(No Model.)

S. H. GARST.

SULKY PLOW.

No. 273,508. Patented Mar. 6, 1883.

Fig. 1.

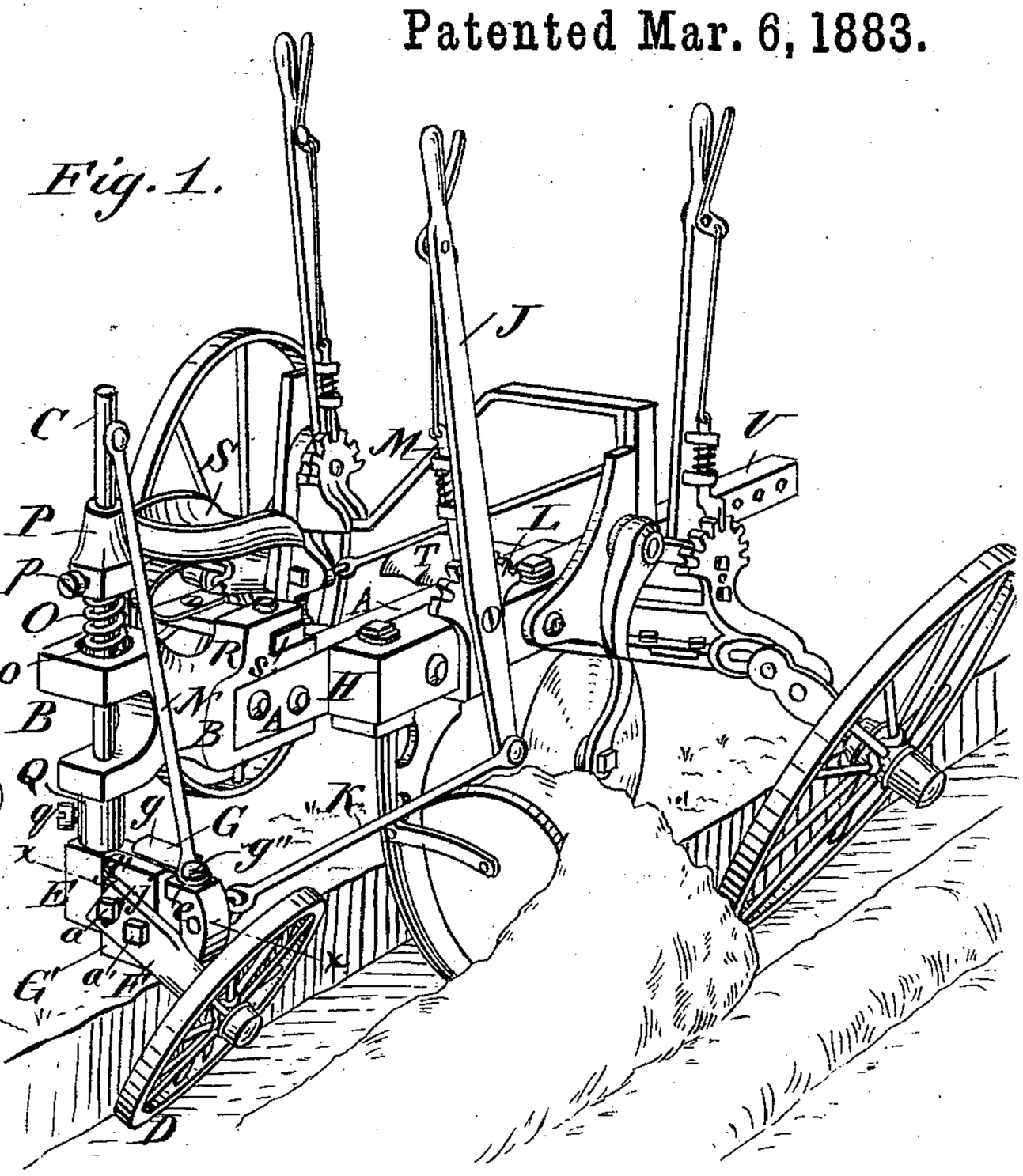


Fig. 4.

