

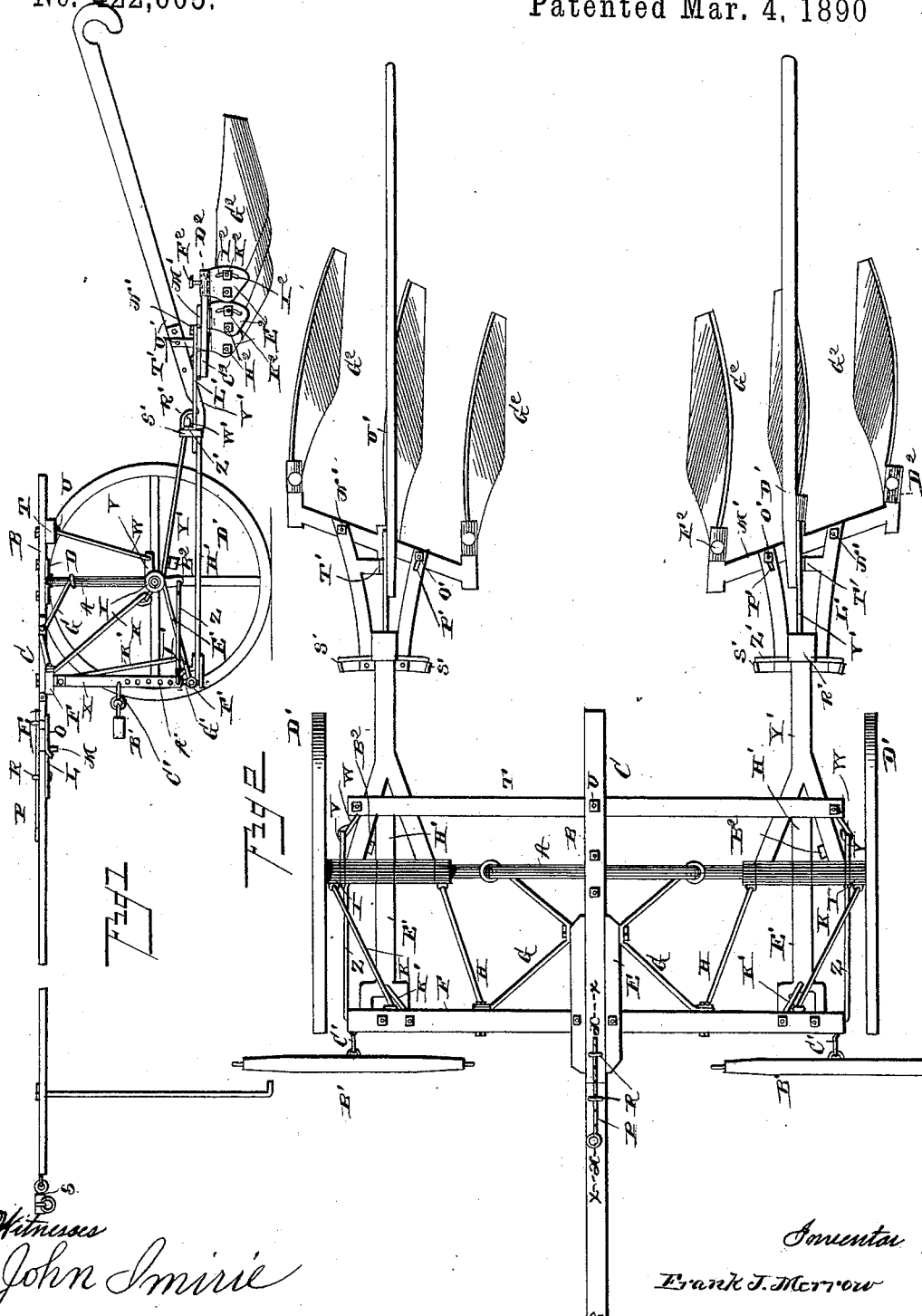
(No Model.)

F. J. MERROW.
SULKY PLOW.

2 Sheets—Sheet 1.

No. 422,605.

Patented Mar. 4, 1890



Witnesses
John Smirle
E. Siggers

Inventor
Frank J. Merrow

By his Attorneys
C. A. Snow & Co.

