(Model.)

2 Sheets—Sheet 1.

L. BELL.

SULKY PLOW.

No. 286,678.

Patented Oct. 16, 1883.

Fig. 1.

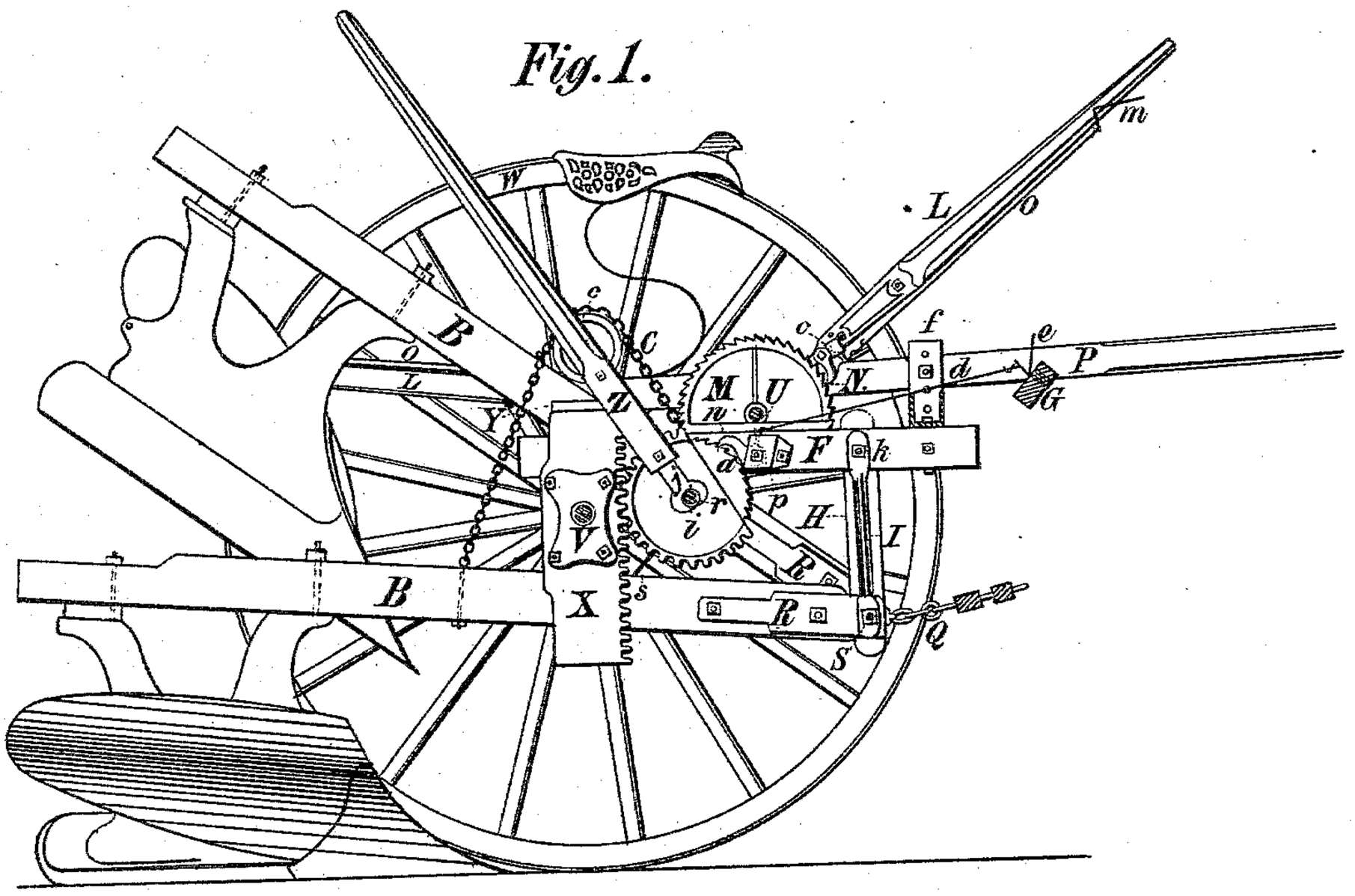
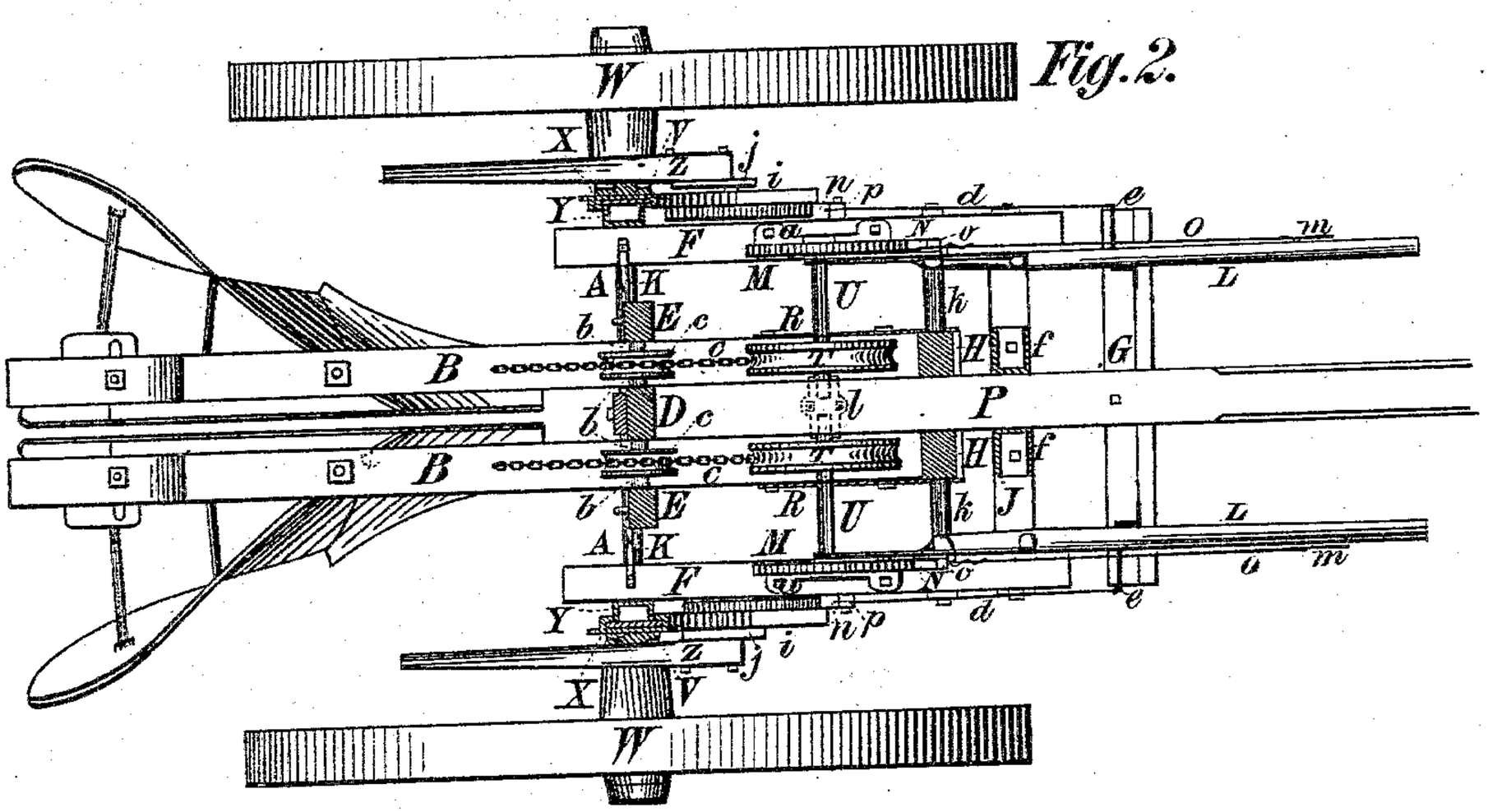