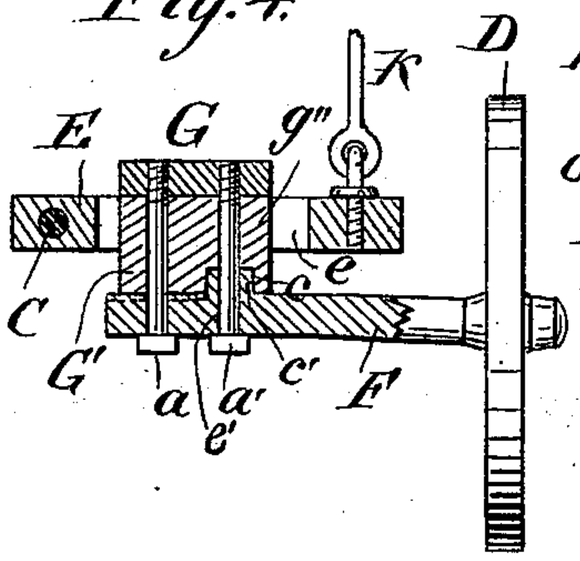


Fig. 2.

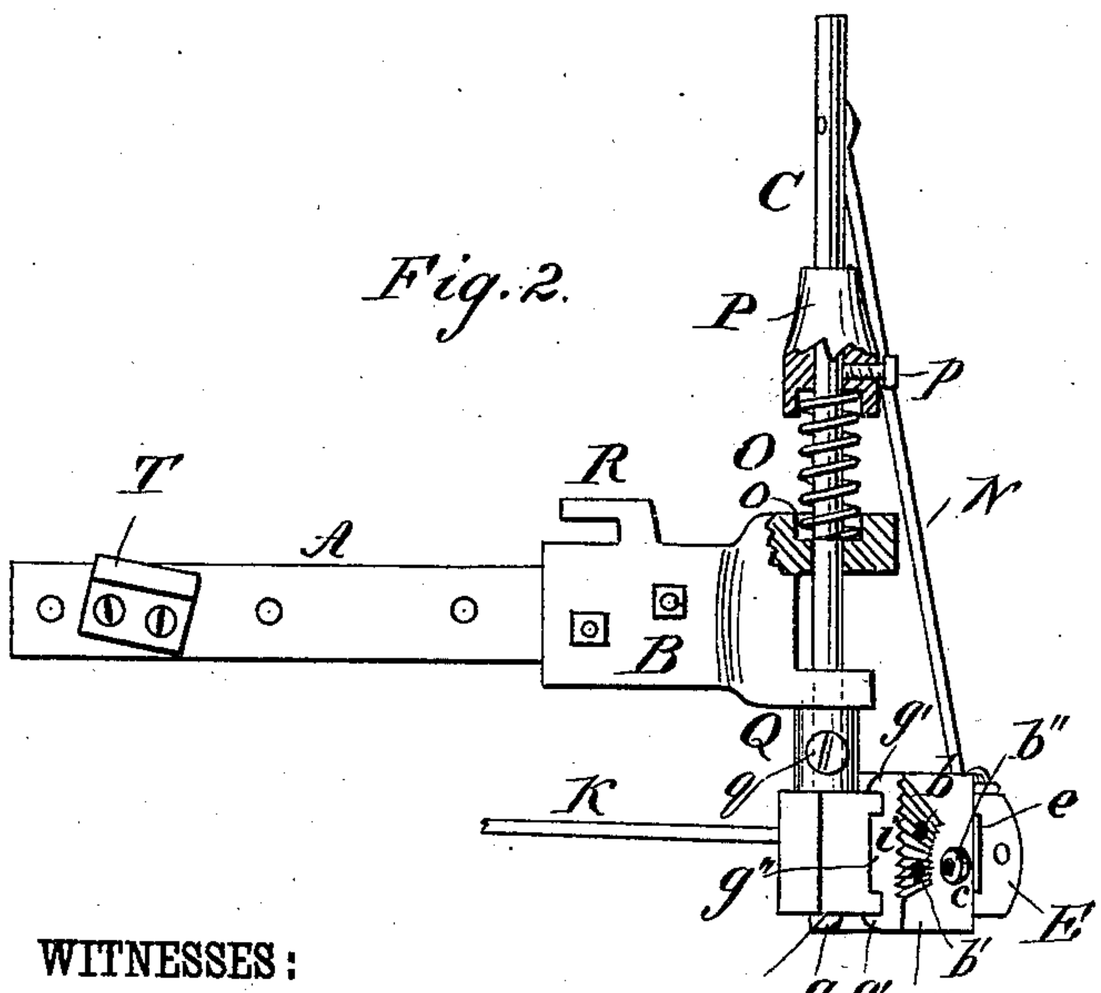
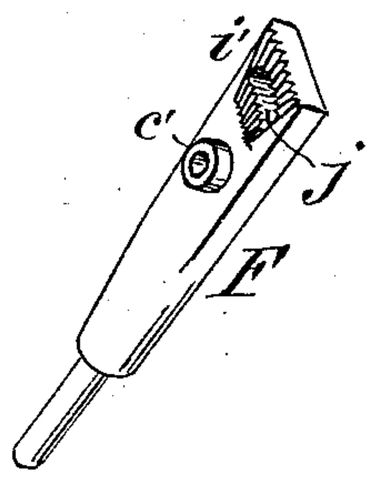


