No. 685,941. Patented Nov. 5, 1901.

G. A. PETERSON.

CORN PLANTER.

(Application filed May 16, 1901.)

(No Model.) 3 Sheets—Sheet 1.

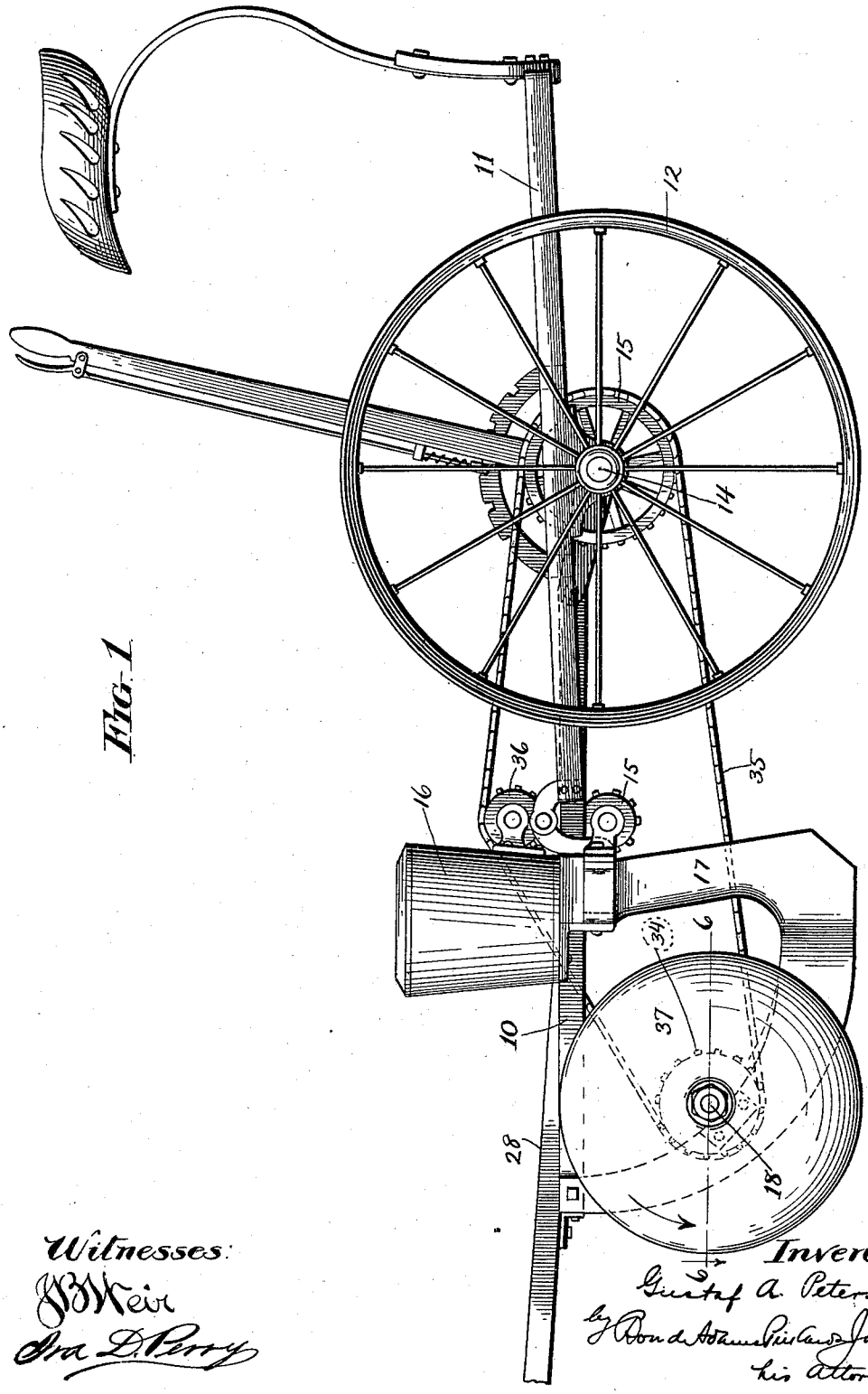


FIG. 1.

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FIG. 2.