Fig. 2.



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(Model.)

2 Sheets—Sheet 2.

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Fig. 3.

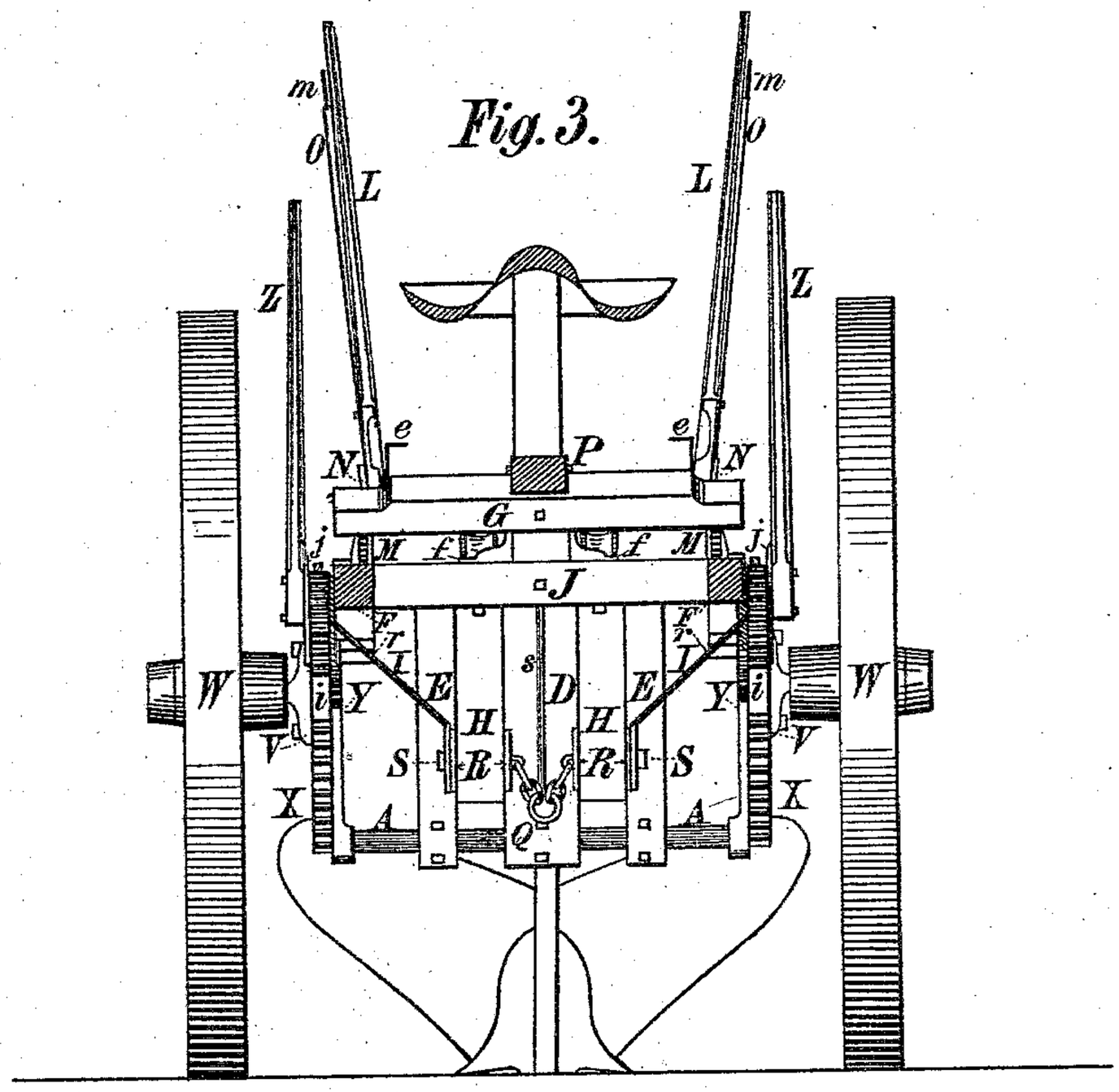
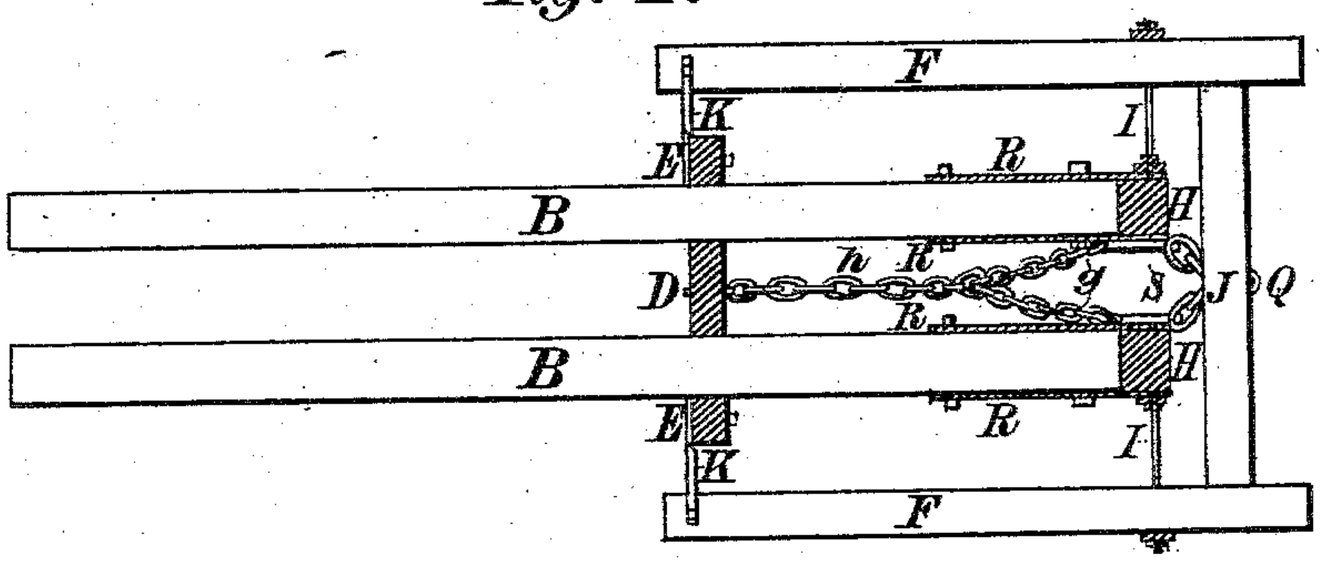


