

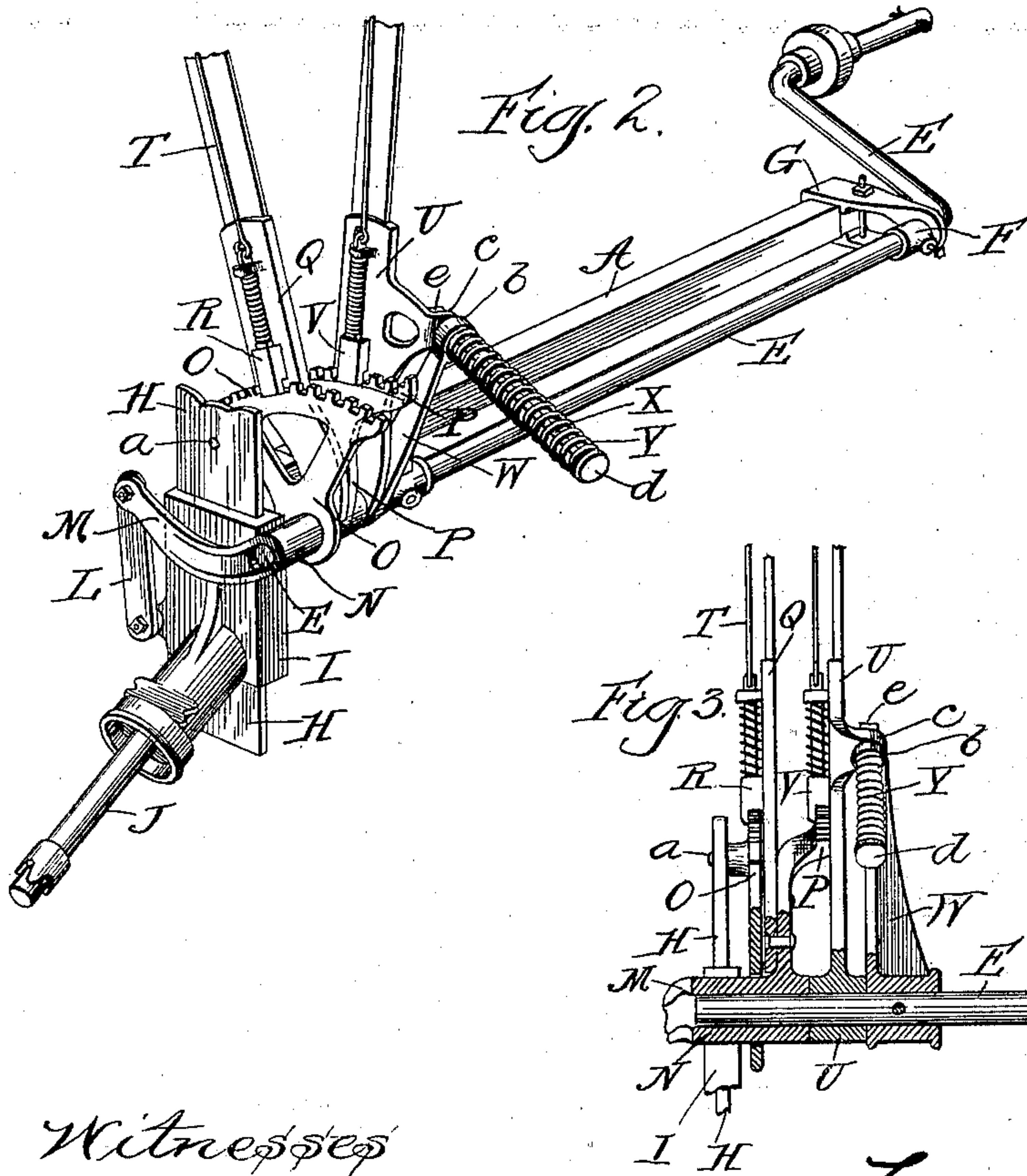
