

F. E. SHIELDS.  
MANURE SPREADER.  
APPLICATION FILED FEB. 19, 1910.

1,002,461.

Patented Sept. 5, 1911.

2 SHEETS—SHEET 1.

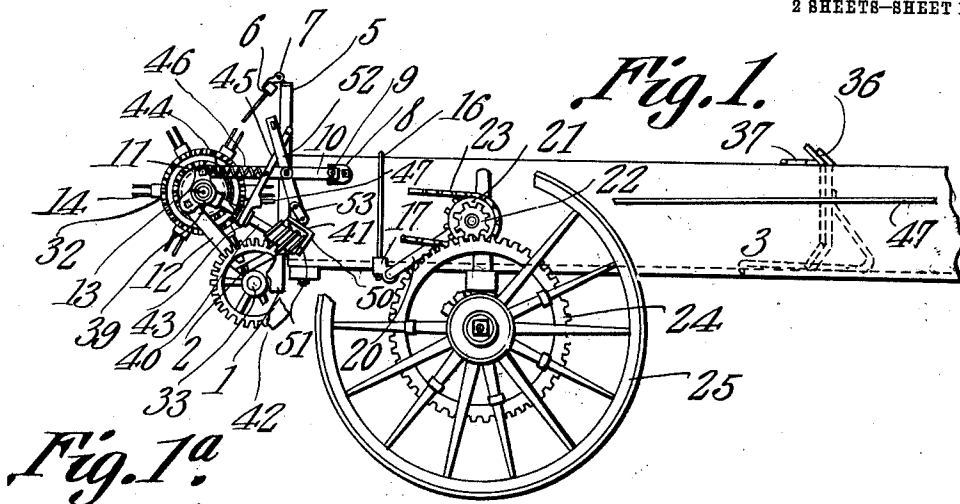


Fig. 1.

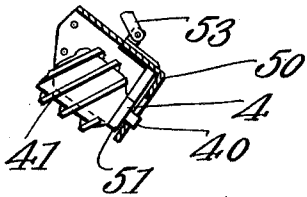


Fig. 2.

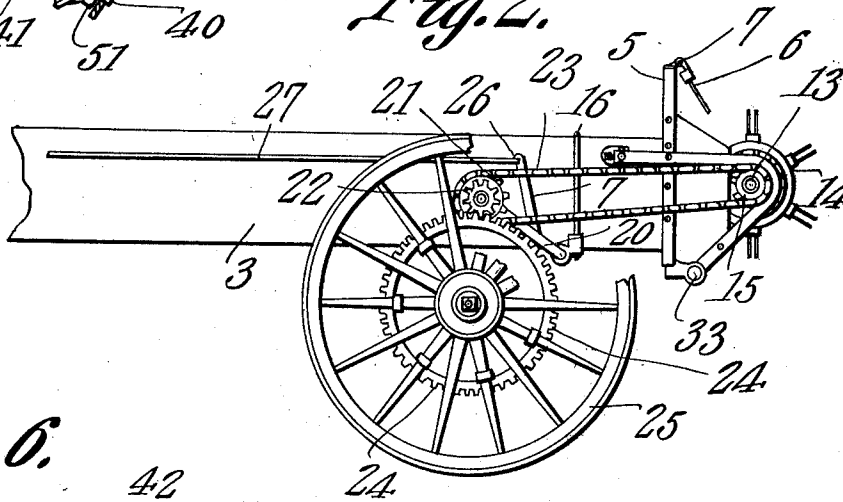
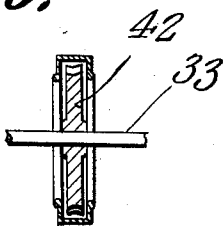


Fig. 6.



