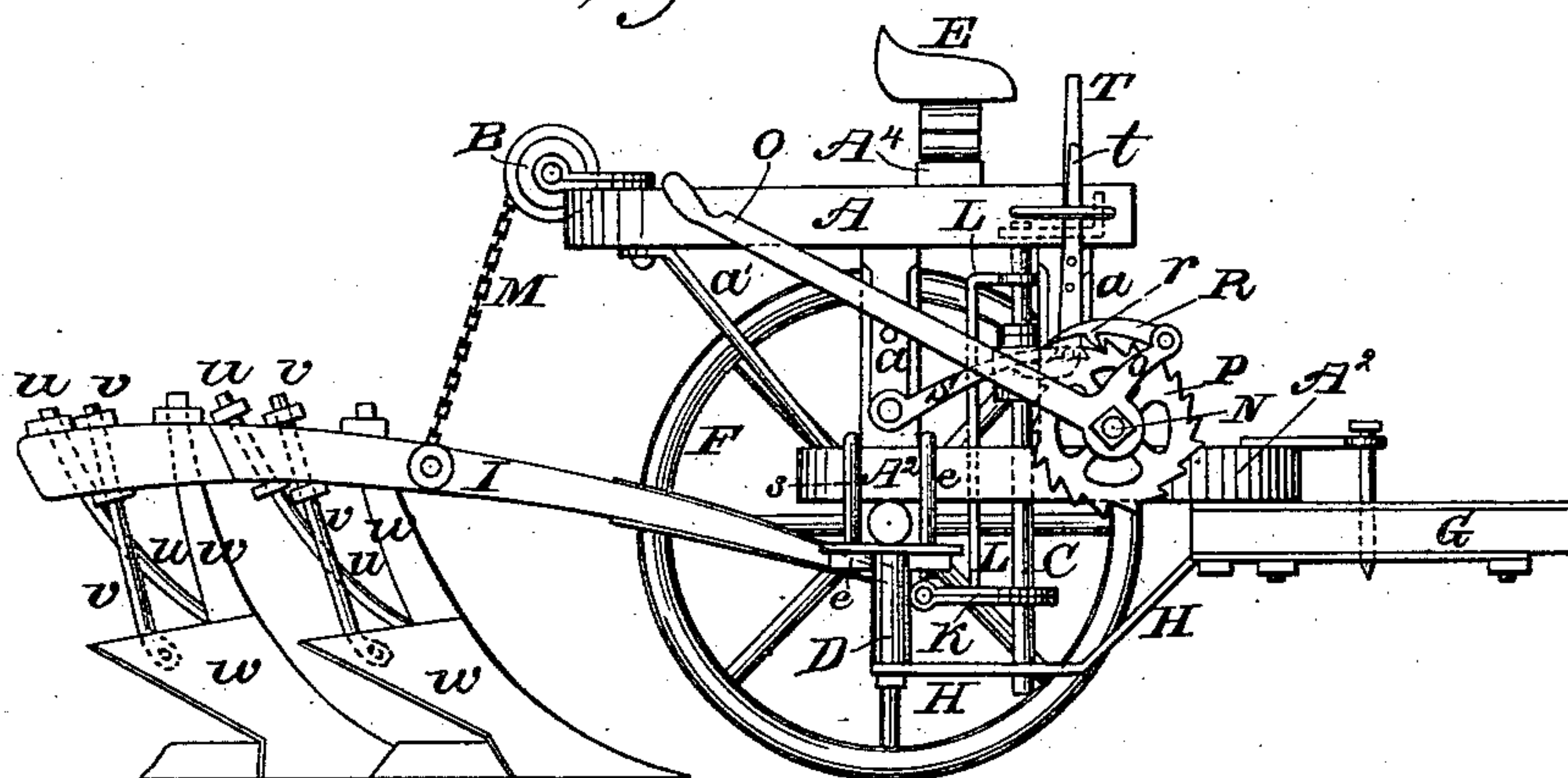


A. SMITH.  
Gang Plow.

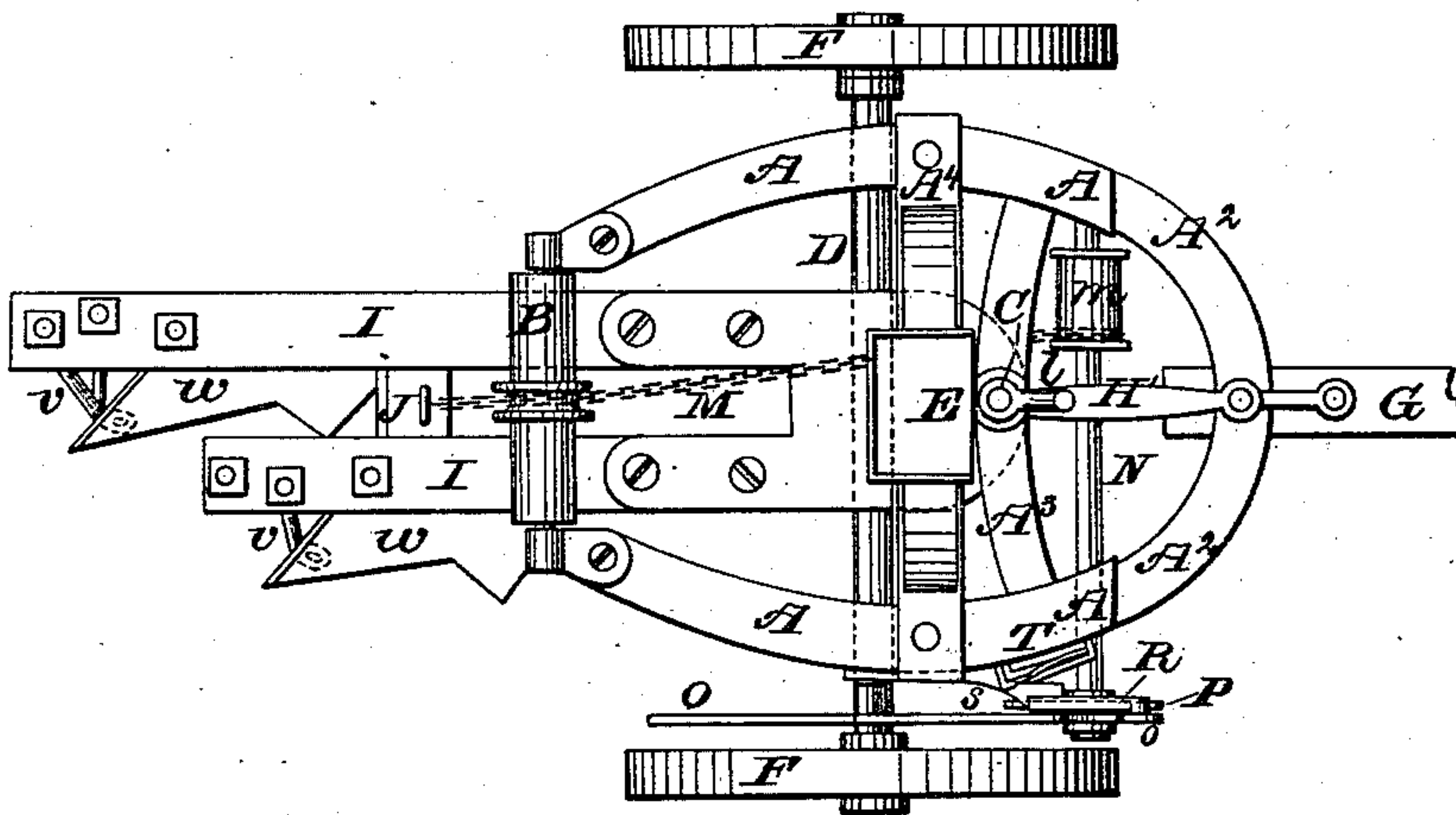
No. 84,652.

Patented Dec. 1, 1868.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
C. A. Pettit  
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*[Signature]*

Inventor:  
A. Smith  
by *[Signature]* Attorneys.



# United States Patent Office.

ANDREW SMITH, OF PORTLAND, OREGON, ASSIGNOR TO T. J. CARTER AND W. P. WATSON, OF THE SAME PLACE.

Letters Patent No. 84,652, dated December 1, 1868.

## IMPROVEMENT IN GANG-PLOWS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, ANDREW SMITH, of Portland, in the county of Multnomah, and State of Oregon, have invented a new and improved Gang-Plow; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation.

Figure 2 is a plan.

The object of this invention is to improve the construction and operation of the gang-plow heretofore invented by me, and for which Letters Patent have been applied for.

The improvements which form the subject of the present application consist of a new method of attaching the plow to the beam, a new method of attaching and supporting the forward end of the plow-beams, a new supporting-frame, and a new ratchet-apparatus for elevating the plows.

In the drawings, the supporting-frame is composed of two curved pieces, A A, connected, at their rear end, by a roller, B, a single-curved bottom piece, A<sup>2</sup>, four upright posts, a a, and two braces, a' a', uniting the top and bottom pieces at the sides of the instrument, and supporting the top pieces, and cross-pieces A<sup>3</sup> A<sup>4</sup>, for the purpose of supporting the driver's seat E, and the upper end of the king-bolt C, the whole forming a neat, light, and substantial frame, the plan view of which, from the curved top and bottom pieces bending in opposite directions, resembles the shape of a horse-shoe.

This frame is supported upon an axle, D, to which it is attached by a double box-strap, e, and is conveyed from place to place, and supported, when the instrument is in operation, by two wheels, F F'. The axle is bent down, or formed into the shape of a double crank, between the points where the frame rests upon it, so as to give more space above its central part for the working of the other parts of the instrument.

G is the draught-pole, attached to the forward part of the piece A<sup>2</sup>, and connected with the centre of the axle by a brace, H, which runs under the rest of the apparatus, and serves also to support the lower end of the king-bolt; and with the cross-beam A<sup>3</sup>, by means of another brace, H', through the rear end of which the upper part of the king-bolt passes.

