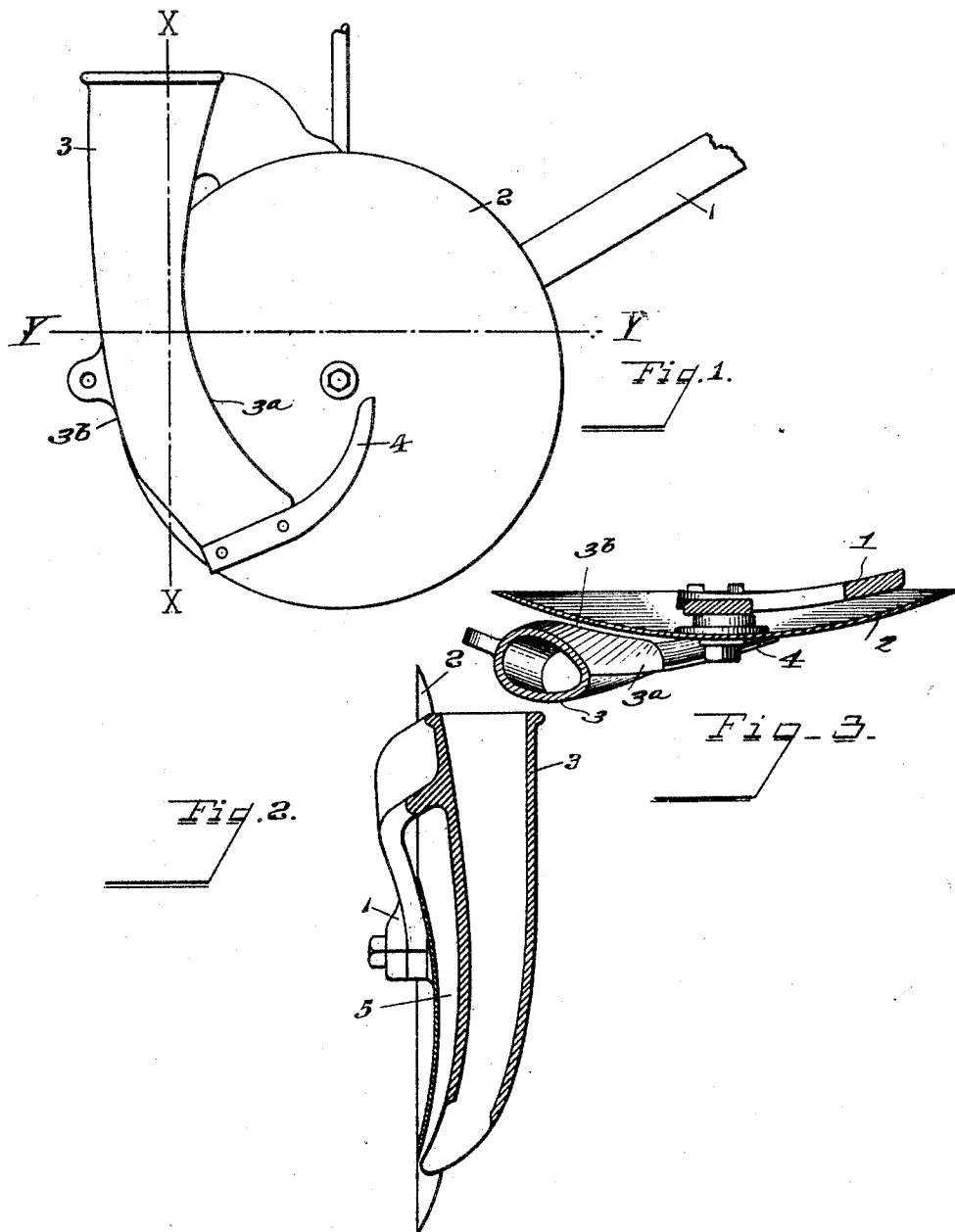


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DISK FURROW OPENER FOR GRAIN DRILLS.  
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1,009,869.

Patented Nov. 28, 1911.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## DISK FURROW-OPENER FOR GRAIN-DRILLS.

1,009,869.

Specification of Letters Patent. Patented Nov. 28, 1911.

Application filed February 17, 1911. Serial No. 609,238.

*To all whom it may concern:*

Be it known that I, WILLARD A. VAN BRUNT, a citizen of the United States, residing at Horicon, in the county of Dodge and State of Wisconsin, have invented certain new and useful Improvements in Disk Furrow-Openers for Grain-Drills, of which the following is a specification.

This invention relates to improvements in grain drills and particularly to furrow opener devices for grain drills.

It is especially adapted for use in territory wherein the conditions of seeding require that the furrow opening devices shall be adapted to prevent the accumulation of sticky matter such as mud or dirt or sticky trash.

It is illustrated as an improvement on the type of furrow opener generally known as a closed delivery furrow opener.

Referring to the drawings; Figure 1 is a side elevation. Fig. 2 is a sectional view along the line  $x-x$  of Fig. 1. Fig. 3 is a transverse section on the line  $y-y$  of Fig. 1. Like letters of reference indicate similar parts throughout the several views.