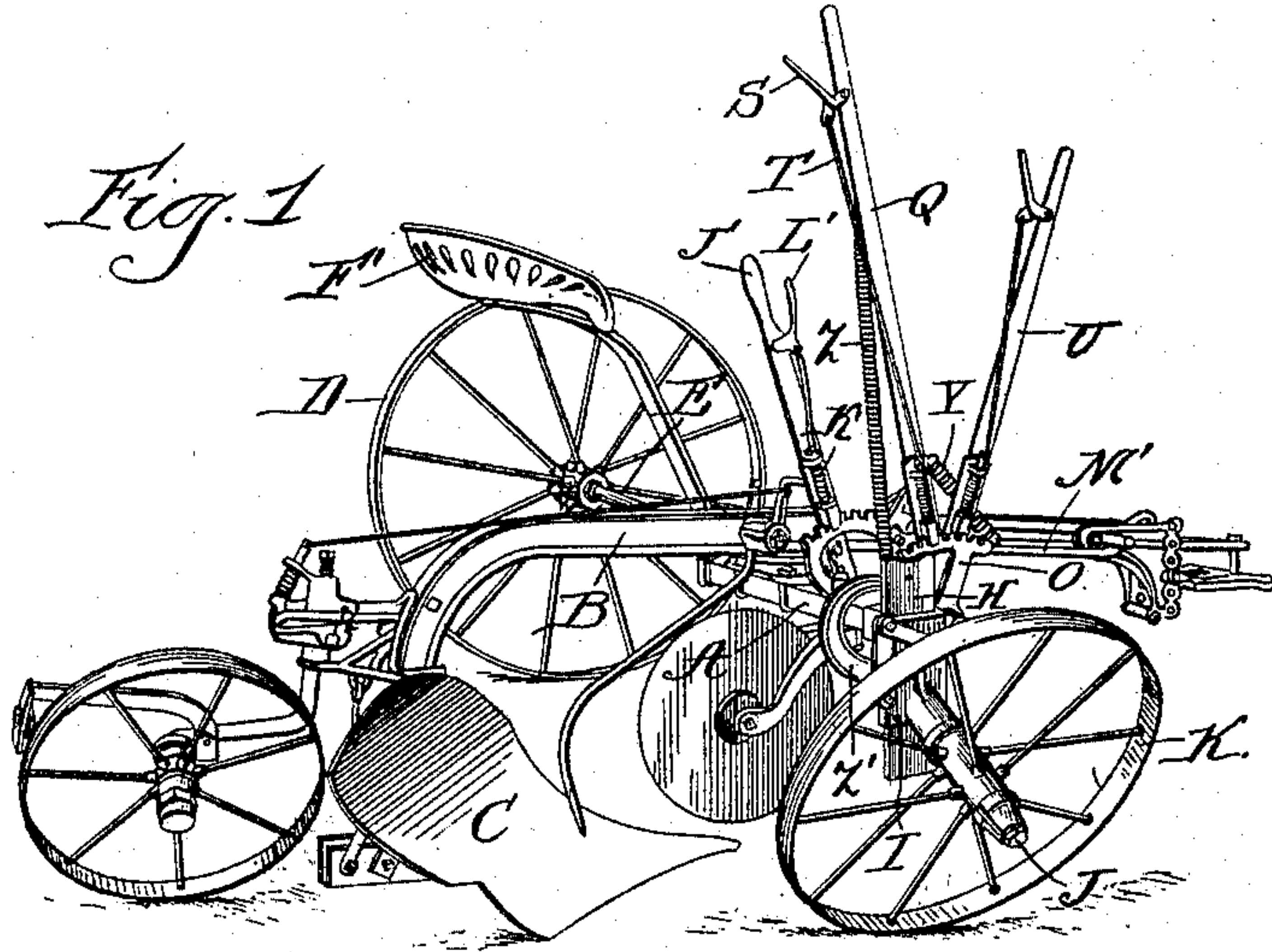
No. 609,311.

