

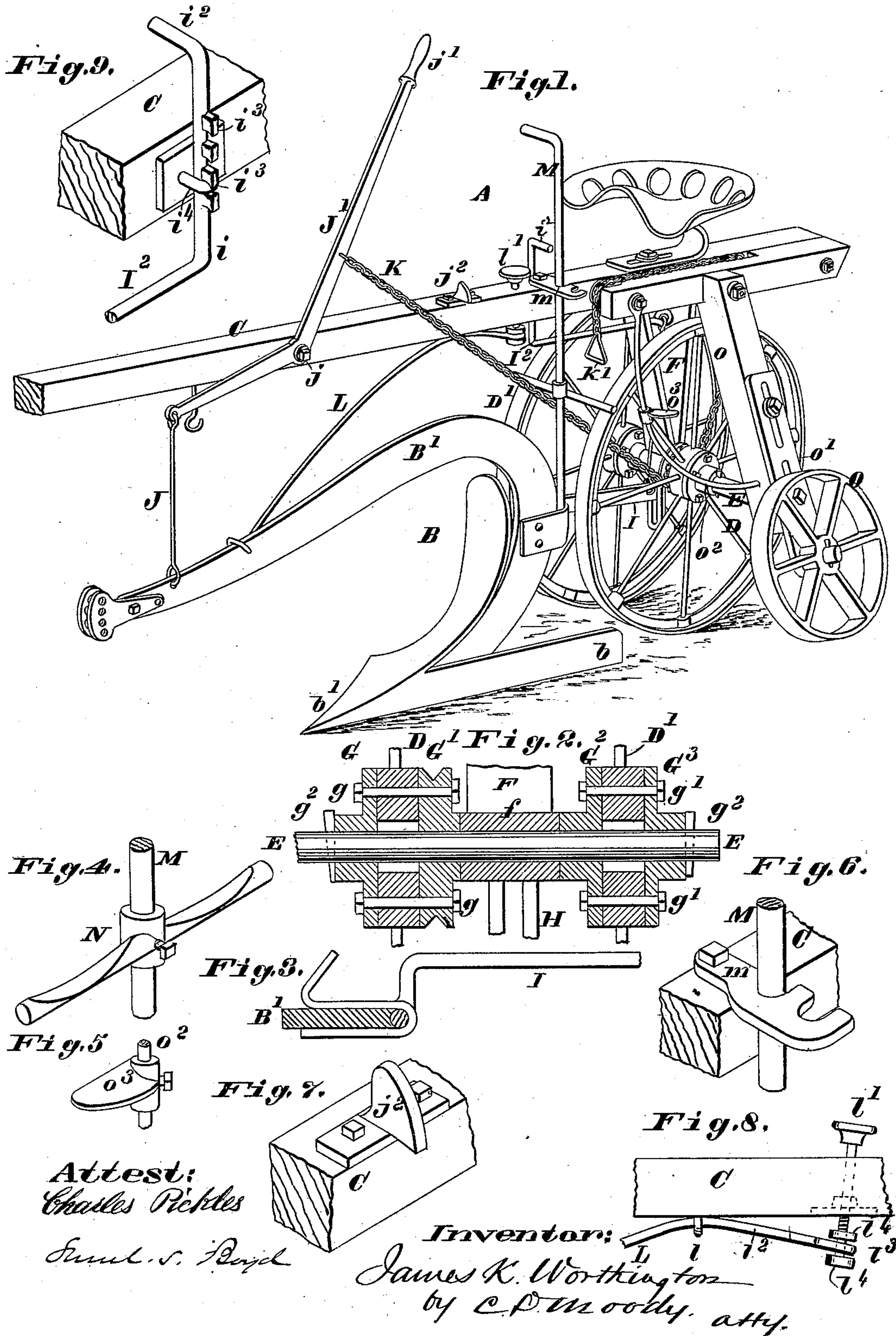
(Model.)