Fig. 4.



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UNITED STATES PATENT OFFICE.

LEVI BELL, OF ORANGEBURG, NEW YORK.

SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 286,678, dated October 16, 1883.

Application filed August 8, 1881. (Model.)

To all whom it may concern:

Be it known that I, LEVI BELL, a citizen of the United States, residing at Orangeburg, in the county of Rockland and State of New York, have invented a new and useful Sulky-Plow; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a new and improved reversible or double sulky (or riding) plow which carries two (2) separate and complete plows—one (1) a right-hand and the other a left-hand plow—which are brought into use alternately, turning the furrows all in one direction in passing either way on the same side of a field, thus making no dead furrows and no ridges in the field.

In the drawings, Figure 1 is a side view of my invention, the wheel of the device at the side nearest the eye being removed and the right-hand plow shown in about the position for work, while the left-hand one is shown as raised. Fig. 2 is a plan or top view of my invention after removing the seat for the driver and with both plows resting on the ground. Fig. 3 is a front view of the same, partly in section, showing the position of the hangers H H and their braces I I, and also the construction of the frame in the rear. Fig. 4 is a top view or section of the lower portion of the device, showing the limiting-chains *h* and *g g* and their attachment to the frame at D and to the hangers H H at S, Fig. 4.

Similar letters of reference indicate corresponding parts throughout the several views.

The device is a double one. Each part on the right-hand side of a line drawn through the center from front to rear has a corresponding part on the left-hand side of said line.

The frame-work of the device consists of the two side pieces, F F, the cross-piece J, the vertical guide-bars E E and D, the wrought-iron axle-bar A, and the small iron braces K K, Figs. 2 and 4. The latter, with the shaft or bolt *b*, on which the loose pulleys *c c* turn, forms the cross-brace or arch of the frame over the beams in the rear. The vertical cast flanged plates Y Y, Fig. 3, have holes in their lower ends, into which the ends of the axle A are firmly keyed, and near their upper ends are inwardly-projecting shelves or brackets, on which the side pieces, F F, rest and are bolted. Beneath the draft-pole P, Fig. 2, connecting cross-piece J with guide-bar D, and framed into each parallel and in the same plane with side pieces, F F, is the middle bar of the frame, to which the journal-box *l* is attached. (Shown in dotted lines as beneath the pole P.) *s* is a brace passing obliquely from the above-mentioned middle bar of the frame to near the lower end of the middle guide-bar, D.

The plow-beams B B pass over the axle A and between the guide-bars E E and D, and are each pivoted to a separate swinging hanger, H. To the forward ends of the beams B B, on either side, are attached iron plates R R, through holes in the forward ends of which the pivoting-bolts S S pass. To the latter the draft is applied by means of the links and clevis-ring shown at Q, which links pass through elongated slots in said bolts.

The hangers H H and their braces I I are pivoted to the frame by the bolt *k*, passing through their upper ends. On said bolt (at *k k*, Fig. 2) are short wooden tubes, slipped on, to act as thick washers between side pieces, F F, and the hangers H H, to keep the latter in their proper position against the middle bar of the frame.

The arbors on which the wheels W W revolve are formed on the plates V V, which are securely bolted to the cast grooved plates X X, the latter having racks on their forward edge. Said grooved plates X X slide up and down freely over corresponding flanges on the cast plates Y Y, which form a part of the frame-work of the device.

The stationary projecting shafts or arbors *r r* are fastened to the under side of side pieces, F F. Turning on said fixed arbors *r r* are gear-segments *i i*, which mesh into the racks on the grooved plates X X. The levers Z Z are rigidly fastened to the gear-segments *i i* by means of the plates *j j*, which grasp the hubs of said gear-segments, and are also bolted to them near their rims. To the inner sides of the gear-segments *i i*, and cast in one piece with them, are ratchet-wheels *a a*, into which the pawls *n n* engage. The latter are kept pressed to the ratchet-wheels *a a* by rubber springs placed

inside of the box or holders *p p*, and against an upward projection of the pawls *n n*. Said projections also form lugs, to which are attached the wires *d d*, which connect them with the pedals *e e* on the foot-rest G.