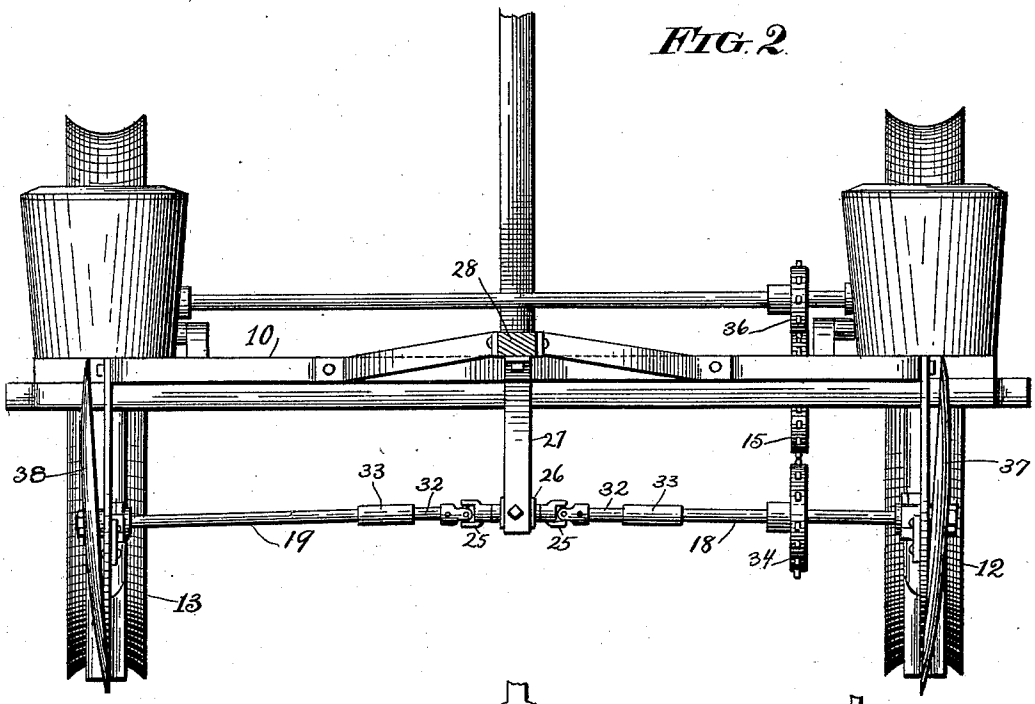
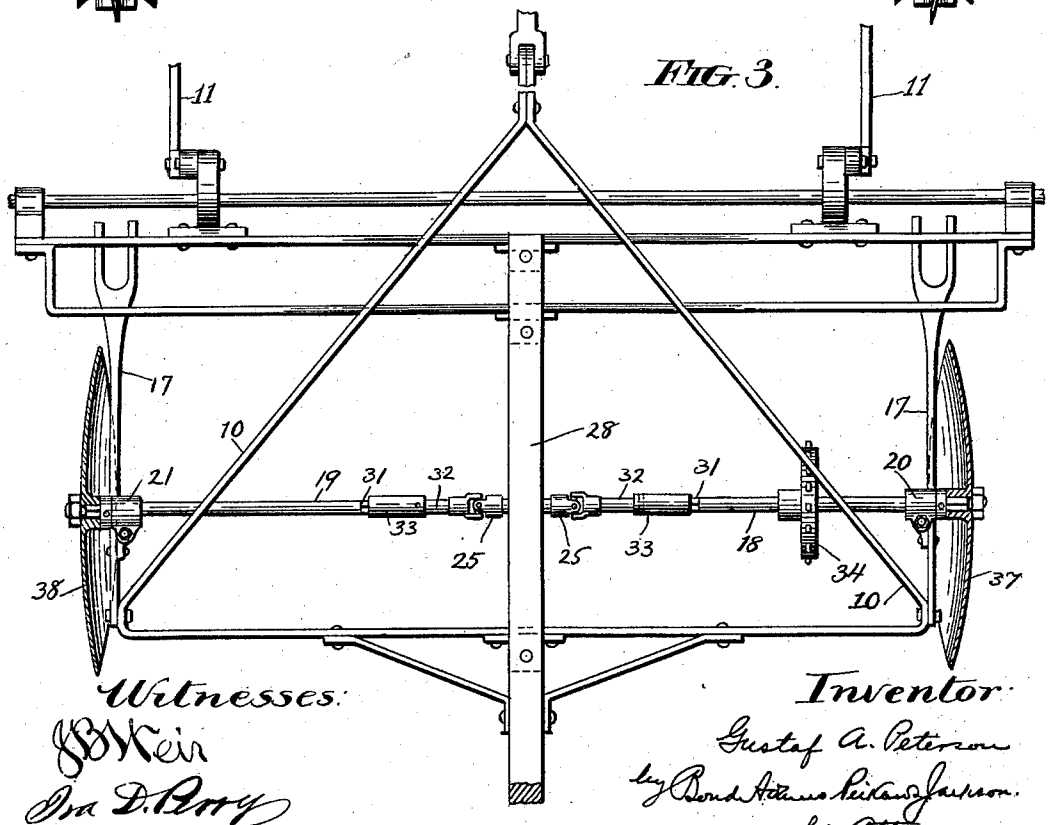


