No. 715,812.

Patented Dec. 16, 1902.

O. E. JOHNSTON.

TRASH CLEANER FOR SEED DRILLS.

(Application filed June 3, 1902.)

(No Model.)

2 Sheets—Sheet 1.

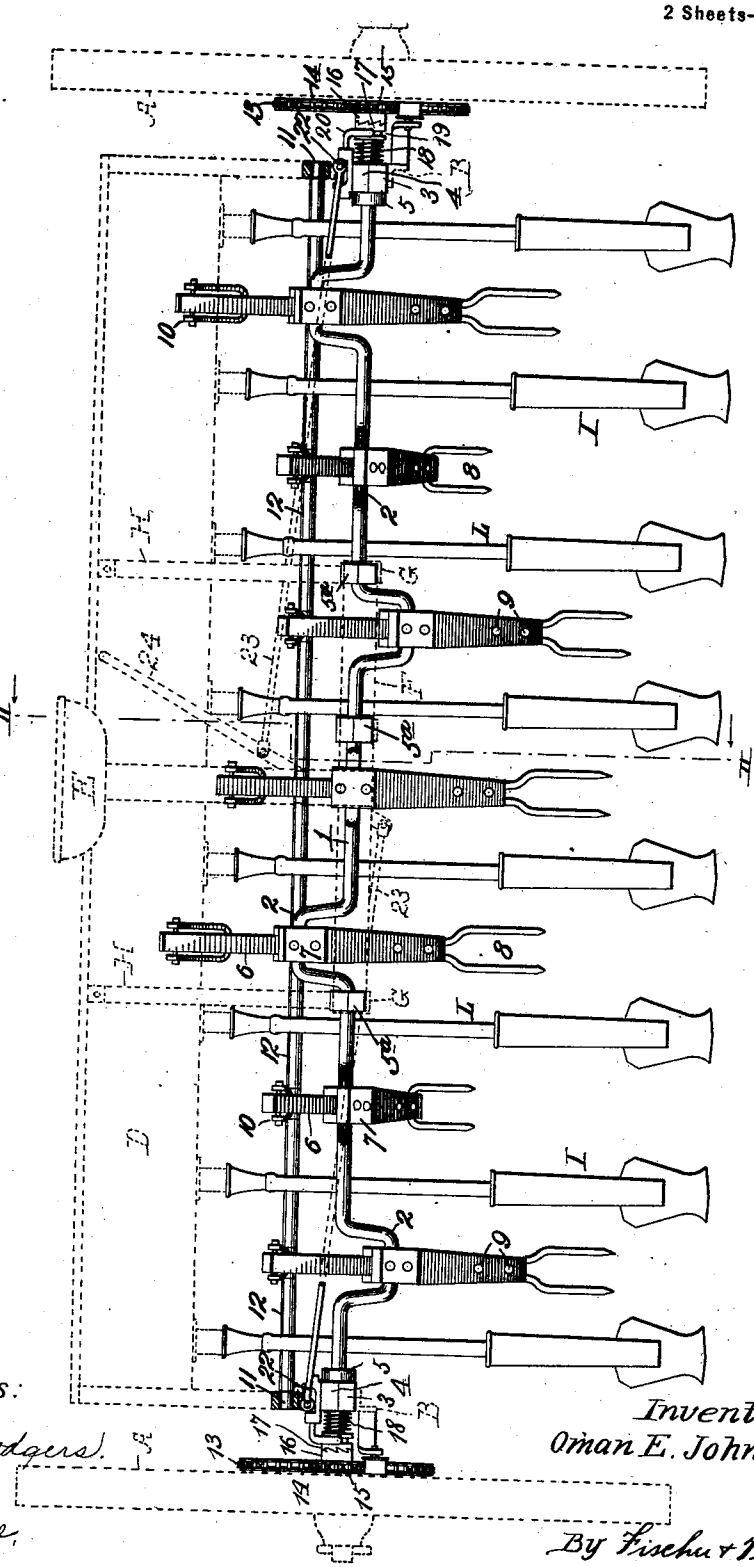


Fig. 1.

Witnesses:
H. C. Rodgers.
A. Thorpe.

Inventor:
Oman E. Johnston
By Fischer & Thorpe
Attys

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

No. 715,812.

Patented Dec. 16, 1902

O. E. JOHNSTON.

TRASH CLEANER FOR SEED DRILLS.

(Application filed June 3, 1902.)

(No Model.)

