imparted by the swing-lever to the pawls, hence the throw of the pawls is less than the length of a tooth, and the ratchet-wheel is not moved thereby but is brought to a full stop. The shaping of the slot 7 in an arc, and the placing of anti-friction rollers between the pintle 6 and the edges of the slot conduce to easy adjustment.

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

1. In a fertilizer distributor, in combination, a receptacle, a conveyer-apron, a ratchet-wheel adapted to drive said apron, a swinging-lever consisting of two separated

members joined and pivoted to said receptacle at one end, said members having like alined longitudinal slots extending near and past the pivot of the lever, said members being provided with like alined bifurcations at the end of the lever opposite its pivot, anti-friction rollers pivotally mounted between the ends of the members of said bifurcations, a cam-wheel between and contacting with both of said rollers, and operative to oscillate said lever, a pintle in said alined slots adapted to be adjusted longitudinally therein, driving pawls of equal length adapted to engage and push and pull respectively upon the teeth of said ratchet-wheel, said pawls each being formed of spaced apart members whose upper ends are pivoted on said pintle and whose lower ends are united and provided with detents for engaging roots of teeth of the ratchet-wheel, and a tension-spring connecting the middle points of said pawls.

2. In a fertilizer distributor, in combination, a receptacle, a conveyer-apron, a ratchet-wheel adapted to drive said apron, a swinging-lever pivoted at one end to a support, the other end of the lever being bifurcated with an anti-friction concave-edged roller pivotally mounted on each arm of the bifurcation, a rotary heart-shaped convex-edged cam between and operatively engaged with both said rollers to oscillate said lever, and a driving-pawl pivotally hung on said lever and adapted to operatively engage roots of teeth on said ratchet-wheel.

Signed at Waterloo, Iowa, this 21st day of June, 1909.

CLINTON C. BUTLER.

Witnesses:

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