

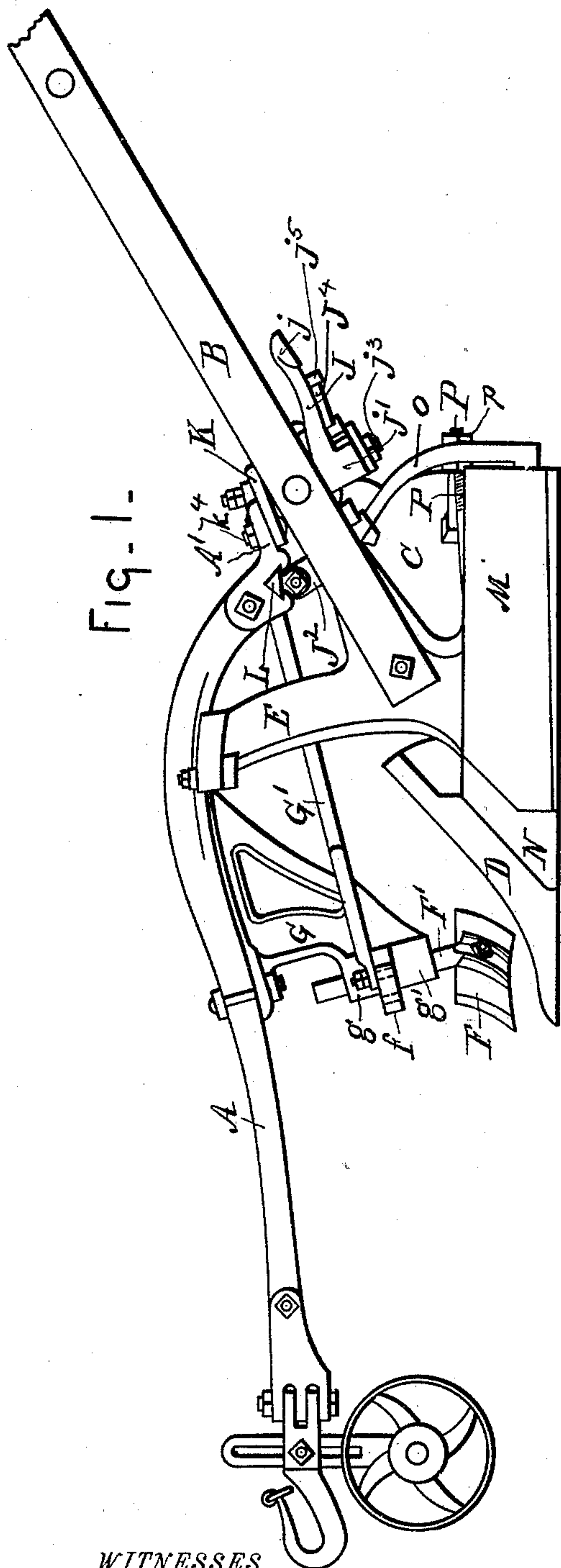
(No Model.)

