

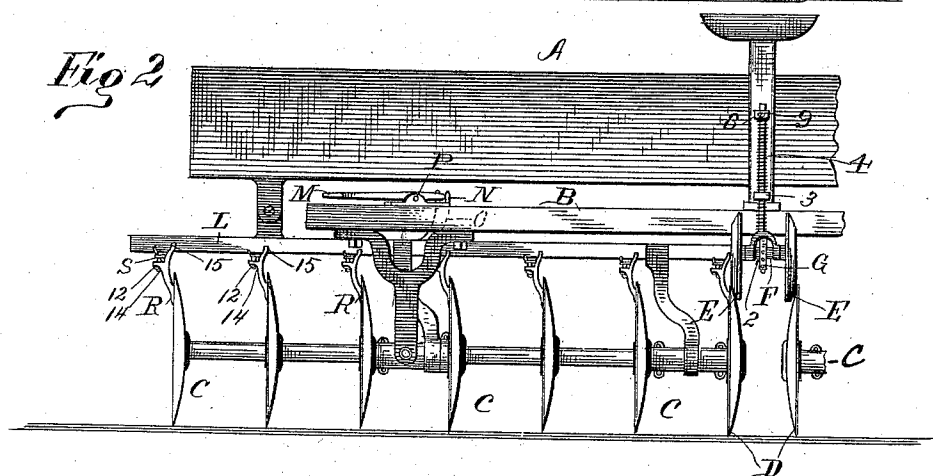
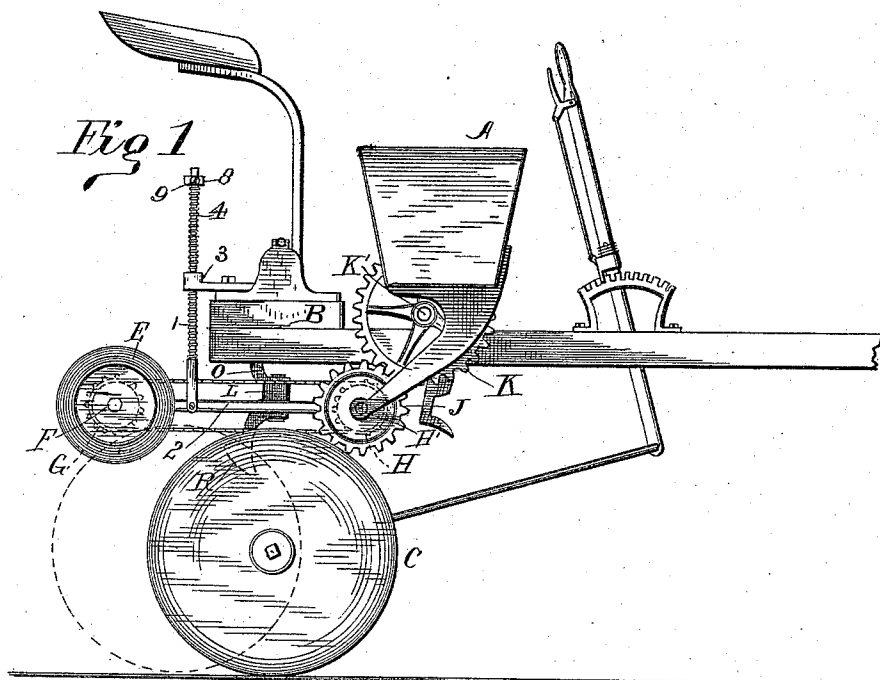
(No Model.)

2 Sheets—Sheet 1.

G. W. PACKER.
DISK HARROW AND SEEDER.

No. 470,363.

Patented Mar. 8, 1892.



