No. 660,759. Patented Oct. 30, 1900.

J. MORPHY.

DISK SHOE FOR SEEDING MACHINES.

(Application filed Dec. 27, 1899.)

(No Model.)

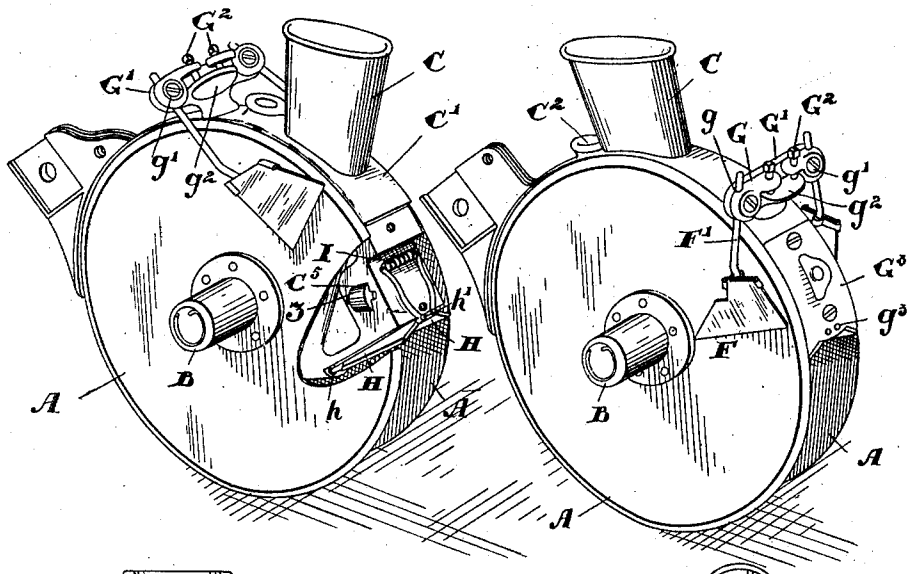


Fig. 1.

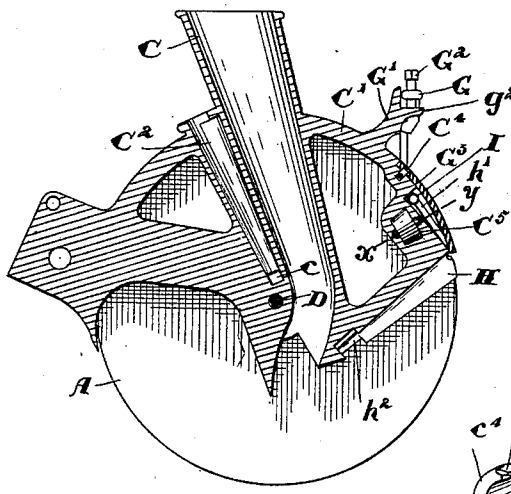


Fig. 2.

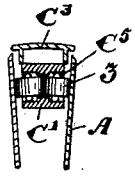


Fig. 2a.

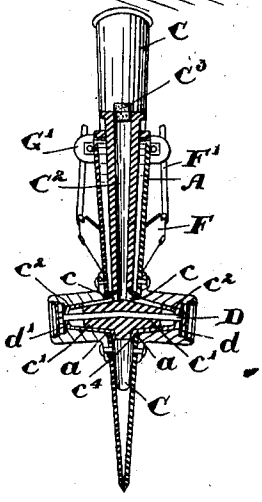


Fig. 3.

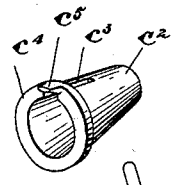


Fig. 5.

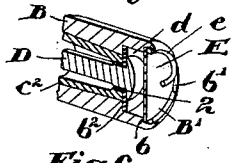


Fig. 6.

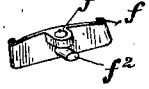


Fig. 4a.

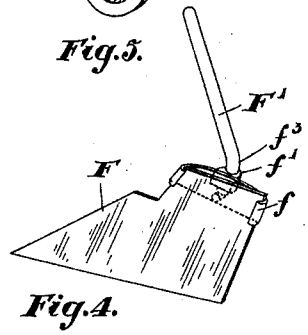


Fig. 4.

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UNITED STATES PATENT OFFICE.

JAMES MORPHY, OF BRANTFORD, CANADA, ASSIGNOR TO THE COCKSHUTT PLOW COMPANY, LIMITED, OF SAME PLACE.