2 Sheets—Sheet 2.

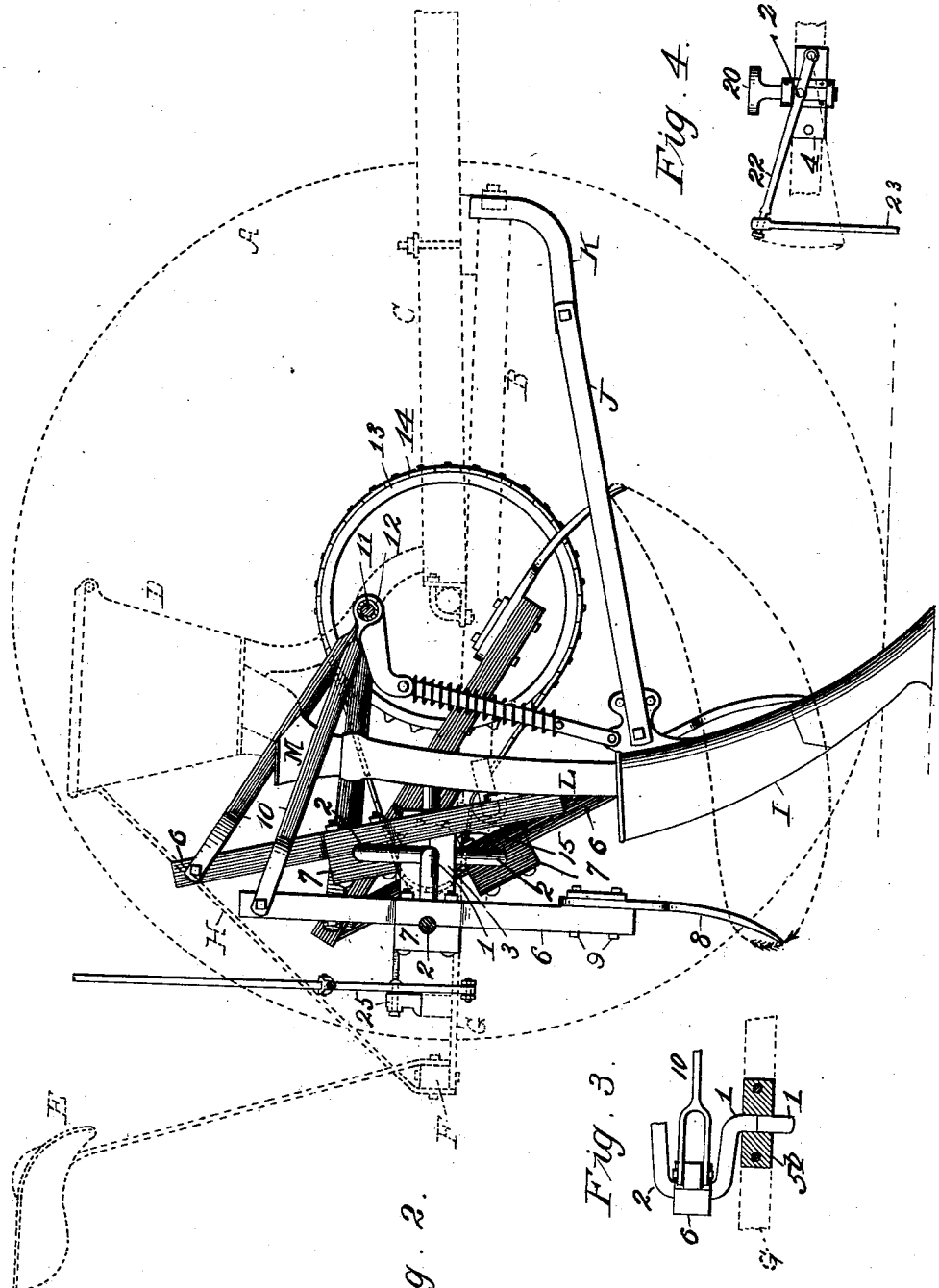


Fig. 2.

Fig. 4.

Fig. 3.

Witnesses:
H. C. Rodgers.
A. Thorpe,

Inventor:
Oman E. Johnston
By Fischer & Thorpe
Attys

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

UNITED STATES PATENT OFFICE.

OMAN E. JOHNSTON, OF KANSAS CITY, MISSOURI.

TRASH-CLEANER FOR SEED-DRILLS.

