

(No Model.)

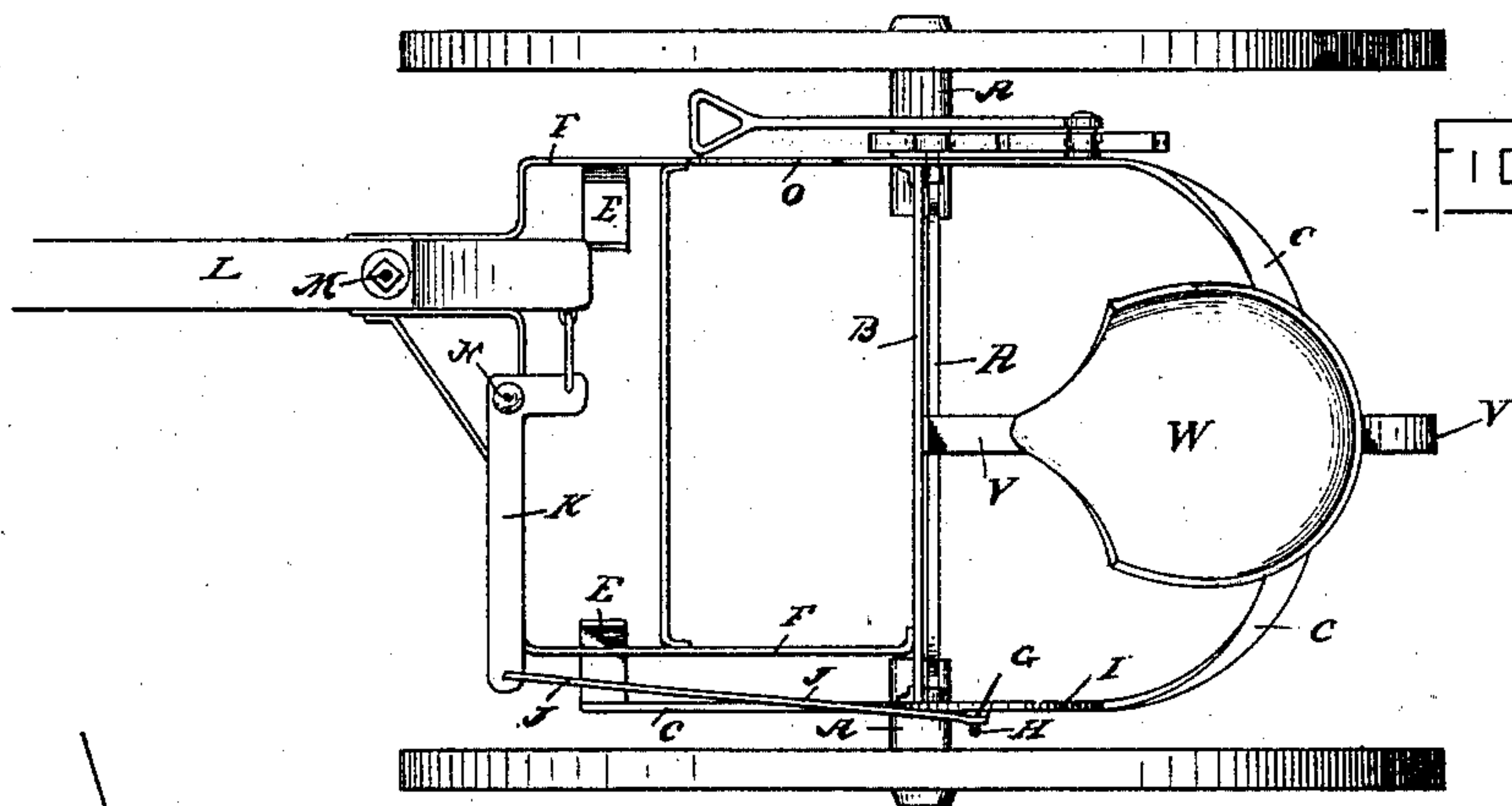