Fig. 3.



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SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 273,508, dated March 6, 1883.

Application filed September 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN H. GARST, of Greenville, in the county of Darke and State of Ohio, have invented a new and useful Improvement in Sulky-Plows, of which the following is a full, clear, and exact description.

The object of my invention is to dispense with the use of a tongue on sulky-plows; and to this end my invention consists principally in guiding and steadying the plow from the rear by means of a wheel attached in such manner that a tongue will not be needed, the wheel being at the same time adapted to carry a part of the weight of the plow.

My invention also consists of certain means whereby the wheel may be attached to plows now in use and the tongues thereof dispensed with, and also of means for regulating and means for adjusting the wheel, and finally of the special construction, arrangement, and combination of the parts of the wheel and its attachments, all as hereinafter described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a "Casaday" sulky-plow, showing my invention applied thereto. Fig. 2 is a broken elevation of the means for attaching the rear wheel to the plow, the rear wheel and its axle being detached therefrom. Fig. 3 is a perspective view of the axle of the rear wheel; and Fig. 4 is a sectional plan view taken on the line *x x* of Fig. 1, the axle being held in horizontal position.

In case my invention is to be attached to plows already made or in use, the plate or bar A, of wood or metal, may serve as the direct means of attaching the rear guiding-wheel, D, to the plow, which bar may be bolted or otherwise secured to the beam H or to some other solid part of the plow-frame.

To one end of the bar A is bolted the main casting B, in which is journaled the vertical shaft C, to the lower end of which the axle F of the rear wheel, D, may be directly or indirectly attached, so that the wheel will be adapted to be held at a suitable inclination to run in the angle formed by the bottom and vertical wall of the furrow, as shown in Fig. 1.