SPECIFICATION forming part of Letters Patent No. 715,812, dated December 16, 1902.

Application filed June 3, 1902. Serial No. 110,011. (No model.)

To all whom it may concern:

Be it known that I, OMAN E. JOHNSTON, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Trash-Cleaners for Seed-Drills, of which the following is a specification.

My invention relates to trash-cleaners for seed-drills, and more particularly to a machine of this character whereby cornstalks, weeds, and, in fact, trash of all description may be automatically swept rearwardly between and released back and clear of the drill-hoes in order that the seed may be properly planted and then protected by a covering of trash, my object being to provide a construction at once simple, strong, durable, and which can be readily thrown in or out of gear with the drive wheel or wheels by the driver upon the seat.

To this end the invention consists in certain novel and peculiar features of construction and combinations of parts, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a rear view of a seed-drill embodying my invention, the same showing my improvement and a part only of the drill in full lines. Fig. 2 represents an enlarged section taken on the line II II of Fig. 1. Fig. 3 is a view showing in horizontal section the supplemental bearing used when the crank-shaft is composed of two sections geared independently to the contiguous drive-wheels, and Fig. 4 is a plan view of one of the boxings to show the short lever connection between the clutch-links and the tie-rods.

In the said drawings, A designates the drive-wheels, B the horizontal frame suspended from the axle of the wheels, C the tongue, D the seedbox mounted upon the frame, E the seat supported from a cross-bar F, secured to the bars G, secured to the frame in any suitable manner and braced by braces H, all of these parts being of well-known construction.

I designates the usual drill-hoes; J, the links pivotally connecting the hoes to brackets K, secured to the frame in the usual manner.

L designates the flexible tubes to conduct the seed to the hoes, and M the cups, from which tubes L are suspended, said cups being adapted to receive the seed from the seedbox in the usual manner.

Referring now to my improvement, 1 designates a crank-shaft extending from wheel to wheel and provided with cranks 2, the contiguous ones being disposed at right angles to each other and opposite the spaces between the drill-hoes, said shaft being journaled near each end in boxings, comprising lower portions 3, secured rigidly in any suitable manner to frame B just rearward of drill-tubes L and the upper portions or caps 4, collars 5, secured to the shaft inward of the boxings, preventing endwise movement of the shaft. The shaft is also journaled, if desired, in boxings 5^a, secured to bars G. A series of rakes corresponding in number to cranks 2 are pivoted thereon and consists of bars 6, caps 7, bolted to the bars at opposite sides of the cranks, and forks 8, longitudinally adjustable on bolts 9, secured to the lower ends of the bars, as shown, or in any other suitable or preferred manner, and the upper ends of said rakes are pivotally connected in the bifurcated ends of links 10, which are in turn pivoted at their front ends to stationary cross-rod 11, sleeves 12 upon said rod being utilized to hold said links against lateral movement on the rod without interfering with their rotatable action.

To operate the rakes with the desired rapidity, large sprocket-wheels 13 are secured to the inner sides of wheels A and are connected by chains 14 to small sprocket-wheels 15, journaled upon the ends of shaft 1 and provided at their inner sides with ratchet-tooth clutch members 16, adapted for engagement by clutch members 17, arranged to rotate with and slide upon the crank-shafts and adapted to be thrown into engagement with the first-named clutch members by means of the coil-springs 18 upon said shaft and interposed between the boxings thereof and the slidable clutch members.

To withdraw the slidable clutch members from engagement with clutch members 16, the former are provided with the usual grooves 19, engaged by the links 20, pivoted, as at 21, to the short levers 22, fulcrumed upon the boxings, said levers being connected in turn by tie-rods 23 to the laterally-operating lever

24 at opposite sides of the fulcrum thereof upon the block or bar 25, secured to bars G or otherwise supported, so as to be within convenient reach of the driver upon the seat. The lever is adapted to be secured at the desired point of adjustment by means of the usual pawl-and-ratchet mechanism or its equivalent, this mechanism forming no part of the invention.