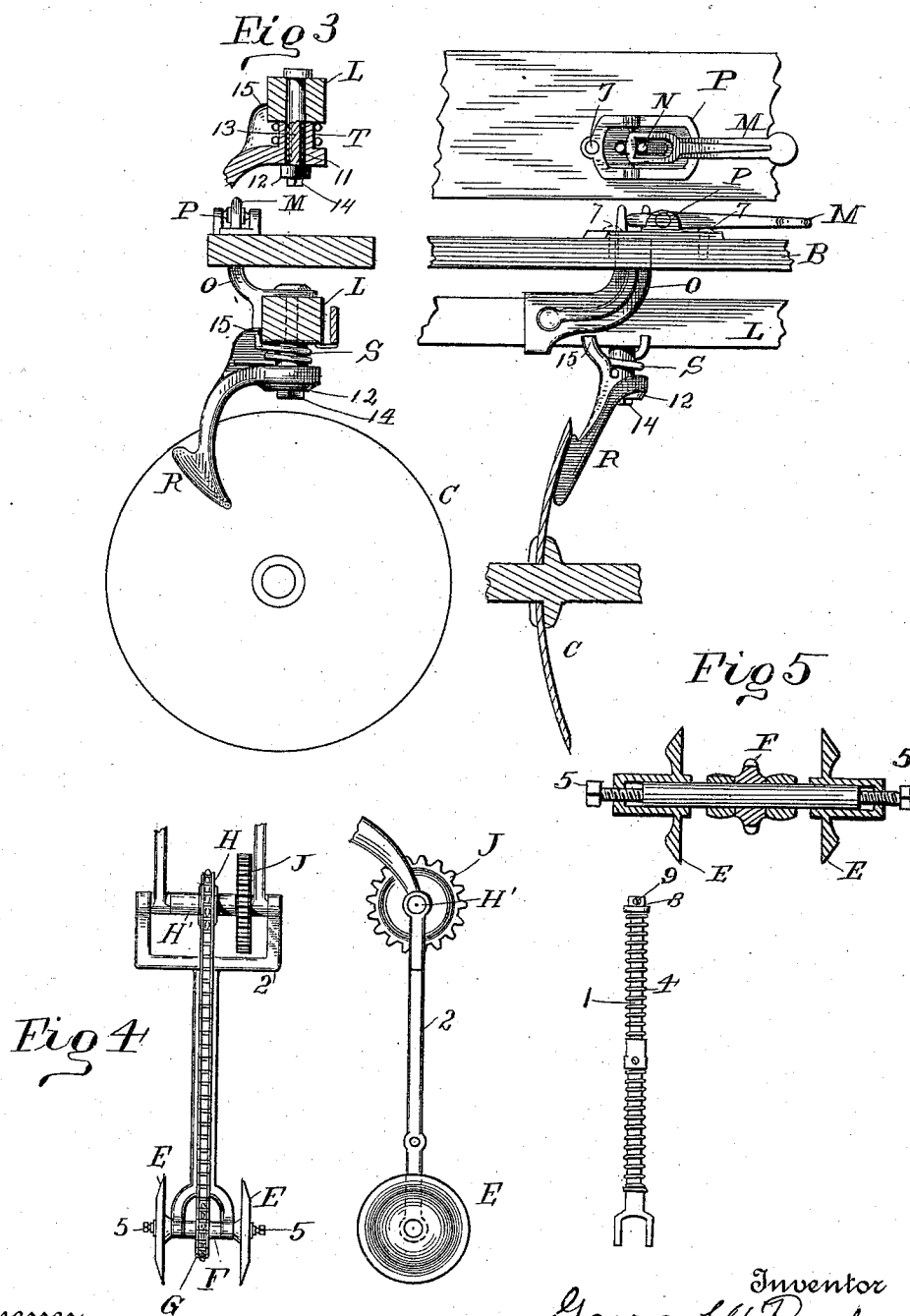
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UNITED STATES PATENT OFFICE.

GEORGE W. PACKER, OF ROCK FALLS, ASSIGNOR TO THE KEYSTONE MANUFACTURING COMPANY, OF STERLING, ILLINOIS.

DISK HARROW AND SEEDER.

SPECIFICATION forming part of Letters Patent No. 470,363, dated March 8, 1892.

Application filed August 31, 1891. Serial No. 404,298. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. PACKER, a citizen of the United States, residing at Rock Falls, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Disk-Harrow Seeders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention has reference to improvements in disk-harrow seeders; and it consists, first, in mechanism for driving a rotating seed-shaft from the inner disk of each gang by means of friction-wheels adapted to have their tread on the convex side of said disks and to be actuated thereby; second, in means for adjusting said friction-wheels so as to equalize their speed in the different positions which the disk gangs may assume; third, in the provision of a spring to regulate the degree of traction upon the periphery of said friction-wheels; fourth, in certain improvements in the scrapers for said disks. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of a machine embodying my invention. Fig. 2 is a rear elevation of part of such machine. Fig. 3 shows details of the construction and location of the scrapers and scraper-bar. Fig. 4 is the same with reference to the aforesaid mechanism for driving the seed-shaft. Fig. 5 is a sectional view through the axle F and friction-wheels E E.

