(No Model.)

G. H. SAWYER.

SULKY ATTACHMENT FOR PLOWS.

No. 379,288. Patented Mar. 13, 1888.

Fig. 1.

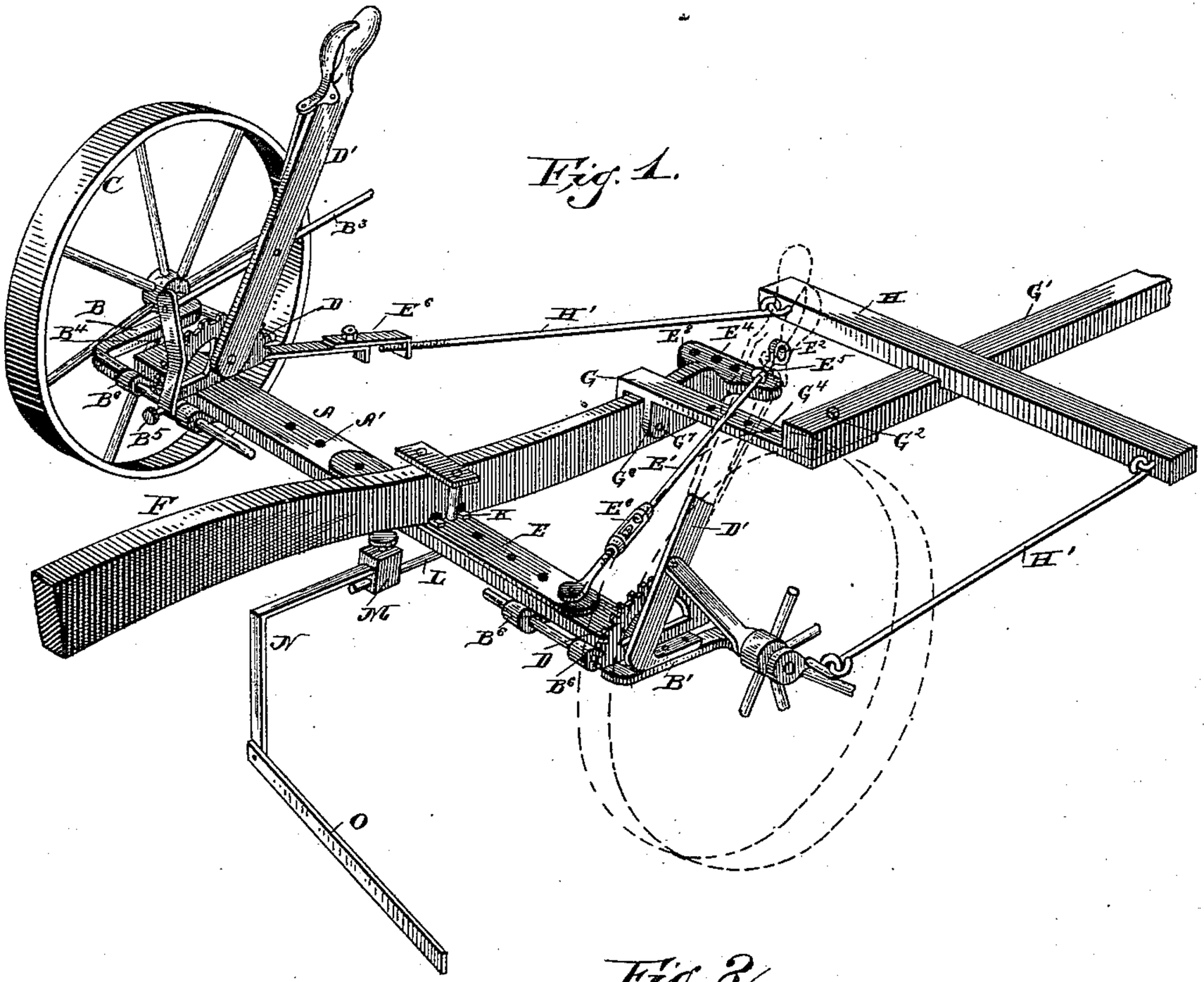
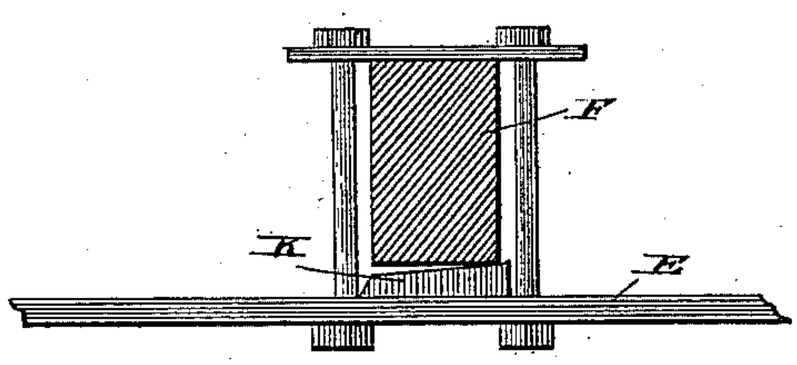