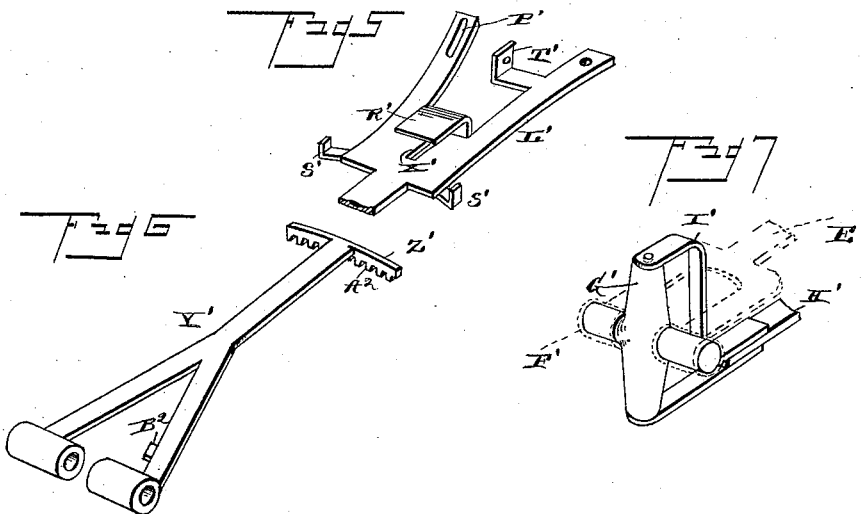
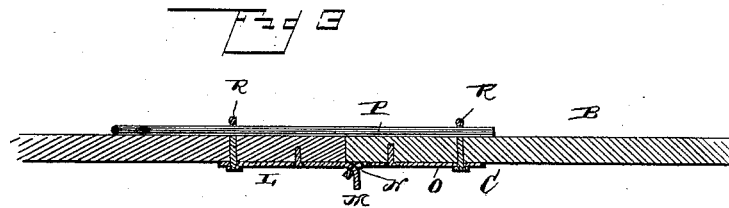
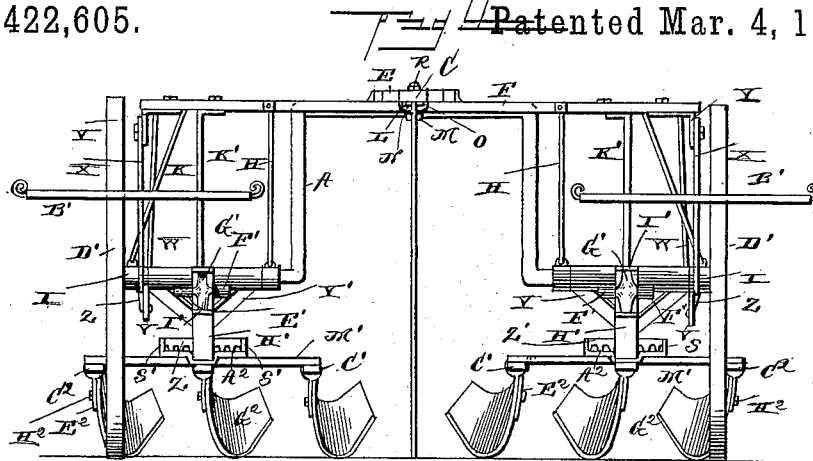
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UNITED STATES PATENT OFFICE.

FRANK J. MERROW, OF AMBOY, ILLINOIS.

SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 422,605, dated March 4, 1890.

Application filed April 4, 1889. Serial No. 305,921. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. MERROW, a citizen of the United States, residing at Amboy, in the county of Lee and State of Illinois, have invented a new and useful Sulky-Plow, of which the following is a specification.

My invention relates to an improvement in sulky-plows; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a sulky-plow embodying my improvement. Fig. 2 is a top plan view of the same. Fig. 3 is a detail longitudinal sectional view taken on the line *x x* of Fig. 2. Fig. 4 is a front elevation. Figs. 5, 6, and 7 are detail views.

On the central portion of the arched axle A is secured the rear extension B of the tongue C by means of a clip-plate D, which encircles the central portion of the axle and is bolted to the said extension. Near the front end of the latter, on opposite sides, are bolted longitudinal blocks E, which serve to strengthen the said extension, and arranged transversely under the said blocks and bolted thereto is a draft-bar F. Braces G H connect the blocks E and the draft-bar to the arched axle, as shown. Near the outer ends of the axle are collars I, and brace-rods K connect the said collars to the draft-bar at points near the ends of the latter.

The tongue C is provided on its under side, at its rear end, with a plate L, bolted thereto, and the rear end of the said plate is turned down at right angles to form a tongue M, which is adapted to pass through a transverse slot N in the front end of a plate O, which plate is bolted to the under side of the extension B, at the front end thereof. By this means the tongue may be attached to and disconnected from the extension and the said tongue is secured firmly in the same plane with the said extension and prevented from becoming disengaged therefrom by means of a bolt-rod P, which engages guide-loops R on the said tongue and on the said extension, the said bolt-rod extending across the joint between the tongue and its extension, as shown.

