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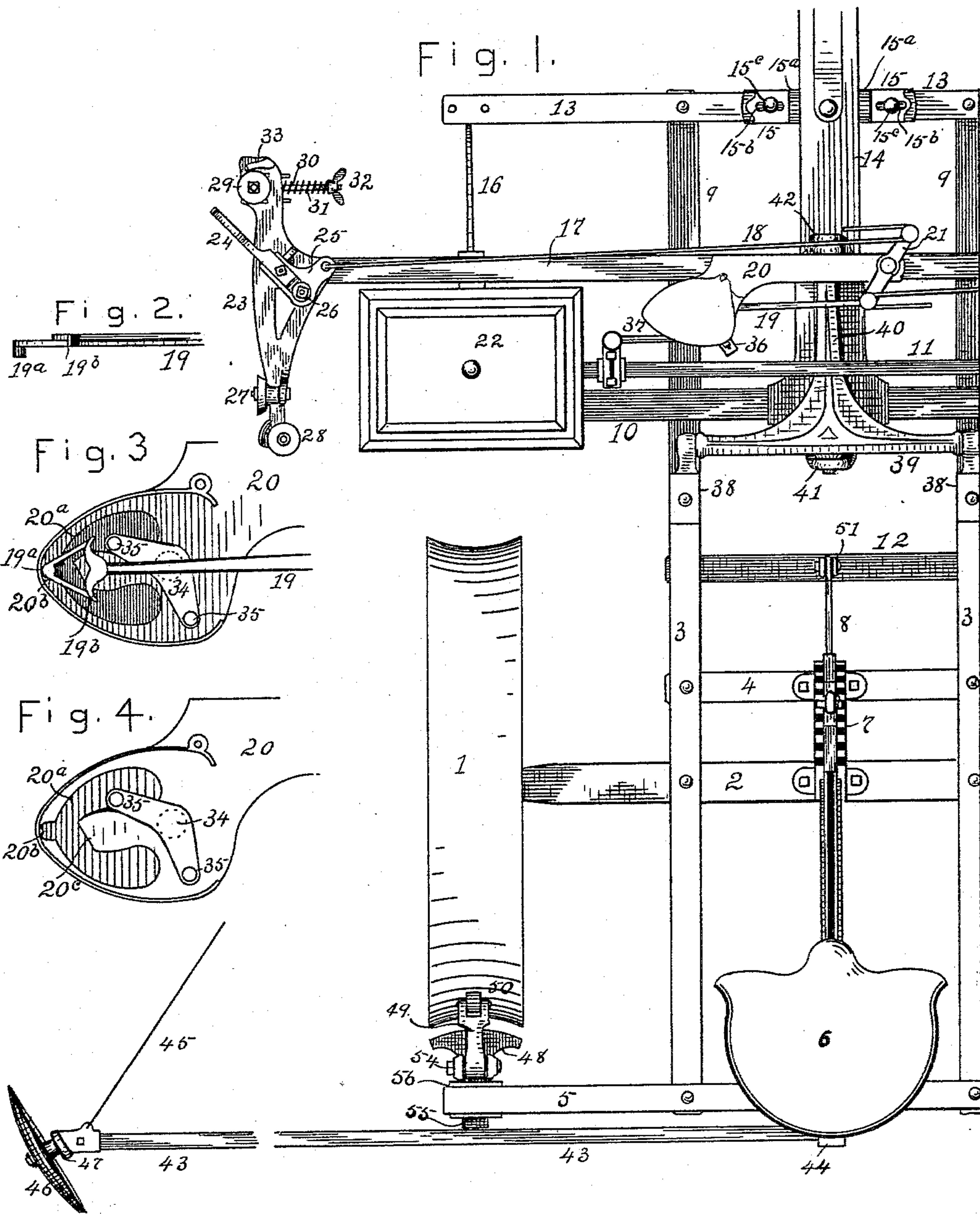
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E. M. HEYLMAN.

SEED PLANTER.

No. 412,182.

Patented Oct. 1, 1889.



