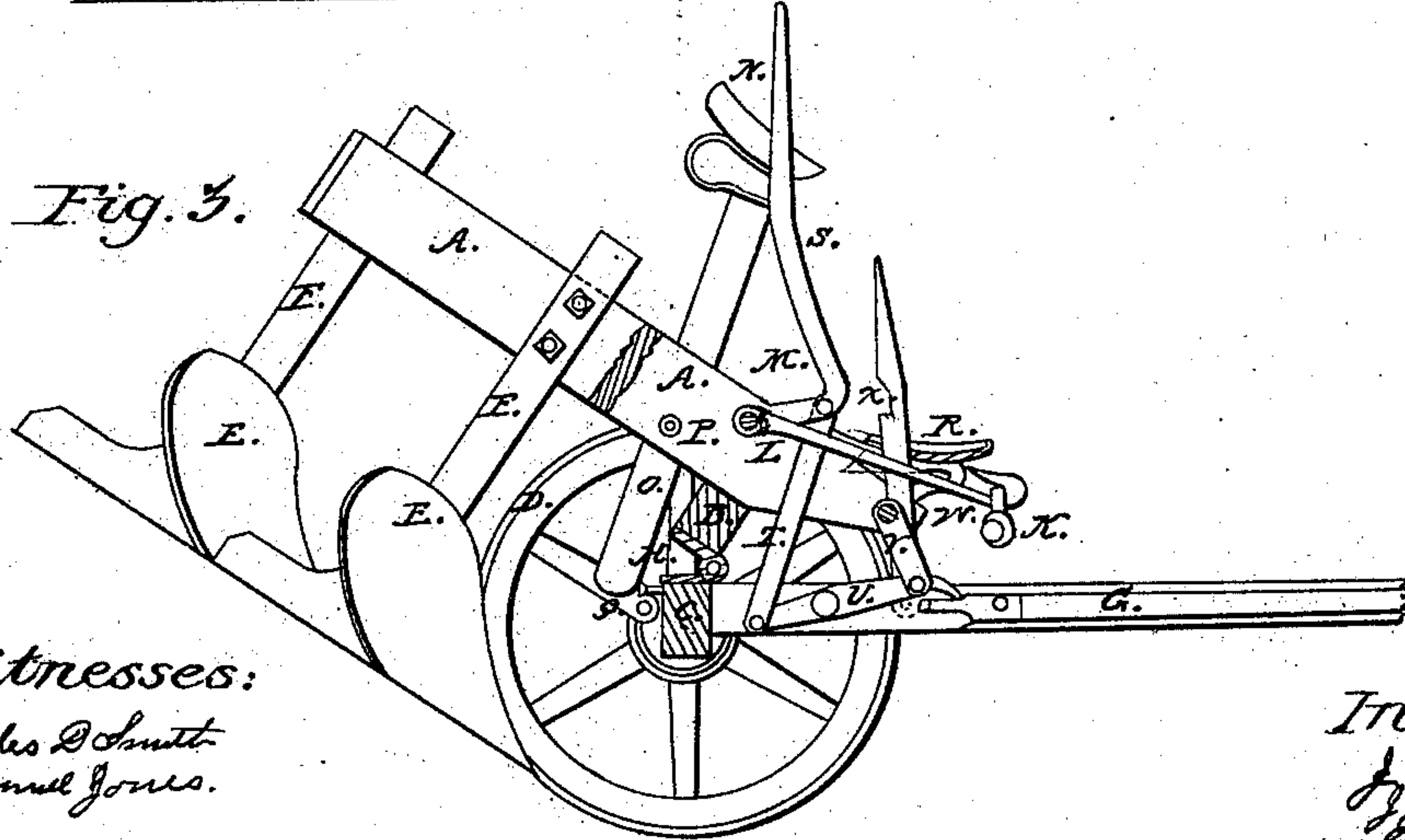