2 Sheets—Sheet 1.

J. K. WORTHINGTON.  
SULKY PLOW.

No. 253,807.

Patented Feb. 14, 1882.



Attest:  
Charles Pickles  
Saml. S. Boyd

Inventor:  
James K. Worthington  
by C. P. Moody, atty.

(Model.)

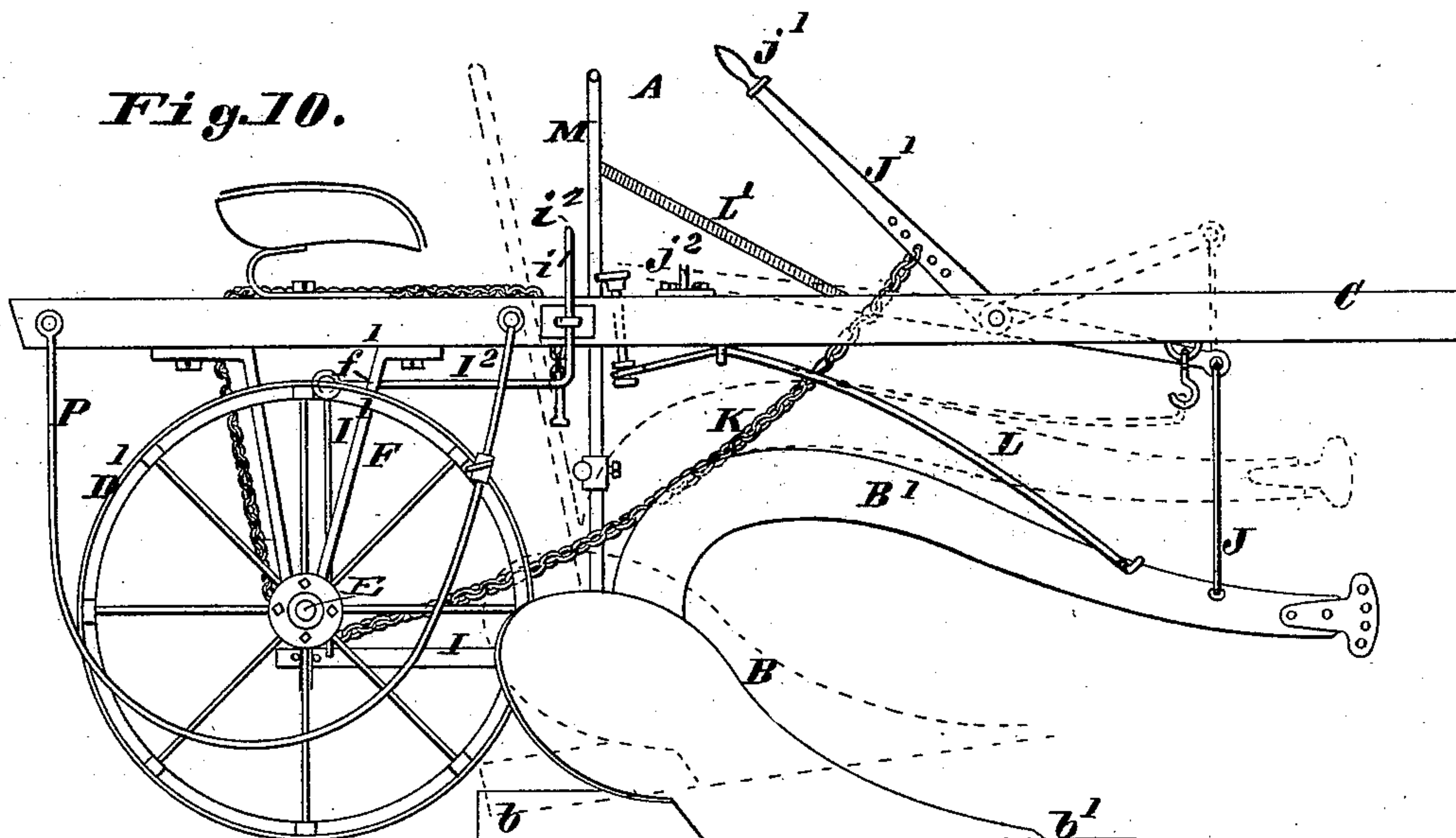
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