Witnesses

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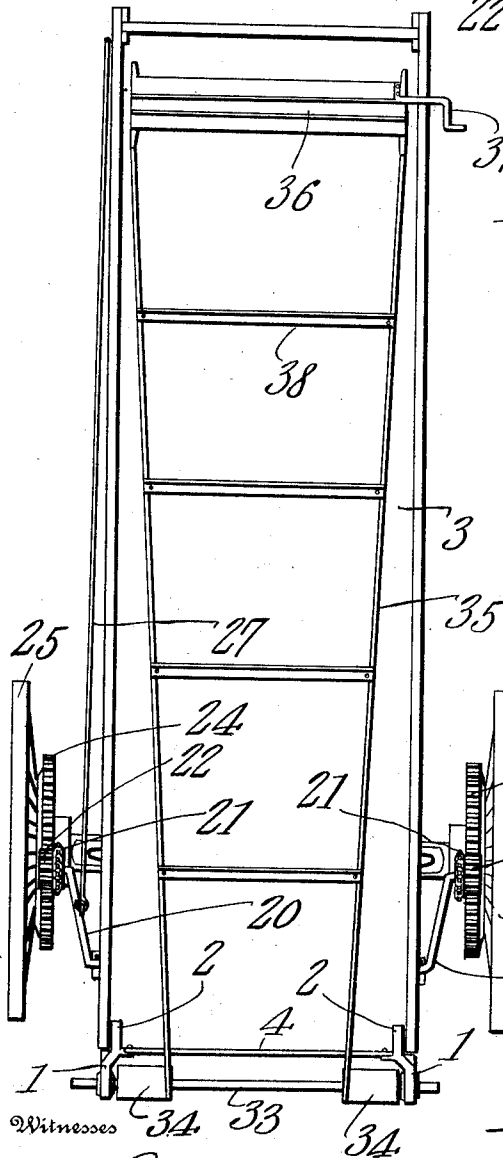
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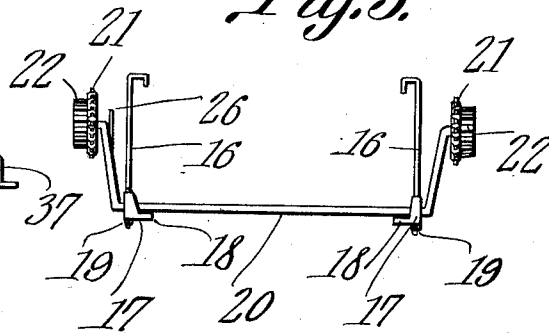
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2 SHEETS—SHEET 2.

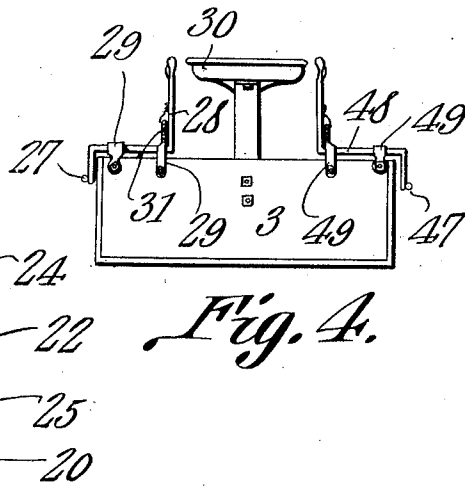
*Fig. 3.*



*Fig. 5.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

FRED E. SHIELDS, OF NEWTON, IOWA.

## MANURE-SPREADER.

1,002,461.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed February 19, 1910. Serial No. 544,890.

*To all whom it may concern:*

Be it known that I, FRED E. SHIELDS, a citizen of the United States, residing at Newton, in the county of Jasper and State of Iowa, have invented a new and useful Manure-Spreader, of which the following is a specification.

This invention relates to a manure spreader attachment adapted to be detachably applied to the running gear and body of an ordinary farm wagon and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide an attachment of simple structure adapted to be detachably applied to a wagon in the manner indicated and which may operate to force the material rearwardly along the wagon body and distribute the same upon the surface of the ground.

In the accompanying drawings: Figure 1 is a side elevation of a portion of a wagon showing the attachment applied thereto. Fig. 1<sup>a</sup> is a sectional view of a portion of the spreader. Fig. 2 is a side elevation of a portion of a wagon viewing the same from the opposite side from that shown in Fig. 1 and showing the attachment applied thereto. Fig. 3 is a top plan view of a portion of a wagon showing the attachment applied thereto. Fig. 4 is a rear end view of a wagon body showing the parts of the attachment which are located at the front end thereof and the rear parts of the attachment removed. Fig. 5 is an elevation of a portion of the attachment which carries a crank shaft forming a component part thereof. Fig. 6 is a transverse sectional view of a worm wheel and hood used in the attachment.