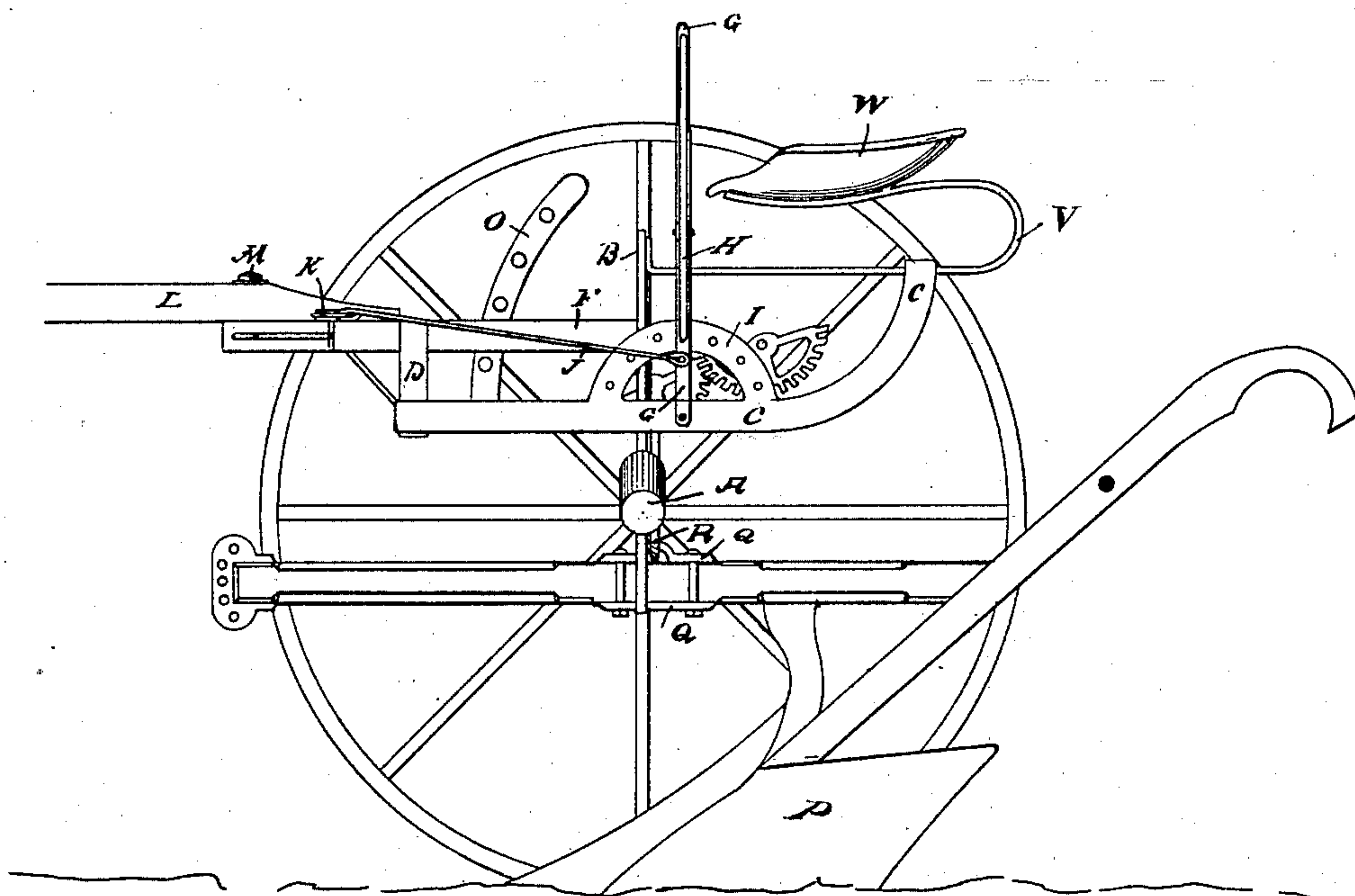
2 Sheets—Sheet 1.