3 Sheets—Sheet 1.

E. M. HICKMAN.
SIDE HILL PLOW.

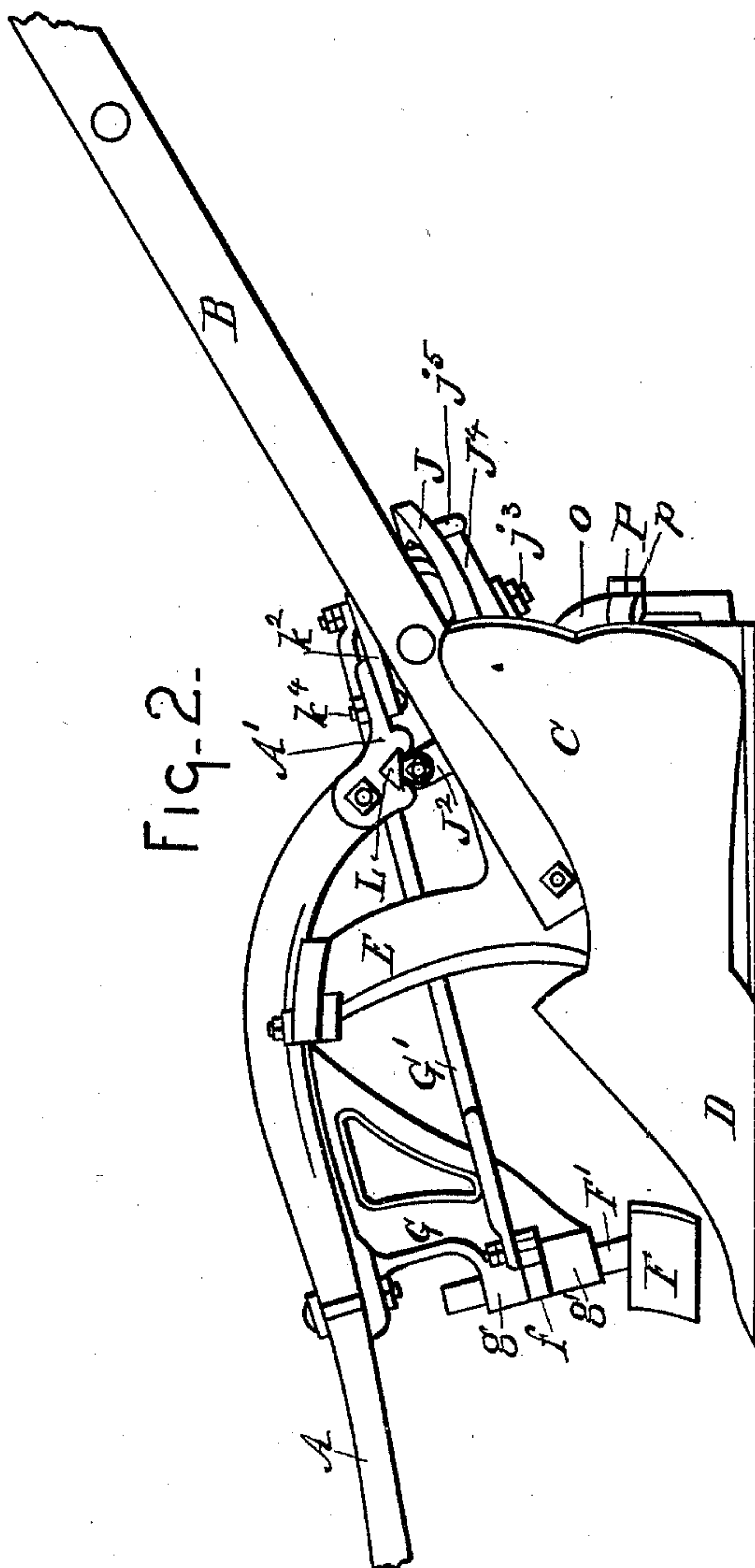
No. 426,447.

Patented Apr. 29, 1890.



