No. 682,956. Patented Sept. 17, 1901.

A. SATTLEY & I. A. WEAVER.

COMBINED LISTER PLOW AND PLANTER.

(Application filed May 13, 1901.)

(No Model.) 3 Sheets—Sheet 1.

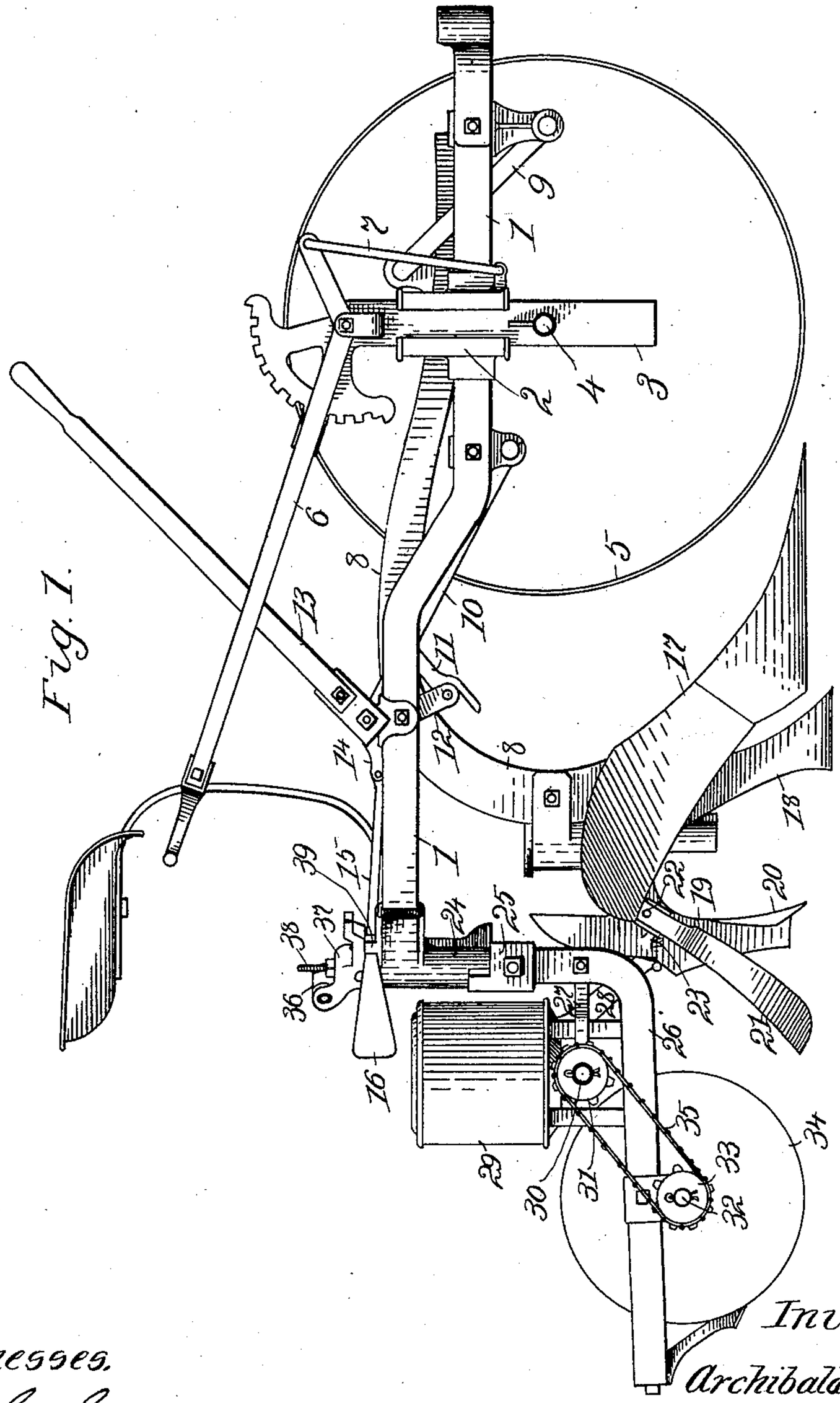

Fig. 1.

Witnesses.
Nora Graham.
Dua Graham.

Inventors.
Archibald Sattley,
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Fig. 2.

