

No. 752,661.

PATENTED FEB. 23, 1904.

H. S. DYER.
SEED PLANTING DEVICE.
APPLICATION FILED SEPT. 10, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.

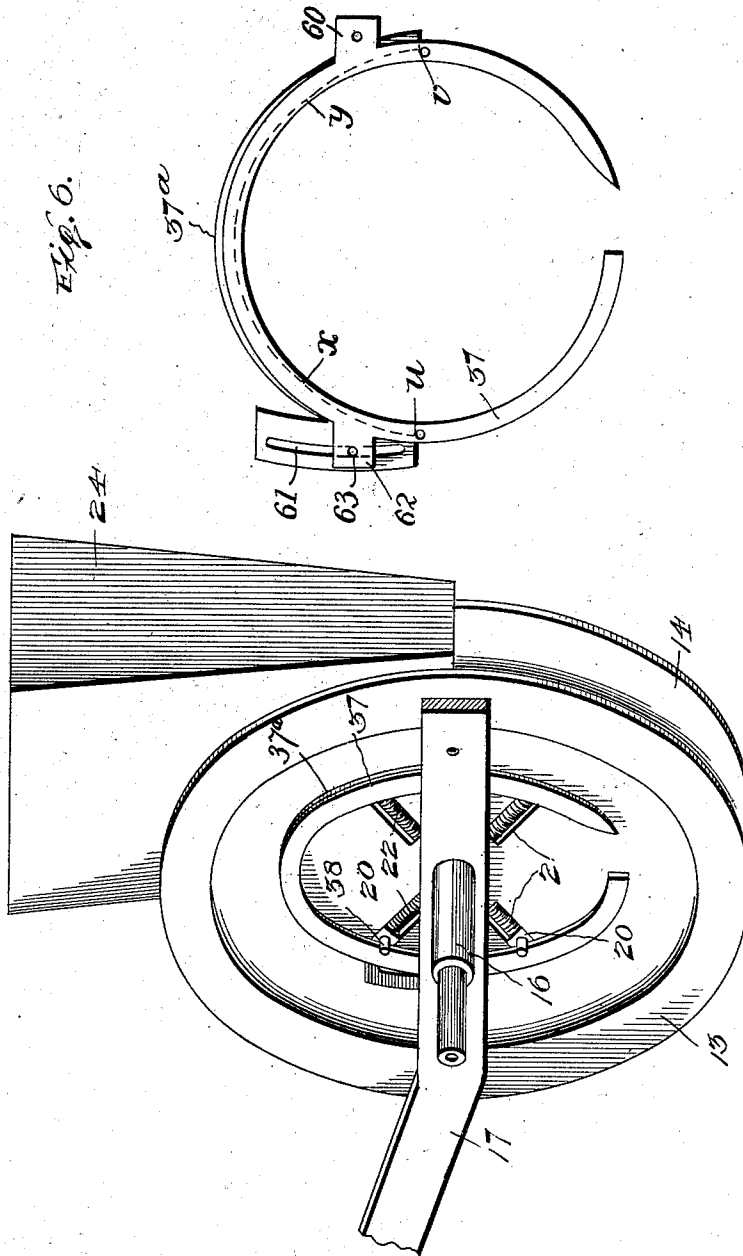
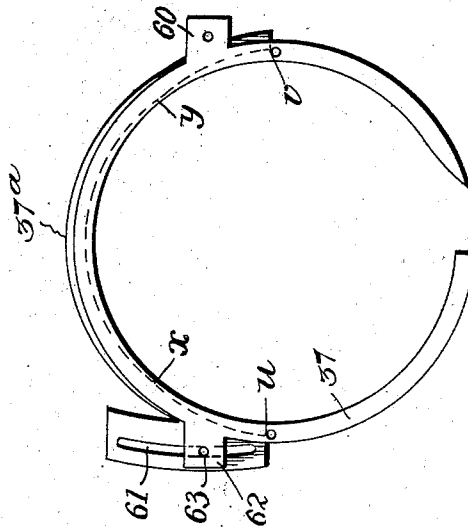


Fig. 6.