WITNESSES

F. Blough.
C. J. Shipley



INVENTOR

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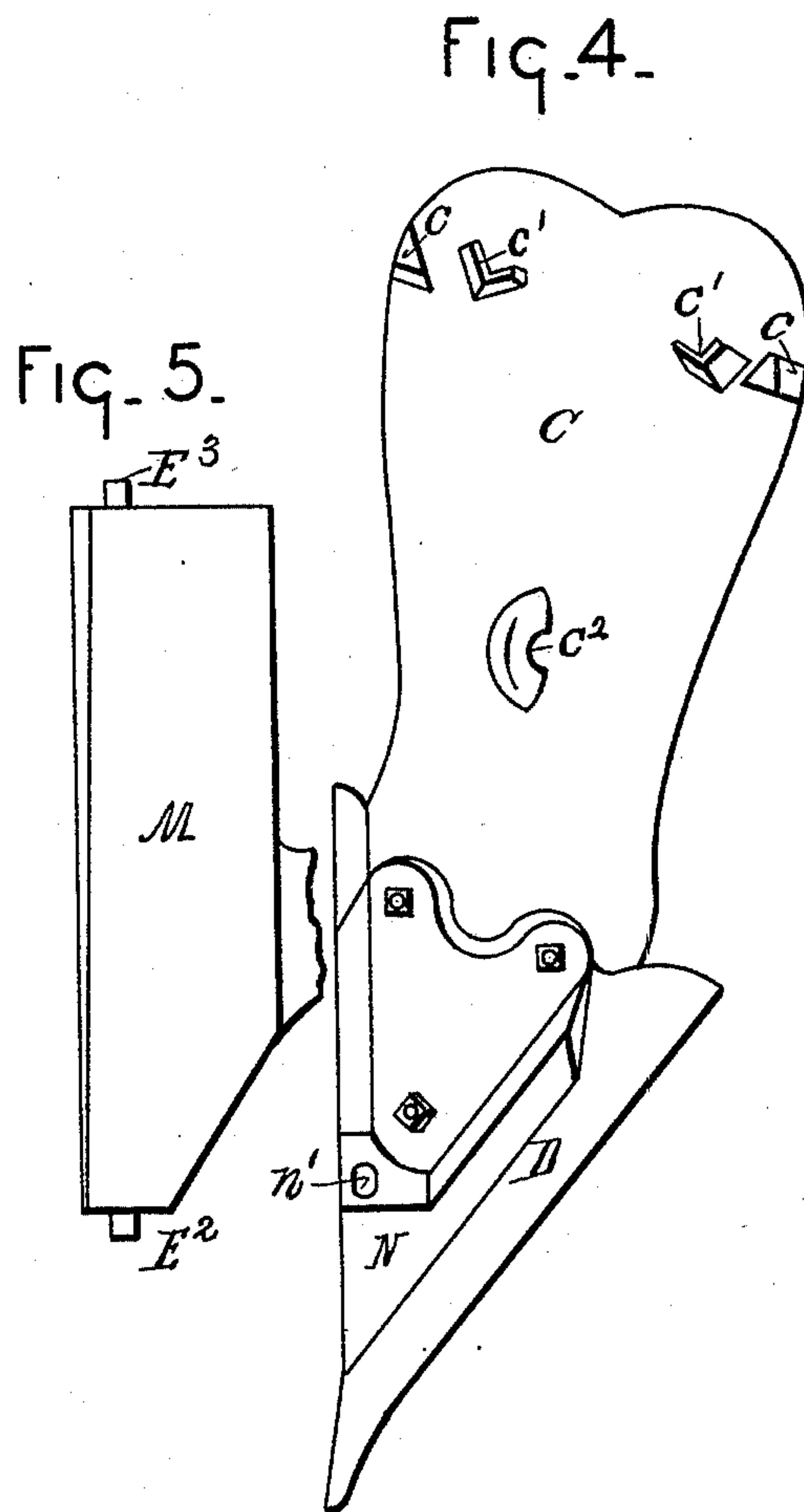
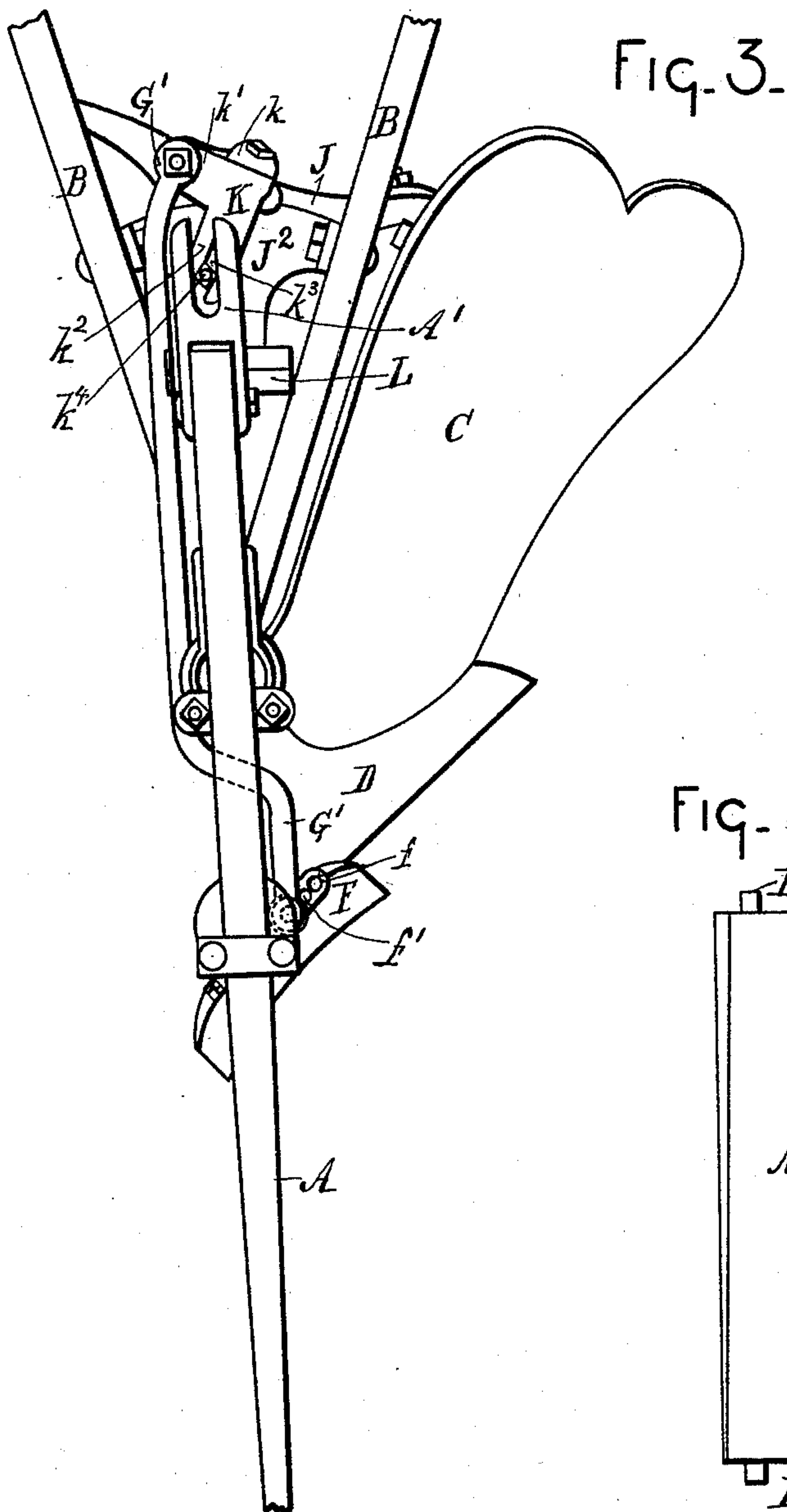
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UNITED STATES PATENT OFFICE.

