P. L. CASE.
Sulky-Plow.

No. 220,701. Patented Oct. 21, 1879.

Fig. 1

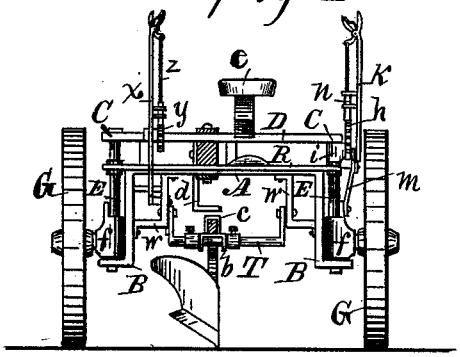


Fig. 2

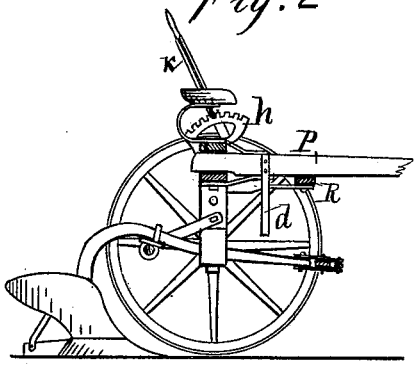


Fig. 4

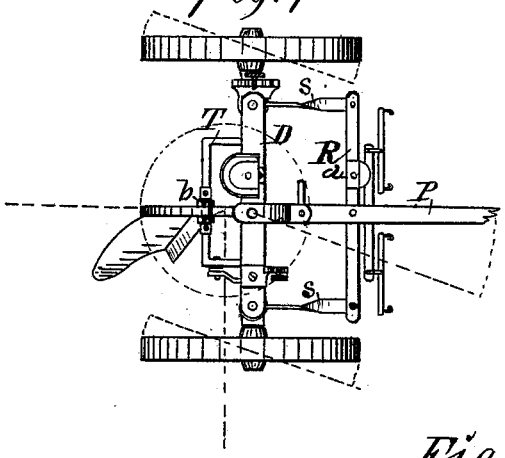


Fig. 3

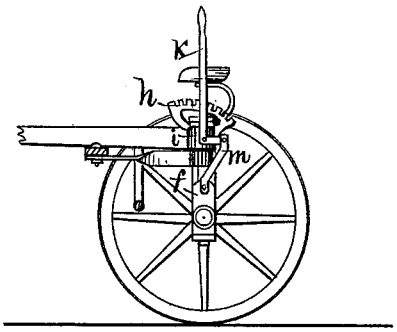
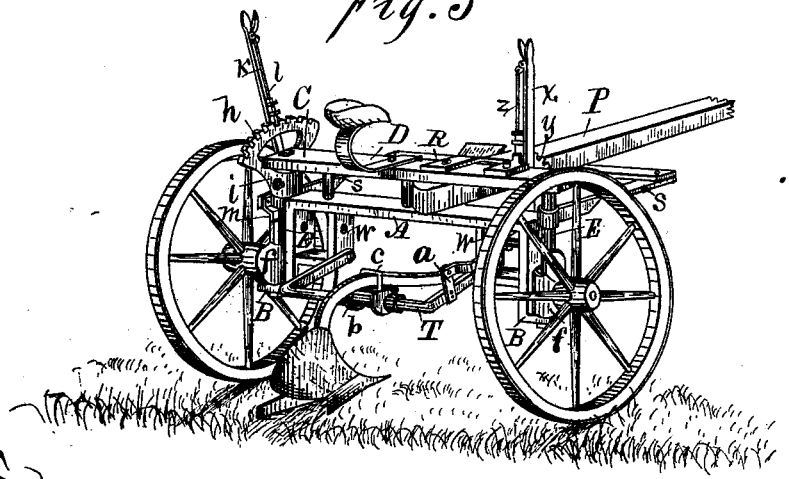


Fig. 5



Witnesses:
R. G. Orwig
Frank W. Hebers.

Inventor:
Philo L. Case,
By Thomas G. Orwig, Atty.

UNITED STATES PATENT OFFICE.

PHILO L. CASE, OF DES MOINES, IOWA.

IMPROVEMENT IN SULKY-PLOWS.

Specification forming part of Letters Patent No. **220,701**, dated October 21, 1879; application filed May 27, 1879.

To all whom it may concern:

Be it known that I, PHILO L. CASE, of Des Moines, in the county of Polk and State of Iowa, have invented an Improved Sulky-Plow, of which the following is a specification.

The object of my invention is to facilitate the operation of a plow when connected with a tractable carriage, especially in turning around, in changing the line of advance, and in keeping the plow level on uneven ground.

It consists in forming a flexible carriage and combining a plow therewith in such a manner that the operator seated on the carriage can readily govern the plow by raising and lowering it relative to the carriage, and also by raising and lowering the wheel of the carriage relative to the ground and plow, all as hereinafter fully set forth.