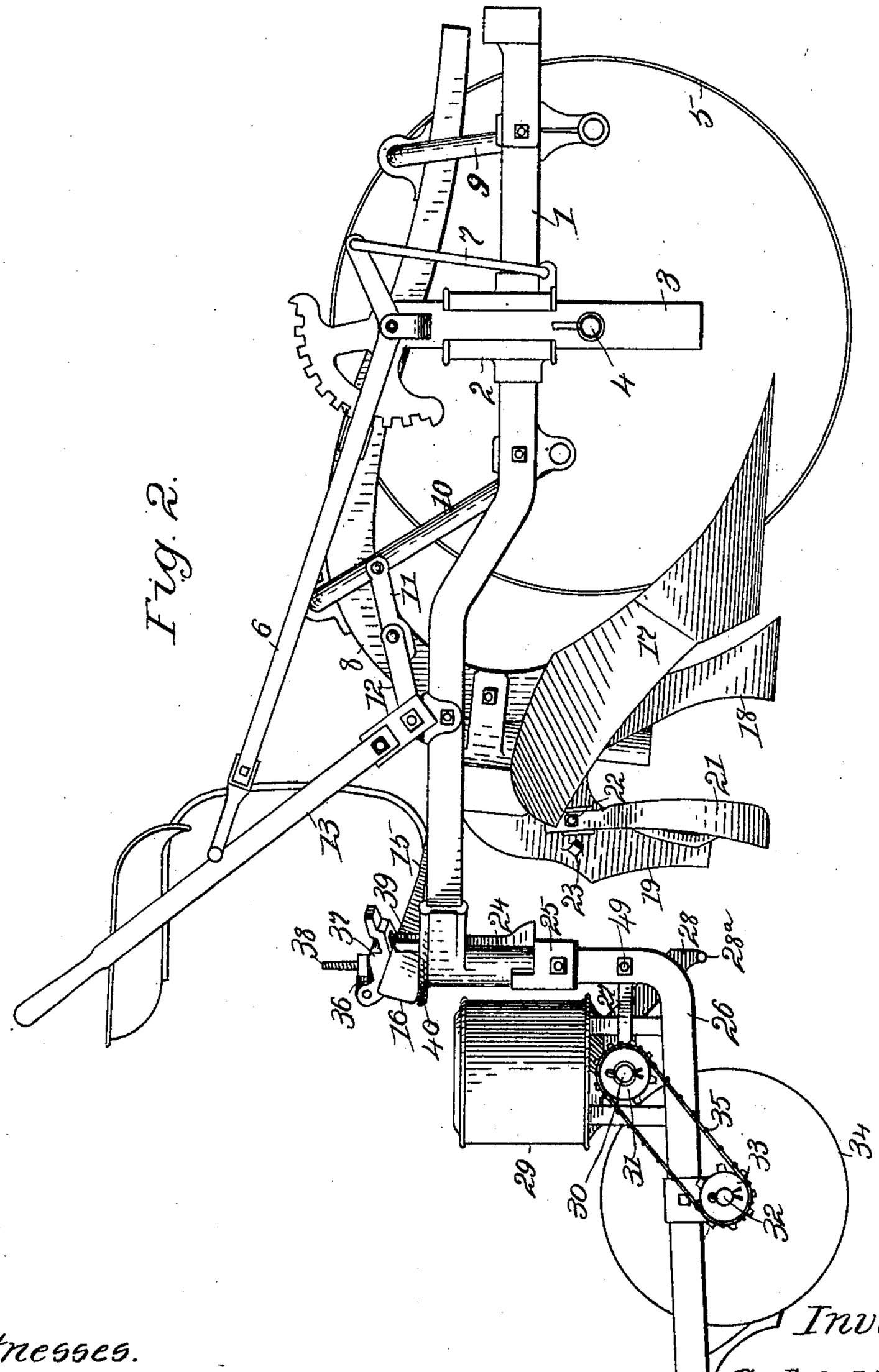

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Fig. 3.

