No. 701,642. Patented June 3, 1902.

W. STEPHENSON.

SEEDER.

(Application filed Nov. 9, 1901.)

(No Model.) 3 Sheets—Sheet 1.

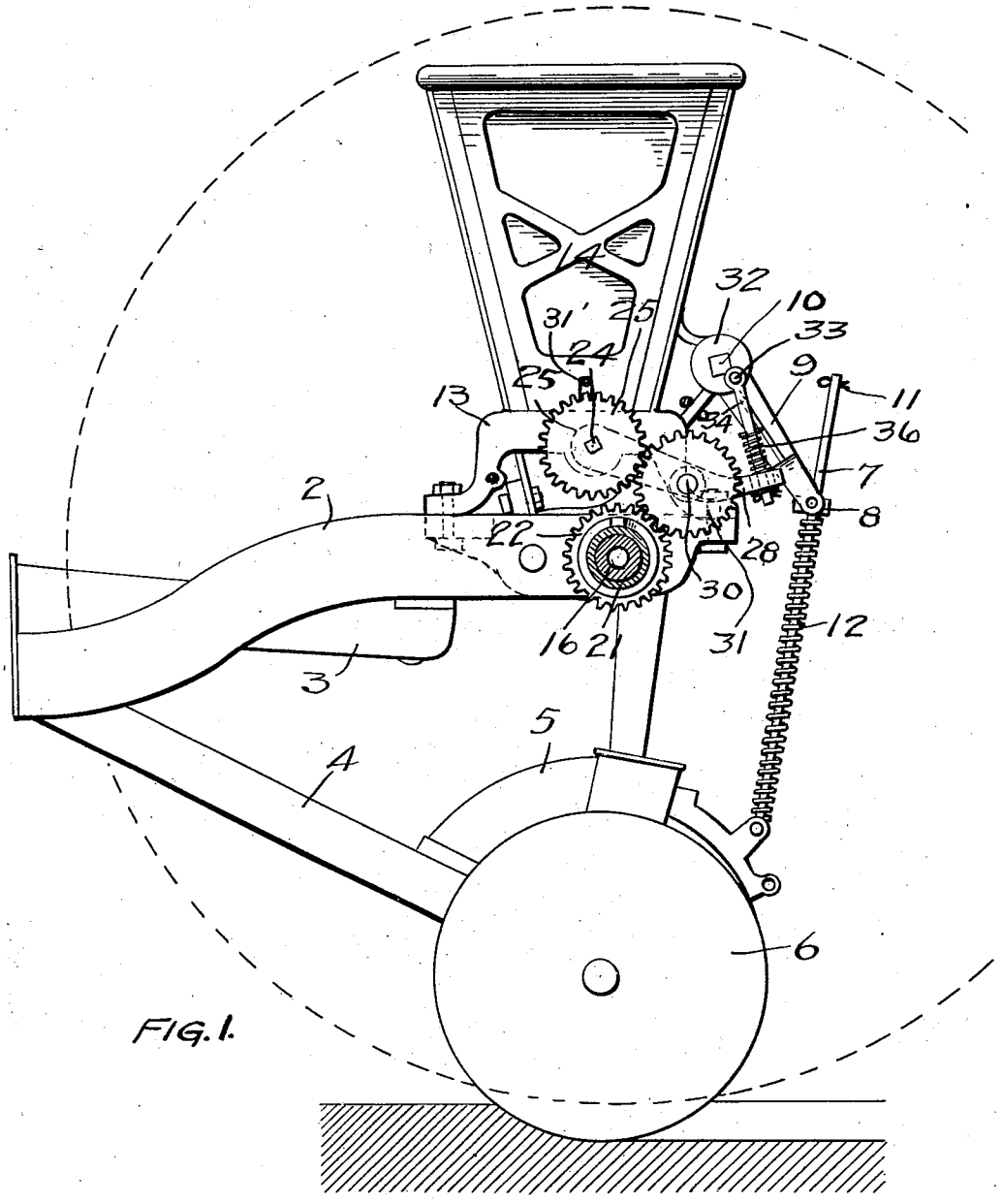


FIG. 1.