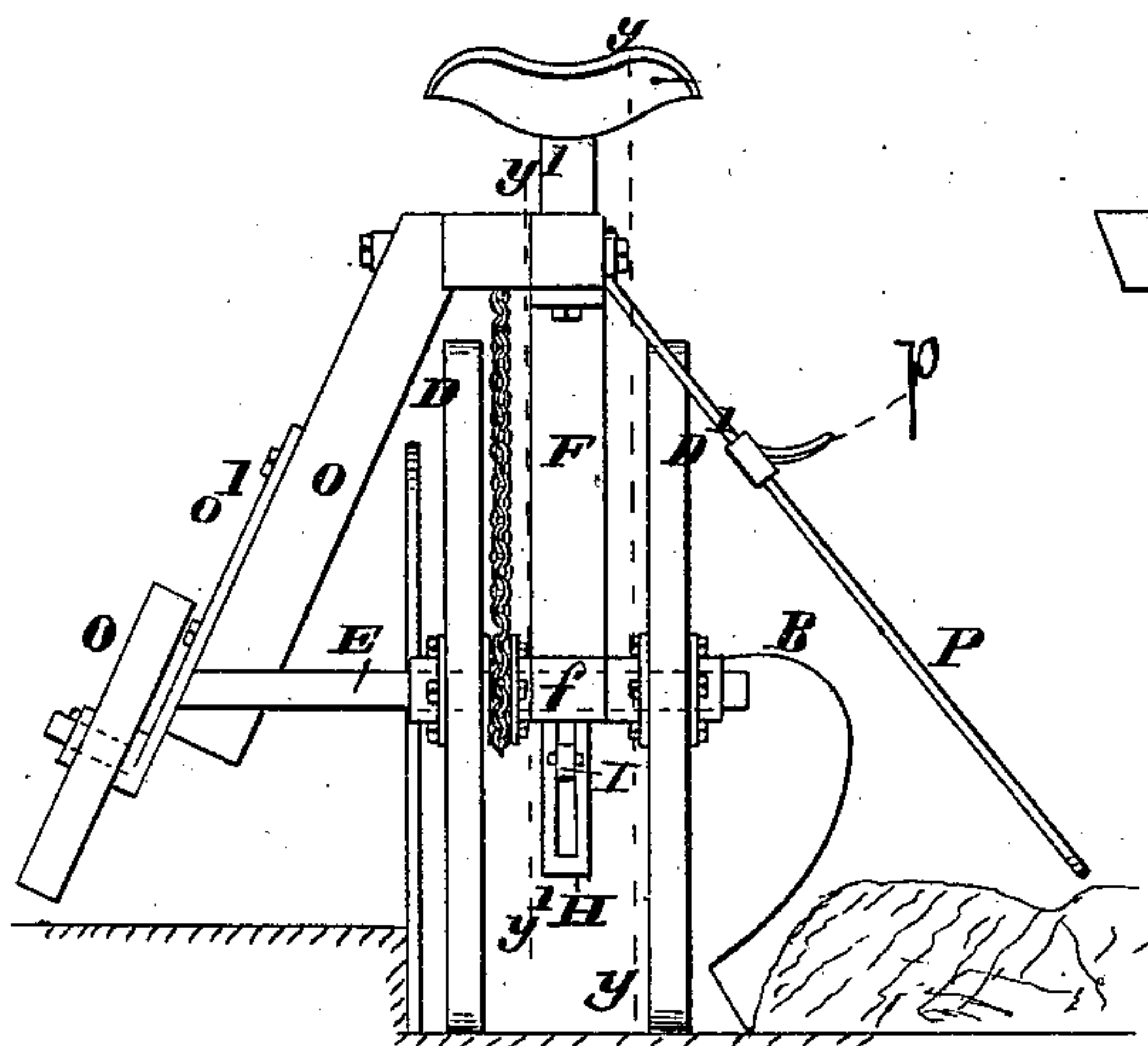
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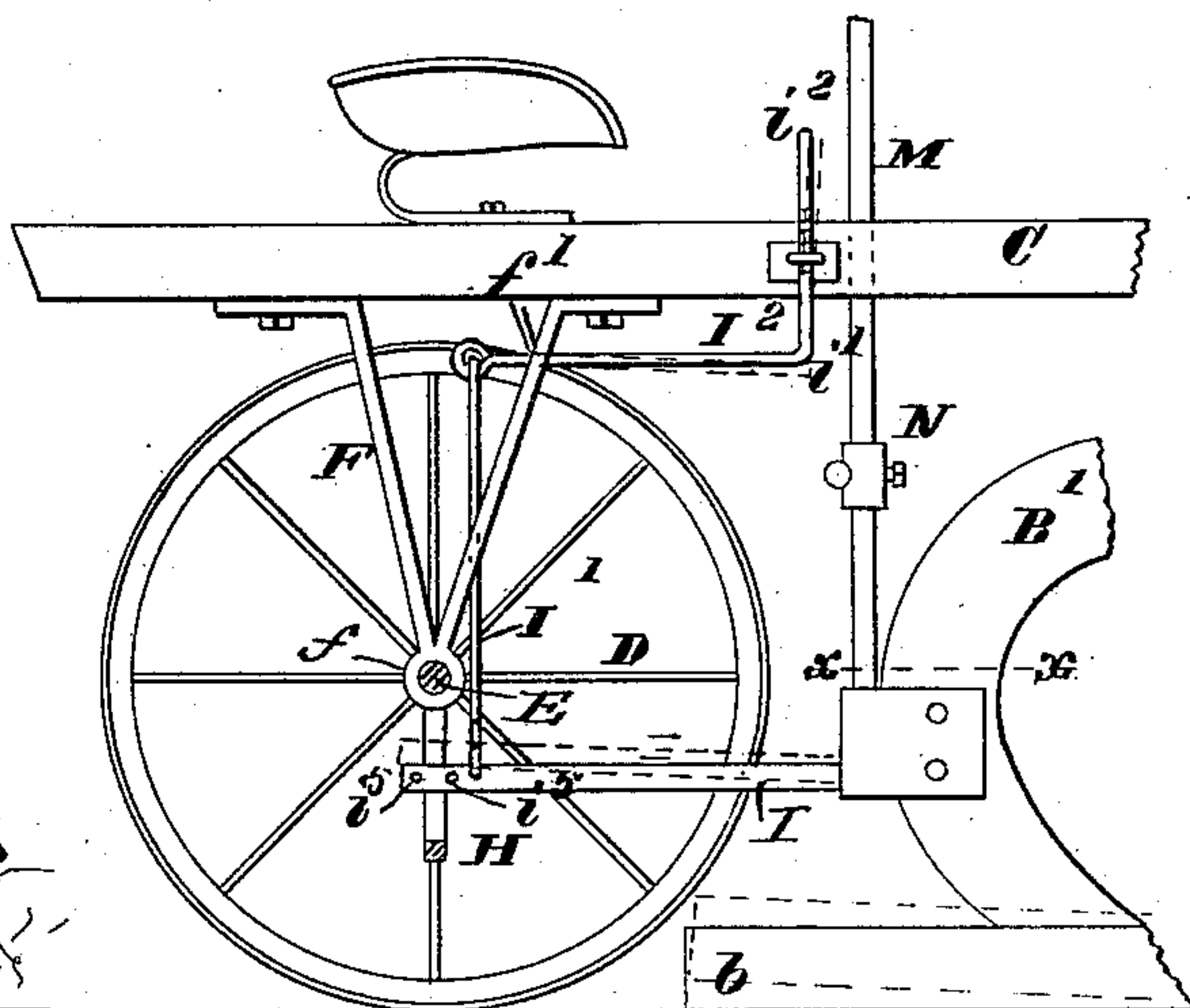
*Fig. 10.*