Fig. 2.



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SULKY ATTACHMENT FOR PLOWS.

SPECIFICATION forming part of Letters Patent No. 379,288, dated March 13, 1888.

Application filed December 1, 1887. Serial No. 256,717. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. SAWYER, a citizen of the United States, residing at Lamoille, in the county of Bureau and State of Illinois, have invented certain new and useful Improvements in Sulky Attachments for 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention has reference to certain improvements in sulky attachments for plows; and it consists more especially—

First. In the centrally-pivoted axle adapted to be oscillated in a horizontal plane by means of one or more forward connections to the tongue. In thus pivoting the axle of the carrying-wheels at or near its center the design is to afford means of changing the direction of both of said carrying-wheels, either in the ordinary operation of the plow or in turning at the ends.

Second. In mechanism to overcome the side strain or landside pressure of the plow; also in means for changing the position of the plow-beam laterally to or from the vertical in reference to the carrying-wheels, so that the carrying-wheels may be utilized to resist the usual lateral pressure of the landside.

As my invention is adapted to be attached to any plow, and the construction and operation of the latter are well known, I do not deem it necessary to show or describe the latter further than to indicate the relation and mode of attachment of my invention to a plow.

In the drawings, Figure 1 is a slightly oblique plan of a machine embodying my invention. Fig. 2 is a cross-section of the plow-beam seat.

A is a transverse axle, to the rear side of which are respectively journaled the crank-axles B and B′, said axles being seated loosely in sleeves B^6, so as to be free to rotate in a vertical plane. On the outer ends of said axles, on what might be termed a "crank-wrist," are pivotally seated the usual carrying-wheels, C. The usual quadrants, D, are seated on or under the axle A, at or near the ends thereof, and provided with the usual lever, D′, attached to the axles B and B′ and provided with the usual spring-pawls, D^2, adapted to engage the ratchet in said quadrants, and thereby adjust the height of the axles B and B′, respectively, to adjust the position of the plow. The lever D′, which actuates the axle B or land-side axle, is attached to said axle by being pivoted at its lower end on the axle A, and having pivotally attached thereto a diagonal rod, B^3, the lower end of which is pivotally attached to an arm, B^4, adjustably sleeved on the axle B by means of a set-screw, B^5, whereby the axle B may be moved as desired to or from the plow, so as to widen the reach of the land-side wheel C on rough ground and narrow the same on a hillside.

E is a plate pivoted at one end adjustably on the axle A, and at or near the center of the axle A. By the provision of a series of holes, A′, in the axle A the plate E can be shifted laterally thereon to regulate the width of the furrow.

To the upper side of the plate E is suitably attached rigidly the plow-beam F, as shown. A rod, E′, is pivotally attached at its rear end to the outer end of the plate E, and extended forward and suitably attached to the side of the plow-beam F, at the front end thereof, and provided with an eye, E^2, through which the team is attached.

By the provision of different holes in plate E the rear end of the rod E′ may be adjusted to or from the pivotal seat of said plate, so as to vary the line of draft of said rod in reference to the line of the plow-beam F, and by a lateral series of holes, E^4, formed in the transverse plate E^8, attached to the front end of beam F, the forward end of said rod E′ may be adjusted laterally.