N. SHAFFSTALL.  
SULKY PLOW.

No. 316,839.

Patented Apr. 28, 1885.

FIG. 1.



Witnesses:

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A. Stewart.

Inventor:

Nathaniel Shaffstall  
by E. F. Muddock  
Att'y.

(No Model.)

2 Sheets—Sheet 2.

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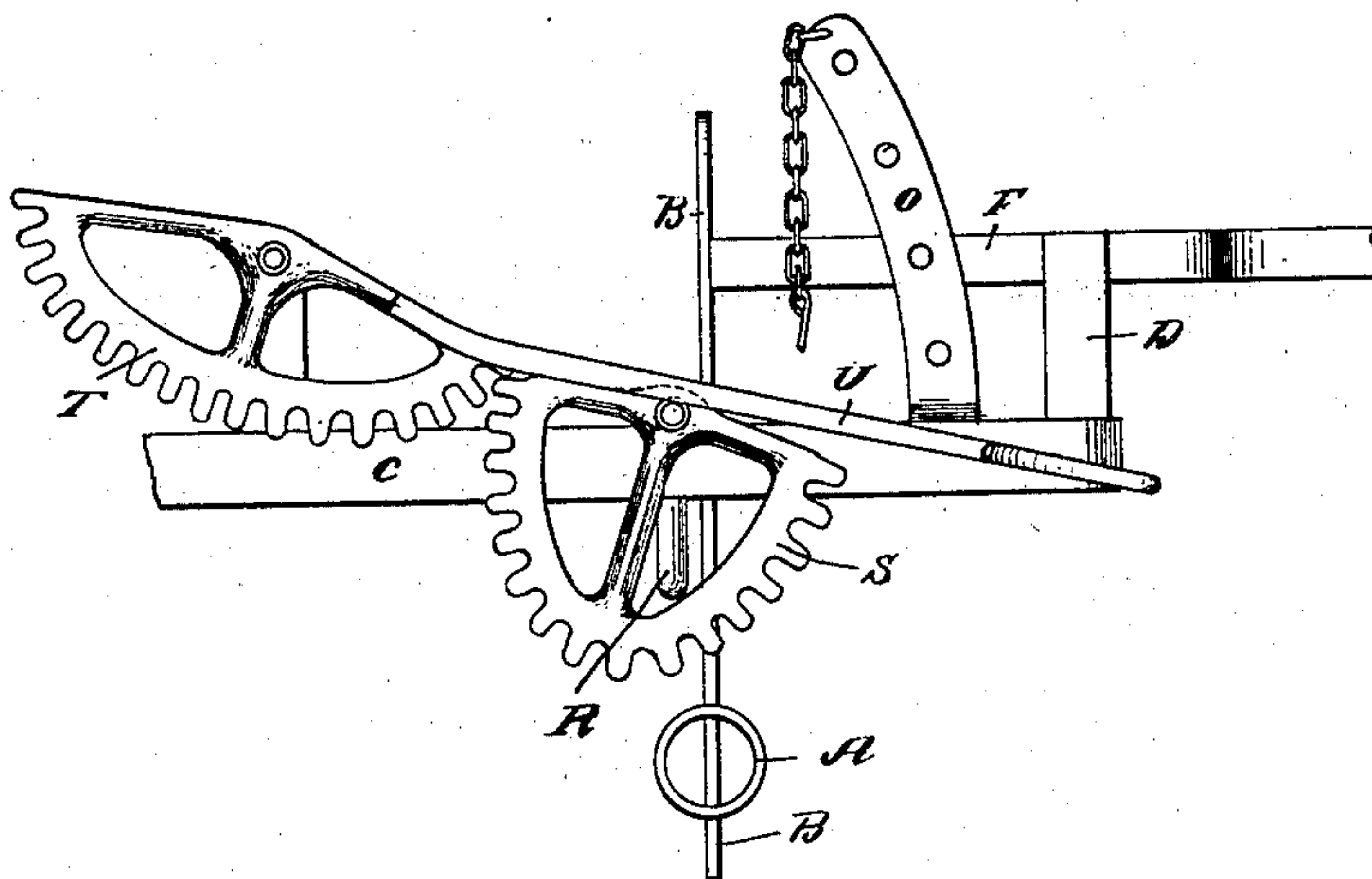
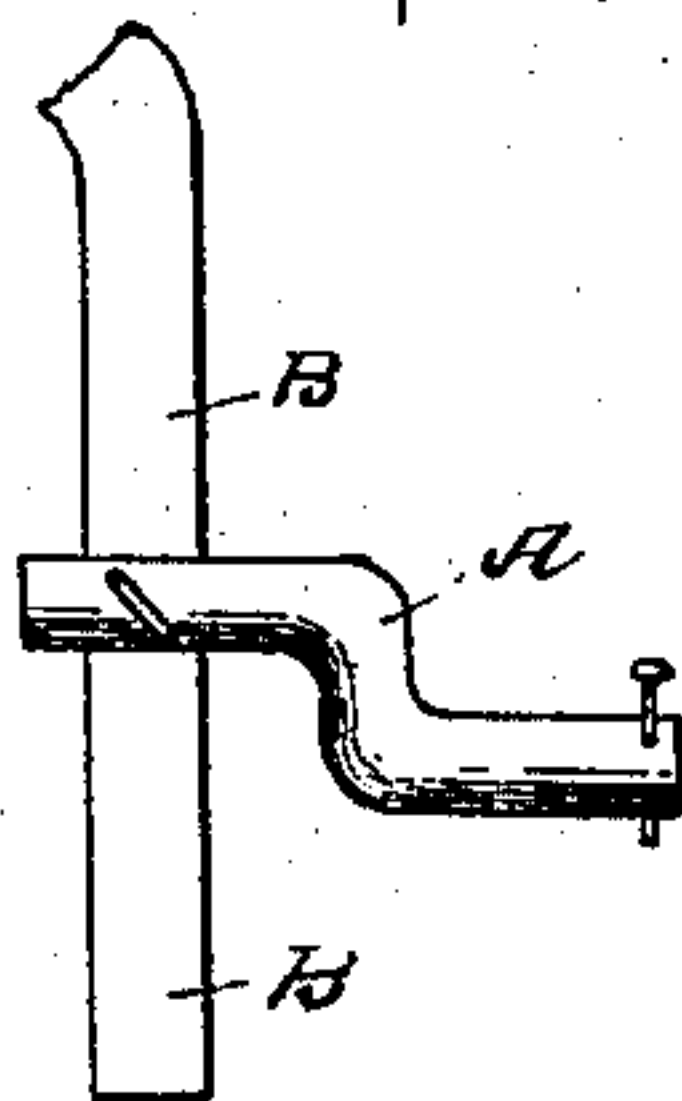