ATTEST

*Helena Graham.*

*W. W. Graham*

INVENTOR.  
E. M. HEYLMAN.  
By *L. P. Graham*  
his attorney

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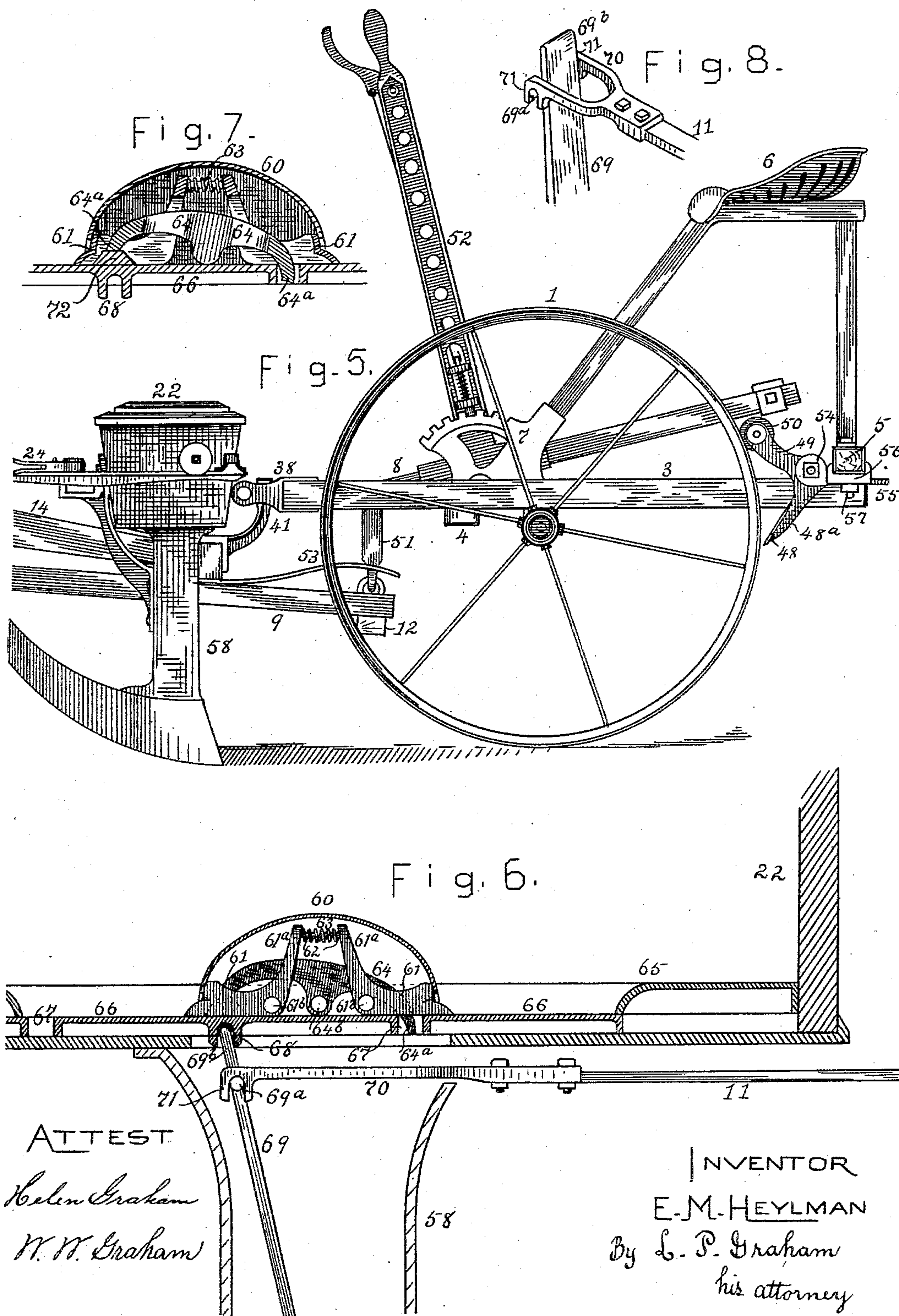
