(No Model.) 3 Sheets—Sheet 1.

W. L. CASADAY.

WHEEL PLOW.

No. 313,286. Patented Mar. 3, 1885.

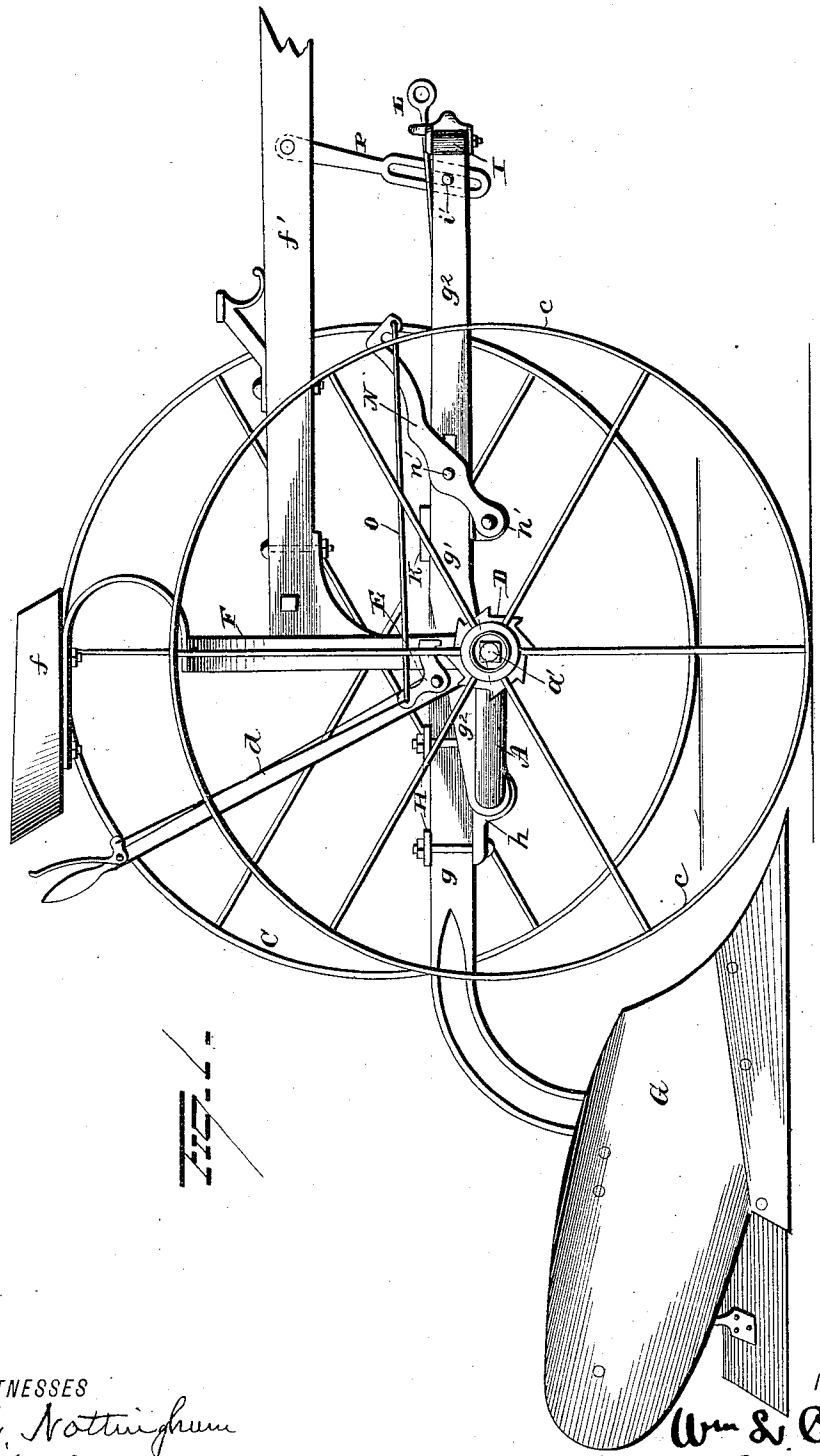


Fig. 1.

