No. 760,442. PATENTED MAY 24, 1904.

D. M. FRY.

THREE WHEELED RIDING LISTER.

APPLICATION FILED FEB. 12, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 5.

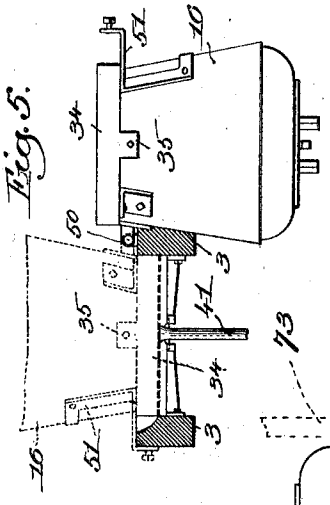


Fig. 1.

Witnesses.
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Fred S. Grumbof.

Inventor.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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THREE WHEELED RIDING LISTER.

APPLICATION FILED FEB. 12, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

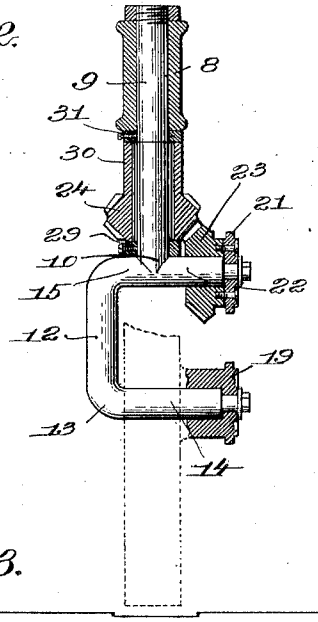


Fig. 3.

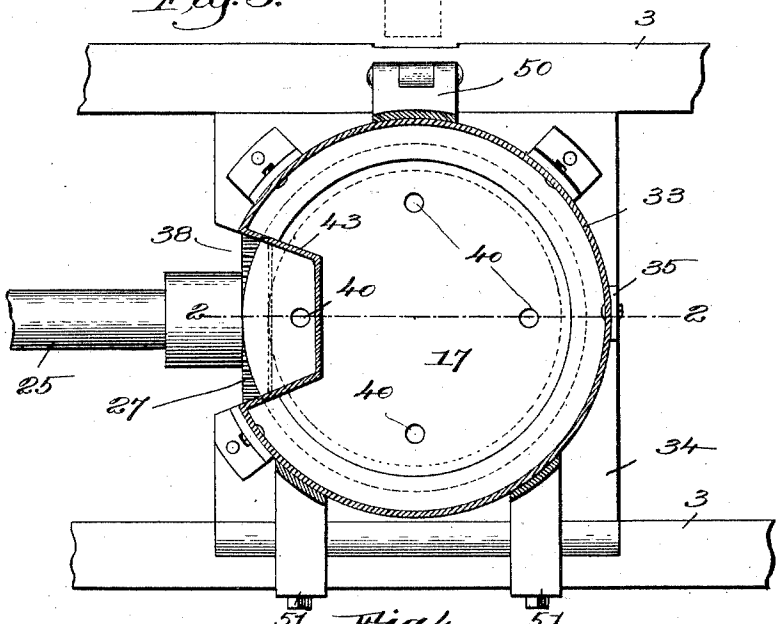
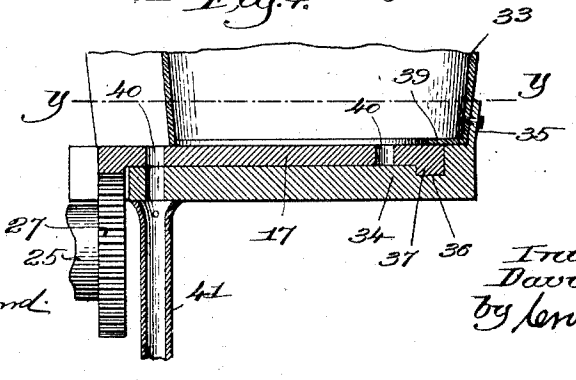


Fig. 4.



Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 760,442. Patented May 24, 1904.

UNITED STATES PATENT OFFICE.

DAVID M. FRY, OF ULYSSES, NEBRASKA, ASSIGNOR OF ONE-HALF TO ELBERT B. ZIMMERMAN, OF ULYSSES, NEBRASKA.

THREE-WHEELED RIDING-LISTER.

SPECIFICATION forming part of Letters Patent No. 760,442, dated May 24, 1904.

Application filed February 12, 1902. Serial No. 93,813. (No model.)