In the construction shown the axle F is attached to the shaft C by means of the slotted arm E, which is keyed to the shaft, and the clamp-plates G G′, to which the axle F is secured by the bolts *a a′*, the latter serving as a pivot-bolt, in the manner and for the purposes hereinafter described. The plate G is a plain plate, with flanges at its upper and lower edges, which fit over the upper and lower edges of the arm E, as shown at *g g*, Figs. 1 and 2, and the plate G′ is formed with similar flanges to fit over the edges of the arm E in a similar manner on the opposite side of the arm, as shown at *g′ g′* in said last-mentioned figures, and this plate G′ is formed with the central tongue, *g″*, which is as wide as the slot *e* in the arm E and as thick as the material of the arm, and which, when in place, passes through the said slot *e*, as shown in Figs. 1, 2, and 4, and through these plates are formed the corresponding bolt-holes, *b*, *b′*, and *b″*, through which the said bolts *a a′* are adapted to pass. Around the hole *b″* is formed in the outer face of the plate G′ the countersink *c*, in which the annular boss *c′* of the axle F fits, and the outer face of this plate is serrated, as shown at *i*, and the outer end of the axle F is serrated to match, as shown at *i′*, and this end of the axle has the slot *j* formed through it, as shown in Figs. 1 and 3. Through this slot and the hole *e* in the axle the bolts *a a′* respectively are adapted to pass. In this manner the bolts *a a′* serve to bolt the axle F to the clamp-plates G G′ and to secure the clamp-plates to the arm E. If the bolt *a*, which passes through the slot *j* of the axle, is placed in the hole *b*, the axle will be held at an angle, as shown in Fig. 1; but if it is to be placed in the hole *b′* the axle must be turned upon the bolt *a′* as a pivot to a horizontal position, as shown in Fig. 4, where it will be held by the said bolt *a*. The slot *j* in the axle and the slot *e* in the arm E permit the axle to be moved to the right or left and varied in its angle for bringing the rim of the wheel always in line with the point of the plow, as in changing from light plowing with shallow and narrow furrows to heavy plowing with deep and wide furrows the wheel D must be set at a greater angle with the head G G′ and the head shifted outward on the arm E to align the plow-point

and wheel-tread, as above stated. The wheel D is adapted to be varied in its course for guiding and controlling the plow. This is accomplished by the plowman by means of the lever J, pivoted to the beam H and the rod K, which connects the outer end of the arm E to the lower end of the lever, as shown in Fig. 1. For holding the lever J and wheel D at any desired position, I provide the beam H with the sector L and the lever J with the lever-pawl M, adapted to engage with the sector, as shown in Fig. 1.

N is a brace or tie rod leading from the outer end of the arm E to or near to the upper end of the shaft C, for holding the arm rigid and firm.

Upon the shaft C, above the casting B, is placed the coiled spring O, the lower end of which rests in the countersink *o*, and above this spring is placed upon the shaft the collar P, which may be raised or lowered upon the shaft and held at any desired position by the set-screw *p*, to serve as a stop to and for regulating the pressure of the spring O. The object of the spring O is to allow the rear end of the plow-frame to have a slight movement upward independent of the shaft C, and to cushion this movement so that any sudden upward movement which the beam may receive from the plow passing over rocks or other obstacles in the ground will not jar and injure the wheel D or its connections. The shaft C is held the proper distance below the casting B by means of the collar Q, which is secured to the shaft by means of the set-screw *q*.

R is a lip formed upon the upper side of the casting B, for holding the plate *s* of the seat S, as shown in Fig. 1, and T is a foot-rest secured to the plate or bar A, as shown in Fig. 2, for supporting the feet of the plowman.

In attaching my invention to a plow the tongue will simply be removed from the plow, and a short block—a fac-simile of the rear end of the tongue—will be bolted in its place for holding in place those parts that are usually attached to the tongue. The bar or plate A will then be bolted to the beam, (or other firm part of the plow-frame,) and the seat S will be removed from the beam to the casting B, which puts the plow in condition for use.

Although I have shown my invention applied to a Casaday plow, and one already made, it will be understood that I may attach it to any other form of a sulky-plow, and that the Casaday or any other sulky-plow may be constructed in the first instance with special reference to my invention, and that in case the plow is so specially constructed for my invention the frame of the plow will be especially formed for receiving and holding the rear wheel, and that the plate A and separate casting B may be dispensed with, and that other parts of the plow may be suitably modified to receive the attachment, as due regard to the best mechanical construction and arrangement may suggest.