EDGAR M. HICKMAN, OF ALBION, MICHIGAN, ASSIGNOR TO THE GALE MANUFACTURING COMPANY, OF SAME PLACE.

SIDE-HILL PLOW.

SPECIFICATION forming part of Letters Patent No. 426,447, dated April 29, 1890.

Application filed December 9, 1889. Serial No. 333,070. (No model.)

To all whom it may concern:

Be it known that I, EDGAR M. HICKMAN, a citizen of the United States, residing at Albion, county of Calhoun, State of Michigan, have
5 invented a certain new and useful Improvement in Side-Hill Plows; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make
10 and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain improvements in that style of plow known as "side-hill plows;" and it consists in the several improvements hereinafter more fully described and claimed.

In the drawings, Figure 1 is a side elevation of my plow. Fig. 2 is a side elevation with the mold-board reversed. Fig. 3 is a plan view. Fig. 4 is a view of the underside of the mold-board. Fig. 5 is a view of the landside. Fig. 6
20 is a side elevation of a portion of the plow with one of the landsides removed from the frame. Fig. 7 is a plan view of the block and pivot for holding the beam to the standard. Fig. 8 is a section on the line xy of Fig. 7. Fig. 9 is a rear elevation of the landsides, and Fig. 10 a front elevation of the same. Fig. 11 is a view of
30 the inner face of the landside. Fig. 12 is an edge view of the same. Fig. 13 is a rear elevation of the lever for engaging and holding the mold-board, and Fig. 14 is a view of the underside of the same. Fig. 15 is an enlarged
35 view of a portion shown in Fig. 14.

In carrying out my invention, A represents the beam; B, the handles; C, the mold-board; D, the share; E, the standard; F, the colter or jointer; G, the standard for supporting the
40 same, and H H' the landsides.

