(No Model.) 2 Sheets—Sheet 1.

E. H. NICHOLSON.

GANG PLOW.

No. 346,766. Patented Aug. 3, 1886.

Fig. 1.

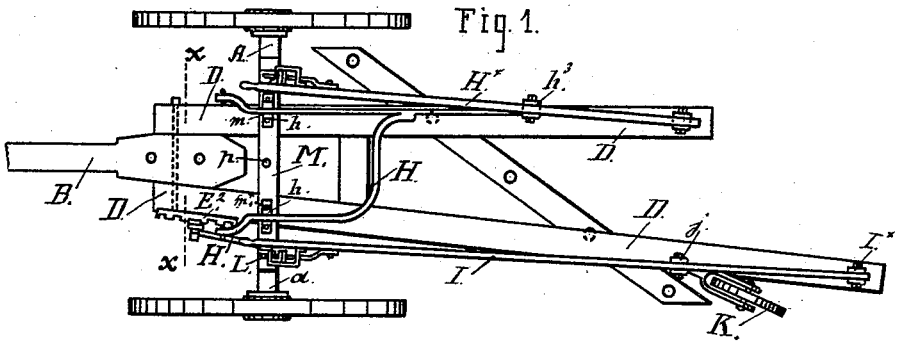
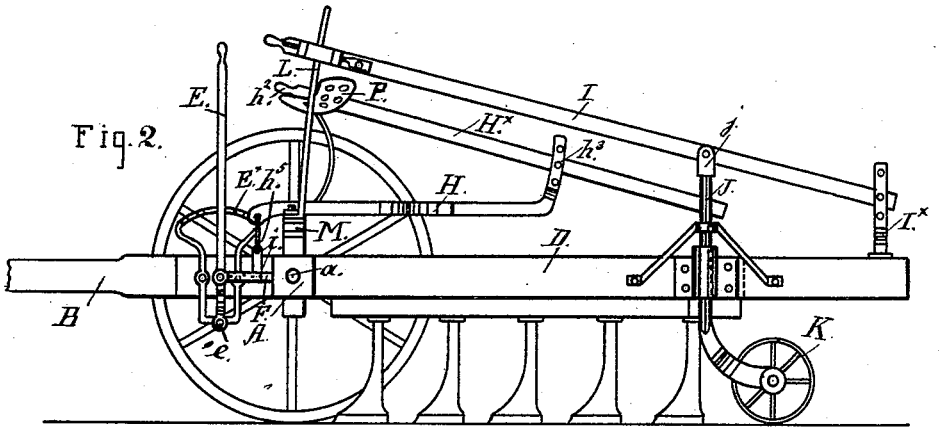


Fig. 2.



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(No Model)

2 Sheets—Sheet 2.

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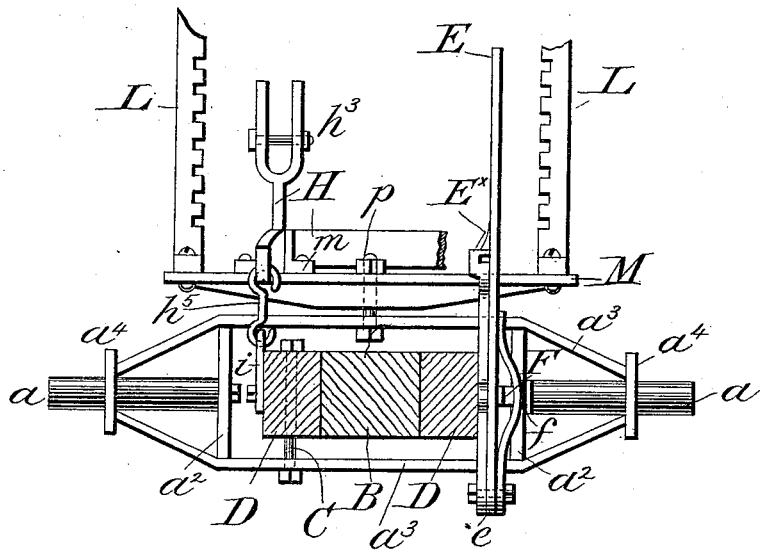
Fig. 3.



Attest:
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UNITED STATES PATENT OFFICE.

ELLIS H. NICHOLSON, OF SANTA MARIA, CALIFORNIA.

GANG-PLOW.

SPECIFICATION forming part of Letters Patent No. 346,766, dated August 3, 1886.

Application filed March 2, 1886. Serial No. 193,803. (No model.)

To all whom it may concern:

Be it known that I, ELLIS H. NICHOLSON, a citizen of the United States, residing in Santa Maria, in the county of Santa Barbara and State of California, have invented certain new and useful Improvements in Gang-Plows, of which the following is a specification.

My invention consists of an improved construction of setting mechanism for gang-plows, and in certain construction and combination of parts producing an improved gang-plow.

The nature of these improvements and the manner in which I have constructed, produced, and applied them are fully explained and pointed out in the following description and the accompanying drawings, being referred to by figures and letters.

Figure 1 is a plan. Fig. 2 is a side elevation. Fig. 3 is a cross-section through the frame at about the line *x x*, Fig. 1.