WITNESSES

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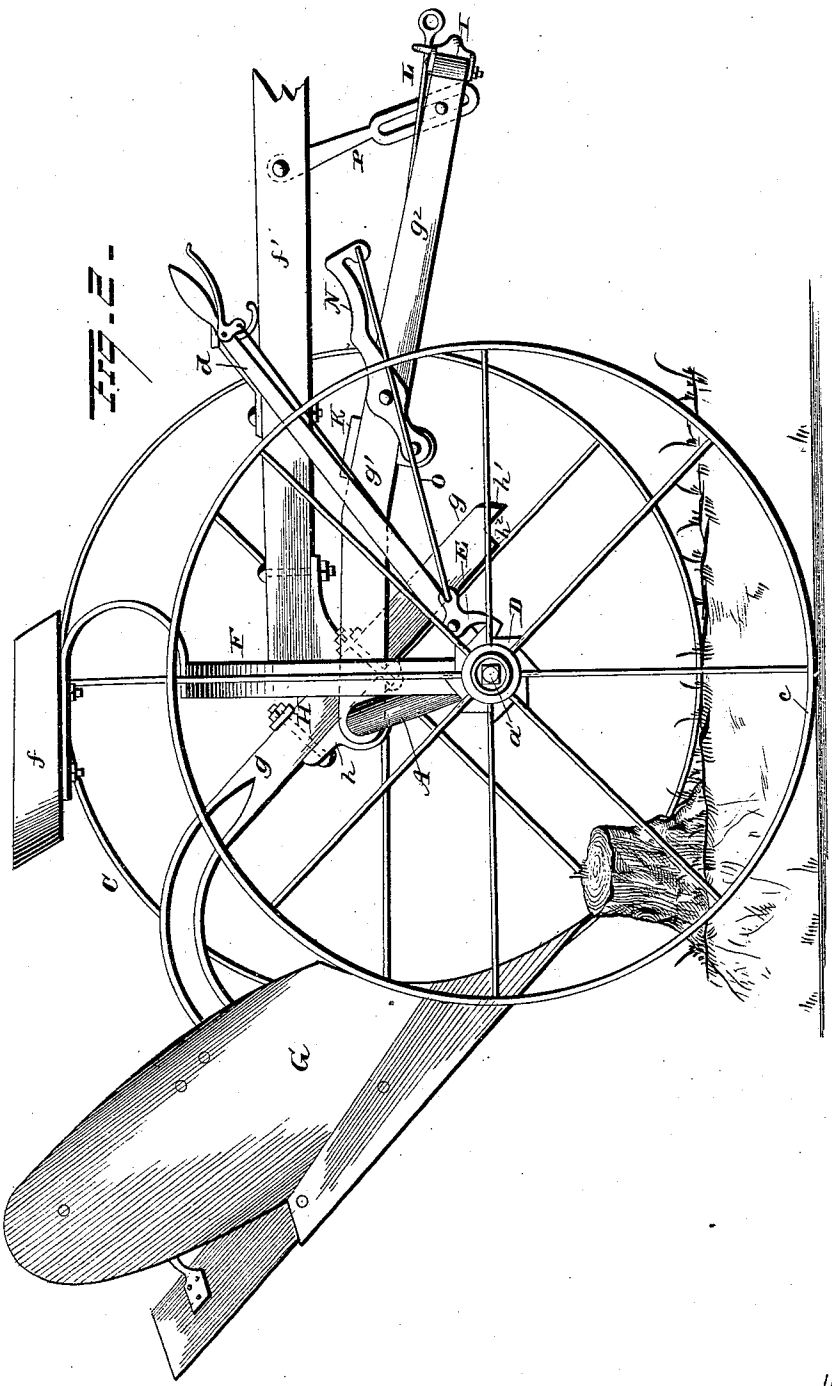
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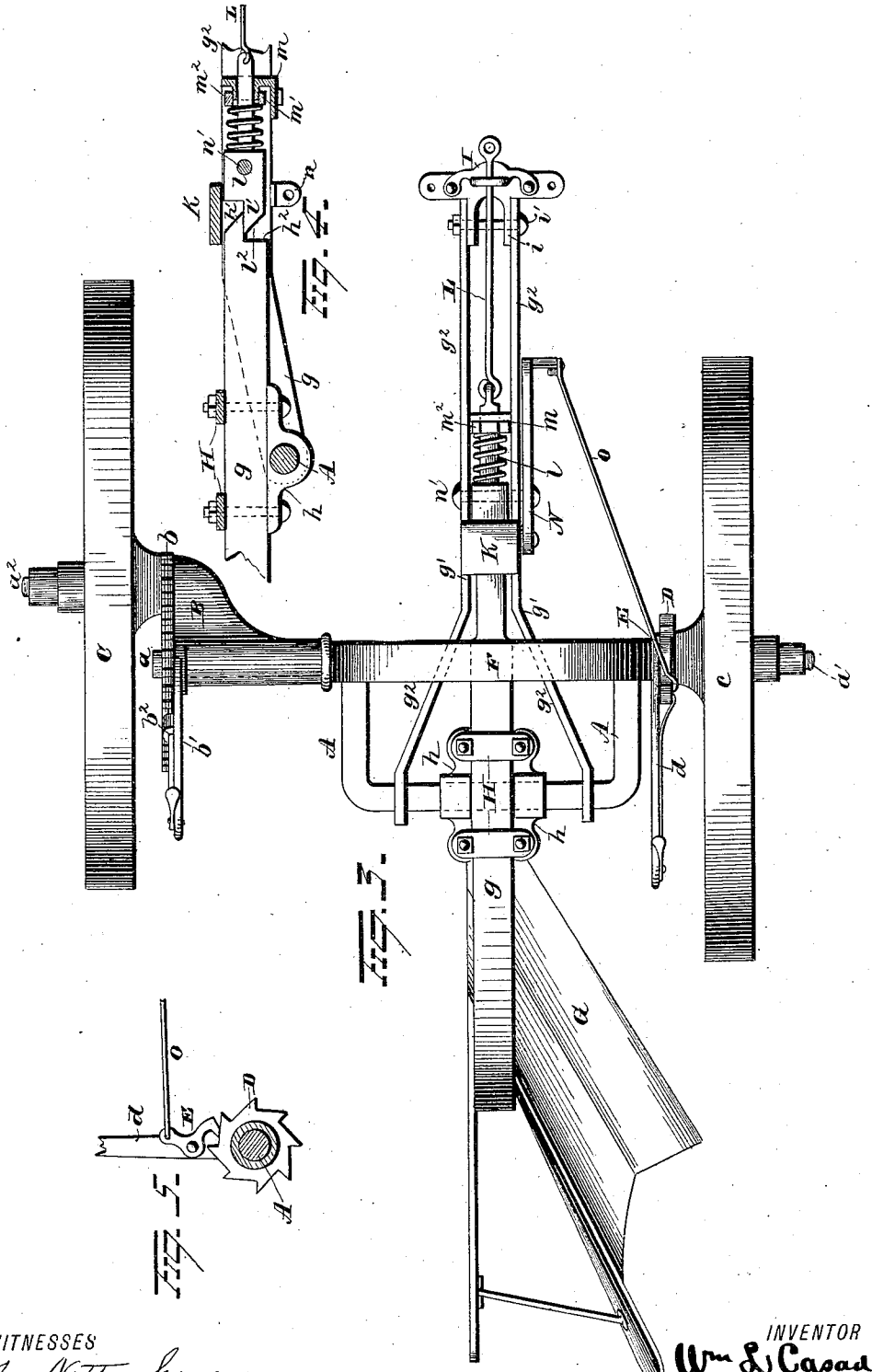


