C. W. SMITH.

MANURE SPREADER.

APPLICATION FILED JAN. 25, 1908.

911,620. Patented Feb. 9, 1909.

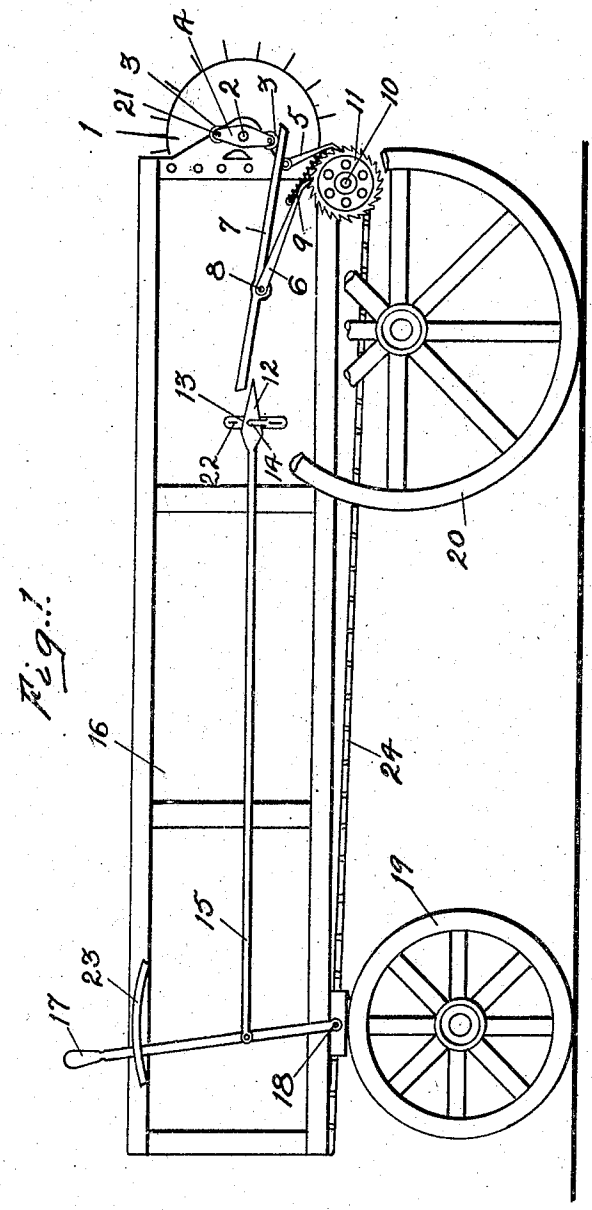


Fig. 1.

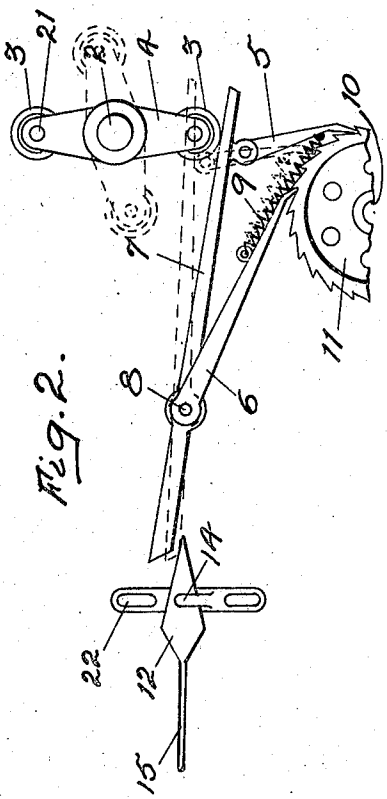


Fig. 2.

WITNESSES:

H. B. Burr.

Ila Haydark.

INVENTOR

Charles W. Smith.

BY G. C. Kennedy.

ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES W. SMITH, OF WATERLOO, IOWA, ASSIGNOR TO WILLIAM GALLOWAY COMPANY, OF WATERLOO, IOWA.

MANURE-SPREADER.

No. 911,620. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed January 25, 1908. Serial No. 412,645.

To all whom it may concern:

Be it known that I, CHARLES W. SMITH, a citizen of the United States of America, and a resident of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Manure-Spreaders, of which the following is a specification.

My invention relates to improvements in manure spreaders, and the object of my improvement is to provide an improved pawl- and ratchet-drive for the movable apron of a manure spreader, such device having means in connection therewith for adjustably controlling the degree of speed which it imparts to such apron. This object I have accomplished by the mechanism which is hereinafter described and claimed, and which is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a manure spreader equipped with my improved adjustable driving device for the movable apron. Fig. 2 is an enlarged detail side elevation of said driving device and its connections.

Similar numbers refer to similar parts throughout the several views.