Patented Aug. 16, 1898.

L. E. WATERMAN.
SULKY PLOW.

(Application filed Jan. 20, 1898.)

(No Model.)



Witnesses
Martin A. Olsen.
Wm. J. Hanning

Inwrentoc
Lewis E. Waterman
By Edward Rector
his Atty.

UNITED STATES PATENT OFFICE.

LEWIS E. WATERMAN, OF MOLINE, ILLINOIS, ASSIGNOR TO THE ROCK ISLAND PLOW COMPANY, OF ROCK ISLAND, ILLINOIS.

SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 609,311, dated August 16, 1898.

Application filed January 20, 1898. Serial No. 667,212. (No model.)

To all whom it may concern:

Be it known that I, LEWIS E. WATERMAN, a citizen of the United States, residing at Moline, in the county of Rock Island, in the State of Illinois, have invented a certain new and useful Improvement in Sulky-Plows, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My invention has for its object the provision of novel means controlled by a single lever for raising and lowering both sides of the machine simultaneously to regulate the depth of furrow being plowed, while at the same time permitting adjustment of the land-wheel independently of the furrow-wheel by means of a separate lever when necessary, and its novelty will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a sulky-plow embodying my improvements; Fig. 2, an enlarged detail perspective view showing the means for adjusting the wheels on the opposite sides of the machine to raise and lower the plow, and Fig. 3 a sectional detail of the extreme left-hand end of the crank-axle and the parts mounted upon it.

The same letters of reference are used to indicate corresponding parts in the several views.

A is the main axle of the machine, which has mounted upon and connected to it the draft and plow beam B, whose downwardly-curved rear end carries the plow C. The land-wheel D of the machine is mounted upon the left-hand end of the crank-axle E, which axle, as shown in Fig. 2, has a bearing at F near its left-hand end in a clip G, bolted to the left-hand end of the main axle A. The axle E extends entirely across the machine, as shown in Fig. 2, and near its right-hand end (left-hand end in Fig. 2) is provided with a support and bearing hereinafter described.

Rigidly secured to the extreme right-hand end of the main axle A is a vertical plate H, upon which is mounted a slide I, which carries the axle or spindle J, upon which is mounted the furrow-wheel K, Fig. 1. The slide I is connected by a link L with an arm M, carried by and in this instance formed inte-

gral with a sleeve N, loosely mounted upon the end of the axle E. Rigidly secured to the vertical guide-plate H and main axle A is a sector-rack O, one of the rivets by which the rack is secured to the plate H being shown at *a* in Figs. 2 and 3. The end of the axle E and the sleeve N, surrounding it, pass through and have their bearing and support in the lower forward end or hub of the rack-plate O and are free to turn independently of each other therein.

Rigidly secured to or formed integral with the right-hand end of the sleeve N in Figs. 2 and 3 is a second rack P, while located between it and the rack O is the lower end of a lever Q, which is rigidly secured to the side of the rack P and is provided with a spring-latch R, which coöperates with the rack O and is controlled by a handpiece S, pivoted to the upper end of the lever and connected with the latch by a rod T, as usual. Loosely mounted upon the axle E, immediately at the right of the rack P in Figs. 2 and 3, is a second lever U, provided with a spring-latch V, which coöperates with the rack P.

Fast upon the axle E, at the right of the lever U, is an arm W, provided at its upper end with an eye *b*, through which and through a coincident eye in a laterally-projecting ear *c* upon the casting constituting the lower end of the lever U passes a rod X, which is surrounded by a strong coiled spring Y and is provided at its forward end with a head *d*, by which the spring Y is confined upon the rod, a nut *e*, screwed upon the rear end of the rod X, serving to hold the parts together. By these means the lever U is yieldingly connected to the axle E; but, so far as the novelty of my invention and the operation of the parts hereinafter described are concerned, the lever U may be rigidly secured at its lower end directly to the axle E instead of being yieldingly connected to it in the manner described.

As will be understood from the foregoing description, the rack O is rigidly secured to what may be considered the "frame" of the machine—i. e., the main axle A and the guide-plate H, rigidly secured to its left-hand end—while the arm M, sleeve N, lever Q, and rack P are all rigidly connected with each other and are moved together by the lever Q, being

held in their different adjusted positions by the engagement of the latch R of such lever with the rack O. It will be further understood that the lever U and axle E move together and are independent of the lever Q and parts moving with the latter, except as connected to them by the engagement of the latch V of the lever U with the rack P.