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM L. CASADAY, OF SOUTH BEND, INDIANA, ASSIGNOR OF ONE-HALF TO SOUTH BEND IRON WORKS, OF SAME PLACE.

WHEEL-PLOW.

SPECIFICATION forming part of Letters Patent No. 313,286, dated March 3, 1885.

Application filed November 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. CASADAY, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Wheel-Plows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in wheel-plows, the object of the same being to provide a wheel or sulky plow of such construction that its beam will separate when the plow strikes an obstruction, thereby allowing the plow to tilt and pass over the obstruction without injury; a further object being to provide means whereby the draft of the team will simultaneously unlock the beam-sections and elevate and tilt the plow when it meets with an obstruction; a further object being to provide a safety attachment which shall be so delicate and invariable in operation that the plow may with perfect safety be constructed lighter than heretofore; and with these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of my improvement. Fig. 2 is a similar view showing the plow in a tilted position. Fig. 3 is a plan view. Fig. 4 is an enlarged detached sectional view of the beam-sections and locking mechanism; and Fig. 5 is an enlarged detached view of the furrow-wheel hub, ratchet-toothed wheel, and locking-pawl.

A is a crank-axle, provided with the spindle *a* at the landside end and spindle *a'* at the furrow end. A crank-shaped sleeve, B, is loosely mounted on the spindle *a*, the outer end of the sleeve being provided with the spindle a^2, on which the land-wheel C is mounted. A toothed sector, *b*, is rigidly secured on the end of the spindle *a*, and an operating-lever, *b'*, is rigidly secured on the sleeve B in close proximity to *b*, and conveniently provided with a spring-dog, b^2, for locking the lever to the sector. The lever, as it is moved forwardly and backwardly, elevates or depresses the plow-frame with respect to the land-wheel and locks it in the required adjustment by means of the dog b^2 and sector *b*. The furrow-wheel *c* is mounted on the spindle *a'*, and has rigidly secured to the inner end of its hub a ratchet-toothed wheel, D. An operating-lever, *d*, is rigidly secured on the axle A in close proximity to the wheel D, and a pawl, E, is pivotally secured to the lever *d* in a position to engage the teeth on the wheel D, and thereby lock the lever, and hence the crank-axle A, to the hub.