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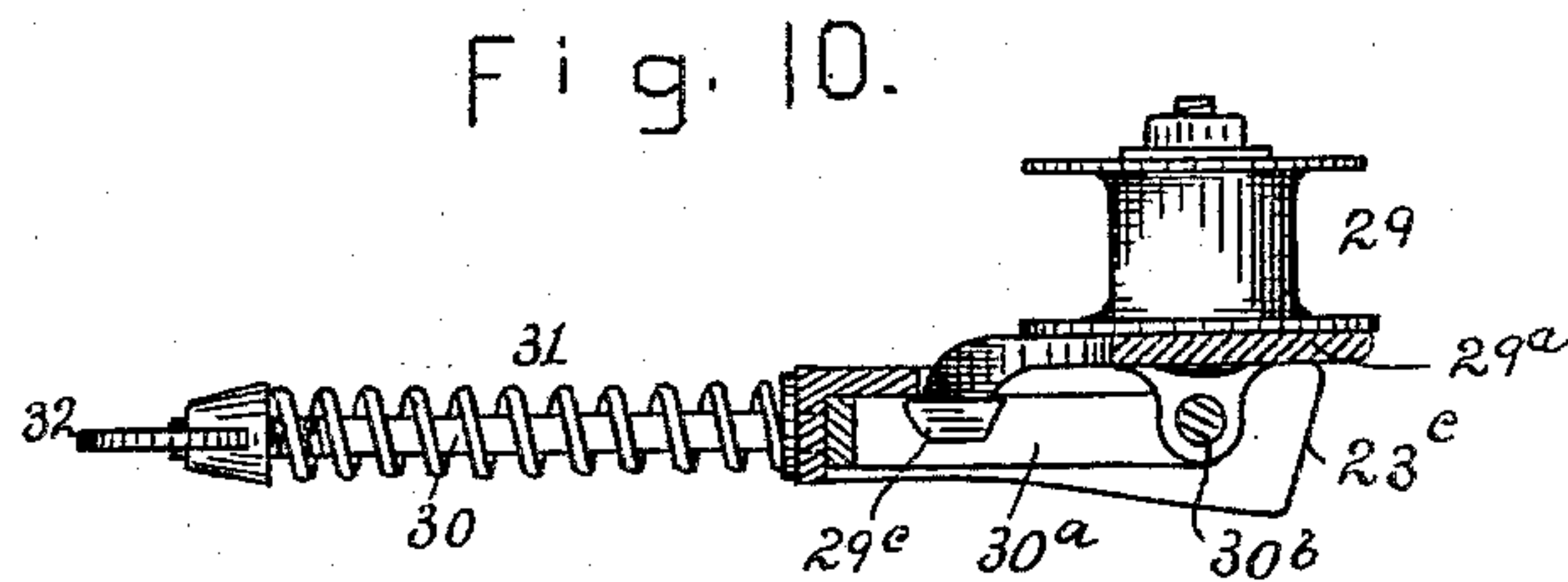
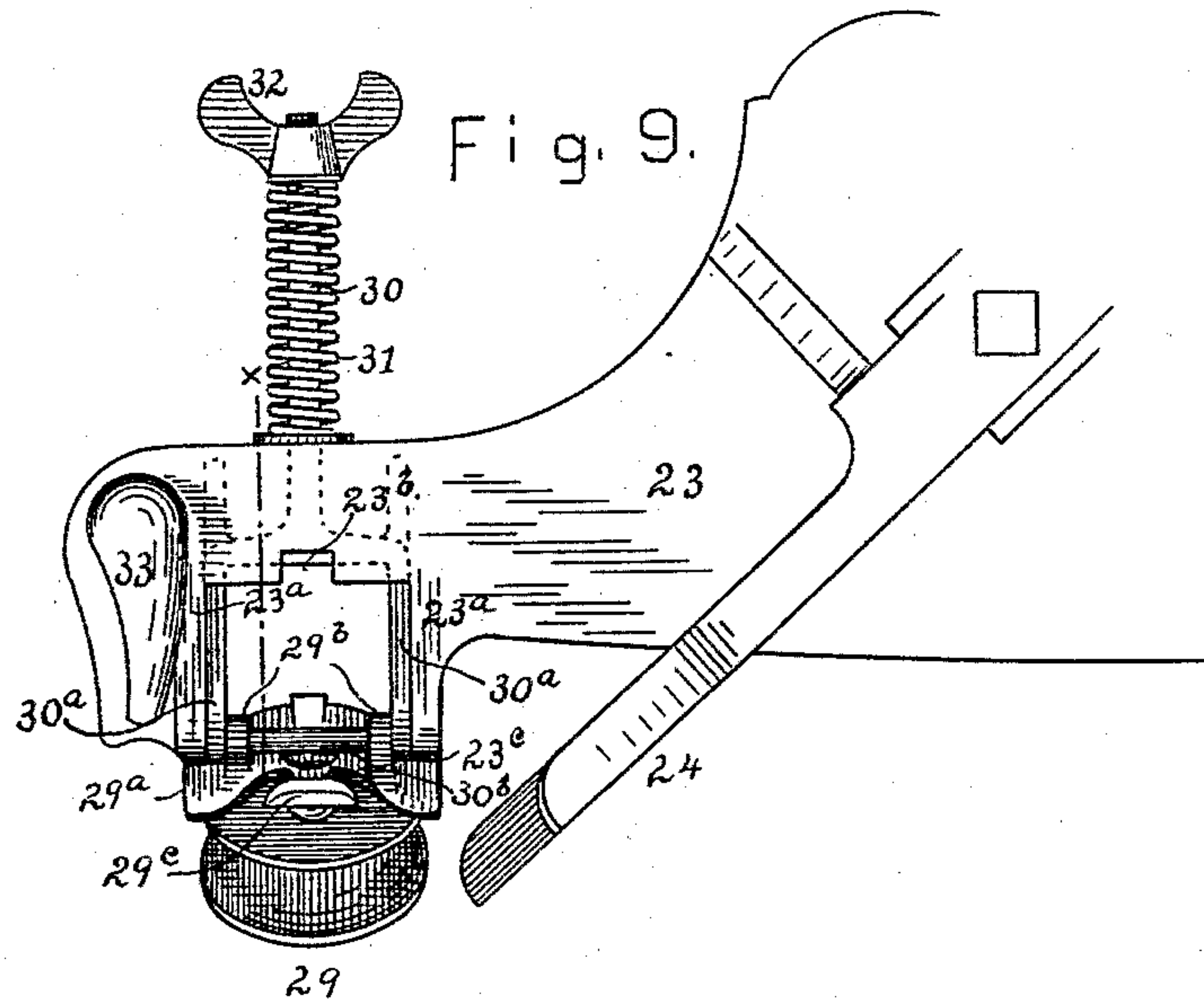
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# UNITED STATES PATENT OFFICE.