To all whom it may concern:

Be it known that I, DAVID M. FRY, a citizen of the United States, and a resident of Ulysses, county of Butler, State of Nebraska, have invented an Improvement in Three-Wheeled Riding-Listers, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

This invention relates to devices familiarly known as "three-wheeled riding-listers;" and it has for its object the production of a novel machine of this character wherein the corn-dropper is operated from the third or "crazy" wheel instead of from one of the main wheels, as is the common construction.

Another object of the invention is to provide a corn-box of such a construction that the corn-receiving pockets or apertures in the rotary plate are exposed to view during a portion of their annular movement, whereby the operator may readily ascertain whether corn is being dropped properly.

With these objects in view my invention comprises a suitable frame supported, as usual, upon the main wheels and on which frame the corn-box is supported. The frame carries the usual subsoiler or blade which makes the furrow into which the corn is dropped and also the usual covering-shovels. At the rear end of the frame is supported the crazy-wheel, which, as usual in this class of devices, is swiveled to the frame to turn bodily about a vertical axis, whereby it may readily follow the movements of the frame. Suitable flexible connections are so disposed as to operatively connect the crazy-wheel with the rotary corn-dropping disk in the corn-box, so that the power necessary to rotate the said disk is obtained from the said crazy-wheel. The connections between the crazy-wheel and the corn-dropper are such that they are not affected in any way by the turning of the crazy-wheel about its vertical axis, so that the corn-dropper is in condition to be operated regardless of the position of the said crazy-wheel. The corn-box which I preferably employ comprises a casing having a reentrant portion in one side, and the corn-dropping disk is so positioned that during its rotation the pockets or apertures therein pass across the said reëntrant portion of the casing, whereby for a short interval of time the various pockets are exposed to view. This construction enables the operator to readily ascertain whether the corn is being dropped properly or not.

Various other features of my improved lister will be more particularly hereinafter described, and pointed out in the claims.

Figure 1 is a side elevation of the rear end of a three-wheeled riding-lister embodying my improvements, the main wheels and the covering-shovels being shown in dotted lines. Fig. 2 is a section on the line x x, Fig. 1, the crazy-wheel being partly shown in dotted lines and the shaft therefor in elevation. Fig. 3 is a section on the line y y, Fig. 4. Fig. 4 is a section on the line 2 2, Fig. 3, and Fig. 5 is a view showing the two positions of the corn-box.

While I have herein for convenience referred to my improved device as being used for the planting of corn, yet it will be obvious that the invention is not limited to use for planting corn, but may be employed in planting other seed as well, and hence, while I will hereinafter use the terms "corn-box" or "corn-dropper," I do not wish to thereby limit my invention to use in planting corn.

The frame of the machine is designated by 3, and this may be of any suitable construction, it being supported in any suitable or usual way upon the main wheels 4, (shown in dotted lines only,) and said frame supports the lister or plow 5 and the covering-shovels 6. These parts may be of any usual or suitable construction and form no part of my present invention, and are therefore illustrated in outline only.

At the rear of the frame is supported a suitable casting 7, having a vertical bearing 8, in which is journaled the vertical portion 9 of a shaft 10.

The shaft 10 forms the support for the crazy-wheel 11, which may be of any suitable construction, and the said shaft is shown as comprising the vertical portion 9, above referred to, and the rearwardly-extending arm

or portion 12, the said rearwardly-extending portion 12 being bent at 13 to form a transversely-extending spindle or bearing 14, upon which the crazy-wheel rotates.

The rearwardly-extending portion 12 of the shaft 10 is offset slightly from the vertical portion, as at 15, whereby the center line of the crazy-wheel is in the same vertical plane as the vertical portion 9 of the shaft, as plainly seen in Fig. 2.

The frame 3 supports the corn-box 16, which has in its bottom a rotary corn-dropping disk 17, which operates to drop the corn, kernel by kernel, into a suitable seed-tub or spout 41, which conducts the kernels to the ground, as usual in this class of devices.

The particular construction of the corn-dropping box will be more particularly hereinafter referred to.

One feature of my present invention resides in a construction wherein the power necessary to rotate the corn-dropping disk 17 is furnished from the crazy-wheel, and since the crazy-wheel has a bodily movement about its vertical axis the connections between the said wheel and the corn-dropping disk are made flexible or universal.