F is the arch which supports the driver's seat *f*. The ends of the arch are secured to sleeves on the axle, and the tongue *f'* is rigidly secured to the arch.

G is the plow. The plow-beam consists of two sections, *g* and *g'*. The section *g* is immediately connected with the plow, and is pivotally secured on the crank of the axle A at a point nearly or quite over the plow-point, preferably by means of a plate, H, bolted to the under side of the beam-section *g*, and provided with a box, *h*, adapted to embrace the axle. The forward end of the beam-section *g* is beveled and shouldered, as shown at *h' h²*.

The section *g'* consists of two rails, bars, or rods, g^2, securely connected and held a short distance apart by a cross-head, I, which may also serve as a clevis, at their forward ends, the head I having lugs *i*, which extend a short distance between the bars, which are provided with perforations registering with perforations in the rails adapted to receive a bolt or bolts, *i'*. The bars g^2 run parallel to a point a short distance to the rear of the forward end of the section *g*, and then spread apart, and are sleeved on the crank of the axle A, one on each side of the plate H. The bars g^2 are further braced by a cross-piece, K, firmly secured thereto at a point directly above the end of the section *g*. The piece K also serves as a stop to limit the upward motion of the forward end of the beam-section *g*. The forward end of the beam-section *g'* is connected with the tongue by a link or chain, P.

The draft is applied to the plow through a draft-rod, L, which extends through a perforation in the head I and rearwardly between the bars g^2 to a point a short distance in front of the beam-section *g*. At this point it is at-

tached to a plunger, *l*, suitably supported between the bars, the rear end of the plunger being provided with a jaw, *l'*, adapted to extend under the end of the section *g*, and thereby lock the section *g* to the section *g'*. The rear end of the jaw *l* is beveled, as shown at l^2. The forward end of the draft-rod L may be both horizontally and vertically adjusted in the clevis $I^\times$. The plunger *l* is surrounded by a stiff spiral spring, M, against the tension of which the draft is exerted as follows: The plunger is allowed to slide longitudinally in its support. The forward support, *m*, consists, preferably, of a plate longitudinally adjustable between the bars g^2, and provided with a perforated male threaded boss, *m'*, in which the plunger has a free sliding motion, and on which a nut, m^2, turns. By the combined movements of the plate *m* and nut m^2 the tension of the spring M may be regulated to the finest degree, and be made to sustain the necessary draft to draw the plow through soils of different degrees of hardness, and at the same time yield to any strain which is materially in excess of the ordinary draft. For example, suppose the spring to be set at a tension of nine hundred pounds, the breaking-strain of the plow to be one thousand two hundred pounds, and the team attached to the plow capable of exerting a draft of two thousand pounds. It is evident that the spring would yield to the draft. Thus, when the strain becomes greater than the spring is set to sustain, the plunger will be drawn from beneath the end of the beam-section *g* and the plow allowed to tilt, as shown in Fig. 2, and draw over any obstacle which it encounters without danger of breakage. The tension of the spring M may be regulated by other means than that just described. For example, the boss *m'* and nut m^2 may be replaced by a loose washer; or the spring may bear directly against the plate *m;* or the plate *m* may be stationary, the rear end of the rounded portion of the plunger threaded, and a nut adapted to work thereon, and other means might be devised; hence I do not wish to limit myself to the spring-adjusting devices shown and described. The plunger *l* is also adapted to be operated by the foot, as follows: A foot-lever, N, is pivotally secured at its lower end to a depending lug, *n*, on the beam-section *g'*, and is attached to the plunger a short distance above its pivotal point, preferably by a pin or bolt, *n'*, passing through an elongated slot in one of the bars g^2. The upper end of the lever N is located in a convenient position for the driver's foot, and is connected by a rod, O, with the pawl E. Thus, when the lever N is pushed forwardly by the foot of the driver, the plunger will be pushed forward, or when the plunger is drawn forward by the draft of the team the foot-lever will be rocked forward thereby, and the pawl E, by means of the rod O, caused to engage the ratchet-toothed wheel D, the beam-section *g* will be unlocked and the crank-axle A simultaneously locked to the wheel, and the crank on which the plow is supported will be rocked into elevated adjustment. As soon as the excessive strain ceases the plunger will return to its normal position, thereby releasing the pawl E, and the plow will fall into its depressed position, and be locked therein by the jaw *l* of the plunger. Furthermore, the bearing of the jaw *l'* against the end of the beam-section *g* is of such length that, should the driver desire to elevate the plow without unlocking the beam-sections, he may push the lever N forwardly a distance sufficient to cause the pawl E to engage the wheel D, and thus elevate the plow without entirely removing the jaw *l'* from its position beneath the beam-section *g*.

