

T. R. MARKILLIE.

Wheel-Plow.

No. 44,206.

Patented Sept 13, 1864

Fig. 1.

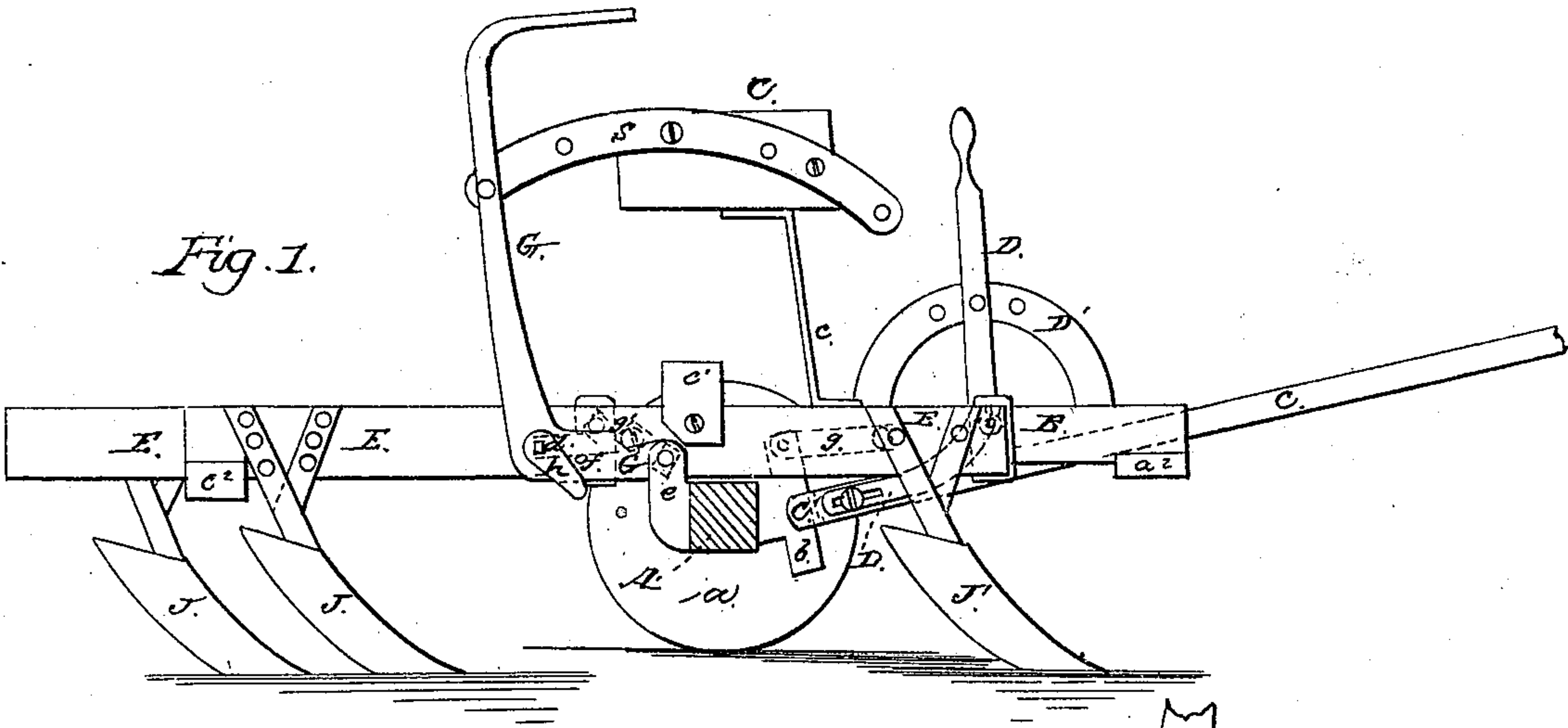


Fig. 2.