I will now describe the particular parts and features of the plow.

In a side-hill plow the colter or jointer must of course reverse with the mold-board. To
45 accomplish this, I provide the pivot or shaft F', to which the jointer is attached, with an arm f , and key it to the pivot by a set-screw. The pivot works in the double sleeve $g g'$, and the arm f projecting between the two the pivot

and jointer are held from any vertical movement, and yet are free from any rotary movement.

G' is a rod, one end pivoted to the arm f . It extends back to a point adjacent to the standard, where it is bent and carried to the
55 other side of the plow, and is then carried to the rear, where it is connected with the reversing mechanism.

I will now describe the reversing mechanism.

J is a lever, having beveled knobs j on its ends adapted to engage the beveled shoulders c on the back of the mold-board. This lever has on its under side the sleeve j' , having one side open. In this sleeve is placed the spool
65 J', having the projection j^2 on its side. The pivoting-bolt j^3 is passed through the spool and through a suitable fitting J², rigidly engaged between the handles. The lever is thus pivoted at its center to the frame.

J³ is a block having a flanged base j^4 let into the bottom of the lever. One face of this block is adapted to receive the spring J⁴, the ends of which are engaged in the knobs j^5 on the lever, and the other face is rounded and
75 adapted to bear against the projection j^2 . Thus when the lever J is rocked either way the block J³ is carried with it, and by making the face j^6 of the projection three-sided, as shown, the lever is held in the desired position until moved by sufficient pressure to overcome the spring J⁴.

K is a bell-crank lever rigidly engaged to the lever J through the flanges $j^7 k$. To one arm k' of the lever K the rod G' is pivoted.
85 The other arm k^2 is slotted, as at k^3 , and a bolt k^4 projects through the same, where it engages in a slotted fitting A' on the rear end of the plow-beam.

L is a triangular block pivoted to the fitting J², and loosely embraced by the fitting A' on the rear end of the beam, the fitting being free to slide longitudinally of the block, but held by it. It will thus be seen that by pivotally supporting the beam when the lever is
95 rocked to either side it acts through the bell-crank k to move the rod G' bodily lengthwise, and thereby the jointer, and to change the line

of draft of the beam with respect to the handles. By means of the slot k^3 in the bell-crank this change may be regulated at will, and by providing the arm f with two or more orifices f' the jointer may be set at any angle desired.

Fig. 8 illustrates how the beam is pivotally supported.

A^2 is a block resting on the standard or frame, the meeting surfaces being smoothed. The upper side is hollowed, as at a , with the beam A resting on the upper edges and held by the buttons or lugs a' and bolts a^2 .

A^3 is the bolt which pivotally holds the block A^2 to the standard, and by the provision of the spool or wearing-washer A^4 the wear comes on this spool and not on the block. The spool can be readily replaced when worn out.

I will now describe the mold-board, the landsides, and the parts connected therewith.

The standard E is at the lower end elongated, as at E' , to form a frame to which the landsides can be attached, a suitable portion being cut away to reduce the weight.

M are the landsides, one attached to each side of the portion E' of the standard. These landsides are provided with beveled hooks m on their inner faces, adapted to enter the orifices e' in the standard, whereby the landsides and the base portion or frame E' of the standard E are firmly united by hooks and eyes and a perfectly flush surface is provided. The rear end portions of the landsides are secured to the standard by a transverse bolt or bolts m' .

N is a plate or block engaged to the under face of the mold-board and share and adapted to fill the spaces between the share and the landside. This is accomplished by enlarging the plate N so that it will exactly fit into the space between the end of the landside and the share.

The orifice N' is provided in the block N , and into this orifice the spud or projection E^2 on the forward end of the frame E' is inserted, thus pivotally supporting the forward end of the mold-board and share. The rear end of the mold-board is supported by the Y-shaped brace O . The ends of the fork resting against the projections c' on the mold-board, and the lower end having an orifice into which the spud or projection E^3 enters.

A bolt P is used to hold the Y-brace to the mold-board. This bolt has a hook on its end to engage the eye c^2 on the back of the mold-board, and the other end is passed through the Y-brace and secured by the nut p .