DISK-SHOE FOR SEEDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 660,759, dated October 30, 1900.

Application filed December 27, 1899. Serial No. 741,753. (No model.)

To all whom it may concern:

Be it known that I, JAMES MORPHY, of the city of Brantford, in the county of Brant, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Disk-Shoes for Seeding-Machines, of which the following is a specification.

My invention relates to improvements in disk-shoes for seeding-machines; and the objects of the invention are, first, to devise a form of inside scraper for what are known as the "converging-disk" shoes which will conform to the pressure on the outside of the disk and which will follow any unevenness there may be in the disk at an even pressure and from which the dirt congregating may readily escape; secondly, to provide an adjustable form of scraper for the outside of the converging disks which will allow of the desired pressure and yet have sufficient freedom at the pivot-points to adapt itself to any unevenness at the outside of the disks; thirdly, to provide a simple means to prevent the disks' causing an undue friction on the inside scrapers; fourthly, to so arrange the scrapers in reference to the shoes, which are arranged in zigzag fashion, that the dirt may be scraped off from the forward shoe and thrown in front of the rear shoe and not against it; fifthly, to provide for the proper oiling and construction of bearing for the disks, and, sixthly, to make the inside of the bearing both oil and dust proof, as hereinafter more particularly explained.

The invention consists in the arrangement and construction of the various parts embodying my invention and operating in the manner hereinafter more particularly explained.

Figure 1 is a perspective view showing two disk-shoes in zigzag fashion. Fig. 2 is a sectional elevation. Fig. 2^a is a cross-section on the line $x\ y$, Fig. 2, the rollers being shown in side elevation. Fig. 3 is a cross-section through the oiling-tube looking toward the grain-tube. Fig. 4 is a detail of the outside scraper with the rod. Fig. 4^a is a detail of the scraper socket-plate in which the rod is held. Fig. 5 is a detail of the hollow cone-bearing. Fig. 6 is a detail of the end of the hub.

In the drawings like characters of reference indicate corresponding parts in each figure.

A A are the two converging disks forming the shoes.

B represents the hubs, which are securely riveted to the disks A A around the central holes $a\ a$, as indicated.

C is the grain-tube, which is attached to or forms part of the boot C′, which is arc-shaped in form, the draw-bar being connected thereto. C^2 is the oil-duct, having at the bottom laterally-extending orifices c and the double trunnions $c'\ c'$, extending laterally out at both sides. The trunnions $c'\ c'$ receive the hollow cone-bearings $c^2\ c^2$, upon which the hubs of the disks rotate, the said hollow cone-bearings being provided with slots c^3 and the internal flange c^4 with projecting lugs c^5, which extend into the orifices c at the bottom of the oil-duct, and thus maintain the hollow cone-bearings from rotating.

It will of course be understood that the disks converge and are necessarily supported on deflecting-trunnions, as indicated. Necessarily the connecting-bolt D is one bent in the center, and this bolt D extends at the end through washers d and d', which abut the shoulders b^2, formed at the inner end of the recesses at the end of the hub and are provided with a square collar 2, fitting into a corresponding opening in the outer ends of the cone-bearings.

It will be seen from the construction of the oil-duct C^2 and the passage-ways in the top of the trunnions and cone-bearings that the oil is fed upon the cone-bearings, so as to always keep them thoroughly lubricated. In order to keep the oil in and the dust out, I provide the internal caps E, which fit against the shoulders b in the recesses B′ at the outer end of the hub and are held in place by the circular wire spring e, fitting into the annular groove b'. The top of the oil-duct is provided with a suitable stopper C^3.

F represents the outer scrapers, which are formed substantially as shown and are provided at the top with an embracing socket-plate f, having a socket f' and a stop f^2 below the socket.

F′ is a spring-rod provided with a bent end f^3, which extends through the socket f', so as to abut the stop f^2. There are of course two outside scrapers provided, one on each disk, and the rods F′ extend up through sockets g in the arms G, which are pivoted on the pins g' on the bracket G′, forming part of the boot. The bracket G′ is provided with an offset g^2, and through the ends of the arms extend the set-screws G^2, by which the degree of pressure of the scrapers upon the disks may be regulated as desired, as the arms or rods of the scrapers are spring-arms. Before the pivot-pins of the arms G are tightened the rods may be moved in the clamping-arms, so as to adjust the scrapers to or from the hub.