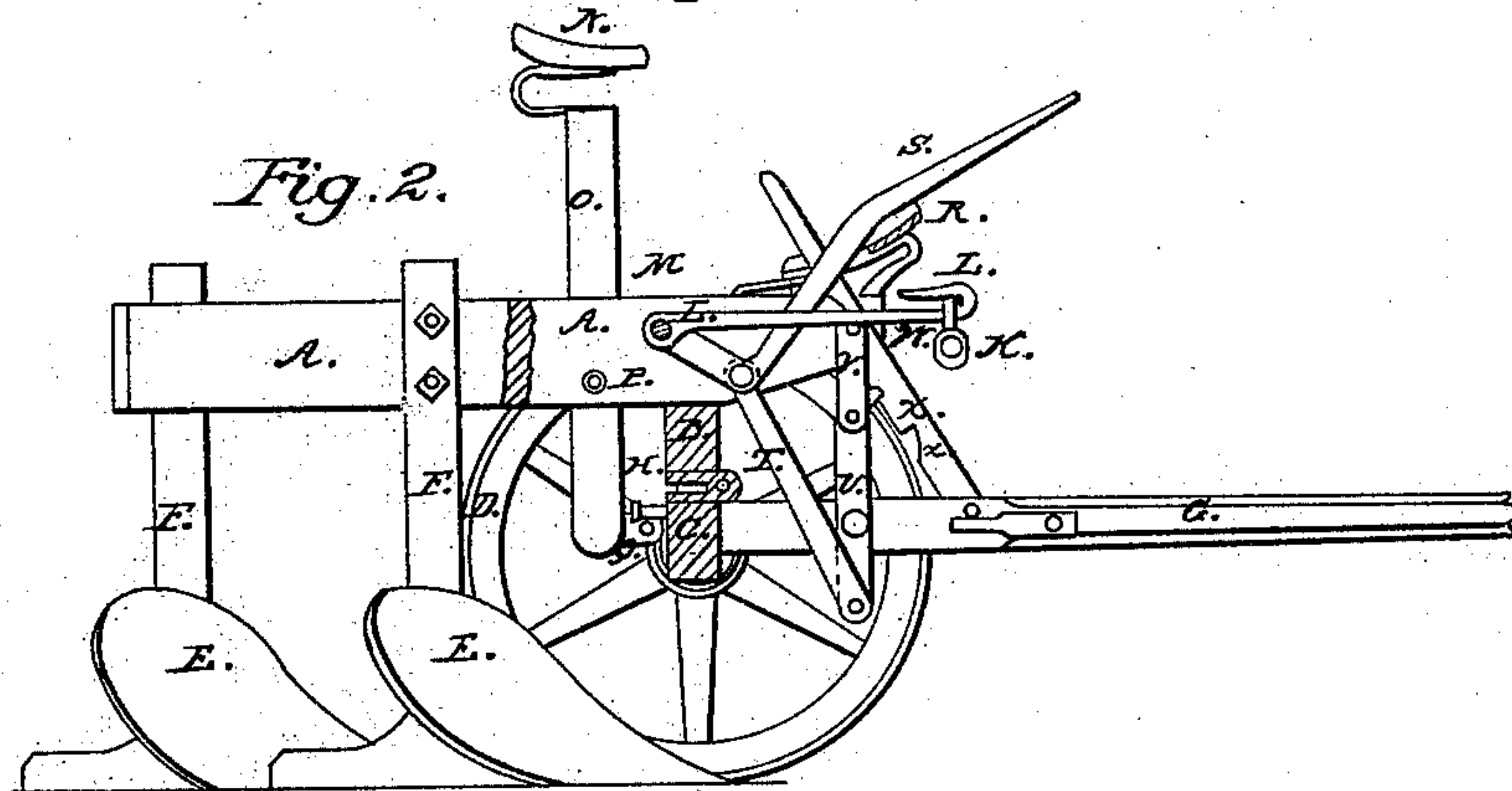
