

Aug. 19, 1924.

1,505,672

E. C. SMITH

RATCHET FEED FOR SPREADERS

Filed May 6, 1921

2 Sheets-Sheet 1

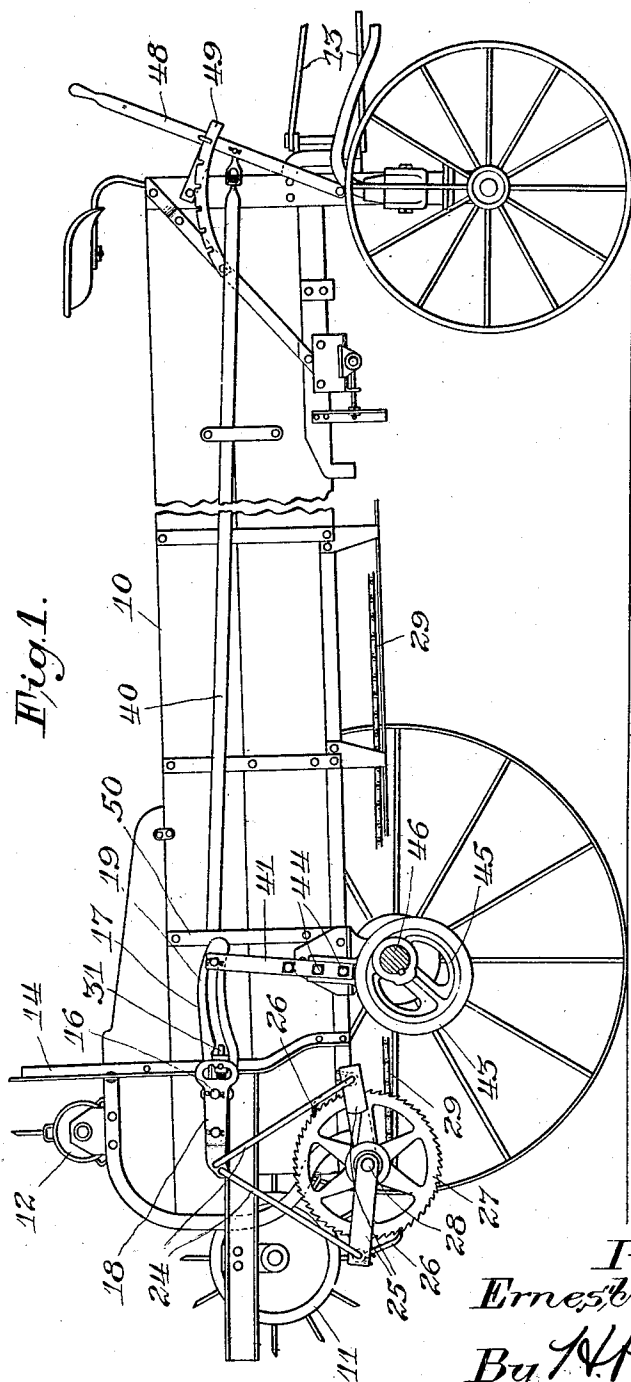


Fig. 1.

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2 Sheets-Sheet 2

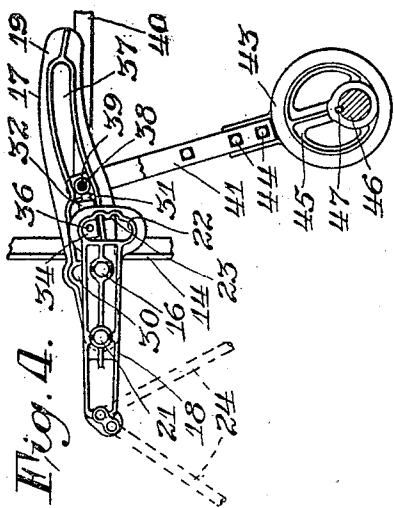
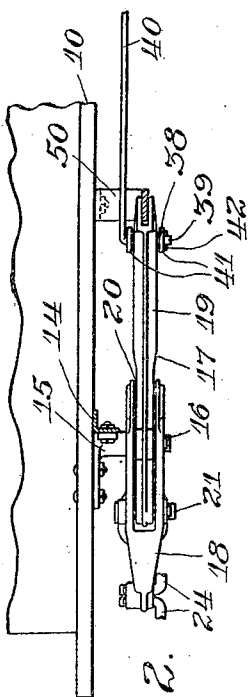


Fig. 2.