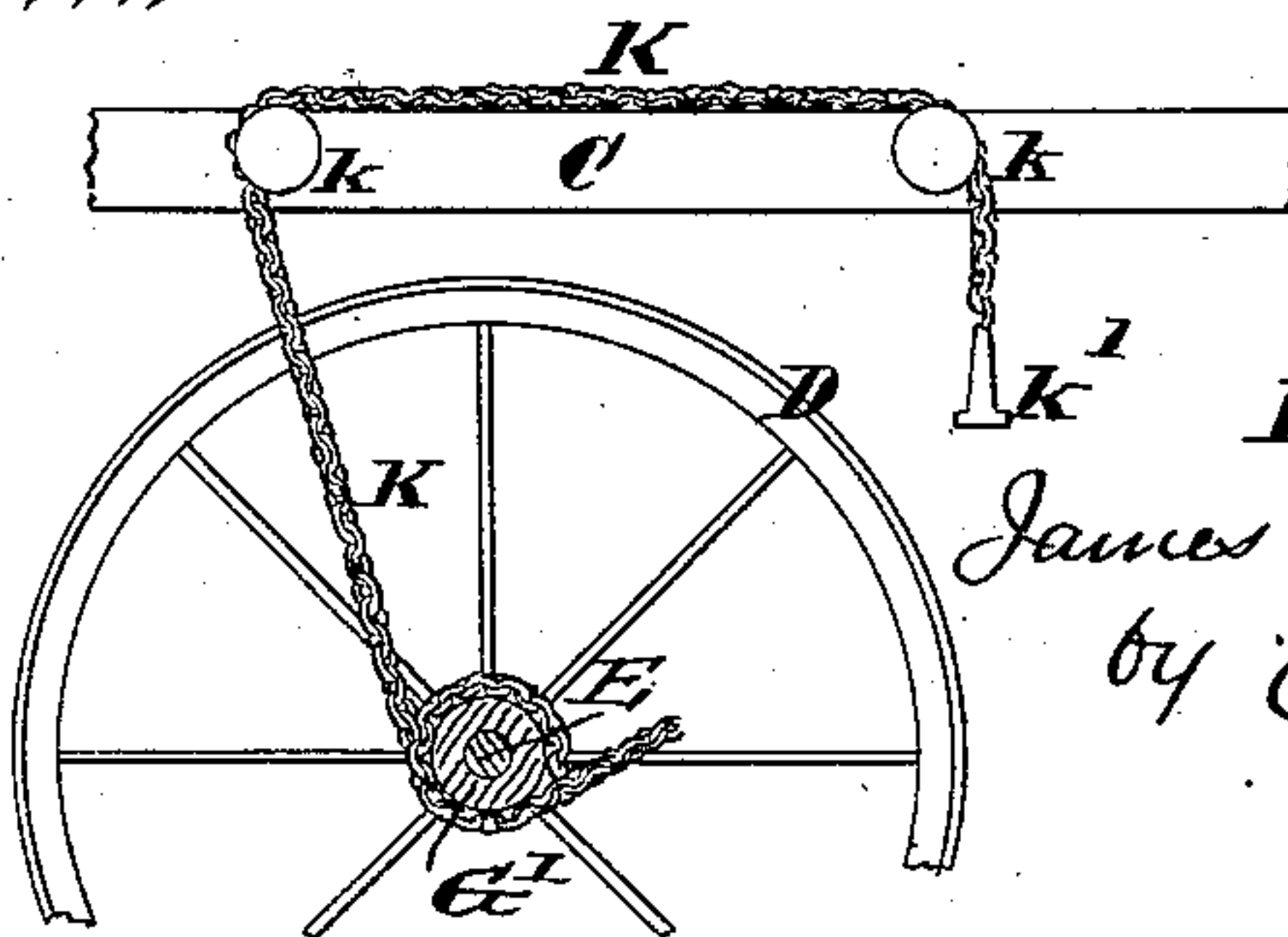
*Fig. 11.*



*Fig. 12.*



*Fig. 13.*



*Attest:*  
*Charles Pickles*

*Amos S. Boyd*

*Inventor:*  
*James K. Worthington*  
*by C. D. Moody*  
*att'y*



# UNITED STATES PATENT OFFICE.

JAMES K. WORTHINGTON, OF KIRKWOOD, MISSOURI.

## SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 253,807, dated February 14, 1882.

Application filed June 7, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, JAMES K. WORTHINGTON, of Kirkwood, Missouri, have made a new and useful Improvement in Sulky-Plows, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a view in perspective of the improved implement; Fig. 2, a detail, being a sectional view of the parts immediately connected with the axle; Fig. 3, a detail, being a horizontal section taken on the line *x x* of Fig. 12; Fig. 4, a detail, being a view in perspective of the cross-arm on the plow-handle; Fig. 5, a view in perspective of the foot-rest on the fender; Fig. 6, a detail, being a view in perspective of the catch upon the carriage-beam for holding the plow-handle; Fig. 7, a detail, being a view in perspective of the catch upon the carriage-beam for holding the plow-beam lever; Fig. 8, a detail, being a side view of the device for adjusting the plow-beam spring; Fig. 9, a detail, being a view in perspective of the upper end of the lever used in lifting the plow at the heel; Fig. 10, a side elevation of the plow; Fig. 11, a rear elevation of the plow; Fig. 12, a section taken on the line *y y* of Fig. 11; and Fig. 13, a detail, being a section taken on the line *y' y'* of Fig. 11.

The same letters denote the same parts.

The relative arrangement of the sulky-wheels and plow is a prominent feature of the present improvement.

It further relates more especially to the lifting of the plow at the heel thereof, to the depressing of the plow-point, to the tilting of the plow, and to the means used in turning the implement and in fending it laterally.

In the annexed drawings, A represents a sulky-plow embodying the various features of the improvement, having the plow B, the carriage-beam C, the wheels D D', the axle E, and the bracket or standard F, used in supporting the carriage-beam from the axle.

The wheels D D', instead of being separated a distance greater than the width of the plow and traveling one upon the land and the other in the furrows, are spaced apart a distance less than the width of the plow, and are arranged to travel immediately behind the plow and in

the furrow being turned, the aim and effect of which arrangement is to secure a smoother and more even trackway for the wheels than has heretofore been obtained, enabling the implement to run steadier and to be under better control than those now in use.