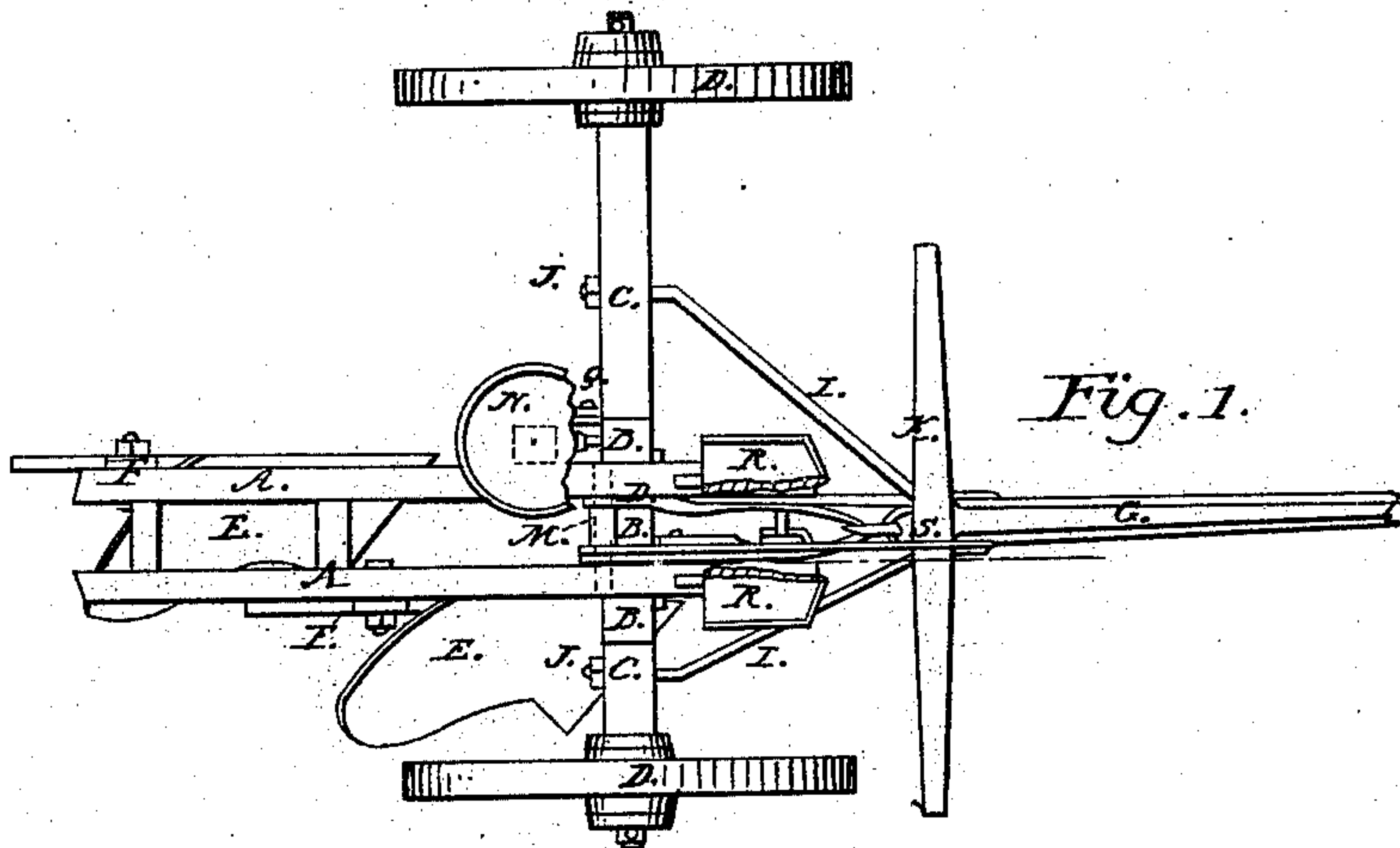