To the front end of the tongue is attached a neck-yoke S, of the usual form.

An equalizing-bar T is centrally pivoted under the extension B, near the rear end of the latter, by means of a bolt U, and the ends of the said equalizing-bar are connected to the rearwardly-extending arms of bell-crank levers V, which are pivoted on the axle by means of rods W. Link-bars X have their upper ends pivoted to angle-plates Y under the ends of the draft-bar, and the lower ends of the said link-bars are connected to the lower ends of the downwardly-extending arms of the bell-crank levers by means of rods Z. Each of the bars X has a series of adjusting-openings A', and singletrees B' are provided with hook-links C', which are adapted to engage the said openings, and thereby connect the singletrees to the link-bars, at any desired adjustment.

From the foregoing description it will be understood that the draft is equalized between the horses attached to the singletrees, so that each horse must draw exactly one-half of the load, and no matter whether both sets of the plows or shovels (to be hereinafter described) are at work simultaneously and at the same depth or not neither of the horses will be caused at any time to perform more than half of the labor, and the horses will not be subjected to injurious side draft and the jerking motion ordinarily caused when the plows are raised from or lowered deeper into the ground.

On the outer ends of the spindles or horizontal arms of the axle are journaled supporting-wheels D', and on the central portion of the said spindles are pivoted the rear ends of arms E', which arms extend forward therefrom, and have their front ends forked or bifurcated to form ears F', eyes being formed in the front ends of said ears, as shown. Cross-shaped pivots G' have their horizontal arms journaled in the said eyes. The plow-beams H' are provided on their front ends with ear-plates I', which are bolted thereto, and the said ear-plates have openings which receive the ends of the vertical arms of the cross-shaped pivots, and thereby universal joints are formed between the arms E' and the plow-beams, so that the latter are free to play

both vertically and laterally and independently of each other. The arms E' are supported in position by brace-rods K', which depend from the draft-bar F.

5 To the rear end of each plow-beam is bolted a plate having rearwardly-diverging arms L', or the said arms may be formed integrally with the plow-beam, as preferred. The innermost arms L' are somewhat shorter than the outer
10 arms, and oblique bars M' are arranged under the said arms, and are pivotally connected to the longer arms L' by bolts N', and bolts O' pass through curved slots P', made in the shorter arms, and thereby the said oblique bars may
15 be arranged at any desired angle, and the said oblique bars may be secured at any desired adjustment by tightening the clamp-nuts on the bolts O'. On the upper sides of the beams, at the rear ends thereof, are formed keepers
20 or guides R', the front ends of which are open, and projecting from opposite sides of the beams, at points just in advance of the keepers R', are upturned guide-lugs S'. From the inner
25 sides of the outermost arms L' project lugs T', the inner ends of which are upturned to a vertical position, and on the said lugs are pivoted the handles or levers U', which are designed to be controlled by the plowman walking in rear of the machine. Curved locking-
30 arms V' project forward from the said levers or handles and have studs W' upturned at their front ends, the said studs being adapted to extend through openings X' in the rear ends of the plow-beams.

35 Rearwardly-extending arms Y' have their front ends forked and provided with eyes or collars journaled on the spindles of the axles on opposite sides of the arms E', and at the rear ends of the said arms Y' are arranged
40 transverse heads Z', which bear on the plow-beams, and are adapted to slide laterally thereon behind the lugs S' and under the keepers R' and over the openings X', and in the under side of the said heads are notches or racks A²,
45 which are adapted to be engaged by the studs of the detent-arms, and thereby the plow-beams may be secured at any desired lateral adjustment. It will be understood that the long rearwardly-extending arms or levers U' keep the detent-arms normally locked
50 to the transverse heads, and that when it is necessary or desirable to change the lateral adjustment of the plow-beams this may be readily done by raising the rear ends of the
55 levers or handles U' to disengage the detent from the racks of the cross-heads, and then shifting the beams to the required position and letting the levers or handles drop, when their detents will re-engage the racks of the
60 cross-heads, and thereby lock the beams and retain them in the position to which they have been adjusted. Each arm Y' has under the outermost one of its forks a supporting-
65 bracket B². When the rear ends of the plow-beams are elevated, the cross-heads Z' move rearward under the keepers R' and out of engagement with the detents, and as the beams

rise the bars Y' rise with them. When the the beams and bars have been raised to such a height that the beams are in slightly higher
70 planes than the brackets B², the beams may be moved outward laterally and caused to slide over and bear upon the said brackets, and thereby the beams will be supported in
75 an elevated position with the plows or shovels raised from the ground, as will be readily understood.