To raise the frame on either side the lever Z is drawn or moved toward the rear, as shown in Figs. 1 and 2, the rack on the grooved plate answering as the fulcrum, and the arbor *r* the weight, thus carrying the frame upward, the pawl *n* holding it in the desired position. To lower the frame the pawl *n* is released by pressing the pedal *e* forward with the foot, and the lever Z allowed to move forward as far as desired, and be held there again by the pawl *n*.

The plows are raised by means of the chains C C, passing from the plow-beams B B upward and forward over the friction-wheels *c c*, and thence downward under the chain-wheels T T, to which they are fastened. The chain-wheels T T and the levers L L are keyed to the short shafts U U. The outer ends of said short shafts U U turn in journal-boxes formed in the center of the ratchet-wheel segments M M. The latter are bolted to side pieces, F F, and their inner ends in the journal *l*, which is bolted to the middle bar of the frame beneath the pole P, Fig. 2. The levers L L carry pawls N N, which engage the ratchet-wheel segments M M and hold said levers in the required position. The pawls N N are arranged with rubber springs placed inside the holders *o o*, and having wires O O attached to them in a similar manner as those previously described. The wires O O are fastened to the small right-angled levers *m m*, pivoted to the large levers L L in the position shown, to be operated by the fingers when the pawls N N are to be released to lower the plows. To raise the plow on either side the lever L is moved toward the rear, winding the chain C on the chain-wheel T, the pawl N on said lever L catching in the ratchet-wheel segment M and holding it in the required position. To lower the plow, the pawl N is released by operating the small lever *m*, pivoted to the large lever L, and allowing the latter to move forward to the desired point, and again be held by the pawl N catching in the ratchet-wheel segment M.

To increase the pitch or dip of the plow, the frame is lowered one or more notches on each side by means of the levers Z Z, as previously described, and the plow raised a notch or two by means of the lever L. To diminish the pitch, reverse the above described operation.

The weight of the plows is carried by the chains C C at all times, and while plowing, the weight of the soil or furrow that is passing over the share and mold-board of the plow is also carried by said chains, bringing all the said weight onto the lubricated arbors V V of the wheels W W, so that there is no friction on the sole or bottom of the plow, thus reducing the draft considerably.

By connecting the plows to the carriage, as shown and described, the plow which is at work is allowed to stop suddenly when a fast stone is struck, while the plow-carriage still moves forward slightly, thus slackening the branch *g* of the limiting-chain *h*, Fig. 4, on the side next the plow which is at work. Said slight forward movement of the plow-carriage, after the plow stops, raises the said plow slightly by means of the chain C, thus enabling the plow to pass over the stone or obstruction, and at the same time giving the plow more pitch temporarily by raising the heel more than the point and causing it to enter the ground again very quickly after the point is past the stone. This operation takes place every time the plow strikes a fast stone or other obstruction in degree owing to the size and abruptness of the stone encountered and the speed of the team.

I am aware that prior to my invention reversible sulky-plows have been made having both right and left hand plows, which are brought into use alternately by raising and lowering the plows alternately by suitable mechanism. I therefore do not claim such a combination, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In a sulky-plow, the combination, with the independent rocking bars or hangers H H, pivoted at their upper ends to the forward part of the frame, and the forward ends of the plow-beams pivoted to their lower ends, of the pivoting-bolts S S, having the elongated eyes or slots, the separate short chains or links connecting the slots of the pivoting-bolts S S with a draft or clevis ring, Q, and the limiting-chains *g g* and *h*, connecting the pivoting-bolts S S with the frame of the plow-carriage at D, Fig. 4, substantially as described, for the purpose specified.

2. In a sulky-plow having corresponding parts on either side of the center or tongue, the combination, with guideways or grooved plates X X, adapted to corresponding guides or flanges formed on the plates Y Y, and having racks formed on their forward edges, and spindles V V, for the wheels W W, combined or integral with them, of the gear-segments *i i*, integral with the ratchet-wheel segments *a a* and the levers Z Z, together pivotally mounted on the arbors or spindles *r r*, attached to the side bars of the frame F F, the spring-pawls *n n*, pivoted to the frame and adapted to engage with the ratchet-wheel segments, and the wires *d d*, attached to lugs on said pawls *n n* and connecting them with the foot-pedals *e e*, substantially as shown, for the purpose specified.

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