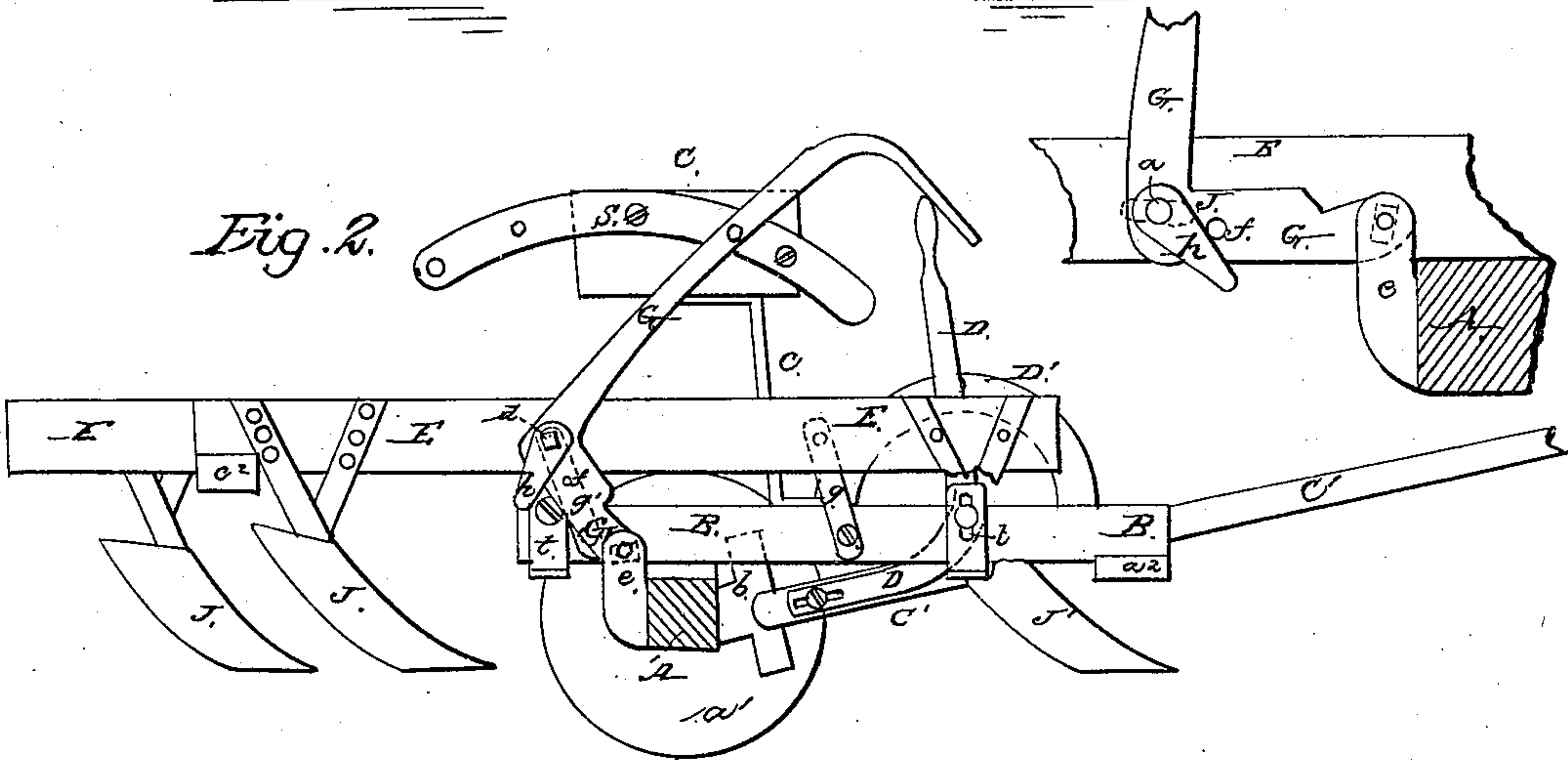
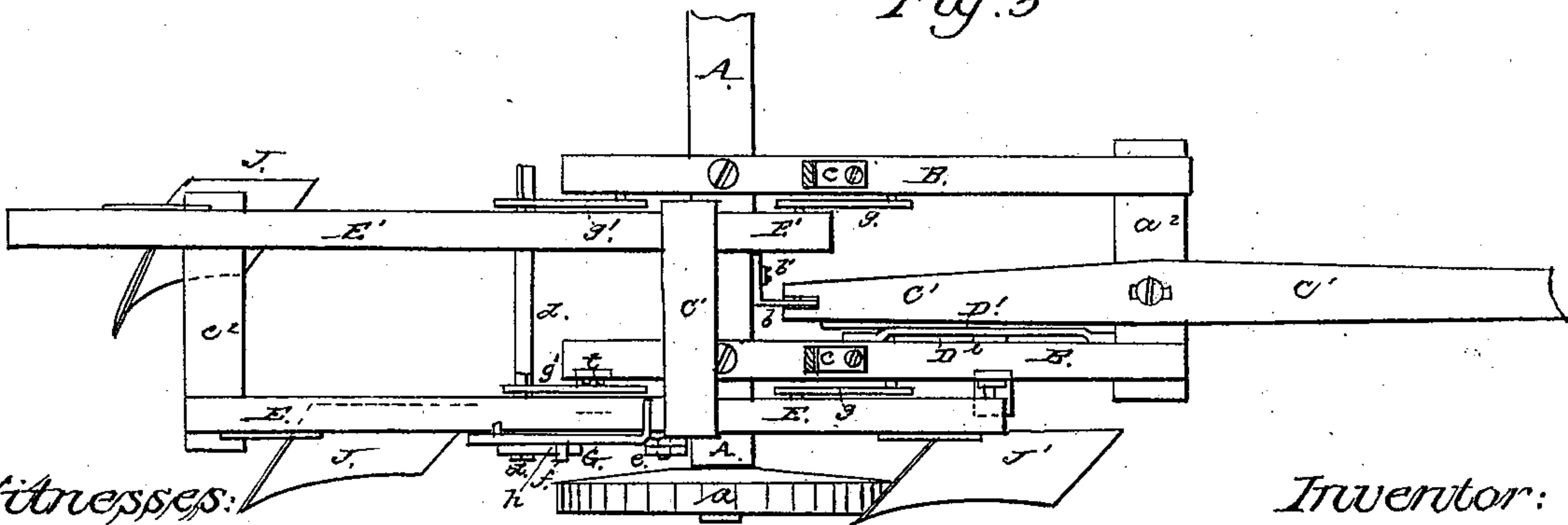