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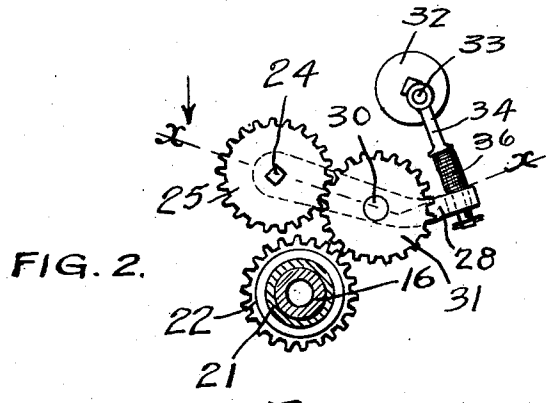


FIG. 2.

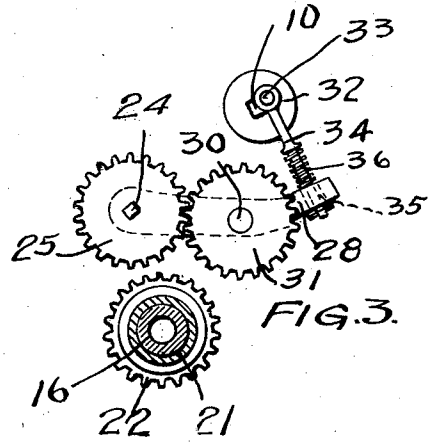


FIG. 3.

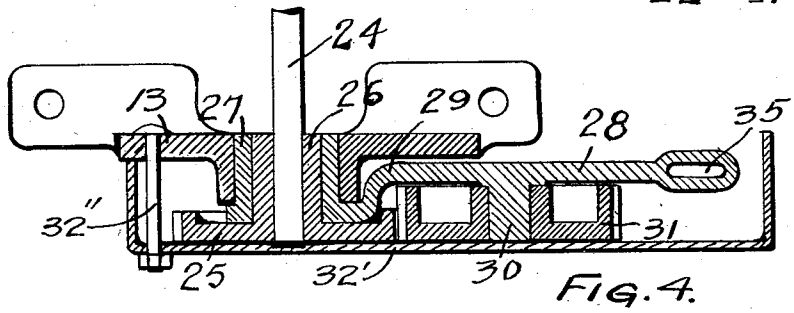


FIG. 4.

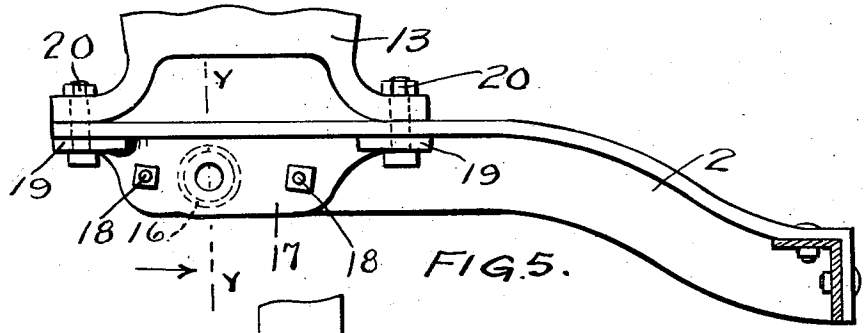


FIG. 5.

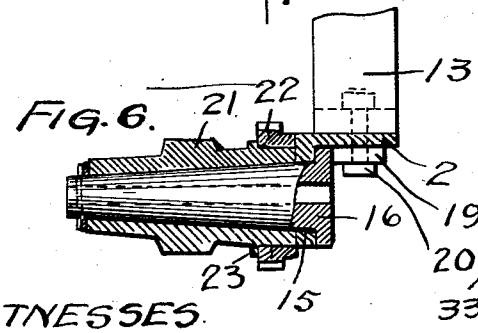


FIG. 6.

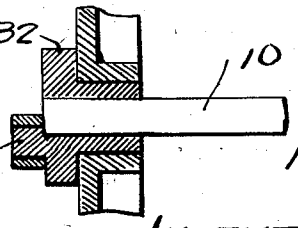


FIG. 7.

WITNESSES.

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No. 701,642. Patented June 3, 1902.

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SEEDER.

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(No Model.) 3 Sheets—Sheet 3.

FIG. 8.