Similar letters and figures refer to similar parts throughout the several views.

A is the usual seed-hopper, suitably supported upon a frame slightly in advance of the transverse draft-plank B, to which the disk gangs C are attached pivotally in the usual way.

D D are the inner disks of each of the two gangs, which are of the usual convex-concave conformation.

E E are friction-wheels placed upon their

common axle F and provided with oblique faces conformable to the convex surface of the disks D, respectively. The disks D are rotated, of course, from and by their contact with the earth, and this rotation is imparted to the axle F of the wheels E through the traction of the latter upon the disks D.

The axle F is journaled transversely in the outer end of a frame 2, which is hinged vertically at its inner end to any suitable part of the machine. On the axle F is centrally keyed a sprocket-wheel G, from which a sprocket-chain communicates rotation to a sprocket-wheel H, seated on the short shaft H' in front of the axle F and slightly below and in the rear of the hopper A. On the axle H' is rigidly seated a gear-wheel J, which engages a similar gear-wheel K, seated on the shaft K', which constitutes the axle or shaft of the seed-discharge device. A vertical rod 1 is pivotally attached at its lower end to the frame 2, near the outer end of the latter, and is adjustably suspended by being passed vertically through a plate 3, attached to the draft-plank B, and partially supported on said plate by means of the helical spring 4, coiled around said rod between plate 3 and upper collar 8, the latter being adjustable on rod 1 by the set-screw 9. The spring shown on rod 1 below the plate 3 is separate and distinct from the spring 4, and said spring below said plate is simply a cushion to relieve the upward jar of the friction-wheels E.

The advantage of driving the seeding mechanism from the inner side of the disk gangs is that there is thereby avoided the refuse of various kinds which collects at the outer end of the disk gangs. In use in connection with "throw-in" harrows the axle F would be longer and the bevel on the wheels E on the inner side of the latter. In driving from near the periphery of the upper portion of the disk there is an advantage over driving from the axle or from a sprocket-wheel seated thereon in that the disk gangs in use are often sunk in the earth to their axle, causing more or less interference with and sometimes a breakage of the driving-chain.

In order to equalize the velocity of the friction-wheels E through the variant positions of the disk gangs in use, I provide at each end

of the axle F set-screws 5, which have a screw-threaded seat in the outer end of the hub of the wheel E and the inner end of said screw bearing against the outer end of the axle F. Therefore by driving the screw 5 in or out in the end of the hub of the wheel E the space between said wheels may be increased or lessened, in which event the tread of the wheel E will be moved radially to or from the axis of the disk D.

L is a scraper-bar suitably supported in ways from the disk-gang axle and adapted to be moved laterally by the lever M, fulcrumed on the beam B and having its actuating end engaging a vertical clutch N, formed on the upper end of the arm O, the upper end of which projects upward through a slot in the beam B, and by throwing the lever M completely over laterally the bar L is moved endwise to or from the disks. Slots are formed in the shoe P, in which the lever M is fulcrumed, (which shoe is fastened by vertical bolts 7 to the upper surface of the beam B,) and by means of said slots the shoe P may be adjusted to or from the disks, as may be desired. The oscillation of the lever M from the position shown in Fig. 3 to the horizontal position in the opposite direction disengages all of the scrapers R from their several disks; and the return motion of said lever to the position shown in Fig. 3 throws all of said scrapers into engagement with their several disks; but aside from this general contact of each of the scrapers from the eccentricity of contour of the several disks and the impracticability of spacing them precisely uniform makes it a necessity that there shall be an individual flexibility on the adjustment of each of the scrapers R. This I attain by the following construction: The scraper R is seated pivotally under bar L by having its inner end formed into a vertical sleeve T, held by an inner sleeve 11, provided with external annular flange 12 on its lower end, which flange extends under sleeve T and supports it loosely. Sleeve 11 is supported by its central vertical bolt 13, passed downward through bar L and provided at its lower end with nut 14, which extends radially outward under sleeve 11. Scraper R is provided with upwardly-extending lug 15, adapted to abut against the rear side of bar L when said bar is at the limit of its outthrow and the cutting end of the scraper therefore not resting against disk D. A spring S, coiled around sleeve T and locked at one end behind bar L and at the other end behind lug 15, holds lug 15 against bar L when the scrapers are thrown from the disks; but when the scrapers R are thrown toward the disks they engage the disks D before bar L has reached the limit of its instroke, and the last part of such instroke therefore withdraws lug 15 from bar L and the scrapers are held against the disks by the resultant compression of the spring S.