Referring to Figs. 1 and 2, it will be seen that the crazy-wheel has fast on its hub a sprocket-wheel 19, with which engages a sprocket-chain 20, said sprocket-chain passing over a suitable sprocket-wheel 21, mounted for rotation on an offset or arm 22, projecting from the shaft 10. The sprocket 21 has rigid therewith a bevel-gear 23, which meshes with a suitable double bevel-gear 24, journaled upon the vertical portion 9 of the shaft. Supported in the frame 3 in suitable bearings is a shaft 25, carrying at one end a bevel 26, meshing with one-half of the double bevel 24, the other end of the shaft 25 having thereon a pinion 27, which meshes with gear-teeth on the corn-dropping disk, as will be presently described. The pinion is loose upon the shaft, but is adapted to be clutched thereto or unclutched therefrom as the lister 5 is lowered or raised, as will be presently described. From this construction it will be obvious that when the pinion 27 is clutched to the shaft 25 the rotation of the crazy-wheel operates through the sprocket-chain and bevel-gears described to rotate the shaft, which in turn communicates its motion to the corn-dropping disk. It will also be seen that by employing the system of bevel-gears shown a flexible or universal connection is made which is operative regardless of the position of the crazy-wheel about its vertical axis. The double bevel-gear 24 is illustrated as being supported upon a suitable shoulder or collar 29 upon the shaft 9 and as having a hub 30, which engages at its upper end a collar 31, made fast to the shaft by a suitable key, as shown.

The corn-box 16 comprises a suitable casing 33, which rests upon and is secured to a suitable plate or base 34. For this purpose the said base 34 may be conveniently provided with ears 35, which may be bolted or otherwise secured to the casing 33. The plate 34 has therein a circular groove 36, which receives a circular flange 37 on the corn-dropping plate 17. (See Fig. 4.) The said groove 36 forms a guide for the corn-dropping disk and serves to maintain it in its groper position during its rotation. The lower edge of the flange 37 is provided with gear-teeth which mesh with the pinion 27 on the shaft 25, the base-plate 34 being cut away or recessed, as at 38, to receive the pinion 27. The flange 37 therefore is, in effect, a crown-gear which is driven by the pinion 27.

The corn-dropping disk 17 is held in its operative position by means of the inturned flange 39 at the bottom of the casing 33, which flange rests upon the top of the disk, as seen in Fig. 4.

The corn-dropping disk may be provided with one or more apertures or pockets 40, which catch or receive kernels of corn as the disk rotates and which serve to carry said kernels over a suitable spout 41, which conducts them to the furrow in which they are to be planted, as usual in this class of devices.

In order that the operation of the corn-dropping mechanism may be observed, I have provided the casing 33 with a reëntrant portion in its side, as designated at 43, said reentrant portion being deep enough so that as the disk rotates the apertures 40 are carried outside of the casing across the said reëntrant portion, as shown in Figs. 3 and 4. This reentrant portion is preferably on that side of the casing adjacent the seat 45, so that the person on the seat may readily observe as the various apertures or pockets 40 pass across the reëntrant portion of the casing whether or not a kernel is contained in each pocket, and he may thus be able to determine when the corn is exhausted from the box. I have also provided mechanism whereby the corn-dropping disk may be changed without the necessity of removing the corn from the box, and this I have accomplished by hinging the box at one side thereof to the frame, whereby the box may be turned about its pivot and turned bottom side up. Since the base-plate 34 is detachably secured to the casing of the box, as illustrated, the base-plate is carried with the box, and after the box has been turned over the bolts securing said plate to the casing of the box may be removed and thereafter the plate removed. The corn-dropping disk may then be replaced by a disk of a different character, if desired, and the base-plate 34 again secured to the box, when by turning the box back upon its pivot to the position shown in Fig. 1 the teeth of the corn-dropping disk 17 will be brought into engagement with the pinion

27 and the device is again ready for operation.

I have shown the hinge in Fig. 3, as at 50, it being constructed in any suitable way.

The box is clamped in its operative position by means of a suitable clamping device 51, which engages a portion of the frame. By loosening the clamp 51 the corn-box can be turned to the full-line position, Fig. 5, when the plate 34 can be removed, as above described.

By using the crown-and-pinion connection for driving the dropping plate or disk the box may be readily turned into its dotted-line position for the purpose described without in any way affecting the operation of the driving mechanism. I have also provided mechanism whereby when the lister or plow 5 is raised from the ground into its inoperative position the corn-dropping disk will be thrown out of operation, and when the said lister or plow is lowered into operative position the corn-dropping device will again be thrown into operation.

The lister or plow 5 is shown diagrammatically only, and it will be supported from the frame 3, so as to be raised and lowered in any suitable way. For the sake of clearness of illustration, however, the beam 69 of the lister or plow is illustrated as pivotally connected to the cranked portion 70 of a shaft 71, which is journaled in the frame 3, the shaft 71 having connected thereto a hand-lever 73, by means of which the shaft may be turned and the lister raised, as will be obvious to those skilled in the art.