WITNESSES:

J. L. Knochman
Am. Gillman, Jr.

INVENTOR

Henry S. Dyer,

BY

Foster & Hume, Attorneys

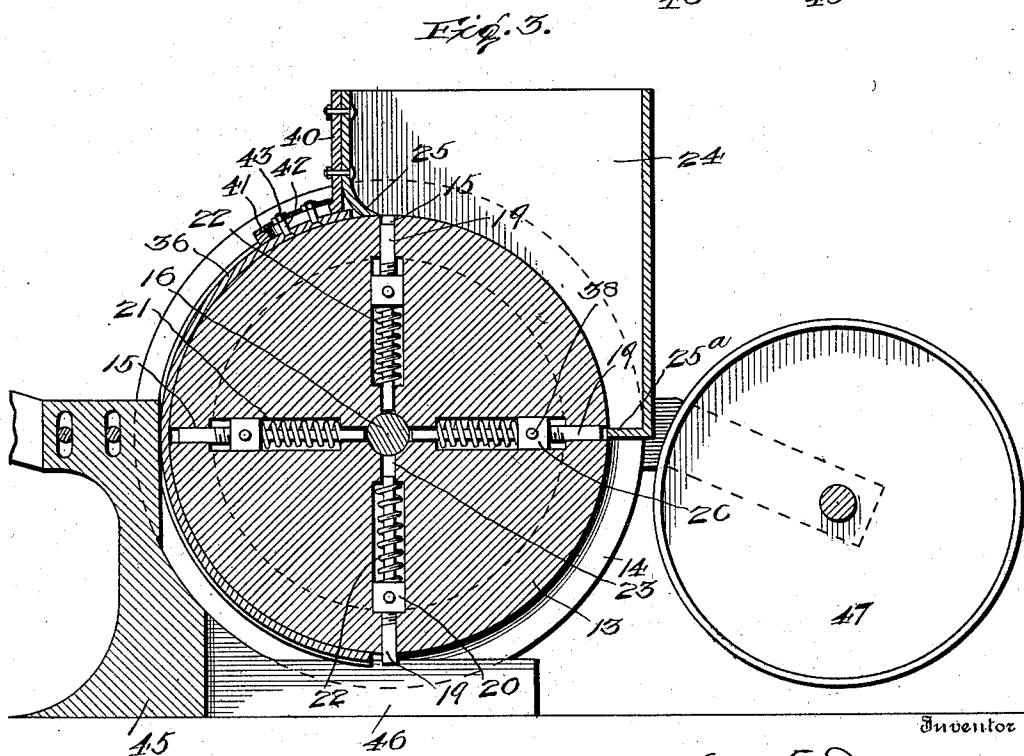
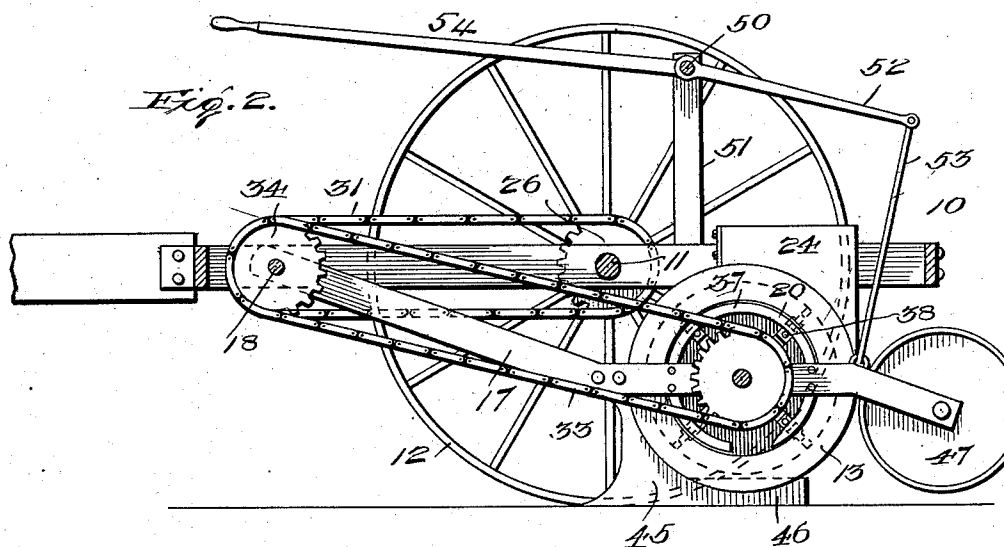
No. 752,661.