EDWARD M. HEYLMAN, OF HAVANA, ILLINOIS, ASSIGNOR OF ONE-HALF TO  
JAMES SPINK, OF SAME PLACE.

## SEED-PLANTER.

SPECIFICATION forming part of Letters Patent No. 412,182, dated October 1, 1889.

Application filed November 17, 1888. Serial No. 291,150. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD M. HEYLMAN, of Havana, in the county of Mason and State of Illinois, have invented certain new and useful Improvements in Seed-Planters, of which the following is a specification.

My invention relates more particularly to corn-planters, and is in the nature of an improvement on old forms; and it consists in various modifications of, arrangements in, and additions to the co-ordinate and coacting parts of which the planter is composed.

The general improvement of the planter is effected by specific improvements in the dropping mechanism, the check-row mechanism, the frame, the guide-line marker, and the automatic wheel-scrapers, the nature of each improvement appearing fully in the detailed description following, and in the appended claims.

In the drawings accompanying and forming a part of this specification, Figure 1 is a plan of a portion of a planter, showing the general arrangement of parts and illustrating the frame-coupling and the guide-line marker. Figs. 2, 3, and 4 represent details of the check-row mechanism. Fig. 5 is a side elevation of a planter, showing the wheel-scraper and a spring-cushion for the frame. Fig. 6 is a transverse vertical section through a seed-box. Fig. 7 is a longitudinal vertical section through the cut-off and force-drop of the seed-box. Fig. 8 is a perspective view of the yoke that connects the shake-bar with the second drop-valve. Fig. 9 is a plan of a portion of the check-rower head, and Fig. 10 is a section of the same on broken line *x* in Fig. 9.