The parts of the furrow opener are known as the drag-bar marked 1, the disk marked 2, the boot marked 3 and the toe scraper marked 4. The boot and toe scraper are located on the convex side of the disk, as in the well known type of closed delivery furrow opener, the toe scraper extending forwardly and upwardly toward the center of the disk. But this improvement relates more particularly to the proper association of the boot and toe scraper to the convex side of the disk. It is not only desirable that the boot should be located as in Fig. 1, wherein the rear edge of the boot is substantially co-incident with the rear edge of the disk but it is also important that the boot and scraper should be properly spaced from the convex side of the disk, to insure the best result in operation. By locating the boot so that the rear edge of the boot is substantially co-incident with the rear edge of the disk it will be noted that the rotation of the disk tends to carry obstructions away from the boot whereas if the boot was located forwardly or near the center of the disk, the sticky substance that would gather on the convex face of the disk would by the rotation of the disk be brought toward the boot and in time would tend to clog the operation of the disk.

It has been the usual practice to locate the boot so that it projects to some extent beyond the rear edge of the disk. By that is meant that the rear wall of the boot will be some distance rearwardly from the rear edge of the disk. Of course in this position of the parts the disk will not carry sticky substances so that they will impinge against the boot near its rear edge. But in actual use these disks are adapted to rise and fall and to that end spring pressure devices are employed and they have what is often called a digging action by reason of this up and down movement. It is apparent that if the rear wall of the boot extends some distance beyond the rear edge of the disk, the boot will tend to strike obstacles and projections in the ground and thereby interfere with the up and down or digging action of the disk. It has long been known that it would be desirable to have the boot so located that its rear wall would be substantially coincident with the rear edge or periphery of the disk, but in that position with the disk rotating toward the toe of the boot there is great danger of sticky substances being carried to a point between the inner wall of the boot and the disk, and in order to avoid this the present improvement provides for an open space between the rear wall of the boot and the convex face of the disk, while the toe scraper 4 bears against the face of the disk. The open space between the inner wall of the boot and the disk will permit the sticky substances to be carried by the disk without causing them to impinge against the wall and this open space is of tapering conformation with its widest part above the center of the disk so that the outlet for sticky substances carried by the disk grows greater from the toe upwardly.

With these explanations in view it will be noted that in Fig. 2 the boot and scraper are so arranged in their association on the convex side of the disk that the extreme lowest edge of the boot bears against the convex face, but there is shown an open space 5 extending upwardly from said extreme lower edge and it will be noted that that open space tapers to a marked degree from the extreme lower edge to a point slightly above the center of the disk. It has been discovered that it is desirable to have an open space between the disk and the boot and that that particular form of open space is likewise desirable in that the

sticky dirt tends to accumulate at the lowermost point of the boot where the scraper is doing its scraping operation and by forming the open space of that before mentioned conformation there is a desirable outlet for all sticky substances that necessarily wedge themselves between the face of the disk and the scraper and lowermost end of the boot and it will be noted that the movement of the disk will tend to cooperate in the arrangement of the boot and the open space to facilitate the movement of the sticky substance upwardly and away from the toe of the boot, whereas a different formation of open space might cause the movement of the disk to pack these sticky substances in the space between the boot and the disk. It would therefore appear that by placing the boot so that the rear wall is substantially co-incident with the disk, or at least placed at a point where the movement of the disk can not carry the substance toward the boot, and then by so associating the inner wall of the boot with the convex face of the disk that the movement of the disk will carry sticky substance from the toe of the boot upwardly and freely so as to relieve the toe of the boot from any accumulation of sticky substance, the result will be greatly improved.

It will also be seen from the drawings that the formation of the boot and its relation to the disk is such that the open space formed between the boot and disk is also wider at the forward part of the boot; *i. e.*, the part indicated by 3<sup>a</sup>, is farther removed from the disk than the rear part of the boot, indicated by 3<sup>b</sup>. This construction also materially tends to prevent the dirt and other substances from clogging, since after the dirt has passed between the rear of the boot and the disk, the increased space between the boot and disk will permit it to readily be discharged at the forward part of the boot. There is therefore a tapered space ex-

tending in a vertical direction between the boot and disk and the formation of the boot is such that there is an additional tapered space extending toward the center of the disk.

Having described the invention, I claim as follows:—

1. The combination of a concavo-convex disk with a drag bar and boot, the lower end of the boot projecting in close proximity to the disk and the inner wall of said boot forming with the side of the disk a tapering open space extending from said lower end toward the center of the disk, and also tapering upward toward the top of said boot, and a scraper secured to said boot and extending forwardly and upwardly, substantially as specified.

2. The combination of a concavo-convex disk and drag bar with a boot and scraper secured to the toe of said boot, the boot being located at the rear of the disk with its rear wall substantially coincident with the rear edge of the disk, the inner wall of the boot forming with the convex side of the disk an open space tapering from the lower end of the boot toward the center of the disk and also tapering upward toward top of said boot, substantially as specified.

3. In a disk furrow opener, a concavo-convex disk, a boot located at the rear of the disk with its rear wall substantially coincident with the rear edge of the disk, the inner wall of said boot forming with the convex side of the disk an open space which tapers from the bottom of the boot toward the top thereof, and a scraper secured to the toe of the boot.

In testimony whereof, I have hereunto set my hand this 9th day of February, 1911.

WILLARD A. VAN BRUNT.

Witnesses:

F. H. CLAUSEN,

C. H. EVERTS.