PATENTED FEB. 23, 1904.

H. S. DYER.
SEED PLANTING DEVICE.
APPLICATION FILED SEPT. 10, 1903.

NO MODEL.

3 SHEETS—SHEET 2.



Inventor

2 Witnesses
J. L. Mochman
Harry Gillman, Jr.

Henry S. Dyer,
By Foster Hermann Watson
Attorney

No. 752,661.

PATENTED FEB. 23, 1904.

H. S. DYER.
SEED PLANTING DEVICE.
APPLICATION FILED SEPT. 10, 1903.

NO MODEL.

3 SHEETS—SHEET 3.

Fig. 4.

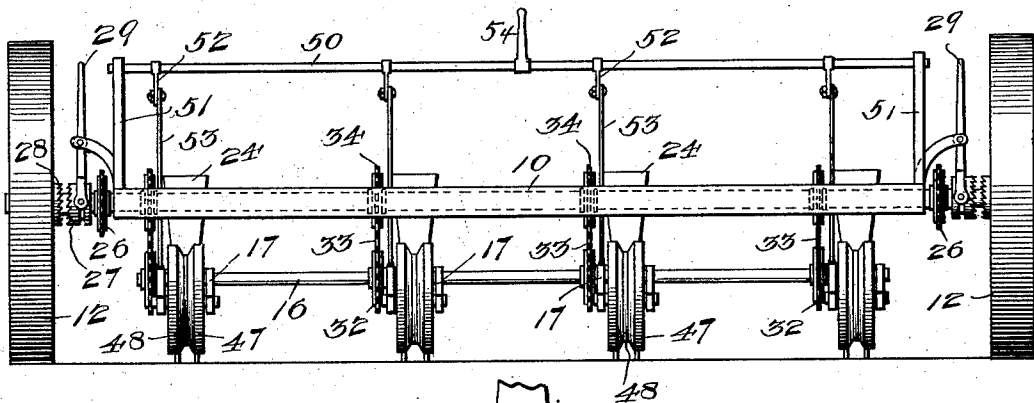
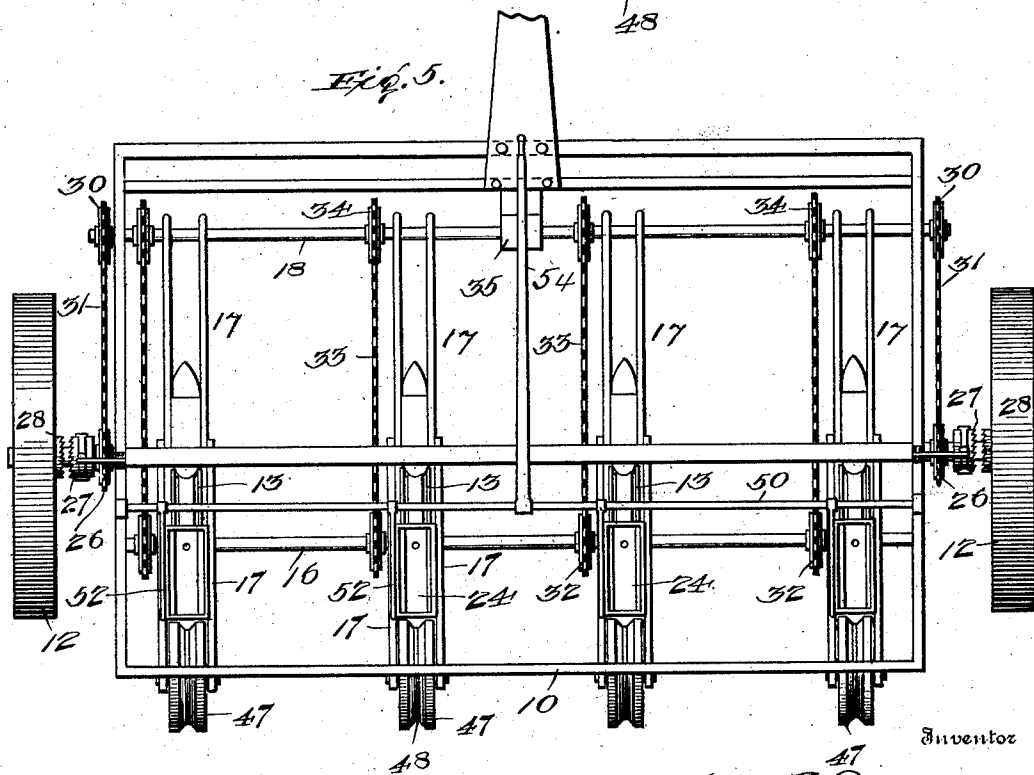