The operation for reversing the plow will at once be seen by reference to Fig. 3. The operator with his foot presses the end of the lever J and disengages the opposite end from its engagement with the mold-board. This permits the latter, when the handles are raised, to be swung under and upon the other side and engaged by the opposite end of the lever

J . The movement of the lever J has also through the bell-crank K thrown the rear end of the beam over and reversed the jointer.

What I claim is—

1. In a side-hill plow, the combination, with a plow-beam A , a pendent standard G thereupon, and a reversible mold-board, of the reversible jointer F , journaled in the standard and having a lateral arm f , the lengthwise-movable rod G' , connected at its forward end to said lateral arm, the reversing-lever J , and a lever K , secured to the reversing-lever and pivotally connected with the rear end of the rod to move the latter bodily lengthwise and reverse the jointer as the mold-board is reversed, substantially as described.

2. In a side-hill plow, the combination, with a plow-beam, a standard G thereupon, and a reversible mold-board, of the reversible jointer F , having a lateral arm f provided with a row of perforations f' , the lengthwise-movable rod G' , adjustably connected at its forward end to said lateral arm, the reversing-lever J , and a lever K , secured to the reversing-lever, and pivoted to the rear end of the rod to move the same bodily lengthwise and reverse the jointer as the mold-board is reversed, substantially as described.

3. In a side-hill plow, the combination, with a plow-standard A , a standard G thereupon, and a reversible mold-board C , of a reversible jointer F , having a lateral arm f , a lengthwise-movable rod G' , connected to said lateral arm, the reversing-lever J , and the bell-crank lever K , rigidly secured to the reversing-lever and having one arm engaged with a part of the plow-beam, and the other arm pivoted to the rod to move the latter bodily lengthwise and reverse the jointer as the mold-board is reversed, substantially as described.

4. In a side-hill plow, the combination, with a plow-beam having a forked rear end, of a reversible mold-board, a standard secured to the beam and carrying a reversible jointer having a lateral arm, a lengthwise-movable rod connected at its front end with the said lateral arm, a swinging reversing-lever, and a bell-crank lever secured to the reversing-lever and having one arm adjustably secured in the forked end of the plow-beam and the other arm pivoted to the rod to move the same lengthwise and reverse the jointer as the mold-board is reversed, substantially as described.

5. In a side-hill plow, the combination, with a plow-beam and a reversible mold-board, of a reversible jointer having a lateral arm f , provided with a row of perforations f' , a rod G' , movable bodily lengthwise and adapted to be engaged at its front end with any one of said perforations, and a swinging reversing-lever J , having a connection with the rear end of the rod to bodily move the latter lengthwise when the reversing-lever is swung, substantially as described.

6. In a side-hill plow, the combination, with

a plow-standard, of a plow-beam pivotally supported by the standard and having on its rear end the fitting A', and the stationary block L, loosely embraced by the fitting and longitudinally along which block the fitting slides while held thereby against vertical movement, substantially as described.

7. In a side-hill plow, the combination, with the standard or frame and the lever J, pivoted thereon, of the spool J', having projections j^2 , and the block J³, adapted to bear against said projection, said block held by the spring J⁴, substantially as described.

8. In a side-hill plow, the combination, with the plow-beam, standard, and reversible mold-board, of a swinging reversing-lever J, mounted centrally on a pivot, whereof a part comprises a projection j^2 , a block J³, secured to the lever centrally between its ends, and a leaf-spring J⁴, having its extremities engaged with the lever at opposite sides of its pivot and centrally between its extremities engaged

with the block, said block having one face arranged to strike the projection j^2 , substantially as described.

9. In a side-hill plow, the combination, with the plow-beam and standard, of a spool A⁴, and the hollowed block A², interposed between the under side of the beam and the upper end of the standard and engaged with the spool, substantially as described.

10. In a side-hill plow, the combination, with the plow-beam and standard, of the block A², interposed between the standard and the beam and rigidly bolted to the latter, and a spool or washer A⁴, supported in a bearing in the interposed block and bolted to the standard, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

EDGAR M. HICKMAN.

Witnesses:

GEO. W. BORTLES,
EUGENE C. LESTER.