Fig. 3.



Witnesses:

R. T. Campbell  
C. Schaefer.

Inventor:

Thos. R. Markillie  
by his attys.  
Marion Fenwick & Lawrence.



# UNITED STATES PATENT OFFICE.

THOMAS R. MARKILLIE, OF WINCHESTER, ILLINOIS.

## IMPROVEMENT IN GANG-PLOWS.

Specification forming part of Letters Patent No. 44,206, dated September 13, 1864.

*To all whom it may concern:*

Be it known that I, THOMAS R. MARKILLIE, of Winchester, in the county of Scott and State of Illinois, have invented certain new and useful Improvements in Gang-Plows; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation of my improved machine, having the furrow-wheel removed and the plows depressed to the fullest extent. Fig. 2 is a similar view, showing the plows elevated to their fullest extent. Fig. 3 is a top view with the driver's seat and land-wheel removed. Fig. 4 shows in detail the improved mode of obtaining great leverage at the commencement of raising the plows out of the ground.

Similar letters of reference indicate corresponding parts in the several figures.

The principal object of my invention is to afford the driver, while sitting on the machine, greater facilities in managing his plows and in raising them entirely from the ground when it is desired to turn the machine at corners of the field in plowing, to avoid stumps and other obstructions in the way of the plows, or to transport the machine from one place to another.

The invention also provides for subsoiling in conjunction with gang-plows, and for adjusting the draft-pole and the front of the plow-frame, all of which will be hereinafter fully described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents a long axle-tree, carrying on one end a large wheel, *a*, which is intended to run in the furrow, and on the opposite end a smaller wheel, *a'*, which is intended to run on the unplowed land, and thus keep the axle-tree in a horizontal plane.

B B are two beams, which are secured at a point near their rear ends to the top of the axle A, and proceed out parallel to each other some distance in front of said axle, receiving on their lower side, near their ends, a transverse brace, *a<sup>2</sup>*, upon which the draft-pole is supported and to which it is pivoted, as will be hereinafter described. These two parallel beams B B support the driver's seat C, which

is mounted upon standards *c c*, that are secured to the said beams a little in advance of the axle-tree A, as shown in Fig. 3.

The draft-pole C' is pivoted to the front brace-piece, *a'*, by a pin or bolt, which passes through an oblong flaring hole made through said pole. The rear end of pole C' has a vertical slot made in its end, which slot is received by a vertical guide-piece, *b*, that is secured to the front side of the axle A. This plate *b* allows the pole C' to be adjusted in a vertical plane, but prevents it from moving out of place laterally.

To provide for a lateral adjustment of the rear end of the pole C', I make the guide-plate *b* adjustable by cutting the hole through which the bolt *b'* passes oblong, and thus by loosening this bolt the plate *b* can be moved the required distance, either to the right or to the left. The vertical adjustment of the front end of the frame-beams B B is effected by means of an obtuse angular lever, D, which is pivoted at its angle to the inside of one of the beams B, as shown at *i*, Fig. 1. One end of this lever extends back, and is pivoted to the pole C' by a pin passing through an oblong slot in the lever, and the other end projects up a sufficient distance to be convenient to the driver sitting in seat C. This lever is established at any desired point by means of a pin projecting from it, which is caused to enter one or the other of the holes in the semicircular plate D', and to be retained in place by a spring or its equivalent. Thus by simply moving the upper end of lever D back or forth the front end of the frame may be raised or depressed, and this can be done when the machine is either in operation or at rest.