To attach the team directly in front of the plow-beam F and in line with the latter will result in the aforesaid lateral shoving of the plow toward the land side, occasioned by the pressure laterally of the earth upon the mold-board and share, and the purpose in the introduction of the rod E′ is to apply the draft to a point outside of said beam and upon the furrow side thereof, so that the draft will tend to counteract the aforesaid lateral twisting of the land side, and the respective ends of the

rod E′ are made adjustable to or from the plow-beam F, because the aforesaid disposition of the rear end of the side to crowd against the unplowed ground varies in degree in different plows and in different qualities of ground.

G is a plate attached transversely to the front end of the plow-beam F and extending toward the plowed ground. The rear end of the tongue G′ is pivotally seated on the plate G, near the outer end thereof. The tongue G′ is pivoted by means of a vertical bolt, G^2, and by providing the plate G with a series of holes, G^4, laterally and inserting the bolt G^2 therein the tongue G′ also may be adjusted laterally.

H is a cross-bar rigidly seated centrally on the tongue G′. Divergent rods or chains H′ are attached at their front ends to the outer ends of the beam H in any suitable manner, and at their rear ends the outer chain, H′, is attached to the axle B′, and the inner rod, H′, is attached to the axle A, to permit the longitudinal shifting of the axle B. By this construction the least lateral movement of the tongue G′ upon its pivot G^2 is communicated proportionately to the axles B and B′, and the direction of the latter coincidently changed in accordance with the lateral movement of said tongue.

In the operation of the implement this serves to guide the plow, and in turning at the ends operates to turn the plow about with the same freedom as though the team were attached at the end of the beam, and enables the operator to make a right angle, if he desires. The rods H′ may have their convergent front ends pivoted directly over the tongue G′, if desired, and if a rod rather than a chain is used the other rod or chain may be dispensed with; but I prefer the use of two rods H′, in order that the lateral oscillation of the tongue G′ may be more accurately and coincidently communicated to both of said axles B and B′.

In the operation of the plow if any particular amount of weight is allowed to be carried on the rear end of the landside the friction occasioned thereby greatly increases the draft of the implement. This has been attempted to be obviated by the application of a rear carrying-wheel; but while in this case the amount of friction may be lessened it is not entirely avoided, and the heel of the plow is deprived of the necessary flexibility in a vertical plane to enable it to follow the inequalities of the ground.

In my construction the weight of the tongue G′ and adjacent mechanism at the front end of the beam F, together with that of the rods H′, tends to slightly raise the rear end of the landside and prevent the aforesaid friction.

The plate G is attached to the beam F by said plate having downwardly-extending lugs G^6 and a bolt, G^7, passed through said beam and lugs. This permits a vertical pivotal movement to the beam F at this point, and as the carrying-wheels C are free to follow the inequalities of the ground the plow has a like freedom in a vertical plane to the extent of the vertical variations of said carrying-wheels, and is thereby calculated to operate at a uniform depth through depressions or over prominences in its path.

A swivel-connection, E^6, is formed centrally on the rod E′, so as to adjust the length of said rod E′ to different plows and different conditions under which it may be used. The axle A and plate E are placed under the beam F, slightly in front of the attachment to the latter of the usual colter.

Vertical adjustment to the plow is accomplished in the usual way by means of the lever D′ and the crank-axles B and B′; but in order that the carrying-wheels may be utilized to resist in some measure the pressure of the plow against the land side I introduce the following provision: A wedge, K, preferably of metal, having one feather-edge and its opposite edge increasing in thickness rearward, is driven from the rear between the beam F and plate E, with the feather-edge toward the land side, or unplowed ground, and the thicker edge toward the furrow. This has the effect of tilting the top of the beam F laterally toward the land side with reference to the plate E and axle A and the carrying-axles B and B′. The plow is then leveled laterally by either raising the axle B or lowering the axle B′, and when thus leveled the said carrying-wheels will be careened slightly laterally, with their tread projected toward the unplowed ground, and thereby assist to hold the plow against the pressure of the turning furrow thereon, and to that extent reduce the friction of the landside.