Fig. 4.



Witnesses:

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A44.



# UNITED STATES PATENT OFFICE.

NATHANIEL SHAFFSTALL, OF FLINT, INDIANA.

## SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 316,839, dated April 28, 1885.

Application filed December 5, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, NATHANIEL SHAFFSTALL, a citizen of the United States, residing at Flint, in the county of Steuben and State of Indiana, have invented certain new and useful Improvements in Sulky-Plows, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in sulky-plows; and it consists in providing mechanism for raising and lowering the plowshare with the least possible strain on the frame-work of the sulky.

It further consists in providing means for keeping the plow in any desired furrow.

It further consists in forming a frame at once light, durable, and springy.

It further consists in providing means for elevating or lowering one wheel independently of the other.

Referring to the drawings, Figure 1 is a side elevation, the rear wheel being removed and an ordinary plow being attached. Fig. 2 is a plan view of the sulky without the plow. Fig. 3 is a detail view of the raising and lowering mechanism. Fig. 4 shows the axle-bearing.

Similar letters refer to corresponding parts throughout the views.

A are the axle-bearings for the wheels; these, being kneed, form two parts—the upper and lower—the lower serving as a bearing for the wheels, and the upper being provided with a slot through which the arms of the arch B extend, and where they are held by means of a set-screw or any suitable device. The arch B has connected at either side the lower side bars, C C. These side bars extend to the forward and rear, where they curve upward and form an arch for the support of the seat, as shown in the drawings. At the forward end are formed and attached the brackets D D and the pendent steps E E, the former of which support the upper side bars, F F, and the latter forming foot-rests.