In practice as the machine moves forward the rakes travel in the direction indicated by the dotted arrow, Fig. 1, said arrow tracing almost exactly the course followed by the points thereof, and owing to the fact that the cranks are set at angles to each other it is obvious that the additional burden placed upon the draft-animals of operating the attachment is distributed so as to eliminate side draft and make the work as light as possible, two of the rakes at opposite sides of the center of draft being always upon the ground simultaneously, excepting only when the center rake is performing its function. By reference to said arrow it will be noticed that the latter sweeps downward and rearward, so as to catch the trash as it tends to accumulate or pile up in front of the hoes and sweeps it back between the latter until it is completely disengaged therefrom, when the rakes move upward almost vertically, so as to become reliably disengaged from the trash before swinging forward. In its backward or operative stroke or sweep it not only removes the trash from on front of the hoes and assists in covering the seed therewith, but it also breaks the clods and distributes the dirt upon instead of letting the clods pile up between the rows, and in this connection it should be stated that where the ground is rough, but comparatively free from trash, I replace the forks 8 with shovels (not shown) because the latter break up the clods more effectively.

With my improvement, which can be manufactured in connection with new drills or attached to drills already in use without difficulty, it is possible to operate lister-drills in parts of the country where it has hitherto been impossible to use drills to practical advantage at all.

I am aware that drills have been patented provided with trash-cleaning attachments arranged to operate between the hoes. Therefore I do not claim this construction broadly. It is to be understood, however, that while I have illustrated and described the preferred embodiment of my invention it is susceptible of various modifications in minor particulars without departing from its spirit and scope, and it is also obvious that the gearing connecting each end of the crank-shaft with the drive-wheels, including the double clutch, may be dispensed with and said shaft driven from one end only. I prefer, however, to drive it from both ends in order to make the operation more positive and in order to centralize the draft. In some cases I prefer to employ two shafts with their meeting ends in a common bearing 5^b on a supplemental bar G. (See Fig. 4; also shown in Fig. 1 to disclose its position more clearly.) In fact, this is my preferred construction on machines having a large number of hoes.

When traveling to and from the field, the driver by the proper manipulation of lever 24 will throw the trash-cleaning attachment out of gear with the wheels by withdrawing the clutch members 17 from engagement with the clutch members 16, the springs 18 causing their reëngagement when said lever is released.

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

1. The combination with a seed-drill, of boxings secured to the machine-frame, a shaft journaled therein and provided with cranks opposite the spaces between the drill-hoes, rakes for removing trash from and crushing clods between the hoes, links pivotally connecting the upper portions of the rakes to fixed points on the machine, wheels geared together and secured respectively to one of the carrying-wheels and to the crank-shaft, a pair of clutch members, one of them slidable, a spring for holding the slidable clutch member in engagement with the other clutch member and the shaft in gear with said carrying-wheel, a lever fulcrumed on the contiguous boxing, and a link operatively connecting said lever and the slidable clutch member, substantially as described.

2. The combination with a seed-drill, of boxings secured to the machine-frame rearward of the seed-tubes, a crank-shaft journaled therein, and provided with cranks opposite the space between the hoes of the drill, rakes pivoted on said cranks and embodying adjustable forks at their lower ends, links pivotally connecting said rakes above the crank-shaft to a fixed point on the machine-frame in advance of said crank-shaft, wheels journaled upon the ends of the crank-shaft and geared to the wheels of the machine, and provided with clutch members at their inner sides, companion clutch members grooved and mounted upon the crank-shaft to rotate with and slide upon the same, expansive springs interposed between the boxings and said slidable clutch members to hold the latter normally in engagement with the first-named clutch members, levers fulcrumed on said boxings, and links pivoted to said levers and engaging the grooves of said slidable clutch members, so as to slide the same without interfering with their rotative action, substantially as described.

3. The combination with a seed-drill, of boxings secured to the machine-frame, rearward of the seed-tubes, a crank-shaft journaled therein, and provided with cranks opposite the space between the hoes of the drill, rakes pivoted on said cranks and embodying adjustable forks at their lower ends, links

pivotally connecting said rakes above the crank-shaft to a fixed point on the machine-frame in advance of said crank-shaft, wheels journaled upon the ends of the crank-shaft and geared to the wheels of the machine, and provided with clutch members at their inner sides, companion clutch members grooved and mounted upon the crank-shaft to rotate with and slide upon the same, expansive springs interposed between the boxings and said slidable clutch members to hold the latter normally in engagement with the first-named clutch members, levers fulcrumed on said boxings, links pivoted to said levers and engaging the grooves of said slidable clutch members, so as to slide the same without interfering with their rotative action, a lever fulcrumed on the frame, and links pivotally connecting said lever at opposite sides of its fulcrum with the first-named lever, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

OMAN E. JOHNSTON.

Witnesses:
H. C. RODGERS,
G. Y. THORPE.