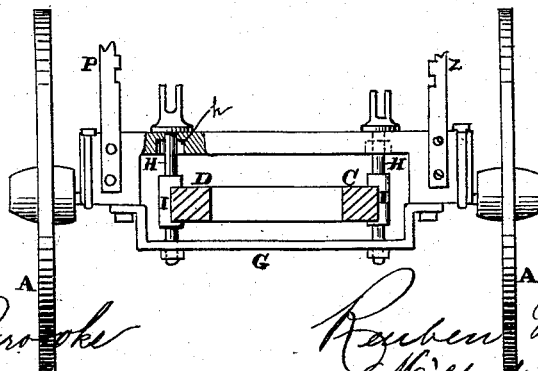
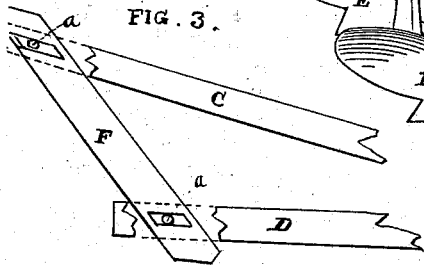
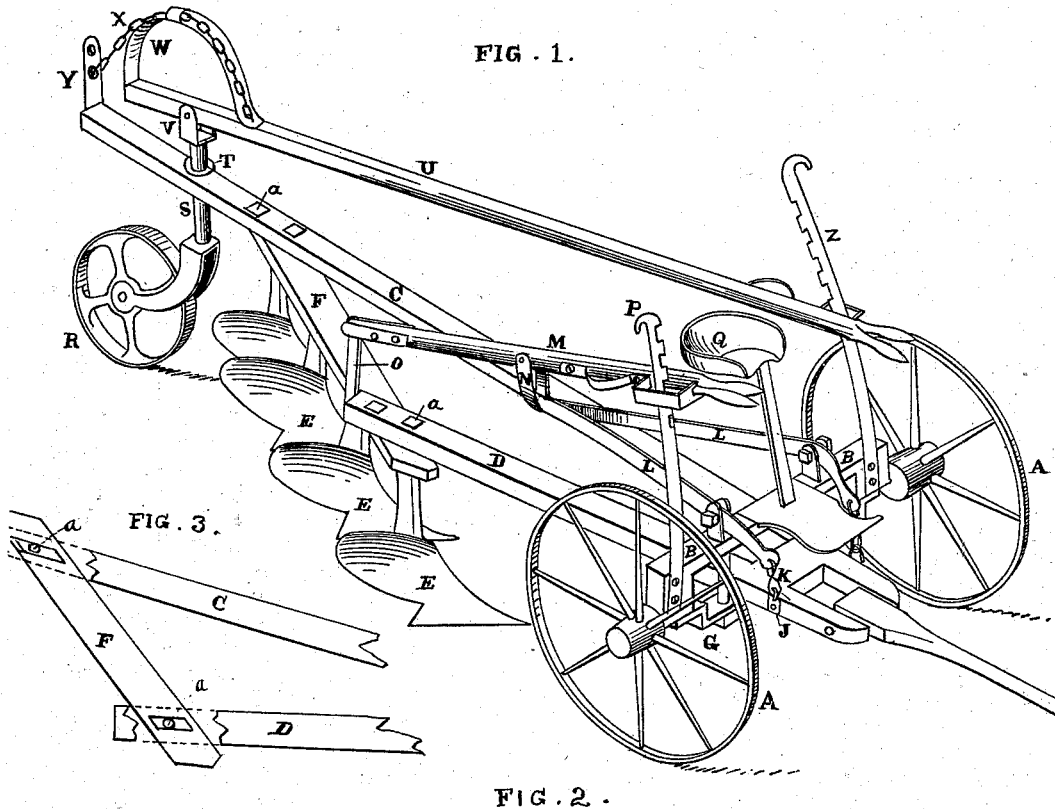


R. HART & M. P. NICHOLSON.  
Gang-Plow.

No. 219,467.

Patented Sept. 9, 1879.



Witnesses

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# UNITED STATES PATENT OFFICE.

REUBEN HART AND MILFORD P. NICHOLSON, OF SANTA MARIA, CAL.

## IMPROVEMENT IN GANG-PLOWS.

Specification forming part of Letters Patent No. **219,467**, dated September 9, 1879; application filed May 20, 1879.

*To all whom it may concern:*

Be it known that we, REUBEN HART and MILFORD P. NICHOLSON, of Santa Maria, county of Santa Barbara, and State of California, have invented an Improved Gang-Plow; and we hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to certain improvements in gang-plows; and it consists of a novel method of mounting the plows upon a frame, and in a means for supporting the frame and plows upon the bearing-wheels, so that they may be raised to entirely clear the ground, or lowered to make any depth of cut desired.

The rear and front plows are capable of an independent motion by means of separate levers, so that either front or rear plows may be elevated or depressed independent of each other.

Our invention also relates to a combination lever, by which the front end of the plow-beams are suspended from and their weight distributed upon the axle, and the plows are at the same time prevented from dragging down upon one side of the frame.

Referring to the accompanying drawings, Figure 1 is a perspective view. Fig. 2 is a partial front view. Fig. 3 is a detail of construction.