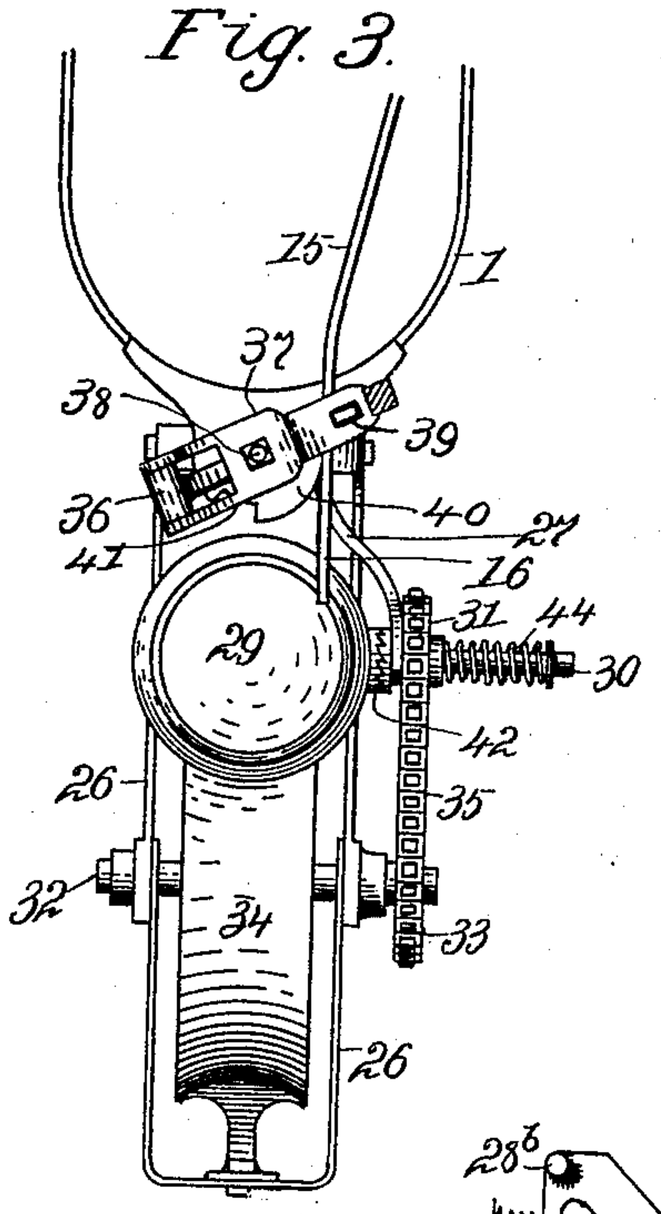


Fig. 6.

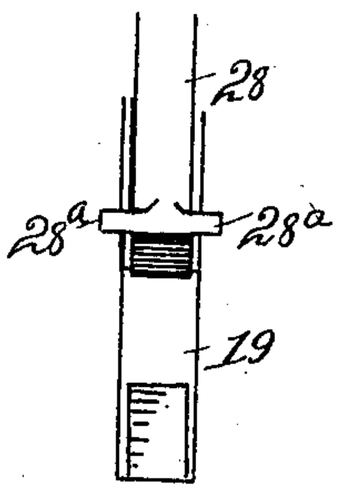


Fig. 5.

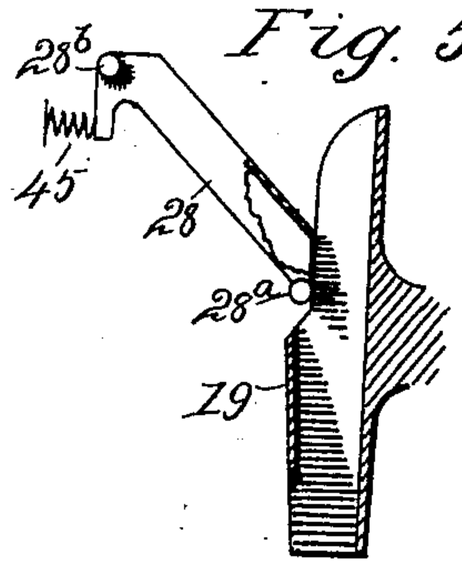
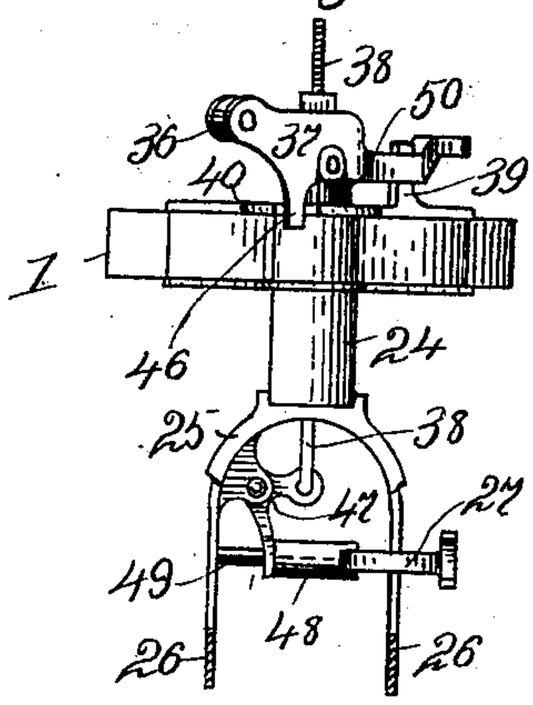