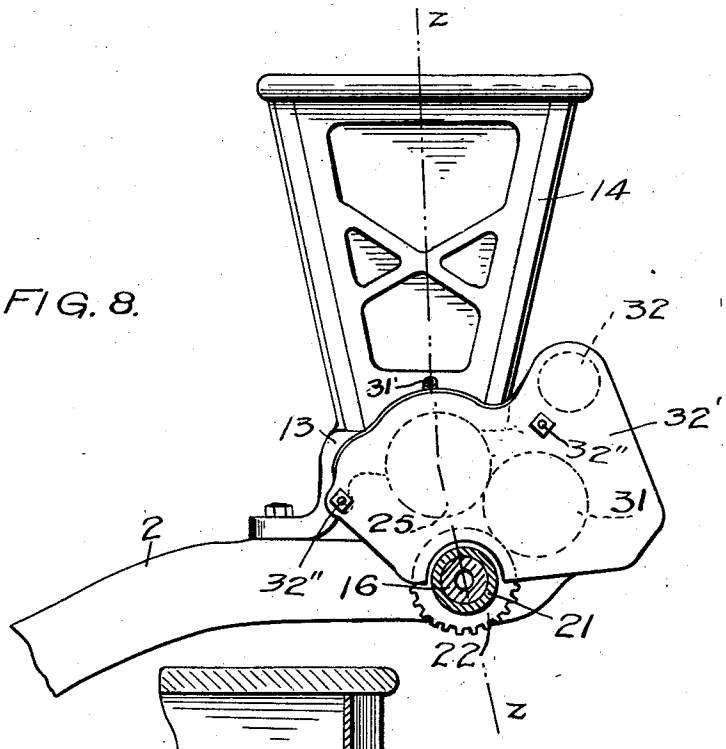
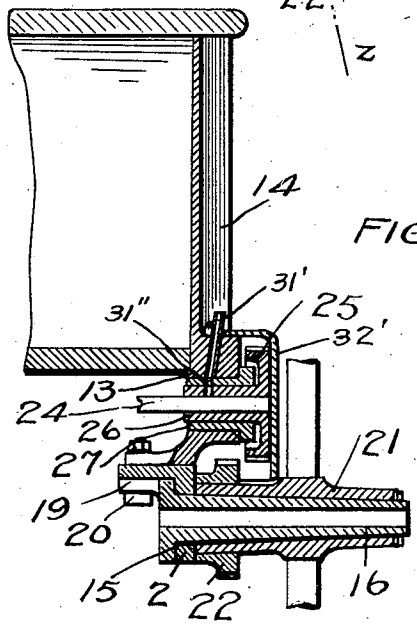


FIG. 9.



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UNITED STATES PATENT OFFICE.

WILLIAM STEPHENSON, OF ST. LOUIS PARK, MINNESOTA.

SEEDER.

SPECIFICATION forming part of Letters Patent No. 701,642, dated June 3, 1902.

Application filed November 9, 1901. Serial No. 81,683. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STEPHENSON, a citizen of the Dominion of Canada, residing at St. Louis Park, Hennepin county, Minnesota, have invented certain new and useful Improvements in Seeders, of which the following is a specification.

The invention relates to seeders, and particularly those of the disk type.

The object of the invention is to simplify the construction and reduce the weight of the ordinary seeder-frame and provide a clear open space beneath the hopper for the feed-spouts and their connections by dispensing with the usual wheel-axle.

A further object is to provide means for adjusting the wheel-spindles to alter their pitch or inclination with respect to the hopper.

A further object is to improve the method of gearing the feed-shaft to the wheels and for rendering said gears operative or inoperative.

A further object is to provide improved means for oiling the gears and axle-spindles.

The invention consists generally in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is an end view, with the bearing-wheel removed, of a seeder-frame embodying my invention. Figs. 2 and 3 are details of the gear mechanism. Fig. 4 is a section on the line $x\,x$ of Fig. 2. Fig. 5 is a detail section of the frame, showing the manner of securing the axle-spindle thereto. Fig. 6 is a section on the line $y\,y$ of Fig. 5. Fig. 7 is a section showing the gear-operating crank on the rock-shaft. Fig. 8 is an end view of the hopper and the seeder-gearing. Fig. 9 is a section on the line $z\,z$ of Fig. 8.

In the drawings, which represent a seeder of the disk type, I have shown a frame 2 of angle-bars having a suitable pole 3 and a series of disk draw-bars 4, pivotally connected with the frame and provided with castings 5, whereon the disks 6 are mounted. Each casting is provided with a rod 7, pivotally connected thereto and slidable in a swivel 8 on an arm 9, that is secured to the rock-shaft 10. A cotter-pin 11 prevents disengagement of the rod 7 from said swivel, and a spring 12 on said rod is compressed by the downward movement of said frame, all of which is common to seeders of this class. Upon the frame 2 are brackets or standards 13, supporting a hopper 14 of the usual form.