The manure spreader box 16 is supported on carrying-wheels 19 and 20, at the front and rear respectively. Said box has at its rear end brackets in which are mounted the ends of the rotatable shaft 2 carrying the beater-drum 1, and said shaft may be driven by means of any desired source of power and intermediate mechanism. An endless apron 24 is movably mounted in said box, and driven by sprocket-wheels at front and rear (not shown) in the usual manner, such sprockets at the rear being secured on a rotatable transverse shaft 10, having at one end a driving-rachet wheel 11.

The numeral 7 designates a lever medially pivoted on a stud 8 projecting from the box, a guard pawl 6 being also pivoted to said stud and engaging the teeth of the ratchet-wheel 11. A driving-pawl 5 is pivoted to the rear end of the rear member of said lever and also engages the teeth of said ratchet-wheel. A small coiled tension spring 9 connects said pawls in such a manner as to keep them both in engagement with said ratchet-wheel, the pawl 5 sliding back over the teeth when said rear member is lifted.

The numeral 13 designates a vertically adjustable bracket-plate, secured to the wagon-box, and having a hooked projection 14 spaced away therefrom to form a slide-way for the arrowhead shaped slide 12 whose point is rearwardly directed and adapted to move or be reciprocated horizontally with its connected arm 15, the forward end of the latter being pivotally connected to the hand-lever 17 at a medial point of the latter. Said hand-lever is pivoted at its lower end on a stud 18 to a block secured to the wagon-box, and its upper end moves within and may be adjusted to a rack-bar 23 on said box to secure it in a desired position.

The forward end of the forward member of the lever 7 is limited in its vertical movement by the interposed slide 12 thereunder more or less according to the distance that said slide is moved rearwardly. If the slide is moved back considerably the vertical movements of both the forward and rearward members of the lever 7 are correspondingly limited, but such movements are increased if the slide is moved forward. The result of increasing the scope of movement of the rear end of the lever 7 and its depending pawl 5 by this means, is to cause said pawl to travel back over more teeth and push the teeth on the return stroke through a greater angle than if the movement of the lever were more limited. In this manner the stroke of the driving pawl may be changed from its greatest extent to its least, and when least, the movement of the driving-pawl is so small as not to carry it off the tooth on which it rests, thus causing a cessation of rotation to the ratchet-wheel and stopping the apron, without in any way interfering with the rotation of the beater-drum shaft 2. The lever 7 is moved down by contact with the cranks 4, on the end of the beater-drum shaft, and the anti-friction rollers 3 pivoted on their pintles 21 in the ends of said cranks. As will be seen by referring to the dotted lines in Fig. 2, which indicate the position of the moving parts when the cam 4 has moved upward and out of contact with the rear member of the lever 7, the spring 9 has in this process of change of position from the position indicated by the full lines, drawn upon the pawl 5 as the roller 3 moved up. The tension of said spring upon said pawl has forced the pawl to

click forward over the teeth of the ratchet-wheel 11, rising as it moves, and pushing upward the rear member of said lever 7. The rear member rises until the forward member contacts with the slide-stop 12, when the lever remains in this position till the cam arm comes around once more to contact with it and force it down, thus moving the ratchet-wheel through a distance of a certain number of teeth determined by the adjustment of play of said lever. The spring 9 is thus operative in elevating the rear member of the lever, as well as in drawing forward the pawl 5 to click over the teeth of said ratchet-wheel. The bracket-plate 13 has slots 22 to receive fastening means whereby the plate may be vertically adjusted to vary the location of the slide 12, or take up any slackness occasioned by wear of the latter.

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

1. In a manure spreader, in combination, a box supported on carrying-wheels, a movable apron in said box, a rotatable shaft, a cam secured to one end of said shaft, a rotatable ratchet-wheel adapted to move said apron, a lever medially pivoted to said box and having its rear member adapted to be contacted and actuated by said cam, a driving-pawl pivoted to said rear member and engaging said ratchet-wheel, a tension-spring connected to said pawl and adapted to keep said pawl in contact with said ratchet-wheel to click back thereover, a slide adapted to be interposed to intercept the forward member of said lever and adjustably vary its distance of travel, and a vertically adjustable slideway for said slide.

2. In a manure spreader, in combination, a box supported on carrying-wheels, a movable apron in said box, a rotatable shaft, a cam secured to one end of said shaft, a rotatable ratchet-wheel adapted to move said apron, a lever medially pivoted to said box and having its rear member adapted to be contacted and actuated by said cam, a driving-pawl pivoted to said rear member and engaging said ratchet-wheel, a slide adapted to be interposed to intercept the forward member of said lever and adjustably vary its distance of travel, and a vertically adjustable slideway for said slide.

Signed at Waterloo, Iowa, this 8th day of Jan. 1908.

CHARLES W. SMITH.

Witnesses:
O. D. YOUNG,
G. C. KENNEDY.