The shaft 71 has projecting therefrom an arm 74, to which is pivoted one end of a link 75, the other end of said link being connected to a lever 76, suitably pivoted to the frame, which lever may be, if desired, forked at one end and provided with pins 78, which play in a groove 79 in a clutch member 80, slidably mounted upon the shaft 25, the shaft being shown as squared, so that the sleeve 80 is locked thereto, but can have longitudinal movement thereon.

The clutch member 80 is adapted to interlock with the shank or hub of the gear 27, as seen in Fig. 1.

From the above description it will be seen that when the lister is lowered and in operation the gear 27 is clutched to the shaft 25, and the corn-dropping disk will be, therefore, rotated, while when the lever 73 is drawn toward the operator and the lister raised such movement will unclutch the gear 27 from the shaft.

While I have herein illustrated the best form of my invention now known to me, yet I desire to state that the invention is not limited in all its details to what is illustrated in the drawings, for obviously many changes may be made in the structure of the device without departing in any way from my invention, which consists in providing means by which the corn-dropping disk may be driven from the crazy-wheel of the lister and also means whereby the operator may observe the dropping of the various kernels of corn, and I would consider as coming within my invention any mechanism which comprised these features.

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

1. In a three-wheeled lister, a frame, a corn-dropping mechanism supported thereon, a shaft having a vertical portion journaled therein, said shaft having an offset portion, a third wheel journaled on said offset portion, gearing on said vertical portion of the shaft, connections between the same and the third wheel, and connections between said gearing and the corn-dropping mechanism, whereby said corn-dropper is operated by the third wheel.

2. In a three-wheeled lister, a frame, a rotary corn-dropping disk supported thereby, a shaft having a vertical portion journaled in said frame, and a rearwardly-extending portion having a spindle, a crazy-wheel journaled on said spindle, a double bevel-gear on said vertical portion of the shaft, a driving bevel-gear supported on a projection on said shaft, and meshing with the double bevel-gear, sprocket-wheels fast to the hub of the crazy-wheel, and the driving bevel-gear respectively, a sprocket-chain connecting said sprocket-wheels, a shaft supported on said frame and carrying at one end a bevel-gear meshing with said double bevel-gear, and at the other end a pinion engaging the corn-dropper.

3. In a lister, a frame, a crazy-wheel pivoted thereto to swing horizontally thereof, a corn-box supported directly by the frame, said corn-box comprising a casing having a reëntrant portion in its side, and a rotary corn-dropping disk having apertures, and means actuated by the crazy-wheel for operating said dropping-disk, the construction of the disk being such that the path of the apertures thereof intersects the said reëntrant portion of the casing.

4. A corn-box for a lister comprising a casing, a plate secured to the bottom thereof, said plate having a recess in its edge, a corn-dropping disk, means to hold said disk in its position comprising a circular guiding-groove in the upper face of the plate and an annular flange in the lower side of the corn-dropping disk, said flange being received by the groove, gear-teeth upon said flange, and a gear supported in the recess of said plate and engaging said teeth.

5. A corn-box for a lister, comprising a casing having a reëntrant portion in one side, a plate secured to the bottom of said casing, said plate having a cut-away portion in one edge and a circular guiding-groove in its upper

face intersecting said cut-away portion, a rotary corn-dropping disk having a circular flange guided by said groove, said flange having gear-teeth thereon, and a gear in the cut-away portion of the plate and adapted to engage the teeth on the flange, the said flange and groove constituting the means for holding the disk in position.

6. In a lister, a frame, a corn-box pivoted thereto, said corn-box comprising a casing, a plate detachably secured to the bottom thereof, said plate having a recess in one edge, and a circular guiding-groove in its upper face intersecting said recess, a rotary corn-dropping disk having a circular flange guided by said groove, said flange having gear-teeth on the under side thereof, and a gear supported in fixed bearings on the frame and adapted to be received in the recess in the plate, and engage the teeth on the flange of the disk when said corn-box is in operative position, the construction being such that the corn-box may be turned about its pivot to expose the plate for removal.

7. In a lister, a frame, a crazy-wheel journaled therein, a corn-box pivoted to said frame and including a rotary dropping-disk having gear-teeth, a driving-gear carried by the frame and adapted to mesh with the teeth on the said disk when the corn-box is in operative position, and flexible connections between said driving-gear and the crazy-wheel whereby the disk is operated from the crazy-wheel.

8. A corn-box for a lister, comprising a casing, a plate secured to the bottom of said casing, and having an annular guiding-groove in its upper face, a corn-dropping disk provided with a coacting annular flange to fit said groove, said casing having an inturned flange to engage the top of the disk and hold the latter in position, and means to rotate the disk.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID M. FRY.

Witnesses:
E. A. JOHNSON,
MAHLON PAYNE.