FIG. 3.



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FIG. 4.

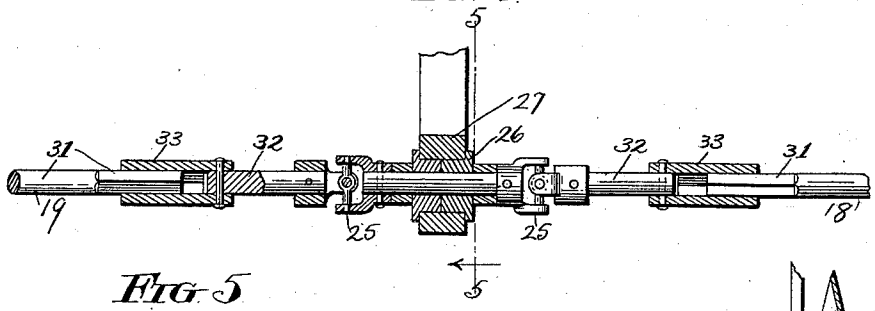


FIG. 5.

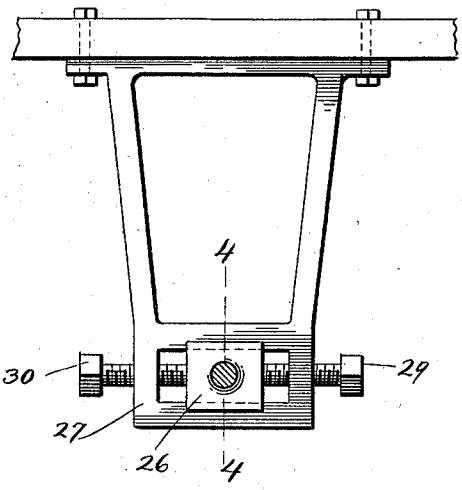


FIG. 6.

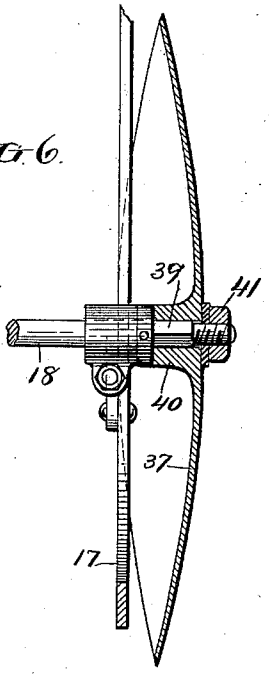


FIG. 7.

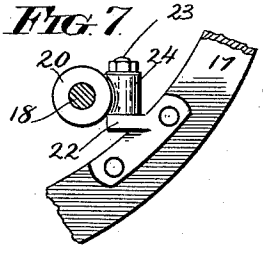


FIG. 8.