Fig. 5.



Witnesses
J. H. Mordeson
Am. Gillman, Jr.

Inventor
Henry S. Dyer
By Foster M. Watson
Attorney

UNITED STATES PATENT OFFICE.

HENRY S. DYER, OF FREMONT, OHIO.

SEED-PLANTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 752,661, dated February 23, 1904.

Application filed September 10, 1903. Serial No. 172,628. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. DYER, a citizen of the United States, residing at Fremont, in the county of Sandusky and State of Ohio, have invented certain new and useful Improvements in Seed-Planting Devices, of which the following is a specification.

This invention relates to seed-planters of that class in which the seed is wholly or in part ejected from the seed-pockets by plungers.

The object of the invention is generally to improve the construction and mode of operation of machines of this class.

The invention will be fully described hereinafter, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of one of the seed-planters; Fig. 2, a vertical longitudinal section through the machine, one of the seed-planters being seen in side elevation. Fig. 3 is a sectional view, on enlarged scale, of one of the seed-planters and its furrow-opener and covering-wheel. Fig. 4 is a rear view of the machine. Fig. 5 is a plan view. Fig. 6 is a view of the cam-rings detached.

The frame of the machine is indicated by 10 and may be of any preferred form and material. It is supported by an axle 11 and ground-wheels 12.

The seed-planters each consist of a disk 13, shown in the present case as having a grooved periphery 14, in which a series of radial seed-pockets 15 are formed. The disk is provided with an axle 16, journaled in a subframe consisting of two parallel bars 17, preferably of the form shown in Fig. 2. These frames are pivoted at their forward ends on a countershaft 18, journaled in the frame 10. Each seed-pocket 15 is fitted with a plunger 19, the stem of which is threaded and provided with a nut 20. In one face of the disk a series of radial grooves 21 are formed in line with the seed-pockets, through which grooves the stems of the plunger extend. Around each stem is a spiral spring 22, bearing at one end against the nut 20 and at the other end against the inner end of the groove, and the spring tends normally to force the plunger outwardly.