I I are the plow-beams, firmly connected by a cross-brace, J, and hinged, at their forward end, to a folding or double-lip clevis, K, similar in construction and operation to that described in my previous application, above referred to, except that it is not supported upon the axle, but forward of it and above it, by means of the king-bolt C, which does not pass through the axle, but through the brace H and the cross-beam A<sup>2</sup>, in front of the axle.

The king-bolt passes through the clevis, but does not

directly sustain the weight of it and of the end of the plow-beams to which it is attached.

Such weight is directly sustained by a standard, L, through the top of which the king-bolt screws, as described in my former application, so that, as the king-bolt is turned in one direction, it screws up the standard L, and thereby raises the clevis and the forward end of the plow-beams, and as it is turned in the other direction it screws the clevis down.

A crank, l, is provided, for convenience in turning the king-bolt.

The plow-beams swing freely up and down on the clevis, and the latter turns freely horizontally on the king-bolt, so that the plow-beams can move vertically or laterally to any degree that may be necessary.

In order to afford the means for readily elevating the plows when desired, a cord or chain, M, attached to the brace J, passes up over the roller B, and forward, under the driver's seat and cross-beam A<sup>3</sup>, to a shaft, N, provided with a spool, m, upon which it winds or unwinds.

At the right-hand side of the instrument, pivoted on the end of the shaft N, is a hand-lever, O, within reach of the driver, and serving to turn the shaft N, and wind up the chain M, in order to raise the plows. It works in connection with a ratchet-wheel, P, firmly fixed to the shaft.

The lever is provided with an arm or offset, o, extending out to the periphery of the ratchet-wheel, and lying close against the outer side of the wheel.

To the end of this arm is hinged a rod, R, which extends back, passing along above the rim of the ratchet-wheel, and close to it.

This rod is provided with a tooth, r, which, when the rod is drawn forward by an upward movement of the lever-handle, engages with the teeth of the wheel, and turns it, and with it the shaft N, thereby raising the plows.

The rear part of the rod extends back beyond the tooth, passing over a tripping-rod, s, the rear end of which is hinged to the side of the frame.

A lever, T, similar in form to the lever O, serves to raise the tripping-rod s, and hold the rod R up out of the way of the ratchet-wheel, leaving the latter free to turn, and unwind the cord M, thereby lowering the plows. The lever T operates the tripping-rod simply by means of its offset, which passes under the rod, and, when the lever is thrown forward, raises the rod.

A spring, t, may be provided, to operate against the side of the lever, or attached to the side of the lever, and operating against the side of the socket or guard in which the lever moves, for the purpose of holding the latter in place.

The plows W W are attached to their beams by means of standards w w, which can be adjusted up and down by screw-nuts on their upper end, above the beams.



They are further attached to the plow-beams, and supported, held in place, and adjusted, by means of a brace, *u*, extending upward and backward from about the middle of the standards to and through the rear end of the plow-beams, and secured in position by screw-nuts, or nuts and washers, or other equivalent device, both above and below the beams.

These braces are hinged or pivoted, at their lower end, to the standards, and by shortening or lengthening them, by means of the screw-nuts, the heel of the plow can be raised or lowered, so as to adjust the pitch of the plow at pleasure.

The lower end of these braces might be hinged to the mould-board, or the land-side, if preferred.

In addition to this brace, the mould-board of each plow is connected to the plow-beam by another brace, *v*, extending from the beam to near the outer upper corner of the mould-board. This brace is connected to the plow-beam in the same manner and for the same purpose as the others. It serves to raise or depress the outer edge of the mould-board, and to set the point of the plow towards the right or left, in order to trim it better for its work.

The point of a plow frequently is found to run too much to one side or the other, or the shear to run too high or too low, making the whole instrument work badly.

This simple device serves to correct such evil, and may be attached to any form of plow for the purpose, and whether the plows be worked in gangs or not.

The whole instrument, thus constructed and oper-

ated, is compact, not complicated, strong, durable, and easily operated, possessing great practical advantages over any other heretofore made known.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the lever *O*, having the offset *o*, with the ratchet *P*, rod *R*, having the tooth or shoulder *r*, and lever *T*, the whole operating substantially as and for the purpose described.

2. The arrangement of such frame, when constructed as herein described, in combination with a downward-bent axle, *D*, the box-strap *e*, the braces *H H*, the draught-pole *G*, and the wheels *F F*.

3. The arrangement of the clevis *K*, braces *H H*, king-bolt *C*, cross-bar *A*<sup>3</sup>, and axle *D*, the axle being behind the king-bolt, and the latter being supported by the braces and the cross-bar, substantially as herein described.

4. The braces *u* and *v*, attached, at their lower ends respectively, to the mould-board and standard, and at their upper ends provided with screw-threads, upon which are fitted, above and below the plow-beam, through which the braces pass, adjusting screw-nuts, substantially as and for the purpose specified.

To the above specification of my improvement, I have set my hand, this day, 9th of November, 1868.

ANDREW SMITH.

Witnesses:

CHAS. A. PETTIT,  
S. C. KEMON.