The attachment includes brackets 1 having ledge portions 2 adapted to rest upon the upper surface of the rear end of a wagon body 3. The said brackets are preferably of cast metal and possess sufficient weight to maintain themselves and their attachment in position upon the said wagon body. The brackets 1 are connected together by a cross bar 4 as illustrated in Fig. 3 of the drawing and when the brackets are in position upon the bottom of the wagon body the said cross bar lies against the rear edge of the said bottom. An arch 5 is connected at its ends with the brackets 1 and the intermediate portion of the said arch is

vertically disposed over the rear end of the wagon body 3. A rake 6 is mounted upon the intermediate portion of the arch 5 and is connected therewith by means of spring hinges 7 in the usual manner. Plates 8 are attached to the outer surfaces of the sides of the wagon body 3 and are provided with pins 9. Arms 10 are connected at their forward ends with the pins 9 and at intermediate points with the vertical portions of the arch 5 and at their rear ends are connected with bearings 11. Arms 12 are connected at their upper ends with the bearings 11 and at their lower ends with the brackets 1. If desired, the brackets 1, arch 5, arms 10 and 12 together with the bearings 11 may be cast in one piece. A shaft 13 is journaled for rotation in the bearings 11 and carries a reel or spreader 14. Said reel or spreader may be of any desired pattern or design. Sprocket wheels 15 are fixed to the ends of shaft 13.

Crank shaft hangers from component parts of the attachment, and the said hangers include hooks 16, the hooked ends of which are adapted to engage the upper edges of the sides of the wagon body 3 and their lower ends pass through blocks 17 which are provided with laterally disposed lugs 18 adapted to bear against the lower surface of the bottom of the wagon body. Nuts 19 are screw threaded upon the lower ends of the hooks 16 and bear against the blocks 17 and when screwed upon the said hooks are adapted to clamp the sides of the wagon body between the upper ends of the hooks 16 and the lugs 18 of the said blocks. A crank shaft 20 is journaled in the blocks 17 and its intermediate portion extends transversely under the wagon body 3. Sprocket wheels 21 are journaled for rotation on the crank extremities of the shaft 20 and are fastened to or are integral with the gear wheels 22. Sprocket chains 23 pass around the sprocket wheels 15 and 21. Gear rims 24 are attached to the sides of the rear wheel 25 of the running gear of the wagon and when the crank extremities of the shaft 20 are forwardly disposed, the gear wheels 22 are in mesh with the gear rims 24. When the crank shaft 20 is turned so that its crank extremities are swung to the rear the gear wheels 22 are moved out of mesh with the gear rims 24. One of the crank extremities of the shaft 20 is provided with an arm 26 and the rear end of a rod 27 is pivotally

connected to the upper end of the said arm 26. The forward end of the rod 27 is pivotally connected to the crank of a lever 28 which is journaled in bearings 29 mounted at the forward end of the wagon body 3. The far end of the lever 28 is in the vicinity of the operator's seat 30 which is also mounted at the forward end of the wagon body 3 and one of the bearings 29 is provided with a rack device 31 which is adapted to be engaged in the usual manner by a pawl carried by the said lever 28. The reel 14 is provided at one end with several sets of concentric gear teeth 32 and a shaft 33 is journaled for rotation in the brackets 1.

In the form of the invention as illustrated in Figs. 1, 2 and 3 of the drawing, rollers 34 are mounted upon the end portions of the shaft 33 within the inner sides of the brackets 1. Cables or chains 35 are arranged to wind upon the rollers 34 and a push gate 36 is attached to the free ends of the said cables 35. The said push gate is concave in edge elevation as will hereinafter be explained and is provided at one end with an arm 37 which projects over the upper edge of one side of the wagon body 3. Cross slats 38 (preferably of angle iron) connect the cables 35 together and lie transversely across the bottom of the wagon body 3. The slats 38 gradually increase in length and the shorter slats are nearer the ends of the cables 35 which wind upon the rollers 34 and the longer slats are positioned along the said cables toward the push gate 36. Thus it will be seen that when the shaft 33 is rotated (as will be hereinafter explained) and the cables 35 are wound upon the rollers 34 the said cables will wind in cylindrical form upon the said rollers and the said slats may also position themselves about the peripheries of the rollers without lying one upon the other and producing a bunglesome assemblage of parts. It is of course understood that as the cables 35 are wound upon the rollers 34 that the push gate 36 will draw the material in the wagon body 3 toward the reels 14 which will operate upon the same in the usual manner in devices of this kind.