The nut 20 by its engagement with the outer end of the groove will prevent the plungers being thrown out of the seed-pockets. Preferably the inner ends of the plunger-stems will be guided in sockets 23, extending from the inner ends of the grooves. The nuts 20 will preferably fit snugly in the grooves 21, and thus be held against turning, and the plungers will be so arranged that when in their outermost position they will project out of the seed-pockets and may be gripped by a suitable tool and turned in the nuts to effect an adjustment of the extent to which they may be retracted within the seed-pockets, for a purpose to be hereinafter explained.

24 indicates a seed-hopper, the open lower end of which is curved to correspond with the curvature of the feeding-disk and fits in the groove 14 of said disk. The front and rear sides of the hopper are provided with inwardly-extending projections 25 and 25^a, which fit snugly in the groove 14 and prevent any seed from escaping from the hopper except such as is carried away in the seed-pockets. The hopper is supported from the frame-bars 17.

Some means must be provided for rotating the feeding-disks, and while this may be accomplished in various ways in the present case I have shown the axle 11 provided with a pair of sprocket-wheels 26, fitting loosely thereon. In this case the wheels 12 are supported to turn on the axle 11. Each sprocket-wheel 26 is provided with a clutch member 27 of any preferred form, and other clutch members 28 are formed upon the wheels 12 and are adapted to be engaged by the members 27, and when so engaged the sprocket-wheels 26 will turn with the wheels 12. Any suitable means may be employed for engaging and disengaging the clutch members—as, for instance, a lever 29, pivoted on the frame. On the shaft 18 a pair of sprocket-wheels 30 are secured, these wheels being respectively connected to the sprocket-wheels 26 by chains 31. Each axle 16 is provided with a sprocket-wheel 32, from which a chain 33 leads to a sprocket-wheel 34 on the shaft 18. The shaft 18 is in two sections and may be connected by

a differential gearing, (indicated by 35,) which will compensate for any difference in speed of the wheels 12 when moving on a curve.

When the feeding-disks are rotated, each
 5 pocket will take its quota of seed from the hopper, and it is necessary to provide means for preventing the discharge of the feed before the proper time. For this purpose I provide a strip 36, which is connected at its upper
 10 end to a fixed support. This strip is curved to conform to the disk 13, and it lies in the groove 14 and forms a closure for the pockets while they are moving through nearly a half-revolution of the disk.

15 It is necessary to provide some means for holding the plungers 19 retracted within the pockets until the proper time arrives for ejecting the seed, and for this purpose I provide a broken ring cam 37, which is rigidly secured
 20 to one of the frame-bars 17, and pins 38, projecting from the nuts 20, engage the inner surface of the ring, and when so engaged the plungers will be retracted. As the pins 38 and nuts 20 will always be retracted to the
 25 same extent by the ring cam 37, it follows that by adjusting the plunger in the nut the extent of the retraction of the plunger may be varied, and consequently the capacity of the seed-pockets and the amount of seed to be
 30 deposited in each hill may thus be varied to suit requirements. The pins 38 may be in the form of set-screws and be employed also to prevent the plungers from turning in the nuts.

Sometimes it is desirable to retract the
 35 plungers more than the ring cam 37 is capable of doing, and to accomplish this I provide an additional cam 37^a, which is in the form of a half-ring. The inner surface of this cam 37^a between x and y is in the arc of a circle
 40 of less radius than the arcs from u to x and from y to v . The cam 37^a is pivoted at one end to an ear 60 on the ring cam 37 and is provided with a plate at its other end with a curved slot 61, the radius of which is the pivotal axis of the cam 37. The ring cam is provided with another ear 62, provided with a
 45 threaded hole 63 to receive a set-screw which will pass through the slot and hold the cam 37^a in adjusted position. When arranged as
 50 shown in Fig. 6, the cam 37^a will not be engaged by the pins 38; but it may be swung on its pivot to any desired extent within the limit of the slot 61, and it will then be engaged by the pins 38, and the plungers will
 55 be retracted accordingly.