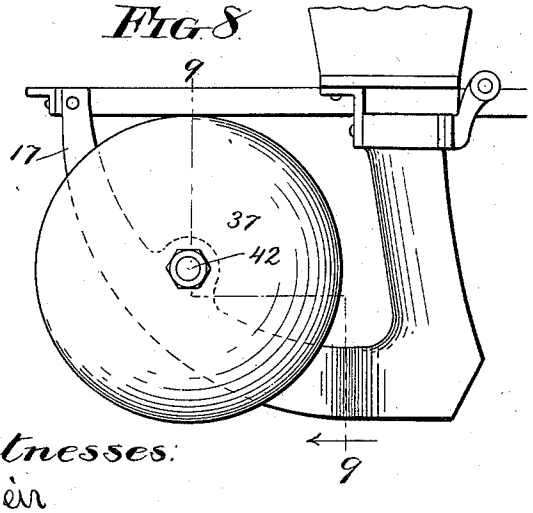
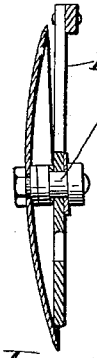


FIG. 9.



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UNITED STATES PATENT OFFICE.

GUSTAF A. PETERSON, OF SYCAMORE, ILLINOIS.

CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 685,941, dated November 5, 1901.

Application filed May 16, 1901. Serial No. 60,515. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF A. PETERSON, a citizen of the United States, and a resident of Sycamore, in the county of Dekalb and State of Illinois, have invented certain new and useful Improvements in Corn-Planters, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to corn-planters of the type having a furrow-opener frame with a wheel-frame arranged back of the furrow-opener frame, the furrow-opener frame carrying furrow-openers and seed-dropping devices, while the wheel-frame carries covering-wheels and in some cases mechanism for operating the seed-dropping devices.

My present invention relates more particularly to the opening of the furrow for the seed. Heretofore in corn-planters provided with runners for opening the furrows a serious obstacle to the successful operation of the machine has been encountered in the fact that while the furrow-openers were adapted to opening the soil they have not been altogether successful in cutting through corn-stalks and other rubbish usually found in a cornfield, and consequently there has been a tendency of such rubbish to pile up in front of the runner, causing it to ride up out of the furrow to a greater or less extent, causing the seed to drop on the rubbish or out of the furrow and impairing the efficiency of operation of the machine. I have discovered that this objection may be avoided by providing auxiliary cutting mechanism, arranged in advance of the furrow-opener, to engage and cut up the rubbish, and thereby prevent it from interfering with the operation of the furrow-opener.

In the simplest form my invention consists in providing a rotating disk having its cutting edge in advance of and practically in line with the forward portion of the furrow-opener, the disk being arranged to penetrate the soil as well as cut through the debris.

A further improvement consists in making the disk concave or convex and providing for adjusting its angular relation to the line of draft, so that said disk may be used as an auxiliary furrow-opener as well as to cut through the debris.

A still further improvement consists in providing means for positively rotating the disks, so that their cutting action is increased; and in its most improved form my invention consists in providing for driving the disk or disks so that their peripheral speed is slightly greater than that of the carrying-wheels.

My invention consists in certain further improvements which will be hereinafter pointed out.

That which I regard as new will be set forth in the claims.

In the drawings, Figure 1 is a side elevation of a corn-planter, illustrating my improvements in the most complete form. Fig. 2 is a front view, the tongue being in section. Fig. 3 is a plan view, the disks being in section. Fig. 4 is a detail, being a partial cross-section on line 4 4 of Fig. 5 through the shafts on which the cutting-disks are mounted, showing the adjusting mechanism. Fig. 5 is a sectional view on line 5 5 of Fig. 4. Fig. 6 is a horizontal section on line 6 6 of Fig. 1. Fig. 7 is a partial side elevation of the parts shown in Fig. 6, the axle being in section. Fig. 8 is a partial end view showing a modification, and Fig. 9 is a section on line 9 9 of Fig. 8.

Referring to the drawings, 10 indicates the furrow-opener frame, and 11 the wheel-frame. The wheel-frame is supported on covering-wheels 12 13, mounted on an axle 14 in the usual way. The axle 14 carries a sprocket-wheel 15, the object of which will be hereinafter set forth.

16 indicates the usual seedboxes, mounted on the furrow-opener frame.

17 indicates runner furrow-openers secured to the furrow-opener frame in the usual way. Said runners may be of the usual type and are provided with seed-tubes at the rear, as usual, for the discharge of the seed from the seedboxes to the furrows formed by the runners.