Figure 1 of my drawings is a front view of a carriage and plow. Fig. 2 is a side view of a section. Fig. 3 is the reverse side of Fig. 2, excepting the plow. Fig. 4 is a top view, indicating the positions assumed by the plow and carriage in turning and changing the line of advance. Fig. 5 is a perspective view. Jointly considered, they clearly illustrate the construction and operation of my complete invention.

A represents a bowed carriage-axle, that may be made of wood or metal and vary in size, as desired. B B are extensions at the lower ends of the vertical portions of the bowed axle. These extensions, that project horizontally outward in opposite directions, form bearings for revolving posts. C C are corresponding bearings at the upper ends of the vertical posts, formed by means of a cross-bar, D, that is fixed to the axle in an elevated position, and in such a manner as to allow the rear end of the pole to be pivoted between the axle and the bar.

E E are the vertical posts, mounted in the bearings B and C in such a manner that they can revolve. *f f* are hubs in a vertical position, that slide and revolve upon the vertical post E. Each one of these hubs has a stub-axle projecting outward therefrom to enter the horizontal hubs of the carriage-wheels G. The vertical hub *f* nearest to the plow carries a set-screw, by means of which it is adjustably connected with its post E and rigidly fixed thereto at any point of elevation desired. The other hub *f* can be raised and lowered and rigidly fixed while the carriage is in motion by means of a rack and lever.

h is a rack of segmental form, that has a hub, *i*, formed integral therewith in such a manner that it can be placed on the upper portion of one of the vertical posts E, and rigidly clamped thereto by means of a set-screw.

k is a hand-lever, pivoted to the hub *i* of the rack *h*. It has a crank-elbow at its lower end, which crank *l* is flexibly connected with the vertical hub *f* by means of a bent link, *m*.

n is a gravitating latch or pawl, carried by the lever *k* in such a manner that it will in its normal position lock the lever and rack together, and thereby rigidly fix the vertical hub *f* on the post E at any point of elevation desired.

P is the carriage-pole, pivoted between the axle A and cross-bar D. R is a cross-bar, pivoted to the pole P in front of the axle A. S S are arms, rigidly fixed to the revolving posts E. They extend forward, and are pivoted to the ends of the pivoted cross-bar R. T is a swinging yoke, suspended under the bowed axle A by means of elbow-form braces or brackets *w*, that are fixed in the corners of the bowed axle. *x* is a hand-lever, pivoted to the vertical portion of the axle and the bracket *w* by means of a bolt. *y* is a rack, fixed to the cross-bar D. *z* is a gravitating latch, carried by the lever *x*, to engage the rack *y*. The lever *x* has an elbow-crank at its lower end, that projects rearward and is connected with the swinging yoke T by means of a link *a*.

b is a revolving plow-bearer, carried by the swinging yoke T. *c* is a clevis, by means of which the plow-beam is clamped to the plow-bearer. *d* is a foot-rest, fixed to the axle A in such a position relative to the driver's seat *e* that the operator upon the seat can rest his feet upon it and brace himself when he raises or lowers the plow or carriage-wheel.

In the practical operation of my invention the horses are hitched to the front end of the plow-beam by means of a double-tree, and also to the front end of the pole by means of a yoke. The draft is thus applied direct to the plow,

and the flexible carriage supporting the driver simply aids in governing the plow and causing it to run steadily and to cut uniform furrows as it is advanced across the field. When it is necessary to turn around at the end of a field, or to change the direction of the line of advance, the point of the plow becomes the pivotal point around which the carriage can be readily revolved, as indicated by broken lines in Fig. 4, without lifting the plow out of the ground.

To govern the depth of furrow the operator can readily raise or lower the plow relative to the carriage by means of the lever *x* and rack *y*.

To level the carriage relative to the ground the operator can readily raise and lower the carriage-wheel by means of the lever *k* and rack *h*.

I am aware that flexible carriages have been made; that a plow has been combined with a three-wheeled carriage, and that levers and racks have been used to adjust a plow that was suspended from a carriage by means of a hinged yoke.

I claim—

1. In a sulky-plow, the bowed carriage-axle A, having branches B B, the cross-bar D, the revolving posts E, and the vertically-adjustable hubs *f*, formed with wheel-spindles, whereby the wheels are turned by the tongue independent of the frame, arranged and combined substantially as shown and described, to operate in the manner set forth.

2. The rack *h*, having a hub, *i*, in combination with the post E, the hub *f*, carrying the wheel G, and the operating mechanism *k l m*, substantially as shown and described, for the purposes specified.

3. The rigid carriage axle and frame A B B C C D, the revolving posts E, the adjustable vertical hubs *f*, carrying-wheels G, the pivoted pole P, and the pivoted cross-bar R, having arms *s* flexibly connected with its ends, arranged and combined substantially as shown and described, to operate in the manner set forth, for the purposes specified.

PHILO L. CASE.

Witnesses:
ERASTUS W. SMITH,
FRANK W. HEERS.