The frame is composed of two parts—a forward part, carrying the planting mechanism, and a rear part, mounted on the covering-wheels and carrying the driver's seat. The longitudinal bars of the rear frame extend over longitudinal bars of the forward frame, and interposed spring-cushions break the jar when by raising the forward frame the two frames come in contact. The two frames are connected by a universal-joint coupling that enables the wheels to adjust themselves independently of the runners and of one another. The covering-wheels 1 are mounted on axle 2. Longitudinal bars 3 are secured

to the axle and carry transverse bars 4 and 5. The driver's seat 6 is suitably supported from the rear frame. The rack 7 on axle 2 and cross-bar 4 provides means for adjusting the lock-lever that is used to elevate or depress the forward frame. Bar 8, secured to the lock-lever 52, connects through link 51 with rear transverse bar 12 of the forward frame. The front cross-bar of the forward frame is shown at 13, the tongue at 14, and a device for giving the tongue lateral adjustment is shown at 15. This device comprises angle-brackets having vertical projections 15<sup>a</sup>, that fit against opposite sides of the tongue, the horizontal portions of the brackets being slotted longitudinally at 15<sup>b</sup> and provided with bolts 15<sup>c</sup>, that extend through the slots and secure the brackets, and consequently the tongue, in any desired position of adjustment. The longitudinal bars of the forward frame are shown at 9, and they have springs 53, (seen in Fig. 5,) that break the jar when the two frames are thrown in contact, and also steady the forward frame when partly elevated. The bar carrying the seed-boxes is seen at 10, the check-row bar at 17, and the shake-bar at 11. The runners are indicated by No. 16, and the seed-boxes by 22. The housing for the check-row movement is shown at 20. The longitudinally-reciprocating bar of the check-row movement is shown at 19, and the lever connecting with check-row heads on both sides the planter and imparting motion to bar 19 is shown at 21. The oscillating lever of the check-row movement is seen at 36, in Fig. 1, and rod 37 is used to impart the motion of said lever to the shake-bar of the planter. Brackets 38 on the forward ends of bars 3 provide bearings for the transverse portion 39 of the universal-joint coupling, and brackets 41 and 42 on the tongue, or otherwise connected with the forward frame, provide bearings for the longitudinal portion 40 of said coupling. The function of this coupling is, as has before been intimated, to permit the covering-wheels to conform perfectly to irregular elevations or depressions in the surface of the ground.

The check-row movement is in the nature of an improvement on the check-rower pat-



5 entered to me on the 30th day of November, 1886, No. 353,452; and the object of this feature of my invention is to provide greater security against a dead-lock of the actuating-bar. In Fig. 2 the operative end of the actuating-bar is shown in side elevation. Lateral hooks are seen at 19<sup>b</sup>, and a downward-projecting stud or guide-pin is shown at 19<sup>a</sup>. The bottom of housing 20 is depressed at 20<sup>a</sup> and 20<sup>b</sup>, as shown in Figs. 3 and 4, and the depression is of suitable conformation to form the oblique guide-surface 20<sup>c</sup>. The lever 34 is fixed on a vertical shaft that extends downward through the housing 20, and it has upward-projecting pins 35 35. As the actuating-bar 19 is longitudinally reciprocated, a hook on one side engages a pin on one end of lever 34 and advances the opposite end. The next motion of the bar causes the opposite hook to engage the pin on the lately-advanced end of the lever, and so oscillation in the lever is produced by the alternate operations. The operative end of the actuating-bar is carried alternately to opposite sides by the swing of the lever, and is returned to the center after each operative stroke by the converging sides of the housing. The pin 19<sup>a</sup> rests in the narrow depression 20<sup>b</sup>, preparatory to each operative stroke, and as said depression is in line with the direction of motion of the bar a hook is always carried in contact with a pin on lever 34, provided said pin is in position. If by any mishap the said lever should not complete its stroke, the incline 20<sup>c</sup> would at the next operation deflect the operative end of the bar from its direct motion and cause a hook to engage a pin and complete the stroke.