A A are the bearing-wheels of our plow. These wheels are made of large diameter, so as to move over the ground as easily as possible. The axle B, which unites these wheels, is either cranked or bent upward if made of metal; or the axles themselves may be made short and secured to each end of an axle-bed, which may be cut away below, as shown, the object being to provide a space into which the plow-beams C D can be raised in lifting the plows. These beams are united at the front and support the pole, and they diverge as they extend backward, the beam C being long, while the beam D is much shorter.

The plows E E are secured by means of standards to the plank F, which extends diagonally from one beam to the other, as shown. This plank is preferably slotted at the points where the bolts *a* secure it to the beams, so that its ends may be moved forward or back, and this enables us to adjust the plows to or from the land.

A strap, G, is secured to the axle-bed, near each end, and is bent downward so as to cross the space formed beneath and in the bed, and the front ends of the beams C D lie in this space, and their vertical motion is limited by it. Stout rods H extend from the strap G up through the axle-bed at each side of this space, and tubes I are secured to the sides of the beams C D, so as to slide upon these rods and guide the plow-beams in their vertical movements. These tubes extend above the top of the plow-beams, and the openings in the axle-bed are large enough to admit these tubes when they are raised, thus steadying the plows and frame.

The upper ends of the rods H, projecting above the axle-bed, may form supports for the operating-levers, as hereinafter described.

Upon each side of the plow-beams, at the front ends, are secured eyes J, and links K unite these eyes with the ends of the levers L. These levers are supported and have their fulcrums upon the top of the axle-bed, the upper ends of the guide-rods H serving for this purpose, as before described. The long arms of these two levers are brought together at some distance behind the axle and upon the right side, so that the single end may be united with the lever M by means of a link, N. This lever M has its rear end supported by a post or standard, O, which is secured to the rear end of the beam D and serves as a fulcrum for the lever. The front end of this lever is provided with a catch by the side of the handle, and a curved rack, P, receives and holds this catch at any point desired, so as to hold the front end of the plow-beams at any desired elevation.

By the use of this compound lever we have perfect control of the plows, and the driver upon the seat Q can lift five hundred pounds weight placed upon the plow-beams.

The operating-lever M is placed at one side of the machine; but by means of the forked or double levers L, with their double bearings and lifting-links, the weight is distributed so as to fall equally upon each wheel.

The standard or post O, besides serving as a fulcrum for the lever M, is of great assistance in steadying the plow, and the peculiar action of this compound lever and the stand-

ard O is not only to raise the front ends of the plow-beams, but also to raise the rear end of the beam D. As the rear end of the beam C is supported upon the caster-wheel R, and the plows extend in a diagonal line from near this point to the rear end of the beam D, it produces a tendency of this rear end of D to drag downward as the plows nearest to it enter the ground, and this combination of levers and standard counteracts this difficulty.

In order to raise and lower the rear end of the beams C, the standard S of the caster-wheel R is fitted to move in a sleeve, T, upon the side of the beam, and its upper end is connected with the lever U by a swivel shackle or link V, as shown. An arc of a circle, W, is secured upon the top of the lever U at the rear end, and is grooved to receive the chain X, which is connected by a bolt with the standard Y. This standard is secured to the rear end of the beam C, and has holes for the adjustment of the chain, so that by the operation of the lever U the rear plows will be lifted more or less.

The lever extends forward, and has a rack, Z, and spring-catch to hold it at any point, this rack being secured to the axle-bed at the left of the driver's seat, and within reach, in the same manner as the lever M.

The construction herein described has many advantages over the ordinary sulky or gang plows, among which may be enumerated the method of operating the front and rear ends of the plow-beams independently of each other, each end in turn serving as the fulcrum or point about which the other moves. This allows us to employ the plow to great advantage in laying out land, for which purpose the front end will be raised and the rear end depressed. This causes the rear plow alone to take the land, thus cutting a boundary furrow. By raising the rear end and depressing the front end we are enabled to use the front plows alone to finish up the last of a plowing.

When both ends are raised the plows will be entirely clear of the ground, and, as the

caster-wheel turns freely with its swivel-standard, the machine may move around in either direction, swinging about a center between the wheels A, so that the turning may always be accomplished upon solid ground, and the horses will not have to be driven over a considerable area of plowed ground to turn.

The arrangement of the levers for raising and lowering the plows produces great power, so that the plows may be easily handled by the driver from his seat.

The team may be harnessed to the plow, and a load of seed may be placed upon the plow-frame and hauled to the field, thus dispensing with a wagon.

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

1. In a gang-plow, the diagonal plank or plow-beam F, having slots *a a* near its ends, in combination with the beams C D, to which it is bolted, whereby said beam is suspended and adapted to be adjusted at both ends forward or backward, to adjust the plow toward or from the land, substantially as herein shown and described.

2. The links K K, connected with the outside of the beams C D at the front, and the standard O, secured to the rear end of the beam D, in combination with the lever M and the bifurcated lever L L, whereby the beams C D are supported and actuated from three points out of line, and are prevented from tilting to one side, substantially as herein described.

3. The beams C D, with their tubes or sleeves I, moving upon the guides H, said tubes projecting above the plow-beam, so as to enter depressions in the axle B and steady the plows, substantially as herein described.

In witness whereof we have hereunto set our hands.

REUBEN HART.

MILFORD P. NICHOLSON.

Witnesses:

GEO. H. STRONG,

FRANK A. BROOKS.