It results from the foregoing that if the latch V of the lever U be disengaged from the rack P the lever U may be swung forward or backward to rock the axle E and raise or lower the land-wheel D, mounted upon its left-hand end, and the parts be held in the desired adjusted position by reengagement of the latch V with the rack P, while if the latch of the lever Q be disengaged from the rack O and the lever be swung forward or backward the sleeve N will be rocked and through its connection by the arm M and link L with the slide I will raise or lower said slide and the furrow-wheel K, mounted upon the spindle J, carried by said slide.

Inasmuch as the lever U and parts moving with it are normally connected with the lever Q and parts moving with the latter lever, (by the engagement of the latch V of the lever U with the rack P, secured to the lever Q,) it follows that when the lever Q is swung forward or backward to raise or lower the furrow-wheel K in the manner described the lever U will be carried with it, thereby rocking the axle E and raising or lowering the land-wheel D. In the manner and by the means described, therefore, the land-wheel may be adjusted independently of the furrow-wheel by independent manipulation of the lever U, while both wheels may be adjusted simultaneously by manipulation of the lever Q.

The spring Z (shown in Fig. 1) is the usual spring for aiding in forcing the lever Q rearward when it is desired to lower the wheels and lift the plow. It is connected at its upper end to the lever Q and at its lower end to the upper end of a curved arm Z', which is pivoted at its lower end to the inner side of the vertical plate H.

I am aware that it is not broadly new to simultaneously adjust the land and furrow wheels of a sulky-plow by means of a single lever nor to provide in such a plow a second lever for independently adjusting the land-wheel; but so far as I am aware the above-described construction and arrangement of parts for accomplishing this result are new, and they are simple, convenient, and efficient for the purpose.

Having thus fully described my invention, I claim—

1. In a sulky-plow, the combination, with the main axle and the adjustable crank-axle for the land-wheel, of a vertically-adjustable slide mounted upon the furrow-wheel end of the main axle and carrying the furrow-wheel spindle, and a single adjusting-lever cooperating with said slide and with the crank-axle, to simultaneously raise or lower both the land

and furrow wheels by operation of the single lever.

2. In a sulky-plow, the combination, with the main axle and the adjustable crank-axle for the land-wheel, of a vertical guide-plate rigidly secured to the furrow-wheel end of the main axle, a vertically-adjustable slide mounted upon said plate and carrying the furrow-wheel spindle, a crank-arm connected to said slide, and a single lever connected both to said crank-arm and to the crank-axle of the land-wheel, whereby both the land and furrow wheels may be simultaneously raised or lowered by operation of said single lever.

3. In a sulky-plow, the combination, with the main axle, of the land-wheel crank-axle mounted upon the forward side of the main axle and extending substantially the full length thereof, a vertical guide-plate rigidly secured to the furrow-wheel end of the main axle, a vertically-adjustable slide mounted on said plate and carrying the furrow-wheel spindle, a sleeve loosely mounted upon the adjacent end of the crank-axle and provided with a projecting arm connected by a link with said slide, and a lever secured to or formed integral with said sleeve and also connected to the crank-axle, whereby said sleeve and the crank-axle may be simultaneously rocked in one direction or the other by operation of said lever, to simultaneously raise or lower the land and furrow wheels.

4. In a sulky-plow, the combination, with the main axle and the adjustable land-wheel crank-axle, of a vertically-adjustable slide mounted upon the furrow-wheel end of the main axle and carrying the furrow-wheel spindle, a lever connected with said slide to raise and lower the same, and a connection between said lever and the crank-axle controlled by a second lever, whereby the land-wheel and furrow-wheel may be simultaneously raised or lowered by operating the first-mentioned lever, and whereby the land-wheel may be raised or lowered independently of the furrow-wheel by operating the second lever independently of the first-mentioned one.

5. In a sulky-plow, the combination, with the main axle and the adjustable land-wheel crank-axle, of a vertically-adjustable slide mounted upon the furrow-wheel end of the main axle and carrying the furrow-wheel spindle, a lever connected with said slide to raise and lower the same, a rack rigidly secured to said lever, and a second lever connected with the crank-axle and provided with a latch cooperating with said rack, whereby the land-wheel and furrow-wheel may be simultaneously raised or lowered by operating the first-mentioned lever, and whereby upon disengaging the latch of the second lever from the rack and swinging the lever forward or backward the land-wheel may be raised or lowered independently of the furrow-wheel.