About midway of the left-hand side bar is fulcrumed the lever G, which is provided with a detent-pawl, H, of the kind shown, and a perforated quadrant, I, which is secured to the side bar, and over which the lever G passes,

and in the perforations of which the end of the pawl H protrudes. To this lever G is attached the rod J, connecting said lever with one end of a bell-crank lever, K, the other end being connected with the heel of the tongue L of the sulky, as shown in Fig. 1 of drawings.

The upper side bars, F F, are connected at their rear ends to the arch B by means of angle-irons, and carried forward, bent at right angles, and encompass a block directly under the heel of the tongue L, which is pivotally connected thereto by means of the bolt M. On the forward arm of the left-hand side bar is fixedly attached the fulcrum N, on which the bell-crank lever K operates. To the right-hand side bar is fixedly secured the quadrant O, hereinafter referred to.

The plow P is provided with the clamping-plates Q Q, the upper one of which is provided with a loop, as shown, through which the pendent loop or bail R passes. The rod R is provided with bearings fixed on the arch B, and at one end with an elliptical cog-gearing, S, being fixedly secured thereto, and the teeth of which mesh with those of the segment elliptical cog T, which is pivotally attached to the frame-work of the sulky, and is provided with the lever U, the end of which moves in front of the quadrant O, and by means of which the depth of the furrow is regulated, as hereinafter described.

Midway of the arch B is fastened the end of the seat-spring W, which passes under the arch formed by the side bars, C C, and then, being bent, passes under and supports the seat X, as shown in Figs. 1 and 2 of drawings.

The operation of my invention is as follows: The plow is raised by means of the handle U, which is connected with the elliptical gear-wheel T, and the motion is transmitted to the bail R by means of the segment-cog S, to which it is fixedly attached. As the handle U is raised the bail R is thrown back and up, in doing which the plowshare is loosened from the earth by the first part of the motion and lifted by the remaining part. In being raised the plow-beam is inclined upward (and the plowshare leaves the earth point up) and strikes the forward part of the frame of the sulky. Then, acting as a brace, it helps to lift



the plowshare free of the furrow. The team is hitched directly to the plow in the ordinary manner, and thus, it will be seen, avoiding any sudden jar to the sulky in case any obstruction should be met, the strain coming on the horses and allowing the sulky to pass on until stopped by the horses. When it is desired that the furrow should be shallower, it is accomplished by locking the handle U to the quadrant O by means of the pin and chain shown in Fig. 3. The handle being thus raised, the plow is correspondingly raised. The lever G, rod J, and bell-crank K operate conjointly to guide the sulky without turning the team. When desired to guide the sulky as to plow in the furrow, or to broaden or narrow it, the lever G is thrown backward or forward, as desired, and by means of the bell-crank K operating upon the heel of the tongue the course of the sulky is changed to the right or left, as desired.

My object in arranging the elliptical cogs shown in Fig. 3 as I do is to gain leverage advantageously, to wit: It takes but slight power to slant the plowshare upward, as is accomplished by the first part of the motion, and consequently but little is needed; but as the plow is raised from the furrow great power is necessary, and this I gain by means of the

cogs S and T being arranged so as to bring the short radius of T at the point of the long radius of S at this point of greatest resistance, and thus raise the plow entire without increasing the power of the driver.

Having thus fully described my invention, I claim—

1. In combination with arch B and plow bail or crank R, the segment elliptical gears S and T, meshed as shown and described, the former being fixedly attached to the plow-bail R, and the latter provided with lever-handle U, substantially as and for the purpose set forth.

2. The combination of the arch B, bars F, with brackets D and foot-rests E, side bars, C, forming an arch in the rear, the spring V, suitably attached to both arches, and seat W, substantially as and for the purpose set forth.

3. The combination of the arch B, the side bars, F F and C C, the tongue L, and bolt M, with bell-crank K, rod J, and lever G, all substantially as set forth and described.

In testimony whereof I affix my signature in presence of two witnesses.

NATHANIEL SHAFFSTALL.

Witnesses:

J. M. BURNHAM,  
FRED. SCHNEIDER.