Fig. 4.



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their attorney.

UNITED STATES PATENT OFFICE.

ARCHIBALD SATTLEY AND IRA A. WEAVER, OF SPRINGFIELD, ILLINOIS.

COMBINED LISTER PLOW AND PLANTER.

SPECIFICATION forming part of Letters Patent No. 682,956, dated September 17, 1901.

Application filed May 13, 1901. Serial No. 59,925. (No model.)

To all whom it may concern:

Be it known that we, ARCHIBALD SATTLEY and IRA A. WEAVER, of the city of Springfield, county of Sangamon, and State of Illinois, have invented a certain new and useful Combined Lister Plow and Planter, of which the following is a specification.

This invention is exemplified in the structure hereinafter described and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a plow embodying our invention, the parts being shown in operative or planting condition. Fig. 2 is an elevation like Fig. 1, except that the parts are shown in condition for turning the planter around. Fig. 3 is a plan of the rear end of the planter. Fig. 4 is a rear elevation of the rear end of the planter-frame. Figs. 5 and 6 are details illustrative of the seedbox-chute and the planter-shank.

The frame 1 may be of any suitable conformation, and it is preferably provided on its sides with a pair of guideways, as 2. Slides 3 are fitted in the guideways 2 and provided with spindles 4 for wheels 5. Levers 6 are fulcrumed in the upper ends of the slides, and rods 7 connect the levers with the guideways. The levers 6 are adapted to lock on notched segments, and it is their purpose to raise and lower the wheels with relation to the front end of the frame. A plow-beam 8 is sustained in the frame by means of bails 9 and 10, and the extended end 12 of lever 13 connects with the rear bail 10 through stiff link 11. When the lever 13 is thrown backward to raise the beam, the extension 12 and the link 11 swing into alinement, as shown in Fig. 2, and form a toggle-joint lock. A double-moldboard plow 17 is attached to the beam 8. Behind the plow is a subsoiler 18, and in the rear of the subsoiler is a shank 19, which is preferably provided with a soil-displacing shovel 20. At 21 is shown one of a pair of covering-blades, which are pivotally connected with the shank at 22, one on each side of the shank, and which are held from swinging backward beyond a certain angle by stops 23 on the sides of the shanks. The subsoiler and the shank are adjustable up and down. The shank is tubular, and the upper part of the rear of the shank is open to receive seed from the chute 28 of the seedbox 29.