6. In a sulky-plow, the combination, with the main axle, of the land-wheel crank-axle mounted upon the forward side of the main

axle and extending substantially the full length thereof, a vertical guide-plate rigidly secured to the furrow-wheel end of the main axle, a vertically-adjustable slide mounted thereon and carrying the furrow-wheel spindle, a sleeve loosely mounted upon the furrow-wheel end of the crank-axle and having secured to or formed integral with it a lever and a projecting arm, a link connecting said arm with the slide, a rack rigidly secured to the main axle or the vertical guide-plate, or both, and cooperating with the latch of said lever, a second rack rigidly secured to said lever, and a second lever connected to the crank-axle and having a latch cooperating with said second rack, for the purposes described.

7. In a sulky-plow, the combination of the main axle A having the vertical guide-plate H rigidly secured to its end, the crank-axle E mounted upon the forward side of the main axle A and extending substantially the full length thereof, the slide I mounted upon the plate H and carrying the furrow-wheel spindle J, the sleeve N loosely mounted upon the end of the axle E and provided with the rearwardly-projecting arm M, the link L connecting the arm M with the slide I, and the lever Q rigidly secured to the sleeve N and also connected with the crank-axle E, and having a latch cooperating with the fixed rack O, for the purpose described.

8. In a sulky-plow, the combination of the main axle A having the vertical guide-plate H rigidly secured to its end, the crank-axle E mounted upon the forward side of the main axle A and extending substantially the full length thereof, the slide I mounted upon the plate H and carrying the furrow-wheel spindle J, the sleeve N loosely mounted upon the end of the axle E and provided with the rearwardly-projecting arm M, the link L connecting the arm M with the slide I, the lever Q rigidly connected to the sleeve N and provided with a latch cooperating with the fixed rack O, the rack P rigidly secured to or formed integral with the sleeve N, and the lever U connected to the axle E and provided with the latch cooperating with the rack P, for the purposes described.

9. In a sulky-plow, the combination, with the main axle A having the vertical guide-plate H secured to its end, the crank-axle E mounted at the land-wheel end of the main

axle A in the clip G secured to and projecting forward from the axle A, and extending along the forward side of the axle A to the furrow-wheel end thereof, the rack-plate O rigidly secured to the plate H and having its lower end fitted to receive and form a support and bearing for the end of the axle E, the slide I mounted upon the plate H and carrying the furrow-wheel spindle J, the sleeve N loosely mounted upon the end of the axle E and extending through the rack-plate O, the arm M formed integral with and projecting rearwardly from the sleeve N, the link L connecting the arm M with the slide I, and the lever Q rigidly secured to the sleeve N and also connected with the axle E, and having a latch cooperating with the rack O, for the purpose described.

10. In a sulky-plow, the combination of the main axle A having the vertical guide-plate H secured to its end, the crank-axle E mounted at the land-wheel end of the main axle A in the clip G secured to and projecting forward from the axle A, and extending along the forward side of the axle A to the furrow-wheel end thereof, the rack-plate O rigidly secured to the plate H and having its lower end fitted to receive and form a support and bearing for the end of the axle E, the slide I mounted upon the plate H and carrying the furrow-wheel spindle J, the sleeve N loosely mounted upon the end of the axle E and extending through the rack-plate O, the arm M formed integral with and projecting rearwardly from the sleeve N, the link L connecting the arm M with the slide I, the lever Q rigidly secured to the sleeve N and provided with the latch cooperating with the rack O, the rack P formed integral with the sleeve N at its end opposite the arm M, the lever U loosely mounted upon the axle E and having a latch cooperating with the rack P, the arm W fast upon the axle E, the rod X having the head d at its forward end and passing at its rear end through the upper end of the arm W and a projecting ear upon the lever U, the spring X surrounding the rod Y, and the nut e screwed upon the rear end of said rod, for the purposes described.

LEWIS E. WATERMAN.

Witnesses:

WM. H. BAUMANN,
WM. H. HERBST.