18 19 indicate shafts mounted in bearings 20 21, respectively, provided at the forward portions of the runners 17, as best shown in Figs. 3 and 7. The shaft-bearings 20 21 are each supported by a bracket 22, secured to the runner 17, said bracket being provided with a vertically-arranged pin 23, adapted to receive a boss 24, secured to the bearing, as

shown, so that the bearings 20 21 may swing about a vertical axis upon their respective pins 23, the object being to provide for adjusting the angular position of the shaft 18 with reference to the line of movement of the machine. The shafts 18 19 are connected by a universal coupling 25, as shown in Figs. 3 and 4. Said coupling is carried in a block 26, which slides in a bracket 27, extending longitudinally of the machine and suspended from the tongue 28 or some other suitable part of the machine-frame. As shown in Fig. 5, the block 26 is movable in the bracket 27 to adjust its position longitudinally of the machine, and it is held in place by set-screws 29 30, which permit of its adjustment backward and forward. The object of thus adjusting the coupling 25 is to provide for adjusting the angular position of the shafts 18 19 with reference to the line of movement of the machine. Obviously when the shafts 18 19 are in line with each other and with the coupling 25 they will lie at right angles to the tongue 28. By moving the coupling 25 back the inner ends of the shafts 18 19 will be carried back, swinging the bearings 20 21 upon their pivots and throwing the forward ends of the disks inward, as will be hereinafter explained. When the coupling 25 is moved forward, the reverse operation takes place. To permit the movement of the shafts 18 19, as above described, they are each made extensible, being composed of sections 31 32, connected by a sleeve 33, the section 31 sliding in the sleeve 33, which is fixedly secured to the section 32, as shown in Fig. 4. The ends of the section 31, which fit into the sleeve 33, are squared or otherwise made irregular in cross-section, so that the parts all rotate together.

34 indicates a sprocket-wheel mounted on and keyed to the shaft 18 and lying in line with the sprocket-wheel 15, to which it is connected by a link belt 35, as shown in Fig. 1.

36 indicates an idler supported on the furrow-opener frame or otherwise suitably supported. If desired, the idler 36 may be connected to the seed-dropping devices, so that they will be operated by the link belt 35 from the sprocket-wheel 15.

37 38 indicate disks mounted, respectively, on the shafts 18 19. In the construction shown in the drawings said disks are concavo-convex in form. They are mounted on the ends of the shafts 18 19, as shown in Fig. 6, the ends of said shafts being squared, as shown at 39 in Fig. 6, to receive the hub 40 of the disk, which is secured in place by a nut 41, screwed upon the end of the shaft. Said disks are of such diameter and the shafts 18 19 are so placed that the disks when in position extend forward of the runners 17, their lower edges lying substantially in line with the cutting edges of the runners, so that as the machine moves across the field the disks 37 38 move in advance of the runners and act to clear the way for the runners, as described. Being mounted on the shafts 18 19, they are also caused to rotate by the action of the endless belt 35, moving in the same direction as the covering-wheels. They therefore have a positive cutting action on the debris, which ordinarily accumulates in front of the runners, cutting it up and opening a path for the passage of the runners. They also act to cut into the earth and facilitate the opening of the furrow by the runners. Furthermore, the disks are driven at a slightly-greater peripheral speed than the covering-wheels, which I accomplish by making the wheel 34 of less diameter than the sprocket-wheel 15, and the difference in speed may be regulated as desired by varying the relative sizes of the two sprocket-wheels. I thus increase the cutting effect of the disks. By setting the disks at an angle, which, as above described, is accomplished by adjusting the position of the coupling 25, the action of the disks 37 38 in opening furrows in advance of the runners may be augmented.

In Figs. 8 and 9 I have illustrated a modification of my invention, being a more simple type of machine which does not embody all the features of my invention, but which nevertheless includes some of the broader features. In the construction illustrated in Figs. 8 and 9 the disks are not adjustable, but are mounted on short stubs 42, secured to the runners 17. This construction may be employed either with or without driving mechanism for rotating the disks. In the construction shown in Figs. 8 and 9 the disks are not driven, but are rotated only by frictional contact with the ground; but if it be desired to drive them the stubs may be made somewhat longer and be provided with separate sprocket-wheels driven by endless belts from the axle 14, as described in connection with the machine as illustrated in the remaining figures. For some purposes flat disks may be employed in lieu of concavo-convex disks; but the best results are ordinarily secured by using disks of the latter type.