The break in the cam-ring is preferably so arranged as to release the pins 38 when the pockets are substantially vertical, with their open ends near the ground. Sometimes it is
 60 desirable to "bunch" the seed in the hill, and in such case the lower end of the strip 36 will be so arranged as to uncover the pockets just when the cam-ring releases the pins on the plungers, and in such case all the seed in the

pocket will be ejected by the plunger, and the 65 pocket being near the ground the seed will be "bunched." Sometimes, however, it is desirable to spread the seed over a greater area in the hill, and in such case it is necessary to uncover the pockets a little while before the plungers act. To accomplish this, 70 the strip 36 is adjustably connected at its upper end in order that it may be adjusted in the groove 14 to vary the position of its lower end relatively to the break in the cam-ring. 75 Thus, as shown, there is an angle-bar having an arm 40 connected to the front end of the hopper 24. Its other arm, 41, is slotted for the passage of one or more threaded pins 42, which are rigidly connected to the strip 36, 80 and nuts 43 on the pins are adapted to engage the arm 41 and clamp the strip 36 in its adjusted position. When the strip 36 is shifted to move its lower end farther away from the break in the cam-ring 37, the pockets will be 85 uncovered before the plungers act and some of the seed will fall out of the pockets by gravity, and any seed that may remain in the pockets will be ejected by the plungers, and the seed carried by the pocket will thus be 90 spread over a greater area than when it is all ejected by the plunger.

It will be observed that the plungers exert no pressure on the seed in the pockets as long as they are covered by the strip 36, and consequently the seed cannot be crushed or otherwise injured by pressure against the strip.

The plow or furrow-opener is indicated by 45, and it is connected to the frame-bars 17 in front of the feeding-disk to be vertically 100 adjustable. It is desirable to prevent the soil from filling in the furrow before the seed is deposited in it, and for this purpose I provide the plow with a pair of strips 46, spaced apart and extending rearwardly under the 105 feeding-disk and into the peripheral groove 14. These strips insure that the furrow will be kept open until after all the seed is discharged from the respective pockets.

Between the rear ends of the frame-bars 17 110 a press-wheel 47 is journaled, the function of which is to press the soil onto the seed. To facilitate this, it is provided with a peripheral groove 48, preferably V-shaped, as shown in Fig. 4.

As before stated, the frame-bars 17 are pivoted at their front ends upon the shaft 18, and as the bars support the feeding-disk, the hopper, the plow, and the press-wheel the entire seed-planting mechanism may be moved 120 vertically as a unit. When the machine is being moved from place to place without having to sow seed, it is necessary to elevate the seed-planting devices to bring the plow out of contact with the ground. Various means 125 may be employed for this purpose, and as illustrative thereof I have shown a rock-shaft 50, journaled in standards 51, supported by

the frame of the machine. From this shaft a series of arms 52 extend, one for each seed-planting mechanism, and these arms are connected to the frame-bars 17 by rods 53 or similar devices. To rock the shaft 50, I have shown a lever 54 rigidly connected to it and movable to rock the shaft through any predetermined arc of a circle. Any suitable means may be employed to lock the lever in its adjusted position, and of course the lever may extend either toward the front or the rear of the machine.

It is obvious that the disk 13 may be provided with any desired number of seed-pockets, it being necessary only that they be equally distant apart. It is also obvious that the speed of rotation of the feeding-disk may be regulated by changing the sprocket-wheel 32 for a wheel of greater or less diameter, and thereby vary the distance between the seeded hills.

Without limiting myself in all respects to the details of construction illustrated and described, I claim—

1. In a seed-planter, the combination of a rotary feeding-disk provided with seed-pockets, a strip extending partially around said disk to cover said pockets, and means for adjustably securing said strip to vary the point of discharge from said pockets, substantially as set forth.