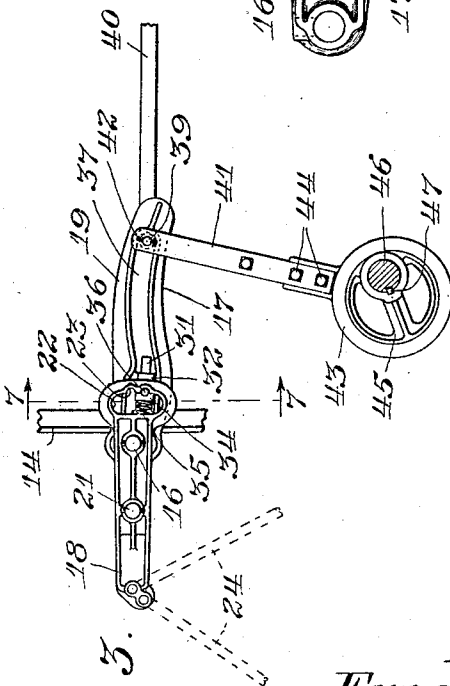


Fig. 3.

Fig. 5.

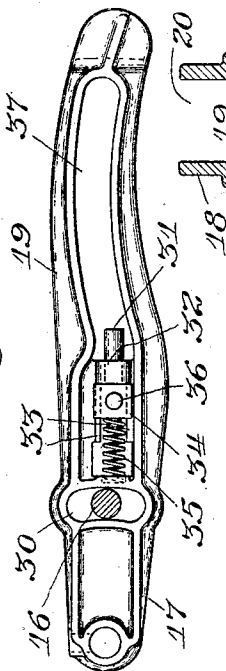
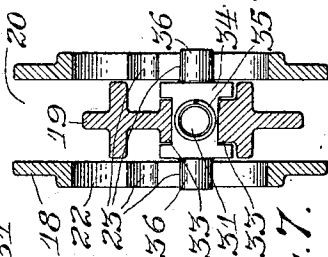


Fig. 7.

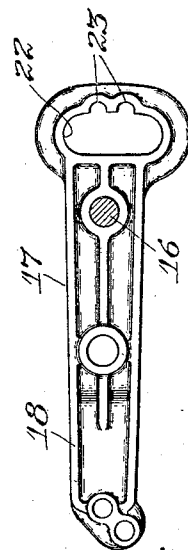


Fig. 6.

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UNITED STATES PATENT OFFICE.

ERNEST C. SMITH, OF CHICAGO, ILLINOIS, ASSIGNOR TO INTERNATIONAL HARVESTER COMPANY, A CORPORATION OF NEW JERSEY.

RATCHET FEED FOR SPREADERS.

Application filed May 6, 1921. Serial No. 467,361.

To all whom it may concern:

Be it known that I, ERNEST C. SMITH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ratchet Feed for Spreaders, of which the following is a full, clear, and exact specification.

My invention relates to manure spreaders of the type now generally in use, and more particularly to a pawl and ratchet drive mechanism for driving the conveyor or apron of the spreader.

In this type of spreader considerable difficulty has been experienced in the manipulation of the lever which is operated to connect the ratchet feed mechanism with traction wheels of the spreader. Heretofore, the pawl and ratchet drive mechanism could not be shifted into engagement when the spreader was at a standstill, except under certain conditions when the spreader had been stopped in a predetermined position. Under these conditions it was generally necessary to throw the drive mechanism into operation while the spreader was in motion. This sudden engagement impaired and strained the driving parts and sometimes resulted in breaking of these parts.