E E' represent two long plow-beams, the extremities of which extend out on each side of the axle A, as shown in Figs. 1, 2, and 3. These two beams are braced parallel to each other by the forward bridge-brace, *c'*, and the rear under brace, *c<sup>2</sup>*, and they are arranged, one on the inside of one of the frame-beams B, and the other on the outside of the opposite beam B. Thus one beam, E', is between the two beams B B, and the other, E, is between the furrow-wheel *a* and one of the beams B. This arrangement is important, as it brings the plows nearer to the furrow-wheel and throws the draft-pole more over the unbroken land.

The plow-beams are attached to their respect-



ive frame-beams B B by means of short arms  $g g g' g'$ , all of which are of an equal length, and all are attached by pivots, so that the beams will rise and fall parallel to the frame-beams. The upper ends of the two rear arms,  $g' g'$ , are secured to a transverse rock-shaft,  $d$ , which passes through and rocks in the beams E E', and one end of this shaft or rod  $d$  projects from the right-hand side of the beam E and receives a bent lever, G, and also a short arm,  $h$ , which latter is secured rigidly to the shaft  $d$ . The lower extended end of lever G is pivoted to a bracket-plate,  $e$ , which is secured to the axle-tree A, and the upper portion of lever G extends a short distance above the driver's seat C, so as to be conveniently operated by the driver. This upper portion of the lever G vibrates alongside of a sector,  $s$ , which is concentric with the center of motion of this lever, and, being perforated at suitable points, the sector, which is secured to the side of the driver's seat, receives a pin projecting from lever G and holds this lever in any desired position. By means of this lever it will be seen that I obtain the means of raising the plow-beams to the position shown in Fig. 2 while sitting in the seat C.

In Fig. 4 I have shown more clearly the tapering arm, which is keyed fast to the extremity of rod  $d$ . This arm operates upon a pin,  $f$ , which projects from the short arm of lever G at the moment of raising the plows out of the ground, and as there is a slot in lever G through which the rod  $d$  passes, this slot allows the arm  $h$  to operate to start the plows out of the ground, when the greatest exertion on the part of the driver is required. Then, when the plows have been loosened from the sod, the rear part of the slot  $j$  is brought to bear upon the rod  $d$ , and the arm  $h$  leaves its pin  $f$ . By this arrangement of the arm  $h$ , I obtain the advantage of the greatest leverage upon the rear plows at the moment when the greatest resistance is to be overcome, after which it is comparatively easy to elevate the plows above the ground.

The depth to which it is desired the plows shall run in the ground may be regulated by the lever G and sector-plate  $s$ ; but in order to give the plows a firmer support when they are in operation I attach two bracket-plates,  $t t$ , at suitable distances apart, to the outside of

beam B, upon the projecting shelves of which the beam E rests when the plows are down. These plates have oblong vertical slots through their vertical portions, through which pass the bolts that secure them to the beam B. By loosening these bolts the plates or brackets can be adjusted according to the depth it is desired to run the plows.

The plows J J' are applied to the beams in any suitable manner, so that they may be removed or replaced at pleasure; and by extending the forward part of beam E in front of the axle-tree A, I am enabled to use a plow in front of the furrow-wheel  $a$ , which to a great extent balances the plow-beams on each side of the axle, and forms a furrow in front of the furrow-wheel  $a$  and rear plow, J.

When it is not desired to use the front plow, J', the hind plows are controlled so as to run more or less deep by raising or depressing the forward end of the draft-frame or beams B B, as above described.

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

1. Hinging or pivoting the plow-beams E E' to the frame-beams B B on both sides of the axle A by means of arms  $g g'$ , and arranging the plow-beams so that they will extend out on each side of the axle-tree to receive the forward and rear plows, substantially as described.

2. The lever G and arm  $h$  and pin  $f$ , in combination with hinged beams E E', constructed and operating substantially as and for the purposes described.

3. The adjustable brackets  $t t$ , arranged on the frame-beam B, in combination with the hinged beams E E', substantially as and for the purposes described.

4. The adjustable vertical guide-plate  $b$  on the axle-tree A, adapted to receive a slot in the rear end of the pivoted draft-pole C', substantially as and for the purposes described.

5. The combination of bent lever D, perforated check-plate D', and guide-plate  $b$  with the pivoted draft-pole C' and frame-beams B B, arranged and operating substantially as and for the purposes described.

THOS. R. MARKILLIE.

Witnesses:

S. H. MITCHEL,

P. F. MITCHEL.