The preferable mode of constructing the carriage-axle E and connecting the wheels D D' therewith is shown more distinctly in Fig. 2. The axle E is a round bar of uniform diameter. The wheels are bored out to a diameter larger than the axle, and are held thereon as follows: the wheel D by means of the collars G G' and bolts *g g*, and the wheel D' by the collars G<sup>2</sup> G<sup>3</sup> and bolts *g' g'*. The space between the collars G' G<sup>2</sup> is occupied by the eye *f* of the bracket F, and all the parts are confined laterally upon the axle by the keys *g<sup>2</sup> g<sup>2</sup>*. This enables the axle to be readily renewed. The collar G' is grooved for the purpose hereinafter explained. A loop, H, depending from the eye *f* serves as a guide for an arm, I, which is attached to the plow or plow-beam B', extending backward and entering the loop. The connection of the arm I with the loop H is also such as to enable the plow to be canted or tilted sidewise. A link or chain, I', connects the arm with a lever, I<sup>2</sup>. The latter turns on a bearing or fulcrum, *f'*, in or on the bracket F, and thence is extended to a convenient point to be reached by the driver, turning upward at *i'*, and having a handle, *i<sup>2</sup>*. By depressing the handle the heel *b* of the plow is lifted, as indicated by the dotted lines in Fig. 12. Being able to thus lift the plow at the heel is a convenience in backing the implement as well as at other times. The lever is furnished with a series of projections, *i<sup>3</sup>*, by means of which and the shoulder *i<sup>4</sup>* upon the beam C the lever I<sup>2</sup> can be adjusted and held as desired. The arm I is confined laterally by the loop H, and by means of the pins *i<sup>5</sup>* the arm is kept in engagement with the loop.

J represents a link jointed at one end to the plow-beam B' and at the other end to a lever, J', which is pivoted to the beam C at *j*, and having a handle, *j'*. By depressing the handle the plow is raised at the point *b'*, and by passing the lever under the catch *j<sup>2</sup>* the lever can be held down. Another mode of lifting the plow is by what may be termed a "power-lift," as follows: A chain, K, attached to the lever



J' extends to and is carried around the grooved pulley or collar G' upon the axle E, passing thence upward over bearings *kk* upon the beam C and terminating in a stirrup, *k'*. The driver, 5 when he desires to lift the plow, puts his foot in the stirrup *k'*; tightening the chain sufficiently on the collar G' to bind thereon and be carried around with it, thus readily utilizing the motive power in lifting the plow. So far 10 as the lifting is concerned the forward end of the chain K might be hitched so as to lift the plow at other points than at its forward end.

L represents a spring attached to the beam C, and extending to and arranged to bear down 15 upon the plow-beam B'. Its function is to produce an elastic pressure upon the plow at its point and hold it down more steadily to the ground. The spring is extended beyond the point, *l*, of connection with the beam and connected with an adjusting-arm, *l'*, the extension *l''* having an eye, *l'''*, that is held upon the 20 arm *l'*, between the collars *l''*. The arm *l'* is held in or upon the beam C, and so as to be vertically adjustable thereon. By screwing the 25 arm up or down on the beam the spring is set to bear more or less against the plow-beam.

M represents a handle or lever attached to the plow, and extending upward conveniently to be reached by the driver. By throwing this 30 handle to the right or left the plow can be tilted accordingly. The beam C is furnished with a catch, *m*, having a series of notches for holding the handle M at any desired inclination laterally. The handle M also is provided 35 with an arm, N, projecting from each side of the handle to receive the feet of the driver, and enable him by bearing upon either end of the arm N, as desired, to more readily tilt the plow.

40 To provide for readily turning the implement around, as at the ends of the furrows, it is furnished with a side wheel, O, which is supported in position, say, by means of the arm *o*. The latter extends downward and laterally 45 from the beam C, and is provided with a bearing, *o'*, for the wheel O, the bearing being preferably vertically adjustable. The arm *o* may be suitably braced, as by the brace *o''*, which also may furnish a support for a step, *o'''*. The 50 wheel O is preferably held at an inclination to the wheels D D'. It is not intended for supporting the implement in its upright position, and hence the wheel O is adjusted so as not to bear on the ground at such times; but in 55 turning the implement the driver, by throwing his weight to that side of the implement, (for this purpose the step *o'''* can be used,) tilts it sufficiently to bring the wheel O to a bearing upon the ground. The implement now rests 60 upon the wheels O and D and is turned, using the wheel O as a pivot. The wheel O also serves as a fender to uphold the carriage when it is tilted accidentally. A fender, P, may be used upon the other side of the carriage, and 65 which may be in the form of a runner, as shown, or of other shape suitable for the pur-

pose. The fender is not intended to touch the ground saving when the sulky is tilted to that side. A step, *p*, is attached to the fender P. The steps *p* and *o'''* are vertically adjustable 70 upon their respective supports.