A sleeve 39 is journaled upon one end of the shaft 13, and the upper end of a shaft 40 is journaled in the said sleeve 39. A worm 41 is fixed to the other end of the shaft 40 and normally meshes with a worm wheel 42 mounted upon the shaft 33. Thus means are provided for rotating the shaft 33 from the shaft 40. A collar 43 is slidably mounted upon the shaft 40 but is confined to rotate with the same and is provided with a gear 44 which is adapted to mesh with either one of the series of gear teeth 32 located at the end of the spreader 14. A lever 45 is pivoted to one side of the arch 5 and at its lower end engages the collar 43. A coiled

spring 46 is connected at one end with the lever 45 and at its other end with the bearing 11 or other fixed part of the attachment and is under a tendency to draw the lower end of the said lever toward the shaft 13. A rod 47 is connected at its rear end to the lower portion of the lever 45 and its forward end is connected to the crank of a shaft 48 which is journaled in bearings 49 mounted at the forward end of the body 3. The shaft 48 is provided with a handle located in convenient reach of one occupying the seat 30 and said shaft is also provided with securing devices similar to 31 provided for the lever 28. Thus it will be seen that by swinging the shaft 48 and moving the rod 47 longitudinally that the lever 45 will be swung upon its pivot so that the gear 44 of the collar 43 may be brought into engagement with either of the series of the teeth 32 carried by the reel 14 and thus it is possible to have the shaft 40 rotate at different rates of speed or the lever 45 may be swung so that the gear 44 of the collar 43 will be carried beyond all of the series of teeth 32 upon the reel 14 in which case the said reel may continue to rotate while the shaft 40 and its connections will come to a state of rest. If the shaft 48 is released the tension of the spring 46 will come into play and draw the lower end of the lever 45 toward the shaft 13 so that the gear 44 of the collar 43 will be drawn within the innermost series of the teeth 32 upon the reel 14 and consequently the said reel may continue to rotate and the shaft 40 will come to a state of rest. Thus it will be seen that means are provided for rotating the shaft 33 from the shaft 13 and that while the shaft 13 rotates at a constant rate of speed the rate of rotation of the shaft 33 may be regulated as desired.

A guide 50 is fixed to the side of the arch 5 and a pillow bearing 51 is slidably mounted in the said guide 50. The lower end of the shaft 40 is journaled in said pillow bearing 51. A lever 52 is fulcrumed to the side of the arch 5 and its lower end is connected by means of a link 53 with said pillow bearing 51. The upper end of the lever 52 projects into the path of movement of the arm 37 carried by the push gate 36. Therefore as the cables 35 wind upon the rollers 34 and the push gate 36 approaches the reel 14, the arm 37 is brought into engagement with the upper end of the lever 52 and the said lever is swung upon its fulcrum whereby the pillow bearing 51 is moved in the guide 50 and the worm 41 is disengaged from the worm wheel 42. Thus the shaft 40 may continue to rotate while the shaft 33 will come to a state of rest and the push gate 36 will cease approaching the reel 14 and cannot be brought in contact with the teeth thereof. Thus means are provided for automatically stopping the operation of the

conveyer in the bottom of the wagon body 3  
when the push gate 36 has arrived approxi-  
mately at the end of the said body.

Having described the invention what I  
5 claim as new and desire to secure by Let-  
ters-Patent is:

In combination with a wagon body, a  
spreader comprising a reel journaled for ro-  
tation, means operatively connecting the  
10 reel with the supporting wheel of the  
wagon, a shaft journaled for rotation at the  
end of the body and having rollers thereon,  
the upper sides of which are approximately  
in the same horizontal plane as the upper  
15 surface of the bottom of the body, means for  
operating the shaft from the reel, flexible  
members arranged to wind upon said rollers  
and converging toward each other at their

end portions which wind upon the rollers and  
connected to the rollers at points a shorter 20  
distance apart than the distance between  
their other ends, ridged slats connecting  
said flexible members together throughout  
their converging portions, said flexible mem- 25  
bers and slats constituting a conveyer, and a  
push gate attached to the end of the flexible  
members and arranged to move along the  
wagon body.

In testimony that I claim the foregoing as  
my own, I have hereto affixed my signature 30  
in the presence of two witnesses.

FRED E. SHIELDS.

Witnesses:

L. S. LYDAY,  
C. G. GRAHAM.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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