In addition to the advantage derived from having the plow automatically release itself from any obstruction which it may encounter, and the saving in material thereby obtained, the yielding of the draft-rod affords the advantages of saving the necks or shoulders of the horses from bruises caused by the sudden shocks which a non-yielding connection would inevitably produce.

It is evident that many slight changes in the form and relative arrangement of the several parts above described may be resorted to without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the construction herein set forth; but,

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

1. In a wheel-plow, the combination, with a sectional plow-beam having one section mounted on a pivotal support, of a yielding jaw connected with the draft-rod and adapted to lock the two beam-sections together, substantially as set forth.

2. In a wheel-plow, the combination, with a crank-axle and a sectional plow-beam pivoted thereon, of a yielding jaw connected with the draft-rod and adapted to lock the two beam-sections together, substantially as set forth.

3. In a wheel-plow, the combination, with a crank-axle and a sectional plow-beam pivoted thereon, of a yielding jaw connected with the draft-rod, and provided with a shouldered end that engages the shouldered end on the plow-beam, substantially as set forth.

4. In a wheel-plow, the combination, with a crank-axle, a plow-beam secured to the plow, and a skeleton beam-section secured at its rear end to the crank-axle, of a spring-actuated jaw for locking the two sections together, and a draft-rod connected to the yielding jaw, substantially as set forth.

5. In a wheel-plow, the combination, with a crank-axle and a plow-beam pivoted thereon, said plow-beam constructed in sections, of a yielding jaw adapted to be actuated by the draft and disengage the two beam-sections and allow the plow to be tilted and ride over an obstruction, substantially as set forth.

6. In a wheel-plow, the combination, with a crank-axle and a sectional plow-beam pivoted thereon, of a yielding draft-connection adapted to lock and release the beam-sections, devices connecting the yielding connection, crank-axle, and supporting-wheel, whereby the plow meeting an obstruction is automatically elevated and tilted by the draft of the team, substantially as set forth.

7. In a wheel-plow, the combination, with a crank-axle, a sectional plow-beam pivoted thereon, and devices for locking the crank-axle to the supporting-wheel, of a yielding jaw secured to the draft-rod, and devices connecting the yielding jaw and the said locking devices, whereby the beam-sections are automatically unlocked and the crank-axle locked to the wheel when the plow meets an obstruction, substantially as set forth.

8. In a wheel-plow, the combination, with a beam-section consisting of two rails, bars, or rods secured together and pivoted on the axle, and a beam-section secured to the plow and pivoted on the axle, of a spring-actuated plunger or slide supported on the first-named beam-section, and adapted to sustain the draft and automatically release the beam-section attached to the plow when the plow meets an obstruction, substantially as set forth.

9. In a wheel-plow, the combination, with a sectional plow-beam pivoted on the axle, of a plunger or slide attached to the draft-rod and actuated by a spring, the tension of which is adjustable, said plunger or slide being provided with a jaw which takes under one of the beam-sections and locks the two sections together when the draft is normal, substantially as set forth.

10. In a wheel-plow, the combination, with a skeleton plow-beam section consisting of two side rails secured together at the front end and spread apart and sleeved on the axle at its rear end, and a plow-beam section pivoted on the axle between the branches of the skeleton section, of a yielding draft-connection secured to the skeleton section and adapted to automatically lock and release the second-named beam-section, substantially as set forth.

11. In a wheel-plow, the combination, with a plow-beam section consisting of two rails united by the clevis at the front end and journaled on the axle at the rear end, and a plow-beam section attached to the plow and journaled on the axle, of a combined cross-brace and stop secured to the first-named beam-section, and a yielding jaw attached to the draft-rod, whereby the beam-sections are securely locked to one another, substantially as set forth.

12. In a wheel-plow, the combination, with a sectional plow-beam, of a spring-actuated lock and means for adjusting the tension of the spring, whereby the beam-sections are released or held locked to suit different strains, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM L. CASADAY.

Witnesses:
F. C. NIPPOLD,
H. B. SMITH.