A vertical sleeve 24 is attached to the rear end of the plow-frame, and a head 25 has a spindle that journals in the sleeve. A planter-frame composed of bars 26 is attached to the pivotal head 25 and extends downward and rearward therefrom. The shaft 32 of rear wheel 34 has bearings in the frame-bars 26, and the seedbox 29 is supported from bars 26 in front of wheel 34. The drive-shaft 30 for the seed-disk of the seedbox is journaled below the box, and it has a combined sprocket and clutch wheel 31, which is loosely mounted on the shaft and is normally held in clutch with a clutch member 42 of the shaft by a spring 44. (See Fig. 3.) A sprocket-wheel 33 is fixed on an extended end of shaft 32, and a chain 35 imparts motion from wheel 33 to wheel 31. The pivotal shaft or spindle of the planter-frame extends above sleeve 24, as is shown at 50 in Fig. 4, and to the upper end of such shaft is rigidly attached a laterally-extending arm 36. A lever 37 is pivotally connected with the end of arm 36, and it extends across the upper end of the pivotal shaft 50. A vertical hole is formed in the swinging end of lever 37 to engage a stop-pin on the plow-frame, and a pin 46 (shown only in Fig. 4) extends downward from a side of the lever. An arm 14 is attached to or formed on the lift-lever 13. A rod 15 is pivotally connected with the swinging end of arm 14 and extended under the lever 37, and the rear end 16 of the rod 15 is wedge-shaped in side elevation, with the small end of the wedge presented forward. A disk 40 is formed on the upper end of sleeve 24, concentric with shaft 50, and a notch 41 is formed in the periphery of the disk to receive the pin 46 of lever 37, as shown in Fig. 4. A lock-pin 39 entends upward from disk 40 in position to engage the hole in the lever 37 when the planting mechanism is in planting position and hold the planting-frame locked against side swing. The seed-chute 28 is pivoted at its upper end so as to swing forward and back to a limited extent at its lower end, and it has a spring that tends to press its lower end forward. In Fig. 5 the pivot of the chute is shown at 28^b and the spring is shown at 45.

In Figs 5 and 6 the chute 28 is shown provided at its lower end with a cross-bar or side extensions, as 28ª, which project beyond the sides of shank 19 and prevent the chute from entering the rear open part of the shank. A rod 38 extends through the pivot of the rear frame and rests at its upper end on top of lever 37. The lower end of rod 38 connects pivotally with an L-lever 47, (seen only in Fig. 4,) and the free end of the L-lever bears against a sleeve 48 on a cross-rod 49 in the vertical part of the rear frame. An arm 27 extends rearward and sidewise from sleeve 49, and the extended end of the arm engages the clutch-wheel 31 on the side opposite spring 44, as is shown in Fig. 3.

With the different parts in the position shown in Fig. 1 the pin 39 engages the hole in lever 37 and locks the rear frame against side swing, while the pin of the lever rests in the recess in the disk or top of sleeve 24. The plow, the subsoiler, and the shank 19 are in planting position, with the rear wall of the shank about in vertical alinement with the pivot of the rear frame, and the covering-blades are swung back against stops 23 by the forward motion of the plow and the resistance of the soil. The narrow part of wedge 16 is under the swinging end of lever 37, and consequently the lever is depressed. The depression of the swinging end of the lever permits the L-lever to assume the position shown in Fig. 4, and the spring 44 forces clutch-wheel 31 into clutch with shaft 30. The lower end of chute 28 is forced toward the shank by spring-pressure, and the extensions 28ª bear closely against the shank. Under these conditions the wheel 34 is locked stiff with the forward frame to steady the run of the plow and the subsoiler, and the seed is conveyed to the shank through the chute. The plow cuts a wide furrow. The subsoiler cuts a narrower and deeper furrow, which is substantially closed by the pulverized soil, and the shovel 20 may be used to reopen a narrow seed-receiving furrow. As the seed is deposited the knives or coverer-blades 21 tend to draw soil toward the furrow and the wheel compacts the soil over the seed in the customary manner. The bails 9 and 10 incline backward from their pivots in the frame, and when the lever 13 is thrown backward at the ends of the field the bails swing forward, as well as upward, and carry the plows and the shank away from the rear frame 26. As the plow-beam rises the knives 21 swing clear of the ground and are carried by gravity to the position shown in Fig. 2, so as to give still greater clearance for turning around. The rearward swing of the lever 13 imparts forward motion to the wedge 16, and by such motion the swinging end of lever 37 is raised to an extent to clear the stop-pin 39, carry the end of pin 46 above the disk on sleeve 24, and to force the sleeve 48 sidewise sufficiently far to force wheel 31 out of clutch. Under these conditions the plow and its adjuncts are carried clear of the ground, the wheel 31 does not impart its motion to the planter 30, and the rear frame is free to turn with relation to the front frame. By the time the rear frame has swung sidewise sufficiently far to carry the lever 37 off the wedge the pin 46 will be in position to rest on disk 40 and sustain the lever in a raised position, and so the clutch will remain detached until the pin 46 is swung over the recess 41 of the disk. It is necessary that the clutch shall be in engagement as soon as the plow starts forward in a trip across the field; but the rear frame does not always swing directly in line with the front frame as soon as the team starts and the locking-pin does not coincide with the hole in lever 37 until the alinement of the two frames is pretty precise. To provide for this, the recess 41 is made rather long, so that the pin 46 may drop into it before the two frames are exactly in line, and the L-lever is adapted to relieve the clutch-wheel by the partial drop of the lever and permit the spring to establish driving connection with the planter-shaft. When the pin 46 drops into the recess of the disk, the lever rests on top of pin 39 until the frames are in line, and the subsequent fall of the lever into engagement with the lock-pin produces no further effect on the clutch-actuating mechanism.