In use the wheel D will run in the angle of the furrow, as shown in Fig. 1, and in plowing a straight furrow it should be brought by the lever J so that it will run in line with the point of the plow. If the wheel is inclined to draw away from the vertical wall of the furrow, the lever should be drawn backward. If it is inclined to climb up the vertical wall of the furrow, the lever should be pushed forward. In this manner the plow will be kept steady by the wheel, and the width and depth of the furrow will be uniform throughout.

In ordinary plowing the beam of the plow should be about level. For soft ground the forward end of the beam should be slightly elevated, and for hard ground the forward end of the beam should be slightly depressed. This regulation with my invention is accomplished by raising or lowering the collar Q on the shaft C and setting it at any desired position by the set-screw *q*.

In turning at the corners the plow is not run out at the end of the land, but is stopped about a furrow's width back from the corner, so that the plow turns while in the ground. The lever J is then pushed forward, which partly turns the plow and brings the wheel D about at right angles to the beam H, and then the team is brought around, swinging the plow to place without straining the plow, as would be the case if a tongue were used. The wheel D is then brought back by the lever J in line with the plow-point, and the plowing continued. Besides this advantage of relieving the plow from the strain which the tongue causes in turning and at other times, the dispensing with the tongue is a great relief to the team, since they are relieved of its weight and are not hampered and jostled about by it, but are left free to move naturally, and the plow is entirely without side draft. Besides this, the plow will not sway sidewise or up and down, as with a tongue, due to the movement of the team, but will follow the surface of the ground and always cut the furrow of uniform depth and width, and the plow can be very easily and accurately guided by the lever and rear wheel.

The plow may also be raised clear of the soil while turning the machine either way on the three wheels on the plowed or unplowed land.

There will be small lugs or projections on the periphery of the wheel D to give it a better hold in the ground to assist in backing when the plow is raised, and suitable slack chains will be attached to the double-tree and axle to assist in turning the plow and to guide it when driving out of a straight line; and the wheel D in practice will be quite as large as the other two supporting-wheels of the machine.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a sulky-plow, the vertical shaft C, in

combination with the axle F, wheel D, and the lever J, and rod K, substantially as and for the purpose set forth.

2. The attachment for sulky-plows, consisting of the plate A, casting B, vertical shaft C, axle F, and wheel D, combined and operated substantially as and for the purposes set forth.

3. The combination, with the shaft C and wheel D, of the adjustable axle F, substantially as and for the purposes set forth.

4. The combination, with the vertical shaft C, having the slotted arm E, of the clamp-plates G G′ and axle F, the plates being adapted to be adjusted in the arm E, as for the purposes set forth.

5. The clamp-plates G G′, adapted to be clamped to the arm E, and formed with the holes *b b′ b″*, in combination with the axle F, having the slot *j*, and annular boss *c′*, the latter being adapted to enter the countersink *c*, the plate G′ and axle F being formed with or without serrations, substantially as and for the purposes described.

6. The shaft C, having the axle F attached to it, in combination with the casting B and spring O, for preventing sudden upward movement of the shaft and axle, substantially as and for the purposes described.

7. The vertical shaft C, having the axle F and wheel D attached to it, in combination with the collar Q, for raising or lowering the beam H, substantially as and for the purposes set forth.

8. The combination, with the casting B and shaft C, of the spring O and movable collar P, substantially as and for the purposes described.

9. The vertical shaft C, in combination with the arm E, axle F, wheel D, and brace or tie rod N, substantially as and for the purposes set forth.

10. The combination, with the bar A, casting B, shaft C, arm E, plates G G′, axle F, and wheel D, of the lever J, rod K, sector L, and lever and pawl M, substantially as and for the purposes set forth.

STEPHEN HALE GARST.

Witnesses:

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