2. In a seed-planter, the combination of a rotary feeding-disk, provided with radially-disposed seed-pockets opening out in the periphery of the disk, a strip extending partially around the periphery of the disk to close said pockets, a plunger in each pocket, springs normally tending to force the plungers outwardly, means for holding each plunger retracted until its pocket passes beyond the lower end of the said strip, and means for varying the point of discharge from said pockets, substantially as set forth.

3. In a seed-planter, the combination of a rotary feeding-disk provided with radially-disposed seed-pockets opening out in the periphery of the disk, a strip extending partially around the periphery of the disk to close said pockets, means for adjusting said strip to vary the point of discharge from the pockets, a spring-actuated plunger in each pocket, and means for holding each plunger retracted until its pocket passes beyond the lower end of the said strip, substantially as set forth.

4. In a seed-planter, the combination of a rotary feeding-disk having a grooved periphery and radially-disposed seed-pockets opening out into the grooved periphery, a seed-hopper having its lower end curved to correspond to the curvature of the disk and having inwardly-extending projections on its front and rear sides fitting into the grooved periphery, a strip connected at its upper end to the front of the hopper and lying in and partly around the peripheral groove to form a closure for the seed-

pockets from the hopper to the point of discharge, and means for adjusting the strip to vary the point of discharge, substantially as set forth.

5. In a seed-planter, the combination of a rotary feeding-disk having radially-disposed seed-pockets opening out in its periphery, said disk having also radial grooves in its face communicating with the inner ends of the pockets, a plunger fitted in each pocket and having a threaded stem extending through the groove communicating with its pocket, a nut fitted to slide in said groove and held against turning therein and through which the threaded stem extends, and a spring surrounding said stem between the nut and inner end of the groove, substantially as set forth.

6. In a seed-planter, the combination of a rotary feeding-disk having radially-disposed seed-pockets opening out in its periphery, said disk having also radial grooves in its face communicating with the inner ends of the pockets, a plunger fitted in each pocket and having a threaded stem extending through the groove communicating with its pocket, a nut fitted to slide in said groove and held against turning therein and through which the threaded stem extends, a pin secured in the nut and projecting laterally therefrom, a broken ring cam to engage said pin and retract the plunger, and a spring surrounding said stem between the nut and inner end of the groove, substantially as set forth.

7. In a seed-planter, the combination of a rotary feeding-disk journaled in a frame, a furrow-opening plow connected to the frame in advance of the disk, and separated strips extending rearwardly from the plow below the disk, substantially as and for the purpose described.

8. In a seed-planter, the combination of a rotary feeding-disk journaled in a frame and provided with radially-disposed seed-pockets opening out in its periphery, means for regulating the point of discharge from said pockets, a furrow-opening plow connected to the frame, in advance of the disk, and separated strips extending rearwardly from the plow below the disk and beyond the point of discharge from the seed-pockets, substantially as set forth.

9. In a seed-planter, the combination of a rotary feeding-disk journaled in a frame and provided with radially-disposed seed-pockets opening out in its periphery, means for regulating the point of discharge from said pockets, a furrow-opening plow connected to the frame in advance of the disk, separated strips extending rearwardly from the plow below the disk and beyond the point of discharge from the seed-pockets, and a covering-wheel journaled in said frame in rear of the feeding-disk, substantially as set forth.

10. In a seed-planter, the combination of a rotary feeding-disk having radially-disposed

seed-pockets opening out in the periphery of
the disk, a spring-impelled plunger in each
pocket, a pin projecting laterally from each
plunger, a broken ring cam rigidly supported
5 in position to engage said pins and hold the
plungers retracted during the movement of
the pockets from the point where they receive
their seed to the break in said cam, and a half-
ring cam pivoted at one end to the broken ring

cam and adjustably connected to it at the other end, substantially as set forth. 10

In testimony whereof I have signed my name
to this specification in the presence of two sub-
scribing witnesses.

HENRY S. DYER.

Witnesses:

P. L. VAN ALSTYNE,
EARL DURFEE.