We claim—

1. In a combined lister plow and planter the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a planter-shank and furrow-former vertically movable in the plow-frame and planting mechanism on the planter-frame adapted to discharge seed into the shank carried by the plow-frame when the parts are in operative position.

2. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a beam swung in the plow-frame to move forward in rising and backward in descending, a seed-depositing shank carried by the plow-beam and planting mechanism on the planter-frame adapted to discharge seed into the shank when the parts are in operative position.

3. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a vertically-movable beam in the plow-frame, a seed-depositing shank on the beam, planting mechanism on the rear frame and a chute for the seedbox communicating with the shank when the parts are in operative position.

4. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a vertically-movable beam in the plow-frame, a seed-depositing shank on the beam, planting mechanism on the rear frame,

and a pivotal chute for the seed box held yieldingly against the shank when the parts are in operative position.

5. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a vertically-movable beam in the plow-frame, a seed-depositing shank on the beam, planting mechanism on the rear frame adapted to discharge into the shank when the parts are in operative position, and cutter-blades hinged at their upper ends to the sides of the shank and restrained from extreme backward swing by lugs on the shank.

6. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a vertically-movable beam in the plow-frame, a seed-depositing shank on the beam, planting mechanism on the rear frame adapted to discharge into the shank when the parts are in operative position and a releasable lock to hold the planter-frame against side swing.

7. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve on the rear end of the plow-frame, an arm attached to the pivot of the planter-frame above the sleeve of the plow-frame, a lock-lever hinged to the arm, a stop-pin on the plow-frame to engage the lock-lever and means for raising the lock-lever clear of the pin.

8. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve on the rear end of the plow-frame, an arm attached to the pivot of the planter-frame above the sleeve of the plow-frame, a lock-lever hinged to the arm, a stop-pin on the plow-frame to engage the lock-lever and a slidable wedge to raise the lock-lever clear of the pin.

9. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve on the rear end of the plow-frame, an arm attached to the pivot of the planter-frame above the sleeve of the plow-frame, a lock hinged to the arm, a stop-pin on the plow-frame to engage the lock-lever, a swingable beam in the plow-frame, a lift-lever for the beam and a wedge under the lock-lever connected with the lift-lever of the beam.

10. In a combined lister plow and planter the combination of a plow-frame, a planter-frame having a vertical pivot journaled in a sleeve on the rear end of the plow-frame, a disk on the upper end of the sleeve having a notch in its periphery, an upward-extending stop-pin on the disk, an arm attached to the pivot of the planter-frame above the disk, a lock-lever hinged to the arm and having a hole to engage the stop-pin, a pin on the lock-lever to rest in the notch of the disk while the planter-frame is locked and to ride on the disk and support the lock-lever while the planter-frame is turned out of line with the plow-frame, and means for raising the lock-lever clear of the stop-pin.

11. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve in the rear end of the plow-frame, planting mechanism on the rear frame, a wheel in the rear frame geared to the planting mechanism, a clutch in the gearing that connects the wheel with the planting mechanism, a lock for the pivot of the rear frame and a connection between the lock and the clutch whereby the clutch is broken when the lock is released.

12. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve in the rear end of the plow-frame, planting mechanism on the rear frame, a wheel in the rear frame geared to the planting mechanism, a clutch in the gearing that connects the wheel with the planting mechanism, a lock for the pivot of the rear frame and a connection between the lock and the clutch extending in part through the pivot of the rear frame.

In testimony whereof we sign our names in the presence of two subscribing witnesses.

ARCHIBALD SATTLEY.
IRA A. WEAVER.

Witnesses:
MAY JENKINS,
WARREN E. LEWIS.