RUNK, BROWN & MORGAN.

Gang Plow.

No. 54,963.

Patented May 22, 1866.



Witnesses:
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UNITED STATES PATENT OFFICE.

JACOB L. RUNK, JAMES H. BROWN, AND ELIAS M. MORGAN, OF NASHVILLE,
ILLINOIS.

IMPROVEMENT IN GANG-PLOWS.

Specification forming part of Letters Patent No. 54,963, dated May 22, 1866.

To all whom it may concern:

Be it known that we, JACOB L. RUNK, JAMES H. BROWN, and ELIAS M. MORGAN, of Nashville, in the county of Washington and State of Illinois, have made new and useful Improvements in Gang-Plows; and we do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation, sufficient to enable one skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 is a plan or top view of the machine. Figs. 2 and 3 are side elevations of the machine, a part of the beam being removed in each case to expose the working parts, in Fig. 2 the plows being shown in working order, and in Fig. 3 the plows being shown elevated.

The same letters in each figure refer to like parts.

The improvement consists in the means for raising the plows from the soil, maintaining them in position, elevated or otherwise; and the peculiar characteristics of the machine consist, first, in attaching the plow-beam to a bolster which is hinged upon the axle; second, in attaching the team to the fore end of the beams of the plow, so as to assist in raising the plow from the ground when the toggle which braces the fore end of the beam to the tongue is bent by the hand-lever; third, in the adaptation and arrangement of the toggle, which connects the beam with the tongue and acts as a brace when in a straight line and as a toggle-lever to depress or raise the beam when it is deflected or straightened by the motion of a hand-lever connected thereto; fourth, in the combination of the tongue, hinged beam, and the locking stay-hook; fifth, in the arrangement of the hand-lever and connecting-rod, which are so pivoted to each other, to the beam, and to a point deriving its support from the tongue or carriage as that by the toggle-motion thus afforded the front end of the beam shall be drawn forward and downward upon the hinging point of the beam as a pivot or thrust in the reverse directions by a corresponding motion of the said toggle under the impulse of the hand-lever; sixth, the arrangement of the portion of the hand-lever which, with the connecting-rod, forms a toggle as a

means of staying the thrust downward of the fore end of the beam under the draft of the team; seventh, the draft-rod attached to a point so far back of the fore end of the plow as not to be materially lowered in position by the downward motion of the fore end of the plow-beam; eighth, the arrangement, with the pivoted beam, of the foot-board and pivoted hand-lever, so that by the thrust of the feet and the weight of the rider and the draft upon the hand-lever exerted in opposite directions simultaneously the rear end of the plow-beam is raised and the plows elevated from the ground; ninth, the seat-post pivoted to the beam and axle so as to vibrate upon the latter when the former changes its position, and maintain (to some extent or perfectly) its verticalness and the proper position of the seat; tenth, the mode of adjusting the position in a horizontal plane of the tongue, so as to put the plows in or out of land, which is accomplished by pivoting the rear end of the tongue in the axle upon a vertical bolt and making the side braces adjustable as to length.

In the drawings, A A are the beams of the plows, so united as to form practically one piece, which rests upon the bolster B, hinged to the axle C, upon which are the wheels D D. The plows E E are attached to the standards F F, which are bolted to the beams. The tongue G is pivoted to an upright bolt in the axle, on which it has a certain amount of lateral play in a horizontal plane as the nuts J on the side braces are adjusted to regulate the angle of the tongue to the axle, and thereby put the plows in and out of land.

To the fore end of the plow-beam A (we shall in the future treat it in the singular number, as it is united to form one piece) is a double-tree, K, which is attached by its central clip to the hook of the draft-rod, the latter being secured to the bolt M in the beam A.