Bolted under the centers and ends of the oblique beams M' are plates C², which have rearwardly-extending spindles D². Depend-
80 ing plates E² have sleeves formed at their upper ends, which are pivoted on the spindles, and thereby the said plates may be adjusted to a vertical position or to any desired lateral inclination, and set-screws F² work in threaded
85 openings in the said sleeves and are adapted to impinge on the spindles, and thereby secure the said plates at any desired adjustment. The plows or shovels G² have a helical
90 trend in the direction of their length, and the said plows or shovels are curved inwardly toward their rear ends, as shown. The lower edges of the plows or shovels are sharpened and adapted to cut into the earth, and the front edges thereof are inclined upward, as
95 shown.

It will be observed that the plows or shovels are widest at their centers and taper toward their ends, so that the forward portions of the said plows or shovels turn over the fur-
100 rows, and the rear portions thereof cut under the earth without turning the same.

The extreme front ends of the plows are pivoted to the lower front corners of the plates E² by bolts H², and in the rear corners
105 of the said plates are curved slots I², in which adjusting-bolts K² play. The said bolts are attached to the plows or shovels, as shown, and by tightening their clamping-nuts the same are adapted to secure the shovels to the
110 plates at any desired inclination.

It will be understood that by changing the adjustment of the oblique bars M' the plows or shovels will be caused to run nearer to or
115 farther from each other.

The operation of my invention will be very readily understood. The plowman grasps the handles or levers and walks astride of the row of plants, and the horses are arranged
120 on opposite sides of the row of plants with the cranked axle of the sulky astride of the row, and thereby the plows or shovels may be caused to stir and thoroughly disintegrate the soil and thoroughly exterminate weeds on both sides of a row of plants at one time.
125

Having thus described my invention, I claim—

1. The plows or shovels having a helical trend in the direction of their length, curved laterally, and made wider at their central
130 portions, from which the lower edges taper upwardly to the ends, substantially as set forth.

2. The combination, in a sulky-plow, of the

axle, the arms E', extending forward therefrom, the pivoted arms Y', extending rearward therefrom, the plow-beams having their front ends connected to the arms E' by universal joints, the said plow-beams being movable laterally under the rear ends of the arms Y', and the detents to lock the beams to the arms I' at any desired lateral adjustment, substantially as described.

3. The plow-beams having the cross or oblique beams M', with the rearwardly-extending spindles, in combination with the plates having the sleeves mounted on said spindles, whereby said plates may be adjusted laterally to any desired inclination, and the plows or shovels attached adjustably to said plates, substantially as described.

4. In a sulky-plow, the independent beams having the bifurcated rear arms L', in combination with the cross or oblique beams M', secured to and adjustable on said bifurcated arms, and the plows or shovels and connections between the same and the cross or oblique beams, substantially as described.

5. The combination, in a sulky-plow, of the axle, the arms E', extending forward therefrom, the arms Y', pivoted to and extending rearward from the axle and having the cross-heads provided with rack-teeth or recesses, the plow-beams having their front ends connected to the arms E' by universal joints, said plow-beams having the keepers R' bearing on the rear ends of arms Y', and the levers or handles D', pivotally connected to the plow-beams and having the detent-arms

adapted to engage the rack-teeth or recesses, and thereby lock the beams to the arms Y' at any desired lateral adjustment, substantially as described.

6. In a sulky-plow, the pivoted beams adapted to play vertically and laterally, in combination with the pivoted arms Y', having their rear ends bearing on and connected to the beams and adapted to slide thereon, the said arms Y' having the brackets B² under their front ends to engage and support the beams when the latter are elevated, substantially as described.

7. In a plow, the combination of the beams having the spindles, the plates E², pivoted on said spindles and having the curved slots I², and the plows or shovels pivoted to the plates and having the clamping-bolts working in the curved slots thereof, substantially as described.

8. The tongue C, provided on its under side with a plate L, having its rear end formed with a tongue M, in combination with the extension B, having the plate O, provided with a slot N, to be engaged by the tongue M, and the bolt-rod P, spanning the connection between the tongue C and extension B and engaging guide-loops R, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

FRANK J. MERROW.

Witnesses:

SAMUEL B. POOL,
WM. B. ANDRUSS.