40 A check-rower head is shown at 23 in Fig. 1. The forked lever 24 swings horizontally on pivot 26 and has bell-crank conformation 25, from which rod 18 extends to the check-row movement. The wire is received in pulley 29 under finger 33, and it is discharged through beveled horizontal pulley 27 and vertical pulley 28. The receiving-pulley is mounted on plate 29<sup>a</sup>, (seen in Figs. 9 and 10,) and said plate has lugs 29<sup>b</sup>, that pivot on pin 30<sup>b</sup>, and also has the knob 29<sup>c</sup>, that is adapted to the recess 23<sup>b</sup> of the check-rower head. The pin 30<sup>b</sup> is held in yoke 30<sup>a</sup>, and said yoke is continued beyond the head as bolt 30. Set-nut 32 is screwed onto the outer end of bolt 30, and spring 31 is interposed between the nut and the check-rower head. Ways 23<sup>a</sup> for plate 29<sup>a</sup> are formed on the upper surface of the head, and undercut surfaces 23<sup>c</sup> (seen best in Fig. 10) are continuations of ways 23<sup>a</sup>. Ordinarily the pulley 29 maintains the position indicated in Figs. 1 and 10; but strong lateral pressure exerted through the wire will overcome the resistance of spring 31, thereby disengaging knob 29<sup>c</sup> and carrying plate 29<sup>a</sup> over the ends of its ways and into the position shown in Fig. 9. This operation, which permits the

wire to escape from the forked lever, is intended to be effected by a strain considerably less than is necessary to break the wire, so that relief may be automatically afforded in case the wire meets an impassable obstruction, and also that the wire may be automatically discharged when a turn is made at the end of the field. The resistance should, however, be sufficiently great to prevent a kink in the wire from effecting a discharge, and in order that the desired tension may be approached with accuracy the adjusting-nut 32 is provided.

The means for automatically removing an accumulation of dirt from the faces of the wheels is shown in Figs. 1 and 5; and it comprises, essentially, the bell-crank lever 49 48<sup>a</sup>, provided with anti-friction roller 50 and scraper-blade 48, and fulcrumed in such manner that the roller shall rest on the wheel, while the blade swings slightly out of contact therewith. The plate 55, that provides a fulcrum for the scraper-lever, has motion to and from the wheel in block 56, and it is secured in any position of adjustment by set-bolt 57. The block 56 is secured to bar 5, and the fulcrum of the lever is shown at 54. When the circumference of the wheel becomes enlarged by an accumulation of dirt, the roller swings upward, carrying the blade into operation, and such is the pitch of the blade with relation to the surface of the wheel that it will tend to be drawn closer as the dirt is penetrated.

The dropping mechanism comprises the reciprocating seed-plate 66, having seed-cells 67 67 and the downward-extending yoke 68. Cut-offs 61 61 are presented in opposite directions and pivot on trunnions 61<sup>b</sup>, that have bearings in casing 60. The cut-offs have upward extensions 61<sup>a</sup>, each provided with a stud 62. Spring 63 is supported by the studs and yieldingly sustains the cut-offs in their shown positions. The rocking frame 64 pivots on trunnions 64<sup>b</sup> in casing 60, and has downward extensions 64<sup>a</sup>, adapted to the seed-cells of the slide. A cam or boss 72, Fig. 7, is secured to or formed on the upper surface of the seed-slide in position to raise an end of the rocking frame at the time that a seed-cell is presented to the action of the opposite end, as shown in Figs. 6 and 7, the object being to force the grain out of the cells. The false bottom of the seed-box (shown at 65) acts as a guide to carry the grain to the seed-slide while protecting other portions of the bottom. The second drop-valve 69 pivots in shanks 58 in the customary manner, and it has lateral projections 69<sup>a</sup> with which the shake-bar connects. The upper end of the second drop-valve engages the yoke of the seed-slide, as seen at 69<sup>b</sup>, in Fig. 6, and imparts the necessary reciprocating motion to said slide.