In seeders as usually constructed the axle extends through the frame beneath the hopper and interferes to a considerable extent with the feed mechanism, rendering it necessary to place the feed-spouts usually at the front of the hopper when more properly they should be located at the back thereof.

In my improved seeder I have dispensed entirely with the axle and have provided holes 15 in the vertical flanges at the ends of the seeder-frame to receive axle-spindles 16, that are provided with depending flanges 17, secured to said vertical flanges by bolts 18, and with ears 19, that are preferably secured to the horizontal flanges of said frame by suitable bolts 20, that pass through said ears, said flanges, and the legs of the standards 13, securely binding them together. The flanges 17 are braced by the ears 19 and have a rigid support in the angle-bar of which the frame is composed. This method of securing the axle-spindles to the frame of the seeder permits me to adjust them to vary the angle of inclination of the bearing-wheels with respect to the hopper. I can either cause the wheels to run on a plumb spoke or adjust the wheels so that the spokes will be slightly inclined. I prefer, however, to have the spokes substantially plumb, as I have found that when the wheels are inclined either toward or from the hopper the seeder will run harder, particularly in soft ground, and that when inclined toward the hopper the mud is taken up by the wheels is apt to lodge between the ends of the hopper and the wheels, in case of breakage of either one or both spindles the broken part can be quickly removed and a new spindle substituted thereof.

The hubs 21 of the bearing-wheels are provided with a gear 22, secured between the side rail of the frame 2 and the hub. The feed-shaft 24 is provided with a gear 26, whose hub 26 slides on the square end of said shaft, and turning loosely upon said

sleeve 27, provided on the end of a lever 28, the whole mechanism being supported on the bracket 13 at one end of the hopper. The lever 28 has an offset 29 and a stud 30, whereon the wide-faced gear 31 is loosely mounted and is adapted to mesh with the gears 22 and 25. I prefer to provide the offset in said lever, so that in case it is desired to change the speed of the feed-gear 25 with respect to the driving-gear 22 the gear 31 may be slipped off its stud and two gears (not shown) of different size and secured together substituted in place thereof.

As shown in Fig. 9, I prefer to provide an oil-tube 31′, fitting within a hole in the bracket 13 and communicating with a small hole 31″ in the sleeve 27. The oil flowing through the tube 31′ and the hole 31″ will lubricate the bearing of the gear 25 and then flow down upon the wheel-gear 22, and then from said gear 25 and gear 22 it will be transmitted to the idle gear 31. If desired, a sufficient amount of oil may be used to lubricate not only the gears above referred to, but also the wheel-spindle, the oil flowing from the gear 22 into the joint between the hub 21 and flange 2. To prevent the gears 25 and 31 from slipping off their bearings and to thoroughly exclude dust and dirt from the bearings of the gear mechanism, I prefer to provide a sheet-metal guard or housing 32′, that incloses the gears on the front and at the sides and is secured in place by bolts 32″.

Upon the rock-shaft 10 I provide a crank-disk 32, having a pin 33, that overlaps the hole in said disk and prevents the squared end of the rock-shaft from slipping too far therethrough. The rod 34 connects the pin with a slot 35 in the end of the lever 28, wherein said rod has a limited sliding movement.

To prevent backward turning of the feed shaft and gear when the seeder is moved backward, I prefer to provide a spring 36 on the rod 34 between the lever 28 and the crank-disk, as shown, as the machine starts forward will throw the gears into mesh. A cotter-pin in the end of the rod 34 prevents the disengagement thereof from the lever 28. In backing the machine gear 31 and lever 28 will be raised to the position shown in Fig. 3 against the tension of the spring 36, which again will throw the gears into mesh. Turning of the shaft 10 in one direction will depress the disks and throw the lever 28 and raise the gear 31 out of engagement with the gear 22 and stop the feed, while movement of the shaft in the other direction will depress the disks and throw the gear 31 into engagement with the gear on the wheel-hub.

Having described my invention—

1. In a seeder, the combination, with the angle-bar frame, of brackets at the ends thereof, a hopper supported on said brackets, axle-spindles projecting through holes in the vertical flanges of said frame beneath said brackets and provided with vertical and horizontal ears or flanges, and bolts securing the flanges of said spindles to the corresponding flanges of said frame the bolts that pass through the horizontal flanges also securing said brackets thereto, substantially as described.