One part or feature of my invention consists in connecting the frame and axle in such manner that the frame has a vertical movement and the axle has a pivotal movement on and about a king-bolt or pivot. Another feature consists in the arm movement to raise the plows clear off the ground as well as to regulate the depth of cut, and still another is the setting of the plows either to or from land at any time while at work. The construction of this part or feature is as follows: The trussed axle A has an open center through which the front end of the frame is set with sufficient projection to take the tongue B. The axle is formed of the two stub-axles *a a*, the upright braces a^2 a^2, and the top and bottom trusses, a^3 a^3, that are fixed at a^4 to the stubs and are carried across the ends of the braces. Between the trusses there is sufficient opening and space for the vertical movement of the frame. The ends of the stub-axles are fixed in the braces, and the outer ends of the trusses are secured by clips to the axles.

C is a king-bolt having its ends secured in the trusses a^3 a^3 and passing through a socket in one of the beams D of the plow-frame. On this bolt, as a pivot, the axle moves and is set into position with respect to the line of draft more or less diagonal, and upon this bolt also, the frame being movable up and down, is raised or lowered to bring the points of the plows into or raise them clear off the ground.

Two sets of levers are employed to produce these movements of the frame and axle, and they are arranged convenient to the driver's seat, in order to effect the adjustments from that position.

To move and set the axle, a lever, E, is pivoted to the side of one of the beams D at a point, *e*, in position to be easily reached by the driver, and at a point above this fulcrum it is connected by a link, F, to the axle at *f*. A segment-bar, E^2, fixed to the beam, has a curvature corresponding with the arc described by the lever, and is provided with locking-notches to take and hold the lever. Such construction of locking device is of the well-known character. The handle end of this lever stands upright in front of the driver. Being drawn backward from the vertical position it acts upon the axle to throw the outer wheel behind the outer or right-hand one, and by a contrary movement it brings the axle back into line or throws it over into the opposite diagonal position. The first movement sets the plows into the land and the other movement throws them off.

To raise and lower the plow-frame there are two levers, so arranged that one operates on the front of the frame while the other raises and lowers the rear end of the frame. The handles of both levers are brought to the front that they may be managed from the driver's seat. The lever I is provided with a fulcrum in the standard $I^\times$ on the rear end of the frame, and is carried through a socket or fork, *j*, on the top end of the spindle J of the caster-wheel K. The outer end of this lever is held by the notched segment L. Such device for regulating the height of the rear end of the frame is not new with me, however, and this particular construction is not claimed in itself as a part of my invention.

To set the front end of the frame up and down the beam D is made to slide on the king-bolt C, as before described, and by means of the set of levers H such movements are produced from the driver's seat. This part or feature of my improvement gives the driver complete control of the depth of cut, and enables him to quickly vary it and also to throw the plow-points clear of the ground at any time.

The device for moving the frame on the king-

bolt is a compound lever, of which one part or member is the forked lever H, having fulcrum *h h* directly over the axle, and the other part is the straight lever $H^{\times}$ with a handle, h^2, extending to the front. The fulcrum of this part is placed on the rear end of the frame, and the forked lever is connected by a joint, h^3, at a point in front of the fulcrum. Each arm of the forked lever is connected by a link, h^5, to an eye, *i*, on the side of the beam that is directly under it, and therefore any movement given to the end h^3 of the lever raises or lowers the front end of the frame on the king-bolt. Behind these points of connection the arms of the lever bear upon the bolster M, and are held in place by the slotted plates *m* and pins $m^{\times}$. The bolster M swings on an independent swivel-bolt, *p*, placed in the center; but it will be noticed that the king-bolt or center of movement for the axle is placed considerably to one side of the center.

The seat P, notched plates for holding the levers H and I, and the bearings *m*, are all fixed on the bolster, and the axle swings under it, both forward and backward, with sufficient extent of movement to set the plow laterally or to and from land for nearly the full width of the plow. The ends of the beams D D at the front are brought together to form hounds for the tongue; but at the rear one beam is carried back behind the other to give a point for attachment of the forked standard $I^{\times}$, in which the end of the lever I is set, and to bring the caster-wheel behind the diagonal plow-beam.

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

1. In a gang-plow, the combination of the trussed or open axle A, the frame D D, having the ends set into the opening of the axle, the king-bolt C, and the setting and holding device consisting of a hand-lever having its fulcrum on the frame, and a connection, as with the axle, substantially as described, for operation as set forth.

2. In a gang-plow, a trussed axle formed of the stub-axles *a a*, the braces a^2 a^2, and trusses a^3 a^3, with a king-bolt upon which the plow-frame is adapted to move vertically within the opening of the axle.

3. In a gang-plow, the combination of the trussed axle A, the plow beams or frame D D, having free movement in the opening of the axle and upon the king-bolt C thereof, the bolster M, and the lifting-levers H $H^{\times}$, having fulcrum on the plow frame and bolster, respectively, and connection at the front ends with the beams D D, substantially as described, for operation as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

ELLIS H. NICHOLSON. [L. S.]

Witnesses:
W. T. LUCAS,
D. C. MONTGOMERY.