A spring, L', extending from the handle M to the beam C may be used to supplement the action of the spring L, the spring L' acting to draw the upper end of the handle M forward, 75 and thus hold the plow-point *b'* down. The lever *l''* is of elastic material, to act partly as a spring, and when held down, as indicated by the dotted lines in Fig. 12, it also acts to exert an elastic pressure downward at the plow- 80 point *b'*.

I have shown two wheels, D D', for supporting the sulky when in an upright position. I do not, however, desire in this respect to be confined to any particular number of wheels. A 85 single wheel, for instance, can be used in place of the two shown; but whether one, two, or more wheels are used in supporting the sulky in an upright position, all of them must be arranged to travel in the furrow being turned, and the 90 other wheels, fenders, or runners, if any there be, used about or attached to the sulky, are not intended to, and do not furnish any support to the sulky, saving when the latter is tilted to one side, as in turning the implement around 95 or when the sulky is accidentally canted. By the term "upright," above used, I mean that position in which the sulky generally is in plowing a furrow, and which is a right angle, 100 or thereabout, to the surface of the ground being plowed. When but a single sulky-wheel is used the connection of the carriage-frame therewith is a suitable modification of that herein shown.

The axle E may be extended to the arm *o*. 105

I am aware that a riding-plow has been made having forward and rear supporting-wheels, the former traveling outside the furrows, the latter arranged to run in the furrow, and all 110 essential to the support of the seat; also, that a plow (not a riding one) has been made having in the rear and inside a pair of oblique wheels, and another wheel in the front part of the landside to support the plow during the progress through the soil with the least friction, and do not claim either of these. 115

I claim—

1. A riding or sulky plow having all the wheels which support the sulky when upright in the rear of the plow, and arranged to travel 120 in the furrow being turned.

2. The combination, in a sulky-plow having a seat, of the plow B, and sulky-wheels D D', used in supporting the sulky in an upright position, and constituting the entire support when 125 in that position, all of said wheels being arranged to travel in the furrow being turned.

3. The combination of the axle E, the wheels D D', the grooved collar G', the chain K, the beam C, bearings *kk*, lever J', link J, beam B', 130 and plow B, substantially as described.

4. The combination, in a plow, of the chain



K and the pulley G', said chain at its forward end being connected directly or indirectly with the plow B, and to enable it, when tightened upon the pulley G', to draw and lift the plow B.

5 5. The combination, in a sulky-plow, of the axle E, the bearing G', the chain K, the bearings *k k*, and the beam C, substantially as described.

10 6. The combination, in a sulky-plow, of the axle E, bearing G', chain K, beam C, lever J', link J, and plow-beam B', substantially as described.

15 7. The combination, in a plowing device, of the beam C, the plow B, the beam B', the spring L, the handle M, and the spring L', substantially as described.

8. The combination, in a plowing device, of the plow B, handle M, beam C, and spring L', substantially as described.

20 9. In a sulky-plow, the combination of the

plow B, the carriage-beam C, the arm I, the link I', the lever I<sup>2</sup> in the form of a spring, and the bearing *f'*, substantially as described.

10. A sulky-plow having the side wheel, O, and the fender P, neither said wheel nor fender touching the ground saving when the sulky is tilted, substantially as described. 25

11. The combination of the plow A, wheel O, brace *o*<sup>2</sup>, and step *o*<sup>3</sup>, substantially as described.

12. The combination of the axle E, loop H, arm I, and plow B, serving to guide said arm as the plow is lifted at the heel, and also allowing the plow to be canted by means of the handle M, substantially as described. 30

Witness my hand.

J. K. WORTHINGTON.

Witnesses:

CHAS. D. MOODY,  
SOLON N. SAPP.