H. W. CAMPBELL.

GRAIN DRILL.

APPLICATION FILED JUNE 13, 1914.

1,284,589. Patented Nov. 12, 1918.

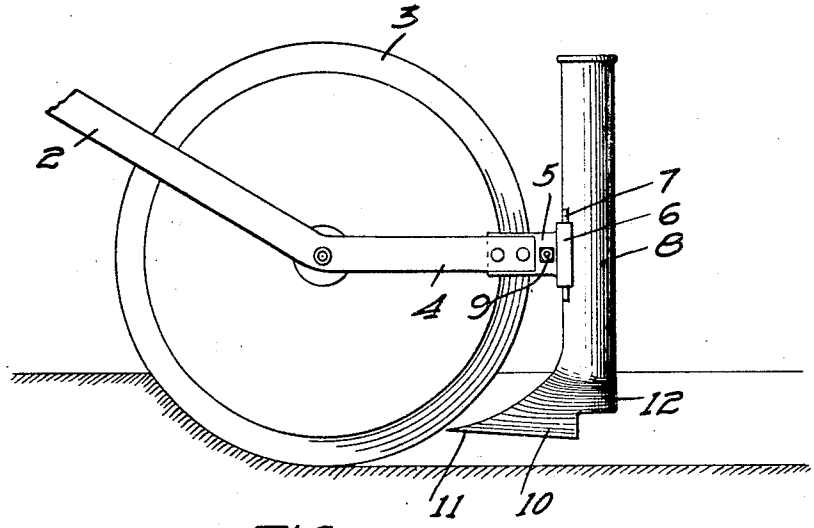


FIG. 1.

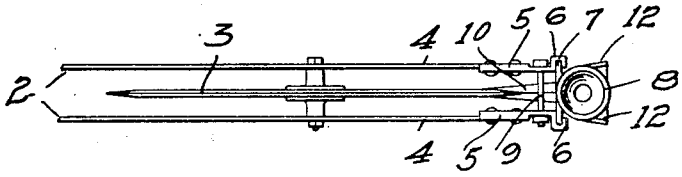


FIG. 2.

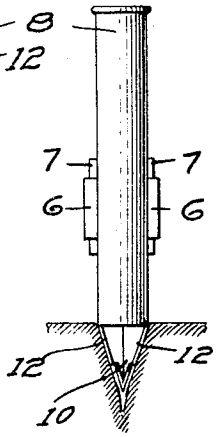


FIG. 3.

WITNESSES

M. R. McInnis

E. A. Paul

INVENTOR

HARDY W. CAMPBELL

BY Paul & Paul

ATTORNEYS

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

UNITED STATES PATENT OFFICE.

HARDY W. CAMPBELL, OF BETHANY, NEBRASKA.

GRAIN-DRILL.

1,284,589. Specification of Letters Patent. Patented Nov. 12, 1918.

Application filed June 13, 1914. Serial No. 844,881.

To all whom it may concern:

Be it known that I, HARDY W. CAMPBELL, citizen of the United States, resident of Bethany, county of Lancaster, State of Nebraska, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification.

This invention relates to a certain novel improvement in drills and comprises a combined furrow opening and seed delivery device.

The primary object of my invention is to improve the construction and operation of that class of seeding machines in which a rotary cutter or colter is used in combination with a traveling drill point.

A further and particular object of the invention is to provide a drill point which cannot become clogged with refuse as the machine moves across the field, which will insure the proper deposit of the seed and will be of comparatively light draft.

In the accompanying drawings forming part of this specification,

Figure 1 is a side view of a disk and the seed drill, illustrating the position of the drill point with respect to the disk and the preferred means for connecting the drill boot to the draft bars.

Fig. 2 is a plan view of the same.

Fig. 3 is a rear view.

In the drawing, 2 represents a drag bar having bearings for a disk 3. The bars 2 have horizontal extensions 4 projecting rearwardly from the axis of the disk 3 and provided with a clamp device 5 having jaws 6 to engage flanges 7 on the boot 8, said jaws being adjustable vertically on said boot and secured by means of a locking bolt 9. 10 is a shoe, provided with a forwardly extending point 11 that is close to the rear edge of the disk and is held rigidly with its face forming continuations of the surfaces of the disk, as indicated in Fig. 2, and sufficiently near to prevent refuse, such as weeds or stalks, or other foreign material, from collecting between the disk and the point. The point or forward end of the shoe is higher slightly than the heel thereof and the bottom of the shoe is substantially straight, thereby considerably reducing the friction of the shoe as it moves through the soil. The adjustment of the point with respect to the disk can be obtained by raising or lowering the boot on the supporting clamp 5.

The lower end of the boot is preferably provided with flaring wings 12 which prevent the loose dirt from falling into the furrow, as the shoe is drawn through the soil. A particular advantage of this construction lies in the fact that the point of the shoe is so close to the disk that no refuse or foreign material can be gathered up thereby, and there are no curves in the bottom to which any trash can cling, and the proper adjustment of the shoe with respect to the disk can at all times be maintained by the vertical movement of the boot on its supporting clamp. As the point of the shoe wears away, the boot may be adjusted to maintain the shoe close to the disk and compensate for the wear thereof. I have found that this device is of much lighter draft than machines of this kind as usually constructed, and deposits the seed in a little furrow or crevice in precisely the manner desired and cannot become clogged in any way.

With the sharp rotating disk in front, sods, old cornstalks and other obstructions do not cause the shoe to rise, as is true of the runner shoe causing the uneven depth of deposit of the grain.

In my construction the rotary disk forms a narrow crevice in the ground, and the shoe, of substantially the same thickness as the disk, presses the walls of the crevice and renders the same compact and firm instead of being loose and crumbling. The grain is deposited in these narrow crevices where it is surrounded on both sides by the compact, firm walls, of the crevice. These firm walls retain moisture for a considerable period of time, the compactness of the walls preventing rapid evaporation of the moisture, and grain that is sowed in the crevices with this device even in semi-arid regions will grow rapidly being quickly germinated in the crevices which are inclosed by the compact walls prepared by the cutting disk and shoe as hereinbefore described. Practical experiments show that a crevice of this type that is made with applicant's construction will have a solid, firm wall and bottom which will retain the moisture and between which the seeds will be held in a position to have imparted to them sufficient moisture from the walls of the crevice to insure complete and rapid germination.

I do not limit myself to the details of con-

struction as it is obvious that the same may be varied in many particulars without departing from my invention.

I claim as my invention:

1. The combination, with a vertically arranged disk having a cutting edge for forming a crevice in the soil, of a grain boot mounted in the rear of said disk and provided with a shoe arranged to compact the walls of the crevice made by said disk, said shoe projecting forwardly from said boot and terminating in a sharp point and having sharp forward and bottom edges and forming continuations substantially of the faces of said disk, the point of said shoe extending to a position near the edge of said disk and above the bottom thereof and preventing the accumulation of refuse between said shoe and disk.

2. The combination in a machine of the class described with a disk having a cutting edge for forming a crevice in the soil, of a grain boot mounted in the rear of said disk and provided with a shoe arranged to compact the walls of the crevice made by said disk, said shoe projecting forwardly from said boot and terminating in the rear of said disk, the faces of said shoe forming substantial continuations of the faces of said disk, and the point of said shoe extending to a position near the edge of said disk and above the bottom thereof and preventing the accumulation of refuse between said shoe and said disk.

In witness whereof I have hereunto set my hand this 10th day of June, 1914.

HARDY W. CAMPBELL.

Witnesses:

LAURA LARSEN,

ETNA WILKEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."