My improvements are illustrated and described in connection with a corn-planter; but I wish it to be understood that they are not restricted to such machines alone, as I contemplate their use in various situations and for all purposes to which they are adapted.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. In a planter, the combination of a wheel-frame, a furrow-opener frame, a furrow-opener, a rotary cutting device, projecting in front of the furrow-opener, for cutting a way therefor, and means for rotating said cutting device, substantially as described.

2. In a planter, the combination of a wheel-frame, a furrow-opener frame, a furrow-opener, a rotary cutting device, projecting in front of the furrow-opener, for cutting a way therefor, and means operated by the rotation of the wheels for rotating said cutting device, substantially as described.

3. In a planter, the combination of a wheel-frame, a furrow-opener frame, a furrow-opener, a rotary cutting device, projecting in front of the furrow-opener, for cutting a way therefor, and means for rotating said cutting device faster than the rate of travel of the machine, substantially as described.

4. The combination of a furrow-opener frame, a furrow-opener carried thereby, a rotary cutting device projecting in advance of the furrow-opener and being adapted to cut a way for the furrow-opener, and means for rotating said cutting device, substantially as described.

5. The combination of a furrow-opener frame, a furrow-opener carried thereby, a rotary cutting device projecting in advance of the furrow-opener and being adapted to cut a way for the furrow-opener, and means for rotating said cutting device faster than the rate of travel of the machine, substantially as described.

6. The combination of a furrow-opener frame, a furrow-opener carried thereby, a rotary cutting device projecting in advance of the furrow-opener and being adapted to cut a way for the furrow-opener, said cutting device consisting of a concavo-convex disk, and means for rotating said disk, substantially as described.

7. The combination of a furrow-opener frame, a furrow-opener carried thereby, a rotary cutting device projecting in advance of the furrow-opener and being adapted to cut a way for the furrow-opener, said cutting device consisting of a concavo-convex disk, means for rotating said disk, and means for adjusting the angular relation of said disk to the furrow-opener, substantially as described.

8. In a planter, the combination of wheel and furrow-opener frames, wheels carried by the wheel-frame, runners carried by the furrow-opener frame, cutting-disks arranged to project in advance of the runners and adapted to rotate to cut a path for the runners, and means for driving said disks by the rotation of the wheels, substantially as described.

9. In a planter, the combination of wheel and furrow-opener frames, wheels carried by the wheel-frame, runners carried by the furrow-opener frame, shafts mounted in the runners at opposite sides of the machine, a universal coupling connecting said shafts, and cutting-disks mounted on said shafts and projecting in advance of the runners, substantially as described.

10. In a planter, the combination of wheel and furrow-opener frames, wheels carried by the wheel-frame, runners carried by the furrow-opener frame, shafts mounted in the runners at opposite sides of the machine, a universal coupling connecting said shafts, cutting-disks mounted on said shafts and projecting in advance of the runners, and means for adjusting said coupling to vary the angular position of the disks, substantially as described.

11. In a planter, the combination of wheel and furrow-opener frames, wheels carried by the wheel-frame, runners carried by the furrow-opener frame, shafts mounted in the runners at opposite sides of the machine, a universal coupling connecting said shafts, cutting-disks mounted on said shafts and projecting in advance of the runners, means for adjusting said coupling to vary the angular position of the disks, and sliding connections between said shafts and the couplings, substantially as described.

12. In a planter, the combination of wheel and furrow-opener frames, an axle carried by the wheel-frame, wheels mounted on said axle, runners carried by the furrow-opener frame, transverse shafts carried by said runners, couplings connecting said shafts, disks mounted on said shafts and projecting in advance of the runners, a sprocket-wheel mounted on one of said shafts, a sprocket-wheel mounted on the wheel-axle, and a belt connecting said sprocket-wheels, substantially as described.

13. In a planter, the combination of wheel and furrow-opener frames, wheels carried by said wheel-frame, runners carried by said furrow-opener frame, transverse rotary shafts mounted on said runners and adapted to swing about a vertical axis, disks carried by said shafts, means for swinging said shafts about a vertical axis, and means for rotating said shafts, substantially as described.

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