The seat N is mounted on a post, O, which is pivoted at P to the beam and at Q to the axle, so that as the hind end of the beam A is elevated the post shall be rocked toward the rear and shall not form a right angle to the beam, as it does when the latter is in working position or horizontal. By the proportion and arrangement of parts the post O may be made to preserve perfect verticalness. In the drawings it is shown as only approximating to that result.

R is a foot-board on the front end of the beam A, to enable the weight of the driver to be exerted in raising the plows from the ground.

S is a hand-lever pivoted to the bolt M, and at its elbow to a connecting-rod, T, whose lower end is jointed to the rocking arm U, which is pivoted to the tongue and to the link V, with which it forms a toggle, the members of which are in straight line in the working position, Fig. 2, and elbowed in the position, Fig. 3, when the plows are raised from the ground.

The link V, at its upper end, is swung upon the rod which unites with the side beams, A A, near the fore end, and which occupies the notches *xx* in the bar X as the plows are in the positions, Fig. 2 or Fig. 3, in the former case keeping the plow-beam parallel with the ground until it is thrown forward and out of engagement with the rod W, and in the latter case holding down the fore end of the plow-beam while the machine is being moved from place to place.

Its operation is as follows: Presuming the plow to be in the position, Fig. 2, the plows are in running order, the relative position of the beam and tongue being maintained by the bar X and also by the toggle V U. When, for any cause, it is desired to raise the plows from the ground the bar X is thrown forward to unlock the beam, the driver thrusts upon the foot-board R and draws upon the hand-lever S, the draft of the team also tending to draw down the front end of the plow as the draft-rod L is attached above the hinging-point of the bolster on the axle. The draft on the lever S elevates the connecting-rod T, bends the toggle U V, and the notch of the catch-bar X falls over the rod W and retains the plows in the position, Fig. 3.

When desired to return the plows to the soil the lever is thrust forward, depressing the rod T, rocking the bar U on its pivot, the weight of the driver assisting to bring the plow again to the position shown in Fig. 2. The power of the operator for this purpose is such that if the plows do not readily sink in the soil the wheels may be actually lifted therefrom by the pressure on the lever, owing to the advantage in leverage which it possesses, especially at the point at which the toggle formed by the lower portion of the lever and the connecting-rod approximates a straight position.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The plow-beam attached to a bolster, the latter being hinged or pivoted to the axle or carriage, substantially as and for the purpose described.

2. Attaching the draft-rod to the beam in such a manner as to utilize the draft of the team in raising the plows from the ground when the forward support of the beam is removed.

3. The combination of the beam A and tongue G, or its equivalent, affixed to the carriage, with the toggle V U, the latter forming a brace when straight and a means, by deflection, of depressing the fore end of the beam.

4. The combination of the beam A, tongue G, or its equivalent, and the notched stay-hook X.

5. The arrangement of the hand-lever S, connecting rod T, beam A, and carriage or tongue, operating as described.

6. The arrangement of the hand-lever S, connecting-rod T, toggle U V, beam A, and tongue or equivalent, substantially as described and represented.

7. Attaching the draft-rod to a point so far removed from the fore end of the beam and above and near the axis of vibration of the latter as to maintain the draft-point when the plows are out of the ground at or about the same height as when in working position.

8. The combination of the beam hinged to the bolster of the foot-board, and pivoted hand-lever, as described and represented.

9. The seat-post pivoted to the carriage and beam, substantially as and for the purpose described.

10. The arrangement for the lateral adjustment of the tongue, for the purpose described, consisting in the pivoting of the tongue on a vertical bolt in the axle and the side braces, adjustable as to length, as described and represented.

In testimony whereof we have hereunto signed our names in presence of the subscribing witnesses.

JACOB L. RUNK.
JAMES H. BROWN.
ELIAS M. MORGAN.

Witnesses to signature of Jacob L. Runk:

C. D. SMITH,
W. F. HALL.

Witnesses to signatures of James H. Brown and Elias M. Morgan:

D. C. WALKER,
JAS. H. MEANS.