The shake-bar is provided at each end with a yoke or bifurcation 70, and each fork has a yoke conformation 71, that rests loosely on a pin 69<sup>a</sup>. This construction neutralizes all



tendency of the shake-bar to become twisted and insures accurate operation under all circumstances.

The marker comprises the disk 46, (see Fig. 1,) having the oblique bearing 47 on bar 43. The bar 43 is secured to the rear of the planter-frame at 44, and the connection is preferably made by means of a universal-joint coupling. A line 45 connects the outer end of the bar with some part of the planter well forward, as a singletree, and acts as a brace. The utility of the marker lies in the certainty with which it makes an impression while running at comparatively light draft.

The tongue-adjusting device heretofore specified enables the check-row bar to be kept at an accurate right angle with the direction of the progression of the planter, and so insures accurate planting from both sides of the row.

I claim as new and desire to secure by Letters Patent—

1. In corn-planters, in combination, a forward frame-carrying planting mechanism, a rear frame mounted on wheels and having two longitudinal bars on opposite sides of and equidistant from the longitudinal center of the planter, and a universal joint pivotally connected with the forward ends of the bars, and also pivoted to rock laterally on the forward frame, as set forth.

2. In corn-planters, in combination, a forward frame carrying a planting mechanism, a rear frame mounted on wheels and having two longitudinal bars on opposite sides of and equidistant from the longitudinal center of the planter, a universal joint pivotally connected with the forward ends of the bars and also pivoted to rock laterally on the forward frame, and springs interposed between the bars and extensions of the forward frame projected rearwardly under the bars, as set forth.

3. In seed-planters, in combination, the longitudinally-reciprocating bar 19, having pin 19<sup>a</sup> and hooks 19<sup>b</sup>, the housing 20, having depression 20<sup>a</sup> 20<sup>b</sup>, and the oblique guide-surface 20<sup>c</sup>; lever 34, having pins 35 adapted to the hooks, and means, substantially as described, for imparting the motion of the

lever to the seed-slide of the planter, as set forth.

4. In seed-planters, in combination, check-rower head 23, having ways 23<sup>a</sup> and recess 23<sup>b</sup>, yoke 30<sup>a</sup>, having transverse motion in the head and extending outwardly as bolt 30, nut 32 on the end of the bolt, spring 31, interposed between the nut and the head, plate 29<sup>b</sup>, pivoted in the yoke and having knob 29<sup>c</sup>, and pulley 29, pivoted on plate 29<sup>a</sup>, as set forth.

5. In seed-planters, in combination, a second drop-valve, a bifurcate shake-bar, lateral pins on the valve, and yoke formations on the forks of the shake-bar adapted to the pins, as set forth.

6. In seed-planters, in combination, seed-plate 66, having cells 67, casing 60, cut-offs 61, presented in opposite directions and pivoting on trunnions in casing 60, upward extensions 61<sup>a</sup> of cut-offs 61, and spring 63 between said upward extensions, as set forth.

7. In seed-planters, in combination, seed-plate 66, having cells 67, and the upward-projecting cam 72, casing 60, containing cut-offs presented in opposite directions, and rocking frame 64, having ends 64<sup>a</sup>, adapted to the cells and the cam, as set forth.

8. In seed-planters, the wheel-scraper comprising the bell-crank lever carrying a scraper on its lower end and having its upper end in contact with the wheel, as set forth.

9. In seed-planters, the wheel-scraper comprising the bell-crank lever having its fulcrum adjustable with relation to the wheel, the anti-friction roller in the upper end of the lever, and the scraper on the lower end, as set forth.

10. The lateral adjuster for the tongue of seed-planters, comprising the brackets 15, having the upward extensions 15<sup>a</sup> and the slots 15<sup>b</sup>, and the adjusting-bolts 15<sup>c</sup>, passed through the slots and secured to the frame, as set forth.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

EDWARD M. HEYLMAN.

Attest:

JOHN HALL,  
ISAAC N. MITCHELL.