The axle A and plate E may be lengthened, so as to be made applicable to two or more plows, and a driver's seat can be supported from the axle A in any obvious mode, or the apparatus may be used as a walking-plow.

L is a spring-rod rigidly attached by its front half to the under side of the axle A, and with its lower side projected toward the rear. At the rear end of the rod L, by means of the usual serrated clamp, M, there is adjustably attached to said rod the rearwardly-extending arm N, which is turned downward at its rear end, and provided thereat with the obliquely-extending scraper O, the latter extending in a substantially horizontal plane toward the previous furrow. The location and length of the arm N is such that its rear and lower end is projected to the surface of the ground slightly to the rear of the center of the usual rolling colter, and near the outer face of the latter.

The operation of the scraper O is to remove the surface weeds and stalks from the colter-gash toward the previous furrow, so that the next upturned furrow may completely cover the same. The elasticity in the spring-rod L enables the scraper O to follow the undulations of the ground and remain on the surface thereof. The adjustment before referred to between the rod L and arm N may be made in any of the usual modes, the purpose thereof being to prevent the rear end of the arm N from com-

ing in actual contact with the face of the rolling colter.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In sulky attachments for plows, the combination of the axle A, beam F, carrying axles B and B′, plate G, tongue G′, pivoted horizontally to the plate, transverse bar H, and connecting-rods H′, arranged and operating substantially as shown, and for the purpose described.

2. In a sulky attachment for plows, the combination of the transverse axle A, the plow-beam F, pivotally seated thereon, the axles B and B′, tongue G′, pivoted laterally, and rods or chains H′, connecting said axles to the tongue, whereby the lateral oscillation of the latter is utilized to govern the direction of the plow, substantially as shown, and for the purpose described.

3. In a sulky attachment for plows, a transverse axle, A, a plow-beam F, plate E, pivotally seated on said axle, and means, substantially as shown, for oscillating or turning said plate in a horizontal plane, for the purpose described.

4. In a sulky attachment for plows, the combination of the axle A, the plate E, pivotally seated on axle A, the beam F, rigidly attached to plate E, and draft-rod E′, substantially as shown, and for the purpose described.

5. In a sulky attachment for plows, the combination of the plow-beam F, pivoted vertically at its forward end, the axle A, the plate E, pivoted upon said axle A, having rigidly attached thereto the beam F, and the draft-rod E′, pivoted at its rear end to the plate E, and adjustably attached to the beam F at the forward end of the latter, and provided with draft-eye E^2, substantially as shown, and for the purpose described.

6. In sulky attachments for plows, the transverse axle A, the beam F, the plate E, attached to the beam F and extended laterally therefrom, and a draft-rod, E′, attached at its rear end to the plate E and at its forward end to the side of the beam F, whereby the draft of the team is applied outside of the longitudinal center of the beam F, and tends to hold the rear end of the latter against lateral movement toward the landside and to centralize the draft between the lines of said landside or outer cutting-edge of the plow, substantially as shown, and for the purpose described.

7. In sulky attachments for plows, the tongue G′, pivoted horizontally at its rear end on the transverse plate G, the plow-beam F, pivoted vertically to said plate and seated rigidly on plate E, the axle A, suitably supported on carrying-wheels, the plate E, pivoted thereon, cross-beam H, rigidly attached to said tongue, the plate G, and rods H′, all arranged substantially as shown, and for the purpose described.

8. The combination of the axle A, suitably supported upon crank-axles B and B′, the plate E, parallel with axle A, plow-beam F, seated on plate E, interposed eccentric-wedge K, and means, substantially as shown, for adjusting the altitude of said carrying-axles, whereby the relation of said axles to said beam is varied, substantially as shown, and for the purpose described.

9. The combination of the beam F, axle A, spring-rod L, arm N, adjustably attached thereto, and scraper O, substantially as shown, and for the purpose described.

10. In combination with the axle A, the crank-axle B, suitably sleeved to said plate, lever D′, diagonal rod B^3, and arm B^4, adjustably attached to the axle B, substantially as shown, whereby said axle B is adapted to be moved to or from the furrow, for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

GEO. H. SAWYER.

Witnesses:

JOHN F. BARRETT,

GEO. W. PACKER.