One of the objects of my invention is to overcome these difficulties by providing a device which can be thrown into engagement while the spreader is standing.

Another object of my invention is to provide a breakable rocker arm.

A further object is to provide a pawl and ratchet feed mechanism with a breaking rocker arm having means for disengaging the drive and breaking the arm.

A still further object is to provide a simple construction having means for varying the speed of transmission or rendering the transmission idle.

These and other objects are attained by providing a breaking rocker arm or member having a lever connected to the pawl and ratchet device fixed to the conveyor shaft and a supplemental lever pivoted to the first mentioned lever, the free end of the supplemental lever being connected to a reciprocating drive element actuated by an eccentric on the axle.

My invention accordingly consists of the organization, details of construction and parts hereinafter described, and more par-

ticularly pointed out in the appended claims.

Referring to the drawings:

Fig. 1 is a side elevational view of a manure spreader embodying my invention;

Fig. 2 is an enlarged partial top plan view of the same;

Fig. 3 is an elevational view of Fig. 2;

Fig. 4 is an enlarged side elevational view showing the rocker arm broken;

Figures 5 and 6 are enlarged detail views showing the two levers which go to make up the breaking rocker arm; and

Fig. 7 is an enlarged sectional view taken on the line 7-7 of Fig. 3.

My invention is illustrated in connection with a manure spreader comprising the usual wheel supported body 10 at the rear of which is mounted a beater 11 and a secondary beater 12, all driven from the rear axle by mechanism on the other side of the spreader body and not shown in Figure 1. Parts of the draft and steering mechanism are indicated at 13 at the front end of the spreader body. Near the rear of the body 10 is secured an upright angle member 14 with one of the webs of the same extending outwardly. To this web is secured a rearwardly extending bracket 15 having a stud 16 extending laterally therefrom and formed integrally therewith. Pivotally mounted on this stud 16 is the rocker arm 17 which comprises the rearwardly extending lever 18 and a supplemental forwardly extending lever 19. The lever 18 is provided with a bifurcated portion 20 in which the lever 19 is adapted to oscillate about a pivot 21 on the lever 18. The forward ends of the lever 18 are provided with slotted apertures 22. The forward side of these apertures is provided with notches 23, the purposes of which will be hereinafter more fully described. Pivotally connected to the rear end of the lever 18 are links 24 which in turn are connected to oscillating levers 25 which carry the spring pressed pawls 26 and engage the ratchet wheel 27 mounted on the apron drive shaft 28 for driving the spreader apron 29. The supplemental lever 19 as described above is pivoted at its rearward end to the lever 18 by means of the pin 21. Adjacent the pivoted point 21 of the lever 19 is an arcuate slot 30 which is adapted to loosely receive the stud 16 of the bracket 15.

The mechanism which prevents the break-

ing of the rocker arm, comprises a spring pressed latch or plunger 31 adapted to protrude through a collar 32 formed centrally and integrally with the lever 19. Slidingly mounted on ribs 33 of the lever 19 is a guiding member 34 which guides the plunger 31 in the normal operation of breaking and latching the rocker arm. The plunger 31 is normally disposed in the position shown in Figure 5 by means of the spring 35. The guiding member 34 is further provided with two laterally projecting studs 36 adapted to engage the notches 23 in the lever 18, as shown in Fig. 3. In this figure the levers 18 and 19 are locked against pivotal movement with respect to each other and thus permit the transmission of the driving power to operate the apron of the spreader.