It will be noticed that in the forward shoes the scrapers and the casting of the boots are so arranged that the scrapers come substantially above the hub of the disk and not behind, as the scrapers are shown as to the rear disk. Consequently it will be seen that the dirt scraped off the forward shoe will be thrown in front of the rear shoe and not against it, as it would be were such scraper arranged the same as the scraper on the rear shoe. I may state that in practice this is a very important desideratum, as it prevents the choking of the soil between the shoes.

H H are the inside scrapers, which are pivoted at the bottom at h in an extension of the casting of the grain-tube C and at the top by the crank-pins h' in the notches g^3 in the plate G^3. The inner edges of the blades of the scrapers, it will be seen, are adjacent to each other, and the outer ends are held against the insides of the disks by the spiral spring I, the ends of which are connected to the ends of the crank-pins h', such spring extending underneath the plate G^3, which is secured to the boot C′ by the screws C^4. It will be noticed that the notches h^2 are cut out at the bottom ends of the scraper, so as to allow of the free egress of the dirt that might work in behind the scrapers.

In order to hold the insides of the disk away from pressing too hard on the inside scrapers or the boot, I provide the friction-rollers 3, which are suitably journaled at the rear end of the boot C′ in a recess C^5. The friction-rollers are caused to rotate by their frictional contact with the disks and as they abut each other necessarily rotate against each other.

It will be seen from the construction I have described that I have provided a bearing for the converging disks which will be kept perfectly lubricated and free from dust and dirt and also that the scrapers of both the inside and outside will keep a continual pressure upon both sides of the disks and accommodate themselves to any unevenness in such disks, which is an important desideratum.

What I claim as my invention is—

1. The combination with the converging disks suitably journaled and the boot upon which such journal is supported or forms part of, of the external scrapers each provided with a spring-holding rod and a clamping socket-arm through which such rod extends suitably secured to the rear of the boot as and for the purpose specified.

2. The combination with the converging disks suitably journaled and the boot upon which such journal is supported or forms part of, of the external scrapers each provided with a spring-holding rod, a bracket secured to the boot, clamping-arms pivoted on the bracket and provided with sockets through which the rod extends as and for the purpose specified.

3. The combination with the converging disks suitably journaled and the boot upon which such journal is supported or forms part of, of the external scrapers each provided with a spring-holding rod, a bracket secured to the boot, clamping-arms pivoted on the bracket and provided with sockets through which the rod extends, and set-screws extending through the ends of the arms and designed to abut an offset in the bracket as and for the purpose specified.

4. The combination with the converging disks suitably journaled and the boot upon which such journal is supported or forms part of, of the scrapers, the holding-plates secured to the same and provided with a socket and stop underneath the same, the spring-rods having bent ends extending into the socket and abutting the stop and means attached to the boot for holding such spring-rods firmly in position as and for the purpose specified.

5. The combination with the grain-tube casting and rear extension thereof, of the inner scrapers comprising the blades pivoted in the bottom of the extension and having their inner edges abutting each other and the upper crank-shaped pins and the plate secured to the grain-tube casting or boot under which the crank-pins extend and the spiral spring connecting the outer ends of the crank-pins together as and for the purpose specified.

6. The combination with the grain-tube casting or boot and rear extension thereof, of the inner scrapers suitably journaled to the rear of the boot on the inside of the disks and provided at the bottom with a cut-away portion to permit of the dirt escaping as and for the purpose specified.

7. The combination with the grain-tube casting or boot and rear extension thereof, of the friction-rollers abutting each other and the disks and suitably journaled in the casting as and for the purpose specified.

8. In a disk-shoe for seeding-machines, in combination the converging disks, the hollow hubs provided with an internal taper, the grain-tube and boot and oil-duct leading downwardly therefrom, the trunnions extending laterally on both sides of the grain-tube, the passage-ways in the sides of the oil-duct and the longitudinal passage-ways in the trunnions, the hollow tapered bearings fitting

the conical trunnions and provided with passage-ways for the oil opposite the passage-ways in the trunnions, means for connecting the parts together, recesses in the ends of the hubs, the shoulder in the internal periphery of each recess, the cap abutting such shoulder, the annular groove outside the shoulder and the spring-ring fitting within such groove and holding the parts together as and for the purpose specified.

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Witnesses:
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