By obvious changes the wheels E can be

placed on other of the disks, and by weighting the frame 2 one wheel E may be sufficient.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In combination with the disk gangs C, provided with concavo-convex disks D, a frame 2, suitably hinged vertically at its forward end to the frame of the machine and projected backward above the inner ends of said disk gangs, friction-wheels E, suitably journaled in the rear end of said frame and adapted to have their tread upon the inner disks of said gangs on the upper portion of the convex side of said disks, and suitable mechanism for communicating the rotation of said friction-wheels to the seeding devices, substantially as shown, and for the purpose described.

2. In a disk-harrow seeder, the combination of a seed-discharging shaft in suitable relation to the seed-hopper, disk gangs, the frame 2, pivotally connected at its forward end to the harrow-frame and projected to the rear and adjustably supported at or near its rear end, shaft F, transversely journaled in the rear end of frame 2, sprocket-wheel G, seated on shaft F, beveled friction-wheels E, seated on said shaft and adapted to have their tread on the convex side of one of the disks, near the upper edge thereof, shaft H', journaled parallel with and slightly below the seed-discharging shaft, sprocket-wheel H, seated thereon, a suitable sprocket-chain connecting wheels G and H, gear-wheel J, seated on shaft H', and gear-wheel K, seated on the seed-shaft aforesaid and adapted to be actuated and rotated by gear-wheel J, substantially as shown, and for the purpose described.

3. In a disk-harrow seeder, in combination with the seed-discharging shafts suitably seated in relation to the seed-hopper, the friction-wheel frame pivotally attached at its forward end to the frame of the machine and extending rearwardly therefrom and provided with beveled friction-wheels adapted to adjustably engage and be actuated by the disk gangs, and suitable mechanism for communicating the rotation of said friction-wheels to the seed-shaft aforesaid, substantially as shown, and for the purpose specified.

4. The combination of the sliding bar L, the scraper R, provided at its upper end with a vertical sleeve T and an upwardly-diverging lug 15 and having its cutting-surface in substantially the vertical plane of the upper portion of said lug, the bolt 13, passed vertically through the bar L and sleeve T and loosely supporting the latter, the spring S, coiled around sleeve T, with its upper end locked behind bar L and its lower end abutting against the inner surface of lug 15, and suitable means for reciprocating said bar, the parts being in such relation that when said scraper is thrown from the disk said lug will strike said bar and limit the expansion of

said spring and when said scraper is thrown toward said disk the cutting portion of said scraper will rest against the concave face of said disk before said lug will have reached
5 said bar, substantially as shown.

5. In combination with the opposing concavo-convex disks D, the shaft F, friction-wheels E, adjustably seated, respectively, on the ends of said shaft, and set-screws 5, seated
10 in the outer ends of the hubs of wheels E, with the inner ends of said set-screws bearing, respectively, against the ends of said shaft, whereby the interval between wheels E can be varied to place the tread of said wheels to
15 or from the center of said disks, substantially as shown.

6. In combination with the disk gangs C, provided with the disks D, the frame 2, vertically hinged at its forward end and projected

backward above the inner end of said gangs, 20 shaft F, journaled transversely in the rear end of said frame, wheels E, seated on said axle and adapted, respectively, to have their tread on the convex side of the adjacent disk, a suitably-supported plate 3, rod 1, pivotally
25 attached at its lower end to the rear end of frame 2 and projected upward through plate 3 and provided at its upper end with a nut, and the coiled spring 4, interposed on said rod between said nut and plate, substantially as 30 shown, and for the purpose described.

In witness whereof I affix my hand in the presence of two witnesses.

GEO. W. PACKER.

Witnesses:

ANDREW H. HERSHEY,
ZADOK T. GALT.