The mechanism for varying the speed of the conveyor apron of the spreader and the mechanism for disconnecting the traction wheels or the power from the apron conveyor comprise the forward end of the lever 19, which is provided with an arcuate slot 37 adapted to receive a bushing or roller 38 journaled on the right angularly bent portion 39 of the link 40. The right angularly bent portion 39 extends through the pitman straps 41 which are held secure by means of a cotter 42. The lower ends of the pitman straps 41 are securely fixed to an eccentric ring 43 by means of bolts 44. The eccentric ring is operatively driven by means of an eccentric cam 45 which in turn is splined to the drive shaft 46 by means of a key 47. The link 40 is connected to the usual hand lever 48 and rack member 49 positioned within easy reach of the operator. The free end of the lever 19 is guided in its movement by a strap 50, attached to the side of the spreader.

From the above description it will readily be seen that the rocking of the rocker arm 17 will cause an alternating engagement of the pawls 26 with the ratchet wheel 27 and will cause a slow and almost continuous rotary movement of the same to move the upper run of the apron 29 in a rearward direction. It will also be noted from this construction that as the lever 48 is swung back to its rear-most position, as shown in Fig. 4, the roller 38 engages or depresses the plunger 31 in a manner to disengage the studs 36 from the notches 23, which in turn releases the lever 19 from the lever 18 and thus permits the lever 19 to oscillate about its pivot 21 and thereby disconnect the driving mechanism from actuating the spreader apron. When it is the desire of the operator to connect the drive mechanism with the spreader apron, the operating lever 48 is swung forwardly in a manner to release or to withdraw the roller 38 from the plunger 31, at which time the spring 35 forces the lateral projecting studs 36 into engagement with the notches 23 of the lever 18 and thus locking the lever

19 against pivotal movement with respect to the lever 18 and operating both levers as a single rocker arm.

It will be seen from the above description that I have provided a simple and efficient device and one in which the drive mechanism of the apron spreader may be brought into operation while the spreader is at a standstill, and while I have described the specific embodiment of my invention, any modification of the same within the scope of the appended claims may be made.

What I claim as my invention is:

1. In a drive mechanism, a breakable rocker arm, a driving element shiftably connected to said rocker arm, and means actuated by shifting said driving element for breaking said rocker arm.
2. In a drive mechanism, a breakable rocker arm having a latch mounted thereon for preventing the breaking of said arm, a driving element connected to said arm, and means forming a connection between said driving element and said arm and engageable with said latch for breaking said rocker arm.
3. In a drive mechanism, a breakable rocker arm having a latch mounted thereon for preventing the breaking of said arm, a driving element connected to said arm, means comprising a part of said driving element for disengaging said latch and breaking said arm.
4. In a drive mechanism, a breakable rocker arm comprising a pivotally supported lever having a supplemental lever pivoted thereto, a driving element connected to one of said levers, means for locking the pivotal action of said levers with respect to each other and means including said driving element for unlocking said levers.
5. In a drive mechanism, a breakable rocker arm, a control mechanism connected to said rocker arm for varying the speed of said rocker arm and means for moving said control mechanism in a predetermined direction for breaking said rocker arm.
6. In a drive mechanism, a driving element, a driven element, a control speed mechanism connected therewith, a breakable rocker arm connecting said driving element with said driven element and having a longitudinal slot therein, and means connected to the slot of said rocker arm for disengaging said driving element from said driven element and breaking said arm.
7. In a drive mechanism, a driving element, a driven element having a variable speed mechanism connected therewith, a breakable rocker arm connecting said driving element with said driven element, and means forming a part of said driving element for disengaging said driving element from said driven element and breaking said arm.
8. In a drive mechanism, a driving ele-

ment, a driven element, a rocker arm connecting said elements, comprising a pivotally mounted lever and a supplemental lever pivoted to said first mentioned lever, resilient means for locking said levers and means for disconnecting said elements and breaking said levers.

9. A drive mechanism for spreader aprons comprising a breakable rocker arm support-

ed between its ends and having one end formed with an arcuate slot, a reciprocating driving element connecting with said slot, a driven element operatively connected with the other end of said arm, and means for shifting the drive element in said slot.

In testimony whereof I affix my signature.

ERNEST C. SMITH.