2. In a seeder, the combination, with an angle-bar frame, of brackets at the ends thereof, a hopper supported on said brackets, axle-spindles projecting through holes in the vertical flanges of said frame beneath said brackets and provided with vertical and horizontal ears or flanges, and bolts securing the flanges of said spindles to the corresponding flanges of said frame the bolts that pass through the horizontal flanges also securing said brackets thereto, substantially as described.

3. The combination, with an axle-spindle, of a wheel-hub having a gear secured thereon, a feed-shaft provided with a gear, a lever loosely mounted on said feed-shaft, an idle gear carried by said lever and adapted to engage said axle and said feed-gear, and means for oscillating said lever to raise said idle gear out of engagement with said axle-gear or move it into contact therewith, substantially as described.

4. The combination, with a driving-gear 22, of a feed-shaft 24, a gear 25 having a hub 26 secured on said shaft, a lever 28 having a sleeve 27 loosely mounted on said hub and also having a stud 30, a gear 31 loosely mounted on said stud and normally engaging said gear 25, and means for oscillating said lever 28 to move said gear 31 into or out of engagement with said driving-gear, substantially as described.

5. The combination, with a driving-gear 22, of the feed-shaft 24, a gear secured thereon, a lever 28 oscillating on said shaft as a center and having an offset near said shaft and provided with a stud 30, a wide-faced gear loosely mounted on said stud and normally engaging said gear 25, and means for oscillating said lever, substantially as described.

6. The combination, with an axle-spindle, of a wheel-hub having a gear secured thereon, a feed-shaft provided with a gear, a lever loosely mounted on said feed-shaft, an idle gear carried by said lever and adapted to engage said axle and said feed-gear, a rock-shaft, a crank-disk thereon and a yielding connection provided between said crank-disk and said lever, substantially as described.

7. In a seeder, the combination, with a driving-gear, of a feed-shaft, a gear secured thereon, an oscillating lever centered on said feed-shaft, an idle gear carried by said lever and adapted to engage said driving-gear and said feed-shaft gear, a rock-shaft, a crank thereon, a rod connected with said crank and with said lever, and a spring provided between said lever and said crank, substantially as described.

8. In a seeder, the combination, with an angle-bar frame provided with holes in its vertical flanges, of axle-spindles fitting within said holes, and means for adjustably securing said spindles to the flanges of said frame to permit the angle of the wheels with respect to the hopper and frame to be changed.

9. In a seeder, the combination, with a frame provided with holes at the ends thereof, of axle-spindles fitting within said holes, and

means for changing the angle of said spindles with respect to said frame, for the purpose specified.

10. In a seeder, the combination, with a wheel-hub having a gear, of a feed-shaft provided with a gear and located above said wheel-hub gear, an oil-tube, a lever provided with a sleeve loosely mounted on the hub of said feed-gear and having a hole communicating with said oil-tube, and an idle gear carried by said lever and adapted to engage said wheel-hub gear and said feed-gear.

11. The combination, in a seeder, of the bracket 13 provided with an oil-tube 31', a feed-shaft below said oil-tube, a gear having a hub slidable on said shaft, a lever having a sleeve adapted to rotate on said hub, said hub and sleeve having oil-holes registering with the discharge end of said oil-tube, a driving-gear, and an idle gear provided on said lever and adapted to engage said driving-gear and said feed-gear.

12. In a seeder, the combination, with the frame and the wheels supporting the same, of a driving-gear provided on one of the wheel-hubs, a feed-shaft above said driving-wheel, a feed-gear having a hub slidable on said shaft, a lever provided with a sleeve loosely mounted on said hub, an idle gear slidably supported on said lever and adapted to engage said driving-gear and said feed-gear, and a guard 32' provided over said feed and idle gears and between them and said wheel and limiting their outward sliding movement, substantially as described and for the purpose specified.

13. The combination, with an axle-spindle, of the wheel-hub provided with a gear, a feed-shaft also having a gear, a lever loosely mounted on said feed-shaft, a gear mounted on said lever and adapted to engage said axle and said feed-shaft gear, a rock-shaft, and a yielding connection provided between said lever and said rock-shaft.

In witness whereof I have hereunto set my hand this 28th day of October, 1901.

WILLIAM STEPHENSON.

In presence of—
RICHARD PAUL,
M. C. NOONAN.